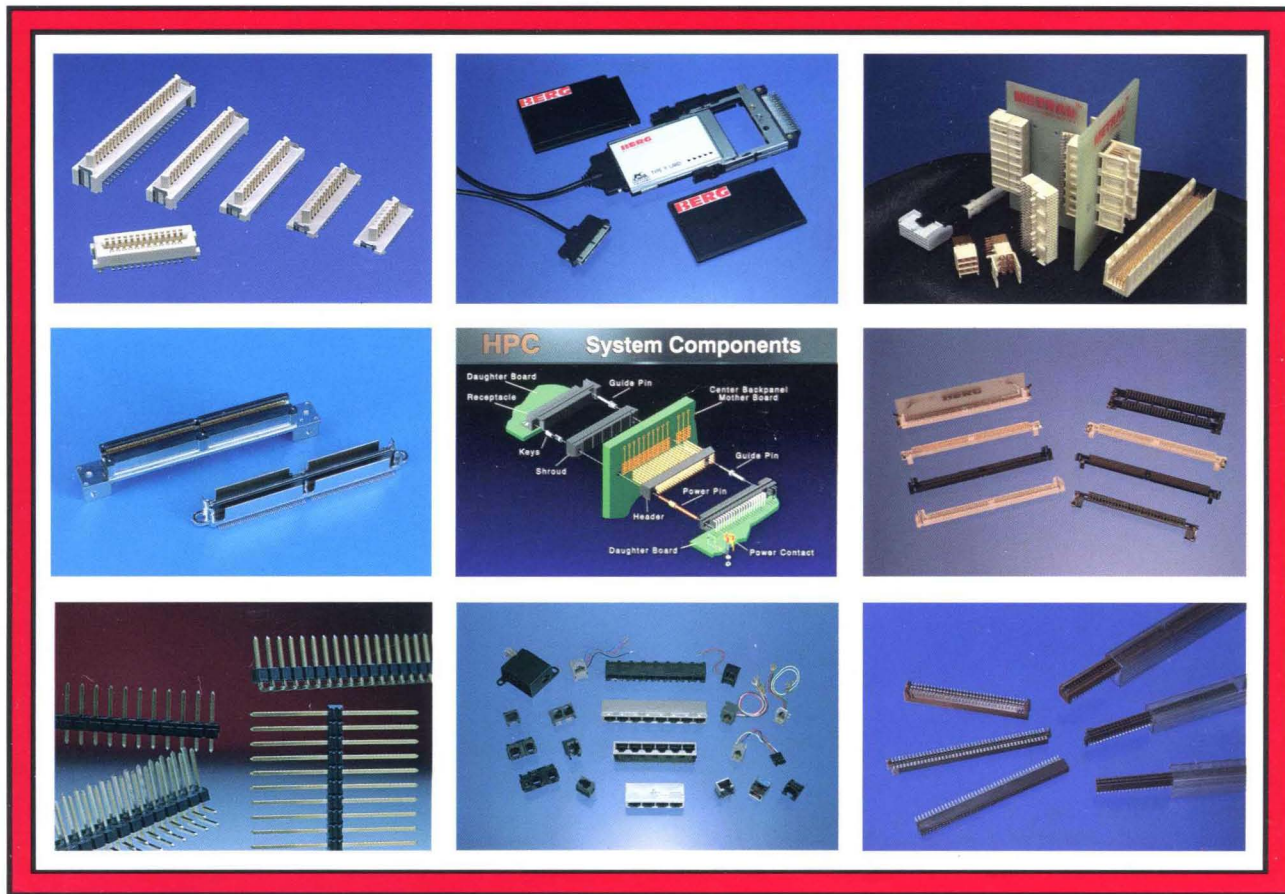


# Product Catalog

**BERG**<sup>®</sup>  
ELECTRONICS



**BERG**<sup>®</sup>  
ELECTRONICS

# Ordering Information

## Obtaining Samples

Contact an authorized Berg Electronics representative (sales representative, manufacturer's representative, or authorized distributor) to obtain samples of the connectors you are interested in.

## Obtaining Engineering Drawings, Technical Information, and Cross-Reference Information

To obtain engineering drawings call **BergFax™** 24 hours a day at (800) 237-2374 ext. 7212. For technical assistance or cross-reference information, call the same (800) 237-2374, and ask for Technical Services, or fax your questions to (717) 938-7609.

## Pricing

Pricing is determined on a per-order basis. Contact an authorized Berg Electronics representative (manufacturer's representative, authorized distributor, or the Berg Electronics Customer Service Center at (800) 237-2374) for more information.

## Placing Your Order

To place your order, contact an authorized Berg Electronics representative at (800) 237-2374. (This number is also printed at the bottom of each product page throughout the catalog.)

## Tracking Your Order

To get information about your order after it has been placed, contact an authorized Berg Electronics representative.

## Return of Material

Request for returns must be authorized in advance by Berg. Return of Material Authorization (RMA) numbers may be obtained through your authorized Berg Electronics representative.


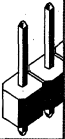









Requests to return material due to order error must be made within 30 days of your invoice date and are subject to a restocking charge. Requests for return of custom manufactured (made-to-order) products will not be honored. Please contact your Berg Electronics representative promptly if a return is anticipated.

## Application Equipment

Berg manufactures not only the connectors you want, but also the equipment you need to apply them. From hand tools for manual placement and termination to high-speed, automatic and semi-automatic equipment for mass-termination, our application equipment is specifically designed for use with Berg connectors.






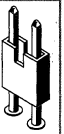
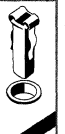




Contact your authorized Berg Electronics representative to discuss your specific application equipment needs.

## Table of Contents

Center Line Spacing	Berg Electronics Product Name	Product Type or Application										
		Pins	Unshrouded Headers	Shrouded Headers	Compliant Press-Fit Pin Headers and Receptacles	Shrouds (pinless headers)	Shunts	Discrete PCB Sockets and Solder Aids	PCB Mounted Receptacle Assemblies	Edge-Card Connectors	Straddle-Mount Connectors	Backpanel Connectors
0.50 mm (0.020 in.)	0.50 mm FLEX											
0.64 mm (0.025 in.)	Micropax™			3-2					3-2		3-10	3-2
0.80 mm (0.032 in.)	Small PCI			6-7							6-9	
	Bergstak™		15-6						15-4			
	S O DIMM											
1.00 mm (0.039 in.)	Conan™ System		8-1						8-2			
1.27 mm (0.050 in.)	Rib-Cage™ II			2-1					2-14			
	PCMCIA Components			4-1					4-1		4-8	
	PCI								6-2			
	SIMM											
	DIMM											
2.00 mm (0.079 in.)	Minitek™		9-8	9-40				9-26		9-28		9-24
	Minitek™ IDC											
	Metral™			10-4	10-4	10-26			10-4			10-4
	Duramate™			11-2								
2.50 mm (0.098 in.)	Relimate®			12-2								
2.54 mm (0.100 in.)	BergCon®	13-106	13-50	13-84				13-42		13-122		
	DUBOX®									14-2		
	Minisert™							16-2				



## Table of Contents

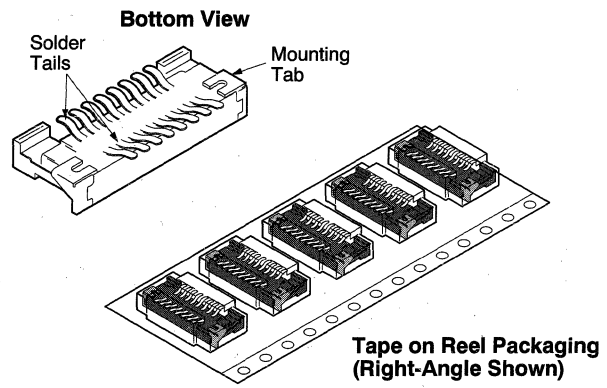
Center Line Spacing	Berg Electronics Product Name	Product Type or Application										
		Pins	Unshrouded Headers	Shrouded Headers	Compliant Press-Fit Pin Headers and Receptacles	Shrouds (pinless headers)	Shunts	Discrete PCB Sockets and Solder Aids	PCB Mounted Receptacle Assemblies	Edge-Card Connectors	Straddle-Mount Connectors	Backpanel Connectors
2.54 mm (0.100 in.)	HPC™											
	DIN			17-2	17-2	17-2			17-18			17-2
	Disk Drive Headers			18-2	18-12	18-14			18-16			19-2
	Clincher™											
	Latch-N-Lok™			25-3								
	Quickie™ IDC			23-16	23-22	23-10				23-52		
3.18 mm (0.125 in.)	BergCon®		13-26									
3.81 mm (0.150 in.)	BergCon®		13-30									
5.08 mm (0.200 in.)	Minisert™							16-2				
	BergCon®		13-2				13-44					
	Modular Jack Connectors							27-8				



# Surface Mount Connectors Flexible Circuitry Connectors

0.5 mm (0.2 in.) Centerlines

## D-C 0.5 mm Flex Connector



A183386-1025


### Features


- High-density right-angle and vertical connectors offered in 8 through 30 positions.
- Zero insertion force (ZIF) for easy flex circuit insertion and protection of flex circuitry contacts.
- Low-profile design.
- Staggered solder tail design allows for more efficient use of PCB real estate.
- High-temperature plastic suitable for all SMT soldering processes.

### Options

- Tape on reel packaging for robotic application.
- Available without mounting tabs.

### Approvals and Certifications

 File no. E66906

 File no. LR46923

### Mating Data

Flex circuit.

### Technical Data

#### Materials

- Housing material ..... High-temperature, glass-filled PPS, UL 94V-0
  - ▶ Housing color ..... Brown
- Slider Material
  - ▶ Positions 8-22 ..... Nylon UL 94V-0
  - ▶ Positions 24-30 ..... PPS UL 94V-0
  - ▶ Slider color ..... Beige
  - ▶ Applicable soldering processes ..... IR & vapor phase
- Contact body material ..... Phosphor-bronze
- Mounting tabs ..... Brass

#### Electrical Performance

- Insulation resistance ..... 100 MΩ min
- Withstanding voltage (for 1 minute) ..... 350 V ac
- Current rating ..... 0.5 amp continuous
- Voltage rating ..... 125 V ac/dc
- Contact resistance ..... 30 mΩ max

#### Plating

- Contacts ..... 2.5µm (100 µin.) min tin-lead or Au Flash
- Mounting tabs ..... 2.5 µm (100 µin.) min tin-lead

#### Mechanical Performance

- Contact retention force ..... 2.94 N (300 gf) min
- Insertion force ..... ZIF
- Withdrawal force per contact ..... 0.59 N (60 gf) min
- Durability (mating cycles) ..... 30

#### Environmental Properties

- Temperature range ..... -40°C to +85°C

#### Packaging

- Tape on reel
- Tubes

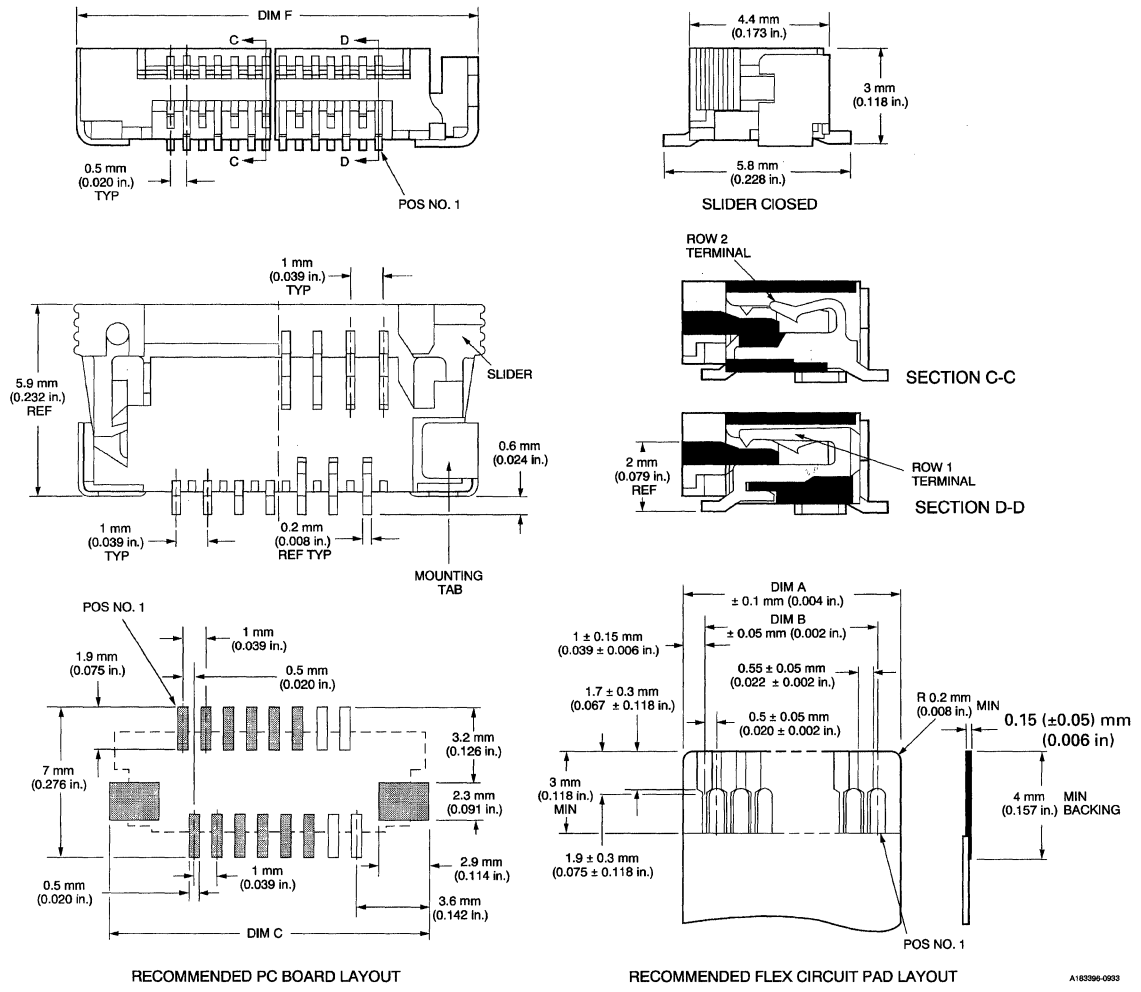
### Customer Support Materials

Description	Order No.
Customer Product Drawings.....	By Part No.
Product Samples .....	Upon Request
Product Specifications.....	110-216

Description	Order No.
Tape on Reel Packaging Specifications	
▪ Right-Angle .....	337207
▪ Vertical.....	337277

## Description

### Right-Angle Flex-to-PCB Connector with Mounting Tabs

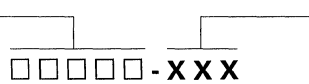


Note: Available in smaller PCB layout with 90941 (tin-lead) and 90943 (Au Flash)

## Ordering Data

### Base Number 87768 - Tin-lead Base Number 89953 - Au Flash

Base number specifies configuration and finish.



Dash number specifies packaging options and number of positions.

Number of Positions	Dash Number Packaging		Dimensions							
			A		B		C		F	
			mm	in.	mm	in.	mm	in.	mm	in.
8	-008	-108	5.50	0.217	3.50	0.138	10.70	0.421	9.50	0.374
10	-010	-110	6.50	0.256	4.50	0.177	11.70	0.461	10.50	0.413
12	-012	-112	7.50	0.295	5.50	0.217	12.70	0.500	11.50	0.453
14	-014	-114	8.50	0.335	6.50	0.256	13.70	0.539	12.50	0.492
16	-016	-116	9.50	0.374	7.50	0.295	14.70	0.579	13.50	0.531
18	-018	-118	10.50	0.413	8.50	0.335	15.70	0.618	14.50	0.571
20	-020	-120	11.50	0.453	9.50	0.374	16.70	0.657	15.50	0.610
22	N/A	-122	12.50	0.492	10.50	0.413	17.70	0.697	16.50	0.650
24	-024	-124	13.50	0.531	11.50	0.453	18.70	0.736	17.50	0.689
26	-026	-126	14.50	0.571	12.50	0.492	19.70	0.776	18.50	0.728
28	-028	-128	15.50	0.610	13.50	0.531	20.70	0.815	19.50	0.768
30	-030	-130	16.50	0.650	14.50	0.571	21.70	0.854	20.50	0.807

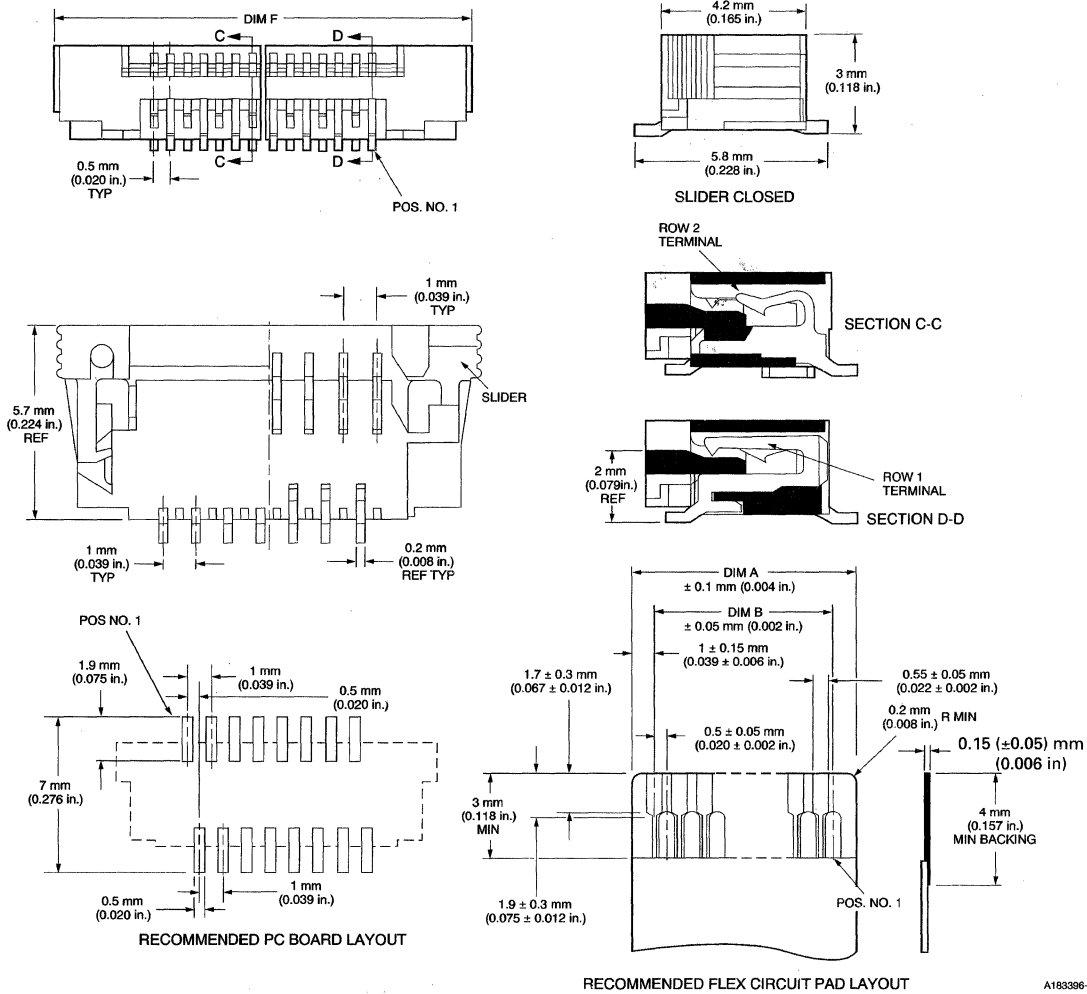
Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.



D-C 0.5 mm Flex  
0.5 mm (0.02 in.)

## Description

### Right-Angle Flex-to-PCB Connector without Mounting Tabs



Note: Available in smaller PCB layout with 90942 (Tin-lead) and 90944 (Au Flash)

A183366-1026

## Ordering Data

Base Number 88384 - Tin-lead  
Base Number 89954 - Au Flash

Base number specifies configuration and finish.

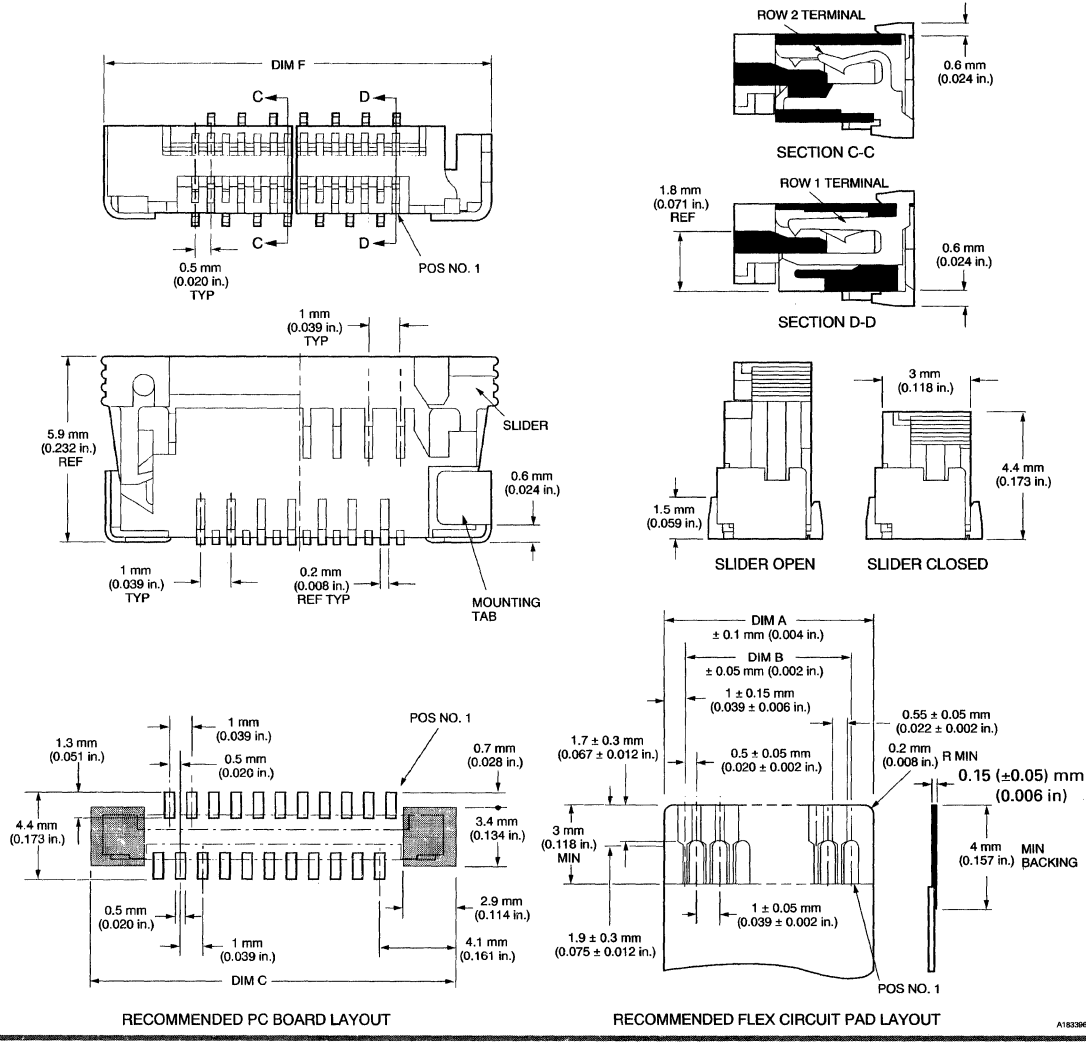
□ □ □ □ - X X X

Dash number specifies packaging options and number of positions.

Number of Positions	Dash Number Packaging		Dimensions					
			A		B		F	
	Tape on Reel	Tube	mm	in.	mm	in.	mm	in.
8	-008	-108	5.50	0.217	3.50	0.138	9.50	0.374
10	-010	-110	6.50	0.256	4.50	0.177	10.50	0.413
12	-012	-112	7.50	0.295	5.50	0.217	11.50	0.453
14	-014	-114	8.50	0.335	6.50	0.256	12.50	0.492
16	-016	-116	9.50	0.374	7.50	0.295	13.50	0.531
18	-018	-118	10.50	0.413	8.50	0.335	14.50	0.571
20	-020	-120	11.50	0.453	9.50	0.374	15.50	0.610
22	N/A	-122	12.50	0.492	10.50	0.413	16.50	0.650
24	-024	-124	13.50	0.531	11.50	0.453	17.50	0.689
26	-026	-126	14.50	0.571	12.50	0.492	18.50	0.728
28	-028	-128	15.50	0.610	13.50	0.531	19.50	0.768
30	-030	-130	16.50	0.650	14.50	0.571	20.50	0.807

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

## Description Vertical Flex-to-PCB Connector



## Ordering Data Base Number 89982 Base Number 93743

Base number specifies configuration and finish. Dash number specifies packaging options and number of positions.

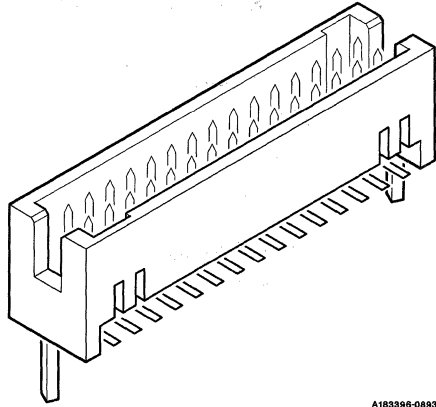
□ □ □ □ □ - X X X

Number of Positions	Dash Number Packaging		Dimensions							
			A		B		C		F	
	Tape on Reel	Tube	mm	in.	mm	in.	mm	in.	mm	in.
8	89982-008	89982-108	5.50	0.220	3.50	0.140	10.70	0.420	9.50	0.370
10	89982-010	89982-110	6.50	0.260	4.50	0.180	11.70	0.460	10.50	0.410
12	89982-012	89982-112	7.50	0.300	5.50	0.220	12.70	0.500	11.50	0.450
14	N/A	89982-114	8.50	0.330	6.50	0.250	13.70	0.530	12.50	0.490
16	89982-016	89982-116	9.50	0.370	7.50	0.300	14.70	0.580	13.50	0.530
18	89982-018	89982-118	10.50	0.410	8.50	0.330	15.70	0.620	14.50	0.570
20	89982-020	89982-120	11.50	0.450	9.50	0.370	16.70	0.660	15.50	0.610
22	N/A	89982-122	12.50	0.492	10.50	0.413	17.70	0.697	16.50	0.650
24	89982-024	89982-124	13.50	0.530	11.50	0.450	18.70	0.740	17.50	0.690
26	N/A	93743-126	14.50	0.571	12.50	0.492	19.70	0.776	18.50	0.728
28	N/A	93743-128	15.50	0.610	13.50	0.531	20.70	0.815	19.50	0.768
30	N/A	93743-130	16.50	0.650	14.50	0.571	21.70	0.854	20.50	0.807

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

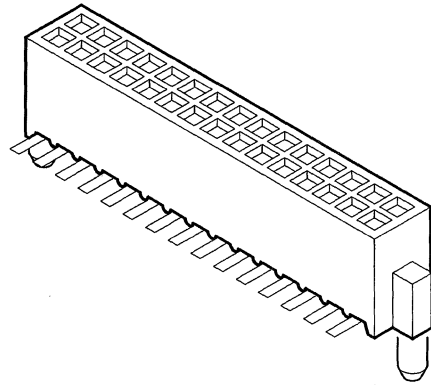
# Rib-Cage™ II

.27 x 1.27 mm (0.050 x 0.050 in.)

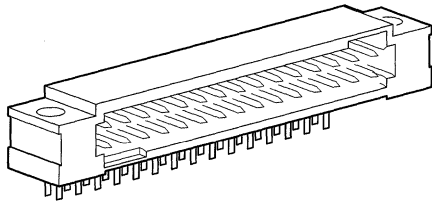


A183396-0893

Surface-Mount Vertical Shrouded Headers

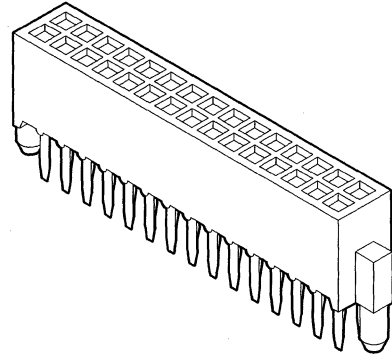


Surface-Mount Receptacle Assemblies



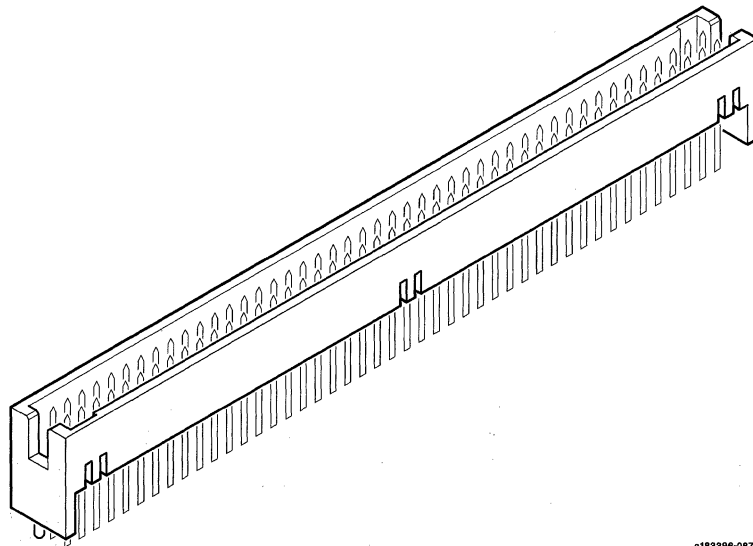
A183396-0204

Through-Mount Right-Angle Shrouded Headers



A183396-0875

Through-Mount Receptacle Assemblies

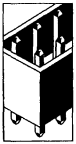


A183396-0876

Through-Mount Shrouded Headers



## 1.27 mm (0.050 in.) Centerline Products



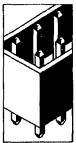
### Shrouded Headers

Surface-Mount Vertical Shrouded Headers .....	2-4
Through-Mount Shrouded Headers .....	2-8
Through-Mount Right-Angle Shrouded Headers .....	2-12



### PCB Mounted Receptacle Assemblies

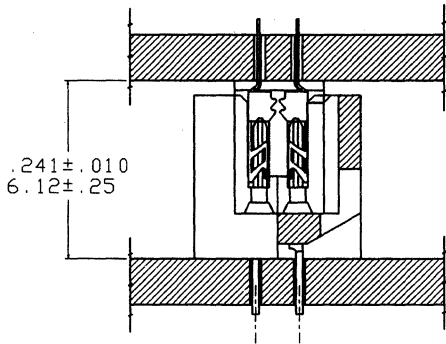
Surface-Mount Receptacle Assemblies .....	2-14
Through-Mount Receptacle Assemblies .....	2-16



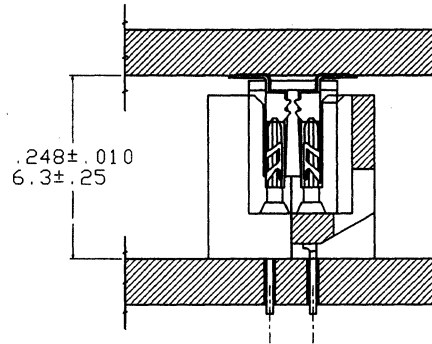
Mated Height Combinations .....	2-2
---------------------------------	-----

**Mated Heights for Receptacle and Header Combinations**

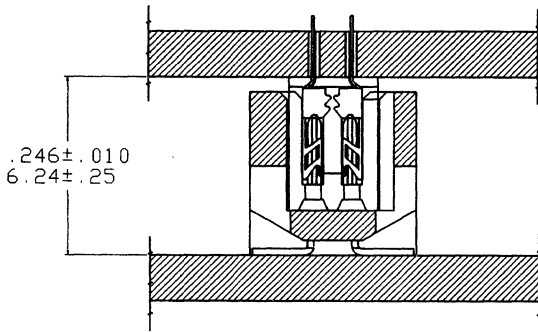
**5.61 mm (0.221 in.) Tail Header**



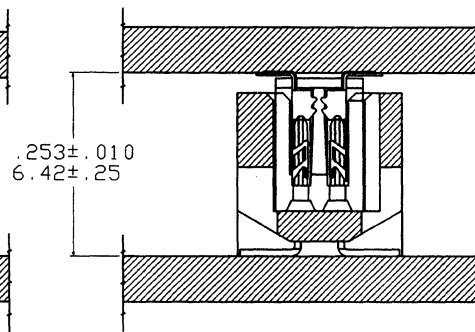
THRU MOUNT RECEPTACLE TO  
 THRU MOUNT .221 INCH TALL HEADER



SMT RECEPTACLE TO  
 .221 INCH TALL THRU MOUNT HEADER

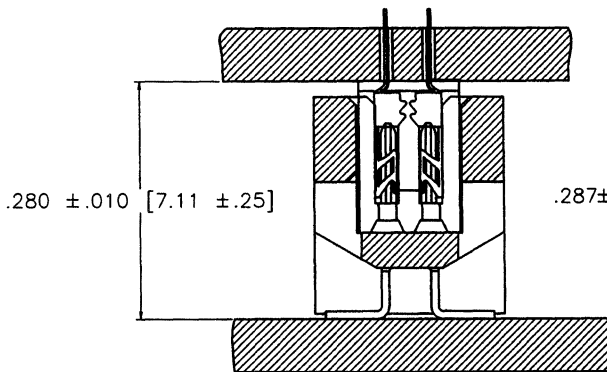


THRU MOUNT RECEPTACLE TO  
 .221 INCH SMT HEADER

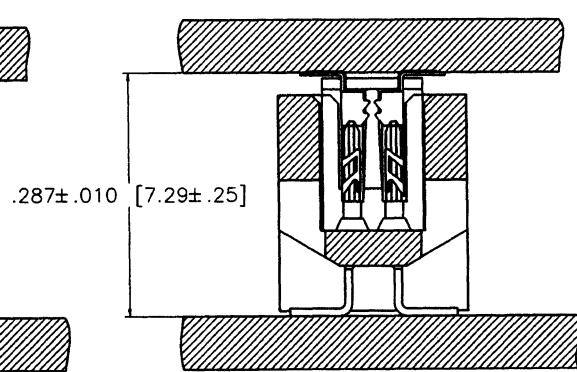


SMT RECEPTACLE TO  
 .221 INCH SMT HEADER

**6.48 mm (0.255 in.) Tail Header**



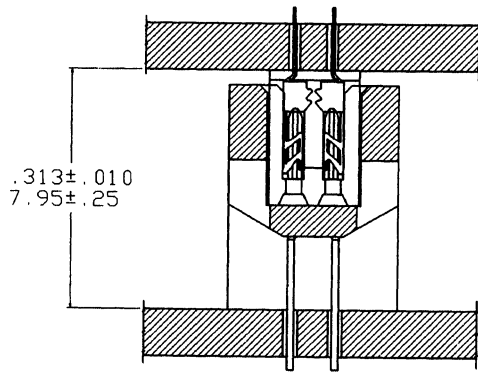
THRU MOUNT RECEPTACLE  
 TO .255 INCH SMT HEADER.



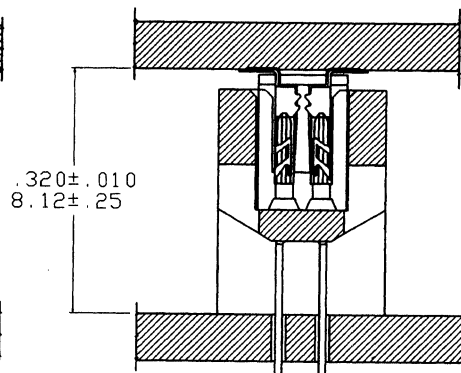
SMT RECEPTACLE TO  
 .255 INCH SMT HEADER.

**Mated Heights for Receptacle and Header Combinations**

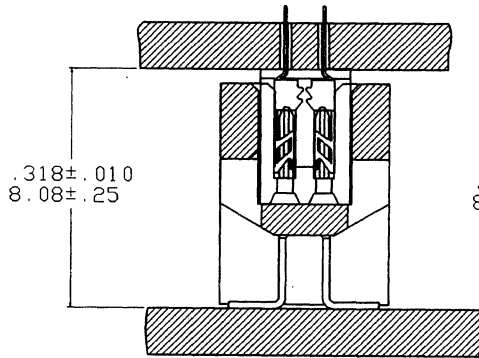
**7.44 mm (0.293 in.) Tail Header**



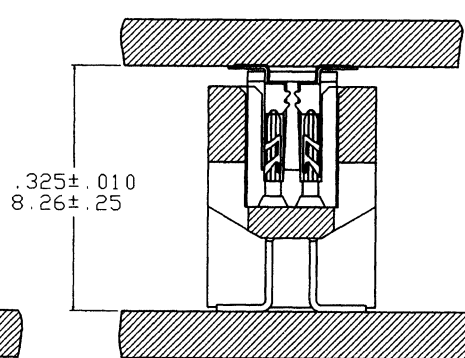
THRU MOUNT RECEPTACLE TO  
THRU MOUNT .293 INCH TALL HEADER.



SMT MOUNT RECEPTACLE TO  
THRU MOUNT .293 INCH TALL HEADER.

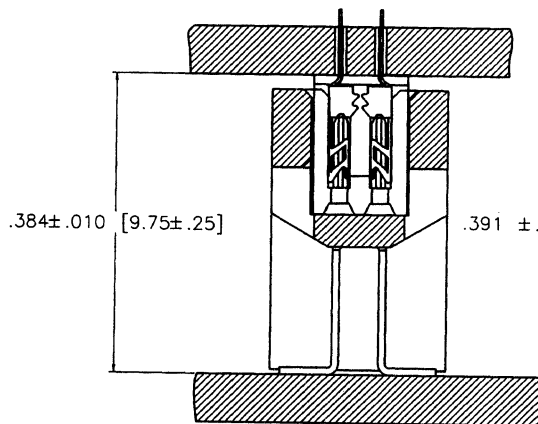


THRU MOUNT RECEPTACLE  
TO .293 INCH SMT HEADER.

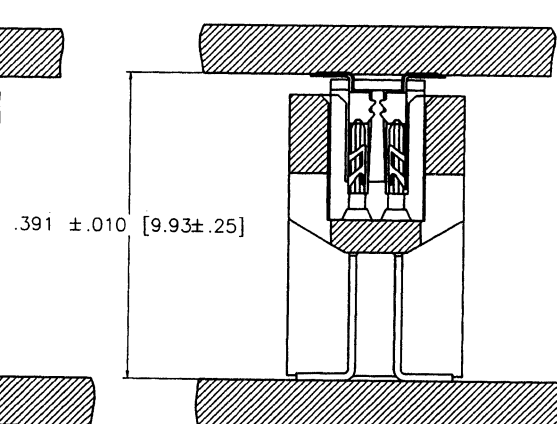


SMT RECEPTACLE TO  
.293 INCH SMT HEADER.

**9.12 mm (0.359 in.) Tail Header**



THRU MOUNT RECEPTACLE  
TO .359 INCH SMT HEADER.

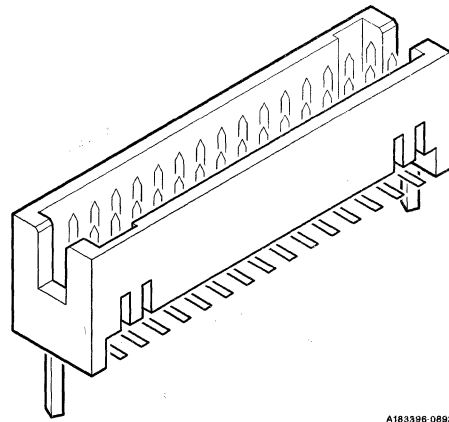


SMT RECEPTACLE TO  
.359 INCH SMT HEADER.

# Shrouded Headers High-Density, Surface-Mount, Vertical

1.27 x 1.27 mm (0.050 x 0.050 in.)  
Centerlines

## Rib-Cage™ II Surface-Mount Vertical Shrouded Headers



A183396 0893

### Features

- High-density, 1.27 mm (0.050 in.) centerline system occupies only one-eighth the volume of 2.54 mm (0.100 in.) centerline systems.
- Designed for parallel board-to-board stacking.
- Double-row vertical shrouded assemblies.
- Sizes in increments of 10 from 10 to 100 positions.
- Compatible with vapor-phase and infrared reflow soldering processes.
- Contacts are selectively plated with gold in the contact area and tin-lead on the solder tails.
- Polarizing keyway accepts receptacles with optional side-key.
- Standard 5.61 mm (0.221 in.) high vertical headers allow closest board stacking of 6.24 mm (0.246 in.).
- 7.44 mm (0.293 in.) high vertical headers can be selected to accommodate larger components on stacked boards.

- Available with hold-downs and locators to maintain proper alignment of the connector and PCB.
- Standoffs and drainage holes in shrouds prevent entrapment of cleaning solutions.
- Surface-mount solder joints are clearly visible and easily inspected.

### Mating Data

The connectors are designed for parallel board-to-board stacking in high-density applications. Through-mount or surface-mount receptacle assemblies can be used with the vertical headers. The two available header heights provide the following board-to-board spacings:

#### Option 1

- Header body height . . . . . 5.61 mm (0.221 in.)
- PCB spacing
  - ▶ Through-mount receptacle . . . . 6.24 mm (0.246 in.)
  - ▶ Surface-mount receptacle . . . . 6.42 mm (0.253 in.)


#### Option 2


- Header body height . . . . . 7.44 mm (0.293 in.)
- PCB spacing
  - ▶ Through-mount receptacle . . . . 8.08 mm (0.318 in.)
  - ▶ Surface-mount receptacle . . . . 8.26 mm (0.325 in.)

### Berg Electronics Products Page

- Rib-Cage II surface-mount receptacle assemblies . . . . . 2-14
- Rib-Cage II through-mount receptacle assemblies . . . . . 2-16

### Approvals and Certifications

 File no. E66906

 File no. LR46923

### Technical Data

#### Materials

- Housing . . . . . Liquid crystal polymer LCP, UL 94 V-0
  - ▶ Color . . . . . Black
  - ▶ Temperature range . . . . . -55°C to +130°C
  - ▶ Applicable soldering processes . . . . . IR, vapor-phase
- Contact . . . . . Phosphor-bronze

#### Plating

- Underplate . . . . . 2.54 µm (50 µin.) nickel
- Finish
  - ▶ Contact area . . . . . 0.76 µm (30 µin.) min gold
  - ▶ Solder tail . . . . . 2.54 µm (100 µin.) min tin-lead

#### Electrical Performance

- Insulation resistance . . . . . 50,000 MΩ min initial
- Withstanding voltage . . . . . 800 V ac
- Current rating . . . . . 1 amp dc (30°C temperature rise)
- Contact resistance . . . . . 20 mΩ max initial, 25 mΩ max after environmental test

#### Mechanical Performance

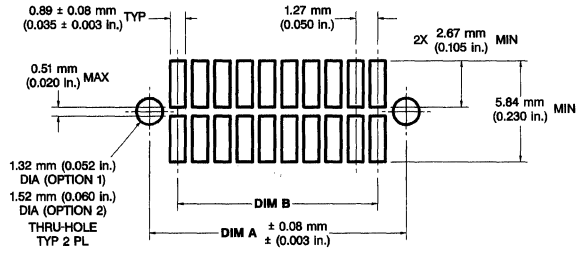
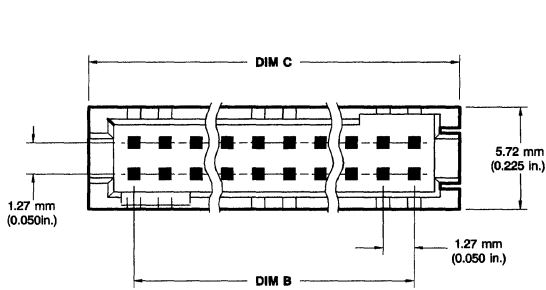
- Mating force . . . . . 113.5 gf (4.0 ozf) max per contact
- Unmating force . . . . . 10 gf (0.35 ozf) min per contact
- Durability (mating cycles) . . . . . 200 min

#### Packaging

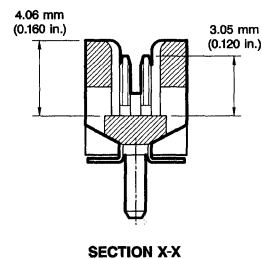
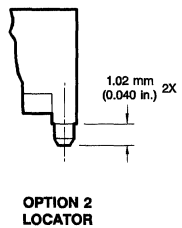
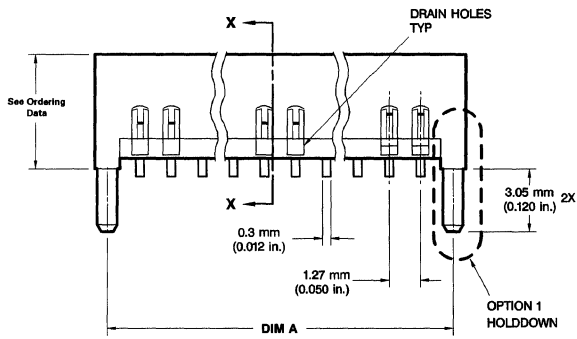
- Antistatic tubes
- Optional tape and reel

### Description

**High-Density, Surface-Mount, Vertical Shrouded Headers**  
**1.27 x 1.27 mm (0.050 x 0.050 in.) Centerlines**  
**5.61 mm (0.221 in.) Body Height**  
**9.12 mm (0.359 in.) Body Height**

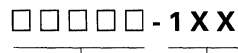


RECOMMENDED PCB PAD LAYOUT



A183396-0299, 0300

### Ordering Data



Base number specifies surface-mount vertical shrouded header configuration.

Dash number specifies contact finish [1 = 0.76 μm (30 μin.) gold] and number of positions per row (5 through 50 in increments of 5).

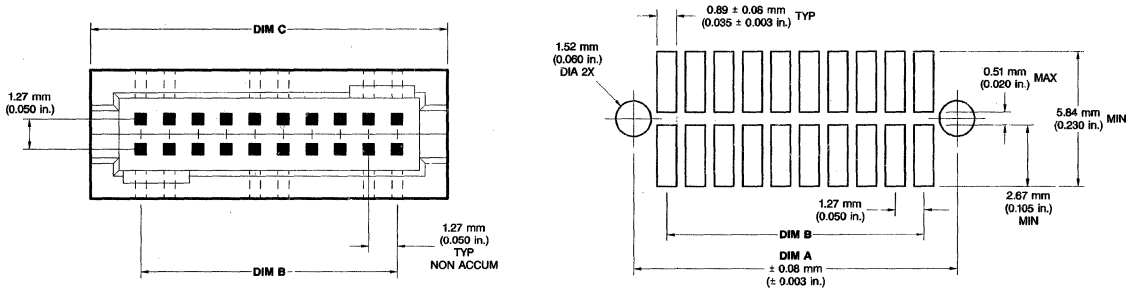
- 87401 = 5.61 mm (0.221 in.) high header with hold-downs
- 87409 = 5.61 mm (0.221 in.) high header with locators
- 91855 = 5.61 mm (0.221 in.) high header for .047 in. hole
- 91036 = 9.12 mm (0.359 in.) high header for .047 in. hole

Dash Number	Size	Dimensions					
		A		B		C	
		mm	in.	mm	in.	mm	in.
105	2 x 5	8.13	0.320	5.08	0.200	9.45	0.370
110	2 x 10	14.48	0.570	11.43	0.450	15.80	0.622
115	2 x 15	20.83	0.820	17.78	0.700	22.15	0.872
120	2 x 20	27.18	1.070	24.13	0.950	28.50	1.122
125	2 x 25	33.53	1.320	30.48	1.200	34.85	1.372
130	2 x 30	39.88	1.570	36.83	1.450	41.20	1.622
135	2 x 35	46.23	1.820	43.18	1.700	47.55	1.872
140	2 x 40	52.58	2.070	49.53	1.950	53.90	2.122
145	2 x 45	58.93	2.320	55.88	2.200	60.25	2.372
150	2 x 50	65.28	2.570	62.23	2.450	66.60	2.622

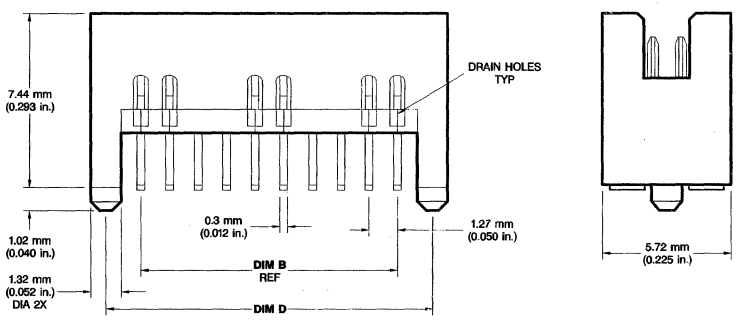


**Shrouded Headers**  
**1.27 x 1.27 mm (0.050 x 0.050 in.)**

**Description**  
**High-Density, Surface-Mount, Vertical Shrouded Headers**  
**1.27 x 1.27 mm (0.050 x 0.050 in.) Centerlines**  
**7.44 mm (0.293 in.) Body Height**



**RECOMMENDED PCB MOUNTING PAD PATTERN**



A183396-0874

**Ordering Data**

□ □ □ □ □ - 1 X X

Base number specifies surface-mount vertical shrouded header configuration.

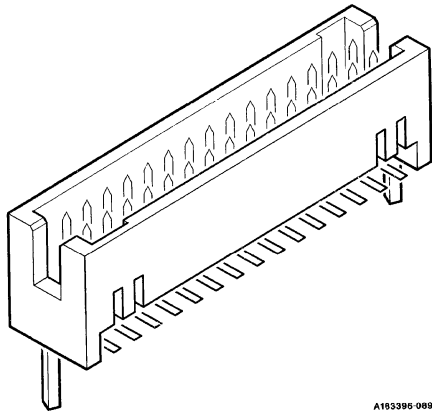
Dash number specifies contact finish [1 = 0.76 μm (30 μin.) gold] and number of positions per row (5 through 50 in increments of 5).

90098 = 7.44 mm (0.293 in.) high header with locators

Dash Number	Size	Dimensions					
		A		B		C	
		mm	in.	mm	in.	mm	in.
105	2 x 5	8.13	0.320	5.08	0.200	9.45	0.372
110	2 x 10	14.48	0.570	11.43	0.450	15.80	0.622
115	2 x 15	20.83	0.820	17.78	0.700	22.15	0.872
120	2 x 20	27.18	1.070	24.13	0.950	28.50	1.122
125	2 x 25	33.53	1.320	30.48	1.200	34.85	1.372
130	2 x 30	39.88	1.570	36.83	1.450	41.20	1.622
135	2 x 35	46.23	1.820	43.18	1.700	47.55	1.872
140	2 x 40	52.58	2.070	49.53	1.950	53.90	2.122
145	2 x 45	58.93	2.320	55.88	2.200	60.25	2.622
150	2 x 50	65.28	2.570	62.23	2.450	66.60	2.372

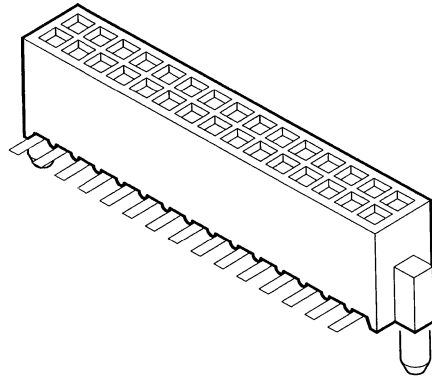
**Customer Support Materials**

Description	Order No.	Description	Order No.
Customer Product Drawings.....	By Base No.	Application Specification.....	BUS-20-052
Product Specifications.....	BUS-12-087	Product Samples.....	By Part No.
Application Drawing.....	TA-901		

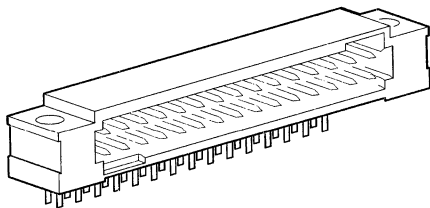


A183396-0883

Surface-Mount Vertical Shrouded Headers

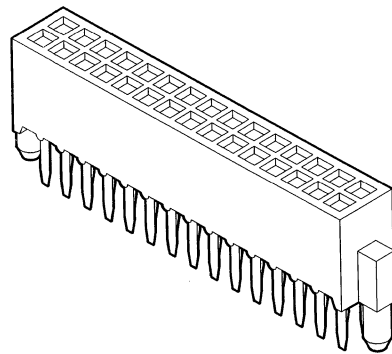


Surface-Mount Receptacle Assemblies



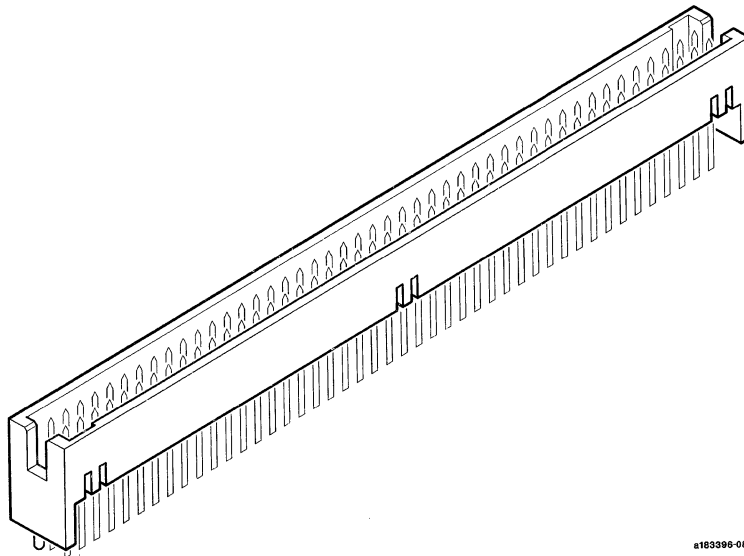
A183396-0294

Through-Mount Right-Angle Shrouded Headers



A183396-0875

Through-Mount Receptacle Assemblies



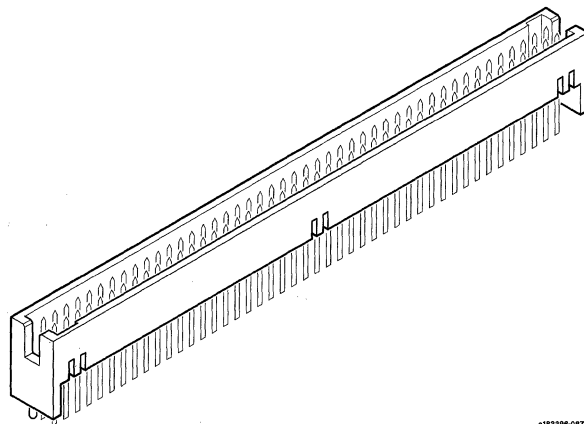
A183396-0876

Through-Mount Shrouded Headers

# Shrouded Headers High-Density, Through-Mount, Vertical

1.27 x 1.27 mm (0.050 x 0.050 in.)  
Centerlines

## Rib-Cage™ II Through-Mount Shrouded Headers



A183396-0870

### Features

- High-density, 1.27 mm (0.050 in.) centerline system occupies only one-eighth the volume of 2.54 mm (0.100 in.) centerline systems.
- Designed for parallel board-to-board stacking.
- Double-row vertical shrouded assemblies.
- Sizes in increments of 10 from 10 to 100 positions.
- Compatible with vapor-phase and infrared reflow soldering processes.
- Contacts are selectively plated with gold in the contact area and tin-lead on the solder tails.
- Polarizing keyway accepts receptacles with optional side-key.
- Standard 5.61 mm (0.221 in.) high vertical headers allow closest board stacking of 6.12 mm (0.241 in.).
- 7.44 mm (0.293 in.) and 12.19 mm (0.480 in.) high vertical headers can be selected to accommodate larger components on stacked boards.
- Available with hold-downs and locators to maintain proper alignment of the connector and PCB.

- Standoffs and drainage holes prevent entrapment of cleaning solutions.

### Mating Data

The connectors are designed for parallel board-to-board stacking in high-density applications. Through-mount or surface-mount receptacle assemblies can be used with the vertical headers. The three available header heights provide the following board-to-board spacings:

#### Option 1

- Header body height . . . . . 5.61 mm (0.221 in.)
- PCB spacing
  - ▶ Through-mount receptacle . . . . 6.12 mm (0.241 in.)
  - ▶ Surface-mount receptacle . . . . . 6.3 mm (0.248 in.)

#### Option 2

- Header body height . . . . . 7.44 mm (0.293 in.)
- PCB spacing
  - ▶ Through-mount receptacle . . . . 7.95 mm (0.313 in.)
  - ▶ Surface-mount receptacle . . . . 8.12 mm (0.320 in.)


#### Option 3


- Header body height . . . . . 12.19 mm (0.480 in.)
- PCB spacing
  - ▶ Through-mount receptacle . . . . 12.7 mm (0.500 in.)
  - ▶ Surface-mount receptacle . . . . 12.88 mm (0.507 in.)

### Berg Electronics Products Page

- Rib-Cage II surface-mount receptacle assemblies . . . . . 2-14
- Rib-Cage II through-mount receptacle assemblies . . . . . 2-16

### Approvals and Certifications

 File no. E66906

 File no. LR46923

### Technical Data

#### Materials

- Housing . . . . . Liquid crystal polymer LCP, UL 94 V-0
  - ▶ Color . . . . . Black
  - ▶ Temperature range . . . . . -55°C to +130°C
  - ▶ Applicable soldering processes . . . . . Wave
- Contact . . . . . Phosphor-bronze

#### Plating

- Underplate . . . . . 1.27 µm (50 µin.) nickel
- Finish
  - ▶ Contact area . . . . . 0.76 µm (30 µin.) min gold
  - ▶ Solder tail . . . . . 2.54 µm (100 µin.) min tin-lead

#### Electrical Performance

- Insulation resistance . . . . . 50,000 MΩ min initial
- Withstanding voltage . . . . . 800 V ac
- Current rating . . . . . 1 amp dc (30°C temperature rise)
- Contact resistance . . . . . 20 mΩ max initial, 25 mΩ max after environmental test

#### Mechanical Performance

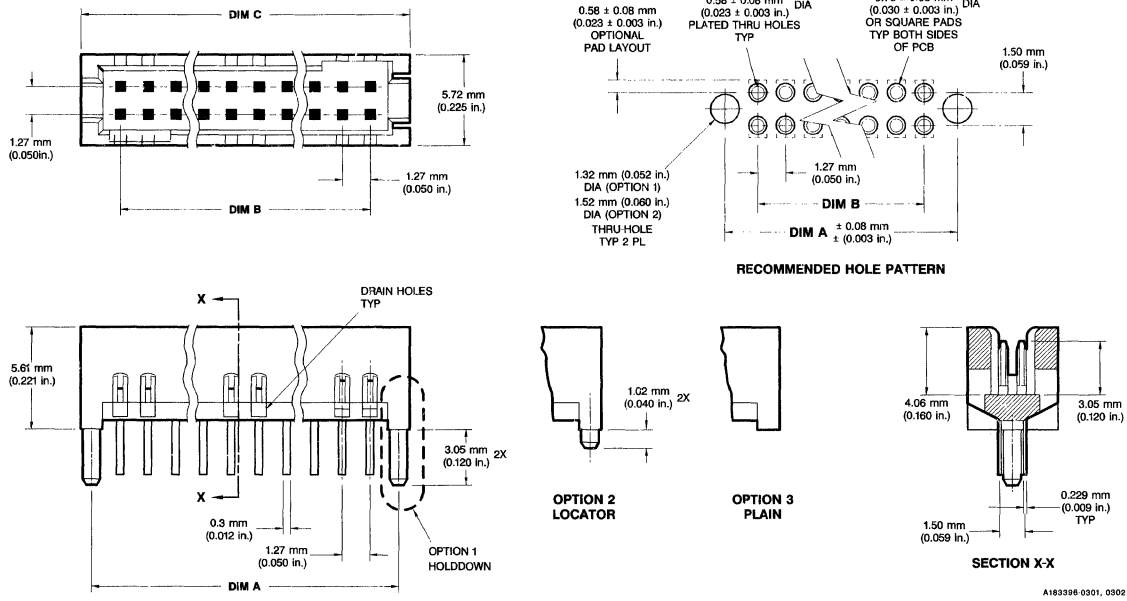
- Mating force . . . . . 113.5 gf (4.0 ozf) max per contact
- Unmating force . . . . . 10 gf (0.35 ozf) min per contact
- Durability (mating cycles) . . . . . 200 min

#### Packaging

- Antistatic tubes

## Description

### High-Density, Through-Mount, Vertical Shrouded Headers 1.27 x 1.27 mm (0.050 x 0.050 in.) Centerlines 5.61 mm (0.221 in.) Body Height



## Ordering Data

Base number specifies through-mount vertical shrouded header configuration.

□ □ □ □ - 1 X X

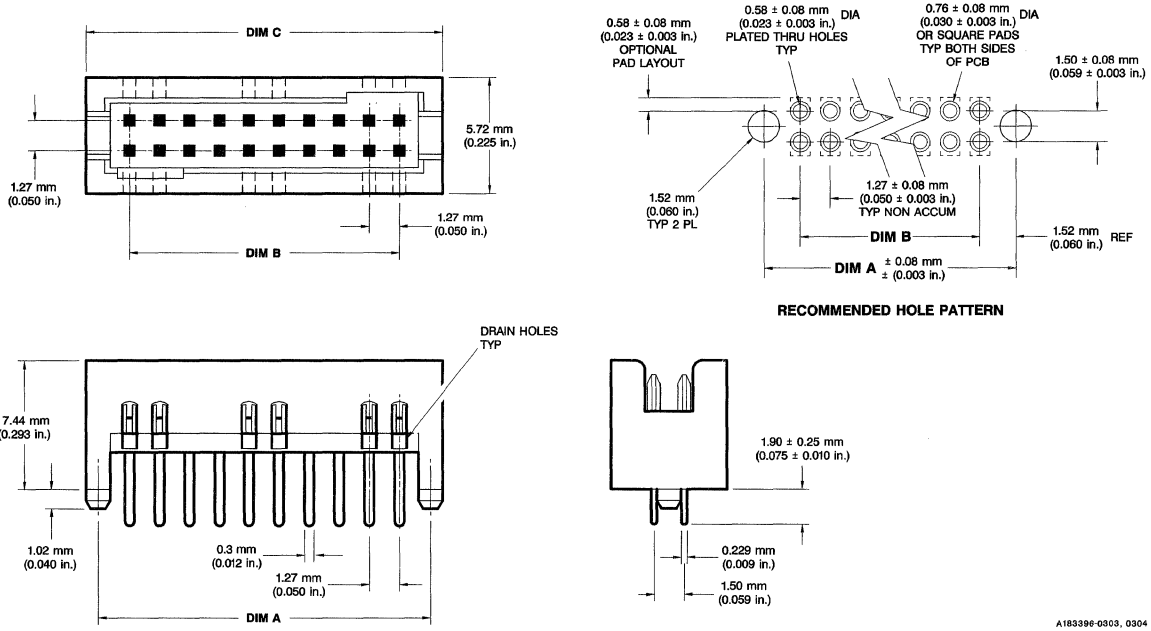
Dash number specifies contact finish [1 = 0.76 μm (30 μin.) gold] and number of positions per row (5 through 50 in increments of 5).

- 87406 = 5.61 mm (0.221 in.) high body with 1.90 mm (0.075 in.) solder tails and hold-downs
- 87400 = 5.61 mm (0.221 in.) high body with 1.90 mm (0.075 in.) solder tails and locators
- 87405 = 5.61 mm (0.221 in.) high body with 1.90 mm (0.075 in.) solder tails
- 87410 = 5.61 mm (0.221 in.) high body with 2.29 mm (0.090 in.) solder tails and locators
- 89297 = 5.61 mm (0.221 in.) high body with 2.92 mm (0.115 in.) solder tails and hold-downs
- 87412 = 5.61 mm (0.221 in.) high body with 2.92 mm (0.115 in.) solder tails and locators

Dash Number	Size	Dimensions					
		A		B		C	
		mm	in.	mm	in.	mm	in.
105	2 x 5	8.13	0.320	5.08	0.200	9.45	0.372
110	2 x 10	14.48	0.570	11.43	0.450	15.80	0.622
115	2 x 15	20.83	0.820	17.78	0.700	22.15	0.872
120	2 x 20	27.18	1.070	24.13	0.950	28.50	1.122
125	2 x 25	33.53	1.320	30.48	1.200	34.85	1.372
130	2 x 30	39.88	1.570	36.83	1.450	41.20	1.622
135	2 x 35	46.23	1.820	43.18	1.700	47.55	1.872
140	2 x 40	52.58	2.070	49.53	1.950	53.90	2.122
145	2 x 45	58.93	2.320	55.88	2.200	60.25	2.372
150	2 x 50	65.28	2.570	62.23	2.450	66.60	2.622

**Shrouded Headers**  
**1.27 x 1.27 mm (0.050 x 0.050 in.)**

**Description**  
**Through-Mount, Vertical Header Assemblies**  
**1.27 x 1.27 mm (0.050 x 0.050 in.) Centerlines**  
**7.44 mm (0.293 in.) Body Height**



A183398-0303, 0304

**Ordering Data**

□ □ □ □ □ - 1 X X

Base number specifies through-mount vertical shrouded header configuration.

Dash number specifies contact finish [1 = 0.76 μm (30 μin.) gold] and number of positions per row (5 through 50 in increments of 5).

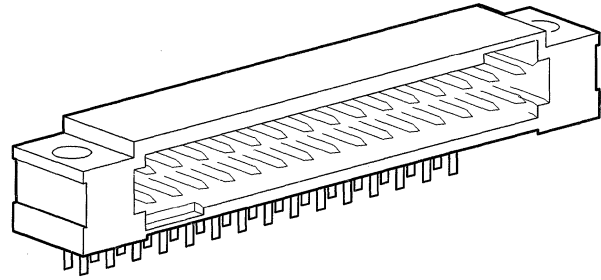
87411 = 7.44 mm (0.293 in.) high body with 1.90 mm (0.075 in.) solder tails and locators

Dash Number	Size	Dimensions					
		A		B		C	
		mm	in.	mm	in.	mm	in.
105	2 x 5	8.13	0.320	5.08	0.200	9.45	0.372
110	2 x 10	14.48	0.570	11.43	0.450	15.80	0.622
115	2 x 15	20.83	0.820	17.78	0.700	22.15	0.872
120	2 x 20	27.18	1.070	24.13	0.950	28.50	1.122
125	2 x 25	33.53	1.320	30.48	1.200	34.85	1.372
130	2 x 30	39.88	1.570	36.83	1.450	41.20	1.622
135	2 x 35	46.23	1.820	43.18	1.700	47.55	1.872
140	2 x 40	52.58	2.070	49.53	1.950	53.90	2.122
145	2 x 45	58.93	2.320	55.88	2.200	60.25	2.372
150	2 x 50	65.28	2.570	62.23	2.450	66.60	2.622



# Shrouded Headers High-Density, Through-Mount, Right-Angle

1.27 x 1.27 mm (0.050 x 0.050 in.)  
Centerlines



A183396-0294

## Rib-Cage™ II Through-Mount, Right-Angle Shrouded Headers

### Features


- High-density, 1.27 mm (0.050 in.) centerline system occupies only one-eighth the volume of 2.54 mm (0.100 in.) centerline systems.
- Double-row right-angle shrouded assemblies.
- Sizes in increments of 10 from 10 to 100 positions.
- Compatible with vapor-phase and infrared reflow soldering processes.
- Contacts are selectively plated with gold in the contact area and tin-lead on the solder tails.


- Polarizing keyway accepts receptacles with optional side-key.
- Standoffs and drainage holes prevent entrapment of cleaning solutions.

### Mating Data

Berg Electronics Products	Page
▪ Rib-Cage II surface-mount receptacle assemblies .....	2-14
▪ Rib-Cage II through-mount receptacle assemblies .....	2-16

### Approvals and Certifications

 File no. E66906

 File no. LR46923

### Technical Data

#### Materials

- Housing ..... Liquid crystal polymer LCP, UL 94 V-0
  - ▶ Color ..... Black
  - ▶ Temperature range ..... -55°C to +130°C
  - ▶ Applicable soldering processes ..... Wave
- Contact ..... Phosphor-bronze

#### Plating

- Underplate ..... 1.27 µm (50 µin.) nickel
- Finish
  - ▶ Contact area ..... .76 µm (30 µin.) min gold
  - ▶ Solder tail ..... 2.54 µm (100 µin.) min tin-lead

#### Electrical Performance

- Insulation resistance ..... 50,000 MΩ min initial
- Withstanding voltage ..... 800 V ac
- Current rating ..... 1 amp dc (30°C temperature rise)
- Contact resistance ..... 20 mΩ max initial, 25 mΩ max after environmental test

#### Mechanical Performance

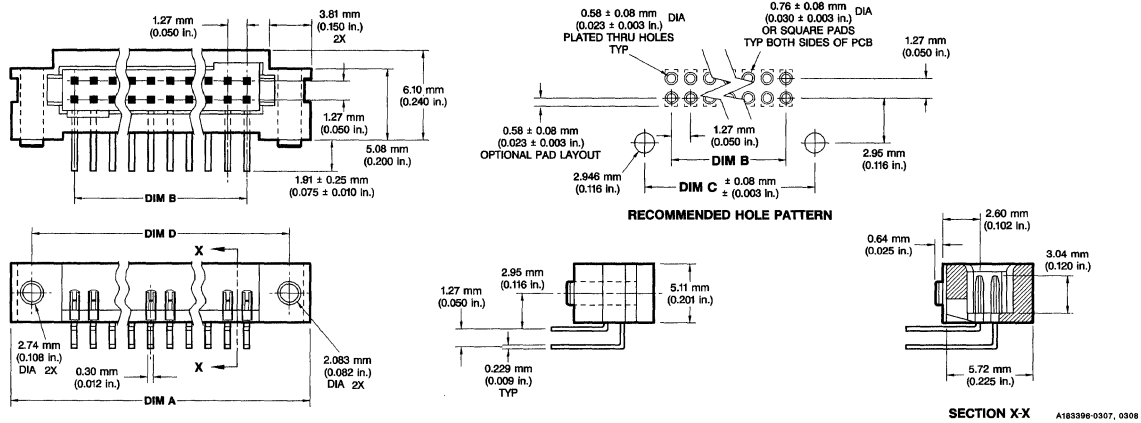
- Mating force ..... 113.5 gf (4.0 ozf) max per contact
- Unmating force ..... 10 gf (0.35 ozf) min per contact
- Durability (mating cycles) ..... 200 min

#### Packaging

- Antistatic tubes

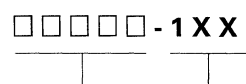
## Description

### High-Density, Through-Mount, Right-Angle Shrouded Headers 1.27 x 1.27 mm (0.050 x 0.050 in.) Centerlines With Mounting Ears



## Ordering Data

Base number specifies through-mount right-angle shrouded header configuration.



Dash number specifies contact finish [1 = 0.76 μm (30 μin.) gold] and number of positions per row (5 through 50 in increments of 5).

87402 = header with mounting ears

Dash Number	Size	Dimensions					
		A		B		C	
		mm	in.	mm	in.	mm	in.
105	2 x 5	16.13	0.635	5.08	0.200	12.32	0.485
110	2 x 10	22.48	0.885	11.43	0.450	18.67	0.735
115	2 x 15	28.83	1.135	17.78	0.700	25.02	0.985
120	2 x 20	35.18	1.385	24.13	0.950	31.37	1.235
125	2 x 25	41.52	1.635	30.48	1.200	37.72	1.485
130	2 x 30	47.88	1.885	36.83	1.450	44.07	1.735
135	2 x 35	54.23	2.135	43.18	1.700	50.42	1.985
140	2 x 40	60.58	2.385	49.53	1.950	56.77	2.235
145	2 x 45	66.93	2.635	55.88	2.200	63.12	2.485
150	2 x 50	73.23	2.885	62.23	2.450	69.47	2.735

## Customer Support Materials

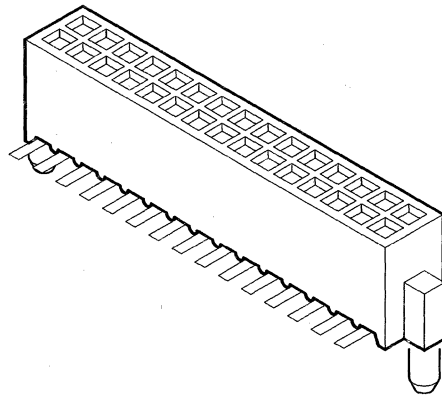
Description	Order No.	Description	Order No.
Customer Product Drawings .....	By Base No.	Application Specification .....	BUS-20-052
Product Specifications .....	BUS-12-087	Product Samples .....	By Part No.
Application Drawing .....	TA-901		



# Receptacle Assemblies High-Density, Surface-Mount, Vertical

1.27 x 1.27 mm (0.050 x 0.050 in.)  
Centerlines

## Rib-Cage™ II Surface-Mount Receptacle Assemblies



### Features

- High-density, 1.27 mm (0.050 in.) centerline system occupies only one-eighth the volume of 2.54 mm (0.100 in.) centerline systems.
- Available in double-row, vertical assemblies.
- Sizes in increments of 10 from 10 to 100 positions.
- Compatible with vapor-phase and infrared reflow soldering processes.
- Contacts are selectively plated with gold in the contact area and tin-lead on the solder tails.

- Unique design of beryllium-copper receptacle provides 100 grams normal force and 1.14 mm (0.045 in.) wipe to ensure reliable interconnection after repeated mating cycles.
- Connectors are also available with side-key polarization.
- Available with hold-downs and locators to maintain proper alignment of the connector and PCB.
- Standoffs prevent entrapment of cleaning solutions.
- Surface-mount solder joints are clearly visible and easily inspected.

### Mating Data

Berg Electronics Products	Page
▪ Rib-Cage II surface-mount, vertical headers	2-4
▪ Rib-Cage II through-mount, vertical headers	2-8
▪ Rib-Cage II through-mount, right-angle headers	2-12

### Approvals and Certifications



File no. E66906



File no. LR46923

### Technical Data

#### Materials

- Housing ..... Liquid crystal polymer LCP, UL 94 V-0
  - ▶ Color ..... Black
  - ▶ Temperature range ..... -55°C to +130°C
  - ▶ Applicable soldering processes ..... IR, vapor-phase
- Contact ..... Beryllium-copper

#### Plating

- Finish
  - ▶ Underplate ..... nickel
  - ▶ Contact area ..... 0.76 µm (30 µin.) min gold
  - ▶ Solder tail ..... 2.54 µm (100 µin.) min tin-lead

#### Electrical Performance

- Insulation resistance ..... 50,000 MΩ min initial
- Withstanding voltage ..... 800 V ac
- Current rating ..... 1 amp dc (30°C temperature rise)
- Contact resistance ..... 20 mΩ max initial, 25 mΩ max after environmental test

#### Mechanical Performance

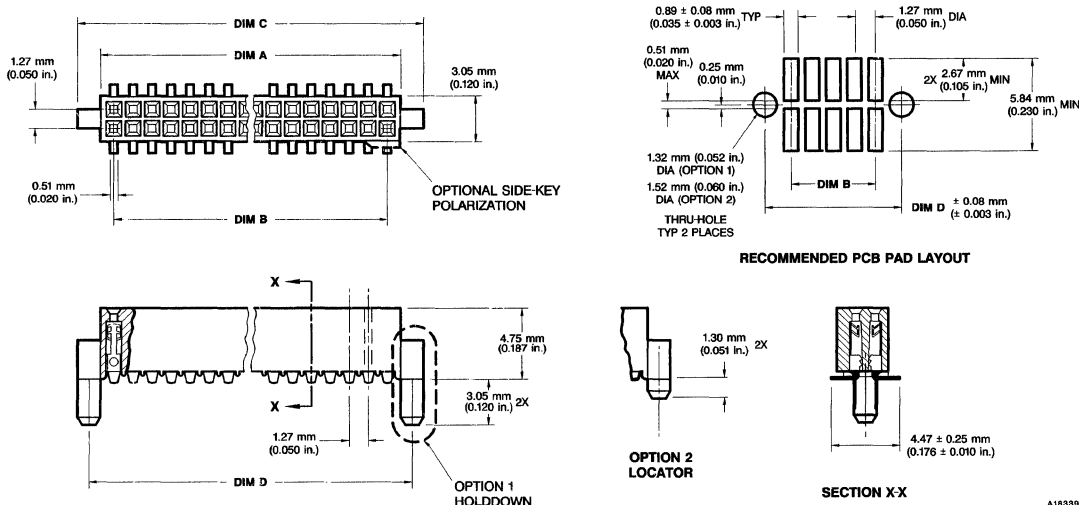
- Mating force ..... 113.5 gf (4.0 ozf) max per contact
- Unmating force ..... 10 gf (0.35 ozf) min per contact
- Durability (mating cycles) ..... 200 min

#### Packaging

- Antistatic tubes
- Optional tape and reel

## Description

### High-Density, Surface-Mount, Vertical Receptacle Assemblies 1.27 x 1.27 mm (0.050 x 0.050 in.) Centerlines



A183396-0295, 0296

## Ordering Data

□ □ □ □ □ - 6 X X

Base number specifies surface-mount vertical receptacle configuration.

Dash number specifies contact finish [6 = 0.76 μm (30 μin.) gold] and number of positions per row (5 through 50 in increments of 5).

- 87814 = nonpolarized with hold-downs
- 87471 = side-key polarization with hold-downs
- 87023 = nonpolarized with locators
- 87024 = side-key polarization with locators
- 91872 = side-key polarized with locators for .047 in. hole

Dash Number	Size	Dimensions							
		A		B		C		D	
		mm	in.	mm	in.	mm	in.	mm	in.
605	2 x 5	6.756	0.266	5.080	0.200	9.398	0.370	8.128	0.320
610	2 x 10	13.106	0.516	11.430	0.450	15.748	0.620	14.478	0.570
615	2 x 15	19.456	0.766	17.780	0.700	22.098	0.870	20.828	0.820
620	2 x 20	25.806	1.016	24.130	0.950	28.448	1.120	27.178	1.070
625	2 x 25	32.156	1.266	30.480	1.200	34.798	1.370	33.528	1.320
630	2 x 30	38.506	1.516	36.830	1.450	41.148	1.620	39.878	1.570
635	2 x 35	44.856	1.766	43.180	1.700	47.498	1.870	46.228	1.820
640	2 x 40	51.206	2.016	49.530	1.950	53.848	2.120	52.578	2.070
645	2 x 45	57.556	2.266	55.880	2.200	60.198	2.370	58.928	2.320
650	2 x 50	63.906	2.516	62.230	2.450	66.548	2.620	65.278	2.570

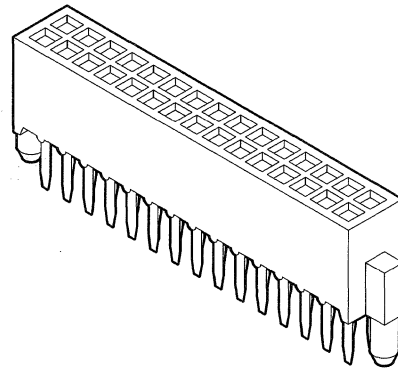
## Customer Support Materials

<p><b>Description</b></p> <p>Customer Product Drawings ..... By Base No.</p> <p>Product Specifications ..... BUS-12-087</p> <p>Application Drawing ..... TA-901</p>	<p><b>Order No.</b></p> <p>.....</p> <p><b>Description</b></p> <p>Application Specification ..... BUS-20-052</p> <p>Product Samples ..... By Part No.</p>
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# PCB Mounted Receptacle Assemblies High-Density, Through-Mount, Vertical

1.27 x 1.27 mm (0.050 x 0.050 in.)  
Centerlines

## Rib-Cage™ II Through-Mount Receptacle Assemblies



A183390-0875

### Features


- High-density, 1.27 mm (0.050 in.) centerline system occupies only one-eighth the volume of 2.54 mm (0.100 in.) centerline systems.
- Available in double-row, vertical assemblies.
- Sizes in increments of 10 from 10 to 100 positions.
- Compatible with vapor-phase and infrared reflow soldering processes.
- Contacts are selectively plated with gold in the contact area and tin-lead on the solder tails.
- Unique design of beryllium-copper receptacle provides 100 grams normal force and 1.14 mm (0.045 in.) wipe to ensure reliable interconnection after repeated mating cycles.


- Connectors are also available with side-key polarization.
- Available with hold-downs and locators to maintain proper alignment of the connector and PCB.
- Standoffs prevent entrapment of cleaning solutions.

### Mating Data

Berg Electronics Products	Page
▪ Rib-Cage II surface-mount, vertical headers.....	2-4
▪ Rib-Cage II through-mount, vertical headers.....	2-8
▪ Rib-Cage II through-mount, right-angle headers.....	2-12

### Approvals and Certifications

 File no. E66906

 File no. LR46923

### Technical Data

#### Materials

- Housing..... Liquid crystal polymer LCP, UL 94 V-0
  - ▶ Color..... Black
  - ▶ Temperature range..... -55°C to +130°C
  - ▶ Applicable soldering processes..... Wave
- Contact..... Beryllium-copper

#### Plating

- Finish
  - ▶ Underplate..... nickel
  - ▶ Contact area..... 0.76 µm (30 µin.) min gold
  - ▶ Solder tail..... 2.54 µm (100 µin.) min tin-lead

#### Electrical Performance

- Insulation resistance..... 50,000 MΩ min initial
- Withstanding voltage..... 800 V ac
- Current rating..... 1 amp dc (30°C temperature rise)
- Contact resistance..... 20 mΩ max initial, 25 mΩ max after environmental test

#### Mechanical Performance

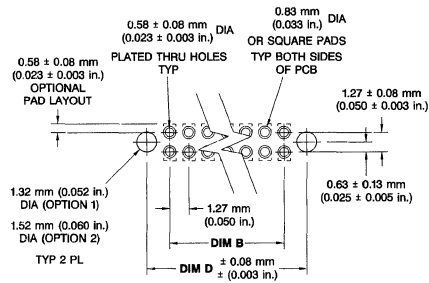
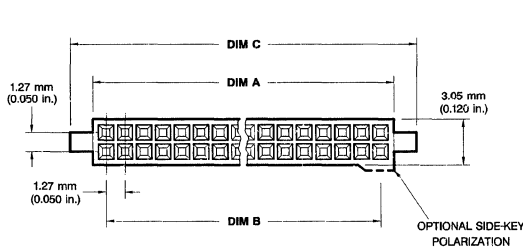
- Mating force..... 113.5 gf (4.0 ozf) max per contact
- Unmating force..... 10 gf (0.35 ozf) min per contact
- Durability (mating cycles)..... 200 min

#### Packaging

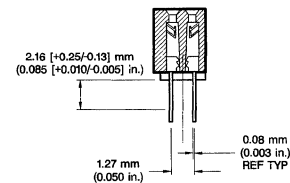
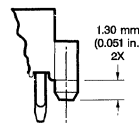
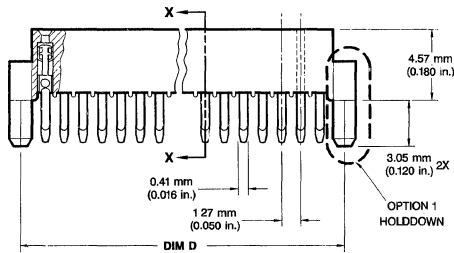
- Antistatic tubes

## Description

### High-Density, Through-Mount, Vertical Receptacle Assemblies 1.27 x 1.27 mm (0.050 x 0.050 in.) Centerlines



RECOMMENDED HOLE PATTERN



A183396-0297, 0298

## Ordering Data

□ □ □ □ □ - 6 X X

Base number specifies through-mount vertical receptacle configuration.

Dash number specifies contact finish [6 = 0.76 μm (30 μin.) gold] and number of positions per row (5 through 50 in increments of 5).

- 87815 = nonpolarized with hold-downs
- 87472 = side-key polarization with hold-downs
- 87013 = nonpolarized with locators
- 87014 = side-key polarization with locators
- 87011 = nonpolarized
- 87012 = side-key polarization

Dash Number	Size	Dimensions							
		A		B		C		D	
		mm	in.	mm	in.	mm	in.	mm	in.
(applicable to options 1 and 2 only)									
605	2 x 5	6.756	0.266	5.080	0.200	9.398	0.370	8.128	0.320
610	2 x 10	13.106	0.516	11.430	0.450	15.748	0.620	14.478	0.570
615	2 x 15	19.456	0.766	17.780	0.700	22.098	0.870	20.828	0.820
620	2 x 20	25.806	1.016	24.130	0.950	28.448	1.120	27.178	1.070
625	2 x 25	32.156	1.266	30.480	1.200	34.798	1.370	33.528	1.320
630	2 x 30	38.506	1.516	36.830	1.450	41.148	1.620	39.878	1.570
635	2 x 35	44.856	1.766	43.180	1.700	47.498	1.870	46.228	1.820
640	2 x 40	51.206	2.016	49.530	1.950	53.848	2.120	52.578	2.070
645	2 x 45	57.556	2.266	55.880	2.200	60.198	2.370	58.928	2.320
650	2 x 50	63.906	2.516	62.230	2.450	66.548	2.620	65.278	2.570

**Description Order No.**

Customer Product Drawings ..... By Base No.  
Product Specifications ..... BUS-12-087  
Application Drawing ..... TA-901

## Customer Support Materials

**Description Order No.**

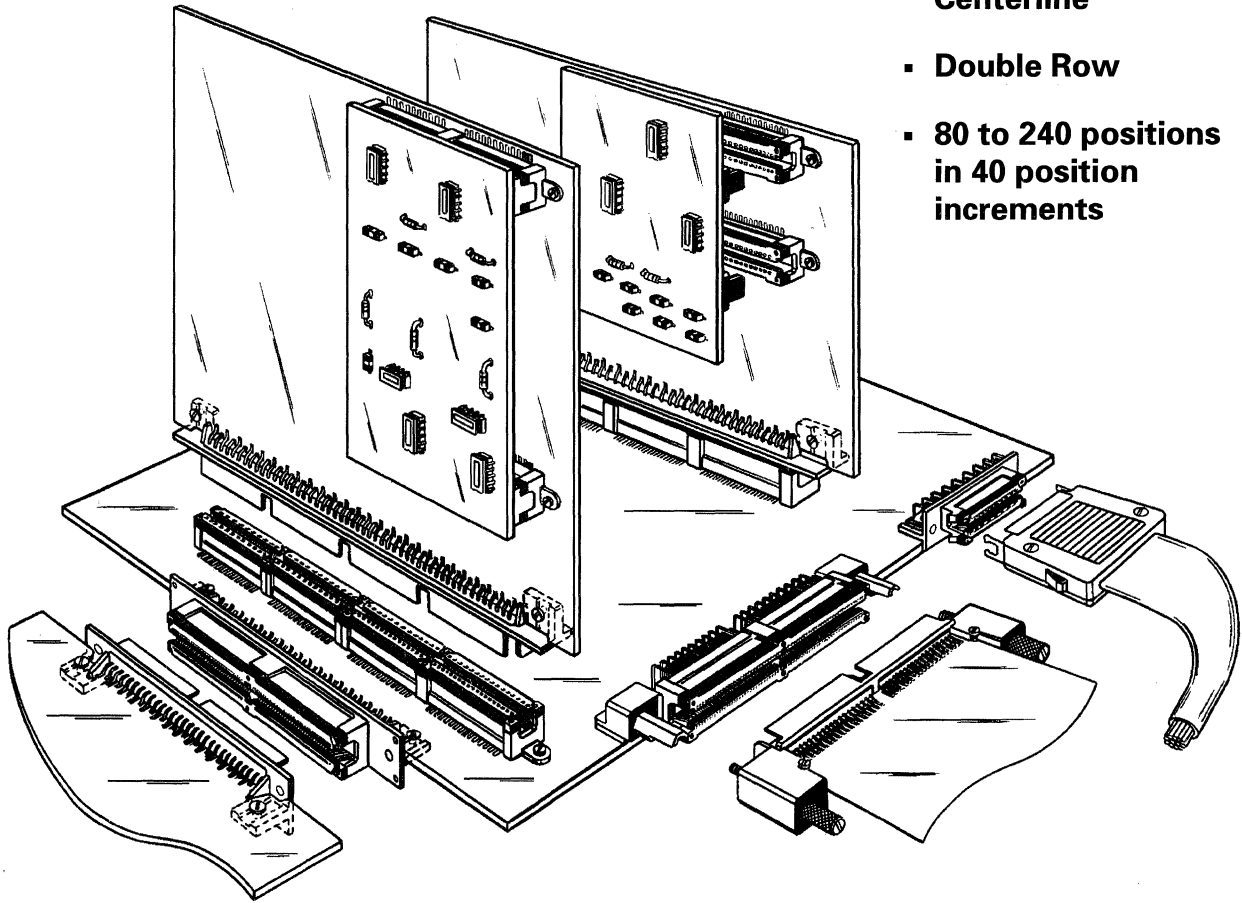
Application Specification ..... BUS-20-052  
Product Samples ..... By Part No.

# Micropax™ High Density Connectors

0.64 mm (0.025 in.)

## A Broad-Based, Interconnect System

- 0.64 mm (0.025 in.) Centerline
- Double Row
- 80 to 240 positions in 40 position increments



Micropax™ connector family, a Berg Electronics exclusive, is designed for high-performance, low-crosstalk interconnections in high-speed, digital system applications. The design features die-cast metal housings for improved mechanical and electrical performance. The receptacle and header are available in four mounting configurations: straddle-mount, vertical through-mount, surface-mount and right-angle through mount.

Each connector is designed to function as a transmission line system. The die-cast metal frame serves as an integral ground. The geometry of the contact---and the relationship of the contact to the dielectric materials and ground---creates the transmission line structure. This configuration promotes high-speed performance, optimizes signal density, and achieves both shielding and protection from electrostatic discharge.

The contact area is plated with our exclusive "better than gold" GXT™ palladium nickel alloy with gold flash, which out-performs gold in solderability, porosity, environmental corrosion resistance, and bend ductility.

The preloaded, cantilever beams of the receptacle's contacts---in combination with the insert-molded contacts of the plug---produce electrical contact with high normal force and low insertion and withdrawal forces. Unique design and manufacturing methods minimize the effect of tolerance accumulations. The resulting high-density and high-pin-count interconnections can be mated and unmated easily without damaging the contacts.

The advanced design features of Micropax™ connectors give maximum design flexibility to address the high-speed, digital system interconnection challenges of today and tomorrow at a minimum applied cost.

# Micropax™ High Density Connectors

0.64 mm (0.025 in.)

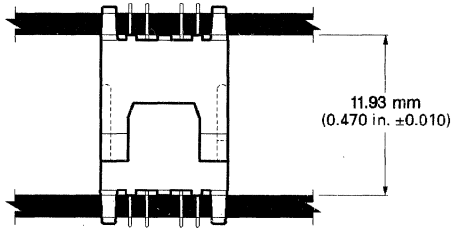
## Micropax™ 0.64 mm (0.025 in.) High-Density Board-to-Board System

Custom High Performance	
Cable Assemblies .....	3-3
Straddle-Mount Receptacle .....	3-5
Straddle-Mount Plug .....	3-6
Custom High Performance	
Flex Circuit Assemblies .....	3-7

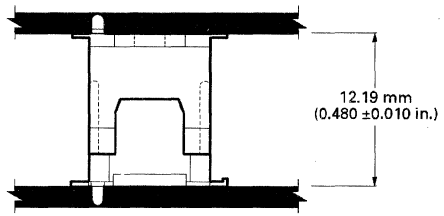
Surface-Mount Receptacle .....	3-9
Surface-Mount Plug .....	3-10
Right-Angle Through-Mount Receptacle .....	3-13
Right-Angle Through-Mount Plug .....	3-14
Vertical Through-Mount Receptacle .....	3-17
Vertical Through-Mount Plug .....	3-18

3

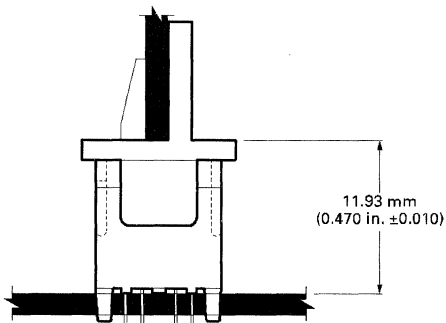
### Description Mounting Configurations



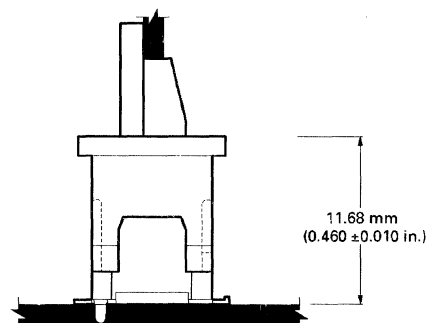
**VERTICAL THROUGH-MOUNT**



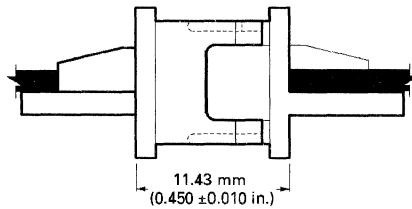
**SURFACE-MOUNT**



**STRADDLE-MOUNT  
TO  
VERTICAL THROUGH-MOUNT**



**STRADDLE-MOUNT  
TO  
SURFACE-MOUNT**



**STRADDLE-MOUNT  
TO  
STRADDLE-MOUNT**

---

## Features

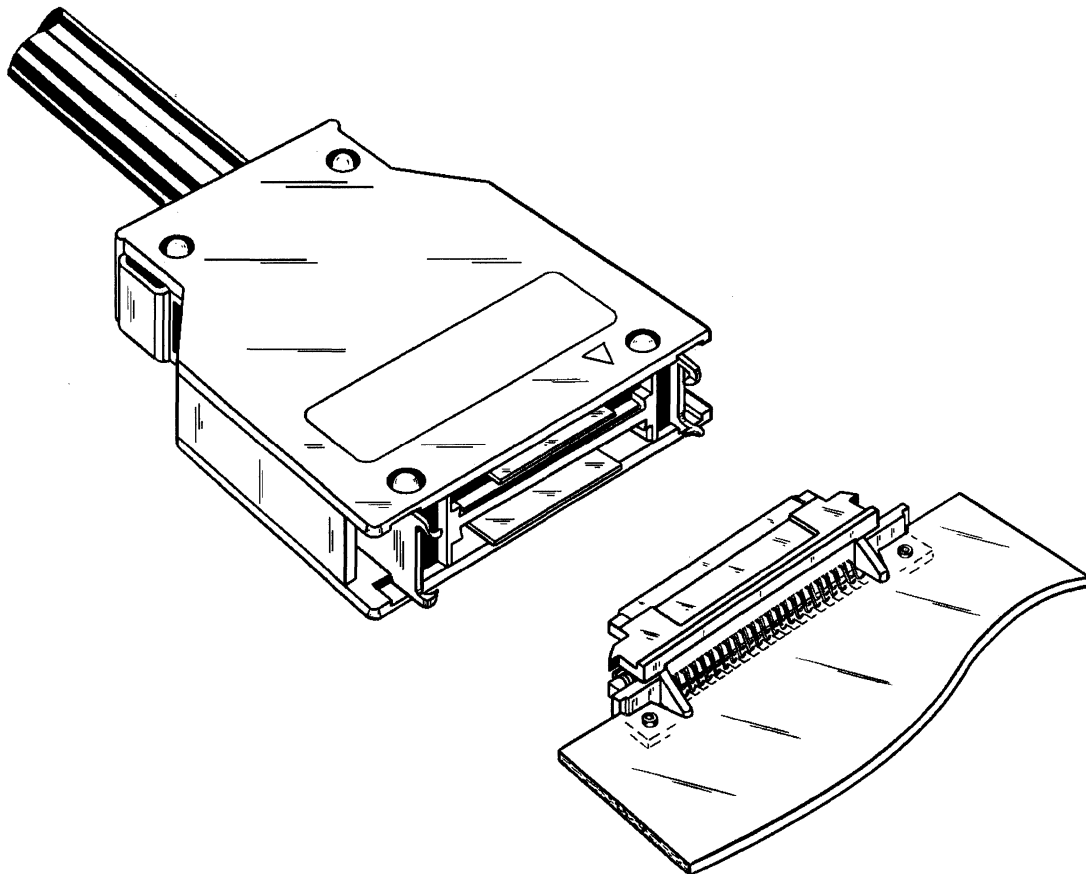
- Double Row 100 position assemblies.
- Polarized and latched.
- Board mounted connector available in either SMT or Straddle Tail configurations.
- Single or double controlled impedance paddle card construction for flexibility.
- Easily adapted to a wide variety of cable types.
- Custom manufactured to your specifications.

## Micropax™ High-Density Board-to-Board System

0.64 mm (0.025 in.)

### Custom High Performance Cable Assemblies

3



**Contact your Berg sales representative  
for more information.**

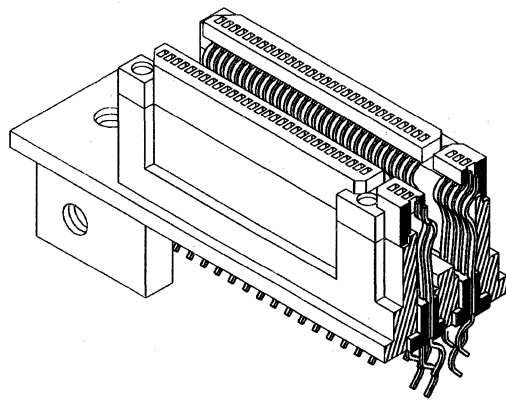


# Micropax™ High-Density Board-to-Board System

0.64 mm (0.025 in.)

**Straddle-Mount**

**Plugs and Receptacles**





## Features

- Two-row, high-density (80 contacts per inch) connectors.
- Low insertion force for easy engagement / disengagement.
- Impedance controlled (shielded) for reliable electrical performance.
- Low-profile design minimizes board-to-board spacing.
- Preloaded, cantilever beam contacts ensure reliable electrical performance.
- Duplex plating.

- High-temperature plastic withstands IR, wave, and vapor-phase soldering.
- Rugged, die-cast metal construction withstands handling.
- Connector-to-connector and connector-to-board polarization ensure proper mating and application.
- Locating feature for proper PCB placement.
- Supplied with predeposited solder on tails (solder bumps).

## Approvals and Certifications

 File no. E66906

 File no. LR46923

## Technical Data

### Materials

- Housing ..... Zinc alloy
  - ▶ Applicable soldering processes. IR, wave, vapor-phase
- Contact base material..... Beryllium-copper
- Dielectric material..... Glass-filled LCP
  - ▶ Color ..... Black

### Electrical Performance

- Current rating (per contact) ..... 0.5 amp
- Capacitance (at 1 MHz; adjacent lines grounded) ..... 2.8 pF
- Characteristic impedance (nominal) ..... 55Ω
- Inductance ..... 2.5 nH
- Propagation delay
  - ▶ 7:1 S:G ..... 135 ps
  - ▶ 1:1 S:G ..... 110 ps
- Crosstalk (near end at 500 ps)
  - ▶ 7:1 S:G ..... 8.5%
  - ▶ 1:1 S:G ..... 2.2%

### Plating

- Housing ..... 3.81 μm (150 μin.) min bright tin
- Contact
  - ▶ Underplating ..... 1.27 μm (50 μin.) nickel
  - ▶ Finish ..... 0.76μm (30 μin.) GXT™
- Solder tail ..... 3.81 μm (150 μin.) tin-lead

### Mechanical Performance

- Insertion force per contact ..... 0.42 N (43 gf)
- Contact wipe ..... 1.00 mm (0.040 in.) min

### Environmental Properties

- Temperature range ..... -20°C to +105°C

### Packaging

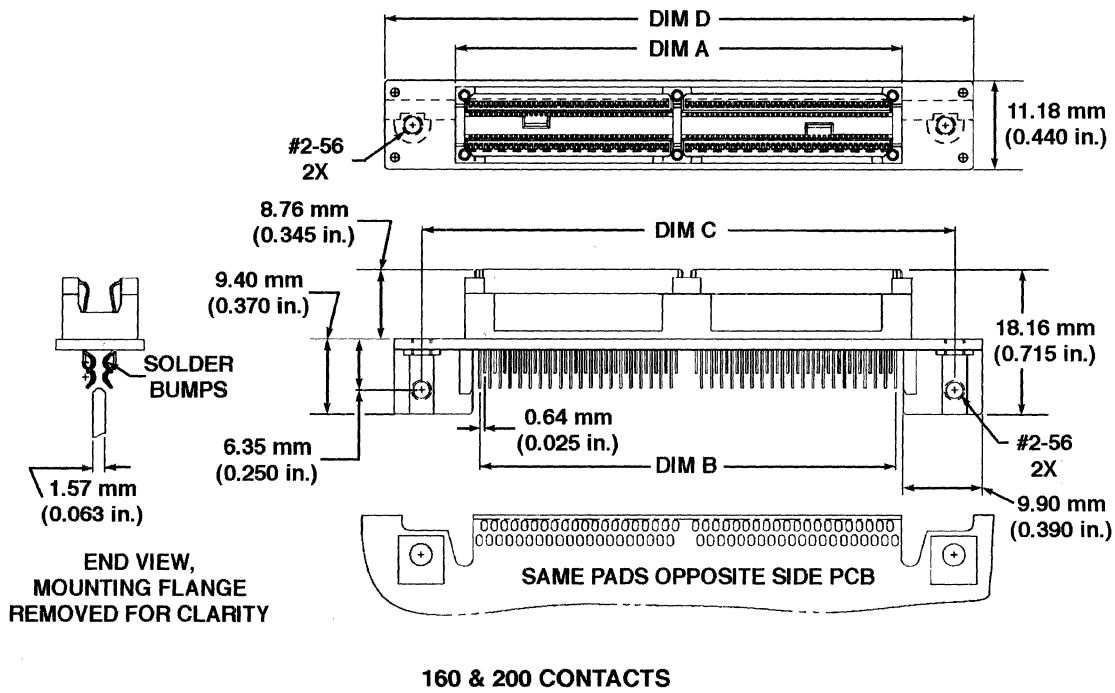
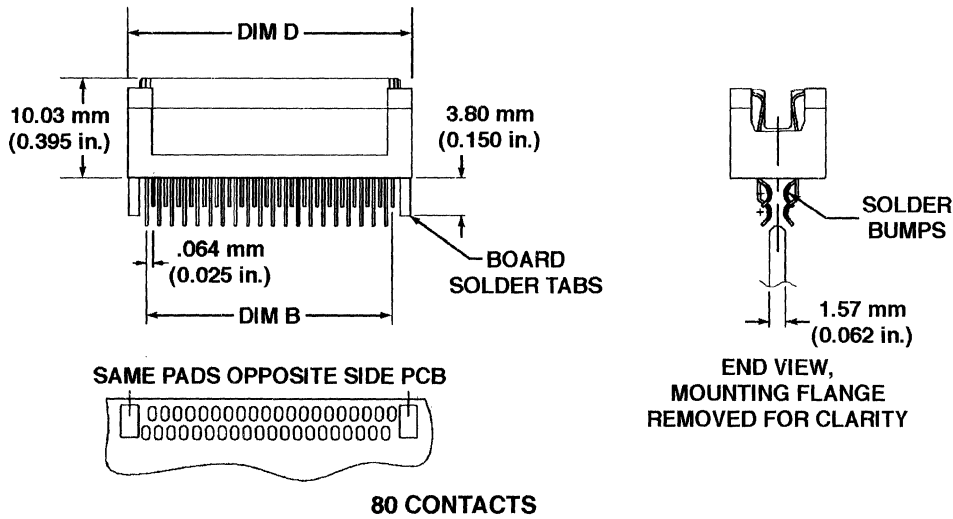
- Tubes

## Customer Support Materials

Description	Order No.
Customer Product Drawings.....	By Part No.
Product Samples .....	Upon Request
Straddle-Mount Application Note .....	950512-007

Description	Order No.
Connector Alignment Information .....	TA-932
Product Specifications .....	BUS-12-105

### Description Straddle-Mount Receptacle



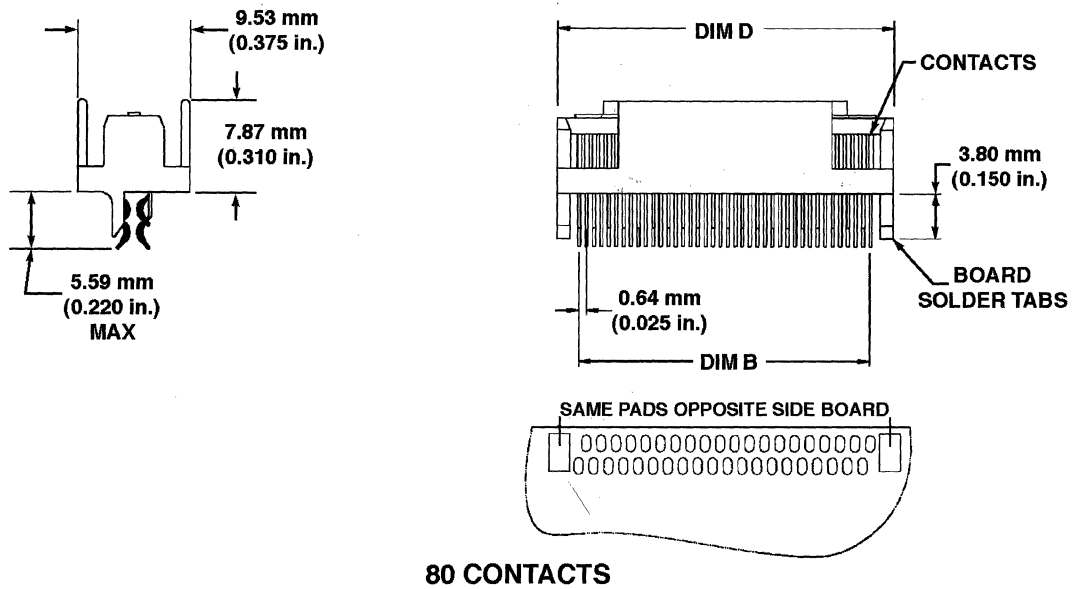
### Ordering Data

Number of Positions	Part Number	Dimensions							
		A		B		C		D	
		mm	in.	mm	in.	mm	in.	mm	in.
80	91542-105	n/a	n/a	24.77	0.975	n/a	n/a	28.58	1.125
160	91894-101	55.88	2.200	52.07	2.050	66.68	2.625	73.66	2.900
200	91894-103	68.58	2.700	64.77	2.550	79.38	3.125	86.36	3.400

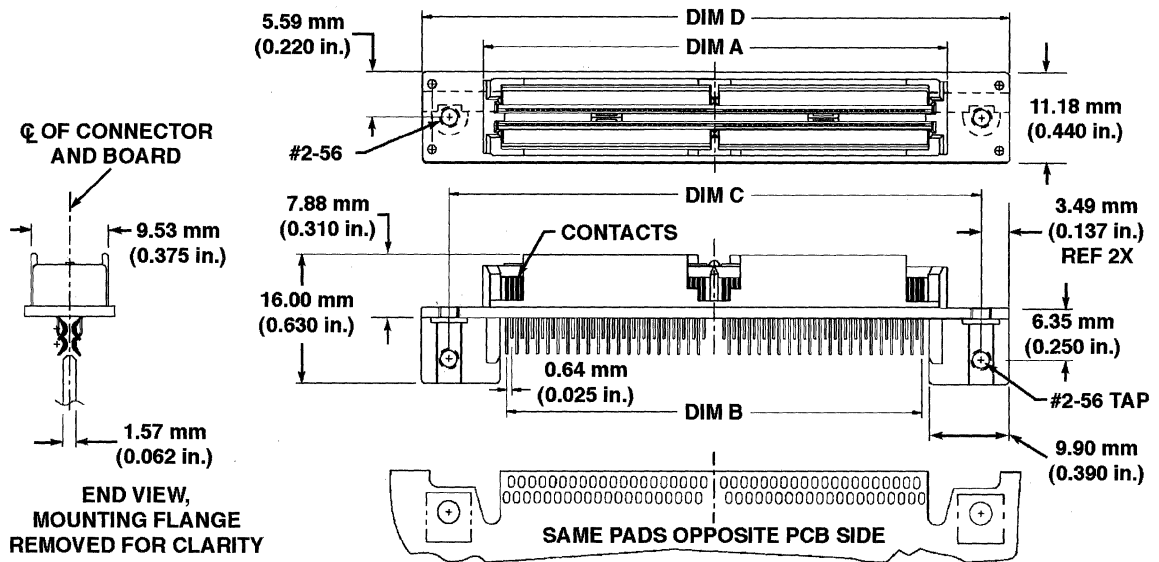
Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

**Straddle-Mount Plugs**  
0.64 mm (0.025 in.)

**Description**  
**Straddle-Mount Plug**



**80 CONTACTS**



**160 & 200 CONTACT**

**Ordering Data**

Number of Positions	Part Number	Dimensions							
		A		B		C		D	
		mm	in.	mm	in.	mm	in.	mm	in.
80	91543-105	n/a	n/a	24.77	0.975	n/a	n/a	28.58	1.125
160	91895-101	58.16	2.290	52.07	2.050	66.68	2.625	73.66	2.900
200	91895-103	70.86	2.790	64.77	2.550	79.38	3.125	86.36	3.400

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

## Features

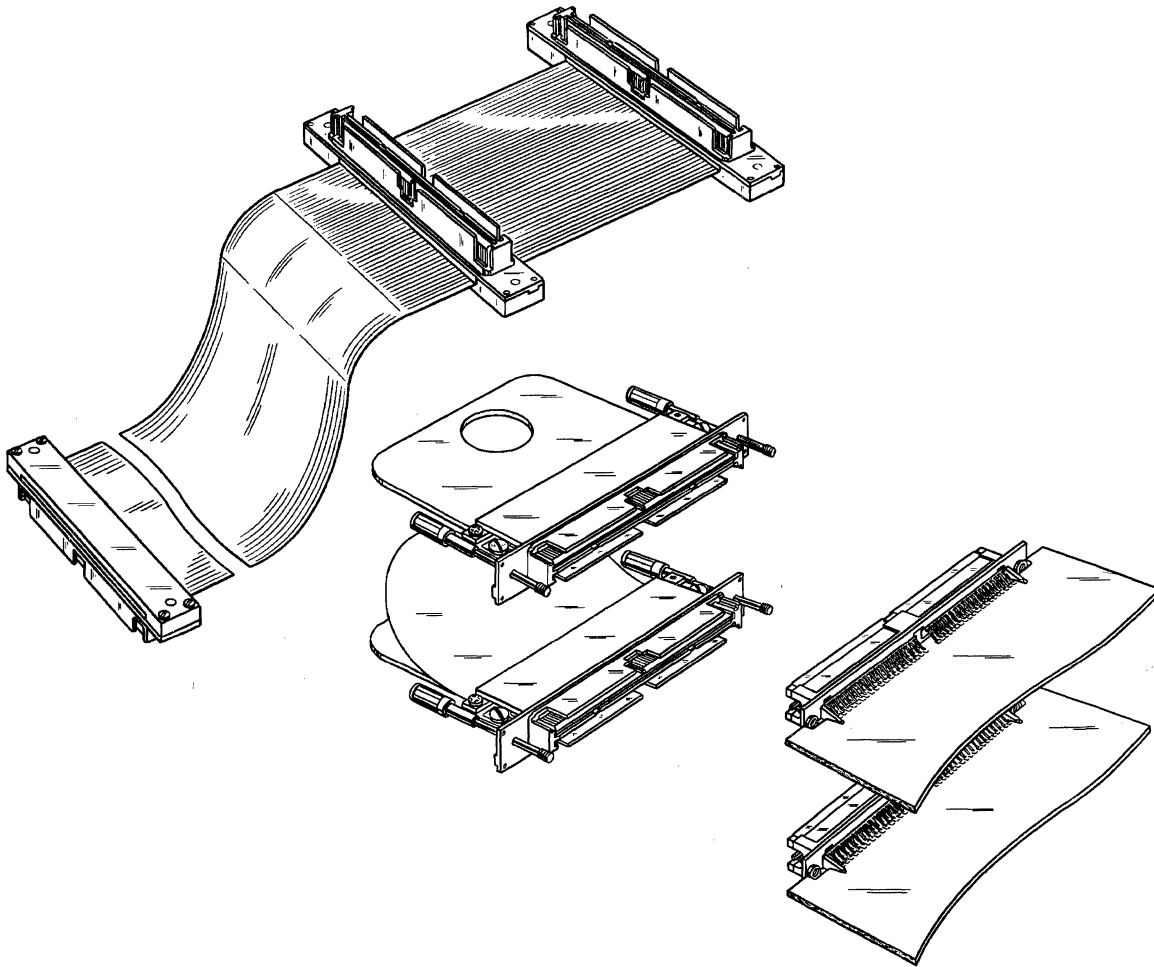
- 80 to 200 positions
- 1 to 10 inches long
- Polarized
- Board mounted connector available in either right angle or vertical configurations.
- Optional
  - Jack screws
  - Pull tabs
  - Strain relief
- Custom manufactured to your specifications.

## Micropax™ High-Density Board-to-Board System

0.64 mm (0.025 in.)

**Custom  
High Performance  
Flex Circuit  
Cable and Jumper Assemblies**

3



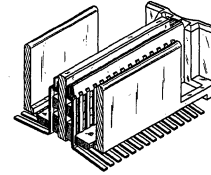
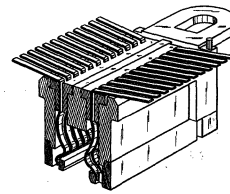
**Contact your Berg sales representative  
for more information.**

# Micropax™ High-Density Board-to-Board System

0.64 mm (0.025 in.)

Surface-Mount


Plugs and Receptacles




## Features

- Two-row, high-density (80 contacts per inch) connectors.
- Low insertion force for easy engagement / disengagement.
- Impedance controlled (shielded) for reliable electrical performance.
- Preloaded, cantilever beam contacts ensure reliable electrical performance.
- Duplex plating.
- High-temperature plastic withstands IR, wave, and vapor-phase soldering.
- Rugged, die-cast metal construction withstands handling.
- Connector-to-connector and connector-to-board polarization ensure proper mating and application.
- Locating feature for proper PCB placement.
- Low-profile design minimizes board-to-board spacing.

## Approvals and Certifications

 File no. E66906

 File no. LR46923

## Technical Data

### Materials

- Housing ..... Zinc alloy
  - ▶ Applicable soldering processes. IR, wave, vapor-phase
- Contact base material..... Beryllium-copper
- Dielectric material..... Glass-filled LCP
  - ▶ Color ..... Black

### Electrical Performance

- Current rating (per contact) ..... 0.5 amp
- Capacitance (at 1 MHz; adjacent lines grounded) ..... 2.8 pF
- Characteristic impedance (nominal) ..... 55Ω
- Inductance ..... 2.5 nH
- Propagation delay
  - ▶ 7:1 S:G ..... 135 ps
  - ▶ 1:1 S:G ..... 110 ps
- Crosstalk (near end at 500 ps)
  - ▶ 7:1 S:G ..... 8.5%
  - ▶ 1:1 S:G ..... 2.2%

### Plating

- Housing ..... 3.81 μm (150 μin.) min bright tin
- Contact
  - ▶ Underplating ..... 1.27 μm (50 μin.) nickel
  - ▶ Finish ..... 0.76 μm (30 μin.) GXT™
- Solder tail ..... 3.81 μm (150 μin.) tin-lead

### Mechanical Performance

- Insertion force per contact ..... 0.42 N (43 gf)
- Contact wipe ..... 1.00 mm (0.040 in.) min

### Environmental Properties

- Temperature range ..... -20°C to +105°C

### Packaging

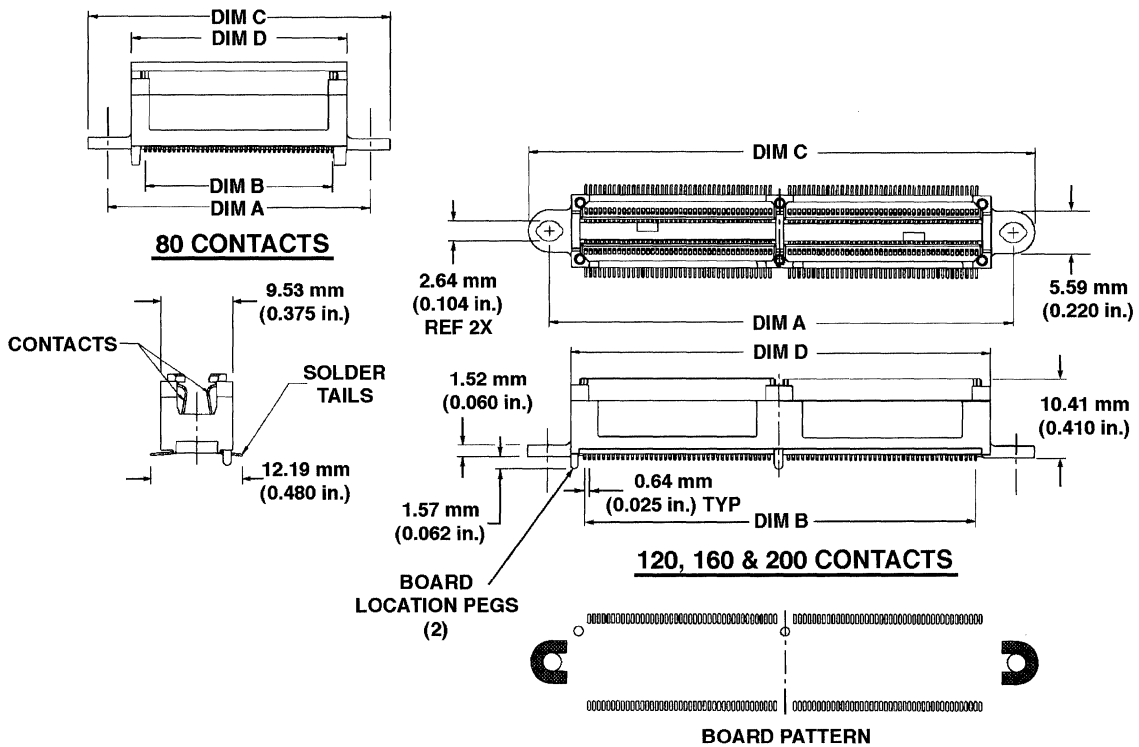
- Tubes

## Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawings.....	By Part No.	Connector Alignment Information .....	TA-932
Product Samples .....	Upon Request	Product Specifications .....	BUS-12-105
Surface-Mount Application Note .....	950512-014		

**Description**  
**Surface-Mount Receptacle**

3

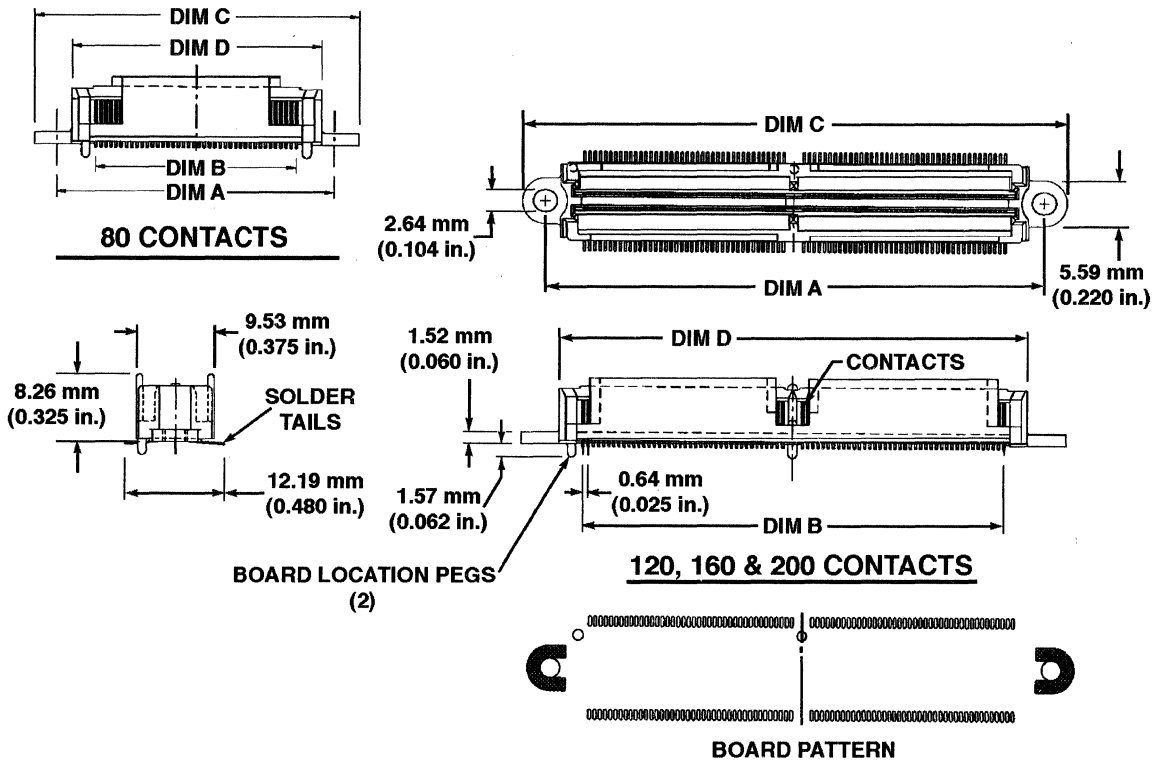


		<b>Ordering Data</b>							
Number of Positions	Part Number	Dimensions							
		A		B		C		D	
		mm	in.	mm	in.	mm	in.	mm	in.
80	91404-003	34.42	1.355	24.77	0.975	40.01	1.575	28.58	1.125
120	91403-001	49.02	1.930	39.37	1.550	54.61	2.150	43.18	1.700
160	91403-002	61.72	2.430	52.07	2.050	67.31	2.650	55.88	2.200
200	91403-003	74.42	2.930	64.77	2.550	80.01	3.150	68.58	2.700

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

Surface-Mount Plugs  
0.64 mm (0.025 in.)

**Description**  
**Surface-Mount Plug**



**Ordering Data**

Number of Positions	Part Number	Dimensions							
		A		B		C		D	
		mm	in.	mm	in.	mm	in.	mm	in.
80	91295-003	34.42	1.355	24.77	0.975	40.01	1.575	30.86	1.215
120	91294-001	49.02	1.930	39.37	1.550	54.61	2.150	45.47	1.790
160	91294-002	61.72	2.430	52.07	2.050	67.31	2.650	58.16	2.290
200	91294-003	74.42	2.930	64.77	2.550	80.01	3.150	70.87	2.790

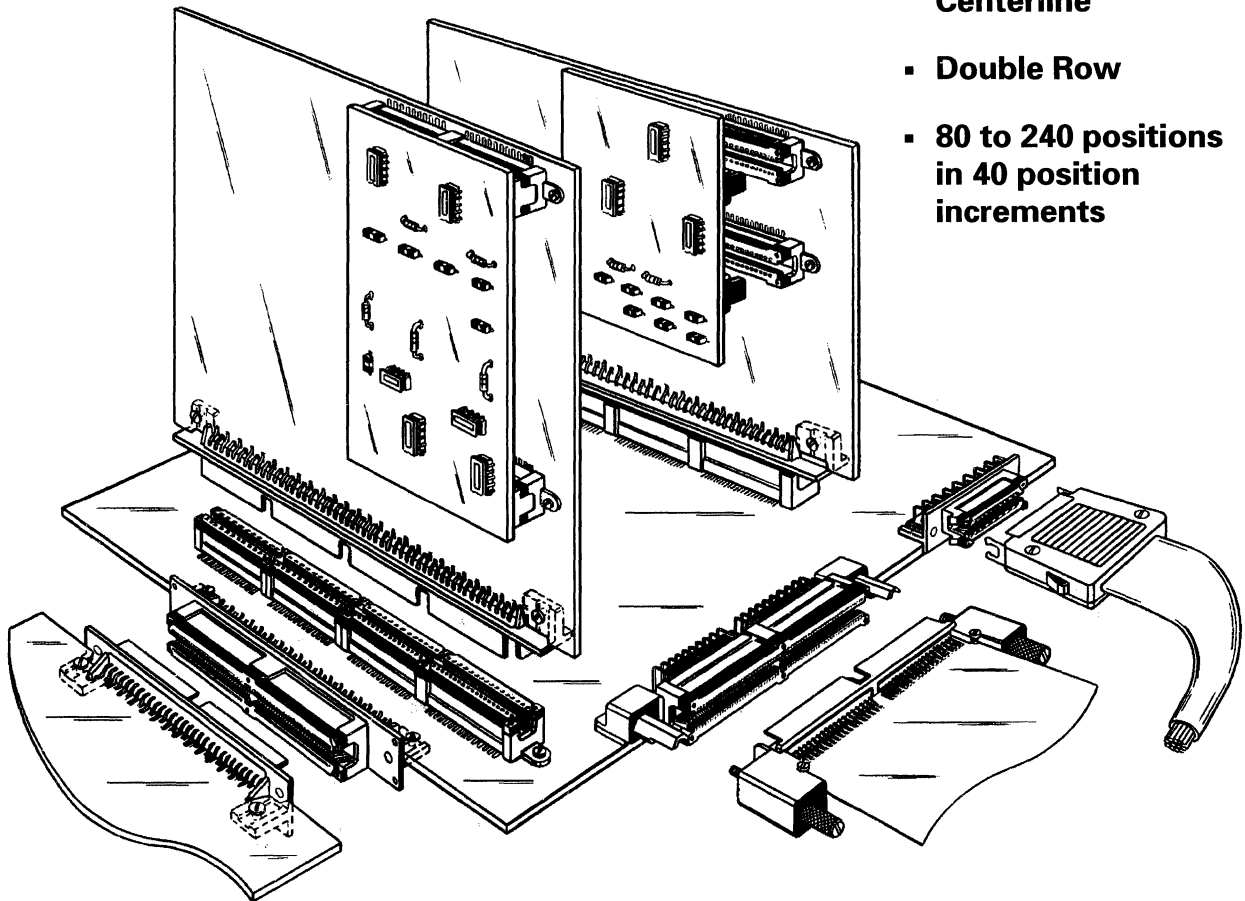
Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

# Micropax™ High Density Connectors

0.64 mm (0.025 in.)

- 0.64 mm (0.025 in.) Centerline
- Double Row
- 80 to 240 positions in 40 position increments

3



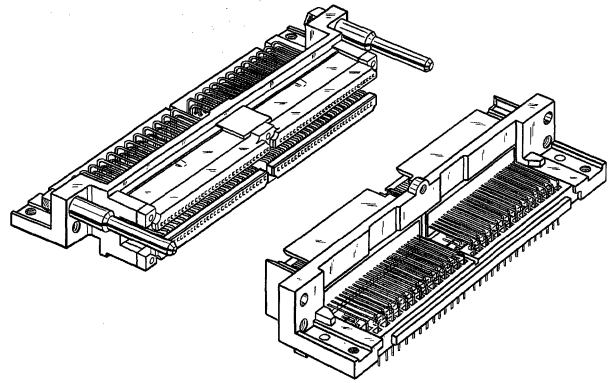
## Micropax™ High Density Connectors A Broad-Based Interconnect System



# Micropax™ High-Density Board-to-Board System

0.64 mm (0.025 in.)

## Right Angle Through-Mount Plugs and Receptacles



### Features

- Two-row, high-density (80 contacts per inch) connectors.
- Low insertion force for easy engagement / disengagement.
- Impedance controlled (shielded) for reliable electrical performance.
- Preloaded, cantilever beam contacts ensure reliable electrical performance.
- Duplex plating.
- High-temperature plastic withstands IR, wave, and vapor-phase soldering.
- Rugged, die-cast metal construction withstands handling.
- Connector-to-connector and connector-to-board polarization ensure proper mating and application.
- Locating feature for proper PCB placement.
- Optional guide pins and First Make Last Break contacts.

### Technical Data

#### Materials

- Housing ..... Zinc alloy
  - ▶ Applicable soldering processes. IR, wave, vapor-phase
- Contact base material..... Beryllium-copper
- Dielectric material..... Glass-filled LCP
  - ▶ Color ..... Black

#### Electrical Performance

- Current rating (per contact) ..... 0.5 amp
- Capacitance (at 1 MHz; adjacent lines grounded) ..... 2.8 pF
- Characteristic impedance (nominal) ..... 55Ω

#### Plating

- Housing ..... 1.27 μm (50 μin.) min bright nickel

- Contact
  - ▶ Underplating ..... 1.27 μm (50 μin.) nickel
  - ▶ Finish ..... 0.76μm (30 μin.) GXT™
- Solder tail ..... 3.81 μm (150 μin.) tin-lead

#### Mechanical Performance

- Insertion force per contact ..... 0.42 N (43 gf)
- Contact wipe ..... 1.00 mm (0.040 in.) min

#### Environmental Properties

- Temperature range ..... -20°C to +105°C

#### Packaging

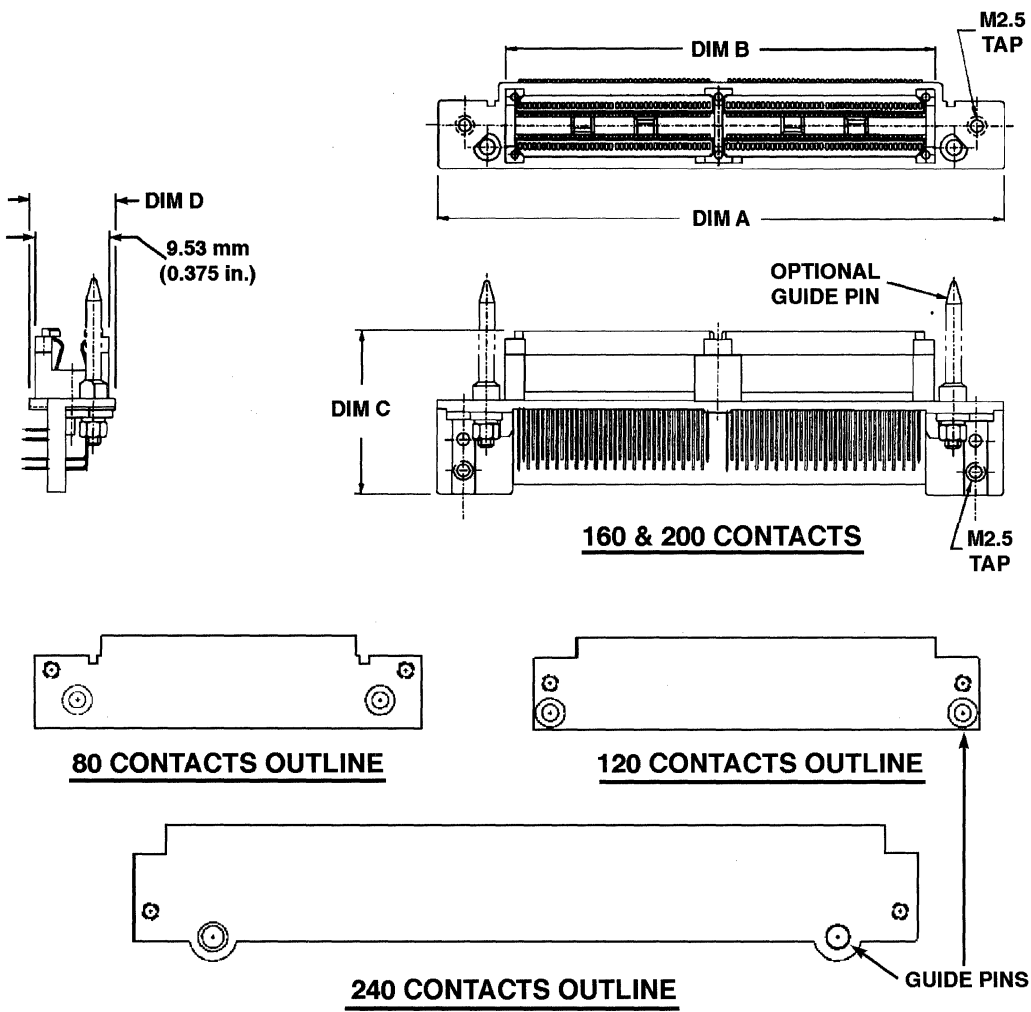
- Tubes

### Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawings.....	By Part No.	Application Drawing.....	TA-925
Product Samples .....	Upon Request	Product Specifications .....	BUS-12-105

**Description**  
**Right-Angle**  
**Through-Mount Receptacle**

3



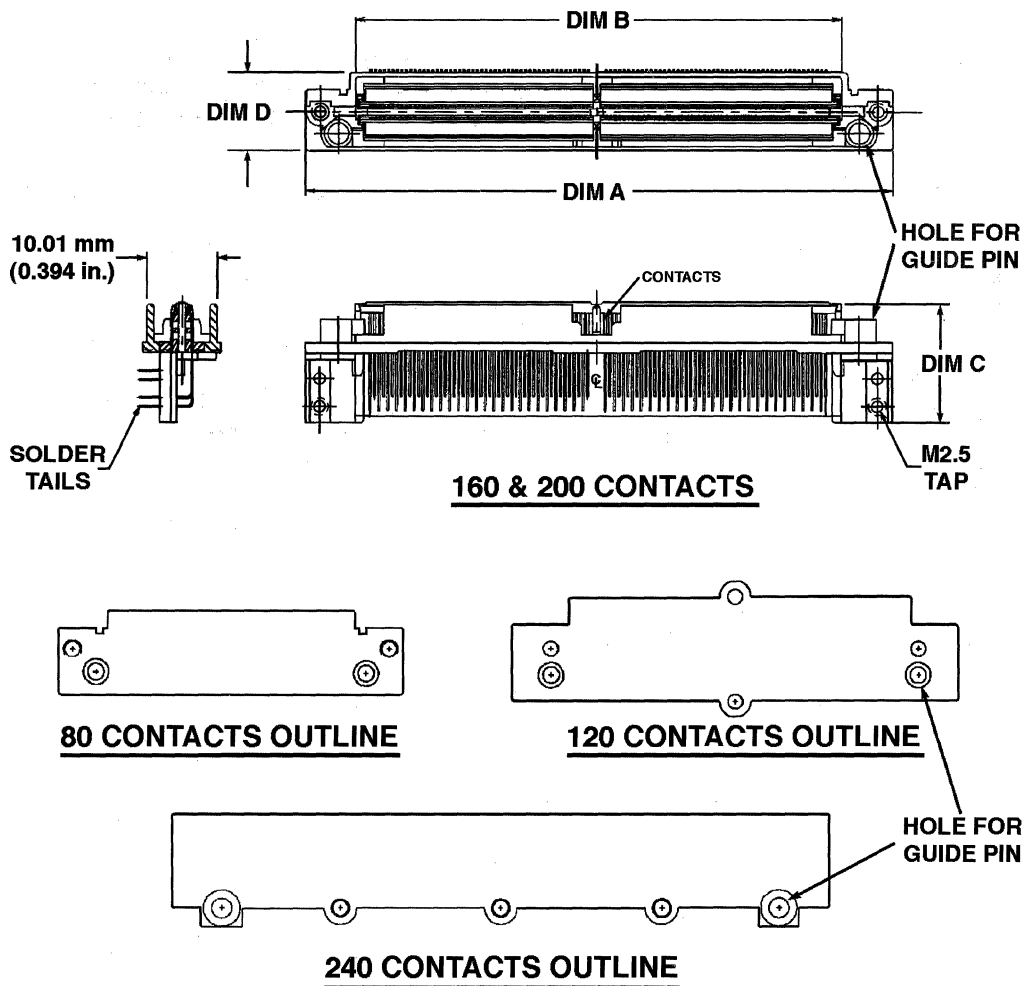
**Ordering Data**

Number of Positions	Part Number	Dimensions								Guide pins	Mates With
		A		B		C		D			
		mm	in.	mm	in.	mm	in.	mm	in.		
80	90790-002	46.38	1.826	28.73	1.131	21.06	0.829	11.13	0.438	Yes	90784-001
120	94369-001	53.39	2.102	43.18	1.700	20.37	0.802	11.13	0.438	Yes	94359-001
160	90794-002	73.71	2.902	56.01	2.205	21.06	0.829	11.13	0.438	Yes	90793-002
160	90794-001	73.71	2.902	56.01	2.205	21.06	0.829	11.13	0.438	No	90793-002
200	90787-001	83.39	3.283	68.58	2.700	20.27	0.798	11.13	0.438	Yes	90786-001
200	90787-002	83.39	3.283	68.58	2.700	20.27	0.798	11.13	0.438	No	90786-001
240	94768-001	94.36	3.715	88.56	3.408	20.25	0.797	16.26	0.640	Yes	94767-001

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

**Right-Angle Through-Mount Plugs**  
**0.64 mm (0.025 in.)**

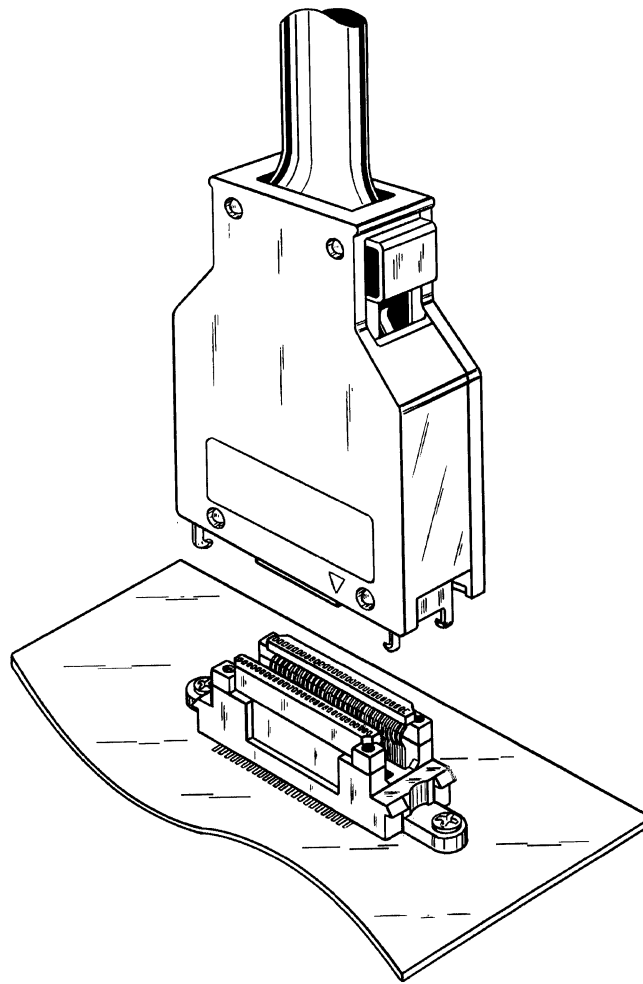
**Description**  
**Right-Angle**  
**Through-Mount Plug**



**Ordering Data**

Number of Positions	Part Number	First Make Last Break	Dimensions							
			A		B		C		D	
			mm	in.	mm	in.	mm	in.	mm	in.
80	90784-001	No	46.38	1.826	30.00	1.181	18.06	0.711	11.30	0.445
80	90784-003	Yes	36.00	1.417	30.00	1.181	17.80	0.701	14.51	0.571
120	94359-001	Yes	60.10	2.366	45.47	1.790	18.06	0.711	18.40	0.724
160	90793-002	No	73.71	2.902	56.01	2.205	18.06	0.711	11.30	0.445
200	90786-002	No	83.39	3.283	69.01	2.717	17.25	0.679	11.30	0.445
240	94767-001	Yes	94.08	3.704	88.65	3.490	20.68	0.814	15.04	0.592

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

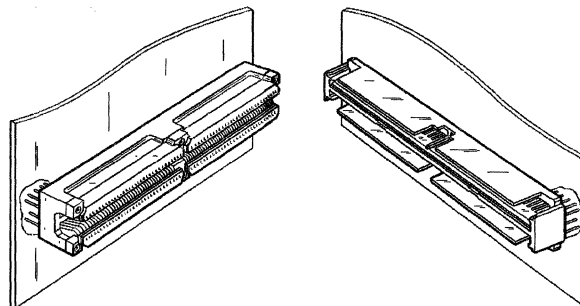


## Custom Cable Assemblies

# Micropax™ High-Density Board-to-Board System

0.64 mm (0.025 in.)

**Vertical Through-Mount**





## Features

- Two-row, high-density (80 contacts per inch) connectors.
- Low insertion force for easy engagement / disengagement.
- Impedance controlled (shielded) for reliable electrical performance.
- Low-profile design minimizes board-to-board spacing.
- Preloaded, cantilever beam contacts ensure reliable electrical performance.

- Duplex plating.
- High-temperature plastic withstands IR, wave, and vapor-phase soldering.
- Rugged, die-cast metal construction withstands handling.
- Connector-to-connector and connector-to-board polarization ensure proper mating and application.
- Locating feature for proper PCB placement.

## Approvals and Certifications

 File no. E66906

 File no. LR46923

## Technical Data

### Materials

- Housing ..... Zinc alloy
  - ▶ Applicable soldering processes. IR, wave, vapor-phase
- Contact base material. .... Beryllium-copper
- Dielectric material. .... Glass-filled LCP
  - ▶ Color ..... Black

### Electrical Performance

- Current rating (per contact) ..... 0.5 amp
- Capacitance (at 1 MHz; adjacent lines grounded) ..... 2.8 pF
- Characteristic impedance (nominal) ..... 55Ω
- Inductance ..... 2.5 nH
- Propagation delay
  - ▶ 7:1 S:G ..... 130 ps
  - ▶ 1:1 S:G ..... 105 ps
- Crosstalk (near end at 500 ps)
  - ▶ 7:1 S:G ..... 8.5%
  - ▶ 1:1 S:G ..... 2.0%

### Plating

- Housing ..... 3.81 μm (150 μin.) min bright tin
- Contact
  - ▶ Underplating ..... 1.27 μm (50 μin.) nickel
  - ▶ Finish ..... 0.76 μm (30 μin.) GXT™
- Solder tail ..... 3.81 μm (150 μin.) tin-lead

### Mechanical Performance

- Insertion force per contact ..... 0.42 N (43 gf)
- Contact wipe ..... 1.00 mm (0.040 in.) min

### Environmental Properties

- Temperature range ..... -20°C to +105°C

### Packaging

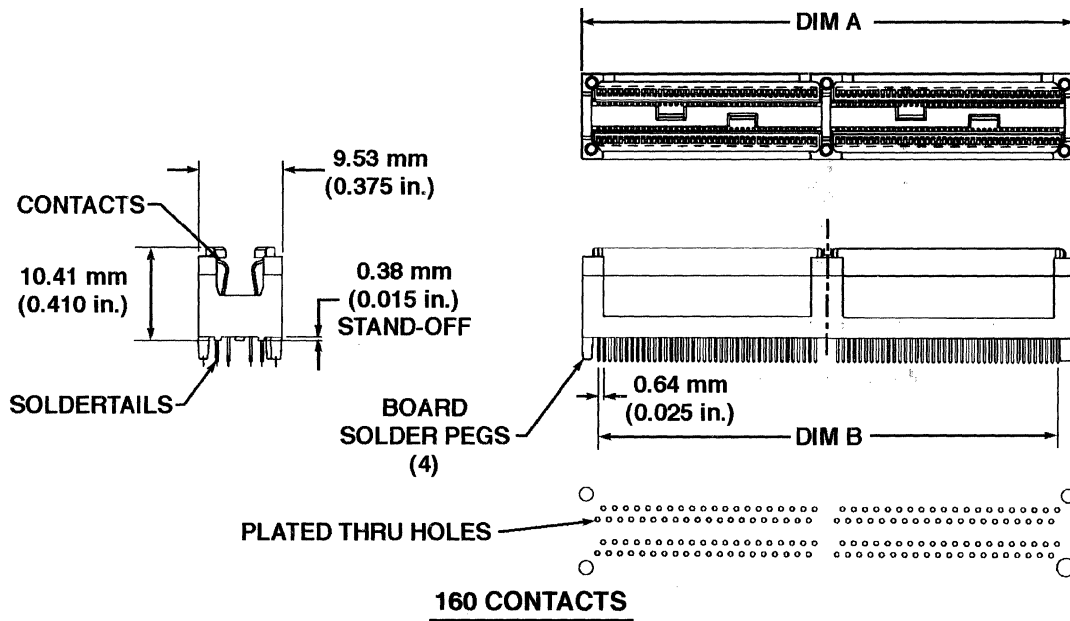
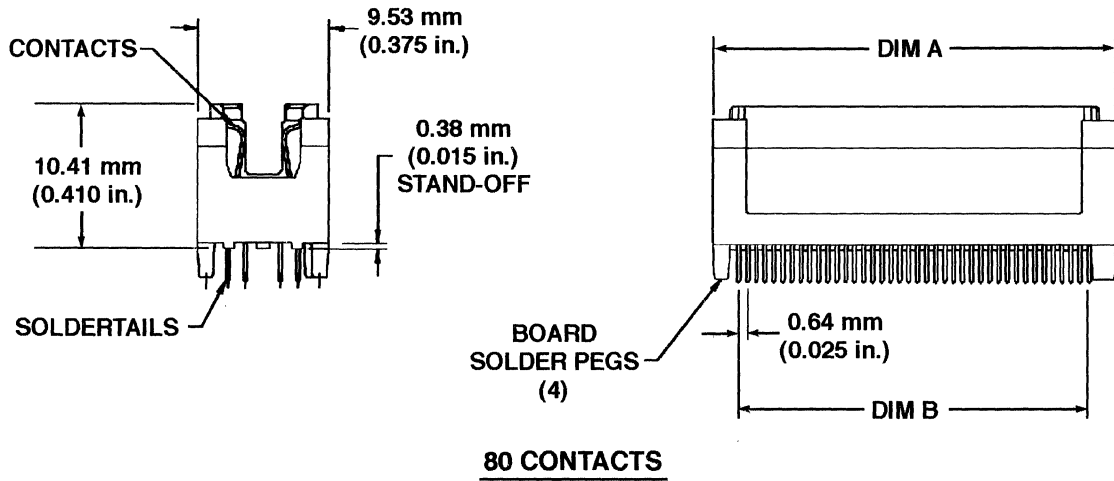
- Tubes

## Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawings	By Part No.	Application Drawing	TA-932
Product Samples	Upon Request	Product Specifications	BUS-12-105

**Description**

**Vertical Through-Mount Receptacle**



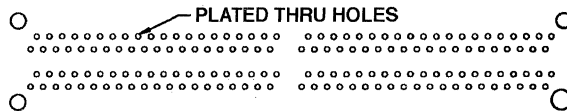
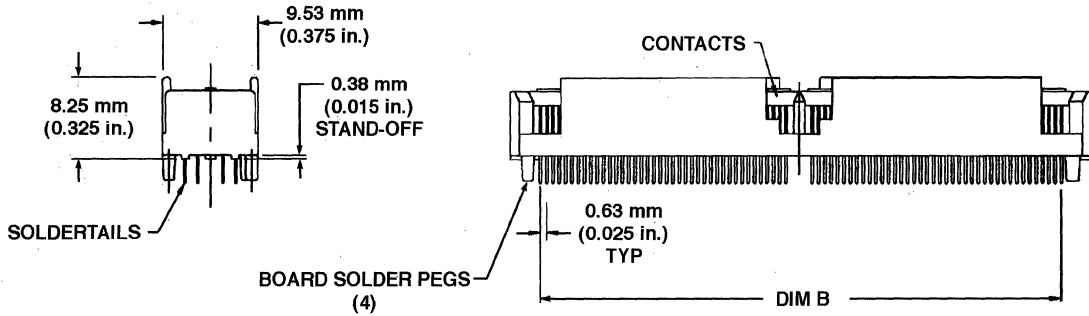
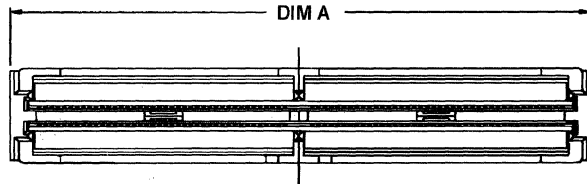
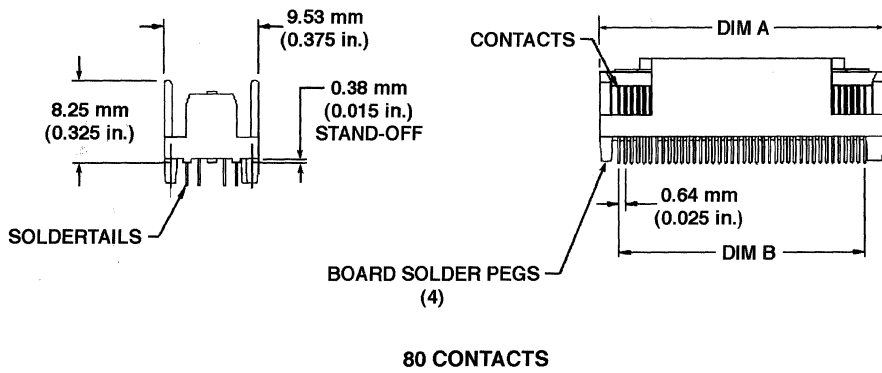
**Ordering Data**

Number of Positions	Part Number	Dimension				Board Thickness	
		A		B		mm	in.
		mm	in.	mm	in.		
80	91538-005	28.58	1.125	24.77	0.975	1.58	0.062
80	91538-006	28.58	1.125	24.77	0.975	3.18	0.125
160	89648-001	55.88	2.200	52.07	2.050	1.58	0.062
160	89648-002	55.88	2.200	52.07	2.050	3.18	0.125

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

**Vertical Through-Mount Plugs**  
**0.64 mm (0.025 in.)**

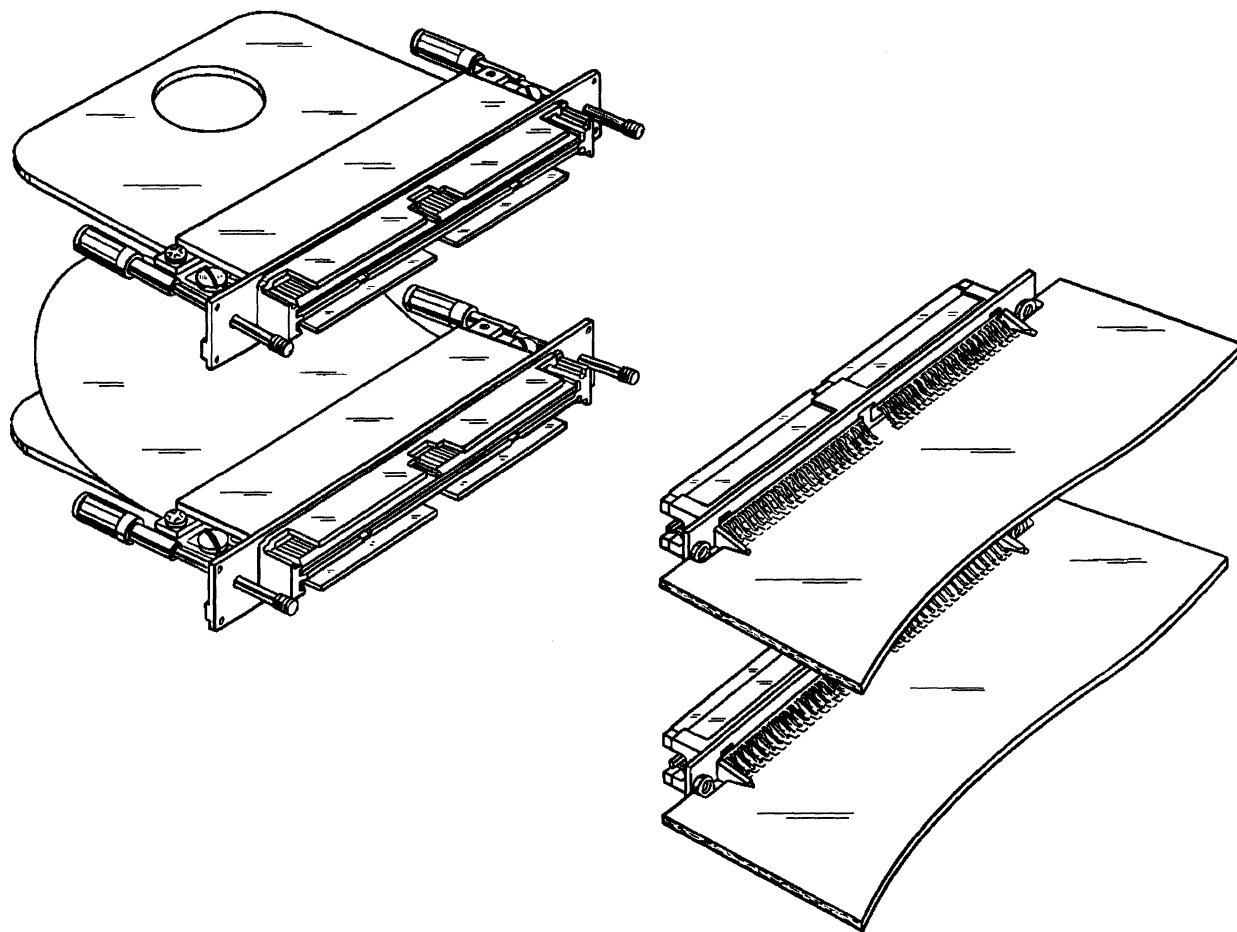
**Description**  
**Vertical**  
**Through-Mount Plug**



**Ordering Data**

Number of Positions	Part Number	Dimension				Board Thickness	
		A		B		mm	in.
		mm	in.	mm	in.		
80	91539-005	28.58	1.125	24.77	0.975	1.58	0.062
80	91539-006	28.58	1.125	24.77	0.975	3.18	0.125
160	89649-001	58.17	2.290	52.07	2.050	1.58	0.062
160	89649-002	58.17	2.290	52.07	2.050	3.18	0.125

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.



## Custom Flexible Circuit Jumper Assemblies



# PCMCIA Components

## Contents

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<b>Rear I/O Cable Assembly Kits .....</b>	<b>4-10</b>
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<b>PCMCIA Header Terminology .....</b>	<b>4-35</b>

# Header Finder Reference Table

Base Part No.	Hdr.	Mech.	Final Asbly	1	2	Card Bus	Thred Insert	3.3v	5.0v	R/A Pin Thru Hole	SMT	SMT In-line	Flex	Vert. PCB	Manul Front	Manul Side	Non eject	4 mm std.	8 mm extnd	Std.	Narrrw	Cap-tive Hex Nut	Solder able Hold Downs	Page No.															
																									Product Type		# of Decks		Keying		Mounting			Eject Type		Card Travel		Width	
																									HEADERS												MECHANISM		
72206			x	x		x		x		x					x				x		x			4-14															
61125			x	x				x						x	x				x		x			4-17, 18															
61126			x	x				x		x		x			x				x		x			4-18															
71299			x	x		x		x						x	x				x		x			4-13, 15															
92193			x	x				x		o	o	o			x			x		x			o	4-21															
92789			x	x				x		o	o	o					x		x				o	4-33															
95547			x	x				x						x	x				x		x			4-19, 20															
95620			x	x				x		o	o	o			x			x		x			o	4-23															
61124			x		x			x						x	x			x		x				4-18															
71240			x		x	x		x						x	x			x		x		x		4-15															
71757			x		x	x		x						x	x			x		x				4-16															
92194			x		x			x		o					x			x		x			o	4-27															
92790			x		x			x		o							x		x				o	4-33															
94050			x		x			x		o	o	o			x			x		x			o	4-29															
95562			x		x			x						x	x			x		x		x		4-20															
61127	x			x				x						x										4-17															
71249	x			x		x		x						x										4-13															
71294	x			x		x		x		x														4-14															
94898	x			x				x		o	o	o											o	4-26															
95706	x			x				x		o	o	o												4-26															
92140	x			x				x		o	o	o											o	4-22 to 33															
92150	x			x				x		o	o						x			x				4-33															
92856	x			x				x		x	x													4-26															
94058	x			x				x					x											4-32															
95548	x			x				x						x										4-19															
71257	x				x	x	x	x		x														4-16															
95705	x				x		x	x		x														4-26															
92821	x				x		x		x	x														4-26															
71245		x		x		x									x				x		x		o	4-13, 16															
91113		x		x											x				x		x			4-13, 17, 19															
92192		x		x											x			x		x			o	4-27, 32															
92791		x		x													x			x			o	4-33															
92800		x		x												x		x		x			o	4-24, 30															
94613		x		x											x				x		x			4-22, 28															
95033		x		x												x			x		x			4-25, 31															
95079		x		x											x				x		x		o	4-13, 17, 19															

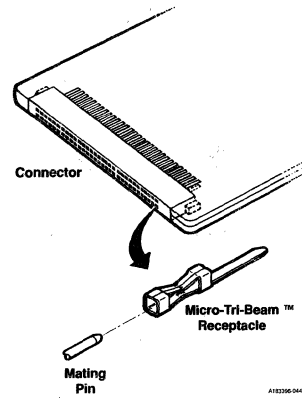
"x" indicates a feature found in a part number series.  
"o" indicates an optional feature available with some or all dash numbers in a part number series. Please check the appropriate page for details.



# Receptacles

1.27 x 1.27 mm (0.050 x 0.050 in.)  
Centerlines

2-Row




## Features


- Conforms to PCMCIA and JEIDA standards
- Patented high-density Micro-Tri-Beam™ Connector system establishes a redundant connection between the Memory Card and host system to ensure reliable electrical performance.
- Micro-Tri-Beam™ terminals have 10,000 mating cycle durability when used with compatible Berg headers.
- Receptacles are available for both single- and double-sided component mounting on PCB's of various thicknesses.

## Options

- Available in three solder tail styles: straddle-mount centered; straddle-mount off-set; and double row surface mount.
- Available in three housing ear styles: narrow, L-shaped, and wide.
- Many different solder tail lead gaps and PC offsets available.

## Approvals and Certifications

 File no. E66906

 File no. LR46923

## Mating Data

- |  |             |
|--|-------------|
| <b>Berg Electronics Products</b>       | <b>Page</b> |
| ▪ Eject and non-eject header . . . . . | 4-12        |

## Technical Data

### Materials

- Housing material . . . . . High Temperature Polyester
- Terminal . . . . . Beryllium-copper alloy

### Plating

- Underplating . . . . . 0.5 µm (20 µin.) nickel
- Finish
  - Contact area . . . . . Gold flash over 0.5 µm (20 µin.) palladium-nickel alloy
  - Solder tail . . . . . tin-lead

### Electrical Performance Per PCMCIA Standard

- Current rating . . . . . 0.5 amp dc max per contact

### Mechanical Performance Per PCMCIA Standard

- Insertion force max. . . . . 0.77 N (85 gf) average per contact

- Withdrawal force min. . . . . 0.27 N (30 gf) average per contact
- Durability (mating cycles) . . . . . Minimum of 10,000

### Packaging

- Trays
- Tubes

### Specifications

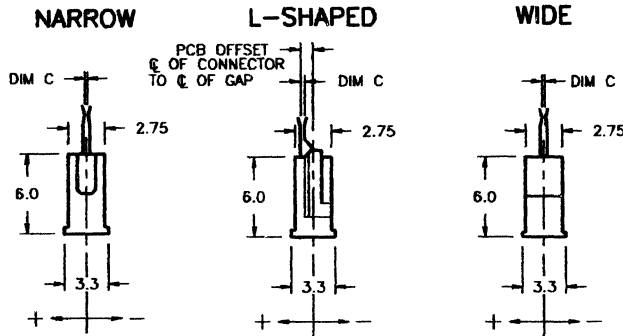
- PCMCIA (Personal Computer Memory Card International Association)
- JEIDA (Japan Electronic Industry Development Association)

## Customer Support Materials

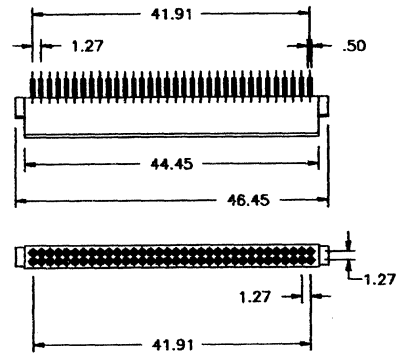
Description	Order No.	Description	Order No.
Customer Product Drawings . . . . .	By Part No.	Product Samples . . . . .	Upon Request
Product Specifications . . . . .	110-263	Test Data . . . . .	Upon Request

**Description**  
**Receptacles**

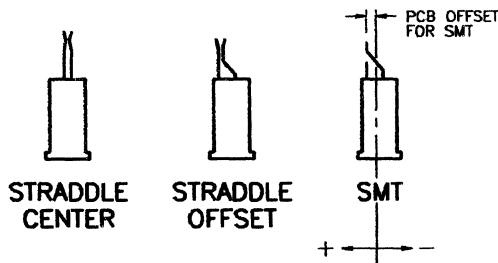
**EAR STYLES**



**68 POSITION**



**SOLDER TAIL STYLES**



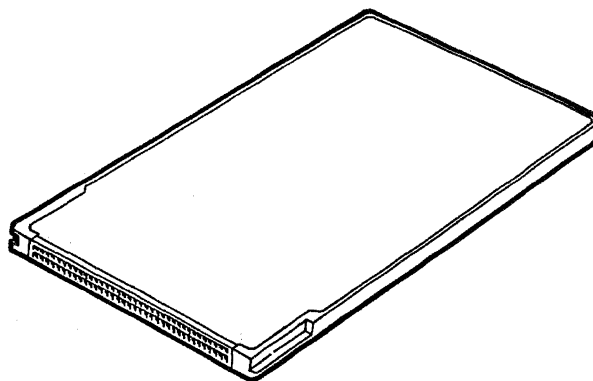
4

**Ordering Data**  
**Receptacles**

Part #	Housing Ear Style	PCB Offset (mm)	Lead Gap Dim "C" (mm)
90949-103	L-Shaped	+0.66	0.34
92132-003	L-Shaped	-0.41	1.14
93731-003	L-Shaped	0.00	0.20
93732-003	L-Shaped	-0.38	1.19
93733-003	L-Shaped	0.00	0.70
93738-003	L-Shaped	0.00	0.20
93762-003	L-Shaped	+0.17	0.44
93780-003	L-Shaped	-0.53	0.70
90933-003	Narrow	0.00	0.45
90994-003	Narrow	0.00	0.20
92185-003	Narrow	+1.00	0.43
92737-003	Narrow	+0.33	0.60
93345-003	Narrow	+0.85	0.26
93378-003	Narrow	0.41	0.20
93714-003	Narrow	0.00	0.46
93730-003	Narrow	+0.49	0.36
93775-003	Narrow	+0.74	0.41
90935-003	Wide	0.00	0.20
90936-003	Wide	+0.85	0.26
92130-003	Wide	+0.58	Staggered SMT
92153-003	Wide	1.03	Staggered SMT
94819-003	Wide	0.17	0.41

# Type I Card Kits

- 68 Position Static RAM**
- 68 Position Mask ROM**
- 68 Position Flash**
- 88 Position DRAM**



## Features

- Meet PCMCIA and JEIDA standards
- Polarized to prevent incorrect card insertion
- Card shield with adhesive to seal inside circuitry
- Patented high-density Micro-Tri-Beam™ Connector system establishes a redundant connection between the Memory Card and host

system to ensure reliable electrical performance.

- Micro-Tri-Beam™ terminals have 10,000 mating cycle durability when used with compatible Berg headers.

## Options

- Many receptacle solder tail lead gaps and off-sets available to fit different board thicknesses.

## Mating Data

- |  |             |
|--|-------------|
| <b>Berg Electronics Products</b>       | <b>Page</b> |
| ▪ Eject and non-eject headers. . . . . | 4-12        |

## Technical Data

### Materials

- Housing . . . . . High Temperature Polyester
- Shields . . . . . Stainless Steel
- Frames . . . . . Nylon or Polyester
- Terminal . . . . . Beryllium-copper alloy

### Plating

- Underplating . . . . . 0.5 µm (20 µin.) nickel
- Finish
  - Contact area . . . . . Gold flash over 0.5 µm (20 µin.) palladium-nickel alloy
  - Solder tail . . . . . tin-lead

### Electrical Performance Per PCMCIA Standard

- Current rating . . . . . 0.5 amp dc max per contact

### Mechanical Performance Per PCMCIA Standard

- Insertion force max. . . . . 0.77 N (85 gf) average per contact
- Withdrawal force min . . . . . 0.27 N (30 gf) average per contact
- Durability (mating cycles). . . . . Minimum of 10,000

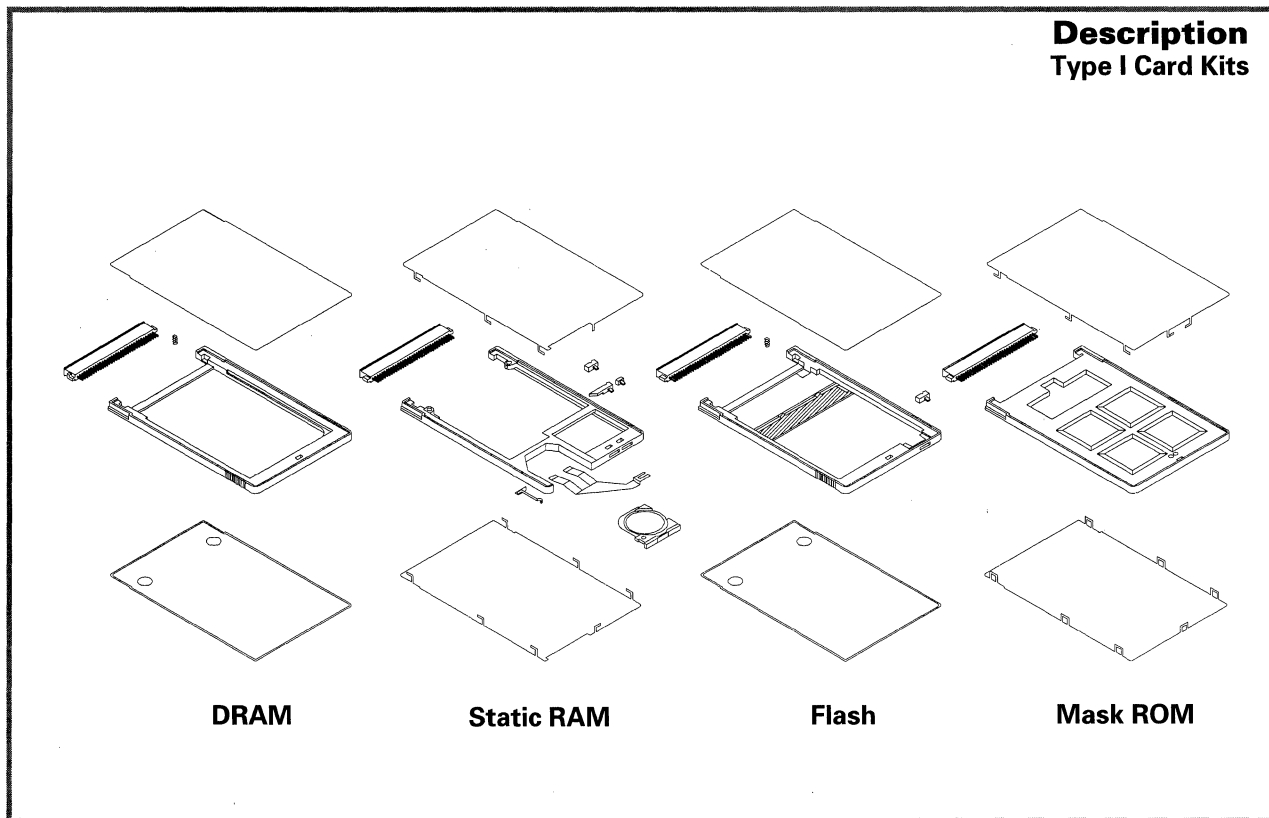
### Packaging

- Components Packaged Individually

## Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawings. . . . .	By Part No.	Product Samples. . . . .	Upon Request
Product Specifications. . . . .	110-236 & 110-261	Test Data . . . . .	Upon Request

**Description**  
Type I Card Kits



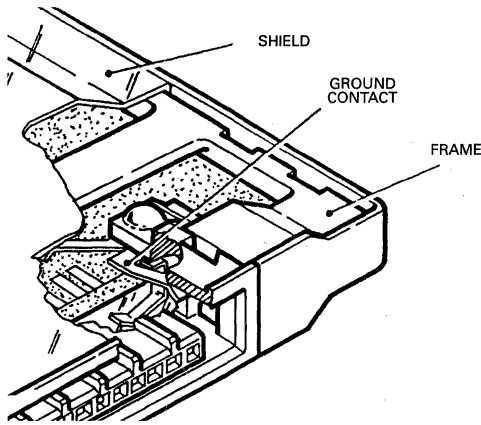
4

**Ordering Data**  
Type I Card Kit Selector

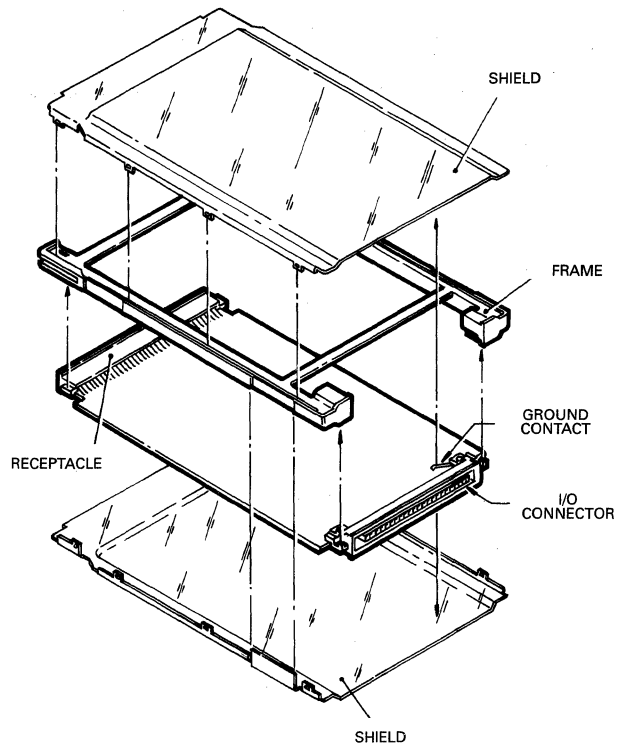
Kit Type	Number of Positions	PWB Thickness		Order Part Numbers		
		Min (mm)	Max (mm)	Frame Kit	Top Card Shield	Bottom Card Shield
SRAM	68	0.41	0.45	92828-001	89932-002 CL	89933-002 CL
SRAM	68	0.20	0.40	92828-002	89932-002 CL	89933-002 CL
MASK ROM	68	0.20	0.40	92827-001	86922-002	86923-002
FLASH	68	0.41	0.45	92895-001	93754-000	93754-000
FLASH	68	0.20	0.40	92895-002	93754-000	93754-000
FLASH L.D.*	68	0.41	0.45	92896-001	93754-000	93754-000
DRAM	88	0.44	1.14	92897-001	93754-000	93754-000

Note: Flash kit with low density frame 93750-002.

# Type II I/O Card Components



DETAIL GROUND CONTACT



## Features

- Meets PCMCIA and JEIDA standards
- Polarized to prevent incorrect card insertion
- Patented high-density Micro-Tri-Beam™ connector system established a card and host system to ensure reliable electrical performance.
- Micro-Tri-Beam™ terminals have 10,000 mating cycle durability when used with compatible Berg headers.


## Options


- Rear I/O Receptacle available in 9, 15, 25 and 32 positions
- 68 Position Micro-Tri-Beam™ receptacles available in multiple spacer heights with three solder tail styles; straddle center, straddle offset and surface mount.
- Card Shield with adhesive to seal inside circuit and insulating paper to protect conductive components
- Optional metalized frames available

## Mating Data

- |                                       |             |
|---------------------------------------|-------------|
| <b>Berg Electronics Products</b>      | <b>Page</b> |
| ▪ Eject and Non-Eject Headers . . . . | 4-12        |
| ▪ I/O Cable Assembly Kits . . . . .   | 4-10        |

## Approvals and Certifications

 File no. E66906

 File no. LR46923

## Technical Data

### Materials

- Frame . . . . . Thermoplastic
- 68pos Housing . . . . . LCP
- I/O Housing . . . . . LCP
- 68pos Contact . . . . . Beryllium-Copper Alloy
- I/O Contact . . . . . Phosphor-Bronze Alloy
- I/O Ground Contact . . . . . Copper-Nickel Alloy
- I/O Card Shield . . . . . Stainless Steel

### Plating

- 68pos Contact
  - ▶ Underplating . . . . . 0.5 µm (20 µin.) nickel
  - ▶ Contact area . . . . . Gold flash over 0.5 µm (20 µin.) palladium-nickel alloy
  - ▶ Solder Tail . . . . . 2.5 µm (100 µin.) tin-lead
- I/O Contact
  - ▶ Underplating . . . . . 1, 27 µm (50 µm in.) nickel

- ▶ Contact Area . . . . . Gold Flash over 1.0 µm (40 µin.) palladium nickel alloy
- ▶ Solder Tail . . . . . 2.0 µm (80 µin.) tin-lead

### Electrical Performance

- Insertion Force
  - ▶ 68pos Receptacle . . . . . 0.59N max (65 g f) per contact
  - ▶ I/O Connector . . . . . 0.35N max (39 g f) per contact
- Withdrawal Force
  - ▶ 68pos Receptacle . . . . . 1, 10N min. (11 g f) per contact
  - ▶ I/O Connector . . . . . 0, 61N min (18 g f) per contact
- Durability (Mating Cycles)
  - ▶ Min. of 10,000 (both connectors) - office environment
  - ▶ Min. of 5,000 (both connectors) - harsh environment

### Packaging

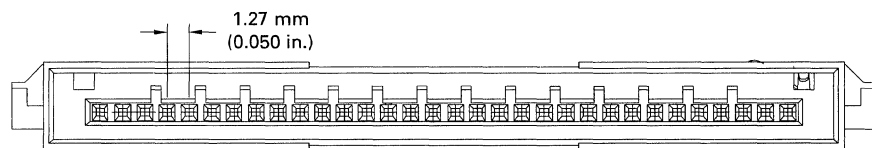
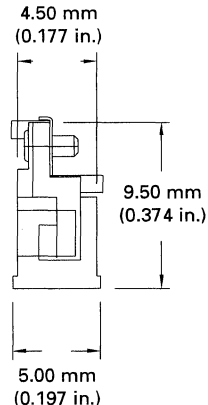
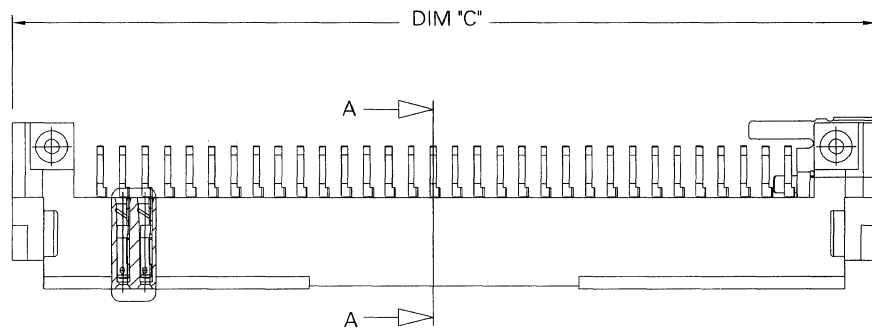
- Components packaged individually

## Customer Support Materials

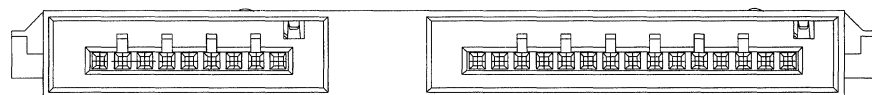
Description	Order No.
Customer Product Drawings . . . . .	By Part No.
Product Specifications . . . . .	110-049
Receptacle Selector (Straddle-Mount) . . . . .	TA 823
PWB Straddle-Mount Layout . . . . .	TA 835

Description	Order No.
Product Samples . . . . .	Upon Request
Test Data . . . . .	Upon Request

**Description**  
I/O Receptacle



9, 15, 25 and 32 POSITION I/O RECEPTACLE



9 + 15 POSITION I/O RECEPTACLE

4

**Ordering Data**  
I/O Receptacle

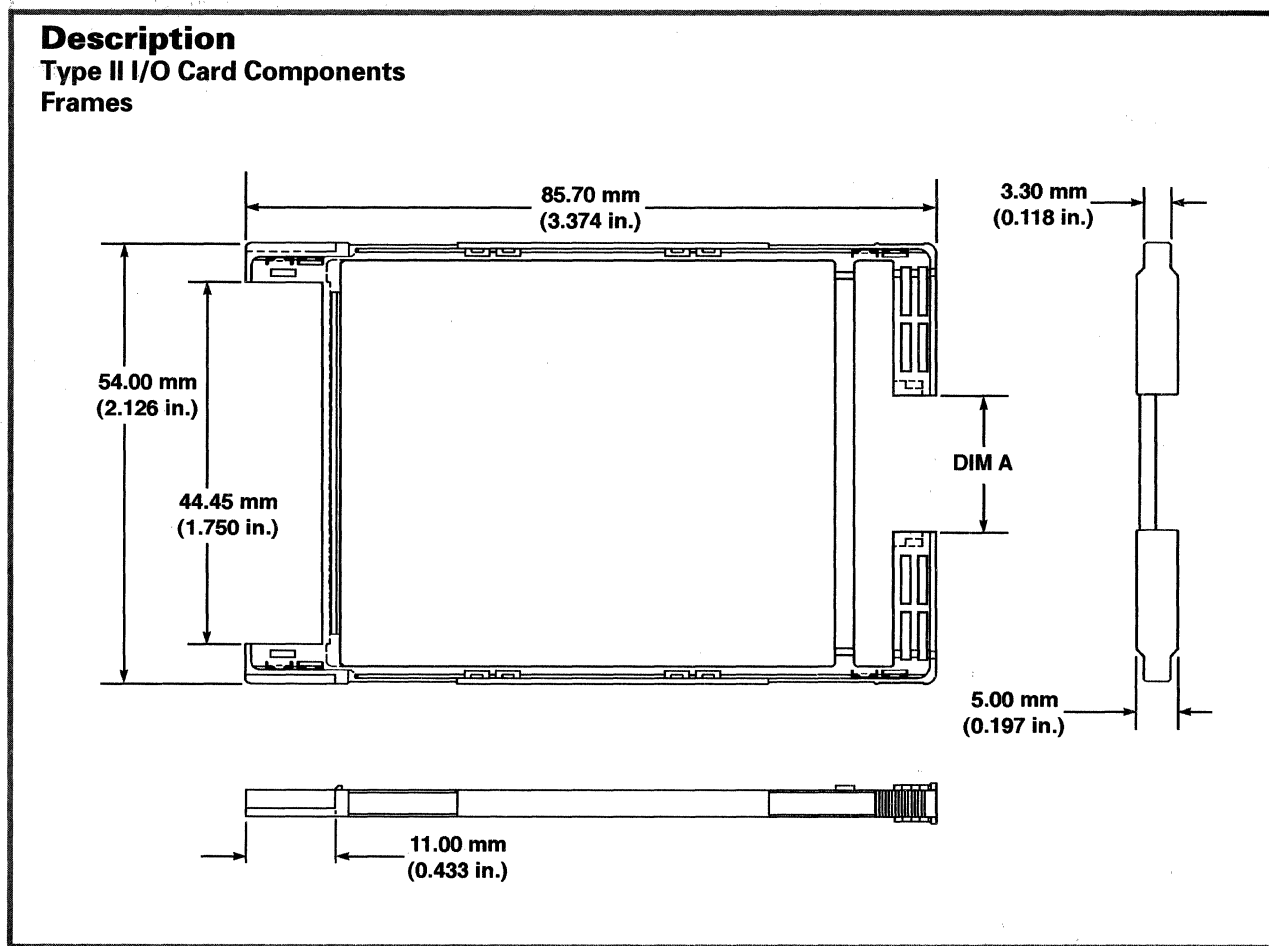
93515 - XXYY00

"XX"	Number of Positions	Dimension C Overall Length	
		mm	in.
09	9	20.27	0.798
15	15	27.89	1.098
24	24	49.48	1.948
25	25	40.69	1.602
32	32	49.48	1.948

Indicates appropriate 68 position receptacle required to achieve various maximum component heights above the PC board

Dash Number	Maximum allowable component height above PC board				Recommended PCB thickness				Use with 68 position receptacle part number
	Side 1		Side 2		Minimum		Maximum		
	mm	in.	mm	in.	mm	in.	mm	in.	
XX0100	2.20	0.087	1.60	0.063	0.60	0.024	0.70	0.028	92737-003
XX0000	2.10	0.083	1.50	0.059	0.80	0.031	0.90	0.035	92737-003
XX0500	2.70	0.106	1.30	0.051	0.40	0.016	0.50	0.020	93775-003
XX0400	2.60	0.102	1.20	0.047	0.60	0.024	0.70	0.028	93775-003
XX0700	2.90	0.114	1.10	0.043	0.40	0.016	0.50	0.020	92185-003
XX0600	2.80	0.110	1.00	0.039	0.60	0.024	0.70	0.028	92185-003
XX0300	2.50	0.098	1.60	0.063	0.40	0.016	0.50	0.020	93730-003
XX0200	2.40	0.094	1.50	0.059	0.50	0.020	0.60	0.024	93730-003
XX0000	2.00	0.079	1.80	0.071	0.40	0.016	0.70	0.028	93714-003





**Ordering Data**

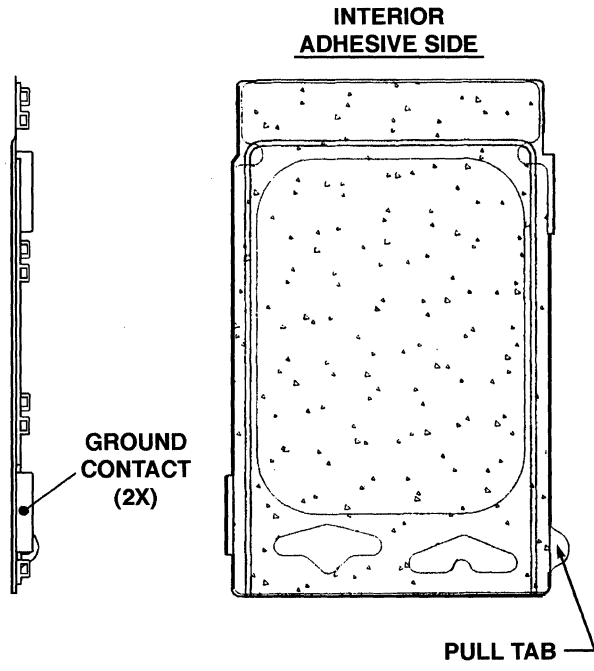
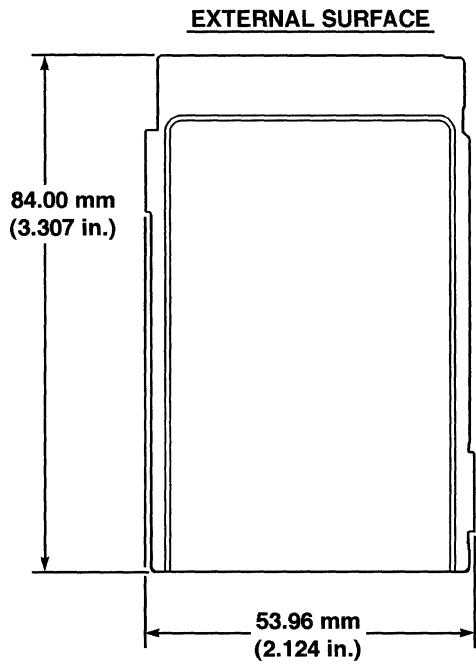
**93517 - XX0001**

Identifies size of frame opening and number of positions at I/O end.

Dash Number	Dimension A		Number of Positions at I/O End
	mm	in.	
-000001	Closed		None
-090001	16.70	0.657	9
-150001	24.30	0.957	15
-250001	37.00	1.457	25
-320001	45.90	1.807	32

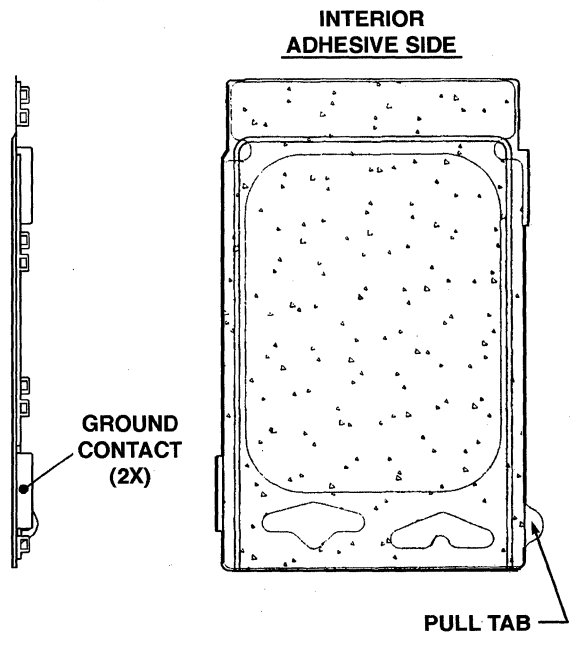
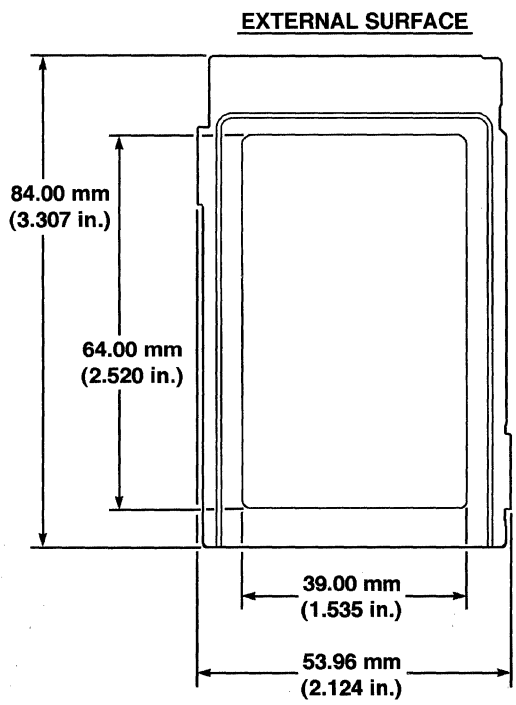
Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

**Description**  
Type II I/O Card Components  
Without Label Recess  
Part Number 93518-410020



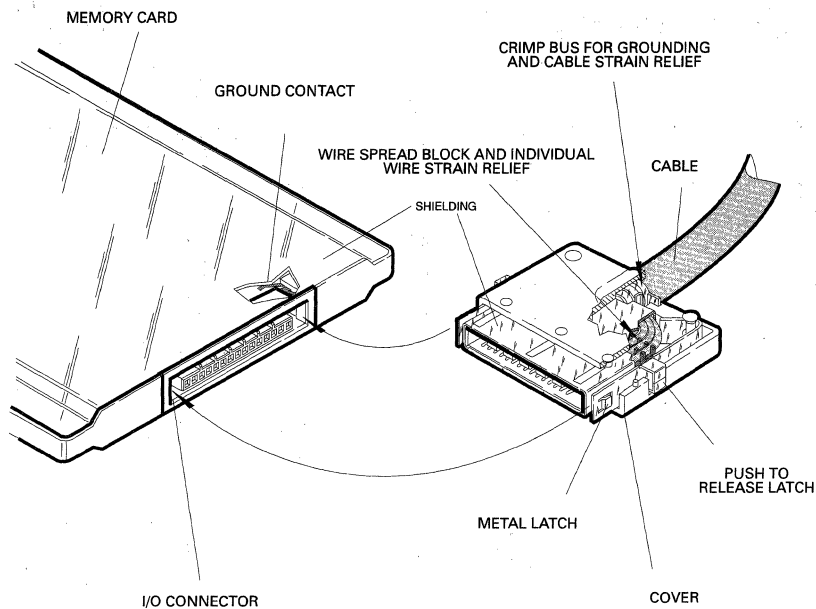
4

Type II I/O Card Components  
With Label Recess  
Part Number 93518-510020



# Shielded and Unshielded Rear I/O Cable Assembly Kits

## I/O Receptacle



### Features

- Polarized to prevent incorrect cable insertion
- 1.27mm centerline spacing
- 10,000 mating and unmating cycles
- 28 AWG flat and round cable (5.5mm O.D. max)
- Solder termination

### Options

- Both shielded and unshielded cable kits available
- 9, 15, 25, 32, and 9+15 position sizes available
- Optional metal active latch or passive latch

### Mating Data

Berg Electronics Products	Page
▪ Type II I/O Card Kits .....	4-4

### Technical Data

#### Materials

- Plug Connector Housing ..... LCP
- Shield Can ..... Copper-Nickel Alloy
- Cover ..... Polycarbonate
- Latch ..... Stainless Steel
- Terminal base material ..... Phosphor-Bronze Alloy

#### Plating

- Underplating ..... 1.27  $\mu$ m (50  $\mu$ in.) nickel
- Finish
  - Contact area ..... Gold flash over 1.0  $\mu$ m (40  $\mu$ in.) palladium-nickel alloy
  - Solder Tail ..... 2.0  $\mu$ m (80  $\mu$ in.) tin-lead

#### Electrical Performance

- Current Rating ..... 1.0 Amp at 25°C

#### Mechanical Performance

- Insertion Force max ..... 0.35N max (39 gf) per contact
- Withdrawal force min ..... 16N min (18 gf) per contact
- Durability (Mating Cycles) ..... Minimum of 10,000

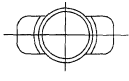
#### Packaging

- Bags of 100

### Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawings.....	By Part No.	Product Samples.....	Upon Request
Wire Stripping .....	TA 826	Test Data .....	Upon Request
Wire Soldering .....	TA 827		
Strain Relief Crimping.....	TA 819		
Cover Assembly.....	TA 828		

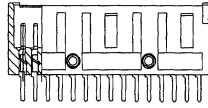
**Description**  
Cable Assembly Kit



STRAIN RELIEF  
1 PER KIT



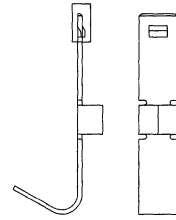
SPREAD BLOCK  
1 PER KIT



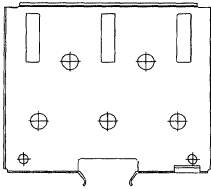
PLUG  
1 PER KIT



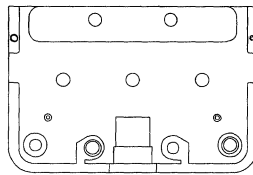
ACTIVE  
LATCH



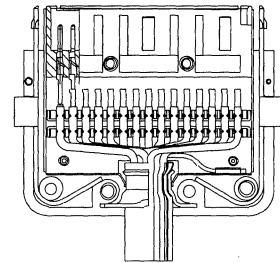
PLUG LATCH  
2 PER KIT



PLUG SHIELD  
2 PER KIT



PLUG COVER  
2 PER KIT



4

**Ordering Data**  
Cable Assembly Kit Selection Guide

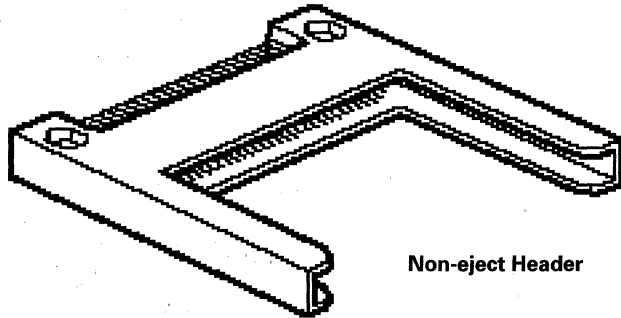
Part Number	Number of Positions	Shielded	Latch Type	Cable Type
93540-090000	9	YES	ACTIVE	ROUND
93545-090000	9	NO	ACTIVE	FLAT
93540-150000	15	YES	ACTIVE	ROUND
93540-250000	25	YES	ACTIVE	ROUND

# Single Deck Eject Header

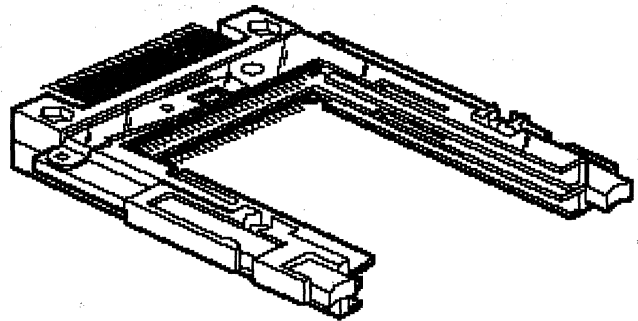
## Double Deck Eject Header

### Flex Mount Eject Header

### Non-Eject Header



Non-eject Header



Double Deck Eject Header, Type I, II, III

#### Features

- Intermatable with Type I, II, and III PC Cards.
- Minimum of 10,000 mating cycles when mated with appropriate Berg receptacle.
- Polarized to prevent incorrect card insertion.
- Eject Headers provide enhanced ESD protection.


#### OPTIONS


- Front or Side-Eject mechanisms.
- Board mounts - Available in right-angle, through-mount, and surface mount.
- Stand-offs - Available with or without stand-offs.
- Push rod location - Top or bottom mountable with right and left push rods.
- Push button color - Custom colors available.
- Headers with threaded insert available.

#### MATING DATA

Berg Electronics Products	Page
▪ Type I and II Card Kits . . . . .	4-4
▪ Receptacles . . . . .	4-2

#### Approvals and Certifications

 File no. E66906

 File no. LR46923

#### Technical Data

##### Materials

- Header housing . . . . . High temperature plastic
- Eject mechanism . . . . . High temperature plastic
- Terminal base material . . . . . Phosphor-bronze alloy

##### Plating

- Underplating . . . . . 0.5 µm (20 µin.) nickel
- Finish
  - ▶ Contact area . . . . . Gold flash over 0.5 µm (20 µin.) palladium-nickel alloy
  - ▶ Solder tail . . . . . tin-lead

##### Electrical Performance per PCMCIA Standard

- Current rating . . . . . 0.5 amp dc max per contact

##### Mechanical Performance per PCMCIA Standard

- Insertion force max . . . . . 0.77 N (85 gf) average per contact
- Withdrawal force min . . . . . 0.27 N (30 gf) average per contact
- Durability (mating cycles) . . . . . Minimum of 10,000 cycles

##### Packaging

- Trays in boxes

##### Specifications

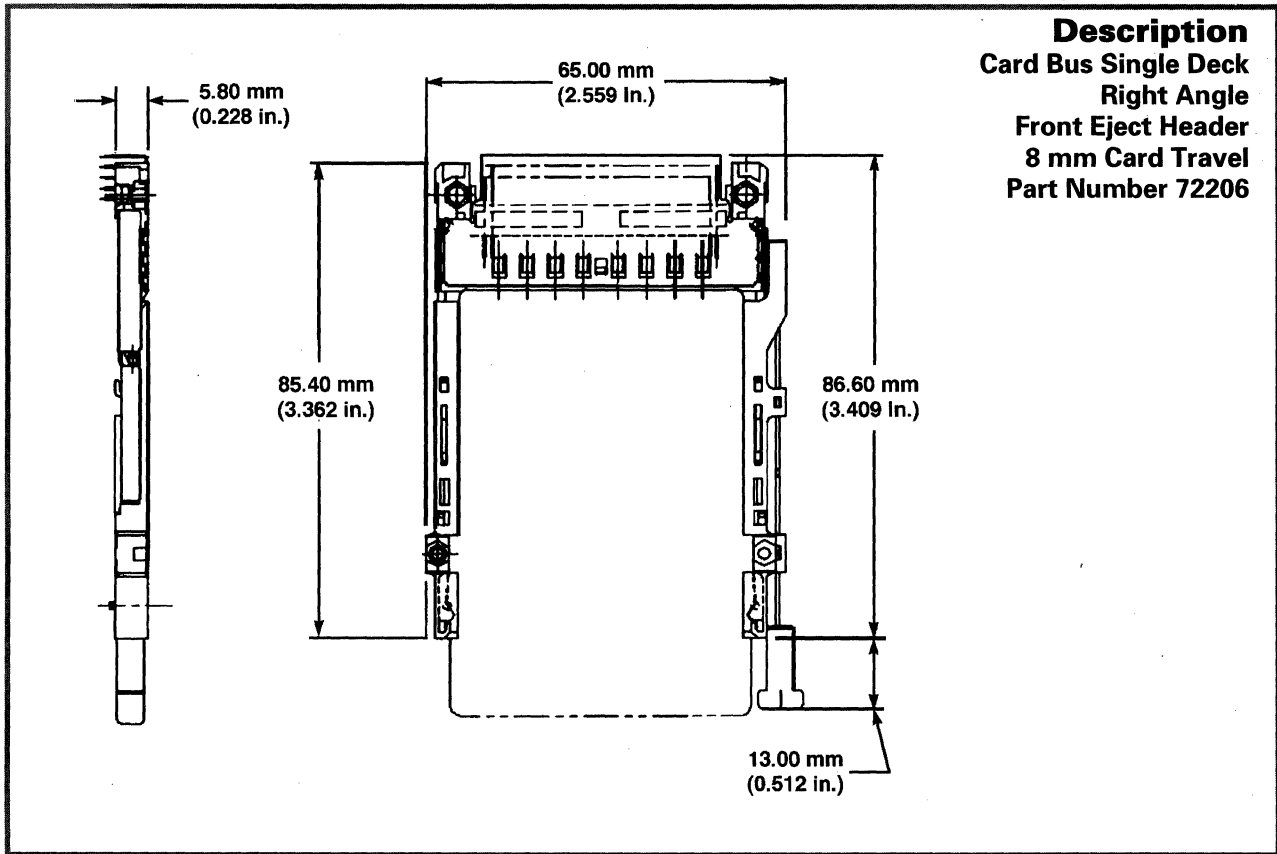
- PCMCIA (Personal Computer Memory Card International Association)
- JEIDA (Japan Electronic Industry Development Association)

#### Customer Support Materials

Description	Order No.
Customer Product Drawings . . . . .	By Part No.
Product Specifications . . . . .	110-263
Header PCB Layouts . . . . .	TA-946

Description	Order No.
Product Samples . . . . .	Upon Request
Test Data . . . . .	Upon Request

**Description**  
Card Bus Single Deck  
Right Angle  
Front Eject Header  
8 mm Card Travel  
Part Number 72206



4

**Ordering Data**  
Berg PCMCIA Component Selector  
R/A Cardbus Single Deck Front Eject Header  
8 mm Card Travel

Push Rod Location	PCB Side	Solder Tail	Standoff		Order		
			mm	in.	One Header Part Number	And One Mechanism Part Number	To Make Final Assembly Part Number
Right	Above	Right Angle	None	None	71294-0000	71245-00CA	72206-000CA
Left	Above	Right Angle	None	None	71294-0000	71245-10CA	72206-100CA

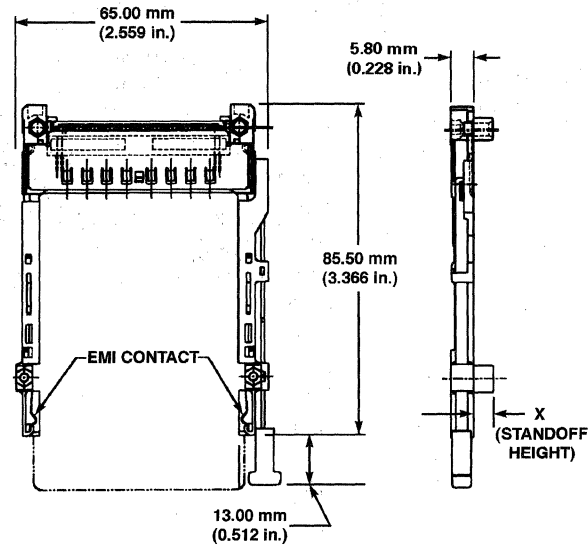
Note: Pushrod location is described as it appears to the user once installed in the system.

This product can be purchased by ordering as a final assembly, or by ordering the header and mechanism separately.

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

**Card Bus Single Deck  
SMT Eject Header**

**Description**  
**Card Bus Single Deck**  
**SMT Eject Header**  
**8 mm Card Travel**  
**Part Number 71299**



**Ordering Data**  
**Berg PCMCIA Component Selector**  
**Cardbus Single Deck SMT Eject Header**  
**8 mm Card Travel**

Push Rod Location	PCB Side	Standoff		Usable alone as a single deck header?	Order		
		mm	in.		One Header Part Number	And One Mechanism Part Number	To Make Final Assembly Part Number
Right	Above	None	None	Yes	71249-0000	71245-00CA	71299-000CA
Right	Above	2.20	0.087	Yes	71249-0022	71245-02CA	71299-020CA
Right	Above	4.30	0.169	Yes	71249-0043	71245-04CA	71299-040CA
Right	Above	5.00	0.197	Yes	71249-0050	71245-05CA	71299-050CA
Left	Above	None	None	Yes	71249-0000	71245-10CA	71299-100CA
Left	Above	2.20	0.087	Yes	71249-0022	71245-12CA	71299-120CA
Left	Above	4.30	0.169	Yes	71249-0043	71245-14CA	71299-140CA
Left	Above	5.00	0.197	Yes	71249-0050	71245-15CA	71299-150CA
Right	Below	None	None	Yes	71249-5000	95079-10CA	71299-500CA
Right	Below	2.20	0.087	Yes	71249-5022	91113-12CA	71299-520CA
Right	Below	4.30	0.169	Yes	71249-5043	91113-14CA	71299-540CA
Right	Below	5.00	0.197	Yes	71249-5050	95079-15CA	71299-550CA
Left	Below	None	None	Yes	71249-5000	95079-00CA	71299-600CA
Left	Below	2.20	0.087	Yes	71249-5022	91113-02CA	71299-620CA
Left	Below	4.30	0.169	Yes	71249-5043	91113-04CA	71299-640CA
Left	Below	5.00	0.197	Yes	71249-5050	95079-05CA	71299-650CA
Right	Above	None	None	No	71249-0500	71245-00CA	71299-005CA
Right	Above	None	None	No	71249-0522	71245-00CA	71299-025CA
Right	Above	None	None	No	71249-0543	71245-00CA	71299-045CA
Right	Above	None	None	No	71249-0550	71245-00CA	71299-055CA
Left	Above	None	None	No	71249-0500	71245-10CA	71299-105CA
Left	Above	None	None	No	71249-0522	71245-10CA	71299-125CA
Left	Above	None	None	No	71249-0543	71245-10CA	71299-145CA
Left	Above	None	None	No	71249-0550	71245-10CA	71299-155CA
Right	Below	None	None	No	71249-5500	95079-10CA	71299-505CA
Right	Below	None	None	No	71249-5522	95079-10CA	71299-525CA
Right	Below	None	None	No	71249-5543	95079-10CA	71299-545CA
Right	Below	None	None	No	71249-5550	95079-10CA	71299-555CA
Left	Below	None	None	No	71249-5500	95079-00CA	71299-605CA
Left	Below	None	None	No	71249-5522	95079-00CA	71299-625CA
Left	Below	None	None	No	71249-5543	95079-00CA	71299-645CA
Left	Below	None	None	No	71249-5550	95079-00CA	71299-655CA

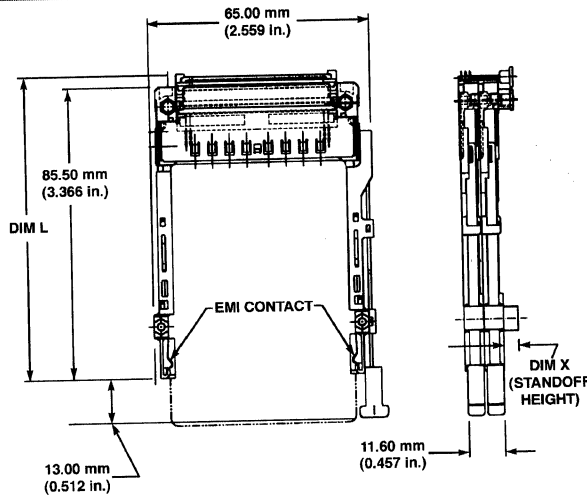
Note: Pushrod location is described as it appears to the user once installed in the system.

This product can be purchased by ordering as a final assembly, or by ordering the header and mechanism separately.

**This assembly plugs into 100-position BergStak™ 0.8 mm receptacle Part Number 61082-101000, which must be ordered separately.**

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

**Description**  
Card Bus Double Deck  
SMT Eject Header  
8 mm Card Travel  
Part Number 71240



4

**Ordering Data**  
Berg PCMCIA Component Selector  
Cardbus Double Deck SMT Eject Header  
8 mm Card Travel

Part Number 71240 is a reference assembly Part Number showing double deck configuration. Orders should be placed for individual decks plus mating receptacles.

Push Rod Location		PCB Side	Standoff		One Upper Deck Assembly Part Number	And One Lower Deck Assembly Part Number	Order	
Upper	Lower		mm	in.			Quantity	Part Number
Right	Left	Above	None	None	71299-005CA	71299-100CA	2	61082-101000
Right	Left	Above	2.20	0.087	71299-025CA	71299-120CA	2	61082-101000
Right	Left	Above	4.30	0.169	71299-045CA	71299-140CA	2	61082-101000
Right	Left	Above	5.00	0.197	71299-055CA	71299-150CA	2	61082-101000
Left	Right	Above	None	None	71299-105CA	71299-000CA	2	61082-101000
Left	Right	Above	2.20	0.087	71299-125CA	71299-020CA	2	61082-101000
Left	Right	Above	4.30	0.169	71299-145CA	71299-040CA	2	61082-101000
Left	Right	Above	5.00	0.197	71299-155CA	71299-050CA	2	61082-101000
Right	Right	Above	None	None	71299-005CA	71299-000CA	2	61082-101000
Right	Right	Above	2.20	0.087	71299-025CA	71299-020CA	2	61082-101000
Right	Right	Above	4.30	0.169	71299-045CA	71299-040CA	2	61082-101000
Right	Right	Above	5.00	0.197	71299-055CA	71299-050CA	2	61082-101000
Left	Left	Above	None	None	71299-105CA	71299-100CA	2	61082-101000
Left	Left	Above	2.20	0.087	71299-125CA	71299-120CA	2	61082-101000
Left	Left	Above	4.30	0.169	71299-145CA	71299-140CA	2	61082-101000
Left	Left	Above	5.00	0.197	71299-155CA	71299-150CA	2	61082-101000
Right	Left	Below	None	None	71299-605CA	71299-500CA	2	61082-101000
Right	Left	Below	2.20	0.087	71299-625CA	71299-520CA	2	61082-101000
Right	Left	Below	4.30	0.169	71299-645CA	71299-540CA	2	61082-101000
Right	Left	Below	5.00	0.197	71299-655CA	71299-550CA	2	61082-101000
Left	Right	Below	None	None	71299-505CA	71299-600CA	2	61082-101000
Left	Right	Below	2.20	0.087	71299-525CA	71299-620CA	2	61082-101000
Left	Right	Below	4.30	0.169	71299-545CA	71299-640CA	2	61082-101000
Left	Right	Below	5.00	0.197	71299-555CA	71299-650CA	2	61082-101000
Right	Right	Below	None	None	71299-505CA	71299-500CA	2	61082-101000
Right	Right	Below	2.20	0.087	71299-525CA	71299-520CA	2	61082-101000
Right	Right	Below	4.30	0.169	71299-545CA	71299-540CA	2	61082-101000
Right	Right	Below	5.00	0.197	71299-555CA	71299-550CA	2	61082-101000
Left	Left	Below	None	None	71299-605CA	71299-600CA	2	61082-101000
Left	Left	Below	2.20	0.087	71299-625CA	71299-620CA	2	61082-101000
Left	Left	Below	4.30	0.169	71299-645CA	71299-640CA	2	61082-101000
Left	Left	Below	5.00	0.197	71299-655CA	71299-650CA	2	61082-101000

Note: Pushrod location is described as it appears to the user once installed in the system.

**These assemblies plug into 100-position BergStak™ 0.80 mm receptacle Part Number 61082-101000, which must be ordered separately for each deck.**

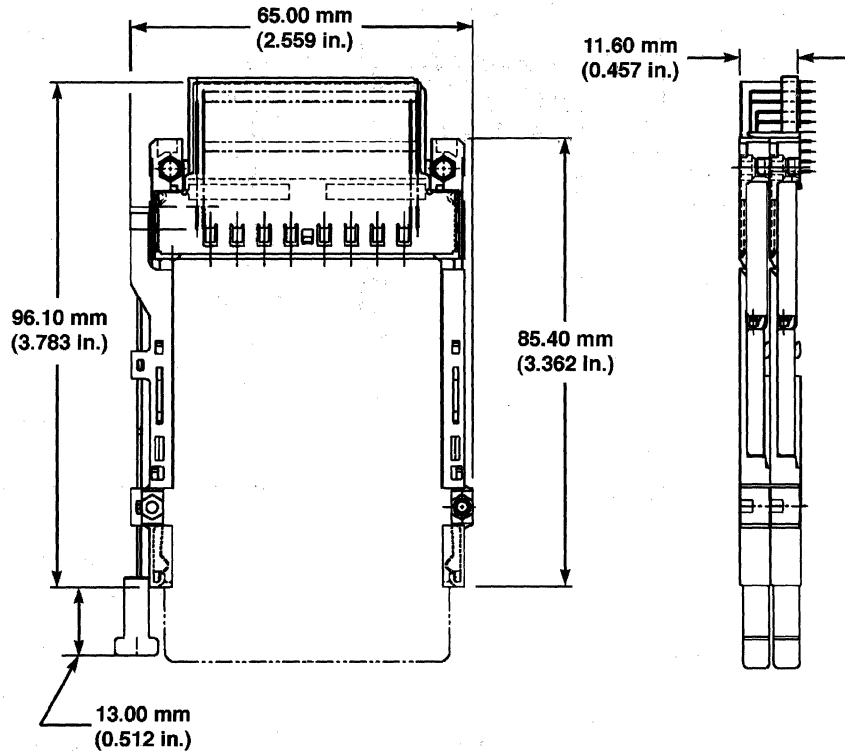
Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.



**Card Bus Double Deck  
Right Angle Front Eject Header**

**Description**

**Card Bus Double Deck  
Right Angle  
Front Eject Header  
8 mm Card Travel  
Part Number 71757**



**Ordering Data**

**Berg PCMCIA Component Selector  
R/A Cardbus Double Deck Front Eject Header  
8 mm Card Travel**

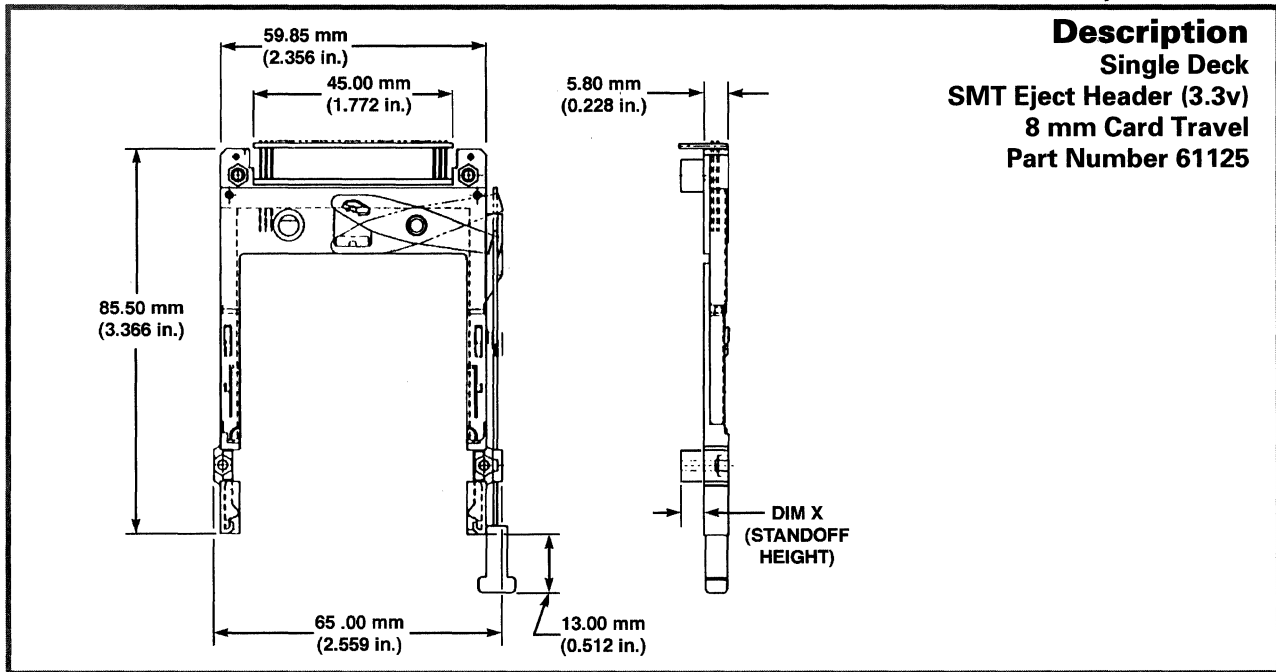
Push Rod Location		PCB Side	Solder Tail	Standoff		One Header Part Number 71257	Order And Two Mechanisms Part Numbers 71245		To Make Final Assembly Part Number
Upper	Lower			mm	in.				
Right	Left	Above	Right Angle	None	None	0000	00CA	10CA	71757-000CA
Left	Right	Above	Right Angle	None	None	0000	10CA	00CA	71757-100CA
Right	Right	Above	Right Angle	None	None	0000	00CA	00CA	71757-200CA
Left	Left	Above	Right Angle	None	None	0000	10CA	10CA	71757-300CA

Note: Pushrod location is described as it appears to the user once installed in the system.

Part Number 71257-0000 is a double header with threaded inserts.

This product can be purchased by ordering as a final assembly, or by ordering the header and mechanism separately.

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.



**Description**  
Single Deck  
SMT Eject Header (3.3v)  
8 mm Card Travel  
Part Number 61125

**Ordering Data**  
Berg PCMCIA Component Selector  
Single Deck SMT Eject Header (3.3 v)  
8 mm Card Travel

Push Rod Location	PCB Side	Standoff		Usable alone as a single-deck header?	Order		
		mm	in.		One Header Part Number	And One Mechanism Part Number	To Make Final Assembly Part Number
Right	Above	2.20	0.087	Yes	61127-0022	91113-02CA	61125-020CA
Right	Above	4.30	0.169	Yes	61127-0043	91113-04CA	61125-040CA
Right	Above	5.00	0.197	Yes	61127-0050	95079-05CA	61125-050CA
Left	Above	2.20	0.087	Yes	61127-0022	91113-12CA	61125-120CA
Left	Above	4.30	0.169	Yes	61127-0043	91113-14CA	61125-140CA
Left	Above	5.00	0.197	Yes	61127-0050	95079-15CA	61125-150CA
Right	Below	2.20	0.087	Yes	61127-5022	91113-12CA	61125-520CA
Right	Below	4.30	0.169	Yes	61127-5043	91113-14CA	61125-540CA
Right	Below	5.00	0.197	Yes	61127-5050	95079-15CA	61125-550CA
Left	Below	2.20	0.087	Yes	61127-5022	91113-02CA	61125-620CA
Left	Below	4.30	0.169	Yes	61127-5043	91113-04CA	61125-640CA
Left	Below	5.00	0.197	Yes	61127-5050	95079-05CA	61125-650CA
Right	Above	None	None	No	61127-0500	95079-00CA	61125-005CA
Right	Above	None	None	No	61127-0522	95079-00CA	61125-025CA
Right	Above	None	None	No	61127-0543	95079-00CA	61125-045CA
Right	Above	None	None	No	61127-0550	95079-00CA	61125-055CA
Left	Above	None	None	No	61127-0500	95079-10CA	61125-105CA
Left	Above	None	None	No	61127-0522	95079-10CA	61125-125CA
Left	Above	None	None	No	61127-0543	95079-10CA	61125-145CA
Left	Above	None	None	No	61127-0550	95079-10CA	61125-155CA
Right	Below	None	None	No	61127-5500	95079-10CA	61125-505CA
Right	Below	None	None	No	61127-5522	95079-10CA	61125-525CA
Right	Below	None	None	No	61127-5543	95079-10CA	61125-545CA
Right	Below	None	None	No	61127-5550	95079-10CA	61125-555CA
Left	Below	None	None	No	61127-5500	95079-00CA	61125-605CA
Left	Below	None	None	No	61127-5522	95079-00CA	61125-625CA
Left	Below	None	None	No	61127-5543	95079-00CA	61125-645CA
Left	Below	None	None	No	61127-5550	95079-00CA	61125-655CA

Note: Pushrod location is described as it appears to the user once installed in the system.

This product can be purchased by ordering as a final assembly, or by ordering the header and mechanism separately.

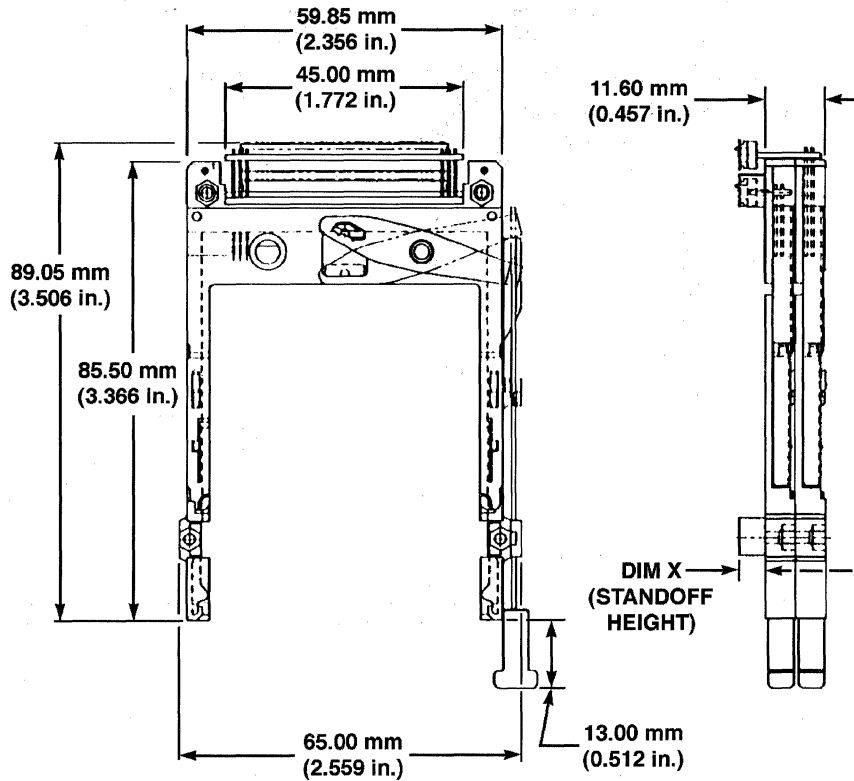
**This assembly plugs into a 69-position Conan™ receptacle Part Number 91931-31169, which must be ordered separately.**

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

**Double Deck  
SMT Eject Header (3.3v)**

**Description**

**Double Deck  
SMT Eject Header (3.3v)  
8 mm Card Travel  
Part Number 61124**



**Ordering Data**

**Berg PCMCIA Component Selector  
Double Deck SMT Eject Header (3.3 v)  
8 mm Card Travel**

Part Number 61124 is a reference assembly Part Number showing double deck configuration. Orders should be placed for individual decks plus mating receptacles.

Push Rod Location		PCB Side	Standoff		Order			
			mm	in.	One Upper Deck Assembly Part Number	And One Lower Deck Assembly Part Number	And Conan™ Receptacles as shown below	
Upper	Lower						Quantity	Part Number
Right	Right	Above	None	None	61125-005CA	61126-002CA	1	91931-31169
Right	Right	Above	2.20	0.087	61125-025CA	61125-020CA	2	91931-31169
Right	Right	Above	4.30	0.169	61125-045CA	61125-040CA	2	91931-31169
Right	Right	Above	5.00	0.197	61125-055CA	61125-050CA	2	91931-31169
Left	Left	Above	None	None	61125-105CA	61126-102CA	1	91931-31169
Left	Left	Above	2.20	0.087	61125-125CA	61125-120CA	2	91931-31169
Left	Left	Above	4.30	0.169	61125-145CA	61125-140CA	2	91931-31169
Left	Left	Above	5.00	0.197	61125-155CA	61125-150CA	2	91931-31169
Right	Right	Below	None	None	61125-505CA	61126-502CA	1	91931-31169
Right	Right	Below	2.20	0.087	61125-525CA	61125-520CA	2	91931-31169
Right	Right	Below	4.30	0.169	61125-545CA	61125-540CA	2	91931-31169
Right	Right	Below	5.00	0.197	61125-555CA	61125-550CA	2	91931-31169
Left	Left	Below	None	None	61125-605CA	61126-602CA	1	91931-31169
Left	Left	Below	2.20	0.087	61125-625CA	61125-620CA	2	91931-31169
Left	Left	Below	4.30	0.169	61125-645CA	61125-640CA	2	91931-31169
Left	Left	Below	5.00	0.197	61125-655CA	61125-650CA	2	91931-31169

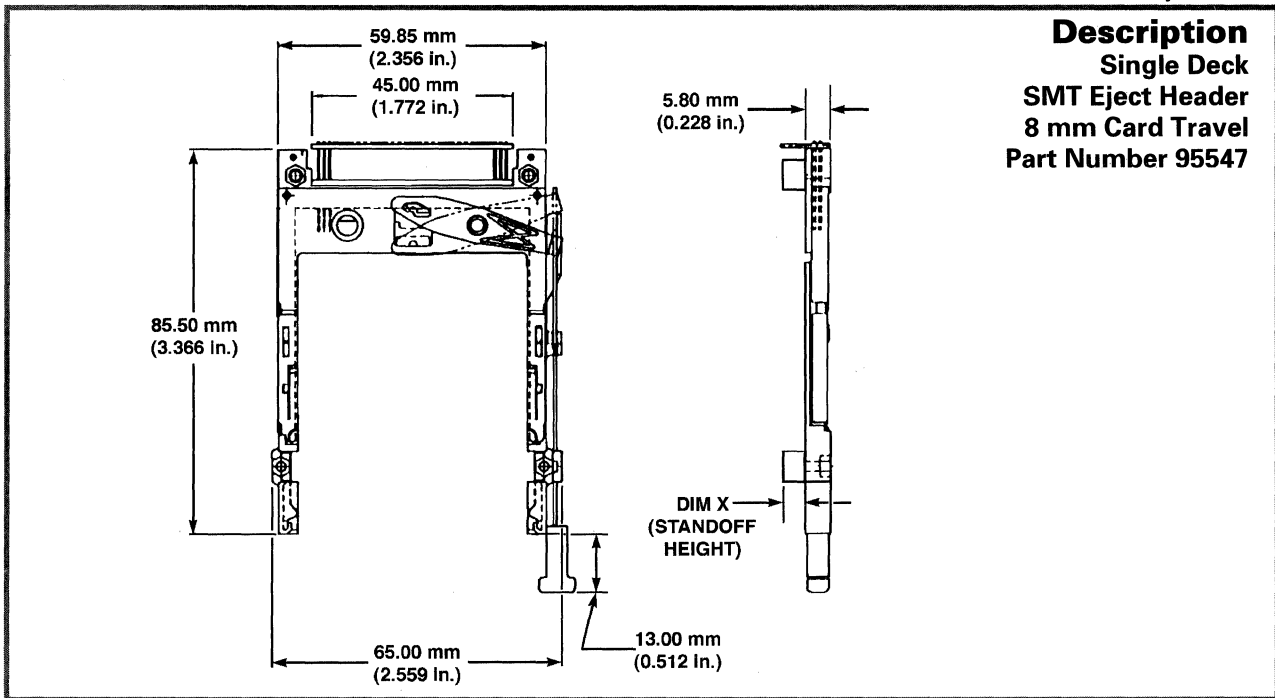
Note: Pushrod location is described as it appears to the user once installed in the system.

These assemblies plug into 69-position Conan™ receptacles.

The lower deck of a zero standoff assembly must be soldered directly to the PCB, thus requiring only one Conan™ receptacle for the total assembly.

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

**Description**  
Single Deck  
SMT Eject Header  
8 mm Card Travel  
Part Number 95547



4

**Ordering Data**  
Berg PCMCIA Component Selector  
Single Deck SMT Eject Header (5.0 v)  
8 mm Card Travel

Push Rod Location	PCB Side	Dimension X (Standoff)		Useable Alone as a single-deck header?	Order		
		mm	in.		One Header Part Number	And One Mechanism Part Number	To Make Final Assembly Part Number
Right	Above	2.20	0.087	Yes	95548-0022	91113-02CA	95547-020CA
Right	Above	4.30	0.169	Yes	95548-0043	91113-04CA	95547-040CA
Right	Above	5.00	0.197	Yes	95548-0050	95079-05CA	95547-050CA
Left	Above	2.20	0.087	Yes	95548-0022	91113-12CA	95547-120CA
Left	Above	4.30	0.169	Yes	95548-0043	91113-14CA	95547-140CA
Left	Above	5.00	0.197	Yes	95548-0050	95079-15CA	95547-150CA
Right	Below	2.20	0.087	Yes	95548-5022	91113-12CA	95547-520CA
Right	Below	4.30	0.169	Yes	95548-5043	91113-14CA	95547-540CA
Right	Below	5.00	0.197	Yes	95548-5050	95079-15CA	95547-550CA
Left	Below	2.20	0.087	Yes	95548-5022	91113-02CA	95547-620CA
Left	Below	4.30	0.169	Yes	95548-5043	91113-04CA	95547-640CA
Left	Below	5.00	0.197	Yes	95548-5050	95079-05CA	95547-650CA
Right	Above	None	None	No	95548-0500	95079-00CA	95547-005CA
Right	Above	None	None	No	95548-0522	95079-00CA	95547-025CA
Right	Above	None	None	No	95548-0543	95079-00CA	95547-045CA
Right	Above	None	None	No	95548-0550	95079-00CA	95547-055CA
Left	Above	None	None	No	95548-0500	95079-10CA	95547-105CA
Left	Above	None	None	No	95548-0522	95079-10CA	95547-125CA
Left	Above	None	None	No	95548-0543	95079-10CA	95547-145CA
Left	Above	None	None	No	95548-0550	95079-10CA	95547-155CA
Right	Below	None	None	No	95548-5500	95079-10CA	95547-505CA
Right	Below	None	None	No	95548-5522	95079-10CA	95547-525CA
Right	Below	None	None	No	95548-5543	95079-10CA	95547-545CA
Right	Below	None	None	No	95548-5550	95079-10CA	95547-555CA
Left	Below	None	None	No	95548-5500	95079-00CA	95547-605CA
Left	Below	None	None	No	95548-5522	95079-00CA	95547-625CA
Left	Below	None	None	No	95548-5543	95079-00CA	95547-645CA
Left	Below	None	None	No	95548-5550	95079-00CA	95547-655CA

Note: Pushrod location is described as it appears to the user once installed in the system.

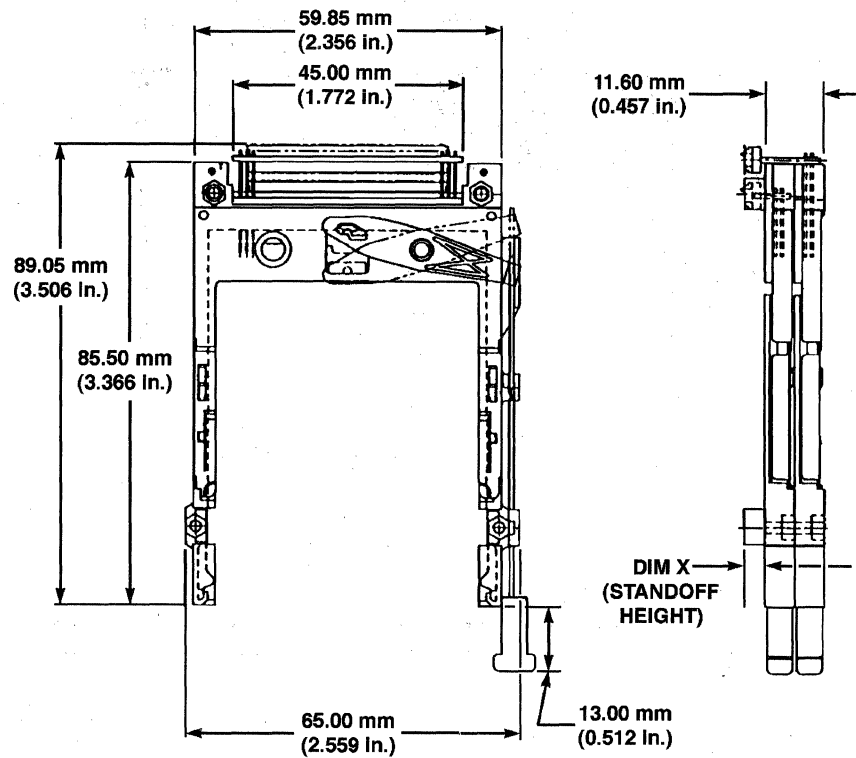
**This product can be purchased by ordering as a final assembly, or by ordering the header and two mechanisms separately.**

This assembly plugs into a 69-position Conan™ receptacle Part Number 91931-31169, which must be ordered separately.

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

**Double Deck  
SMT Eject Header**

**Description**  
**Double Deck**  
**SMT Eject Header**  
**8 mm Card Travel**  
**Part Number 95562**



**Ordering Data**  
**Berg PCMCIA Component Selector**  
**Double Deck SMT Eject Header**  
**8 mm Card Travel**

Part Number 95562 is a reference assembly Part Number showing double deck configuration. Orders should be placed for individual decks plus mating receptacles.

Push Rod Location		PCB Side	Standoff		Order			
			mm	in.	One Upper Deck Assembly Part Number	And One Lower Deck Assembly Part Number	And Conan™ Receptacles as shown below	
Upper	Lower					Quantity	Part Number	
Right	Right	Above	None	None	95547-005CA	95620-002CA	1	91931-31169
Right	Right	Above	2.20	0.087	95547-025CA	95547-020CA	2	91931-31169
Right	Right	Above	4.30	0.169	95547-045CA	95547-040CA	2	91931-31169
Right	Right	Above	5.00	0.197	95547-055CA	95547-050CA	2	91931-31169
Left	Left	Above	None	None	95547-105CA	95620-102CA	1	91931-31169
Left	Left	Above	2.20	0.087	95547-125CA	95547-120CA	2	91931-31169
Left	Left	Above	4.30	0.169	95547-145CA	95547-140CA	2	91931-31169
Left	Left	Above	5.00	0.197	95547-155CA	95547-150CA	2	91931-31169
Right	Right	Below	None	None	95547-505CA	95620-502CA	1	91931-31169
Right	Right	Below	2.20	0.087	95547-525CA	95547-520CA	2	91931-31169
Right	Right	Below	4.30	0.169	95547-545CA	95547-540CA	2	91931-31169
Right	Right	Below	5.00	0.197	95547-555CA	95547-550CA	2	91931-31169
Left	Left	Below	None	None	95547-605CA	95620-602CA	1	91931-31169
Left	Left	Below	2.20	0.087	95547-625CA	95547-620CA	2	91931-31169
Left	Left	Below	4.30	0.169	95547-645CA	95547-640CA	2	91931-31169
Left	Left	Below	5.00	0.197	95547-655CA	95547-650CA	2	91931-31169

Note: Pushrod location is described as it appears to the user once installed in the system.

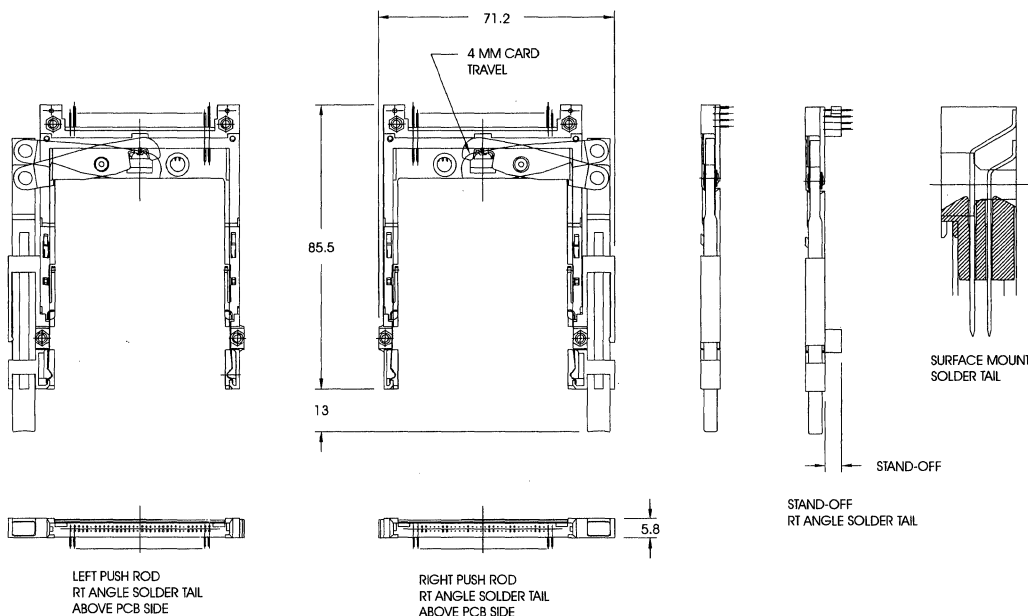
These assemblies plug into 69-position Conan™ receptacles.

The lower deck of a zero standoff assembly must be soldered directly to the PCB, thus requiring only one Conan™ receptacle for the total assembly.

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

### Description

#### Type I, II, III Single Deck Front Eject Header 4 mm Card Travel



### Ordering Data

#### Berg PCMCIA Component Selector

#### Type I, II, III Single Deck Front Eject Header 4 mm Card Travel

Push Rod Location	PCB Side	Solder Tail	Standoff (mm)	Order Header Part Number 92140-											and Mechanism P/N 92192-					To Make Final Assy. Part Number			
				000	001	002	010	020	040	500	501	502	510	520	540	00CA	02CA	04CA	05CA		10CA	12CA	14CA
Right	Above	R/A	none	■																			92193-000CA
Left	Above	R/A	none		■																		92193-100CA
Right	Below	R/A	none																				92193-500CA
Left	Below	R/A	none																				92193-600CA
Right	Above	R/A	2																				92193-020CA
Left	Above	R/A	2																				92193-120CA
Right	Below	R/A	2																				92193-520CA
Left	Below	R/A	2																				92193-620CA
Right	Above	R/A	4																				92193-040CA
Left	Above	R/A	4																				92193-140CA
Right	Below	R/A	4																				92193-540CA
Left	Below	R/A	4																				92193-640CA
Right	Above	R/A	5																				92193-050CA
Left	Above	R/A	5																				92193-150CA
Right	Below	R/A	5																				92193-550CA
Left	Below	R/A	5																				92193-650CA
Right	Above	SMT-IL	none																				92193-002CA
Left	Above	SMT-IL	none																				92193-102CA
Right	Below	SMT-IL	none																				92193-502CA
Left	Below	SMT-IL	none																				92193-602CA
Right	Above	SMT-Stg	none																				92193-001CA
Left	Above	SMT-Stg	none																				92193-101CA
Right	Below	SMT-Stg	none																				92193-501CA
Left	Below	SMT-Stg	none																				92193-601CA

Note: Pushrod location is described as it appears to the user once installed in the system.

Optional headers with threaded inserts. See page 4-26.

**Solder Tail Key:**

- R/A = Right Angle pin-through-hole
- SMT-Stg = Staggered surface mount
- SMT-IL = Surface mount in-line (single row)

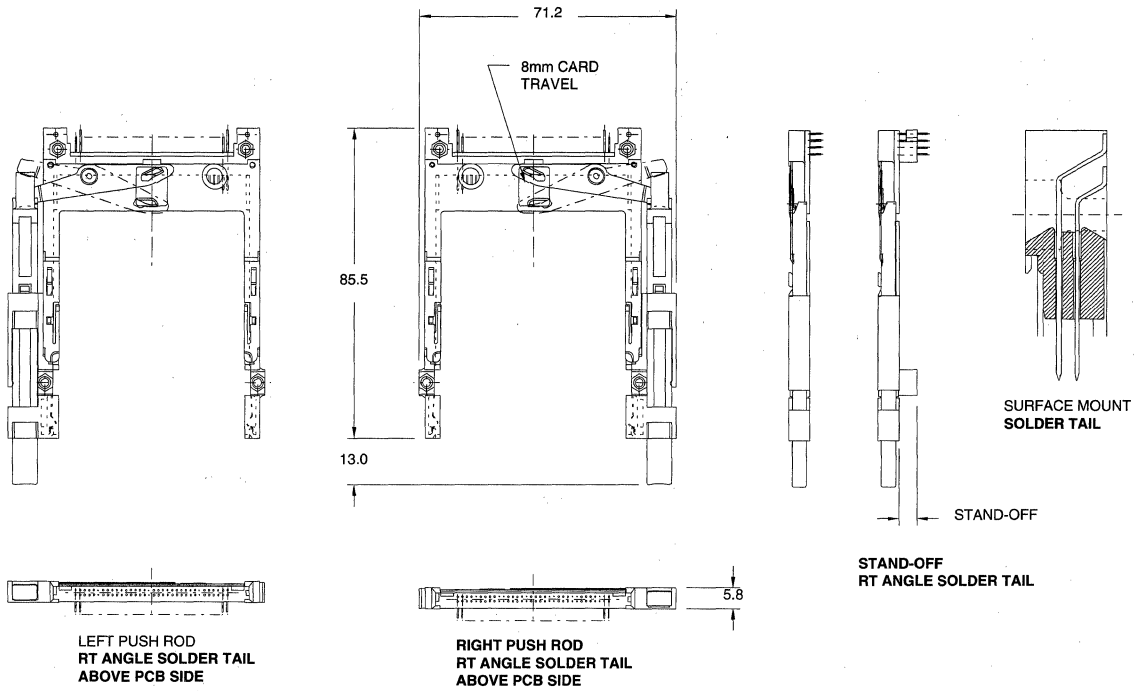
Example: A single deck R/A eject header which mounts above the PCB with no standoff and has the push rod on the left has a final assembly P/N: 92193-100CA

It is made from components: 92140-000 and 92192-10CA

**Single Deck Extended Travel Front Eject Header  
8 mm Card Travel**

**Description**

**Type I, II, III Single Deck Front Eject Header  
8 mm (Extended) Card Travel**



**Ordering Data**

**Berg PCMCIA Component Selector  
Type I, II, III Single Deck Front Eject Header  
8 mm (Extended) Card Travel**

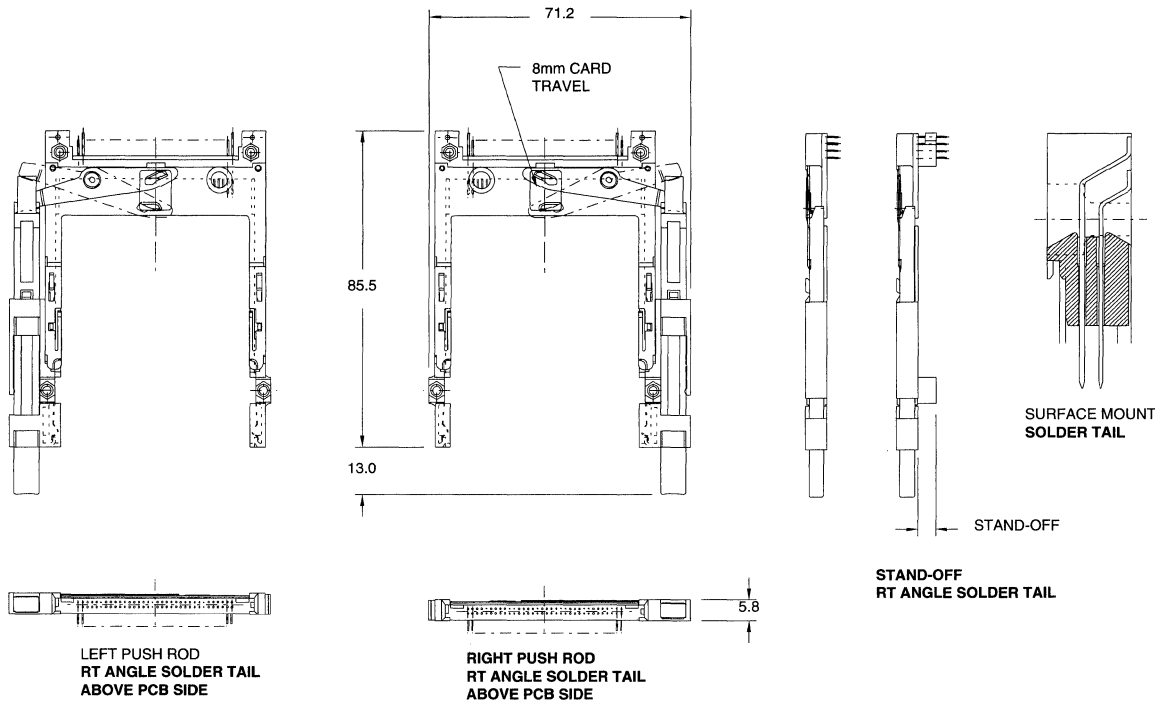
Push Rod Location	PCB Side	Solder Tail	Standoff (mm)	Order Header Part Number 92140-											and Mechanism P/N 94613-							
				000	001	002	010	020	040	500	501	502	510	520	540	00CA	02CA	04CA	05CA	10CA	12CA	14CA
Right	Above	R/A	none	■																		
Left	Above	R/A	none		■																	
Right	Below	R/A	none																			
Left	Below	R/A	none																			
Right	Above	R/A	2																			
Left	Above	R/A	2																			
Right	Below	R/A	2																			
Left	Below	R/A	2																			
Right	Above	R/A	4																			
Left	Above	R/A	4																			
Right	Below	R/A	4																			
Left	Below	R/A	4																			
Right	Above	R/A	5																			
Left	Above	R/A	5																			
Right	Below	R/A	5																			
Left	Below	R/A	5																			
Right	Above	SMT-IL	none																			
Left	Above	SMT-IL	none																			
Right	Below	SMT-IL	none																			
Left	Below	SMT-IL	none																			
Right	Above	SMT-Stg	none																			
Left	Above	SMT-Stg	none																			
Right	Below	SMT-Stg	none																			
Left	Below	SMT-Stg	none																			

**Note:** Pushrod location is described as it appears to the user once installed in the system.  
Optional headers with threaded inserts. See page 4-26.

- Solder Tail Key:  
 R/A = Right Angle pin-through-hole  
 SMT-Stg = Staggered surface mount  
 SMT-IL = Surface mount in-line (single row)

### Description

### Type I, II, III Single Deck, Narrow Body, Front Eject Header 65 mm Width, 8 mm (Extended) Card Travel



4

### Ordering Data

### Berg PCMCIA Component Selector Type I, II, III Single Deck, Narrow Body, Front Eject Header 65 mm Width, 8 mm (Extended) Card Travel

Push Rod Location	PCB Side	Solder Tail	Standoff (mm)	Order Header Part Number 92140-											and Mechanism P/N 95079-					To Make Final Assy. Part Number			
				000	001	002	010	020	040	500	501	502	510	520	540	00CA	02CA	04CA	05CA		10CA	12CA	14CA
Right	Above	R/A	none																				95620-000CA
Left	Above	R/A	none	■																			95620-100CA
Right	Below	R/A	none																				95620-500CA
Left	Below	R/A	none																				95620-600CA
Right	Above	R/A	2																				95620-020CA
Left	Above	R/A	2																				95620-120CA
Right	Below	R/A	2																				95620-520CA
Left	Below	R/A	2																				95620-620CA
Right	Above	R/A	4																				95620-040CA
Left	Above	R/A	4																				95620-140CA
Right	Below	R/A	4																				95620-540CA
Left	Below	R/A	4																				95620-640CA
Right	Above	R/A	5																				95620-050CA
Left	Above	R/A	5																				95620-150CA
Right	Below	R/A	5																				95620-550CA
Left	Below	R/A	5																				95620-650CA
Right	Above	SMT-IL	none																				95620-002CA
Left	Above	SMT-IL	none																				95620-102CA
Right	Below	SMT-IL	none																				95620-502CA
Left	Below	SMT-IL	none																				95620-602CA
Right	Above	SMT-Stg	none																				95620-001CA
Left	Above	SMT-Stg	none																				95620-101CA
Right	Below	SMT-Stg	none																				95620-501CA
Left	Below	SMT-Stg	none																				95620-601CA

**Note:** Pushrod location is described as it appears to the user once installed in the system.  
Optional headers with threaded inserts. See page 4-26.

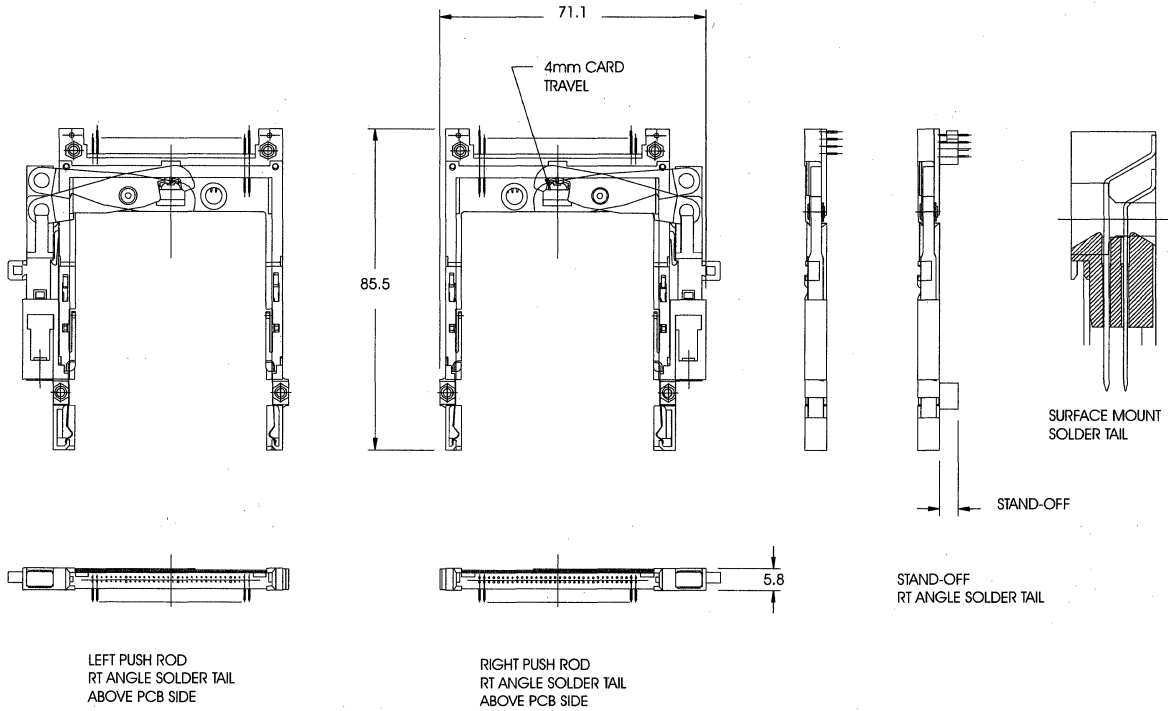
- Solder Tail Key:  
 R/A = Right Angle pin-through-hole  
 SMT-Stg = Staggered surface mount  
 SMT-IL = Surface mount in-line (single row)



**Single Deck Side Eject Header**  
**4 mm Card Travel**

**Description**

**Type I, II, III Single Deck Side Eject Header**  
**4 mm Card Travel**



**Ordering Data**

**Berg PCMCIA Component Selector**  
**Type I, II, III Single Deck Side Eject Header**  
**4 mm Card Travel**

Push Rod Location	PCB Side	Solder Tail	Standoff (mm)	Order Header Part Number 92140-										and Mechanism P/N 92800-					
				000	001	002	020	040	500	501	502	520	540	110	111	112	210	211	212
Right	Above	R/A	none	■															
Left	Above	R/A	none																
Right	Below	R/A	none																
Left	Below	R/A	none																
Right	Above	R/A	2																
Left	Above	R/A	2																
Right	Below	R/A	2																
Left	Below	R/A	2																
Right	Above	R/A	5																
Left	Above	R/A	5																
Right	Below	R/A	5																
Left	Below	R/A	5																
Right	Above	SMT-IL	none																
Left	Above	SMT-IL	none																
Right	Below	SMT-IL	none																
Left	Below	SMT-IL	none																
Right	Above	SMT-Stg	none																
Left	Above	SMT-Stg	none																
Right	Below	SMT-Stg	none																
Left	Below	SMT-Stg	none																

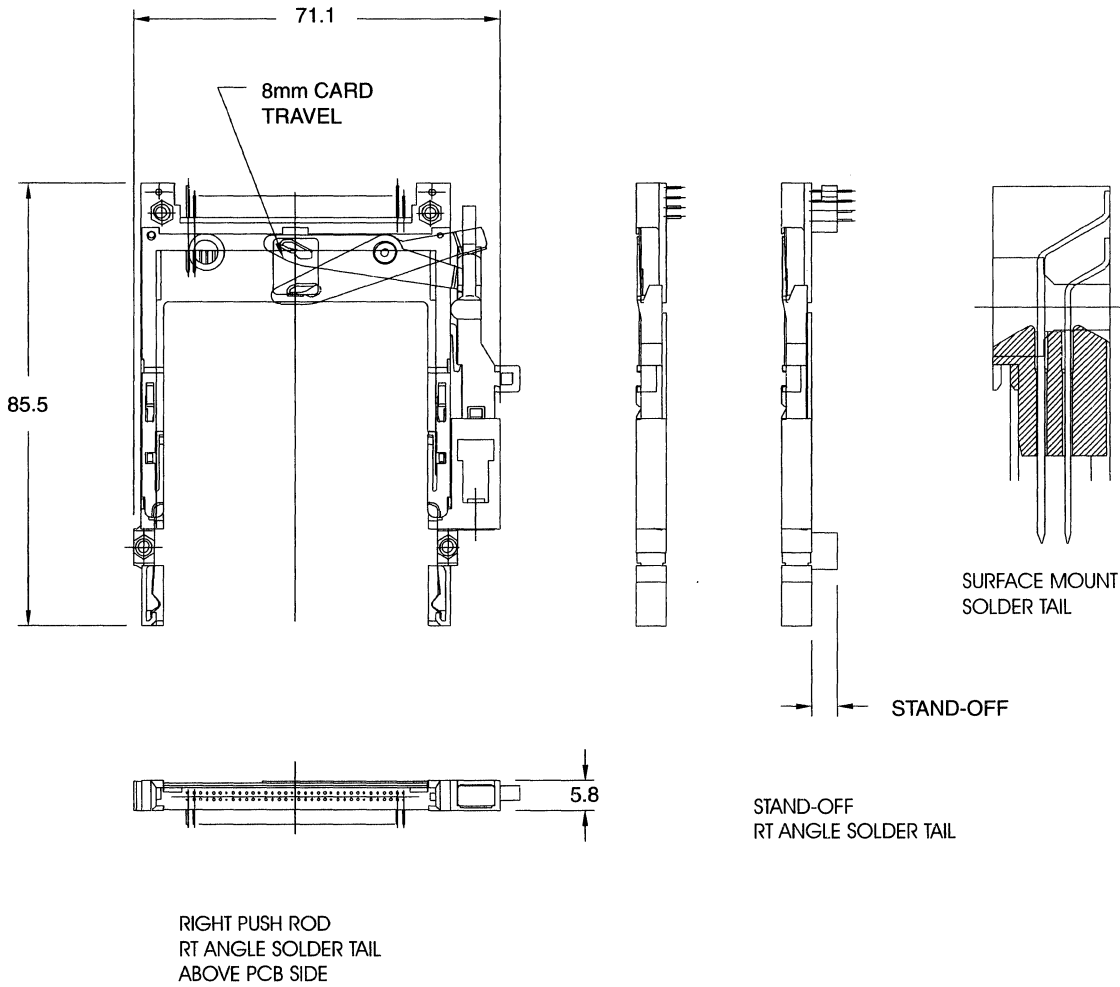
**Note:** Pushrod location is described as it appears to the user once installed in the system. Optional headers with threaded inserts. See page 4-26.

**Solder Tail Key:**

- R/A = Right Angle pin-through-hole
- SMT-Stg = Staggered surface mount
- SMT-IL = Surface mount in-line (single row)

**Description**

**Type I, II, III Single Deck, Side Eject Header  
8 mm (Extended) Card Travel**



4

**Ordering Data**  
**Berg PCMCIA Component Selector**  
**Type I, II, III Single Deck, Side Eject Header**  
**8 mm (Extended) Card Travel**

Push Rod Location	PCB Side	Solder Tail	Standoff (mm)	Order Header Part Number 92140-										and Mechanism P/N 95033-			
				000	001	002	020	040	500	501	502	520	540	110	111	112	
Right	Above	R/A	none	■													
Left	Below	R/A	none														
Right	Above	R/A	2														
Left	Below	R/A	2														
Right	Above	R/A	5														
Left	Below	R/A	5														
Right	Above	SMT-IL	none														
Left	Below	SMT-IL	none														
Right	Above	SMT-Stg	none														
Left	Below	SMT-Stg	none														

**Note:** Pushrod location is described as it appears to the user once installed in the system.

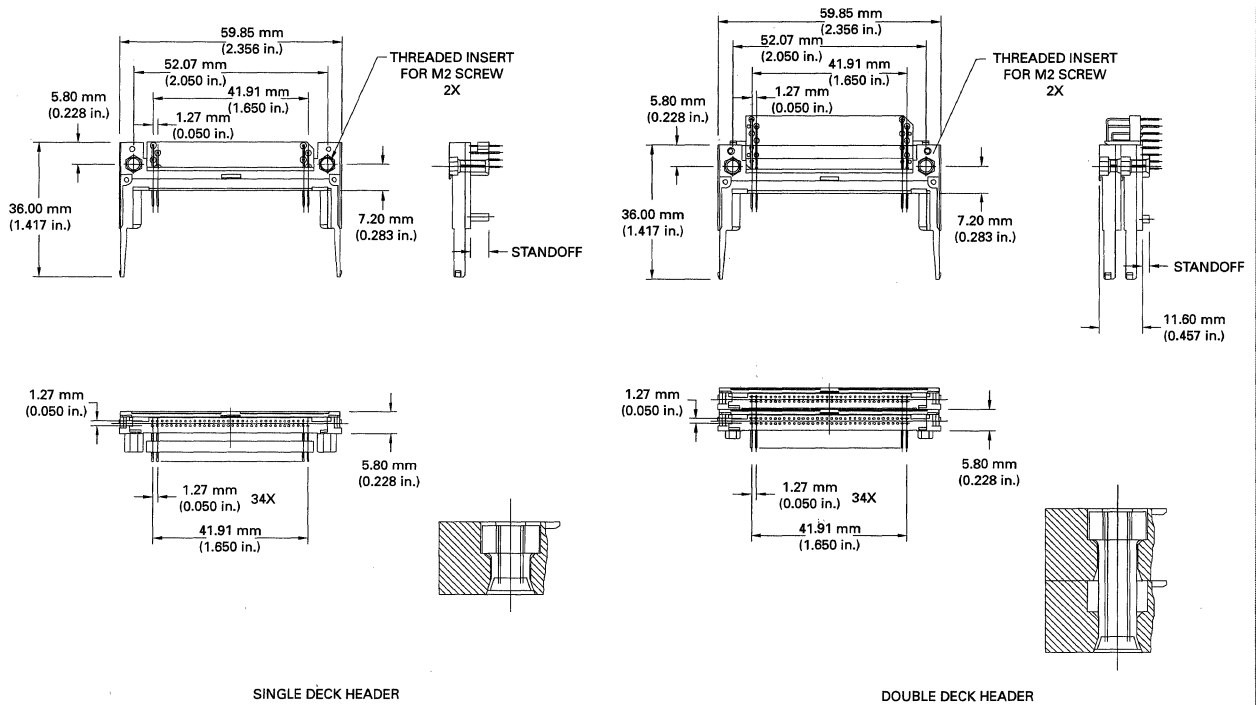
Optional headers with threaded inserts. See page 4-26.

Solder Tail Key:

- R/A = Right Angle pin-through-hole
- SMT-Stg = Staggered surface mount
- SMT-IL = Surface mount in-line (single row)

**Single & Double Deck Header  
With Threaded Insert**

**Description  
Type I, II, III & Double Deck Header  
With Threaded Inserts**

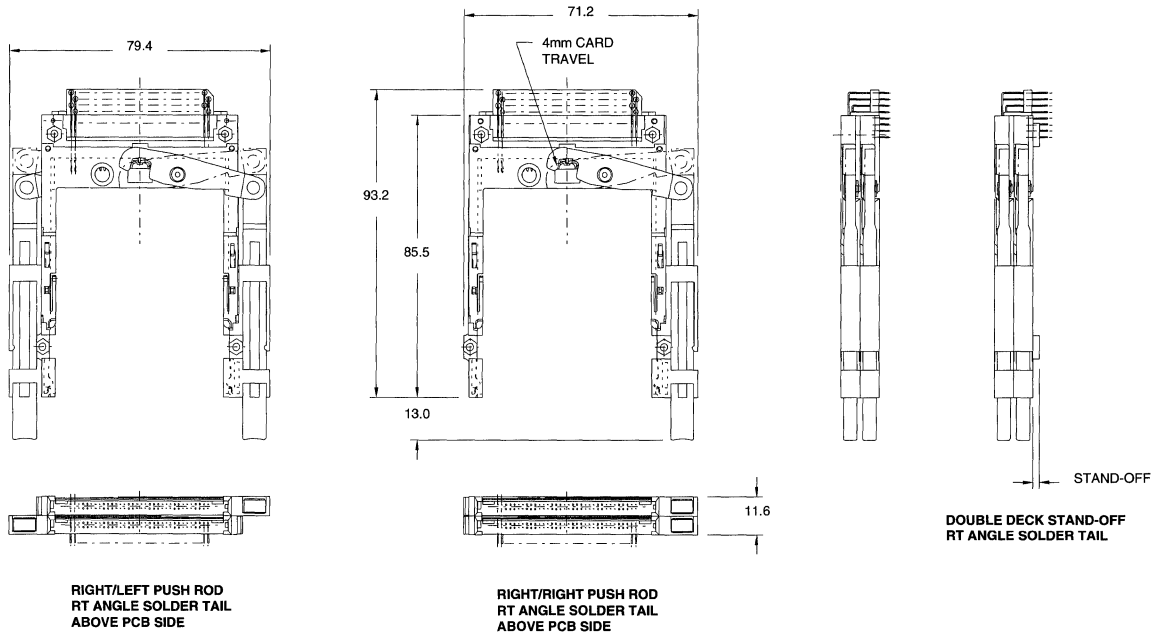


**Ordering Data  
Berg PCMCIA Component Selector  
Type I, II, III & Double Deck Header**

To specify a header with a threaded insert substitute the headers shown below for the 92140-XXX series headers.  
To specify a 3.3 volt single deck header without a threaded insert substitute header part number 94898-XXX for 95706-XXX in the table below.

Voltage	Single Deck Header		Double Deck Header	
5.0	92140-000	Substitute with 92856-000	92140-000 and 92140-005	Substitute with 92821-000
5.0	92140-001	Substitute with 92856-001	92140-040 and 92140-045	Substitute with 92821-040
5.0	92140-002	Substitute with 92856-002	92140-500 and 92140-505	Substitute with 92821-500
5.0	92140-010	Substitute with 92856-010	92140-540 and 92140-545	Substitute with 92821-540
5.0	92140-020	Substitute with 92856-020		
5.0	92140-040	Substitute with 92856-040		
5.0	92140-500	Substitute with 92856-500		
5.0	92140-501	Substitute with 92856-501		
5.0	92140-502	Substitute with 92856-502		
5.0	92140-510	Substitute with 92856-510		
5.0	92140-520	Substitute with 92856-520		
5.0	92140-540	Substitute with 92856-540		
3.3	94898-000	Substitute with 95706-000	94898-000 and 94898-005	Substitute with 95705-000
3.3	94898-001	Substitute with 95706-001	94898-040 and 94898-045	Substitute with 95705-040
3.3	94898-002	Substitute with 95706-002	94898-500 and 94898-505	Substitute with 95705-500
3.3	94898-010	Substitute with 95706-010	94898-540 and 94898-545	Substitute with 95705-540
3.3	94898-020	Substitute with 95706-020		
3.3	94898-040	Substitute with 95706-040		
3.3	94898-500	Substitute with 95706-500		
3.3	94898-501	Substitute with 95706-501		
3.3	94898-502	Substitute with 95706-502		
3.3	94898-510	Substitute with 95706-510		
3.3	94898-520	Substitute with 95706-520		
3.3	94898-540	Substitute with 95706-540		

**Description**  
Type I, II, III Double Deck Front Eject Header  
4 mm Card Travel



4

**Ordering Data**  
Berg PCMCIA Component Selector  
Type I, II, III Double Deck Front Eject Header  
4 mm Card Travel

Push Rod Location		PCB Side	Standoff (mm)	Order Two Header Part Numbers 92140-								and Two Mechanism Part Numbers 92192-					To Make Final Assy. Part Number
				000	005	040	045	500	505	540	545	00CA	00CA	10CA	10CA	02CA	
Upper	Lower	Above	none	■													92194-000CA
Right	Left	Above	none	■													92194-100CA
Left	Right	Above	none		■												92194-200CA
Right	Right	Above	none			■											92194-300CA
Left	Left	Above	none				■										92194-500CA
Right	Left	Below	none					■									92194-600CA
Left	Right	Below	none						■								92194-700CA
Right	Right	Below	none							■							92194-800CA
Left	Left	Below	none								■						92194-020CA
Right	Left	Above	2			■											92194-120CA
Left	Right	Above	2				■										92194-220CA
Right	Right	Above	2					■									92194-320CA
Left	Left	Above	2						■								92194-520CA
Right	Left	Below	2							■							92194-520CA
Left	Right	Below	2								■						92194-620CA
Right	Right	Below	2									■					92194-720CA
Left	Left	Below	2										■				92194-820CA

**Note:** Pushrod location is described as it appears to the user once installed in the system.

Optional headers with threaded inserts. See page 4-26.

**Important:** Two header and two mechanism P/N's must be used for each double deck assembly.

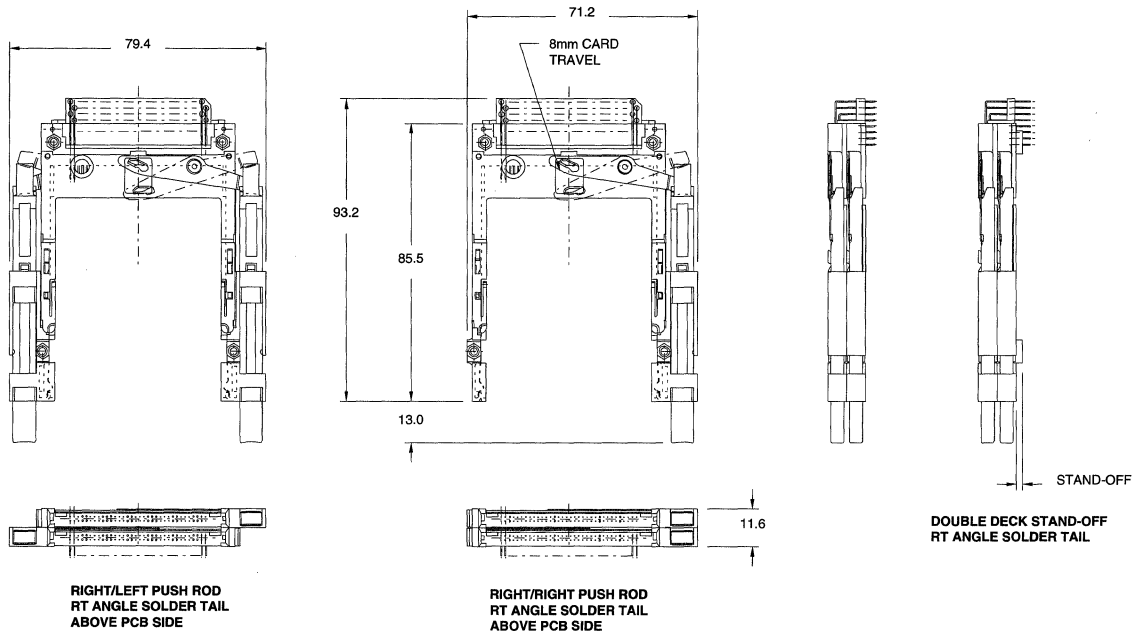
**Example:** A dual eject header which mounts underneath the PCB with no standoff that has the upper push rod on the right and the lower pushrod on the left has a final assembly P/N: 92194-500CA

It is made from components: 92140-500 92192-10CA  
92140-505 92192-00CA

**Double Deck Extended Travel Front Eject Header  
8 mm Card Travel**

**Description**

**Type I, II, III Double Deck Front Eject Header  
8 mm (Extended) Card Travel**



**Ordering Data**

**Berg PCMCIA Component Selector  
Type I, II, III Double Deck Front Eject Header  
8 mm (Extended) Card Travel**

Push Rod Locations		PCB Side	Standoff (mm)	Order Two Header Part Numbers 92140-						and Two Mechanism Part Numbers 94613-						
Upper	Lower			000	005	040	045	500	505	540	545	00CA	00CA	10CA	10CA	02CA
Right	Left	Above	none	■	■						■	■				
Left	Right	Above	none													
Right	Right	Above	none													
Left	Left	Above	none	■	■											
Right	Left	Below	none													
Left	Right	Below	none													
Right	Right	Below	none													
Left	Left	Below	none													
Right	Left	Above	2			■										
Left	Right	Above	2													
Right	Right	Above	2													
Left	Left	Above	2			■										
Right	Left	Below	2													
Left	Right	Below	2													
Right	Right	Below	2													
Left	Left	Below	2													

**Note:** Pushrod location is described as it appears to the user once installed in the system.

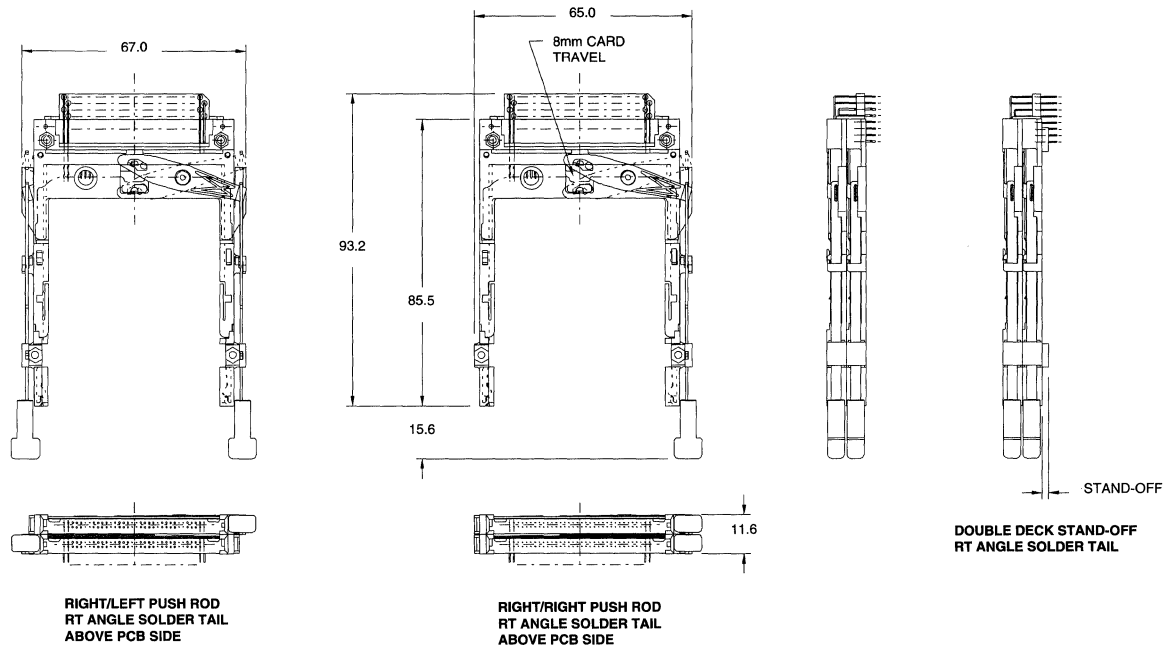
Optional headers with threaded inserts. See page 4-26.

**Important:** Two header and two mechanism P/N's must be used for each double deck assembly.

**Example:** A dual eject header which mounts underneath the PCB with no standoff that has the upper push rod on the right and the lower pushrod on the left is made from components: 92140-500 94613-10CA  
92140-505 94613-00CA

### Description

### Type I, II, III Double Deck, Narrow Body, Front Eject Header 65 mm Wide, 8 mm (Extended) Card Travel



4

DOUBLE DECK STAND-OFF  
RT ANGLE SOLDER TAIL

RIGHT/LEFT PUSH ROD  
RT ANGLE SOLDER TAIL  
ABOVE PCB SIDE

RIGHT/RIGHT PUSH ROD  
RT ANGLE SOLDER TAIL  
ABOVE PCB SIDE

### Ordering Data

### Berg PCMCIA Component Selector Type I, II, III Double Deck, Narrow Body, Front Eject Header 65 mm Wide, 8 mm (Extended) Card Travel

Push Rod Location		PCB Side	Standoff (mm)	Order Two Header Part Numbers 92140-							and Two Mechanism Part Numbers 95079-					To Make Final Assy. Part Number	
Upper	Lower			000	005	040	045	500	505	540	545	00CA	00CA	10CA	10CA		02CA
Right	Left	Above	none	■							■						94050-00CA
Left	Right	Above	none		■							■					94050-100CA
Right	Right	Above	none			■							■				94050-200CA
Left	Left	Above	none				■							■			94050-300CA
Right	Left	Below	none					■							■		94050-500CA
Left	Right	Below	none						■							■	94050-800CA
Right	Right	Below	none							■						■	94050-700CA
Left	Left	Below	none								■					■	94050-800CA
Right	Left	Above	2			■										■	94050-020CA
Left	Right	Above	2				■									■	94050-120CA
Right	Right	Above	2					■								■	94050-220CA
Left	Left	Above	2						■							■	94050-320CA
Right	Left	Below	2							■						■	94050-520CA
Left	Right	Below	2								■					■	94050-620CA
Right	Right	Below	2									■				■	94050-720CA
Left	Left	Below	2										■			■	94050-820CA

**Note:** Pushrod location is described as it appears to the user once installed in the system.

Optional headers with threaded inserts. See page 4-26.

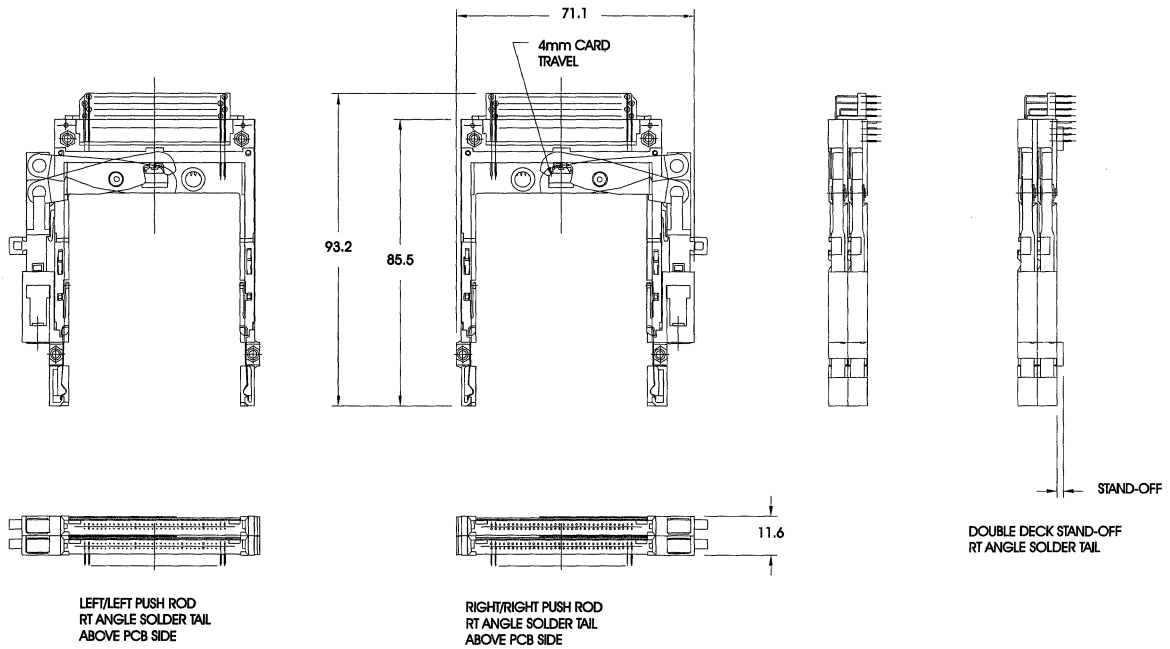
**Important:** Two header and two mechanism P/N's must be used for each double deck assembly.

**Example:** A dual eject header which mounts underneath the PCB with no standoff that has the upper push rod on the right and the lower pushrod on the left is made from components:

92140-500	95079-10CA
92140-505	95079-00CA

**Double Deck Side Eject Header  
4 mm Card Travel**

**Description  
Type I, II, III Double Deck Side Eject Header  
4 mm Card Travel**



**Ordering Data  
Berg PCMCIA Component Selector  
Type I, II, III Double Deck Side Eject Header  
4 mm Card Travel**

Push Rod Location		PCB Side	Standoff (mm)	Order Two Header Part Numbers 92140-								and Two Mechanism Part Numbers 92800-					
Upper	Lower			000	005	040	045	500	505	540	545	110	110	111	210	210	211
Right	Left	Above	none														
Left	Right	Above	none														
Right	Right	Above	none														
Left	Left	Above	none														
Right	Left	Below	none														
Left	Right	Below	none														
Right	Right	Below	none														
Left	Left	Below	none														
Right	Left	Above	2														
Left	Right	Above	2														
Right	Right	Above	2														
Left	Left	Above	2														
Right	Left	Below	2														
Left	Right	Below	2														
Right	Right	Below	2														
Left	Left	Below	2														

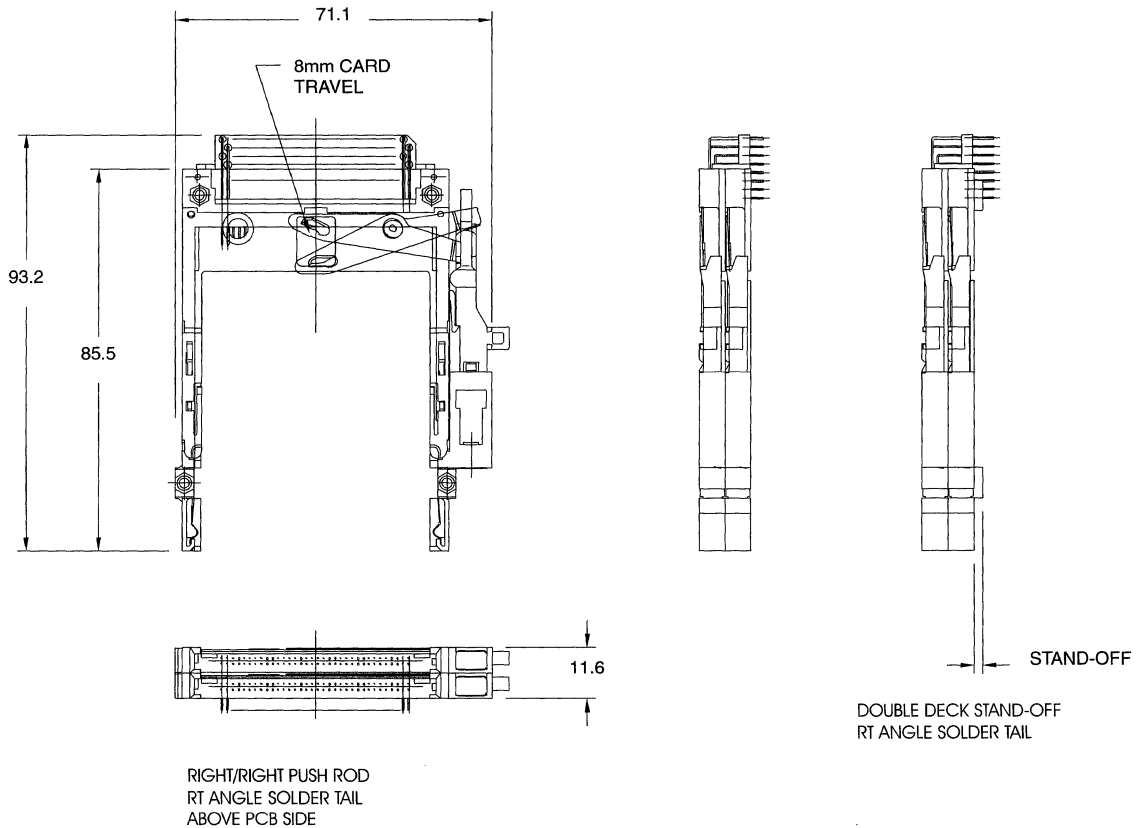
**Note:** Pushrod location is described as it appears to the user once installed in the system.  
Optional headers with threaded inserts. See page 4-26.

**Important:** Two header and two mechanism P/N's must be used for each double deck assembly.

**Example:** A dual eject header which mounts underneath the PCB with no standoff that has the upper push rod on the right and the lower pushrod on the left is made from components: 92140-500                      92800-210  
92140-505    92800-110

**Description**

**Type I, II, III Double Deck Side Eject Header  
8 mm (Extended) Card Travel**



4

**Ordering Data**  
**Berg PCMCIA Component Selector**  
**Type I, II, III Double Deck Side Eject Header**  
**8 mm (Extended) Card Travel**

Push Rod Location		PCB Side	Standoff (mm)	Order Two Header Part Numbers 92140-								and Two Mechanism Part Numbers 95033-		
Upper	Lower			000	005	040	045	500	505	540	545	110	110	111
Right	Right	Above	none											
Left	Left	Below	none											
Right	Right	Above	2											
Left	Left	Below	2											

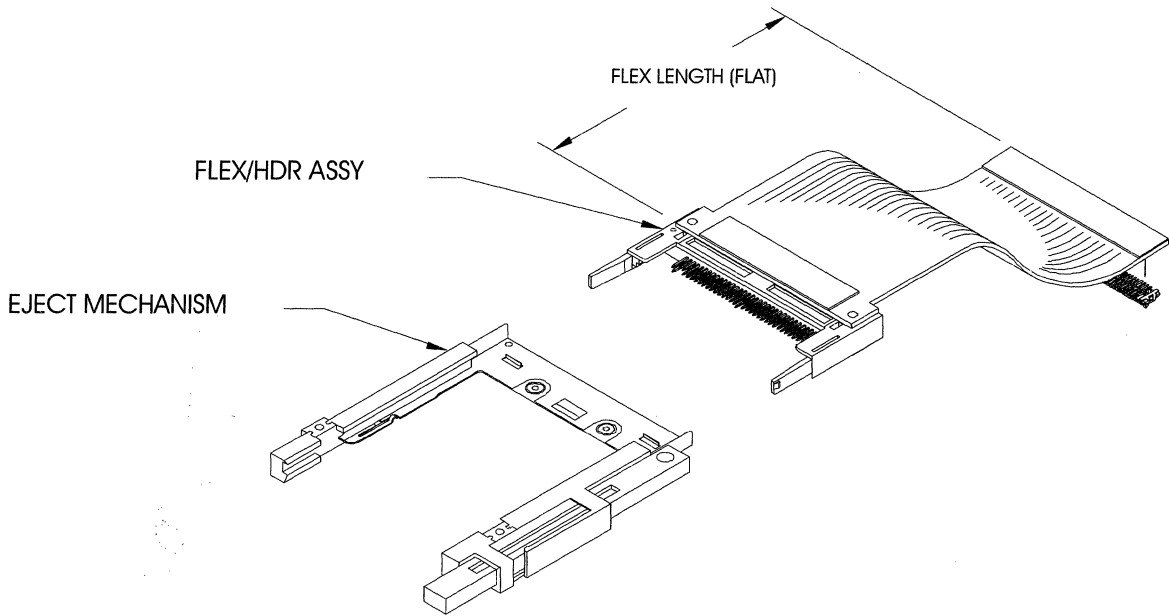
**Note:** Pushrod location is described as it appears to the user once installed in the system. Optional headers with threaded inserts. See page 4-26.

**Important:** Two header and two mechanism P/N's must be used for each double deck assembly.

**Example:** A dual eject header which mounts underneath the PCB with no standoff that has the upper push rod on the left and the lower pushrod on the left is made from components: 92140-500 95033-110  
92140-505 95033-110



**Description**  
**Single Deck Flex Mount Front Eject Header**

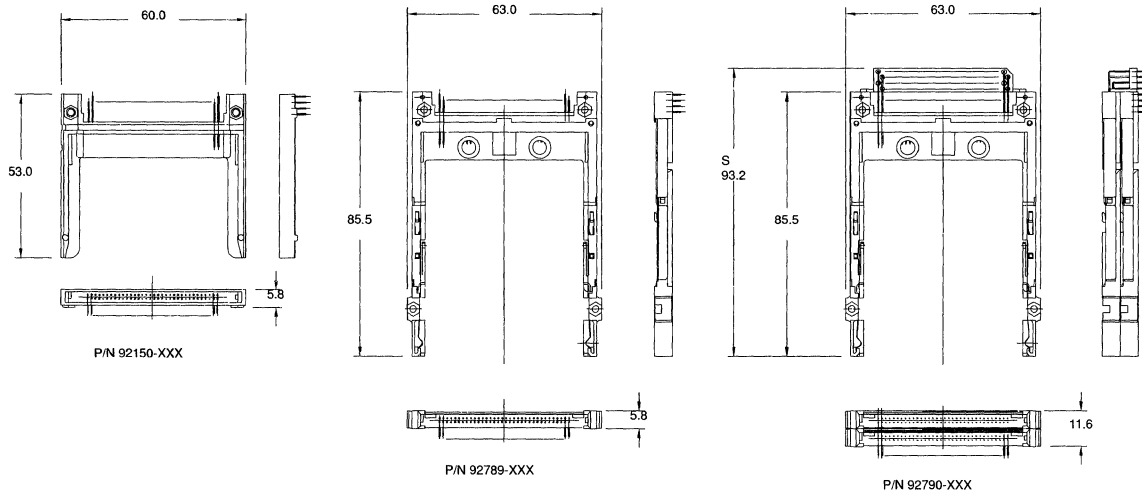


**Ordering Data**  
**Berg PCMCIA Component Selector**  
**Single Deck Flex Mount Front Eject Header**

Description	Order Header Part #	& Mechanism P/N*	Push Rod Location	Flex Length (mm)
4mm travel	94058-20320	92192-00CA	Right	30
4mm travel	94058-20520	92192-00CA	Right	50
4mm travel	94058-20820	92192-00CA	Right	80
4mm travel	94058-20320	92192-10CA	Left	30
4mm travel	94058-20520	92192-10CA	Left	50
4mm travel	94058-20820	92192-10CA	Left	80
8mm travel	94058-20320	95079-00CA	Right	30
8mm travel	94058-20520	95079-00CA	Right	50
8mm travel	94058-20820	95079-00CA	Right	80
8mm travel	94058-20320	95079-10CA	Left	30
8mm travel	94058-20520	95079-10CA	Left	50
8mm travel	94058-20820	95079-10CA	Left	80

\*NOTE: Any mechanism part number can be used interchangeably to make other style flex mount eject headers.  
 Order two single deck header and mechanism part numbers to make a double deck header.  
 Order spacer part number 93230-002 to allow two Type III cards to be used in a double deck header.  
 Note also: Conan™ header on flex circuit can be mated with Conan™ receptacle P/N 91930-21169, which must be ordered separately.

### Description Single and Double Deck Non-Eject Header



4

### Ordering Data Type I, II, III Single Deck Non-Eject Header

Solder Tail Style	PCB Side	Standoff (mm)	Order Header Part Number 92140-												and Mechanism Part Number 92791-				To Make Final Assy. Part Number	
			000	001	002	010	020	040	500	501	502	510	520	540	001	021	041	051		
Through Hole	Above	none	■													■				92789-000
Through Hole	Below	none																		92789-500
Through Hole	Above	2							■									■		92789-020
Through Hole	Below	2																		92789-520
Through Hole	Above	4																		92789-040
Through Hole	Below	4																		92789-540
Through Hole	Above	5																		92789-050
Through Hole	Below	5																		92789-550
2-row SMT	Above	none		■																92789-001
2-row SMT	Below	none																		92789-501
In-line SMT	Above	none			■															92789-002
In-line SMT	Below	none				■														92789-502
SMT	Above	none	Order final assembly part number 92150-001																92150-001	
Through Hole	Above	none	Order final assembly part number 92150-002																92150-002	

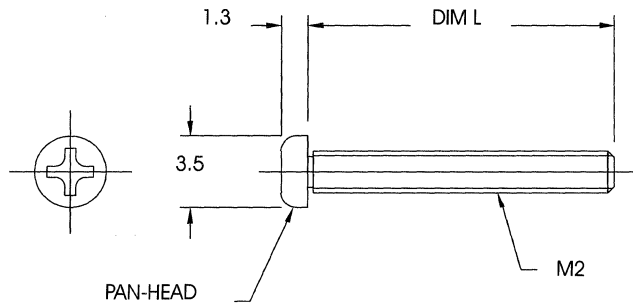
### Type I, II, III Double Deck Non-Eject Header

Solder Tail Style	PCB Side	Standoff (mm)	Order Two Header Part Numbers 92140-								and Two Rail Part Numbers 92791-			To Make Final Assy. Part Number						
			000	005	040	045	500	505	540	545	001	001	022							
Through Hole	Above	none	■																	92790-000
Through Hole	Above	2																		92790-020
Through Hole	Below	none																		92790-500
Through Hole	Below	2																		92790-520

Important: Two header and two mechanism P/N's must be used to make a Double Deck Non-Eject Header.

**Description**

Screw and nut for single and double stack eject header

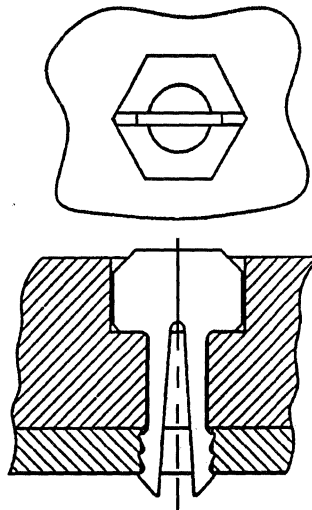


2.0 mm Nut Part Number 92869-001

**Ordering Data**

Part Number	Dimension L		Application	Stand-Off Height	
	mm	in.		mm	in.
95121-001	6.00	0.236	Single Deck	0.00	0.000
95121-002	12.00	0.472	Single Deck	5.00	0.197
95121-002	12.00	0.472	Double Deck	0.00	0.000
95121-003	14.00	0.551	Double Deck	2.00 & 2.20	0.079 & 0.087
95121-004	8.00	0.315	Single Deck	2.00 & 2.20	0.079 & 0.087
95121-005	10.00	0.394	Single Deck	4.00 & 4.30	0.157 & 0.169
95121-006	16.00	0.630	Double Deck	4.00 & 4.30	0.157 & 0.169
95121-007	18.00	0.709	Double Deck	5.00	0.197

**Description**



**Ordering Data**

Solderable Hold Downs

Part Number	Application	For Use With Standoff Height	
		mm	in.
93925-001	Single Deck	zero	zero
93925-002	Single Deck	2.00 & 2.20	0.079 & 0.087
93925-003	Single Deck	4.00 & 4.30	0.157 & 0.169
93925-004	Single Deck	5.00	0.197
93925-005	Double Deck	zero	zero
93925-006	Double Deck	2.00 & 2.20	0.079 & 0.087
93925-007	Double Deck	4.00 & 4.30	0.157 & 0.169
93925-008	Double Deck	5.00	0.197

# PCMCIA Header Terminology

## Eject Styles:

**Front Manual Eject Header** - Push rod is actuated from the front of the eject header, adjacent to the card insertion opening.

**Side Manual Eject Header** - Push rod is actuated from the side of the eject header. Typically these eject headers are located in a corner of a system, allowing cards to be ejected out the front with an actuation slot in the side of the unit.

**Non-Eject Header** - No mechanical card ejection. Card removal by hand only.

**4mm Card Travel** - Normal distance a card travels during an ejection stroke utilizing a typical PCMCIA header.

**8mm (Extended) Card Travel** - The card travels twice the normal distance during an eject stroke using this type of header. This is useful in applications where the header is recessed further in the system, which would otherwise make card access difficult.

## Header Configurations:

**Single Deck** - One header providing a single card slot.

**Double Deck** - A header providing two card slots. This allows a combination of cards to be used simultaneously.

**Narrow Body** - The eject mechanism width is reduced to 65mm from the standard 71mm, allowing board space to be conserved.

**5.0 Volt Polarization** - Header only accepts 5.0V cards.

**3.3 Volt Polarization** - Header can accept either 3.3V or 5.0V cards.

**CardBus** - Headers accept regular PC cards, or those conforming with the CardBus (enhanced performance) specification. CardBus cards operate at 33MHz, and have a 32-bit databus compared with 10MHz, 16-bit standard PC card performance.

## PCB Attachment:

**PCB** - Printed Circuit Board.

**Captive Nut** - Included within mechanism, to eliminate need for separate metric nut (M2).

**Threaded Insert** - Press fit insert included in header body, accepts metric screw (M2) for PCB attachment.

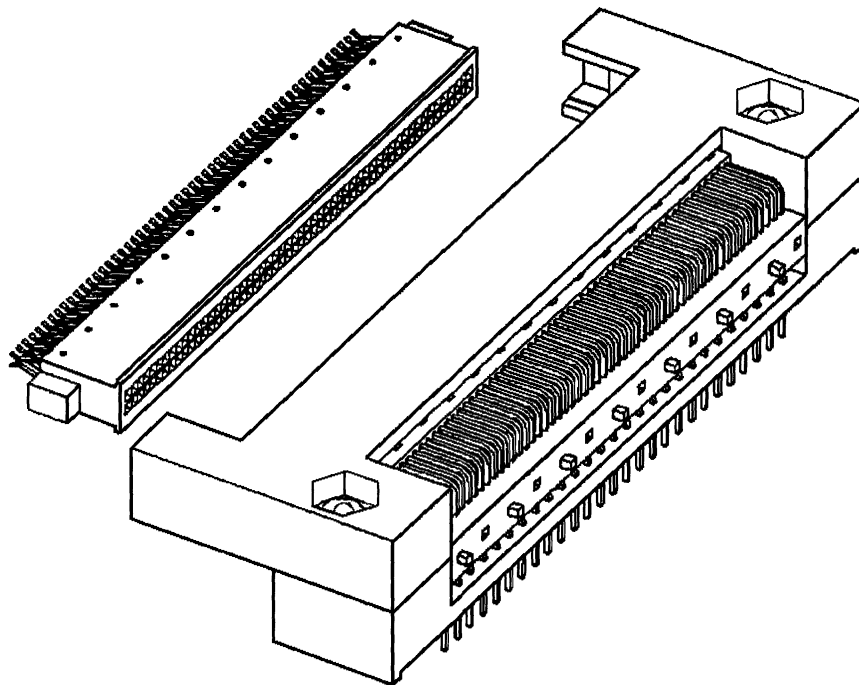
**Solderable Holddown** - Attaches to mechanism by inserting through existing screw holes in rails and solders mechanism to a plated through hole on the PCB.

**Vertical Transition PCB** - Vertical transition PCB comes soldered at right angle to header pins, with edge card fingers at bottom which mate to a surface mounted receptacle connector on customer's PCB. This allows removal of the eject header assembly without desoldering.

# Engineering Notes

# Engineering Notes

# PCI & Small PCI



## 1.27 mm (0.050 in.) Centerline Products

### Edge Card Connectors

PCI Connectors .....	6-2
----------------------	-----

## 0.80 mm (0.031 in.) Centerline Products

### Small PCI Connectors

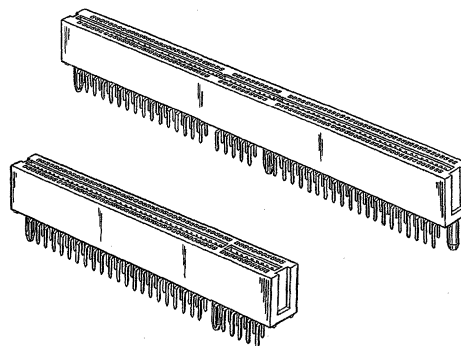
Small PCI Headers .....	6-7
Small PCI Receptacles .....	6-9
Small PCI Card Frames .....	6-10
PCI to Small PCI Adaptor Board Assembly .....	6-11



# Edge Card Connectors

1.27 mm (0.050 in.) Centerline

## PCI Connectors




### Features


- 1.27 mm (0.050 in.) contact spacing
- Keyed for proper board insertion
- Compliant with PCI local bus specification Rev 2.1
- High temperature housing
- Lead in to reduce stubbing during card insertion

### Options

- 2 x 20 32 bit or 2 x 92 64 bit
- Keying for 3.3 or 5.0 volt
- Various contact platings
- Plastic peg or metal holddown clip (32 bit)

### Approvals and Certifications

 File no. E66906

 File no. LR46923

### Mating Data

Designed to mate with PCI expansion cards

### Technical Data

#### Materials

- Housing ..... Glass-filled PPS (UL 94 V-0)
  - ▶ Color ..... Ivory
  - ▶ Applicable soldering process .. IR, Wave, Vapor phase
- Terminal..... Copper alloy

#### Plating

- Underplate ..... 1.27  $\mu$ m (50  $\mu$ in.) nickel min overall
- Finish
  - ▶ Solderetail..... 2.54  $\mu$ m (100  $\mu$ in.) Tin lead min.
  - ▶ Contact..... Various gold or GXT™ (See order data)

#### Electrical Performance

- Insulation resistance..... 1000 M $\Omega$  min
- Withstanding voltage..... 750 V ac rms

- Current rating ..... 1 amp max
- Contact resistance ..... 30 m $\Omega$  max initial
- Contact capacitance ..... 2 pF max at 1.0 MHz

#### Mechanical Performance

- Contact normal force ..... 75 grams min
- Mating force ..... 11.8 Kg max
- Durability..... 100 cycles min

#### Operating Temperature

- Temperature range..... -50°C to +105°C
- Continuous operating range ..... 85°C

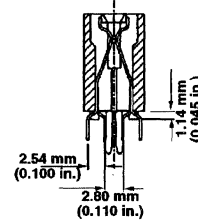
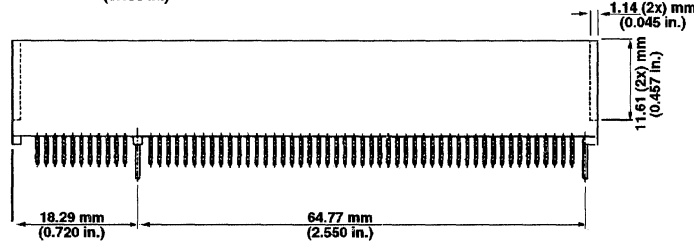
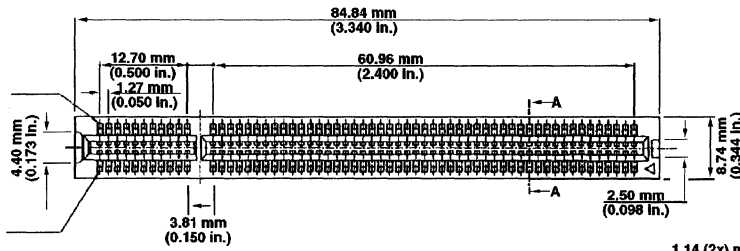
#### Packaging

- Antistatic trays in boxes

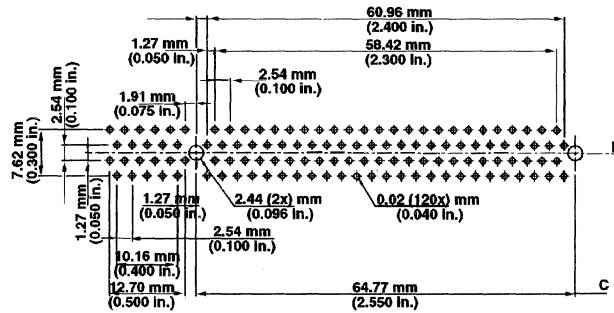
### Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawings.....	By Part No.	Product Sample.....	Upon Request
Product Specification.....	GES-12-056		

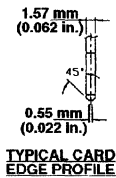
**Description**  
**2 x 60, 32 bit PCI**  
**3.3 and 5.0 volt**



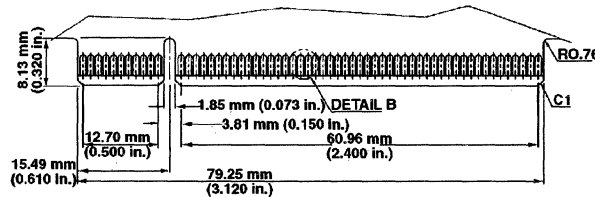
**METAL CLIP VERSION SHOWN**  
 (See product drawing for view of plastic peg)



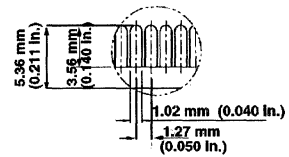
**RECOMMENDED MOUNTING BOARD FOOTPRINT**



**TYPICAL CARD EDGE PROFILE**



**RECOMMENDED MATING COMPONENT BOARD**



**Ordering Data**

**9 5 5 8 X - 1 0 Y 2**

This digit specifies peg or chip  
 5 = Plastic Peg  
 6 = Metal Clip

This digit specifies plating

Note: The same part numbers are used for both 3.3 and 5.0 volt applications. 3.3 volt orientation is shown above. Rotate connector 180 degrees for 5.0 volt orientation.

1.02 µm (40 µin.) GXT™	-1012	0.03 µm (1 µin.) gold	-1052
0.76 µm (30 µin.) GXT™	-1022	0.51 µm (20 µin.) GXT™	-1062
0.25 µm (10 µin.) GXT™	-1032	0.76 µm (30 µin.) gold	-1072
0.08 µm (3 µin.) gold	-1042		

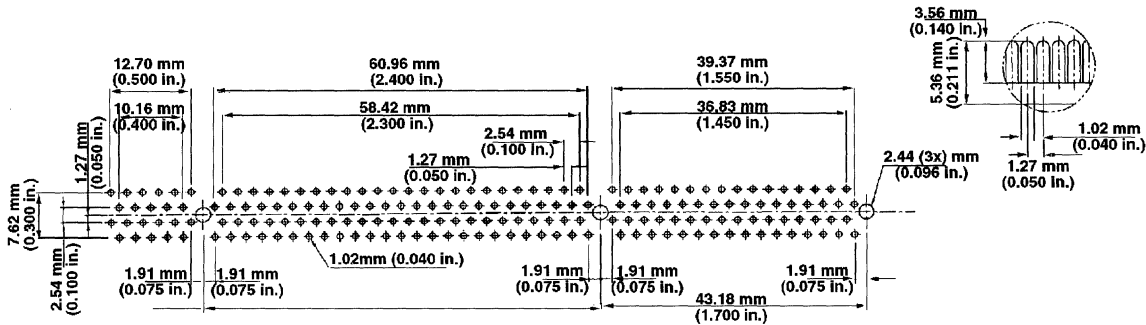
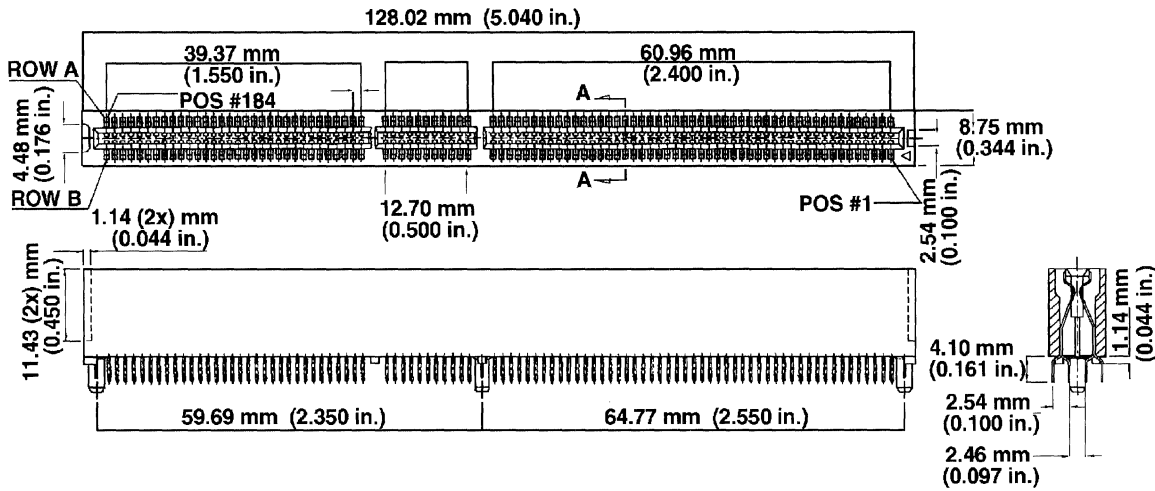
**Plating**

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

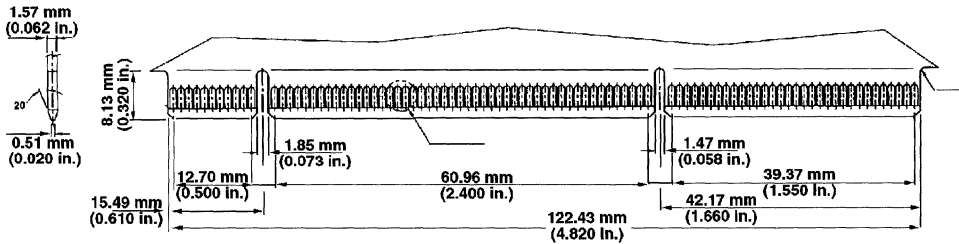




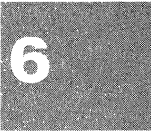
**Description**  
 2 x 92, 64 bit PCI  
 5.0 volt



RECOMMENDED MOUNTING BOARD FOOT PRINT



RECOMMENDED MATING COMPONENT BOARD



**Ordering Data**

94921-10Y2

This digit specifies plating

**Plating**

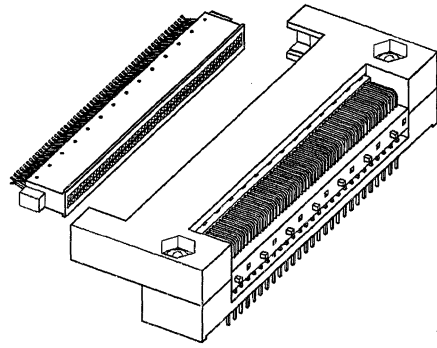
1.02 µm (40 µin.) GXT™	-1012	0.03 µm (1 µin.) gold	-1052
0.76 µm (30 µin.) GXT™	-1022	0.51 µm (20 µin.) GXT™	-1062
0.25 µm (10 µin.) GXT™	-1032	0.76 µm (30 µin.) gold	-1072
0.08 µm (3 µin.) gold	-1042		

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

# Small PCI

0.80 mm (0.031 in.) Centerline

## Small PCI Connector System



### Features

- Double row 2 x 54
- 0.80 mm (0.031 in.) pitch
- Right-angle header style
- Low insertion force / high normal force
- Long contact wipe
- Stand-offs for easy PCB cleaning
- Excludes PCMCIA or JEIDA card insertion
- Board mounting via 2.00 mm (0.079 in.) screws and nuts
- High temperature plastic
- PCI to SPCI adaptor boards available


### Options


- Single & double stack headers
- Header heights of 11.01 mm (0.472 in.), 15.46 mm (0.609 in.) and 16.47 mm (0.648 in.)
- 3.3 and 5.0 volt keying
- Card frames available with adhesive tape to assure contact with receptacle

### Specifications

- MIL-STD 202
- MIL-STD 1344

### Approvals and Certifications

 File no. E66906

 File no. LR46923

### Applications

- PCI bus interconnect in PCMCIA packaging format
- Notebook, low profile desk top computers and set-top boxes

### Technical Data

#### Materials

- Housings ..... Liquid crystal polymer (UL 94 V-0)
- Color ..... Black
- Contacts ..... Copper alloy

#### Electrical Performance

- Insulation resistance ..... 1000 MΩ min
- Contact resistance
  - ▶ For single deck header, heights of 11.01 mm (0.472 in.) and 15.46 mm (0.609 in.) and lower deck of the double deck header - 40 milliohms maximum initial; 20 milliohms maximum increase after testing
  - ▶ For single deck header height of 16.47 mm (0.648 in.) and upper deck of double deck header - 55 milliohms maximum initial; 75 milliohms maximum increase after testing

- Withstanding voltage ..... 500 V ac rms
- Capacitance ..... 2.3 pF max at 1.0 MHz
- Current rating ..... 0.5 amp  
< 30° C temperature rise above ambient
- Voltage rating ..... 125 volts

#### Plating

- Underplate ..... 1.27 mm (0.050 in.) Nickel min
- Soldertails ..... 2.54 mm (0.100 in.) tin lead min
- Contacts ..... Gold flash over 0.76 μm (30 μin.) GXT™

#### Mechanical Performance

- Mating force ..... 6.0 Kg max
- Durability ..... Exceeds SPCI specification (100 cycles)

#### Packaging

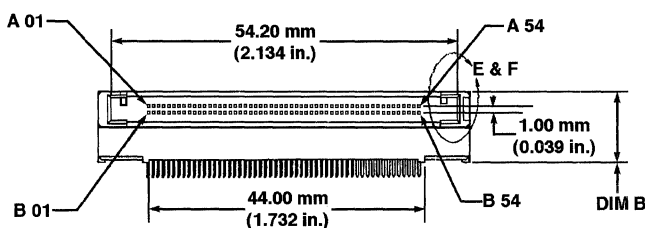
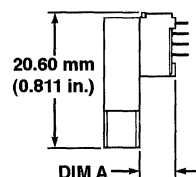
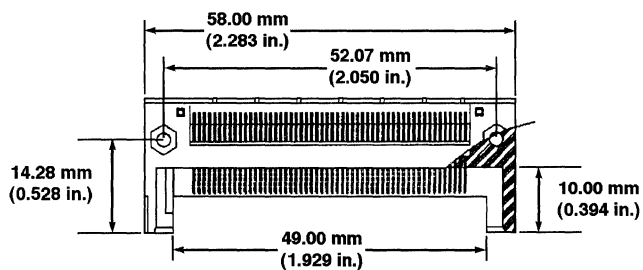
- Antistatic vacuum formed trays in boxes

### Customer Support Materials

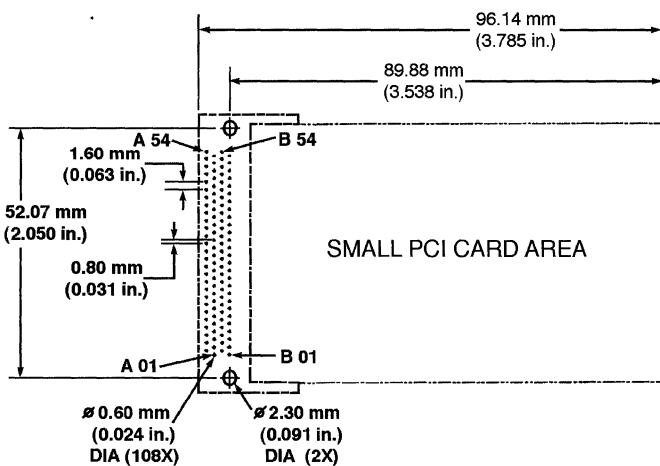
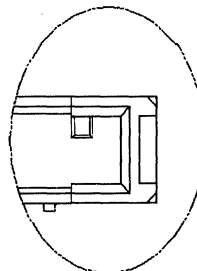
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Customer Product Drawings.....	By Part No.
Product Specification.....	BUS-12-119

Description	Order No.
Product Sample.....	Upon Request

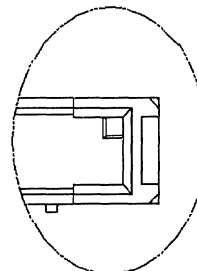
### Description Right Angle Header Single Row



DETAIL E  
(KEYING  
FOR 5.0 V)



DETAIL F  
(KEYING  
FOR 3.3 V)



**RECOMMENDED BOARD LAYOUT**

6

### Ordering Data

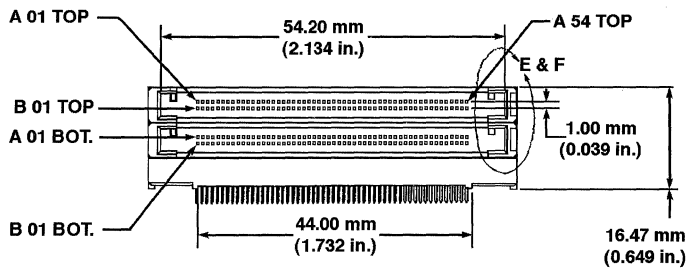
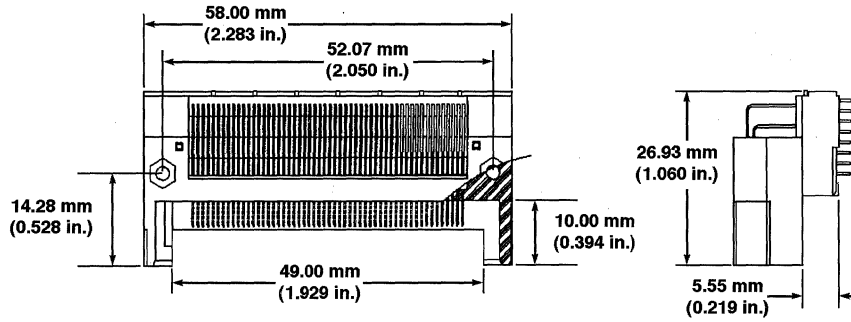
9 4 5 8 4 - X X X

These digits specify height above board and voltage keying

Dash Number	Dimension B		Dimension A		Voltage Keying
	mm	in.	mm	in.	
-001	11.01	0.433	5.55	0.219	5.0
-002	11.01	0.433	5.55	0.219	3.3
-003	15.46	0.609	10.00	0.394	5.0
-004	15.46	0.609	10.00	0.394	3.3
-005	16.47	0.648	11.01	0.433	5.0
-006	16.47	0.648	11.01	0.433	3.3

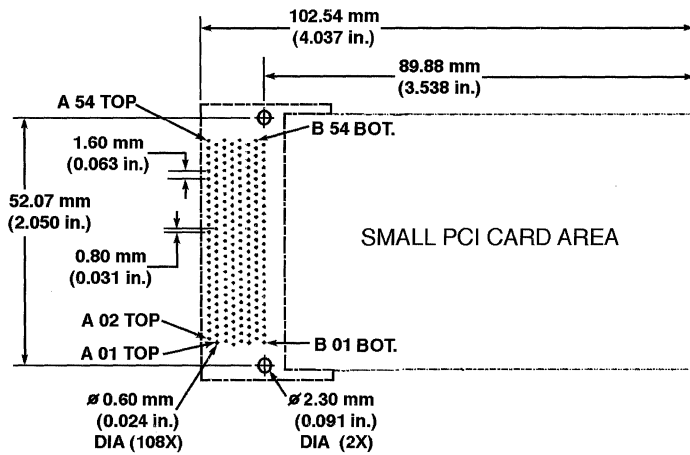
Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

### Description Double Stack Header



DETAIL E  
(KEYING  
FOR 5.0 V)

DETAIL F  
(KEYING  
FOR 3.3 V)



**RECOMMENDED BOARD LAYOUT**

### Ordering Data

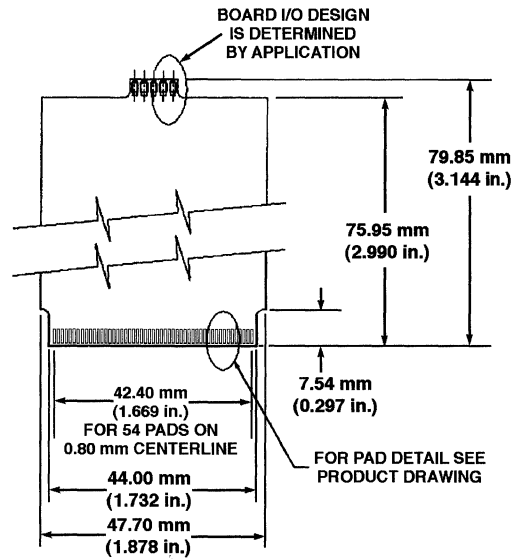
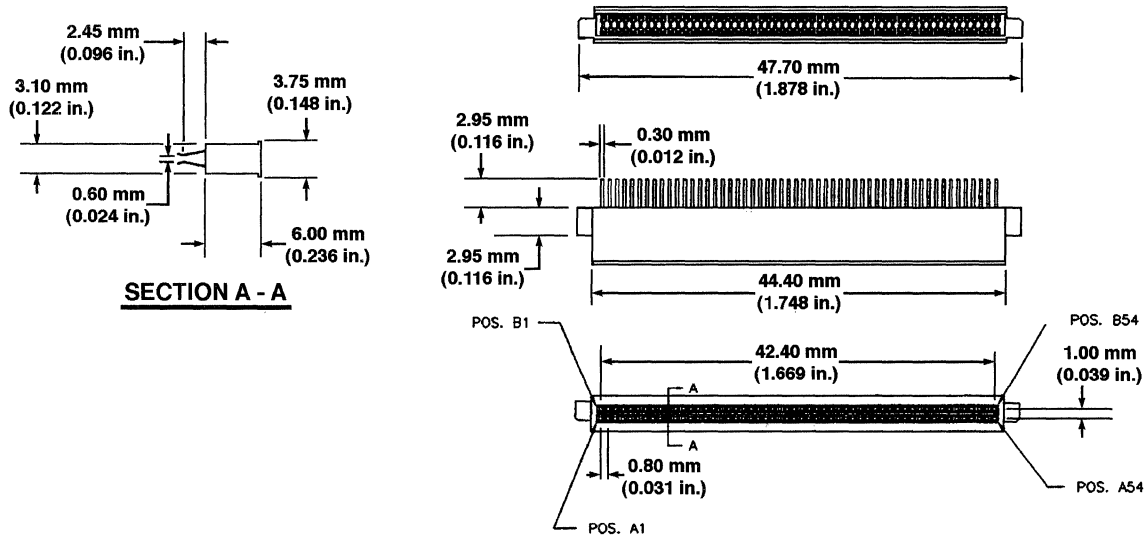
9 4 5 8 5 - 0 0 1      5.0 volt keying

9 4 5 8 5 - 0 0 2      3.3 volt keying

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

## Description

### 2 x 54 Straddle Mount Receptacle



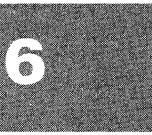
**BOARD LAYOUT**

## Ordering Data

**9 4 5 8 6 - 0 0 1**

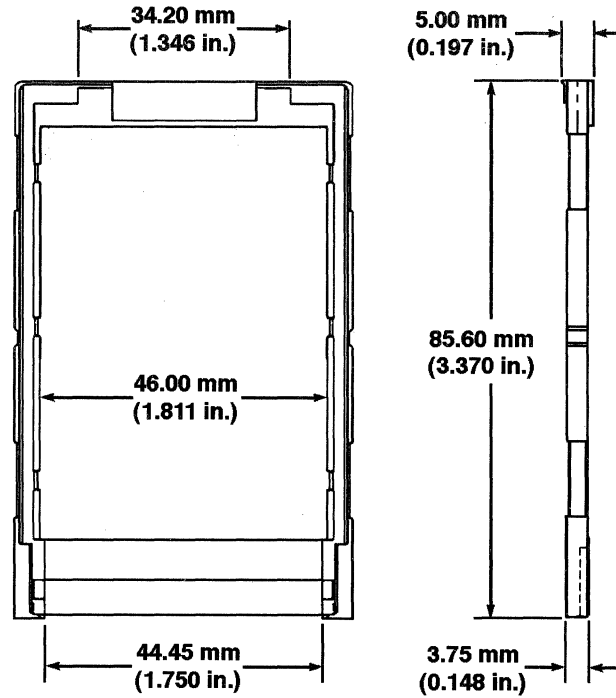
For 0.70 mm (0.028 in.) to 0.80 mm (0.031 in.) thick PC Boards

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.





**Description**  
Card Frames



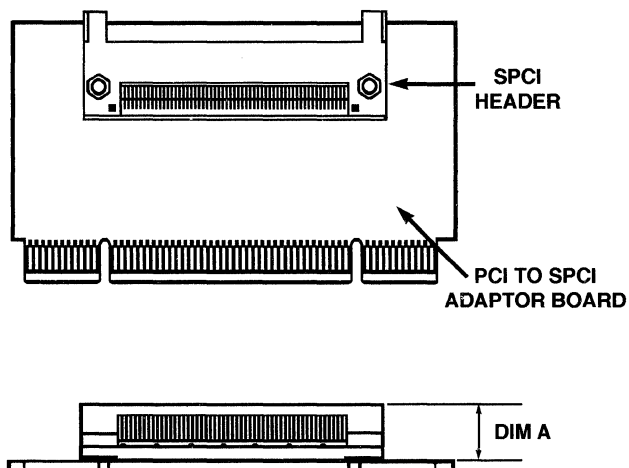
**Ordering Data**

All card frames listed have 2 x 8 I/O connector opening

Part Number	Description
94813-001	5.0 volt keying
94813-002	3.3 volt keying
94813-003	Universal keying
94813-101	5.0 volt keying with adhesive sheet
94813-102	3.3 volt keying with adhesive sheet
94813-103	Universal keying with adhesive sheet

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

**Description**  
**PCI to Small PCI**  
**Adapter Assembly**



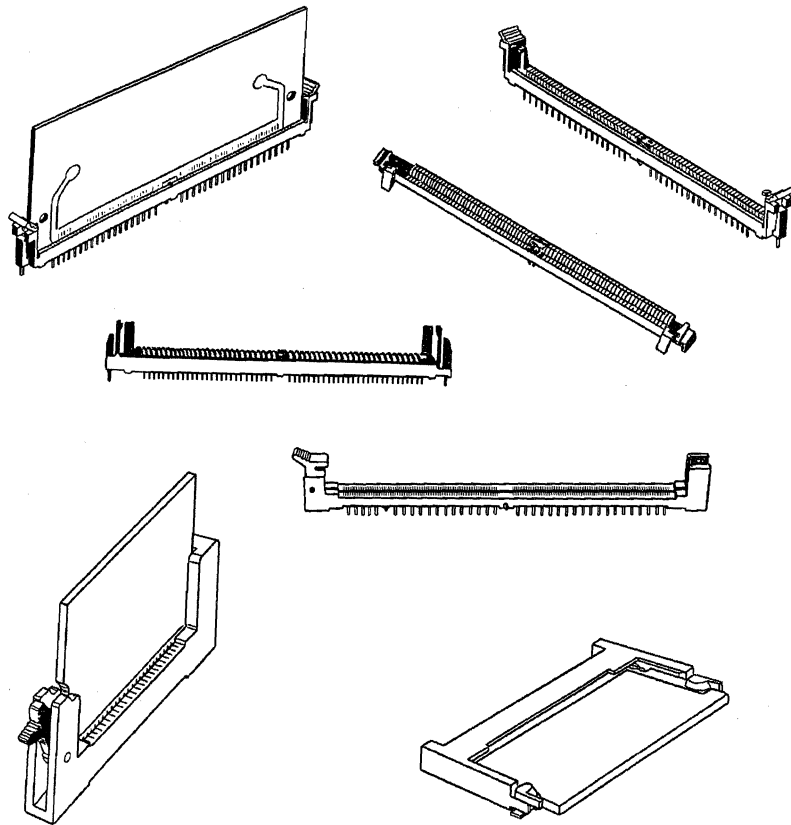
6

**Ordering Data**

Part Number	Description	Dimension A	
		mm	in.
71221-001	5.0 volt keying	11.01	0.433
71221-002	5.0 volt keying	15.46	0.609
71221-003	5.0 volt keying	16.47	0.648
71221-004	3.3 volt keying	11.01	0.433
71221-005	3.3 volt keying	15.46	0.609
71221-006	3.3 volt keying	16.47	0.648

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

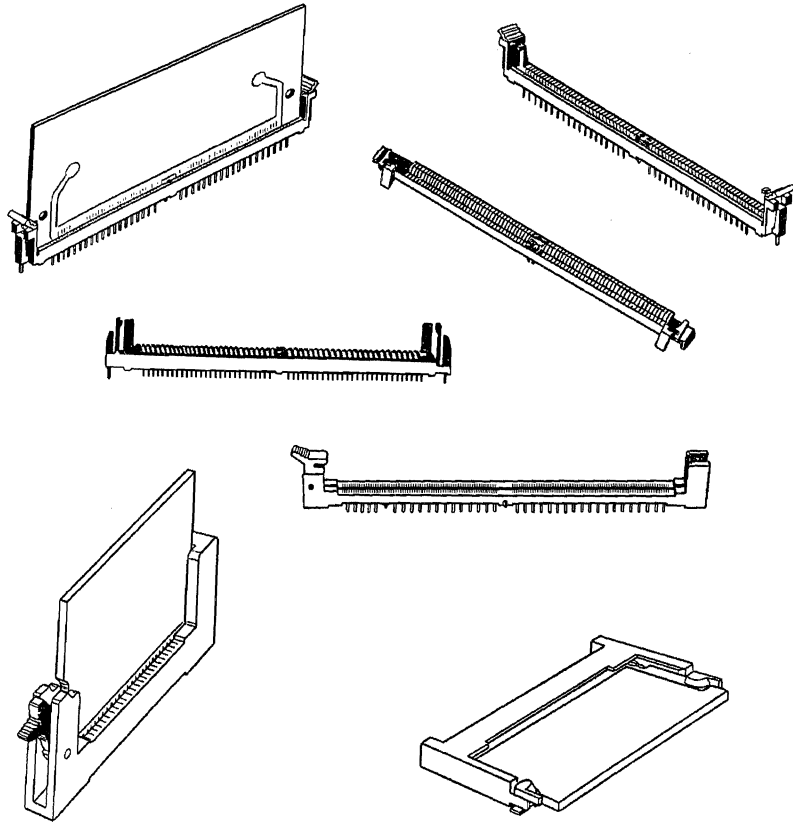
# SIMM/DIMM Connectors



<b>SIMM Plastic Latch Vertical, 0.050 in. Centerline, 64, 68, 80 and 100 position . . . .</b>	<b>7-4</b>
<b>SIMM Plastic Latch 25° and 40° Low Profile, 0.050 in. Centerline . . . . .</b>	<b>7-8</b>
<b>SIMM User Friendly Plastic Latch Vertical, 0.050 in. Centerline, 72 position . . . .</b>	<b>7-14</b>
<b>SIMM P.C. Board Layout . . . . .</b>	<b>7-20</b>
<b>DIMM168 Position Right-Angle, Through-Mount . . . . .</b>	<b>7-23</b>
<b>DIMM 168 Position Vertical, Through-Mount . . . . .</b>	<b>7-24</b>
<b>DIMM P.C. Board Layout . . . . .</b>	<b>7-27</b>
<b>S O DIMM - 4 Byte. . . . .</b>	<b>7-30</b>
<b>S O DIMM - 4 Byte Board Layout . . . . .</b>	<b>7-33</b>
<b>S O DIMM - 8 Byte. . . . .</b>	<b>7-34</b>
<b>S O DIMM - 8 Byte Board Layout . . . . .</b>	<b>7-35</b>



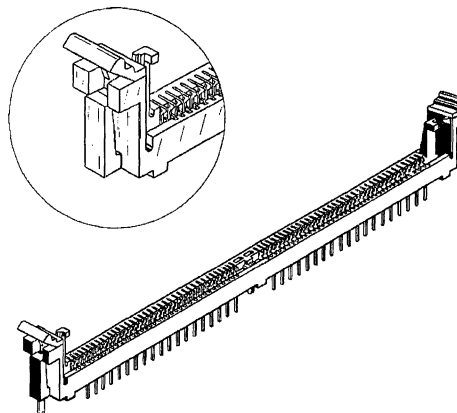
# SIMM/DIMM Connectors



# SIMM Connectors

## Vertical and Low Profile

1.27 mm (0.050 in.)



### Features

- 1.27mm (0.050 in.) centerline product, single row.
- Vertical, 25° and 40° incline low-profile configurations.
- Applicable to PCB thicknesses of 1.19 mm (0.047 in.) to 1.37 mm (0.054 in.).
- Polarization of module to socket.
- Card guides for mechanical stability.
- Overstress protection feature.
- Polarization of socket to PCB.
- Center compliant fit retention post.
- Right or left side module polarization feature.

- Low insertion force for easy module engagement.
- High temperature plastic.
- Standoffs for PCB cleaning.


### Options


- Selective gold plating.
- Selective GXT™ plating.
- Improved "user friendly" 72 position plastic latch product with overstress protection feature.
- Additional sizes available.
- Tube packaging
- Metal holddown features

### Mating Data

Mates with SIMM boards manufactured to JEDEC specifications.

### Approvals and Certifications

 File no. E66906

 File no. LR46923

### Technical Data

#### Materials

- Housing ..... Glass-filled LCP
  - ▶ Color ..... Natural/Black
  - ▶ Applicable soldering processes ..... IR, wave, vapor phase
- Terminal ..... Phosphor bronze

#### Electrical Performance

- Insulation resistance ..... 10,000 MΩ min. initial
- Withstanding voltage ..... (one minute duration time) 1,000 V ac (rms), 60 Hz
- Current rating ..... 1 amp max
- Contact resistance ..... 20 MΩ max. initial
- Contact capacitance ..... 1 pF max. at 100 kHz between contacts
- Voltage rating ..... 150 V AC/DC

#### Operating temperature

- Temperature range ..... -55°C to +105°C
- Continuous operating temperature ..... +85°C

#### Mechanical Performance

- Normal force ..... 1.47 N (150 gf) min.
- Contact retention force ..... 11.12 N (2.5 lbf) min.
- Durability (mating cycles) ..... 25 (tin-lead plating)

#### Plating

- Finish
  - ▶ Contact ..... 3.81 μm (150 μin.) tin-lead or 0.76 μm (30 μin.) gold or GXT™
  - ▶ Solder tail ..... 2.54 μm (100 μin.) tin-lead
- Underplate ..... 1.27 μm (50 μin.) nickel overall

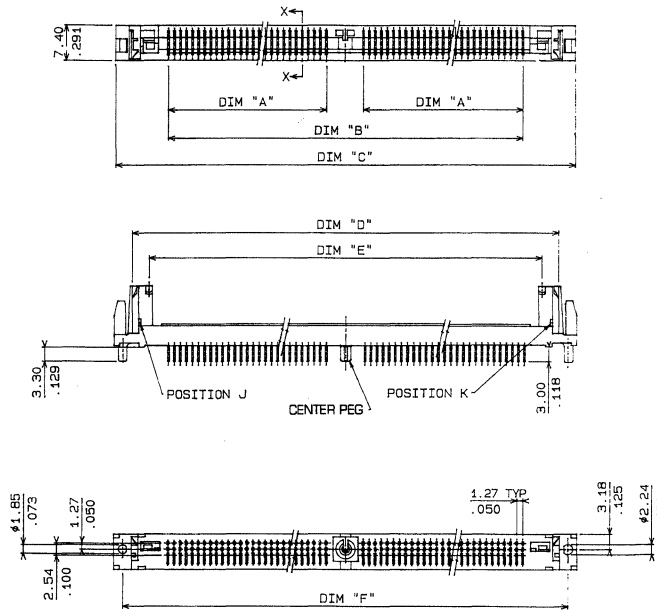
#### Packaging

- Trays ..... qty. per tray varies by part number

### Customer Support Materials

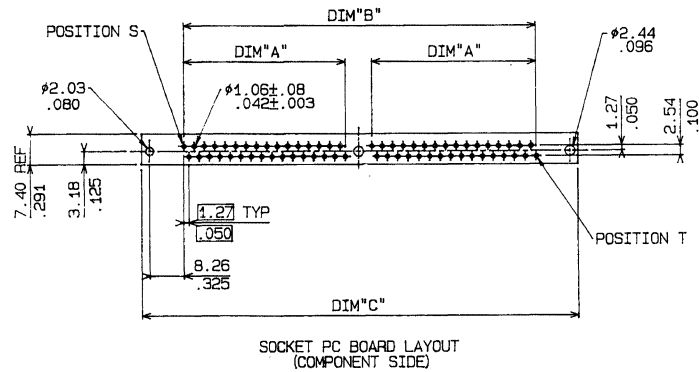
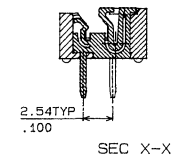
Description	Order No.	Description	Order No.
Customer Product Drawings	By Part No.	Product Samples	Upon Request
Product Specifications	GES-12-055		

**Description**  
**Plastic Latch, Vertical, Single Row**  
**1.27mm (0.050 in.) Centerline**



Refer to Page 7-20 for SIMM P.C. Board Layout

Recommended P.C. Board Hole Sizes for Pegs		
Left	Center	Right
2.03 mm	Optional	2.44 mm
0.080 in.	(See Below)	0.096 in.



**Ordering Data**



Base number specifies configuration and plating.

Dash number specifies housing color, position of polarizing key, code for number of positions, and code for central peg feature.

**X: Housing Color**  
 1/6/8 - Natural

**Y: Position of polarization key**  
 0 - at position J  
 1 - at position K

**Z: Code for number of positions**  
 1 - 64 positions (WITH center peg)  
 2 - 68 positions (WITH center peg)  
 4 - 80 positions (WITH center peg)  
 6 - 64 positions (without center peg)  
 7 - 68 positions (without center peg)  
 9 - 80 positions (without center peg)

Base Part Number	Plating
87733-XYZ	Tin-lead
89722-XYZ	0.76 μm GXT™ (30 μin.)
89705-XYZ	0.76 μm Gold (30 μin.)

Base Part Number	Diameter of Hole for Center Peg
87733, 89705, 89722-1YZ	2.44mm (.096 in.)
87733, 89705, 89722-6YZ	2.49mm (.098 in.)
87733, 89705, 89722-8YZ	2.54mm (.100 in.)

**Description**  
Plastic Latch, Vertical, Single Row  
1.27mm (0.050 in.) Centerline

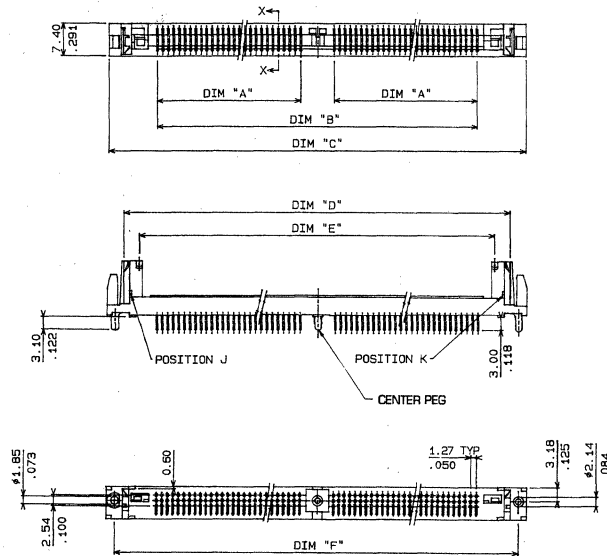
Recommended P.C. Board Hole Sizes for Pegs		
Left	Center	Right
2.03 mm 0.080 in.	Optional	2.44 mm 0.096 in.

Dash Number	Housing Color	Position of Polarization Key	Number of Pos.	A		B		C		D		E		F	
				mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.
101/106 601/606 801/806	Natural	J	1X64	39.37	1.550	85.09	3.350	105.42	4.150	98.17	3.865	91.03	3.584	101.61	4.000
111/116 611/616 811/816		K													
102/107 602/607 802/807		J	1X68	41.91	1.650	90.17	3.550	110.50	4.350	103.25	4.065	96.11	3.784	106.69	4.200
112/117 612/617 812/817		K													
104/109 604/609 804/809		J	1X80	49.53	1.950	105.41	4.150	125.74	4.950	118.49	4.665	111.35	4.384	121.93	4.800
114/119 614/619 814/819		K													



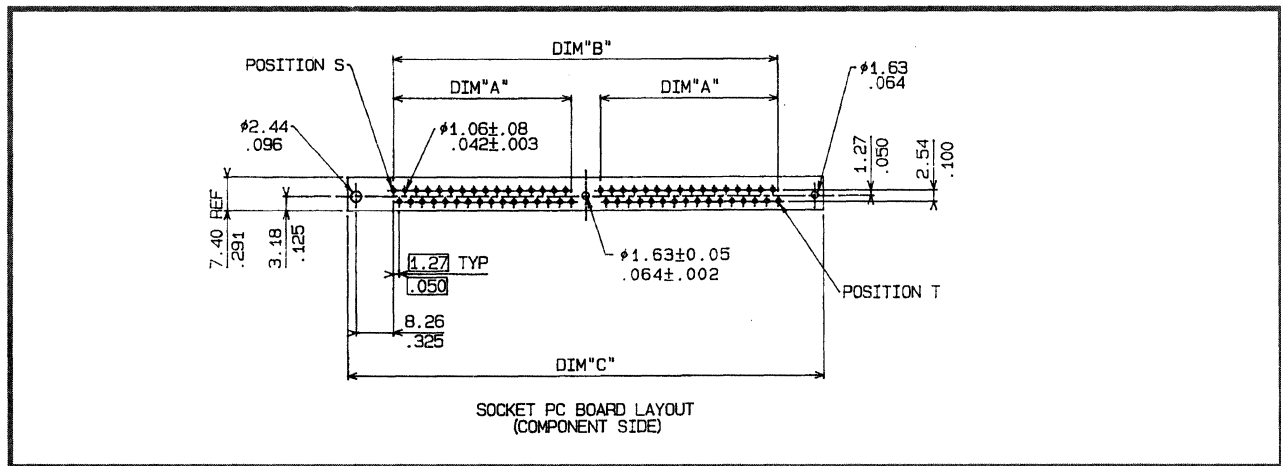
**SIMM Connectors**  
**Plastic Latch Vertical**

**Description**  
**Plastic Latch, Vertical, Single Row**  
**1.27mm (0.050 in.) Centerline**



Refer to Page 7-20 for SIMM P.C. Board Layout

Recommended P.C. Board Hole Sizes for Pegs		
Left	Center	Right
2.44 mm	1.63 mm	1.63 mm
0.096 in.	0.064 in.	0.064 in.



**Ordering Data**

□ □ □ □ □ - X Y Z

Base number specifies configuration and plating.

Dash number specifies housing color, position of polarizing key, code for number of positions, and code for central peg feature.

**X: Housing Color**  
 1/6/8 - Natural

**Y: Position of polarization key**  
 0 - at position J  
 1 - at position K

**Z: Code for number of positions**  
 1 - 64 positions  
 2 - 68 positions  
 4 - 80 positions  
 5 - 100 positions

Base Part Number	Plating
92232-XYZ	Tin-lead
92233-XYZ	0.76 μm GXT™ (30 μin.)
92295-XYZ	0.76 Gold (30 μin.)

**Description**  
Plastic Latch, Vertical, Single Row  
1.27mm (0.050 in.) Centerline

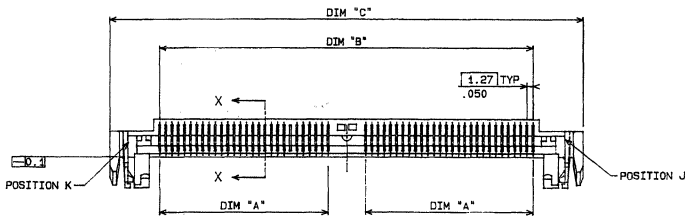
Recommended P.C. Board Hole Sizes for Pegs		
Left	Center	Right
2.44 mm 0.096 in.	1.63 mm 0.064 in.	1.63 mm 0.064 in.

Dash Number	Housing Color	Position of Polarization Key	Number of Positions	A		B		C		D		E		F	
				mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.
101	Natural	J	1X64	39.37	1.550	85.09	3.350	105.42	4.150	98.17	3.865	91.03	3.584	101.61	4.000
111		K													
102		J	1X68	41.91	1.650	90.17	3.550	110.50	4.350	103.25	4.065	96.11	3.784	106.69	4.200
112		K													
104		J	1X80	49.53	1.950	105.41	4.150	125.74	4.950	118.49	4.665	111.35	4.384	121.93	4.800
114		K													
105		J	1X100	62.23	2.450	130.81	5.150	151.41	5.950	143.90	5.665	136.75	5.384	147.33	5.800
115		K													



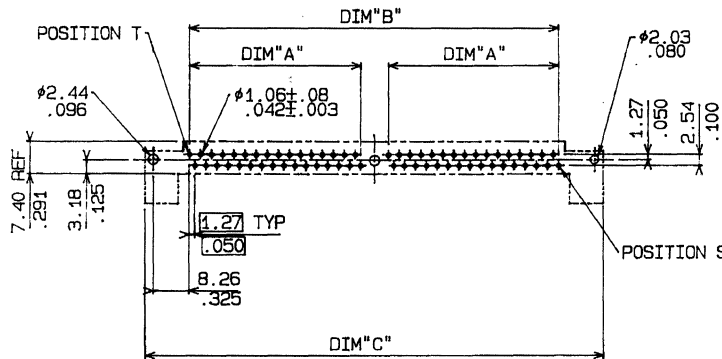
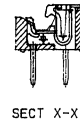
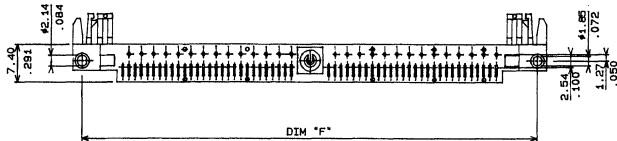
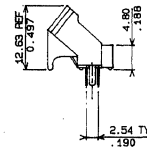
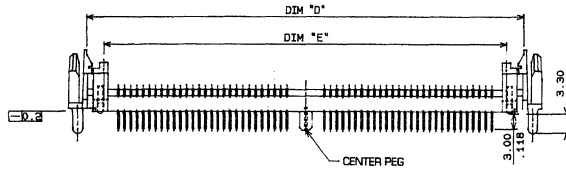
**SIMM Connectors**  
**Plastic Latch Low Profile**

**Description**  
**Plastic Latch, 40° Low Profile, Single Row**  
**1.27mm (0.050 in.) Centerline**



Refer to Page 7-20 for SIMM P.C. Board Layout

Recommended P.C. Board Hole Sizes for Pegs		
Left	Center	Right
2.44 mm	Optional	2.03 mm
0.096 in.		0.080 in.



**Ordering Data**

□ □ □ □ - X Y Z

Base number specifies configuration and plating.

Dash number specifies housing color, position of polarizing key, code for number of positions, and code for central peg feature.

**X: Housing Color**  
 1/6/8 - Natural

**Y: Position of polarization key**  
 0 - at position J  
 1 - at position K

**Z: Code for number of positions**  
 3 - 72 positions (WITH center peg)  
 8 - 72 positions (without center peg)

Base Part Number	Plating	Key Type
94136-XYZ	Tin-lead	Low
94134-XYZ	0.76 μm (30 μin.) GXT™	Low
94109-XYZ	0.76 μm (30 μin.) Gold	Low
94135-XYZ	0.38 μm (15 μin.) Gold	Low

**Description**

Plastic Latch, 40° Low Profile, Single Row  
1.27mm (0.050 in.) Centerline

Base Part Number	Diameter of Hole for Center Peg
94134-1YZ 94135-1YZ 94136-1YZ 94109-1YZ	2.44mm (.096 in.)
94134-6YZ 94135-6YZ 94136-6YZ 94109-6YZ	2.49mm (.098 in.)
94134-8YZ 94135-8YZ 94136-8YZ 94109-8YZ	2.54mm (.100 in.)

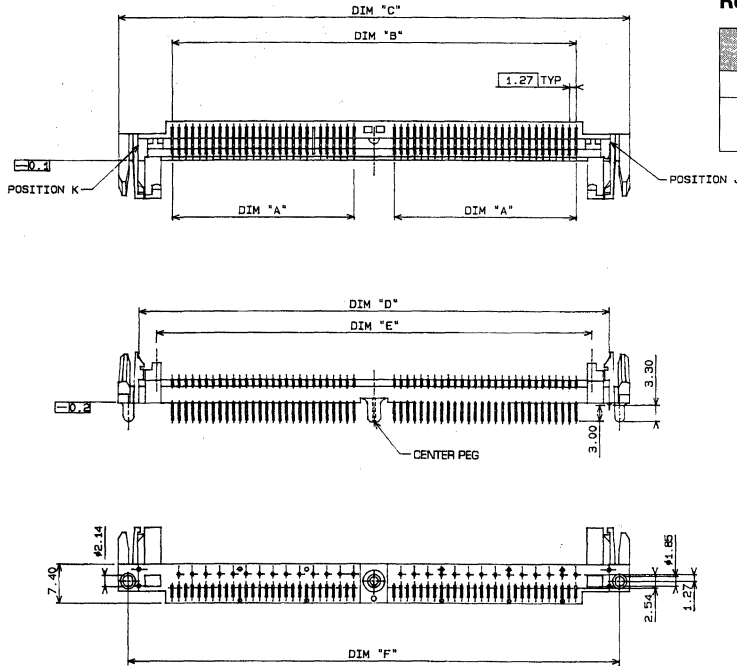
Recommended P.C. Board Hole Sizes for Pegs		
Left	Center	Right
2.44 mm 0.096 in.	Optional	2.03 mm 0.080 in.

Dash Number	Housing Color	Position of Polarization Key	Number of Positions	A		B		C		D		E		F	
				mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.
103/108 603/608 803/808	Natural	J	1X72	44.45	1.750	95.25	3.750	115.58	4.550	108.33	4.265	101.19	3.984	111.77	4.400
113/118 613/618 813/818		K													

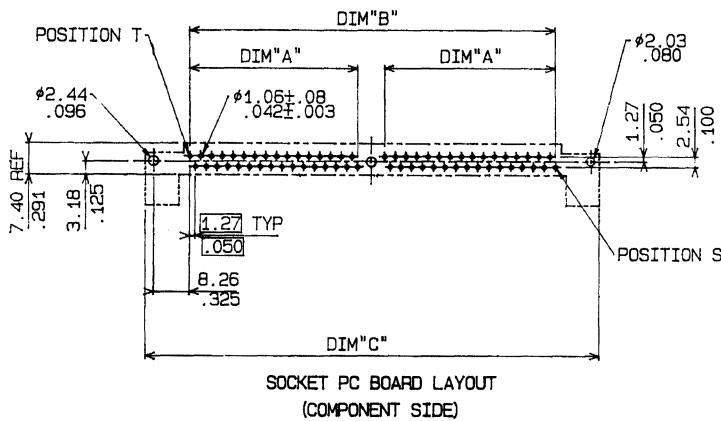
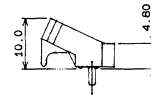
**SIMM Connectors**  
**Plastic Latch Low Profile**

**Description**  
**Plastic Latch, 25° Low Profile, Single Row**  
**1.27mm (0.050 in.) Centerline**

Refer to Page 7-20 for SIMM P.C. Board Layout



Recommended P.C. Board Hole Sizes for Pegs		
Left	Center	Right
2.44 mm	Optional	2.03 mm
0.096 in.		0.080 in.



**Ordering Data**

□ □ □ □ □ - X Y Z

Base number specifies configuration and plating.

Dash number specifies housing color, position of polarization key, code for number of positions, and code for central peg feature.

**X: Housing Color**  
 1/6/8 - Natural

**Y: Position of polarization key**  
 0 - at position J  
 1 - at position K

**Z: Code for number of positions**  
 1 - 64 positions (WITH center peg)  
 2 - 68 positions (WITH center peg)  
 3 - 72 positions (WITH center peg)  
 4 - 80 positions (WITH center peg)  
 6 - 64 positions (without center peg)  
 7 - 68 positions (without center peg)  
 8 - 72 positions (without center peg)  
 9 - 80 positions (without center peg)

Base Part Number	Plating
87734	Tin-Lead
89723	0.76 μm GXT™ (30 μin.)
89706	0.76 μm Gold (30 μin.)

**Description**  
Plastic Latch, 25° Low Profile, Single Row  
1.27mm (0.050 in.) Centerline

Base Part Number	Diameter of Hole for Center Peg
87734-1YZ 89723-1YZ 89706-1YZ	2.44mm (.096 in.)
87734-6YZ 89723-6YZ 89706-6YZ	2.49mm (.098 in.)
87734-8YZ 89723-8YZ 89706-8YZ	2.54mm (.100 in.)

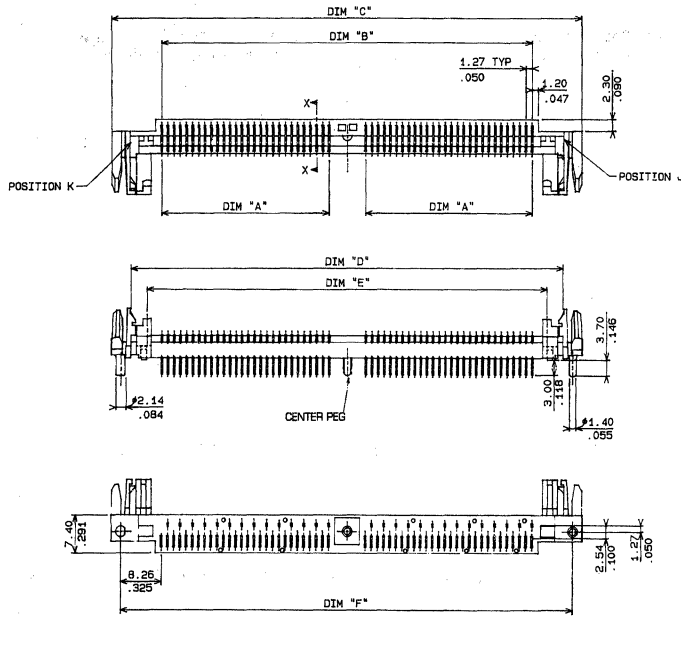
Recommended P.C. Board Hole Sizes for Pegs		
Left	Center	Right
2.44 mm 0.096 in.	Optional	2.03 mm 0.080 in.

Dash Number	Housing Color	Position of Polarization Key	Number of Positions	A		B		C		D		E		F	
				mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.
100/106 601/606 801/806	Natural	J	1X64	39.37	1.550	85.09	3.350	105.42	4.150	98.17	3.865	91.03	3.584	101.61	4.000
111/116 611/616 811/816		K													
102/107 602/607 802/807		J	1X68	41.91	1.650	90.17	3.550	110.50	4.350	103.25	4.065	96.11	3.784	106.69	4.200
112/117 612/617 812/817		K													
103/108 603/608 803/808		J	1X72	44.45	1.750	95.25	3.750	115.58	4.550	108.33	4.265	101.19	3.984	111.77	4.400
113/118 613/618 813/818		K													
104/109 604/609 814/809		J	1X80	49.53	1.950	105.41	4.150	125.74	4.950	118.49	4.665	111.35	4.384	121.93	4.800
114/119 614/619 814/819		K													

7

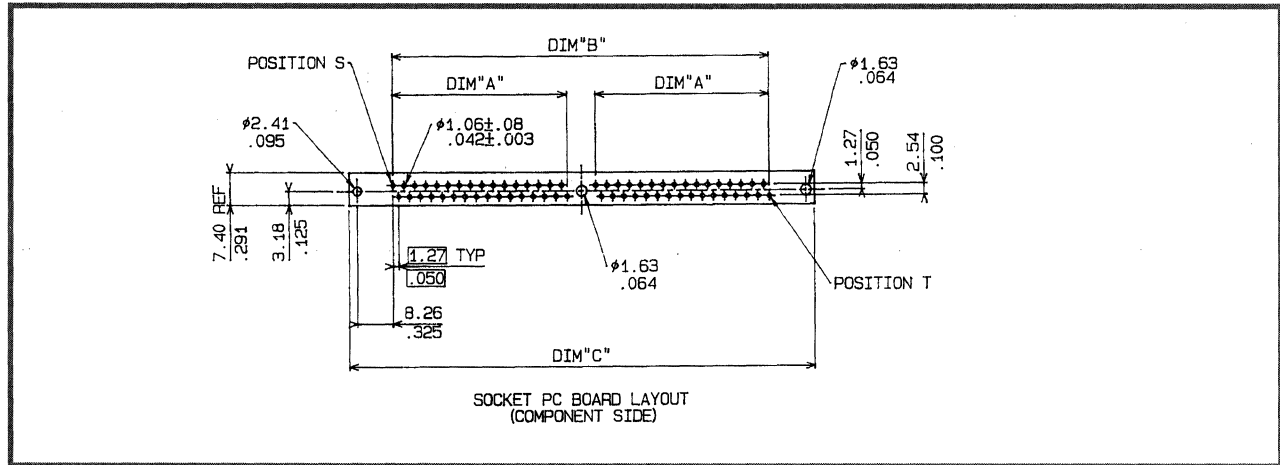
**SIMM Connectors**  
**Plastic Latch Low Profile**

**Description**  
**Plastic Latch, 25° Low Profile, Single Row**  
**1.27mm (0.050 in.) Centerline**



Refer to Page 7-20 for SIMM P.C. Board Layout

Recommended P.C. Board Hole Sizes for Pegs		
Left	Center	Right
2.41 mm 0.095 in.	1.63 mm 0.064 in.	1.63 mm 0.064 in.



**Ordering Data**

□ □ □ □ - X Y Z

Base number specifies configuration and plating.

Dash number specifies housing color, position of polarizing key, code for number of positions, and code for central peg feature.

**X: Housing Color**  
 1 - Natural

**Y: Position of polarization key**  
 0 - at position J  
 1 - at position K

**Z: Code for number of positions**  
 1 - 64 positions (WITH center peg)  
 2 - 68 positions (WITH center peg)  
 3 - 72 positions (WITH center peg)  
 4 - 80 positions (WITH center peg)  
 5 - 100 positions (WITH center peg)  
 6 - 64 positions (without center peg)  
 7 - 68 positions (without center peg)  
 8 - 72 positions (without center peg)  
 9 - 80 positions (without center peg)  
 0 - 100 positions (without center peg)

Base Part Number	Plating
93002-XYZ	Tin-lead

**Description**  
Plastic Latch, 25° Low Profile, Single Row  
1.27mm (0.050 in.) Centerline

Recommended P.C. Board Hole Sizes for Pegs		
Left	Center	Right
2.41 mm 0.095 in.	1.63 mm 0.064 in.	1.63 mm 0.064 in.

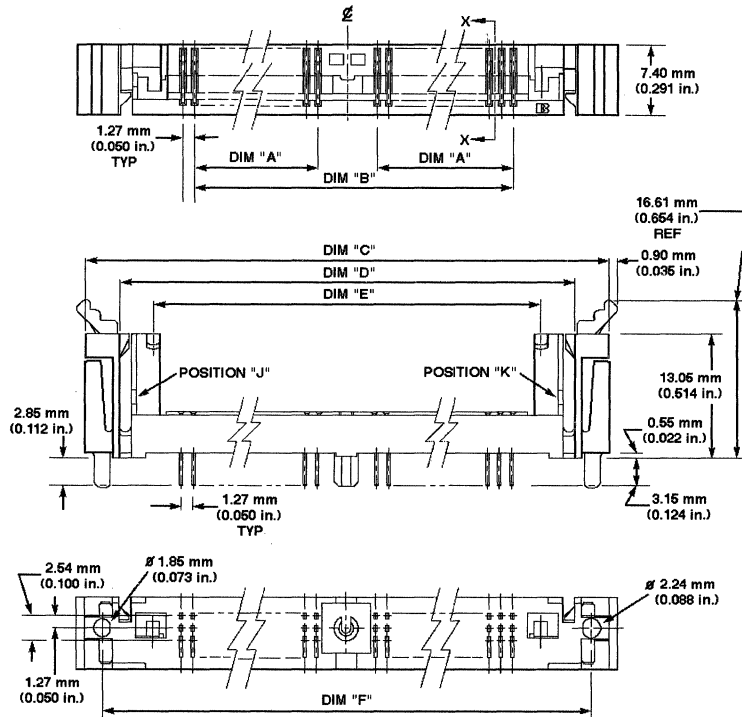
Dash Number	Housing Color	Position of Polarization Key	Number of Positions	A		B		C		D		E		F		
				mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	
101/106	Natural	J	1X64	39.37	1.550	85.09	3.350	105.42	4.150	98.17	3.865	91.03	3.584	101.61	4.000	
111/116		K		41.91	1.650	90.17	3.550	110.50	4.350	103.25	4.0650	96.11	3.784	106.69	4.200	
102/107		J	1X72	44.45	1.750	95.25	3.750	115.58	4.550	108.33	4.265	101.19	3.984	111.77	4.400	
112/117		K		49.53	1.950	105.41	4.150	125.71	4.950	118.49	4.665	111.35	4.384	121.93	4.800	
103/108		J	1X80	62.23	2.450	130.81	5.150	151.14	5.950	143.90	5.665	136.75	5.384	147.33	5.800	
113/118		K														
104/109		J	1X100													
114/119		K														
105/100		J														
115/110		K														



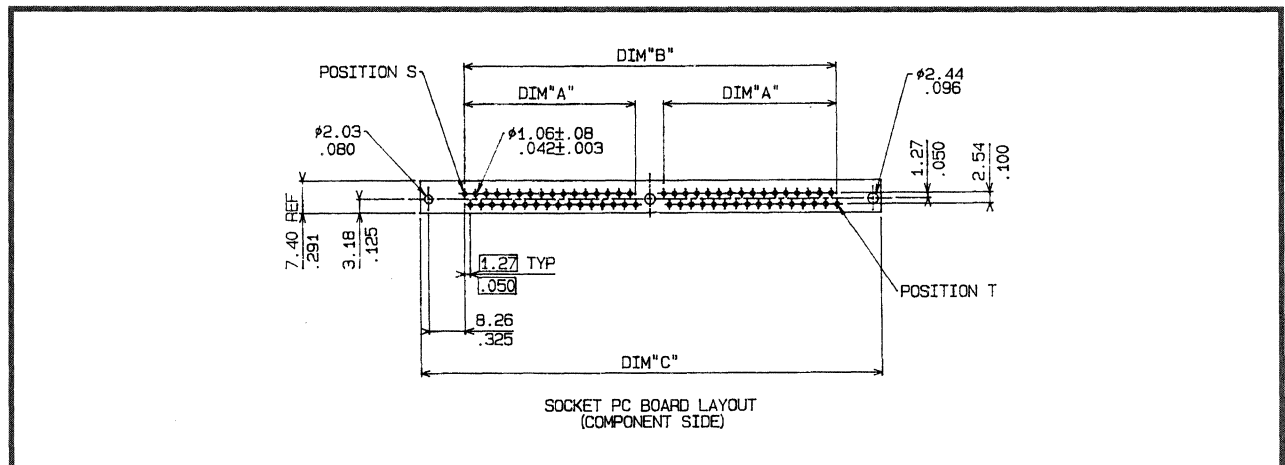
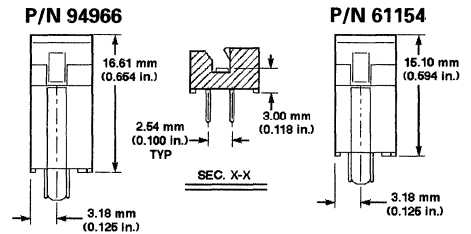
**Description**

**"User Friendly" Plastic Latch, Vertical, Single Row**  
**1.27mm (0.050 in.) Centerline**

Refer to Page 7-20 for SIMM P.C. Board Layout



Recommended P.C. Board Hole Sizes for Pegs		
Left	Center	Right
2.03 mm 0.080 in.	Optional	2.44 mm 0.096 in.



**Description**  
Plastic Latch, Vertical, Single Row  
1.27mm (0.050 in.) Centerline

Recommended P.C. Board Hole Sizes for Pegs		
Left	Center	Right
2.03 mm 0.080 in.	Optional (See Below)	2.44 mm 0.096 in.

Dash Number	Housing Color	Lever Color	Position of Polarization Key	Number of Positions	A		B		C		D		E		F		G	
					mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.
003W/008W 503W/508W 703W/708W	Black	Natural	J	1X72	44.45	1.750	95.25	3.750	115.58	4.550	108.33	4.265	101.19	3.984	111.77	4.400	107.95	4.250
013W/018W 513W/518W 713W/718W			K															



**Ordering Data**

□ □ □ □ □ - X Y Z A

Base number specifies configuration and plating

Dash number specifies housing color, position of polarizing key, code for number of positions and color of lever.

**X: Housing Color**  
0/5/7 - Black

**Y: Position of polarization key**  
0 - at position J  
1 - at position K

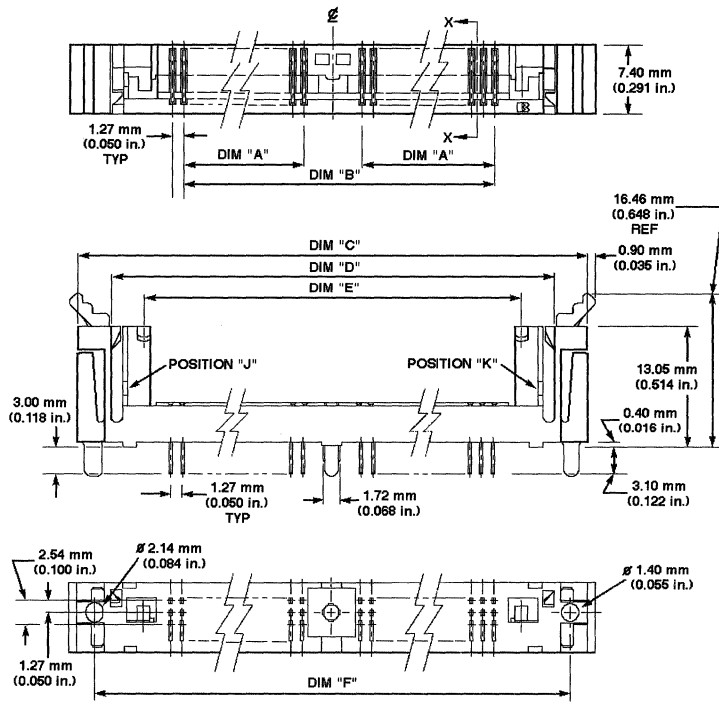
**Z: Code for number of positions**  
3 - 72 positions WITH center peg  
8 - 72 positions without center peg

**A: Lever Color**  
W - Natural

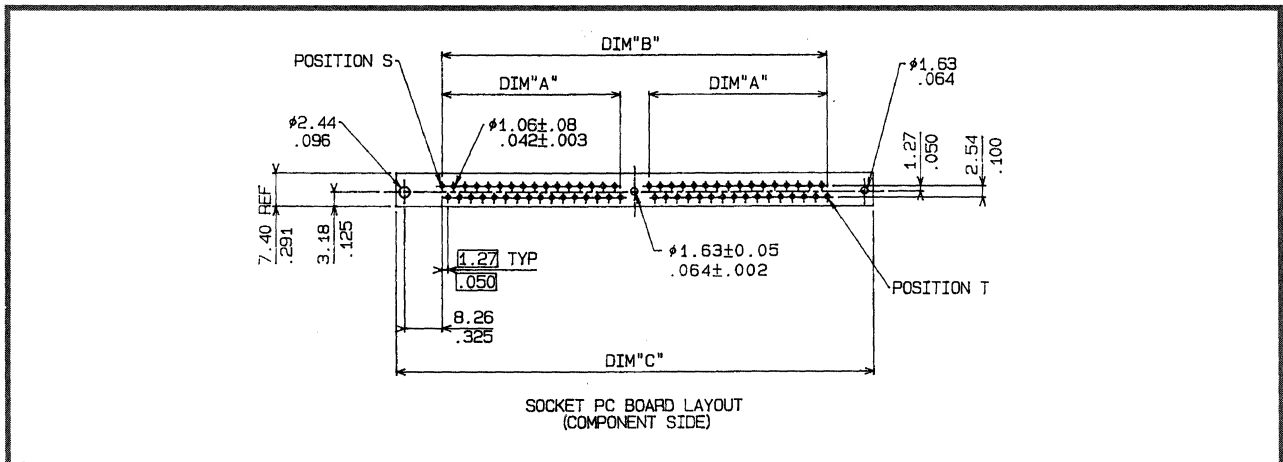
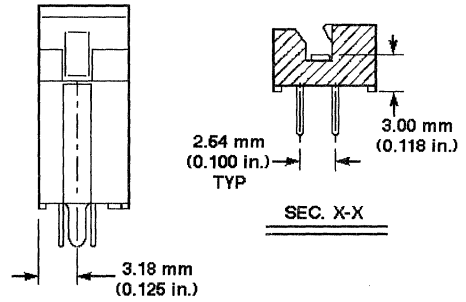
Base Part Number	Plating	Base Part Number	Diameter of Hole for Center Peg
94966	Tin-lead	94966, 61113, 91127, 61154-0YZA	2.44mm (.096 in.)
61113	0.76 µm GXT™ (30 µin.)	94966, 61113, 91127, 61154-5YZA	2.49mm (.098 in.)
91127	0.38 µm Gold (15 µin.)	94966, 61113, 91127, 61154-7YZA	2.54mm (.100 in.)
61154	Tin-lead		

**Description**  
"User Friendly" Plastic Latch, Vertical, Single Row  
1.27mm (0.050 in.) Centerline

Refer to Page 7-20 for SIMM P.C. Board Layout



Recommended P.C. Board Hole Sizes for Pegs		
Left	Center	Right
2.44 mm 0.096 in.	1.63 mm 0.064 in.	1.63 mm 0.064 in.



**Description**  
Plastic Latch, Vertical, Single Row  
1.27mm (0.050 in.) Centerline

Recommended P.C. Board Hole Sizes for Pegs		
Left	Center	Right
2.44 mm 0.096 in.	1.63 mm 0.064 in.	1.63 mm 0.064 in.

Dash Number	Housing Color	Lever Color	Position of Polarization Key	Number of Positions	A		B		C		D		E		F	
					mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.
003W/008W 013W/018W	Black	Natural	J K	1X72	44.45	1.750	95.25	3.750	115.58	4.550	108.33	4.265	101.19	3.984	111.77	4.400



**Ordering Data**

□ □ □ □ □ - X Y Z A

Base number specifies configuration and plating

Dash number specifies housing color, position of polarizing key, code for number of positions and color of lever.

**X: Housing Color**  
0 - Black

**Y: Position of polarization key**  
0 - at position J  
1 - at position K

**Z: Code for number of positions**  
3 - 72 positions WITH center peg  
8 - 72 positions without center peg

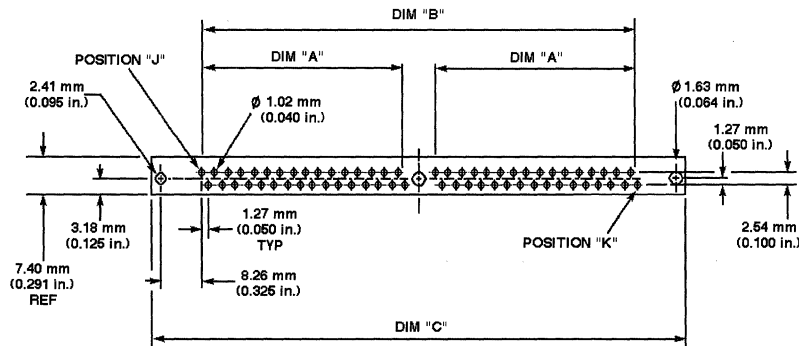
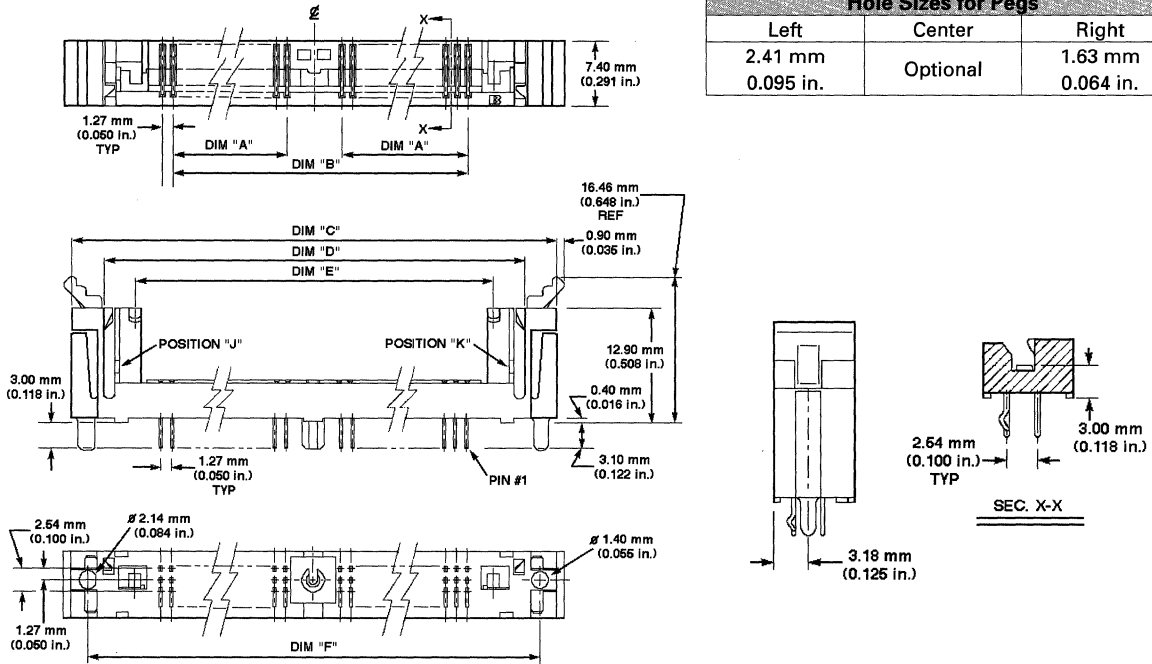
**A: Lever Color**  
W - Natural

Base Part Number	Plating
91167-XYZA	Tin-lead

**Description**  
**"User Friendly" Plastic Latch, Vertical, Single Row**  
**1.27mm (0.050 in.) Centerline**

Refer to Page 7-20 for SIMM P.C. Board Layout

Recommended P.C. Board Hole Sizes for Pegs		
Left	Center	Right
2.41 mm 0.095 in.	Optional	1.63 mm 0.064 in.



**Description**  
Plastic Latch, Vertical, Single Row  
1.27mm (0.050 in.) Centerline

Recommended P.C. Board Hole Sizes for Pegs		
Left	Center	Right
2.41 mm 0.095 in.	Optional	1.63 mm 0.064 in.

Dash Number	Housing Color	Lever Color	Position of Polarization Key	Number of Positions	A		B		C		D		E		F	
					mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.
003W/008W 503W/508W 703W/708W	Black	Natural	J	1X72	44.45	1.750	95.25	3.750	115.58	4.550	108.33	4.265	101.19	3.984	111.77	4.400
013W/018W 513W/518W 713W/718W			K													

**Ordering Data**

□ □ □ □ □ - X Y Z A

Base number specifies configuration and plating

Dash number specifies housing color, position of polarizing key, code for number of positions and color of lever.

**X: Housing Color**  
0/5/7 - Black

**Y: Position of polarization key**  
0 - at position J  
1 - at position K

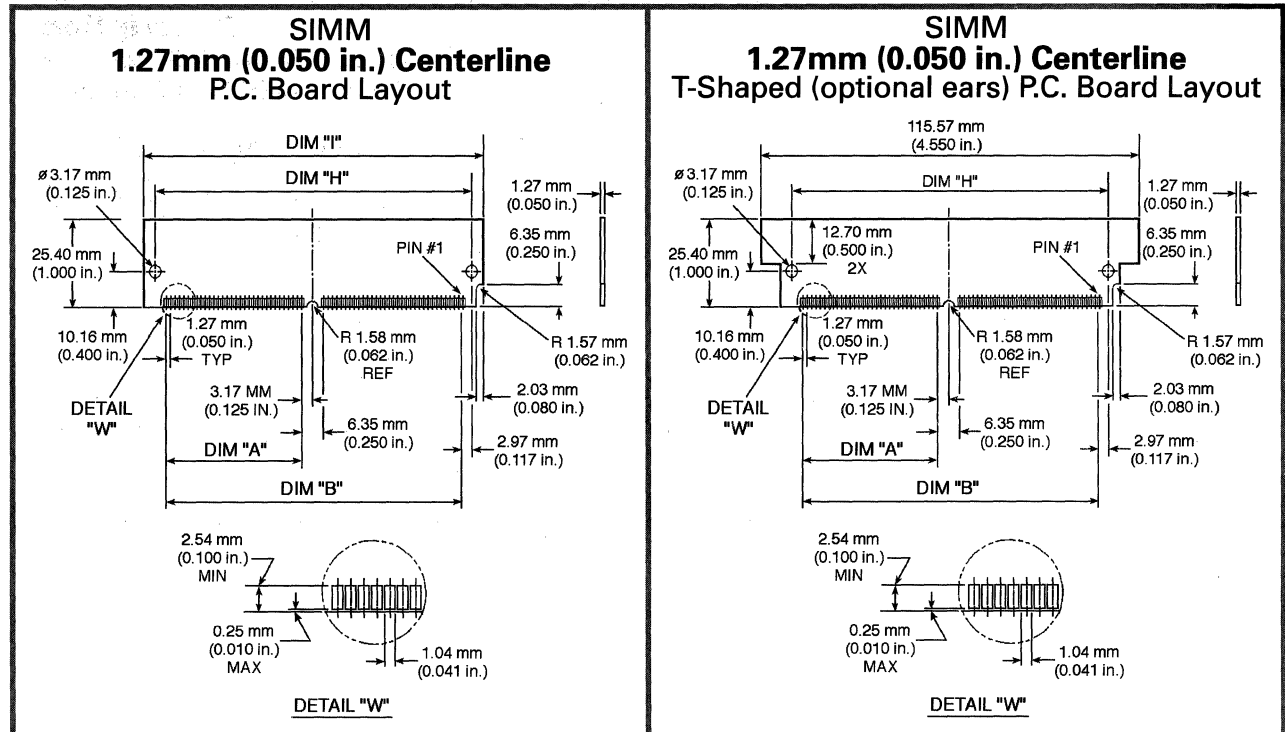
**Z: Code for number of positions**  
3 - 72 positions WITH center peg  
8 - 72 positions without center peg

**A: Lever Color**  
W - Natural

Base Part Number	Plating
95521-XYZA	Tin-lead
91168-XYZA	0.76 μm GXT™ (30 μin.)

Base Part Number	Diameter of Hole for Center Peg
95521, 91168-0YZA	2.44mm (.096 in.)
95521, 91168-5YZA	2.49mm (.098 in.)
95521, 91168-7YZA	2.54mm (.100 in.)

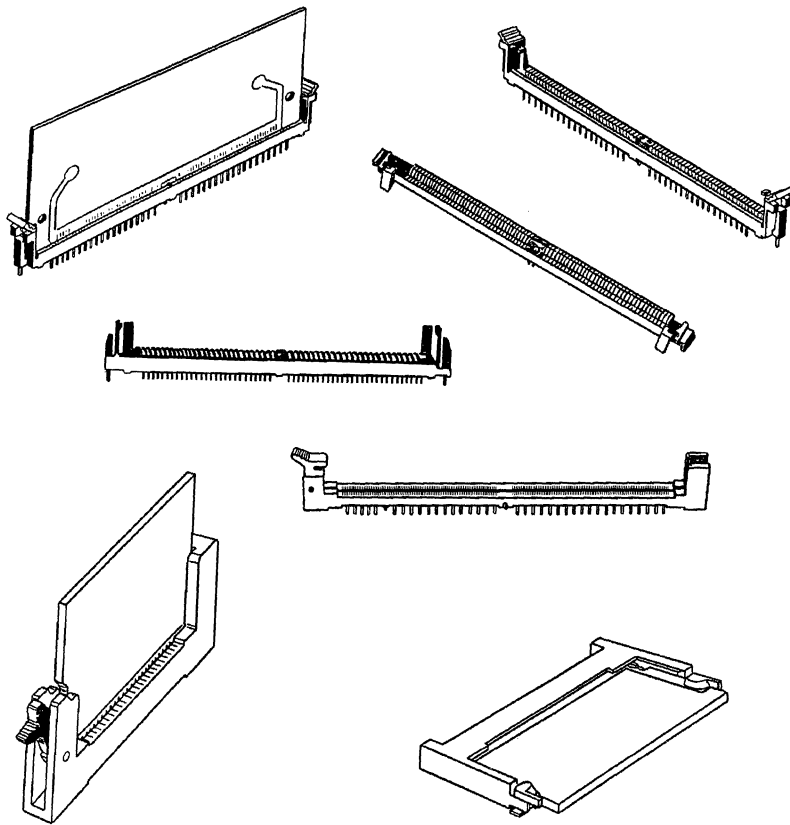
**SIMM Connectors**  
**SIMM P.C. Board Layouts**



**Berg SIMM sockets are designed to accept JEDEC standard modules.**

Module Positions	DIM. A		DIM. B		DIM. H		DIM. I	
	mm	in.	mm	in.	mm	in.	mm	in.
64	39.37	1.550	85.09	3.350	91.03	3.584	97.79	3.850
68	41.91	1.650	90.17	3.550	96.11	3.784	102.87	4.050
72	44.45	1.750	95.25	3.750	101.19	3.984	107.95	4.250
80	49.53	1.950	105.41	4.150	111.35	4.384	118.10	4.650
100	62.23	2.450	130.81	5.150	136.75	5.384	143.50	5.649

# SIMM/DIMM Connectors



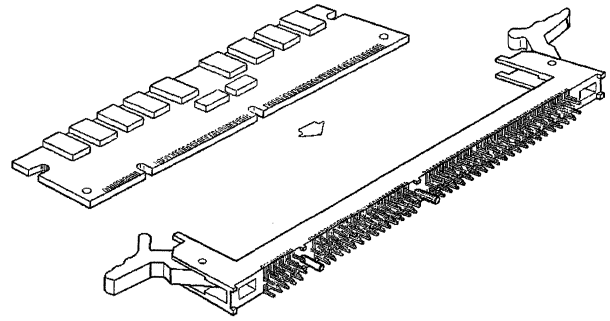


# DIMM Connectors

## 168 position DIMM

### Straight Plug-In Design

1.27 mm (0.050 in.) centerline  
with row-to-row tail spacing of 1.91 mm  
(0.075 in.)



#### Features

- 168 positions, vertical or right-angle
- Straight plug-in design
- Low insertion force
- 1.27mm (0.050 in.) centerline with row-to-row tail spacing of 1.91 mm (0.075 in.)
- Rigid solder tails.
- Positive latching with audible click; latches open within a predetermined window
- Clear, easy-to-read markings identify voltage and memory


#### Options


- Dual or single-sided ejectors
- Gold, tin-lead, or GXT™ contact plating
- Keying for 3.3 or 5 volt
- Multiple memory options: DRAM, Sync DRAM, or non-standard
- Various soldertail lengths

#### Mating Data

Designed for use with modules made to JEDEC specifications MO-161.

#### Approvals and Certifications

 File no. E66906

 File no. LR46923-137

#### Technical Data

##### Materials

- Housing ..... Glass-filled LCP (UL 94 V-0)
  - ▶ Color ..... Black
  - ▶ Applicable soldering processes..... IR, wave, vapor phase
- Ejector ..... Glass-filled LCP
  - ▶ Color ..... Natural
- Terminal..... Copper Alloy

##### Electrical Performance

- Insulation resistance..... 10,000 MΩ min. initial
- Withstanding voltage..... 1,000 VAC (rms), 60 Hz
- Current rating ..... 1 amp max
- Contact resistance ..... 30 MΩ max. initial
- Contact capacitance ..... 1 pF max.
- Voltage rating ..... 150 V AC/DC

##### Operating temperature

- Temperature range..... -55°C to +105°C
- Continuous operating temperature ..... +85°C

##### Mechanical Performance

- Normal force..... 50 grams min.
- Contact retention force..... 1.5 lbs (681.6 grams)
- Durability (mating cycles) ..... 50

##### Plating

- Finish
  - ▶ Contact..... 3.81 μm (150 μin.) tin-lead or 0.76 μm (30 μin.) gold or GXT™
  - ▶ Soldertail ..... 2.54 μm (100 μin.)min. tin-lead
- Underplate..... 1.27 μm (50 μin.) min. nickel overall

##### Packaging

- Trays in Boxes..... GES-14-376

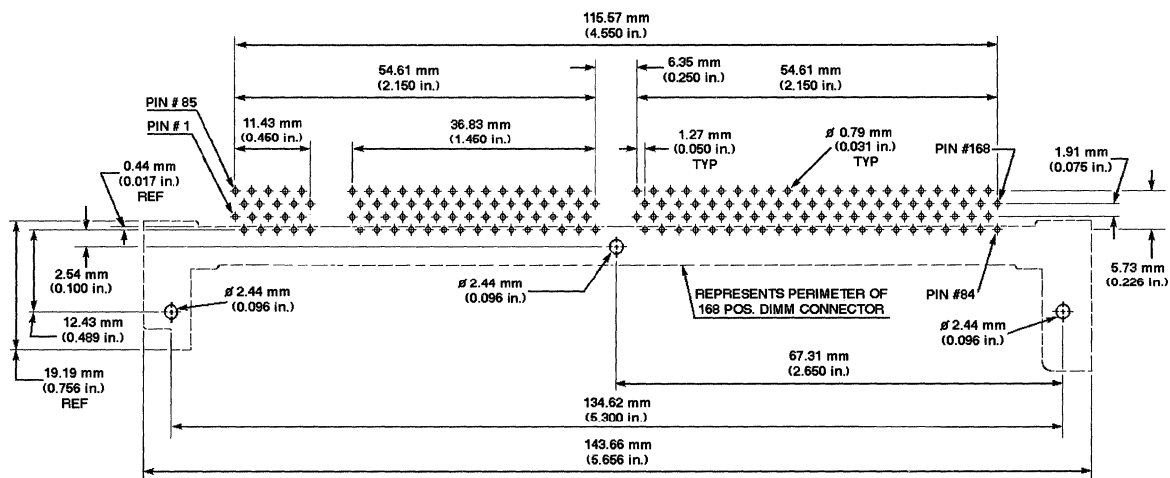
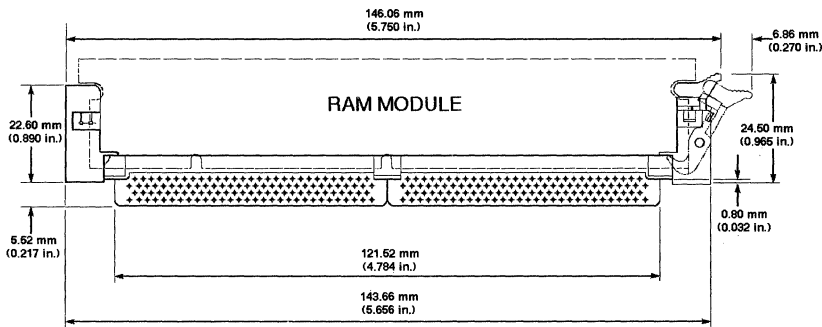
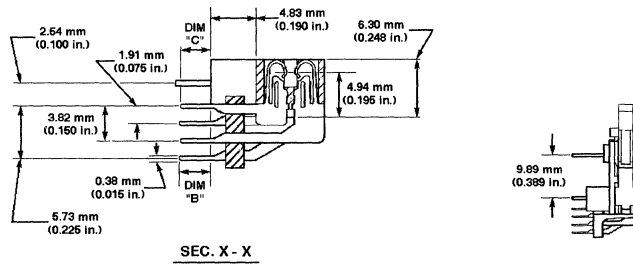
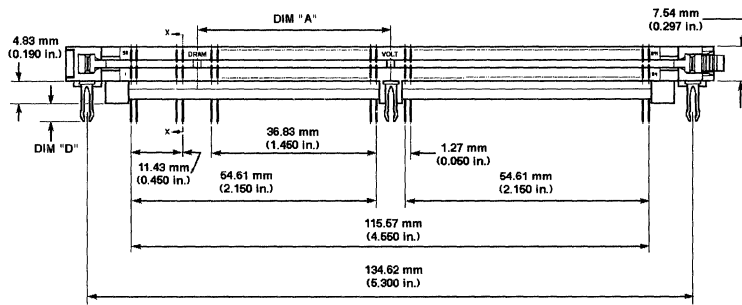
#### Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawings.....	By Part No.	Product Samples.....	Upon Request
Product Specifications.....	GES-12-066		

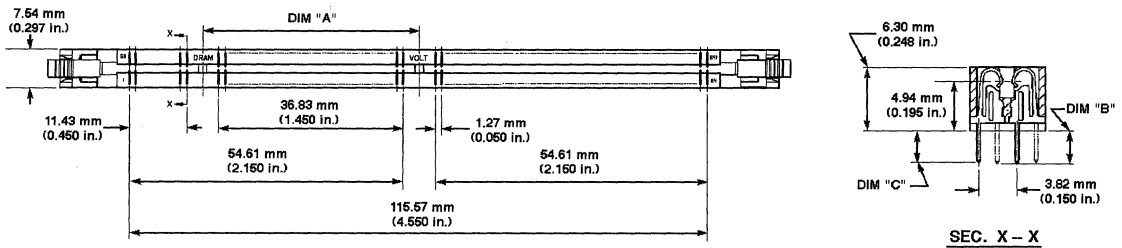
# Description

## Right-Angle, Through-Mount 168 Position

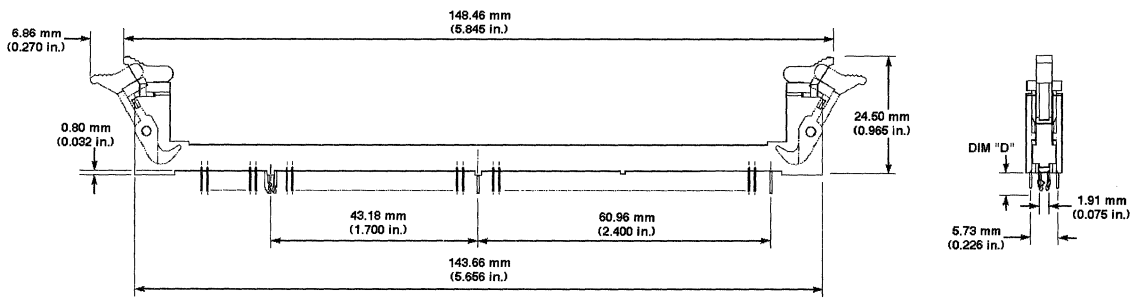
See page 7-26 for part numbers



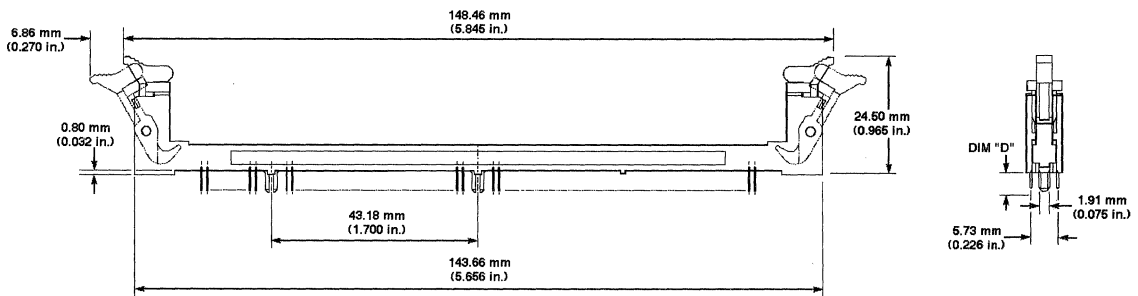
**Description**  
**Vertical, Through-Mount, 168 position**



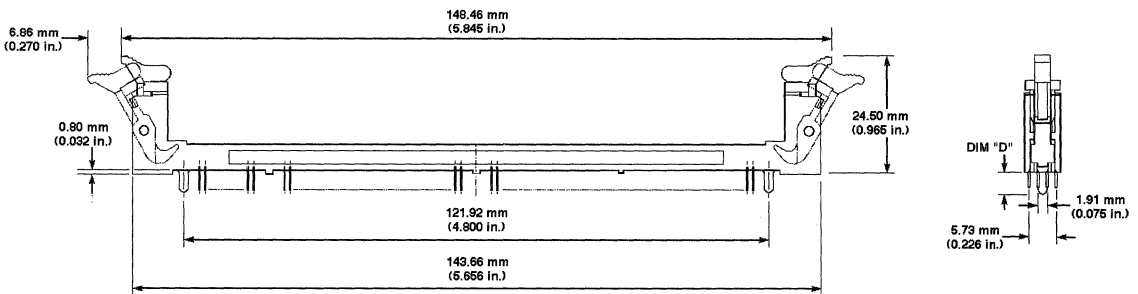
**Part Number 91159 With metal holddowns, see layout "A" page 7-25**



**Part Number 94977 With plastic retention pegs, see layout "B" page 7-25**



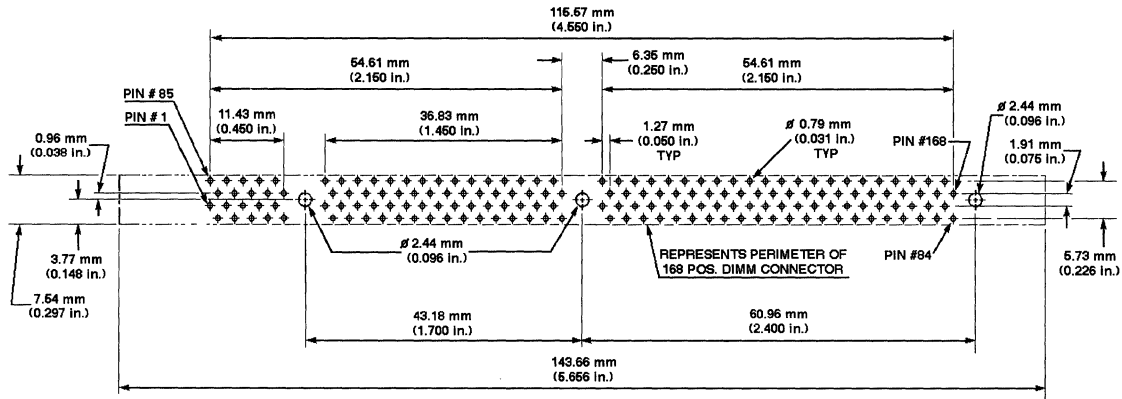
**Part Number 91145 With plastic locator pegs, see layout "C" page 7-25**



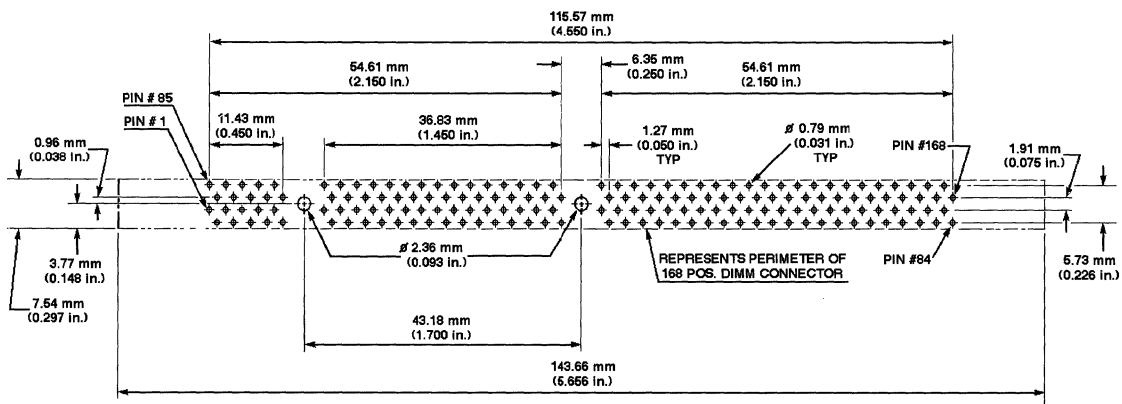
# Description

## Vertical, Through-Mount

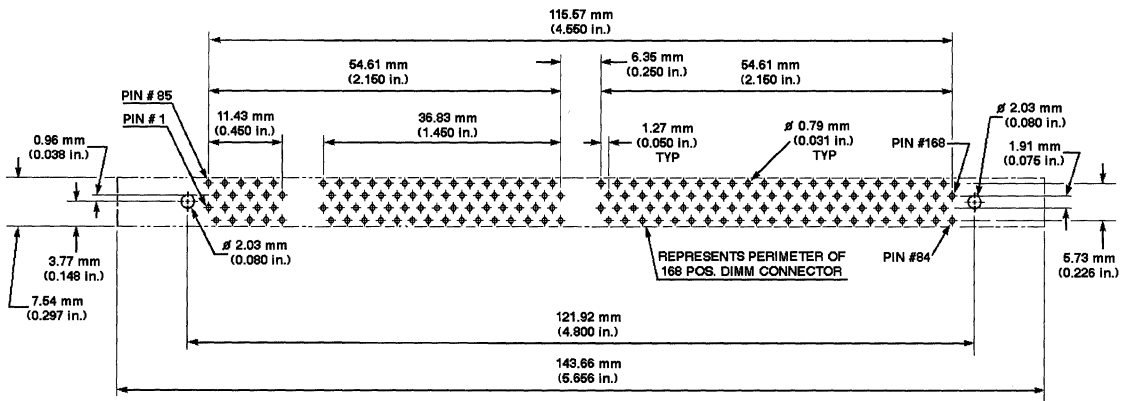
### 168 Position



RECOMMENDED CIRCUIT BOARD HOLE LAYOUT - "A"



RECOMMENDED CIRCUIT BOARD HOLE LAYOUT - "B"



RECOMMENDED CIRCUIT BOARD HOLE LAYOUT - "C"

# Ordering Data

□ □ □ □ - S X T C P

Base Number specifies configuration.

Code	Style	Voltage
1	Standard DRAM	5.0
2	Sync DRAM	5.0
3	Non-Standard DRAM	5.0
4	Standard DRAM	3.3
5	Sync DRAM	3.3
6	Non-Standard DRAM	3.3

Code	Type	Peg and/or Clip Dimensions
0	Plastic Peg or Metal Clip	See Product Drawings
1		

Code	Tail Length			
	Dim. B		Dim. C	
	mm	in.	mm	in.
0	2.54	0.100	2.39	0.094
1	3.30	0.130	3.15	0.124

Code	Contact	Plating	
		Soldertail	Underplate
1	3.81 $\mu$ m (150 $\mu$ in.) Tin/Lead	2.54 $\mu$ m (100 $\mu$ in.) Tin/Lead	1.27 $\mu$ m (50 $\mu$ in.) Nickel Overall
2	0.38 $\mu$ m (15 $\mu$ in.) Gold		
3	0.76 $\mu$ m (30 $\mu$ in.) Gold		
5	0.38 $\mu$ m (15 $\mu$ in.) GXT™		
6	0.76 $\mu$ m (30 $\mu$ in.) GXT™		

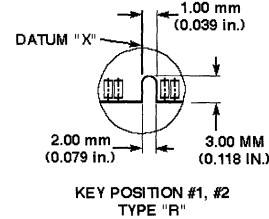
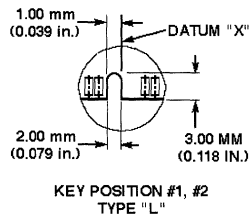
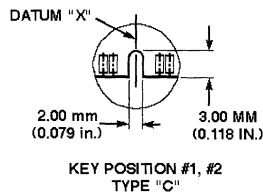
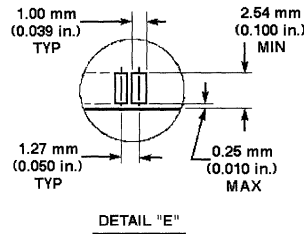
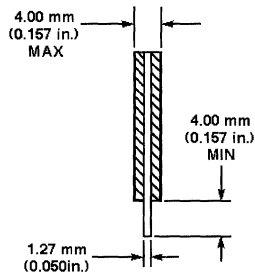
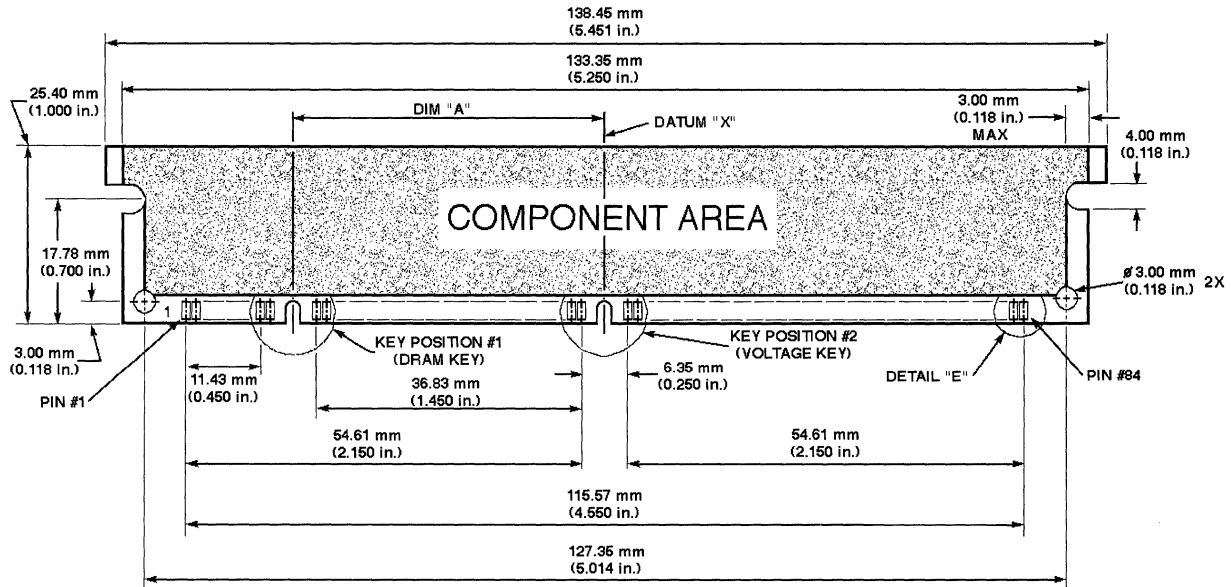
Code	Color	
	Housing	Ejector
0	Black	Ivory

Dash Number	Color		Style	Voltage	Style Marking		Dimension							
	Housing	Ejector			#2	#1	A (1)		B		C		D	
							mm	in.	mm	in.	mm	in.	mm	in.
1000P	Black	Ivory	Standard DRAM	5.0	STD	5.0	42.18	1.661	2.54	0.100	2.39	0.094	See Product Drawings	
1110P									3.30	0.130	3.15	0.124		
2000P							Sync DRAM	43.18	1.700	2.54	0.100	2.39		0.094
2110P			3.30		0.130	3.15				0.124				
3000P			Non-Standard DRAM		41.18	1.621	2.54	0.100	2.39	0.094				
3110P							3.30	0.130	3.15	0.124				
4000P			Standard DRAM	3.3	STD	3.3	43.18	1.700	2.54	0.100	2.39	0.094		
4110P									3.30	0.130	3.15	0.124		
5000P							Sync DRAM	44.18	1.739	2.54	0.100	2.39		0.094
5110P			3.30		0.130	3.15				0.124				
6000P			Non-Standard DRAM		42.18	1.661	2.54	0.100	2.39	0.094				
6110P	3.30	0.130					3.15	0.124						

Note (1): Centerline of keys.

Base Part Number	PCB Layout	Peg Type	Ejector(s)
Vertical Through-Mount			
91159	A (See page 7-25)	Metal Clips	Dual
61140			Single (Left Side)
91144			Single (Right Side)
94977	B (See page 7-25)	Plastic Retention	Dual
91155			Single (Right Side)
91145	C (See page 7-25)	Plastic Locator	Dual
91157			Single (Right Side)
Right-Angle Through-Mount			
88638	D (See page 7-23)	Metal Clips	Dual
95566			Single (Right Side)

**P.C. Board Layout**

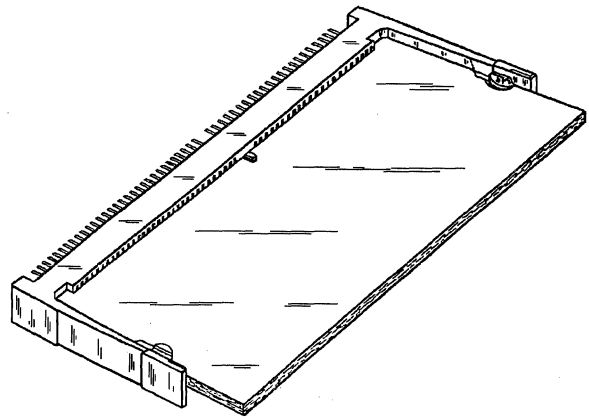


**Berg DIMM connectors are designed to accept JEDEC standard modules MO-161**

Key Position/Type		Dimension A		Style	Voltage
#1	#2	mm	in.		
C		42.18	1.661	Standard DRAM	5.0
L	L	43.18	1.700	Sync DRAM	
R		41.18	1.621	Non-Standard DRAM	
C		43.18	1.700	Standard DRAM	3.3
L	C	44.18	1.739	Sync DRAM	
R		42.18	1.661	Non-Standard DRAM	

# S O DIMM Connectors

## 4 Byte and 8 Byte



### Features

- 4 Byte
  - ▶ Single & double deck
  - ▶ 72 & 84 Contacts
  - ▶ Right Angle SMT
  - ▶ Surface Mount with 0.635 mm (0.025 in.) soldertail spacing
  - ▶ 1.27 mm (0.050 in.) spacing for zig-zag sided module interface
  - ▶ Various heights off the board (See page 7-29)
  - ▶ Vertical through mount (row-to-row soldertail spacing of 1.60 mm (0.063 in.))
- 8 Byte
  - ▶ 144 contacts

- ▶ Right-angle
- ▶ Low profile
- ▶ Surface mount with 0.80 mm (0.031 in.) soldertail spacing
- ▶ 0.80 mm (0.031 in.) spacing at module interface
- ▶ Voltage clearly marked on product
- ▶ Various heights off the board (See page 7-29)

### Options


- Keying for 3.3 and 5.0 volts. X.X volt keying (for 8 byte)
- Locating pegs
- Height variations


- Housing color
- Gold or Tin-lead contacts

### Mating Data

For use with JEDEC approved modules

### Approvals and Certifications

 File no. E66906

 File no. LR46923-137

### Technical Data

#### Materials

- Housing ..... Glass-filled LCP
  - ▶ Color ..... Natural/Black
  - ▶ Applicable soldering processes. .... IR, wave, vapor phase
- Terminal ..... Phosphor bronze
- Ejector ..... PPS

#### Electrical Performance

- Insulation resistance ..... > 250 MΩ min. initial
- Withstanding voltage ..... 250 V ac (rms), 60 Hz
- Current rating ..... 0.5 amp max
- Contact resistance ..... < 30 mΩ initial  
20 MΩ max. initial
- Contact capacitance ..... < 2 pF max.
- Voltage rating ..... 125 V AC/DC

#### Operating temperature

- Temperature range ..... -55°C to +105°C
- Continuous operating temperature ..... +85°C

#### Mechanical Performance

- Normal force ..... 1.47 N (150 gf) min.
- Contact retention force ..... 11.12 N (2.5 lbf) min.
- Durability (mating cycles) ..... 25 (tin-lead plating)

#### Plating

- Finish
  - ▶ Contact ..... 3.81 μm (150 μin.) tin-lead or 8 μm (20 μin.) gold
  - ▶ Soldertail ..... 2.54 μm (100 μin.) tin-lead
- Underplate ..... 1.27 μm (50 μin.) nickel overall

#### Packaging

- Trays ..... qty. per tray varies by part number

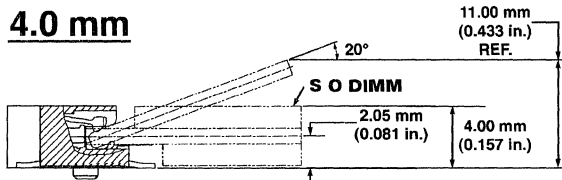
### Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawings .....	By Part No.	Product Samples .....	Upon Request
Product Specifications .....	4 Byte GES-12-063		
Product Specifications .....	8 Byte GES-12-075		

# S O DIMM is available in several height variations for optimum board space and lowest profile design.

## Height Option Cross-Sections

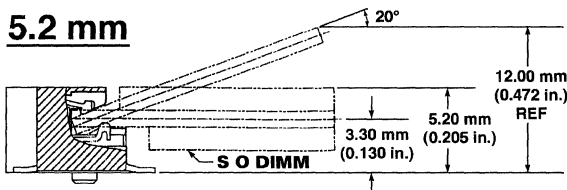
### 4.0 mm



### Lowest profile design

Part Number	Contacts
91105-WXYZZ	72 & 84
88633-WXYZZ	144

### 5.2 mm

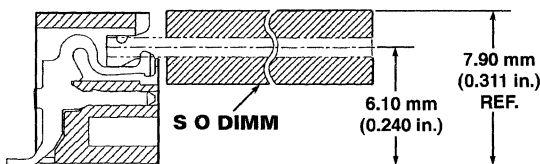


### Board space at a premium?

- Height allows for 3 layers of TSOP's

Part Number	Contacts	Height	
		mm	in.
93723-WXYZZ	72	5.40	0.213
61178-WXYZZ	144	5.20	0.205
61314-WXYZZ	144	5.70	0.224

### 7.9 mm

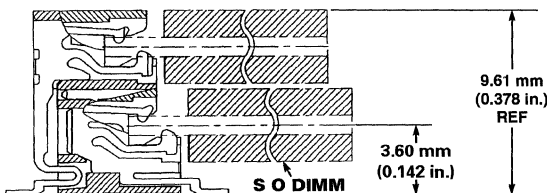


### No space constraints?

- Height allows for J-leaded packages under the inserted S O DIMM

Part Number	Contacts
95540-WXYZZ	72

### 9.6 mm



### Double your memory and not space

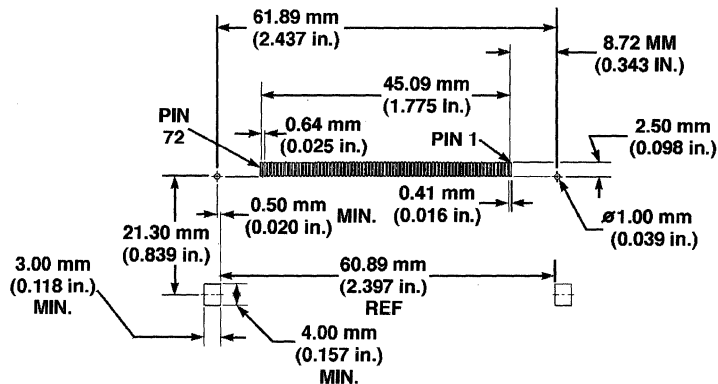
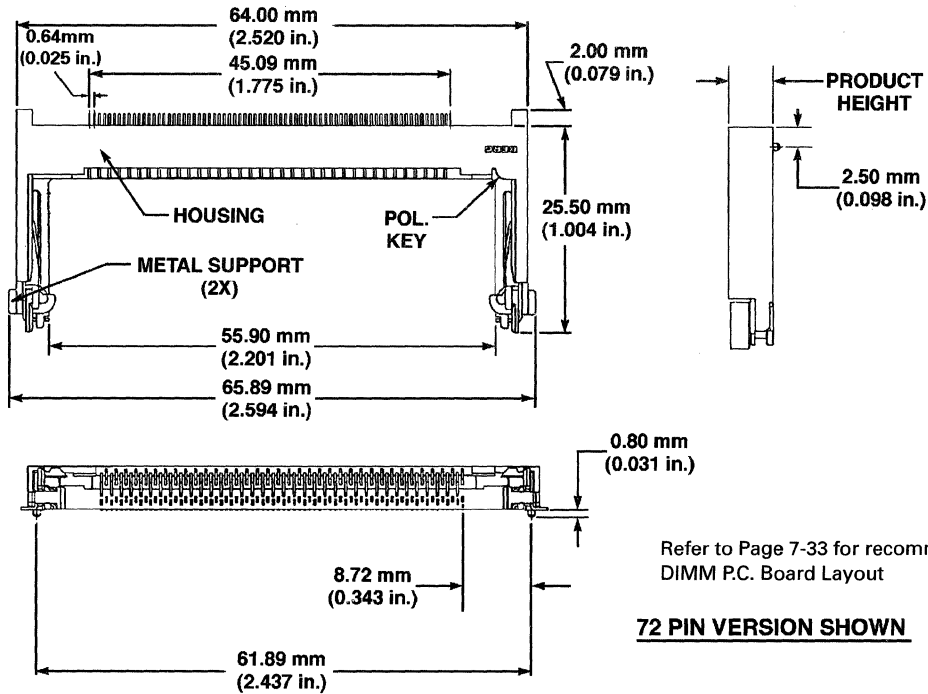
- Height allows for 5 layers of TSOP's

Part Number	Contacts
61327-WXYZZ	2x72 and 2x84

\* Illustration shown with maximum module dimension per JEDEC

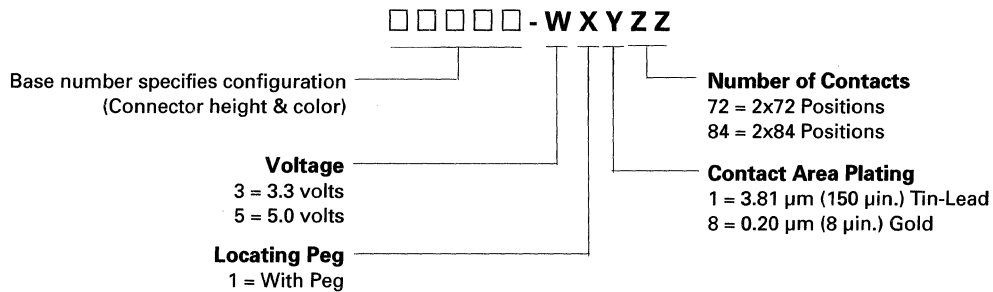


**Description**  
Right-angle 72/84 position surface mount



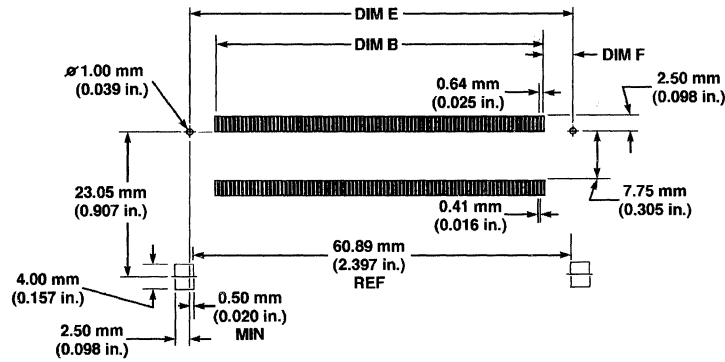
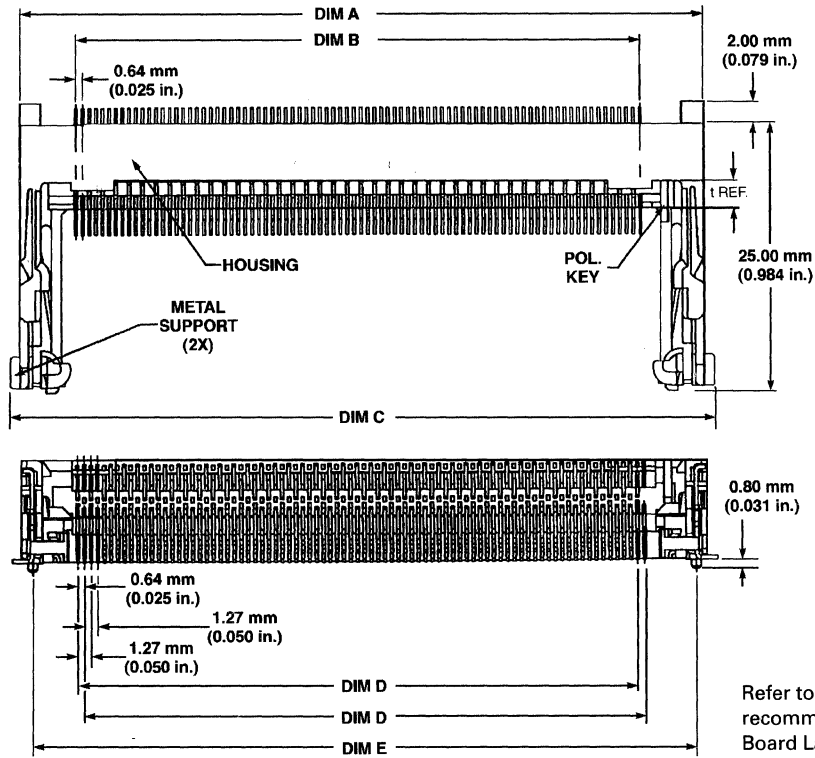
**RECOMMENDED PAD LAYOUT - MOUNTING SIDE**

**Ordering Data**



Base Number	Height Off Board		Housing Color	Comments
	mm	in.		
91105	4.00	0.157	Natural	
91161	4.00	0.157	Black	
93723	5.40	0.213	Natural	Not available in 84 pin
61303	5.40	0.213	Black	Not available in 84 pin
95540	7.90	0.311	Natural	Not available in 84 pin

## Description Right-Angle 2x72 / 2x84 Surface Mount



## Ordering Data

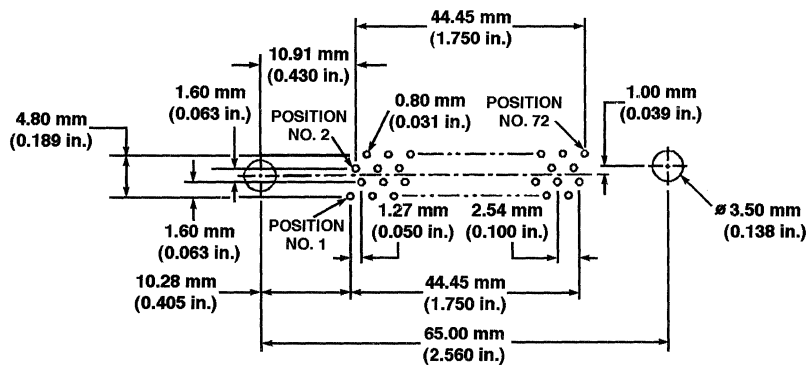
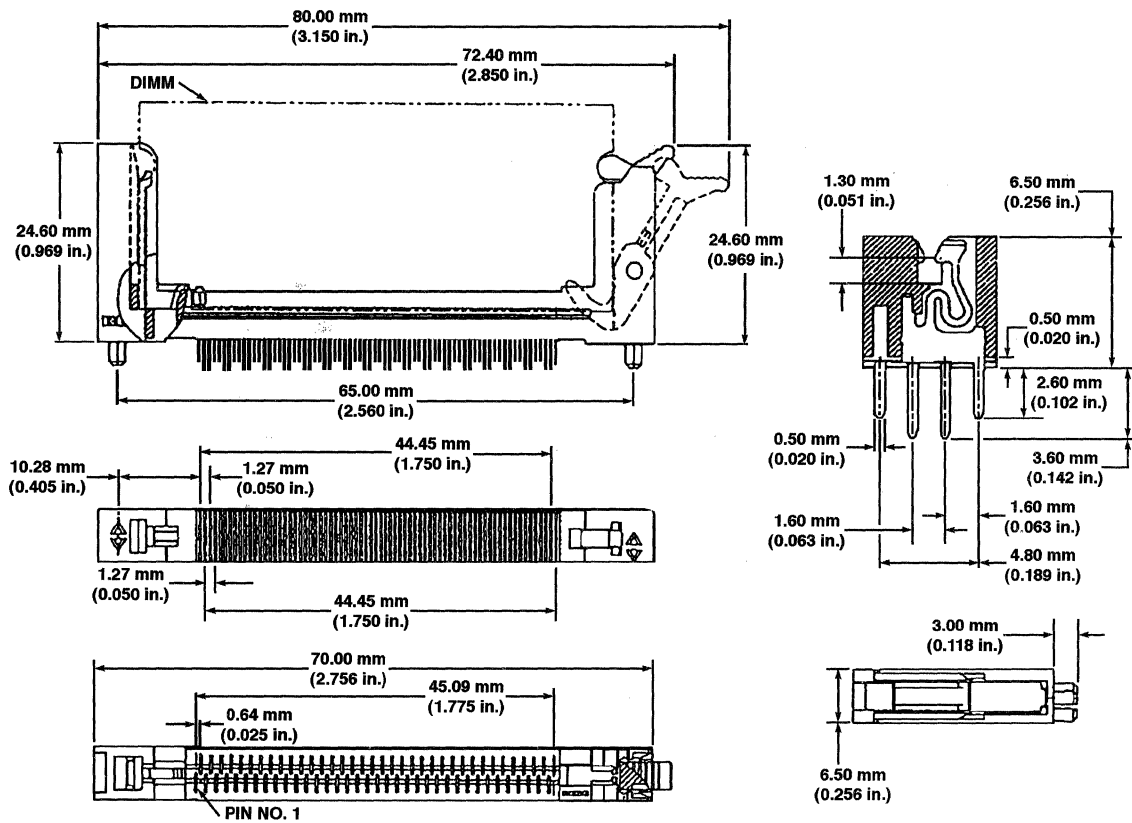
6 1 3 2 7 - W X Y Z Z

- Voltage**
  - 3 = 3.3 volts
  - 5 = 5.0 volts
- Locating Peg**
  - 1 = With Peg
- Number of Contacts**
  - 72 = 2x72 Positions
  - 84 = 2x84 Positions
- Contact Area Plating**
  - 1 = 3.81  $\mu$ m (150  $\mu$ in.) Tin-Lead
  - 8 = 0.20  $\mu$ m (8  $\mu$ in.) Gold

Dash Number	Dimensions											
	A		B		C		D		E		F	
	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.
-31872	64.30	2.531	45.09	1.775	65.89	2.594	44.45	1.750	61.89	2.437	8.72	0.343
-51872	64.30	2.531	45.09	1.775	65.89	2.594	44.45	1.750	61.89	2.437	8.72	0.343
-31884	64.30	2.531	52.71	2.075	65.89	2.594	52.07	2.050	61.89	2.437	4.91	0.193
-51884	64.30	2.531	52.71	2.075	65.89	2.594	52.07	2.050	61.89	2.437	4.91	0.193

### Description

Vertical 72 position through mount



### Ordering Data

9 3 7 6 4 - W X Y Z Z

**Style**

- 3 = Natural Color Housing for 3.3 volt
- 4 = Natural Color Housing for special ROM
- 5 = Black Color Housing for 5.0 volt

**Locating Peg**

- 1 = With Peg

**Number of Contacts**

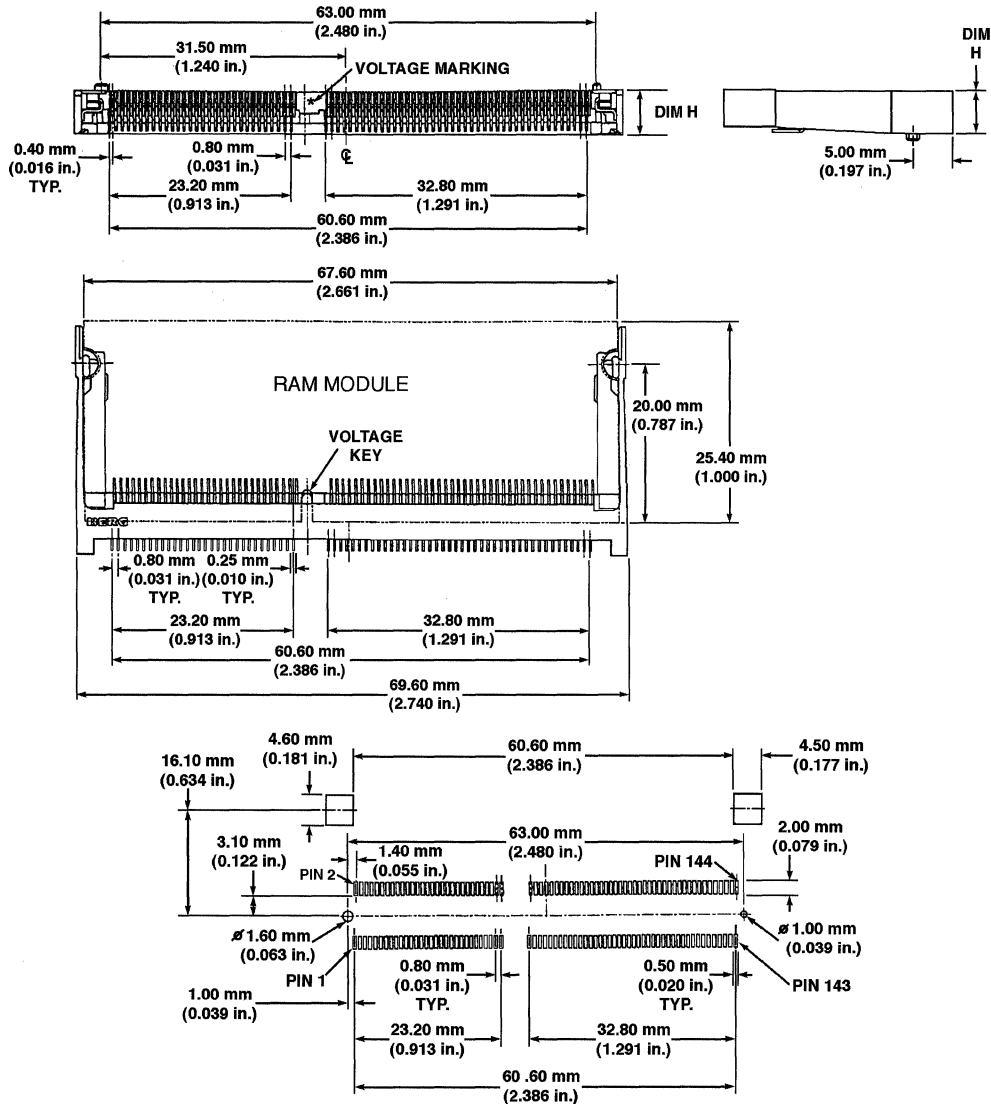
- 72 = 72 Positions

**Contact Area Plating**

- 8 = 0.20  $\mu$ m Min. (8  $\mu$ m.) Gold

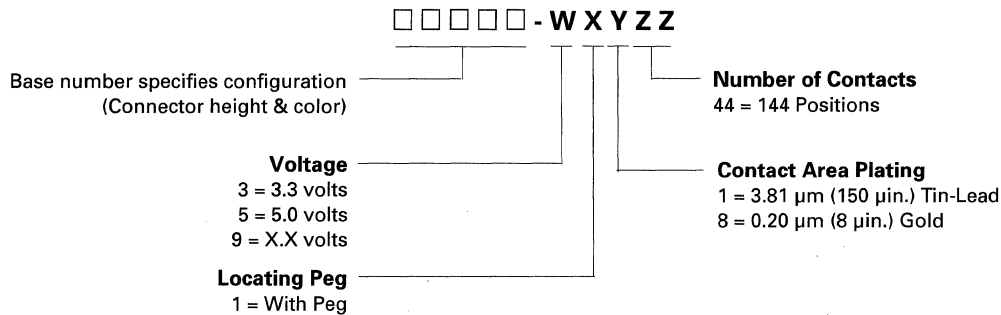


**Description**  
Right-angle 144 position surface mount



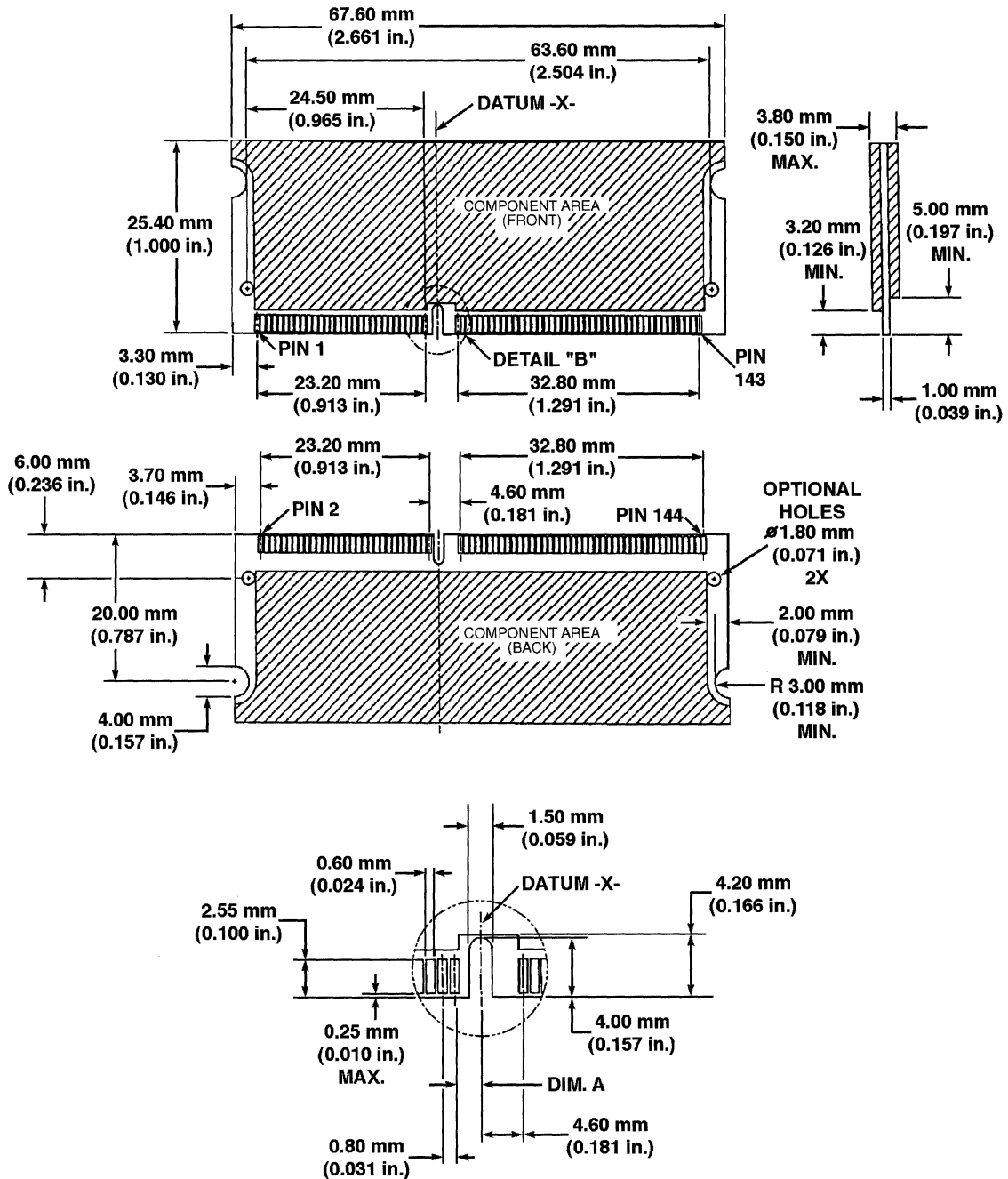
**RECOMMENDED PCB LAYOUT**

**Ordering Data**



Base Number	Height Off Board - Dimension H		Housing Color
	mm	in.	
88633	4.00	0.157	Natural
61178	5.20	0.205	Natural
61342	5.20	0.205	Black
61314	5.70	0.224	Natural

## S O DIMM Connectors 8 Byte Module Layout



**DETAIL "B"**

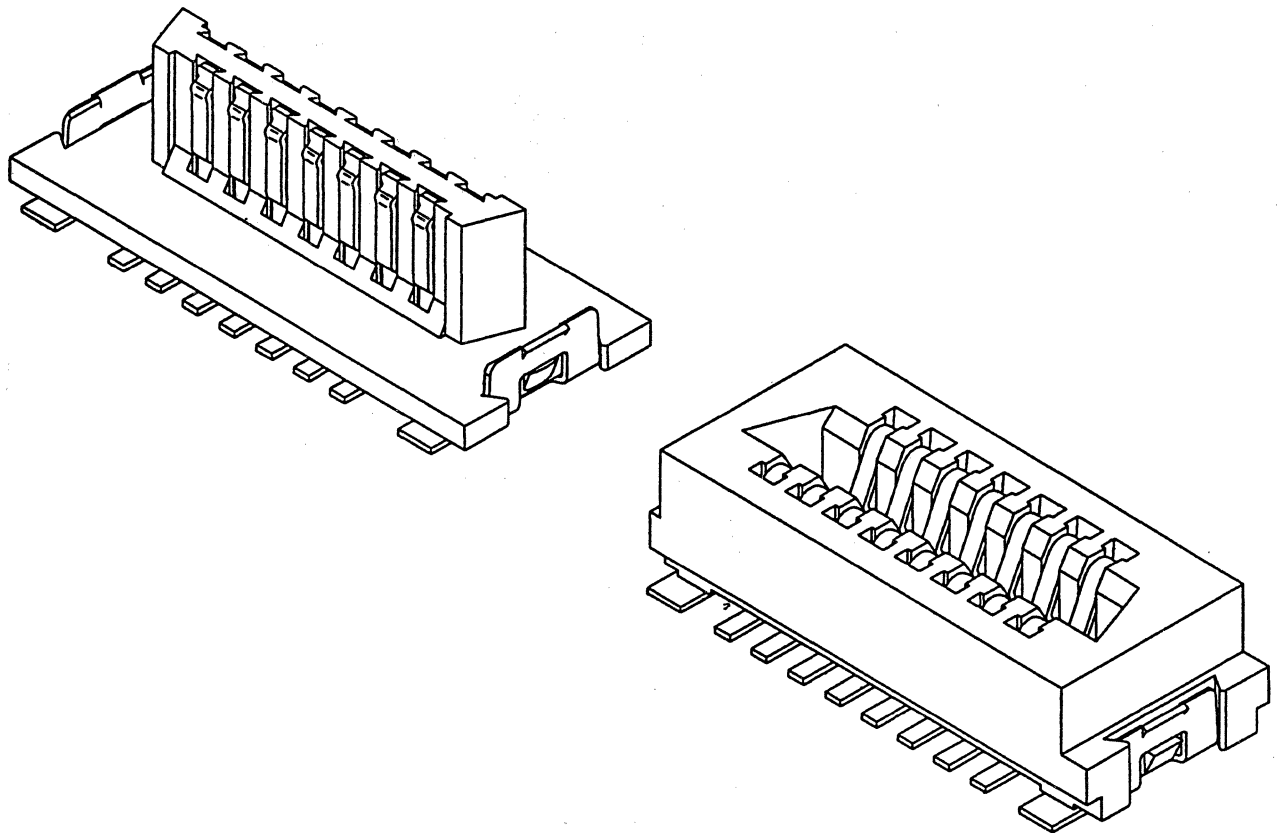
7

**Berg's Small Outline DIMM Connectors  
are designed to accept JEDEC  
standard modules**

Voltage	Dimension A	
	mm	in.
3.3	2.50	0.098
5.0	1.75	0.069
X.X	3.25	0.128

# CONAN™ Microminiature Connector System

1.0 mm (0.039 in.)



# CONAN™ Microminiature Connector System

Portable electronic products in the TELECOMMUNICATION and PERSONAL COMPUTING industries are becoming progressively smaller packages. Notebook computers, cellular telephones, and pagers are among the products demanding compact surface-mount interconnects to facilitate close stacking of parallel printed circuit boards.

BERG Electronics has developed CONAN™ high-density, board-stacking connectors to address these requirements. These low-profile, surface-mount connectors feature dual rows of contacts on 1.0 mm (0.039 in.) pitch to provide a circuit density of 50 contacts per linear inch. With an available mated height of 4.15 mm (0.163 in.), the system allows for extremely close spacing of parallel circuit boards. Designs that require additional clearance for larger components can be accommodated by selecting one of the taller header options to provide 4.5 mm (0.177 in.), 5.0 mm (0.197 in.), 6.0 mm (0.236 in.), or 7.0 mm (0.276 in.) mated connector height.

Standard connectors offer 9, 11, 15, 21, 25, 31, 41, 51, or 69 contact positions.

Compatibility with standard surface-mount board assembly processes and long-term reliability strongly influence the connector design. Insulators are molded from resins able to withstand infrared and vapor-phase reflow soldering temperatures. Tin-lead finish in the solder areas and 0.1 mm (0.004 in.) lead coplanarity produce high quality solder joints. Surface-mount retainers increase mechanical strength after soldering yet do not require force to be applied during component placement.

Connectors are shipped in antistatic tubes or on EIA standard tape-and-reel to support automated connector placement. An optional cover provides ample area for pick-up with standard vacuum nozzles without increasing space requirements for the connector. Optional, non-protrusive orientation posts are offered if one intends manual placement.

Polarized housings prevent mismatching of connectors, and molded "lead-in" assists "blind-mating" during final assembly. Afterward, passive latches protect against accidental disengagement from mechanical shocks or vibration. GXT™ (gold flash over palladium-nickel) finish in the contact areas provides reliable electrical performance under extreme environmental conditions.

Stack Height Combinations

"Y" Code Selection Guide (reference Ordering Data)					
Mated Height	4.15 mm (0.163 in.)	4.50 mm (0.177 in.)	5.00 mm (0.197 in.)	6.00 mm (0.236 in.)	7.00 mm (0.276 in.)
Receptacle - Y code	1	1	1	1	1
Header - Y code	1	2	3	4	5

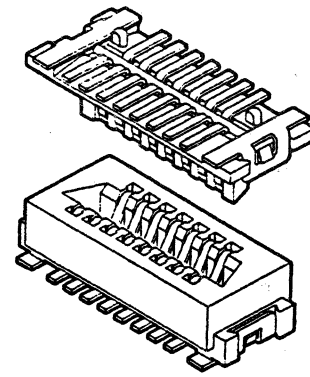
The indicated mated heights exclude solder pad and reflowed solder thicknesses. The user should consider these factors to compute the resulting board-to-board distances for specific applications.



# CONAN™ Microminiature Connector System

1.0mm (0.039 in.) Centerline

**PCB-Mounted Receptacle Assemblies**  
**PCB-Mounted Headers**  
**Surface-Mount, Vertical**




## Features


- Dual rows of contacts on 1.0 mm (0.039 in.) pitch provide a circuit density of 20 lines/cm (50 lines/in.).
- Low 4.15 mm (0.163 in.) mated height permits extremely close spacing of parallel circuit boards.
- Taller headers for 4.5 mm (0.177 in.), 5.0 mm (0.197 in.), 6.0 mm (0.236 in.), or 7.0 mm (0.276 in.) mated connector height accommodate designs that require wider board spacing to allow clearance for larger components.
- Connectors may also be used on flexible circuits.
- Part sizes of 9, 11, 15, 21, 25, 31, 41, 51 or 69 contact positions span a broad range of applications.
- Blade-on-Beam contact design prevents contact damage from "peeling" during connector engagement or separation.
- Angled contact features act as passive latches to protect against accidental disengagement from mechanical shocks or vibration.
- Unique active contact design and BERG's patented GXT™ (palladium-nickel alloy with gold flash) plating in the contact areas provide reliable electrical performance.
- Tin-lead over nickel plating in the solder areas and 0.1 mm (0.004 in.) lead coplanarity produce excellent surface-mount solder joints.

- 0.5 mm (0.020 in.) offset between the rows of contacts simplifies circuit routing.
- Surface-mount retainers increase mechanical strength after soldering without adding PCB through holes or requiring force to be applied to insert the connector during placement.
- Liquid crystal polymer (LCP) resins withstand infrared and vapor-phase reflow soldering temperatures.
- Odd/even line counts and offset between rows assist visual registration of connector and circuit board during placement.
- Connector polarization and ample "lead-in" angles produce easy, repeatable mating.
- An audible click signals connector engagement at assembly.

GXT™ plating in the contact area can be provided.

## Approvals and Certifications

 File no. E66906

 File no. LR46923

## Mating Data

CONAN™ header assemblies plug to the corresponding CONAN™ receptacle assemblies. A standard receptacle assembly accepts all header heights. The available mated heights are shown below. Post reflow solder thicknesses and pad thicknesses should be considered when calculating board-to-board clearance.

Header Height Code (see "Y" under Ordering Data)	Nominal Mated Height (+0.25/-0.20 mm (+0.010/-0.008 in.))
1	4.15 mm (0.163 in.)
2	4.50 mm (0.177 in.)
3	5.00 mm (0.197 in.)
4	6.00 mm (0.236 in.)
5	7.00 mm (0.276 in.)

## Options

- Non-protrusive orientation posts are offered to assist proper placement of polarized connectors during manual assembly.
- Packaging options are antistatic tubes or tape-and-reel to support automated connector placement.
- Optional cap provides a surface for pickup with standard vacuum nozzles without increasing the space required for the connector.
- For applications requiring up to 200 durability cycles 0.76 mm (30 μin.)

## Technical Data

### Materials

- Housing and pickup cap..... LCP (UL 94 V-O)
  - ▶ Color ..... Cream
  - ▶ Applicable solder process ..... IR, vapor phase
- Contact spring
  - ▶ Receptacle..... Beryllium copper
  - ▶ Header..... Phosphor bronze

### Plating

- Underplate ..... 1.27 μm (50 μin.) nickel
- Solder tail area ..... 2.54 μm (100 μin.) tin-lead
- Contact area ..... 0.38 μm (15 μin.) GXT™ (palladium-nickel alloy with gold flash) plating

### Operating Environment

- Temperature range..... -55° to 130°C
- Continuous operating temperature ..... +85°C max
- Resistance to solder heat..... 240°C for 30 sec

### Mechanical Performance

- Mating force ..... 125g per contact max
- Unmating force..... 45g per contact min
- Retention force (connector to board)..... 44 N (10 lbf) min
- Contact wipe ..... 0.64 mm (0.025 in.)
- Durability (mating cycles)..... 30

### Electrical Performance

- Insulation resistance..... 1000 MΩ min
- Contact resistance..... 30 mΩ max
- Withstanding voltage ..... 500 V ac, rms, 60 Hz
- Current rating ..... 1.0 amp continuous (per contact, all contacts powered)

### Packaging

- Antistatic tubes
- Tape-and-reel

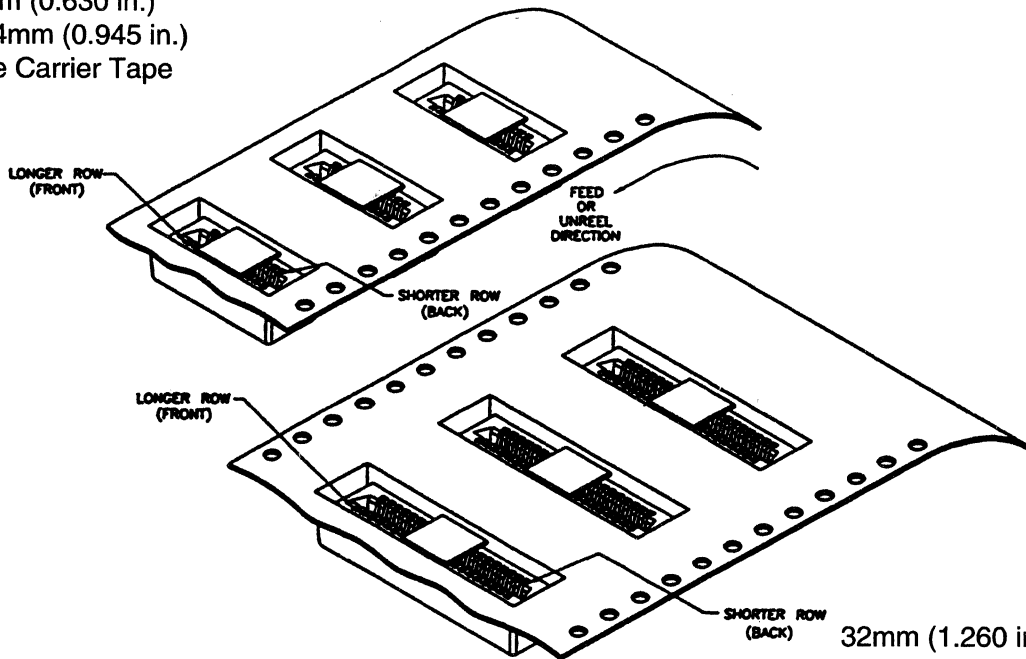
## Customer Support Materials

Description	Order No.	Description	Order No.
▪ Customer Product Drawings.....	91900	▪ Product Samples.....	By Part Number
▪ Product specification.....	GES-12-006		

## Tape-and-Reel Option for Automatic Handling

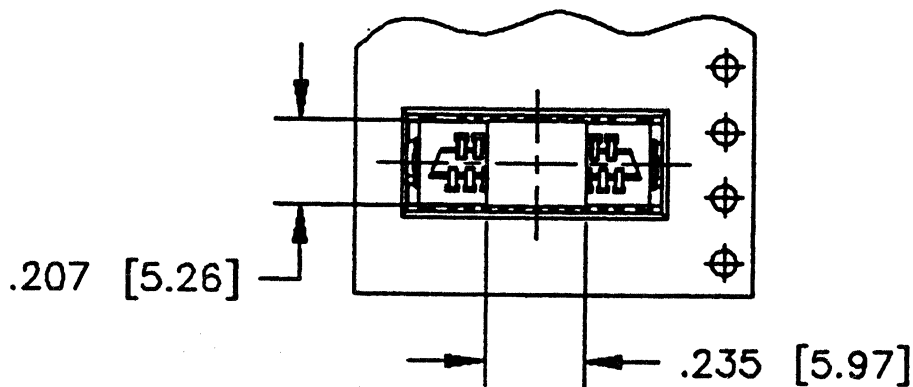
CONAN™ microminiature connectors can be provided on embossed carrier tape to support high-speed automated handling. Connectors are packaged on 16mm, 24mm, 32mm, 44mm, or 56mm wide tape on either 12mm or 16mm pitch. Tape widths and pitches are based on the EIA-481 standards and the cavity sizes needed to accommodate individual connectors. Tape widths for the taller connectors also align with leading surface-mount equipment manufacturers' requirements for "deep groove" feeders.

16mm (0.630 in.)  
or 24mm (0.945 in.)  
Wide Carrier Tape



32mm (1.260 in.),  
44mm (1.732 in.),  
or 56mm (2.205 in.)  
Wide Carrier Tape

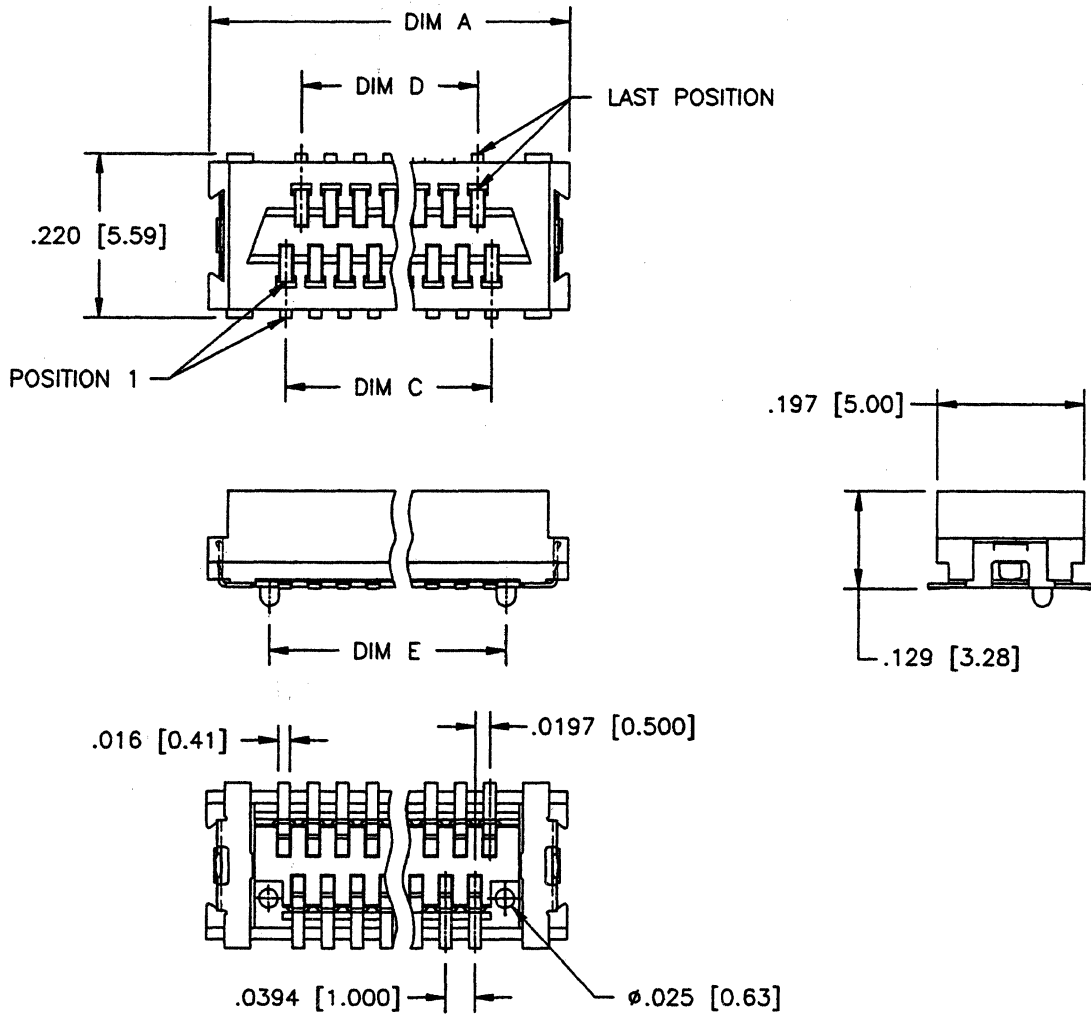
To allow placement with standard vacuum nozzles, each connector carries a removable pickup cap. The molded cap provides a smooth, stable surface so that the vacuum nozzle can maintain a reliable hold on the connector. The cap's large 5.26mm (0.207 in.) x 5.97mm (0.235 in.) surface area allows up to 4.0mm (0.157 in.) diameter nozzles to be used for pickup. Molded from heat resistant LCP (liquid crystal polymer) resin, the cap will withstand infrared reflow soldering temperatures. Later, the caps are easily removed after soldering.



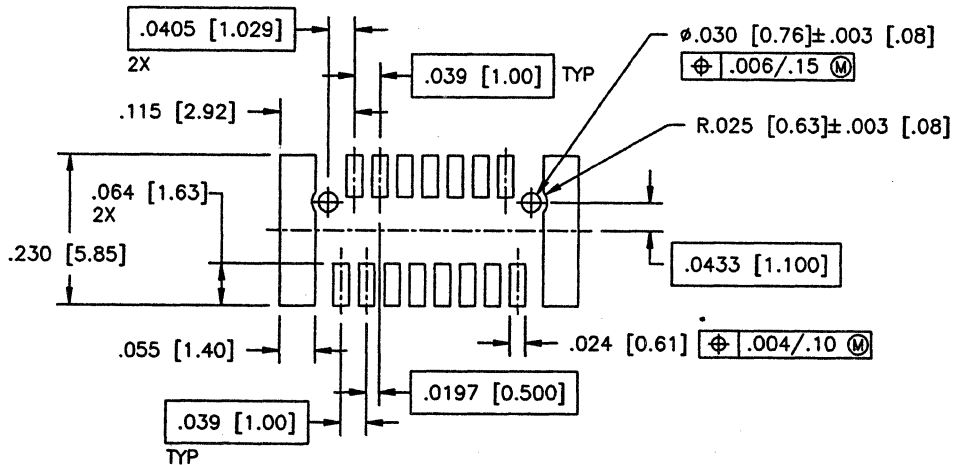
If you would like more information concerning tape-and-reel packaging for the CONAN™ microminiature connector system, contact your BERG Electronics sales representative or BERG Electronics Customer Service at 1-800-237-2374.

**Description**

Surface-Mount, Vertical Receptacle Assemblies  
 1.00 mm (0.039 in.) Centerline



**Recommended PCB Layout**



## Ordering Data

### Surface-Mount, Vertical Receptacle Assemblies

#### 9 1 9 T C - W X Y Z Z

**Type:**

2 = Receptacle assembly without orientation posts  
 3 = Receptacle assembly with orientation posts

**Vacuum Pick-up Cap:**

0 = no  
 1 = yes

**No. of Positions:**

9, 11, 15, 21, 25, 31, 41, 51, 69

**Mated Height:**

1 = 4.15 mm (0.163 in.)  
 1 = 4.50 mm (0.177 in.)  
 1 = 5.00 mm (0.197 in.)  
 1 = 6.00 mm (0.236 in.)  
 1 = 7.00 mm (0.276 in.)

**Contact Area Finish:**

1 = 0.38  $\mu\text{m}$  (15  $\mu\text{in.}$ ) GXT™ plating

**Packaging:**

2 = Tube  
 3 = PSA sealed Tape-and-Reel, requires vacuum pick-up cap

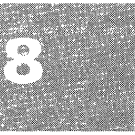
**How to Order:**

Example: 91921-31125 - Is a CONAN™ receptacle assembly having no posts and with a pick-up cap. It also has GXT™ plating, 25 positions, and is packaged in tape-and-reel.

**Notes:**

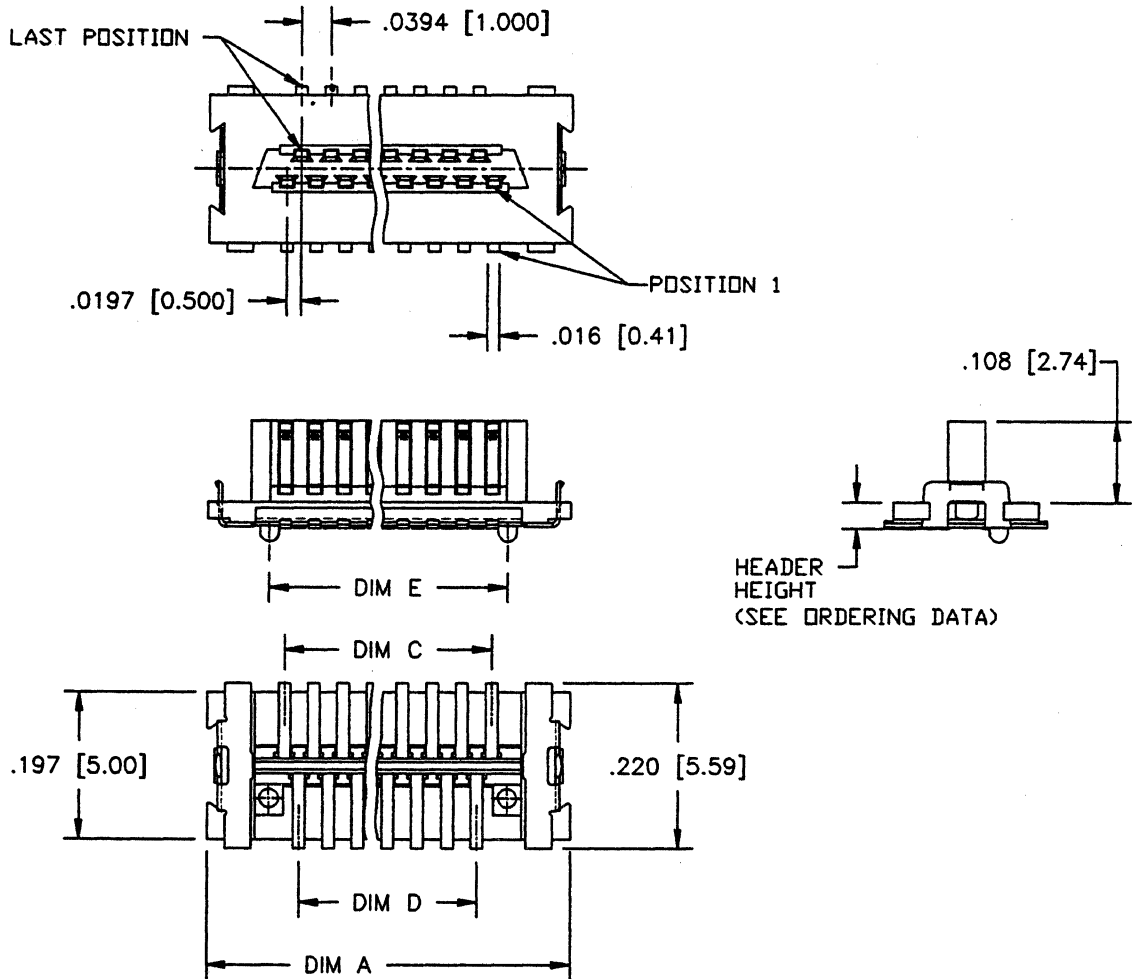
1. Standard receptacle assembly plugs to all CONAN™ headers.
2. Vacuum pick-up cap is only available with packaging option 3.

Product Number	Dash Number	Number of Positions	Dimensions							
			A		C		D		E	
			mm	in.	mm	in.	mm	in.	mm	in.
919TC	WXY09	9	9.30	0.366	4.00	0.157	3.00	0.118	5.05	0.199
919TC	WXY11	11	10.30	0.406	5.00	0.197	4.00	0.157	6.05	0.238
919TC	WXY15	15	12.30	0.484	7.00	0.276	6.00	0.236	8.05	0.317
919TC	WXY21	21	15.30	0.602	10.00	0.394	9.00	0.354	11.05	0.435
919TC	WXY25	25	17.30	0.681	12.00	0.472	11.00	0.433	13.05	0.514
919TC	WXY31	31	20.30	0.800	15.00	0.591	14.00	0.551	16.05	0.632
919TC	WXY41	41	25.30	0.996	20.00	0.787	19.00	0.748	21.05	0.829
919TC	WXY51	51	30.30	1.193	25.00	0.984	24.00	0.945	26.05	1.026
919TC	WXY69	69	39.30	1.547	34.00	1.339	33.00	1.299	35.05	1.380

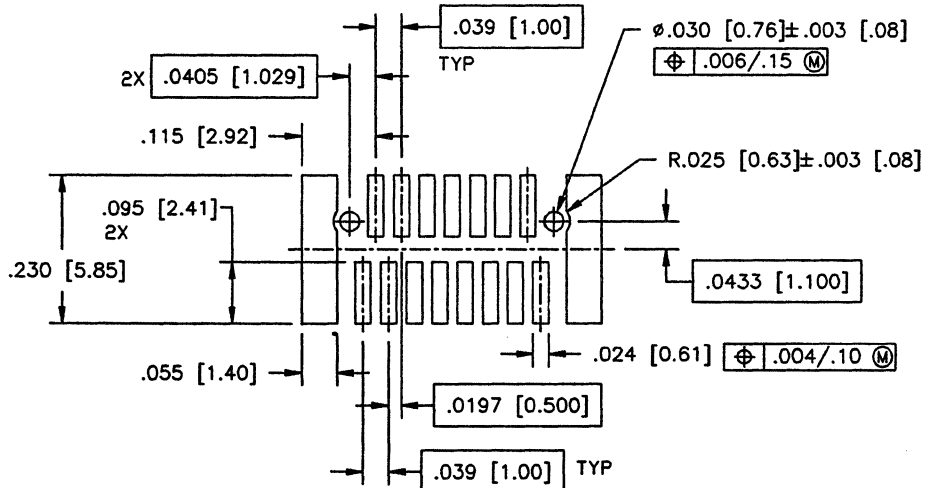


**Description**

Surface-Mount, Vertical Headers  
1.00 mm (0.039 in.) Centerline



**Recommended PCB Layout**



## Ordering Data

### Surface-Mount, Vertical Headers

### 9 1 9 T C - W X Y Z Z

**Type:**

0 = Header without orientation posts  
 1 = Header with orientation posts

**Vacuum Pick-up Cap:**

0 = no  
 1 = yes

**No. of Positions:**

9, 11, 15, 21, 25, 31, 41, 51, 69

**Mated Height:**

1 = 4.15 mm (0.163 in.)  
 2 = 4.50 mm (0.177 in.)  
 3 = 5.00 mm (0.197 in.)  
 4 = 6.00 mm (0.236 in.)  
 5 = 7.00 mm (0.276 in.)

**Header Height:**

0.86 mm (0.034 in.)  
 1.23 mm (0.048 in.)  
 1.73 mm (0.068 in.)  
 2.72 mm (0.107 in.)  
 3.72 mm (0.1456 in.)

**Contact Area Finish:**

1 = 0.38 µm (15 µin.) GXT™ plating

**Packaging:**

2 = Tube  
 3 = PSA sealed Tape-and-Reel, requires vacuum pick-up cap

**How to Order:**

Example: 91901-31125 - Is a CONAN™ header having no posts and with a pick-up cap. It also has GXT™ plating, provides 4.15 mm (0.163 in.) mated height, 25 positions, and is packaged in tape-and-reel.

**Notes:**

1. All CONAN™ headers plug to the standard receptacle assembly.
2. Vacuum pick-up cap is only available with packaging option 3.

Base Number	Dash Number	Number of Positions	Dimensions							
			A		C		D		E	
			mm	in.	mm	in.	mm	in.	mm	in.
919TC	WXY09	9	9.30	0.366	4.00	0.157	3.00	0.118	5.05	0.199
919TC	WXY11	11	10.30	0.406	5.00	0.197	4.00	0.157	6.05	0.238
919TC	WXY15	15	12.30	0.484	7.00	0.276	6.00	0.236	8.05	0.317
919TC	WXY21	21	15.30	0.602	10.00	0.394	9.00	0.354	11.05	0.435
919TC	WXY25	25	17.30	0.681	12.00	0.472	11.00	0.433	13.05	0.514
919TC	WXY31	31	20.30	0.800	15.00	0.591	14.00	0.551	16.05	0.632
919TC	WXY41	41	25.30	0.996	20.00	0.787	19.00	0.748	21.05	0.829
919TC	WXY51	51	30.30	1.193	25.00	0.984	24.00	0.945	26.05	1.026
919TC	WXY69	69	39.30	1.547	34.00	1.339	33.00	1.299	35.05	1.380

8

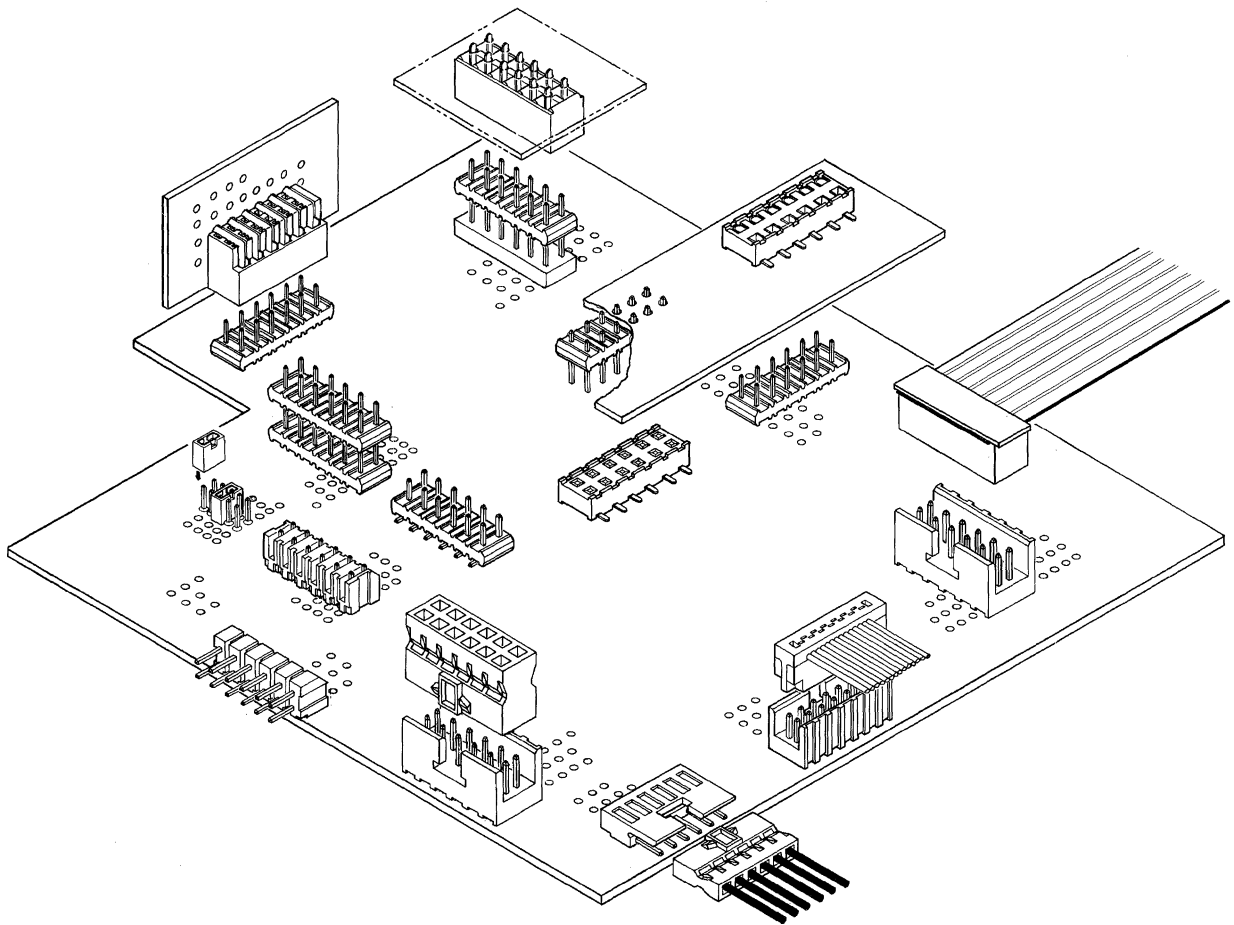
# Minitek™ Connector System

2.00 x 2.00 mm (0.079 x 0.079 in.)

Berg Electronics' Minitek™ 2.00 mm pitch connector system has reliably and economically addressed the interconnection requirements of progressively smaller electronic devices since 1989. Compared to established 2.54 mm (0.100 inch) pitch technology, Minitek™ connectors offer up to 38 % savings in PCB "real estate". Personal computers, disk drives, wireless communication devices, and bar-code scanners are among the many electronic products now demanding more compact interconnect solutions.

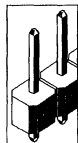
This versatile connector system offers complete design flexibility for board-to-board, flex-to-board, and cable-to-board connections. The Minitek™ connector family includes unshrouded and shrouded headers, crimp contacts and insulators, flat cable IDC receptacles, board mounted receptacles, and shunts. Surface-mount connectors are compatible with standard reflow soldering processes and can be provided on tape-and-reel packaging to support automated placement.

Headers feature 0.50 mm (0.020 inch) square drawn wire posts. Crimp contacts, shunts, and board-mounted receptacles employ dual cantilever beams for redundant electrical contact. Options for contact area finishes include gold or GXT™ (gold flash over palladium nickel alloy) platings.



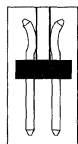
## 2.00 x 2.00 mm (0.079 x 0.079 in.) Centerline Products

### Connector Selection Guide for Typical Applications ..... 9-2



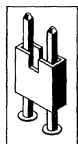
#### Unshrouded Headers

- Vertical, through-mount ..... 9-8
- Vertical, surface-mount ..... 9-14
- Vertical preloaded pin carrier ..... 9-18
- Right-angle, through-mount ..... 9-20



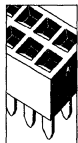
#### Straddle-mount Headers

- Straddle-mount Headers ..... 9-22



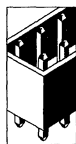
#### Shunts

- Shunts ..... 9-24



#### PCB Mounted Receptacles

- Vertical, top-entry, through-mount ..... 9-26
- Vertical, top-entry, surface-mount ..... 9-32
- Vertical, bottom-entry, surface-mount ..... 9-34
- Right-angle, through-mount ..... 9-36



#### Shrouded Headers

- Vertical, through-mount, double-row ..... 9-38
- Vertical, surface-mount, double-row ..... 9-38
- Right-angle, through-mount, single-row ..... 9-40
- Right-angle, surface-mount, single-row ..... 9-40



#### Discrete Crimp-to-Wire Receptacles and Housings

- Crimp contacts ..... 9-43
- Housings, double-row ..... 9-44
- Housings, single-row ..... 9-46
- Application equipment ..... 9-47



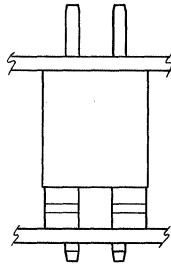
#### Round Conductor, Flat Cable IDC Connectors

- IDC receptacles ..... 9-48
- Round conductor, flat cable ..... 9-50
- Application equipment ..... 9-52

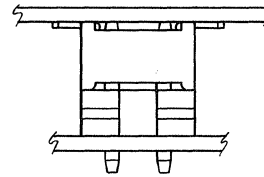


## Connector Selection Guide for Typical Applications

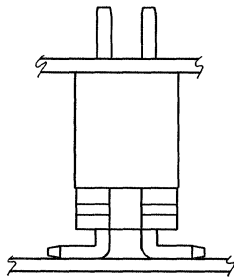
### Parallel Board-to-Board Options



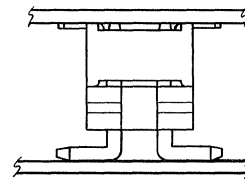
Through-mount header (see page 9-8) to  
 Through-mount receptacle (see page 9-26)



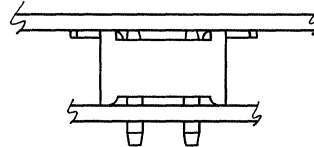
Through-mount header (see page 9-8) to  
 Surface-mount receptacle (see page 9-32)



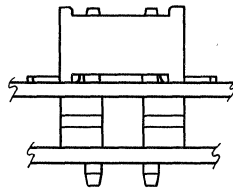
Surface-mount header (see page 9-14) to  
 Through-mount receptacle (see page 9-26)



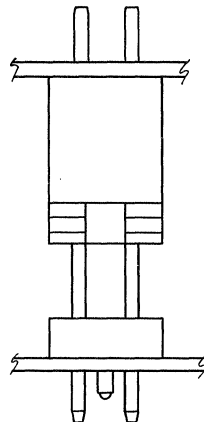
Surface-mount header (see page 9-14) to  
 Surface-mount receptacle (see page 9-32)



Preloaded pin carrier (see page 9-18) to surface-mount (see page 9-32) or Through-mount receptacle (see page 9-26)  
 (Surface-mount receptacle shown)



Through-mount (see page 9-8) or Surface-mount header (see page 9-14) to Bottom-entry surface-mount receptacle (see page 9-34)  
 (Through-mount header shown)



Through-mount, stacking header (see page 9-12) or Surface-mount, stacking header (see page 9-17) to  
 Through-mount (see page 9-26) or Surface-mount receptacle (see page 9-32)  
 (Through-mount header and receptacle shown)

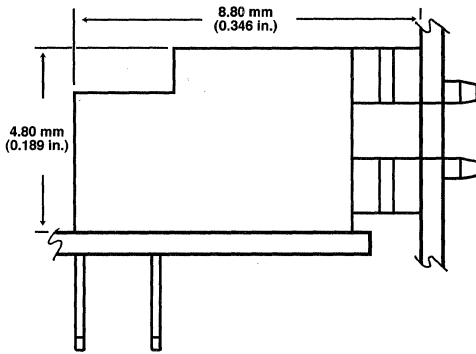
## Connector Selection Guide for Typical Applications

### Parallel Board-to-Board Options Nominal Heights of Mated Connectors

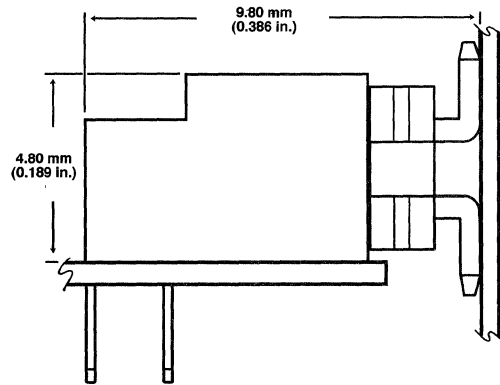
Mounting Type	Bottom-Entry Surface-Mount (see page 9-34)	Top-Entry Receptacles							
		Through-Mount (see page 9-26)			Surface-Mount (see page 9-32)				
<b>Body Height</b>	2.30 mm 0.091 in.	3.00 mm 0.118 in.	4.00 mm 0.157 in.	4.50 mm 0.177 in.	2.10 mm 0.083 in.	2.30 mm 0.091 in.	3.00 mm 0.118 in.	4.00 mm 0.157 in.	
<b>Standard Header Options</b>									
<b>Pin Carrier</b> (see page 9-18)	0.00 mm 0.000 in.	3.00 mm 0.118 in.	4.00 mm 0.157 in.	4.50 mm 0.177 in.	2.10 mm 0.083 in.	2.30 mm 0.091 in.	3.00 mm 0.118 in.	4.00 mm 0.157 in.	
<b>Through-Mount Header</b> (see page 9-8)	1.50 mm 0.059 in.	4.50 mm 0.177 in.	5.50 mm 0.217 in.	6.00 mm 0.236 in.	3.60 mm 0.142 in.	3.80 mm 0.150 in.	4.50 mm 0.177 in.	5.50 mm 0.217 in.	
<b>Surface-Mount Header</b> (see page 9-14)	2.50 mm 0.098 in.	5.50 mm 0.217 in.	6.50 mm 0.256 in.	7.00 mm 0.276 in.	4.60 mm 0.181 in.	4.80 mm 0.189 in.	5.50 mm 0.217 in.	6.50 mm 0.256 in.	
<b>High-Body Through-Mount Header</b> (see page 9-11)	4.00 mm 0.157 in.			8.50 mm 0.335 in.					
<b>Application-Specific Header Options</b>									
<b>Stacking Through-Mount Header</b> (see page 9-12)	3.00 mm (0.118 in.) min to 15.00 mm (0.591 in.) max	6.00 mm (0.236 in.) min to 21.00 mm (0.827 in.) max.	7.00 mm (0.276 in.) min to 22.00 mm (0.866 in.) max.	7.50 mm (0.295 in.) min to 20.50 mm (0.807 in.) max	5.10 mm (0.201 in.) min to 18.10 mm (0.713 in.) max	5.30 mm (0.209 in.) min to 18.30 mm (0.720 in.) max	6.00 mm (0.236 in.) min to 21.00 mm (0.827 in.) max	7.00 mm (0.276 in.) min to 22.00 mm (0.866 in.) max	
<b>Stacking Surface-Mount Header</b> (see page 9-17)									
<b>Note: Headers and receptacles may also be attached to flexible circuits. Most through-mount versions are available with short soldertails.</b>									

## Connector Selection Guide for Typical Applications

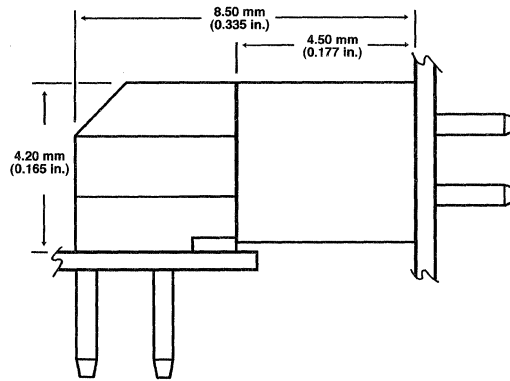
### Right-Angle Board-to-Board Options Nominal Dimensions for Mated Connectors



Right-Angle receptacle (see page 9-36)  
 to Vertical, through-mount header (see page 9-8)

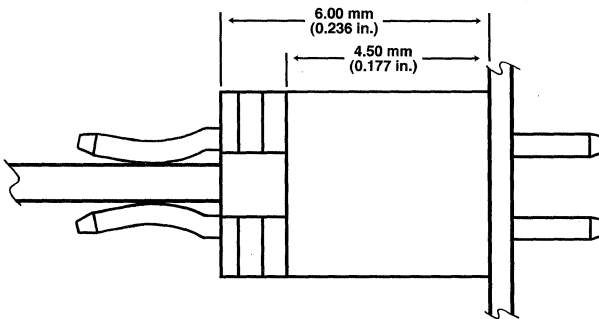


Right-angle receptacle (see page 9-36)  
 to Vertical, surface-mount header (see page 9-14)

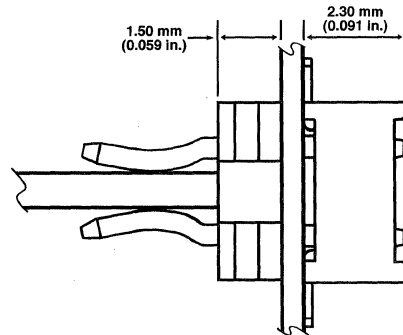


Top-entry, vertical receptacle (see page 9-26) to Through-mount right-angle header (see page 9-20)

### Straddle-Mount Headers (see page 9-22) to Vertical Receptacles (see page 9-26)



Straddle-mount header (see page 9-22)  
 to Vertical, through-mount, top-entry receptacle  
 (see page 9-26)

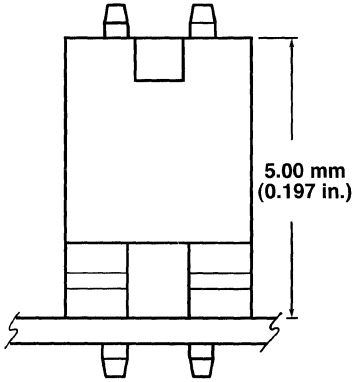


Straddle-mount header (see page 9-22)  
 to Surface-mount receptacle  
 (Bottom-entry shown) (see page 9-34)

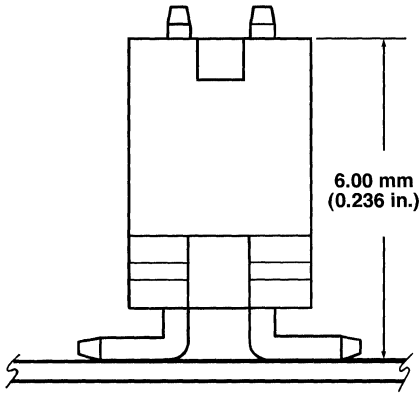
**Note: Headers and receptacles may also be attached to flexible circuits. Most through-mount versions are available with short soldertails.**

### Connector Selection Guide for Typical Applications

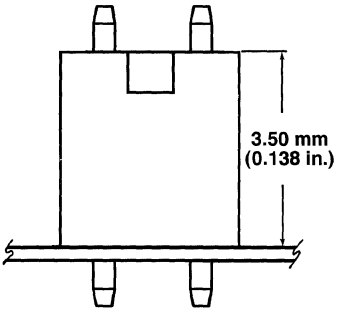
#### Shunt Options Nominal Heights of Mated Connectors



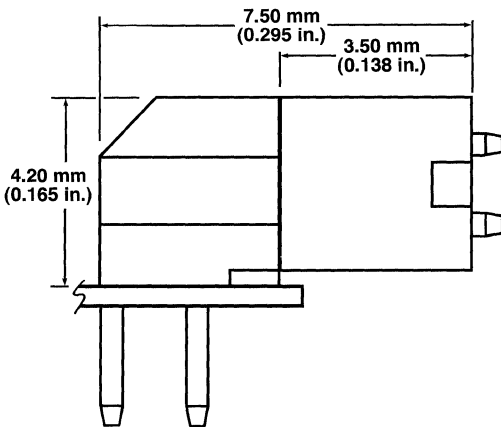
Unshrouded vertical header  
through-mount  
(see page 9-8)



Unshrouded vertical header  
surface-mount  
(see page 9-14)



Preloaded pin carrier  
through-mount  
(see page 9-18)

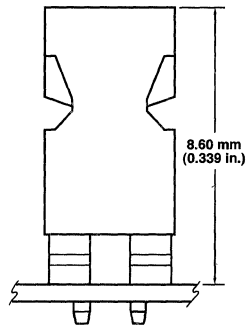


Unshrouded right-angle header  
through-mount  
(see page 9-20)

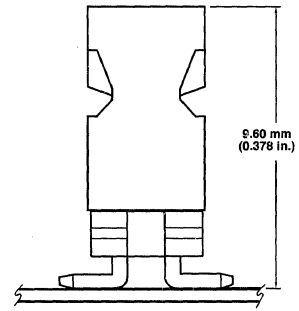
**Note: See page 9-24 for shunts.**

## Connector Selection Guide for Typical Applications

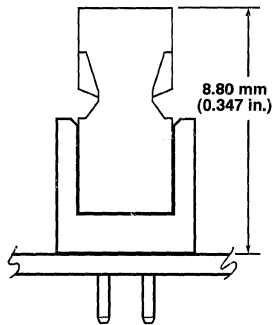
### Discrete Wire-to-Board Options Nominal Heights of Mated Connectors



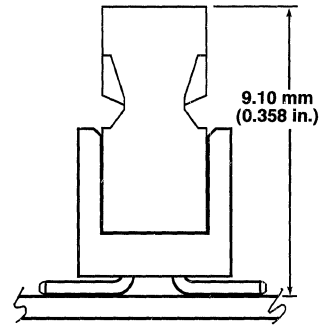
Unshrouded vertical header  
 through-mount (see page 9-8)



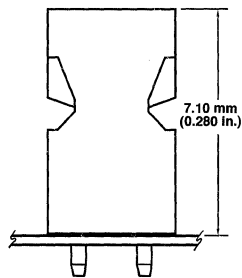
Unshrouded vertical header  
 surface-mount (see page 9-14)



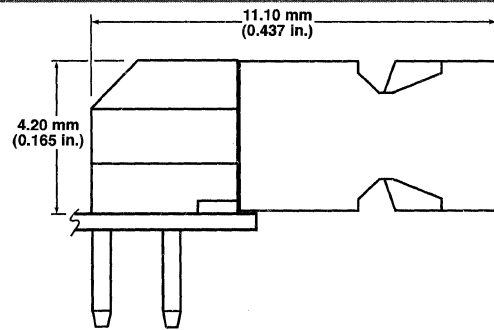
Shrouded vertical header  
 through-mount (see page 9-38)



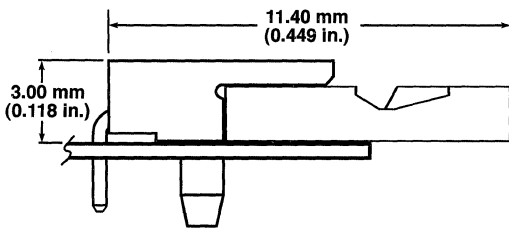
Shrouded vertical header  
 surface-mount (see page 9-38)



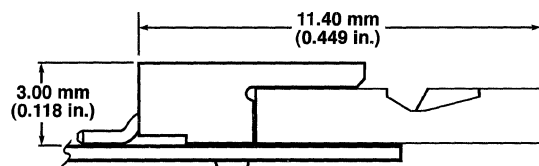
Preloaded pin carrier  
 through-mount (see page 9-18)



Unshrouded right-angle header  
 through-mount (see page 9-20)



Shrouded right-angle header  
 through-mount (see page 9-40)

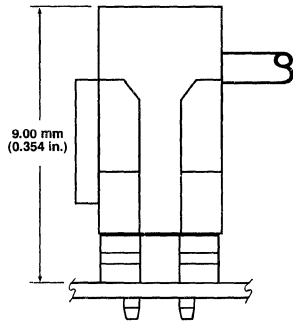


Shrouded right-angle header  
 surface-mount (see page 9-40)

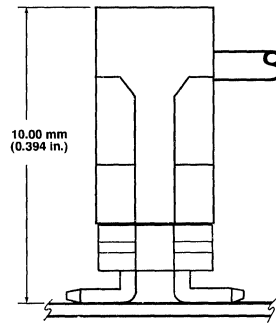
**Note: See pages 9-42 to 9-46 for crimp contacts and housings.**

## Connector Selection Guide for Typical Applications

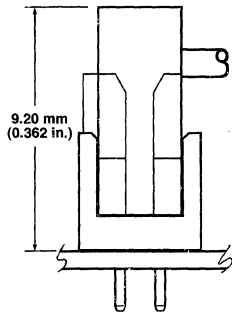
### Flat Cable IDC-to-Board Options Nominal Dimensions for Mated Connectors



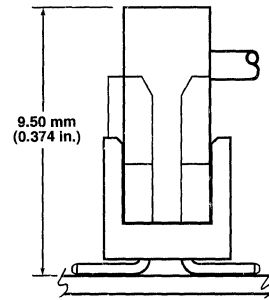
Unshrouded vertical header  
through-mount  
(see page 9-8)



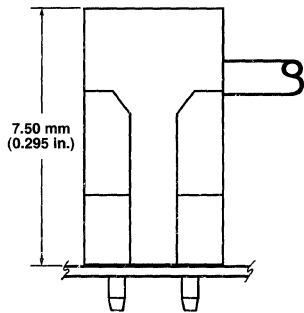
Unshrouded vertical header  
surface-mount  
(see page 9-14)



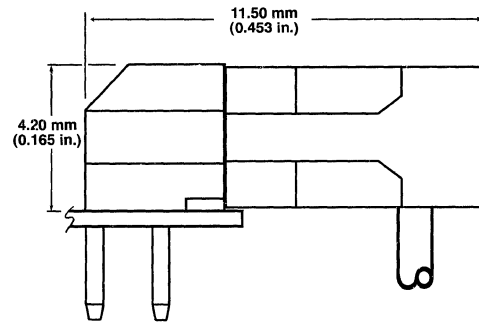
Shrouded vertical header  
through-mount  
(see page 9-38)



Shrouded vertical header  
surface-mount  
(see page 9-38)



Preloaded pin carrier  
through-mount  
(see page 9-18)



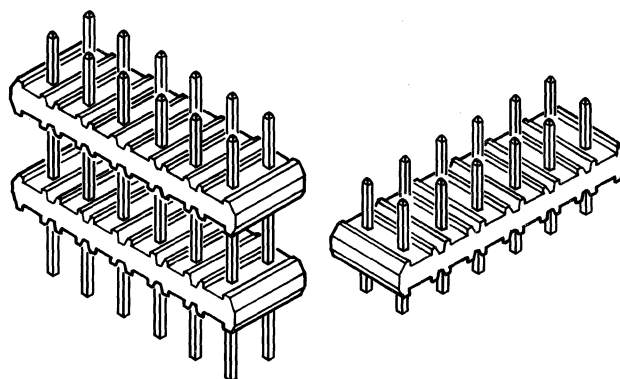
Unshrouded right-angle header  
through-mount  
(see page 9-20)

**Note: See page 9-48 for IDC Receptacles**

# Unshrouded Headers

2.00 x 2.00 mm (0.079 x 0.079 in.)  
Centerlines

## Minitek™ Vertical Through-Mount Headers



### Features

- Double row: 2 x 2 through 2 x 25 positions.
- Standard solder tail lengths for up to 0.093 in. PCB thicknesses.
- Short solder tail length for flexible circuitry applications.
- Straight header utilizes a 1.5 mm (0.059 in.) low-profile body.
- 2.0 mm (0.079 in.) mating length available for use with top-entry vertical board-mounted receptacles ≤ 4.00 mm tall
- Standoffs for easy PCB cleaning.
- 0.50 mm (0.020 in.) square drawn wire pin provides four smooth mating surfaces.
- Stacking and high-body headers for wider board-to-board spacing in parallel board stacking applications.


### Options


- High-temperature plastic for vapor-phase or IR soldering.
- Polarization by omitting pins.
- Variable mating pin and solder tail lengths.
- Retentive leg solder tails hold header firmly in place during soldering process.

### Specifications

- JIS-5020
- MIL-STD-202

### Approvals and Certifications

 File no. E66906

 File no. LR46923

### Mating Data

Berg Electronics Products	Page
▪ Minitek™ board-mounted receptacles . . . . .	9-26 to 9-37
▪ Minitek™ shunt . . . . .	9-24
▪ Minitek™ crimp-to-wire receptacle and housing assembly . . . . .	9-43 to 9-46
▪ Minitek™ 2.00 mm (0.079 in.) IDC receptacle . . . . .	9-48

### Technical Data

#### Materials

- Standard housing . . . . . Glass-filled nylon (UL 94 V-0)
  - ▶ Color . . . . . Black
  - ▶ Applicable soldering processes. . . . . wave
- High-temperature housing. . . . . Glass-filled PCT (UL 94 V-0)
  - ▶ Color . . . . . Black or Cream
  - ▶ Applicable soldering processes. Wave, IR, vapor-phase
- Pin . . . . . Phosphor-bronze

#### Operating Environment

- Temperature range . . . . . Nylon: -40°C to +105°C  
PCT: -55°C to +125°C

#### Plating

- Underplate . . . . . 1.27 μm (50 μin.) min nickel
- Finish
  - ▶ Fully-plated Pins . . . . . 0.20 μm (8 μin.) min gold or 0.76 μm (30 μin.) min gold or 0.38 μm (15 μin.) min GXT™

#### ▶ Duplex plate pins

- Contact area . . . . . 0.38 μm (15 μin) min gold or 0.38 μm (15 μin) min GXT™ or 0.76 μm (30 μin) min GXT™
- Solder area . . . . . 3.80 μm (150 μin) min tin/lead

#### Electrical Performance

- Insulation resistance. . . . . 1000 MΩ min
- Withstanding voltage . . . . . 650 V rms
- Current rating . . . . . 2 amp continuous
- Contact resistance . . . . . 25 mΩ max
- Voltage rating . . . . . 200 V ac/dc

#### Mechanical Performance

- Durability (mating cycles) . . . . . 100

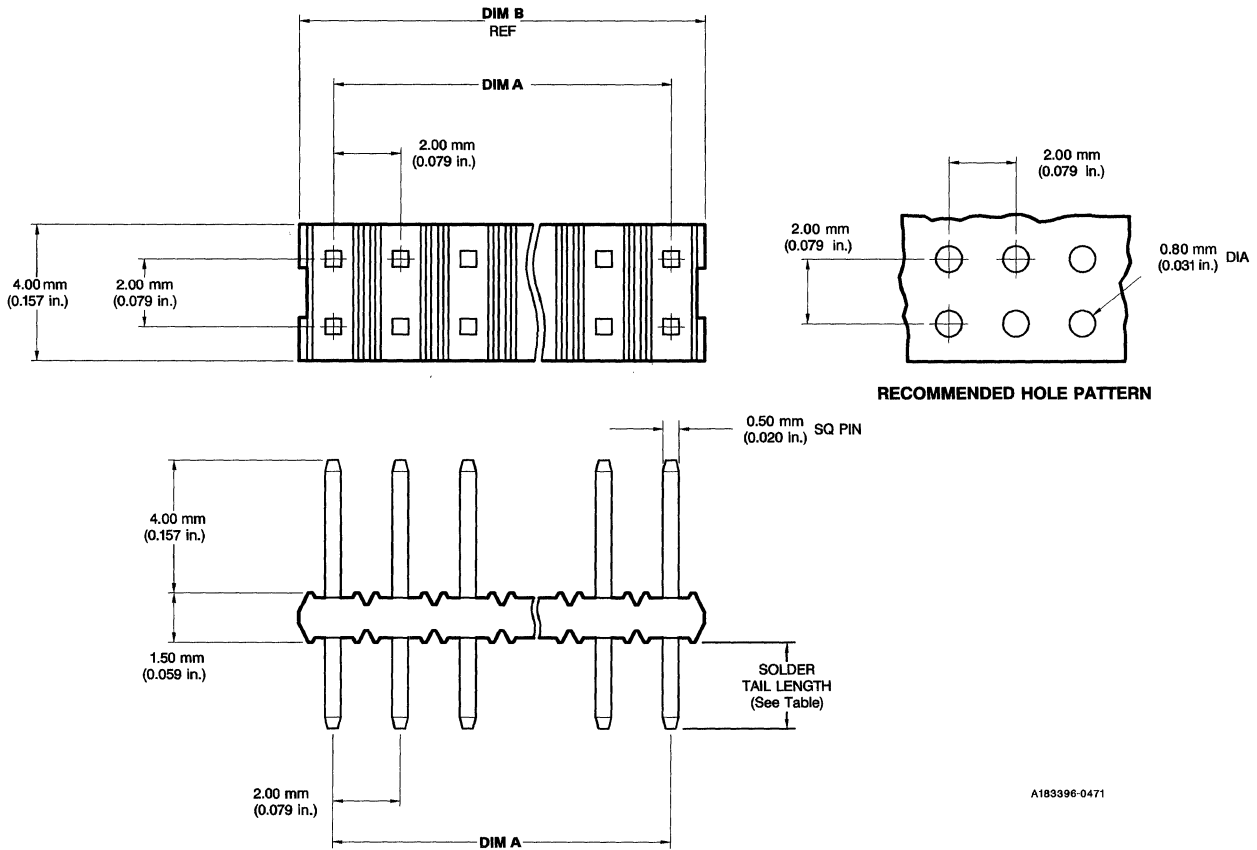
#### Packaging

- Bags

### Customer Support Materials

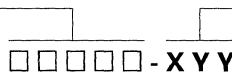
Description	Order No.	Description	Order No.
Customer Product Drawings . . . . .	By Part No.	Product Bulletin . . . . .	950522-001
Product Samples . . . . .	By Part No.	Product Specifications . . . . .	DPS-12-011

## Description Vertical Through-Mount Header



## Ordering Data Vertical Through-Mount Headers

Base number specifies configuration, plating type, solder tail length, and housing material.



Dash number specifies plating option (X) and number of positions (YY).

Base Number	Plating Type	Mating Pin Length		Solder Tail Length		Housing Material	Housing Color
		mm	in.	mm	in.		
86452	full	4.00	0.157	0.76	0.030	Glass-filled Nylon	Black
87176	full	4.00	0.157	0.76	0.030	Glass-filled PCT	Cream
94269	full	4.00	0.157	2.50	0.098	Glass-filled PCT	Black
86451	full	4.00	0.157	3.00	0.118	Glass-filled Nylon	Black
87131	full	4.00	0.157	3.00	0.118	Glass-filled PCT	Cream
94265	full	2.00	0.079	2.00	0.079	Glass-filled PCT	Black
94254	duplex	4.00	0.157	2.50	0.098	Glass-filled PCT	Black

Plating Options for Fully-Plated Pins	
Dash No. (X)	Plating
0	0.20 $\mu\text{m}$ (8 $\mu\text{in}$ ) gold
1	0.76 $\mu\text{m}$ (30 $\mu\text{in}$ ) gold
5	0.38 $\mu\text{m}$ (15 $\mu\text{in}$ ) GXT™

Plating Options for Duplex-Plated Pins	
Dash No. (X)	Plating
3	0.38 $\mu\text{m}$ (15 $\mu\text{in}$ ) gold
5	0.38 $\mu\text{m}$ (15 $\mu\text{in}$ ) GXT™
6	0.76 $\mu\text{m}$ (30 $\mu\text{in}$ ) GXT™



**Unshrouded Headers**  
**2.00 x 2.00 mm (0.079 x 0.079 in.)**

**Ordering Data (cont'd)**

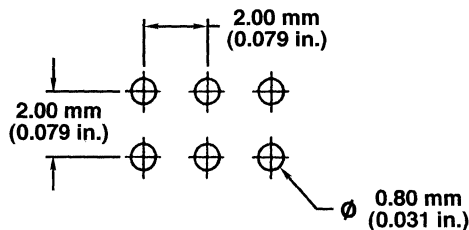
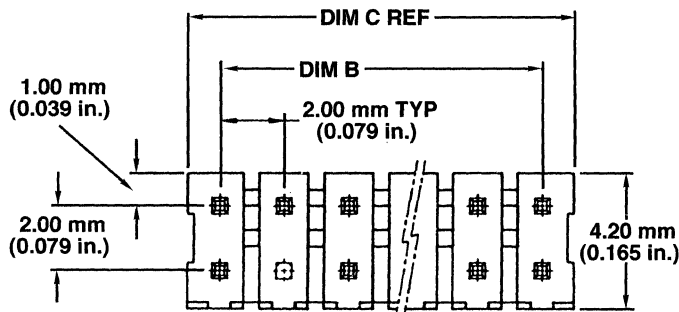
No. of Positions	Dash Number	Dash Number			
		Dimension A		Dimension B	
		mm	in.	mm	in.
2 x 2	X04	2.00	0.079	4.00	0.157
2 x 3	X06	4.00	0.157	6.00	0.236
2 x 4	X08	6.00	0.236	8.00	0.315
2 x 5	X10	8.00	0.315	10.00	0.394
2 x 6	X12	10.00	0.394	12.00	0.472
2 x 7	X14	12.00	0.472	14.00	0.551
2 x 8	X16	14.00	0.551	16.00	0.630
2 x 9	X18	16.00	0.630	18.00	0.709
2 x 10	X20	18.00	0.709	20.00	0.787
2 x 11	X22	20.00	0.787	22.00	0.866
2 x 12	X24	22.00	0.866	24.00	0.945
2 x 13	X26	24.00	0.945	26.00	1.024
2 x 14	X28	26.00	1.024	28.00	1.102
2 x 15	X30	28.00	1.102	30.00	1.181
2 x 16	X32	30.00	1.181	32.00	1.260
2 x 17	X34	32.00	1.260	34.00	1.339
2 x 18	X36	34.00	1.339	36.00	1.417
2 x 19	X38	36.00	1.417	38.00	1.496
2 x 20	X40	38.00	1.496	40.00	1.575
2 x 21	X42	40.00	1.575	42.00	1.654
2 x 22	X44	42.00	1.654	44.00	1.732
2 x 23	X46	44.00	1.732	46.00	1.811
2 x 24	X48	46.00	1.811	48.00	1.890
2 x 25	X50	48.00	1.890	50.00	1.969

Pin length and polarization may be customized to suit individual applications.

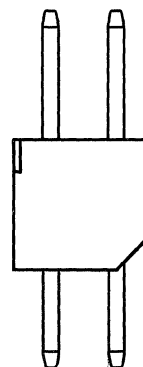
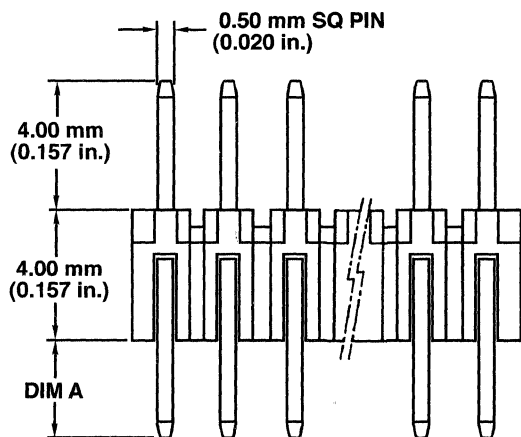
Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

### Description

#### Vertical Through-Mount High Body Header



RECOMMENDED HOLE PATTERN



### Ordering Data

#### Vertical Through-Mount High Body Header

Part Number 87715

9

87715 - XYY

Dash number specifies plating (X), number of positions, and pin lengths (YY).

Note: Housing Material is glass-filled nylon, color black.

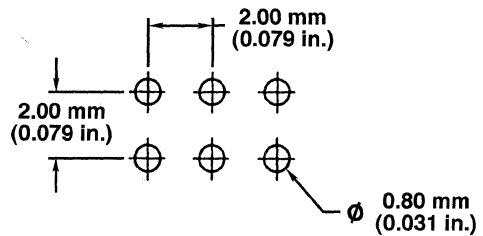
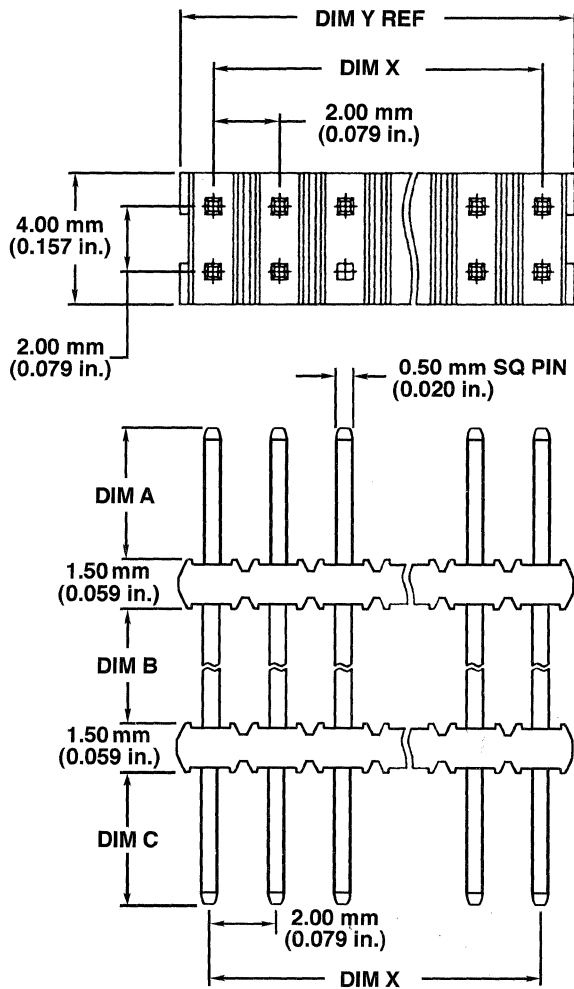
		Dash Number					
		X: Plating					
		0 = 0.20 $\mu$ m (8 $\mu$ in.) gold		1 = 0.76 $\mu$ m (30 $\mu$ in.) gold		5 = 0.38 $\mu$ m (15 $\mu$ in.) GXT™	
No. of Positions	Dash Number	Dimension A		Dimension B		Dimension C	
		mm	in.	mm	in.	mm	in.
2 x 4	X06	3.00	0.118	6.00	0.236	8.00	0.315
2 x 5	X19	3.00	0.118	8.00	0.315	10.00	0.394
2 x 7	X16	2.50	0.098	12.00	0.472	14.00	0.551
2 x 9	X21	3.00	0.118	16.00	0.630	18.00	0.709
2 x 11	X17	2.50	0.098	20.00	0.787	22.00	0.866
2 x 12	X04	2.50	0.098	22.00	0.866	24.00	0.945
2 x 13	X05	2.50	0.098	24.00	0.945	26.00	1.024
2 x 15	X03	2.50	0.098	28.00	1.102	30.00	1.181
2 x 16	X01	2.50	0.098	30.00	1.181	32.00	1.260
2 x 18	X22	3.00	0.118	34.00	1.339	36.00	1.417
2 x 19	X20	3.00	0.118	36.00	1.417	38.00	1.496
2 x 20	X13	2.50	0.098	38.00	1.496	40.00	1.575

Pin length and polarization may be customized to suit individual applications.

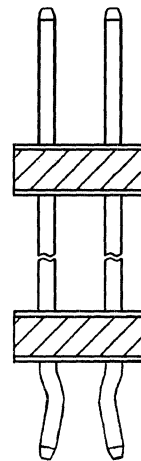
Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

**Unshrouded Headers**  
**2.00 x 2.00 mm (0.079 x 0.079 in.)**

**Description**  
**Vertical Through-Mount Stacking Header**



RECOMMENDED HOLE PATTERN



NOTE: OPTIONAL KINKED RETENTIVE LEADS ARE SHOWN.

**Ordering Data**  
**Vertical Through-Mount Stacking Header**

Stacking headers are customer specific due to the need to fix a certain board-to-board distance. As such a dash number is indicated to match the specific requirements.

Base Number	Housing Material	Options
92899	Glass-filled Nylon	Kinked Leads
92812	Glass-filled PCT	Housing Color
90599	Glass-filled Nylon	

No. of Positions	Part Number	Dimension X		Dimension Y		Dimension A		Dimension B		Dimension C		Plating
		mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	
2x6	92899-005	10.00	0.394	12.00	0.472	4.00	0.157	3.00	0.118	2.30	0.091	0.38 μm (15 μin.) GXT™
2x14	92899-001	26.00	1.024	28.00	1.102	4.00	0.157	3.00	0.118	2.30	0.091	0.38 μm (15 μin.) GXT™
2x14	92899-002	26.00	1.024	28.00	1.102	4.00	0.157	8.00	0.315	2.30	0.091	0.38 μm (15 μin.) GXT™
2x17	92899-003	32.00	1.260	34.00	1.339	4.00	0.157	3.00	0.118	2.30	0.091	0.38 μm (15 μin.) GXT™
2x17	92899-004	32.00	1.260	34.00	1.339	4.00	0.157	8.00	0.315	2.30	0.091	0.38 μm (15 μin.) GXT™

No. of Positions	Part Number	Dimension X		Dimension Y		Dimension A		Dimension B		Dimension C		Plating
		mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	
2x10	92812-004	18.00	0.709	20.00	0.787	4.00	0.157	10.30	0.406	3.00	0.118	0.38 μm (15 μin.) Au
2x13	92812-002	24.00	0.945	26.00	1.024	4.00	0.157	5.00	0.197	3.00	0.118	0.38 μm (15 μin.) GXT™
2x13	92812-003	24.00	0.945	26.00	1.024	4.00	0.157	10.30	0.406	3.00	0.118	0.38 μm (15 μin.) Au

### Ordering Data (cont'd)

No. of Positions	Part Number	Dimension X		Dimension Y		Dimension A		Dimension B		Dimension C		Plating
		mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	
2x4	90599-025	6.00	0.236	8.00	0.315	4.00	0.157	0.00	0.000	2.50	0.098	0.20 µm (8 µin.) Au
2x4	90599-014	6.00	0.236	8.00	0.315	4.00	0.157	4.50	0.177	2.50	0.098	0.20 µm (8 µin.) Au
2x5	90599-020	8.00	0.315	10.00	0.394	2.30	0.091	2.00	0.079	4.00	0.157	0.38 µm (15 µin.) Au
2x5	90599-012	8.00	0.315	10.00	0.394	4.00	0.157	5.00	0.197	2.50	0.098	0.20 µm (8 µin.) Au
2x6	90599-026	10.00	0.394	12.00	0.472	4.00	0.157	3.00	0.118	2.30	0.091	0.38 µm (15 µin.) GXT™
2x8	90599-006	14.00	0.551	16.00	0.630	3.50	0.138	5.00	0.197	3.00	0.118	0.20 µm (8 µin.) Au
2x8	90599-016	14.00	0.551	16.00	0.630	4.00	0.157	6.50	0.256	3.00	0.118	0.20 µm (8 µin.) Au
2x8	90599-018	14.00	0.551	16.00	0.630	4.00	0.157	7.50	0.295	2.50	0.098	0.20 µm (8 µin.) Au
2x8	90599-001	14.00	0.551	16.00	0.630	4.00	0.157	10.30	0.406	3.00	0.118	0.20 µm (8 µin.) Au
2x9	90599-008	16.00	0.630	18.00	0.709	4.00	0.157	7.50	0.295	2.50	0.098	0.38 µm (15 µin.) GXT™
2x10	90599-004	18.00	0.709	20.00	0.787	4.00	0.157	0.50	0.020	3.00	0.118	0.20 µm (8 µin.) Au
2x10	90599-007	18.00	0.709	20.00	0.787	4.00	0.157	3.00	0.118	3.00	0.118	0.20 µm (8 µin.) Au
2x10	90599-017	18.00	0.709	20.00	0.787	4.00	0.157	10.30	0.406	3.00	0.118	0.20 µm (8 µin.) Au
2x11	90599-015	20.00	0.787	22.00	0.866	4.00	0.157	7.00	0.276	2.50	0.098	0.20 µm (8 µin.) Au
2x14	90599-021	26.00	1.024	28.00	1.102	4.00	0.157	3.00	0.118	2.30	0.091	0.38 µm (15 µin.) GXT™
2x14	90599-022	26.00	1.024	28.00	1.102	4.00	0.157	8.00	0.315	2.30	0.091	0.38 µm (15 µin.) GXT™
2x17	90599-023	32.00	1.260	34.00	1.339	4.00	0.157	3.00	0.118	2.30	0.091	0.38 µm (15 µin.) GXT™
2x17	90599-024	32.00	1.260	34.00	1.339	4.00	0.157	8.00	0.315	2.30	0.091	0.38 µm (15 µin.) GXT™
2x20	90599-002	38.00	1.496	40.00	1.575	4.00	0.157	0.00	0.000	3.00	0.118	0.20 µm (8 µin.) Au
2x25	90599-005	48.00	1.890	50.00	1.969	4.00	0.157	0.00	0.000	3.00	0.118	0.20 µm (8 µin.) Au
2x25	90599-003	48.00	1.890	50.00	1.969	4.00	0.157	5.90	0.232	3.00	0.118	0.20 µm (8 µin.) Au

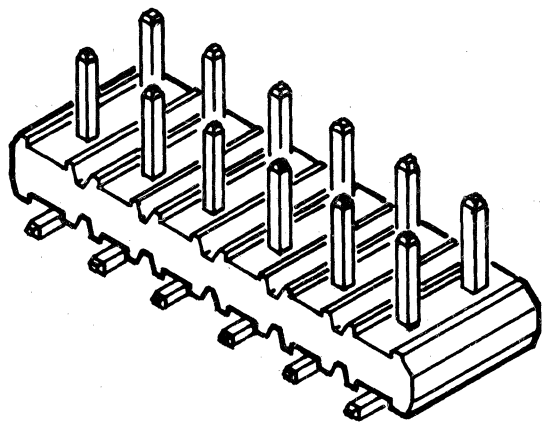
Pin length and polarization may be customized to suit individual applications.

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

# Unshrouded Headers

2.00 x 2.00 mm (0.079 x 0.079 in.)  
Centerlines

## Minitek™ Vertical Surface-Mount Headers



### Features

- 2 x 2 through 2 x 25 positions.
- 0.50 mm (0.020 in.) square drawn wire pin provides four smooth mating surfaces.
- "Gull-wing" leads allow easy cleaning of boards and visual inspection of solder joints.
- High temperature housings withstand reflow soldering temperature
- 0.10 mm (0.004 in.) lead coplanarity.
- 2.00 mm (0.079 in.) mating length available for use with top-entry vertical board-mounted receptacles ≤ 4.00 mm tall.

### Options

- Polarization by omitting pins.
- Variable mating pin lengths.
- Packaging tubes
- Tape-and-reel


### Mating Data


Berg Electronics Products	Page
▪ Minitek™ board-mounted receptacles . . . . .	9-26 to 9-37
▪ Minitek™ shunt . . . . .	9-24
▪ Minitek™ crimp-to-wire receptacle and housing assembly . . . . .	9-43 to 9-46
▪ Minitek™ 2.00 mm (0.079 in.) IDC receptacle . . . . .	9-48

### Specifications

- JIS-5020
- MIL-STD-202

### Approvals and Certifications

 File no. E66906

 File no. LR46923

### Technical Data

#### Materials

- High-temperature housing. . . . . Glass-filled PCT (UL 94 V-0)
  - ▶ Color . . . . . Black or Cream
  - ▶ Applicable soldering processes. Wave, IR, vapor-phase
- Pin . . . . . Phosphor-bronze

#### Operating Environment

- Temperature range. . . . . Nylon: -40°C to +105°C  
PCT: -55°C to +125°C

#### Plating

- Underplate . . . . . 1.27 μm (50 μin.) min nickel
- Finish
  - ▶ Fully-plated Pins . . . . . 0.20 μm (8 μin.) min gold or 0.76 μm (30 μin.) min gold or 0.38 μm (15 μin.) min GXT™
  - ▶ Duplex-plated pins
    - Contact area . . . . . 0.38 μm (15 μin) min gold or 0.38 μm (15 μin) min GXT™ or 0.76 μm (30 μin) min GXT™
    - Solder area . . . . . 3.80 μm (150 μin) min tin/lead

#### Electrical Performance

- Insulation resistance. . . . . 1000 MΩ min
- Withstanding voltage . . . . . 650 V rms
- Current rating . . . . . 2 amp continuous
- Contact resistance . . . . . 25 mΩ max
- Voltage rating . . . . . 200 V ac/dc

#### Mechanical Performance

- Durability (mating cycles) . . . . . 100

#### Packaging

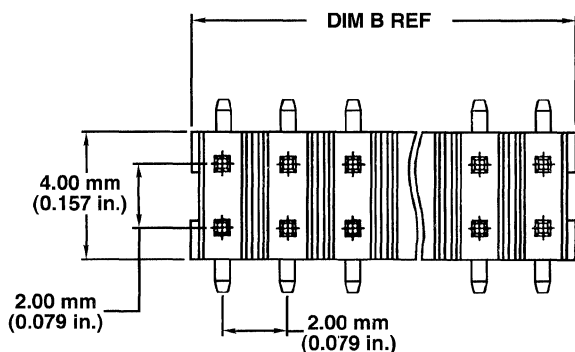
- Bags
- Tubes (optional)
- Tape-and-reel (optional)

### Customer Support Materials

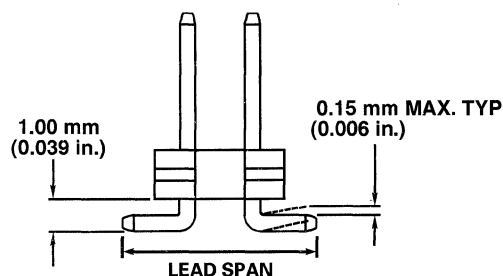
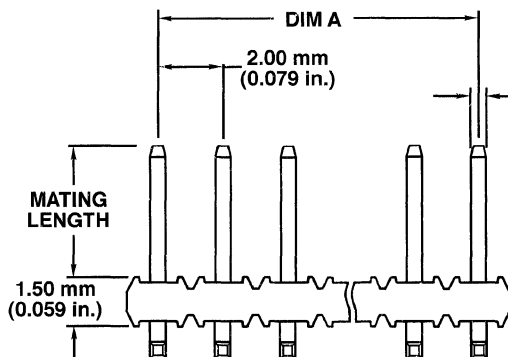
Description	Order No.	Description	Order No.
Customer Product Drawings . . . . .	By Part No.	Product Bulletin . . . . .	950522-001
Product Samples . . . . .	By Part No.	Product Specifications . . . . .	DPS-12-011

## Description

### Vertical Surface-Mount Header



SEE PRODUCT DRAWING FOR  
RECOMMENDED PAD LAYOUT.



## Ordering Data

### Headers

Base number specifies configuration, plating type, solder tail length, and housing material.

Dash number specifies plating option (X) and number of positions (YY).

□ □ □ □ □ - X Y Y

Add suffix "T" to dash number for tube packaging  
Add suffix "TR" to dash number for tape-and-reel packaging

Base Number	Plating Type	Mating Pin Length		Lead Span		Housing Material	Color
		mm	in.	mm	in.		
94267	full	2.00	0.079	6.50	0.256	Glass-filled PCT	Black
94270	full	4.00	0.157	6.00	0.236	Glass-filled PCT	Black
94262	duplex	4.00	0.157	6.00	0.236	Glass-filled PCT	Black

Plating Options for Fully-Plated Pins	
Dash No. (X)	Plating
0	0.20 $\mu$ m (8 $\mu$ in.) min gold
1	0.76 $\mu$ m (30 $\mu$ in.) min gold
5	0.38 $\mu$ m (15 $\mu$ in.) min GXT™

Plating Options for Duplex-Plated Headers	
Dash No. (X)	Plating
3	0.38 $\mu$ m (15 $\mu$ in.) min gold
5	0.38 $\mu$ m (15 $\mu$ in.) min GXT™
6	0.76 $\mu$ m (30 $\mu$ in.) min GXT™

**Unshrouded Headers**  
**2.00 x 2.00 mm (0.079 x 0.079 in.)**

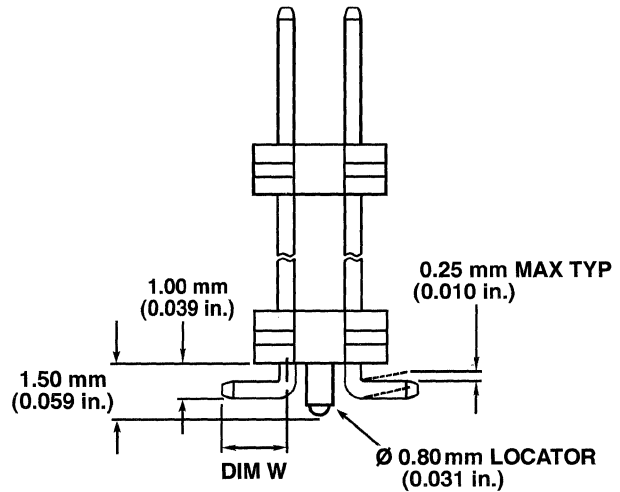
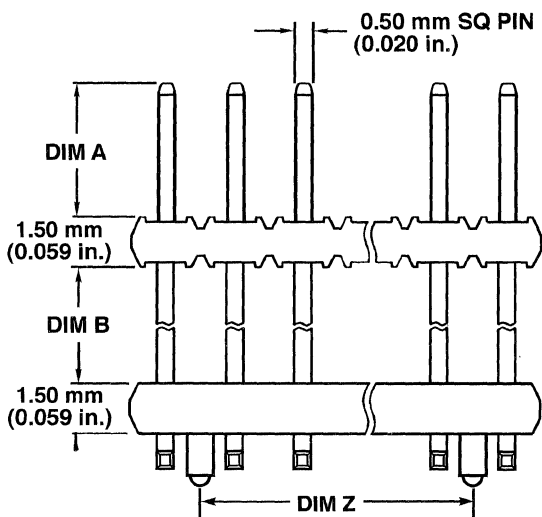
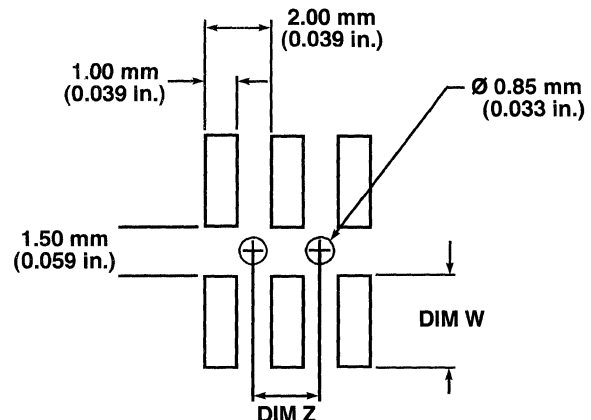
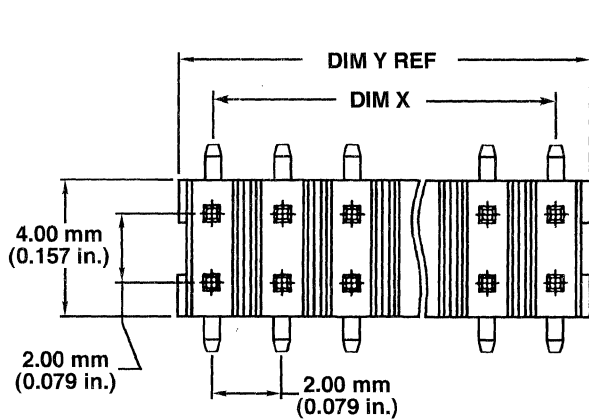
**Ordering Data (cont'd)**  
**Vertical Surface-Mount Header**

No. of Positions	Dash Number	Dash Number			
		Dimension A		Dimension B	
		mm	in.	mm	in.
2 x 2	X04	2.00	0.079	4.00	0.157
2 x 3	X06	4.00	0.157	6.00	0.236
2 x 4	X08	6.00	0.236	8.00	0.315
2 x 5	X10	8.00	0.315	10.00	0.394
2 x 6	X12	10.00	0.394	12.00	0.472
2 x 7	X14	12.00	0.472	14.00	0.551
2 x 8	X16	14.00	0.551	16.00	0.630
2 x 9	X18	16.00	0.630	18.00	0.709
2 x 10	X20	18.00	0.709	20.00	0.787
2 x 11	X22	20.00	0.787	22.00	0.866
2 x 12	X24	22.00	0.866	24.00	0.945
2 x 13	X26	24.00	0.945	26.00	1.024
2 x 14	X28	26.00	1.024	28.00	1.102
2 x 15	X30	28.00	1.102	30.00	1.181
2 x 16	X32	30.00	1.181	32.00	1.260
2 x 17	X34	32.00	1.260	34.00	1.339
2 x 18	X36	34.00	1.339	36.00	1.417
2 x 19	X38	36.00	1.417	38.00	1.496
2 x 20	X40	38.00	1.496	40.00	1.575
2 x 21	X42	40.00	1.575	42.00	1.654
2 x 22	X44	42.00	1.654	44.00	1.732
2 x 23	X46	44.00	1.732	46.00	1.811
2 x 24	X48	46.00	1.811	48.00	1.890
2 x 25	X50	48.00	1.890	50.00	1.969

Pin length and polarization may be customized to suit individual applications.

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

**Description**  
**Vertical Surface-Mount Stacking Header**



**Ordering Data**  
**Vertical Surface-Mount Stacking Header**  
**Part Number 92813**

Notes:

- 1 - Housing material is glass-filled PCT, color cream.
- 2 - Stacking headers are customer specific due to the need to fix a certain board-to-board distance. As such a dash number is indicated to match the specific requirements.

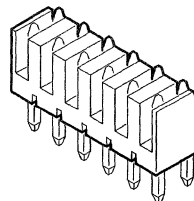
No. of Positions	Dash Number	Dimension X		Dimension Y		Dimension Z		Dimension A		Dimension B		Dimension W		Plating
		mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	
2 x 7	004	12.00	0.472	14.00	0.551	10.00	0.394	3.40	0.134	2.00	0.079	2.00	0.079	0.38 $\mu$ m (15 $\mu$ in.) Au
2 x 8	005	14.00	0.551	16.00	0.630	12.00	0.472	3.40	0.134	2.00	0.079	2.00	0.079	0.38 $\mu$ m (15 $\mu$ in.) Au
2 x 8	002	14.00	0.551	16.00	0.630	12.00	0.472	3.40	0.134	5.40	0.213	2.10	0.083	0.38 $\mu$ m (15 $\mu$ in.) GXT™
2 x 15	003	28.00	1.102	30.00	1.181	26.00	1.024	3.50	0.138	6.50	0.256	2.40	0.094	0.38 $\mu$ m (15 $\mu$ in.) GXT™
2 x 19	001	36.00	1.417	38.00	1.496	34.00	1.339	3.40	0.134	5.40	0.213	2.10	0.083	0.38 $\mu$ m (15 $\mu$ in.) GXT™



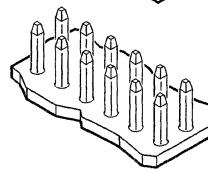
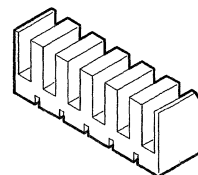
# Unshrouded Headers

2.00 x 2.00 mm (0.079 x 0.079 in.)  
Centerlines

## Minitek™ Vertical Preloaded Pin Carrier



BEFORE SOLDERING



AFTER SOLDERING

A183396-0496

### Features

- Preloaded pin carrier allows closer board-to-board spacing using receptacles and shunts.
- 0.50 mm (0.020 in.) square drawn wire pin provides four smooth mating surfaces.
- 2 x 2 through 2 x 10 positions.
- Maximum 2 x 10 size permits easy housing removal after soldering
- Can be stacked end-to-end on 2.00 mm (0.079 in.) pitch
- Standard solder tail for 1.60 mm (0.062 in.) thick circuit board
- 2.00 mm (0.079 in.) mating pin length is suitable for 2.10 mm (0.083 in.), 2.30 mm (0.091 in.), 3.00 mm (0.118 in.), and 4.00 mm (0.157 in.) tall top-entry vertical receptacles.
- 4.00 mm (0.157 in.) mating pin length is suitable for 4.50 mm (0.177 in.) tall top-entry vertical receptacles, crimp-to-wire receptacles, IDC receptacles and shunts.

### Options

- Polarization by omitting pins.
- Custom mating pin and solder tail lengths.


### Mating Data


Berg Electronics Products	Page
▪ Minitek™ board-mounted receptacles . . . . .	9-26 to 9-37
▪ Minitek™ shunt . . . . .	9-24
▪ Minitek™ crimp-to-wire receptacle and housing assembly . . . . .	9-43 to 9-46
▪ Minitek™ 2.00 mm (0.079 in.) IDC receptacles . . . . .	9-48

### Specifications

- JIS-5020
- MIL-STD-202

### Approvals and Certifications

 File no. E66906

 File no. LR46923

### Technical Data

#### Materials

- Standard housing . . . . . Glass-filled nylon (UL 94 V-0)
  - ▶ Color . . . . . Black
  - ▶ Applicable soldering processes . . . . . wave
- Pin . . . . . Phosphor-bronze

#### Operating Environment

- Temperature range . . . . . Nylon: -40°C to +105°C

#### Plating

- Underplate . . . . . 1.27 µm (50 µin.) min nickel
- Finish
  - ▶ Pin . . . . . 0.20 µm (8 µin.) min gold or 0.76 µm (30 µin.) min gold or 0.38 µm (15 µin.) min GXT™

#### Electrical Performance

- Insulation resistance . . . . . 1000 MΩ min
- Withstanding voltage . . . . . 650 V rms
- Current rating . . . . . 2 amp continuous
- Contact resistance . . . . . 25 mΩ max
- Voltage rating . . . . . 200 V ac/dc

#### Mechanical Performance

- Durability (mating cycles) . . . . . 100

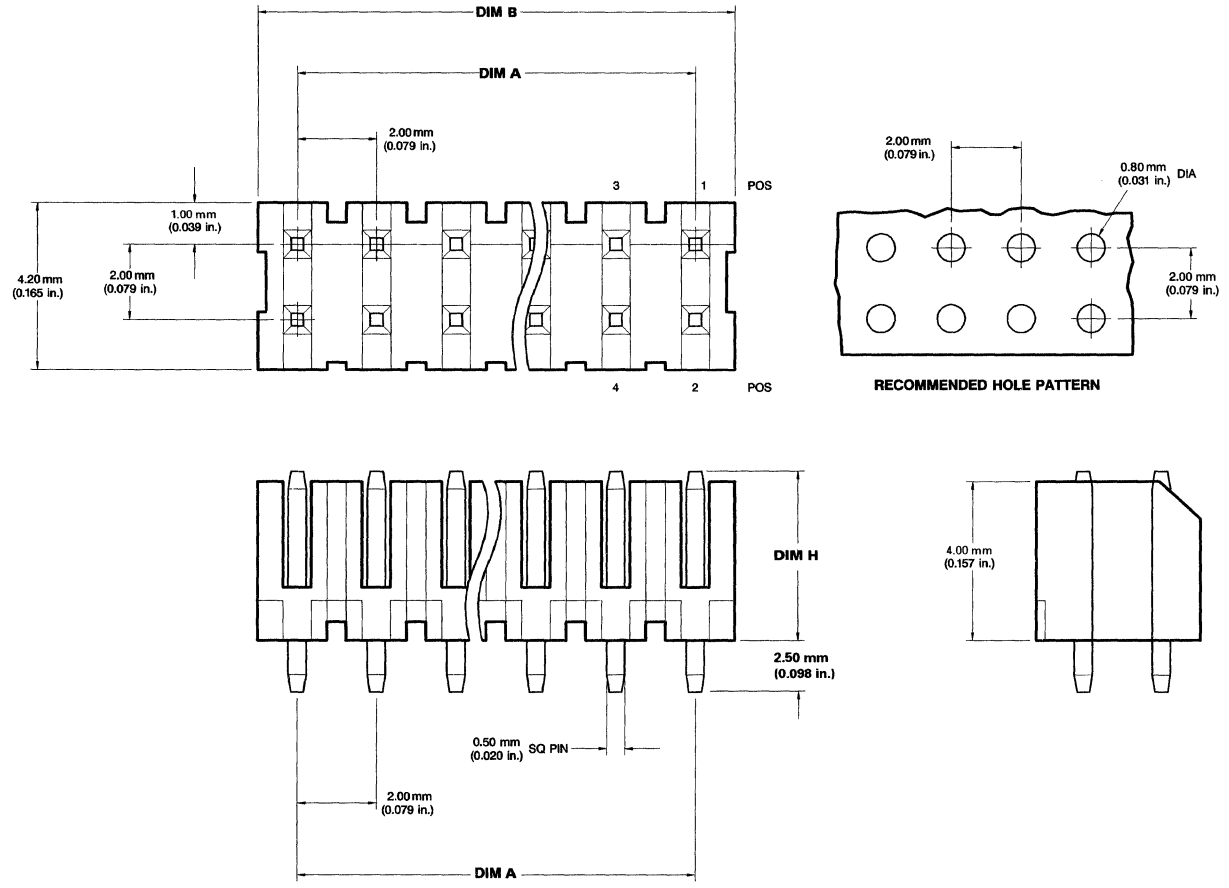
#### Packaging

- Bags

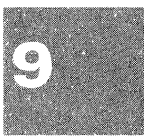
### Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawings . . . . .	By Part No.	Product Bulletin . . . . .	950522-001
Product Samples . . . . .	By Part No.	Product Specifications . . . . .	DPS-12-011

### Description Vertical Preloaded Pin Carrier



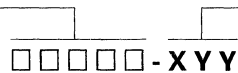
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### Ordering Data Vertical Preloaded Pin Carrier

Base number specifies configuration.

Dash number specifies plating (X),  
number of positions, and pin lengths (YY).



		X: Plating					
		0 = 0.20 µm (8 µin.) gold		1 = 0.76 µm (30 µin.) gold		5 = 0.38 µm (15 µin.) GXT™	
No. of Positions	Product Number	Dimension A		Dimension B		Dimension H	
		mm	in.	mm	in.	mm	in.
2 x 2	94268-X04	2.00	0.079	4.00	0.157	2.00	0.079
2 x 2	87139-X14	2.00	0.079	4.00	0.157	4.00	0.157
2 x 3	94268-X06	4.00	0.157	6.00	0.236	2.00	0.079
2 x 4	94268-X08	6.00	0.236	8.00	0.315	2.00	0.079
2 x 4	87139-X20	6.00	0.236	8.00	0.315	4.00	0.157
2 x 5	94268-X10	8.00	0.315	10.00	0.394	2.00	0.079
2 x 5	87139-X21	8.00	0.315	10.00	0.394	4.00	0.157
2 x 6	94268-X12	10.00	0.394	12.00	0.472	2.00	0.079
2 x 7	94268-X14	12.00	0.472	14.00	0.551	2.00	0.079
2 x 8	94268-X16	14.00	0.551	16.00	0.630	2.00	0.079
2 x 9	94268-X18	16.00	0.630	18.00	0.709	2.00	0.079
2 x 10	94268-X20	18.00	0.709	20.00	0.787	2.00	0.079
2 x 10	87139-X13	18.00	0.709	20.00	0.787	4.00	0.157

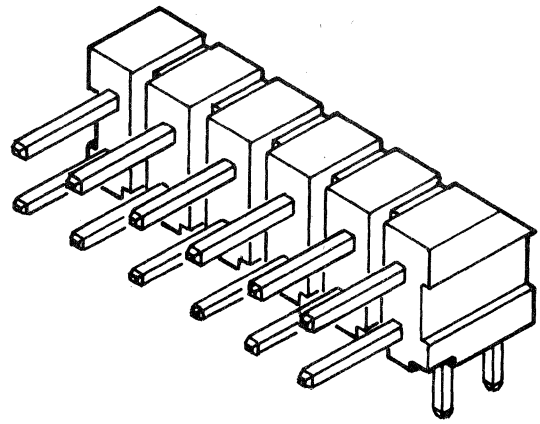
Pin length and polarization may be customized to suit individual applications.

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

# Unshrouded Headers

2.00 x 2.00 mm (0.079 x 0.079 in.)  
Centerlines

## Minitek™ Right-Angle Through-Mount Headers



### Features

- 2 x 2 through 2 x 25 positions.
- 0.50 mm (0.020 in.) square drawn wire pin provides four smooth mating surfaces.
- Standard solder tail lengths for up to 2.40 mm (0.093 in.) thick printed circuit boards.
- Available short solder tails eliminate lead trimming on flex circuit assemblies or thin circuit boards
- High temperature versions have 0.40 mm (0.016 in.) standoffs to prevent the formation of solder balls when reflow soldering through-mount connectors.
- Standoffs provide clearance for easy cleaning after soldering.

### Options

- High-temperature plastic for reflow soldering
- PCB standoffs
- Polarization by omitting pins.
- Variable mating pin and solder tail lengths.
- Retentive leg solder tails to hold header firmly in place during soldering process.

### Mating Data



Berg Electronics Products	Page
▪ Minitek™ board-mounted receptacles .....	9-26 to 9-37
▪ Minitek™ shunt .....	9-24

- Minitek™ crimp-to-wire receptacle and housing assembly .. 9-43 to 9-46
- Minitek™ 2.00 mm (0.079 in.) IDC receptacles..... 9-48

### Specifications

- JIS-5020
- MIL-STD-202

### Approvals and Certifications

-  File no. E66906
-  File no. LR46923

### Technical Data

#### Materials

- Standard housing .....
- ▶ Color .....
  - ▶ Applicable soldering processes.....
- High-temperature housing.....
- ▶ Color .....
  - ▶ Applicable soldering processes. Wave, IR, vapor-phase
- Pin .....

#### Operating Environment

- Temperature range..... Nylon: -40°C to +105°C  
PCT: -55°C to +125°C

#### Plating

- Underplate .....
- Finish
  - ▶ Pin .....

#### Electrical Performance

- Insulation resistance..... 1000 MΩ min
- Withstanding voltage .....
- Current rating .....
- Contact resistance .....
- Voltage rating .....

#### Mechanical Performance

- Durability (mating cycles) .....

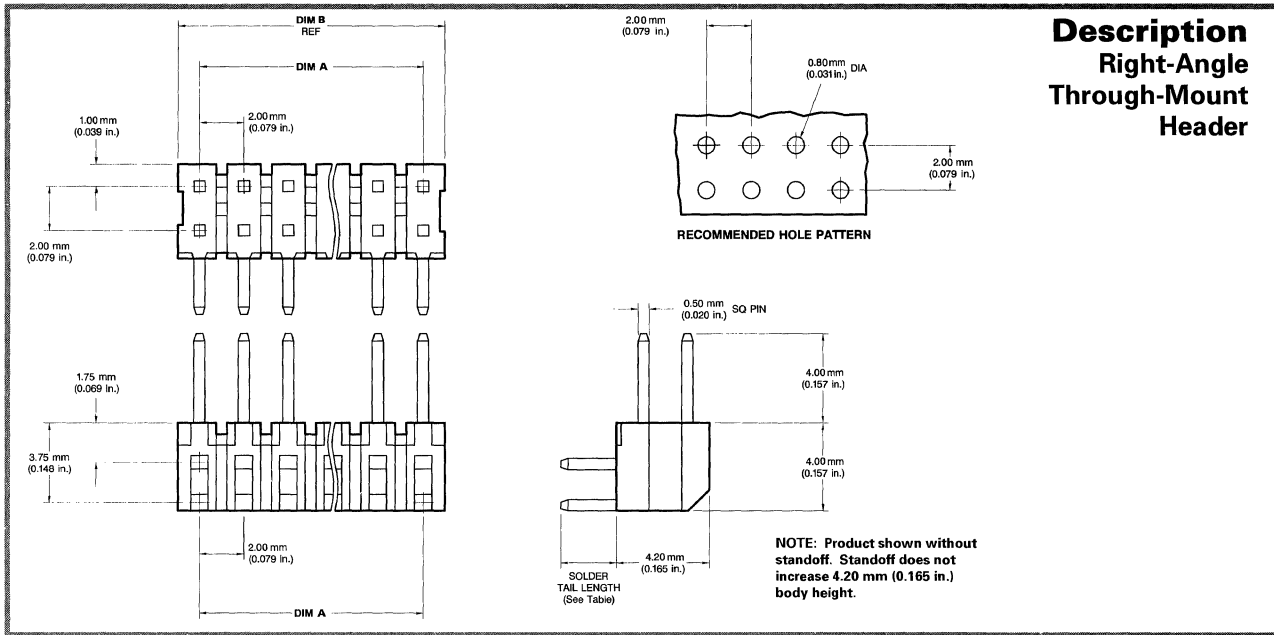
#### Packaging

- Bags

### Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawings.....	By Part No.	Product Bulletin.....	950522-001
Product Samples .....	By Part No.	Product Specifications .....	DPS-12-011

### Description Right-Angle Through-Mount Header



### Ordering Data Headers

Base number specifies configuration, solder tail length, and housing material.

Dash number specifies plating (X) and number of positions (YY).

□ □ □ □ □ - X Y Y

Standoffs		Base Number	Solder Tail Length		Housing Material
mm	in.		mm	in.	
0.40	0.016	94276	1.20	0.047	Glass-filled PCT
0.40	0.016	94277	3.00	0.118	Glass-filled PCT
None		86454	0.76	0.030	Glass-filled Nylon
None		94271	2.50	0.098	Glass-filled PCT

#### Dash Number

##### X: Plating

No. of Positions	Dash Number	1 = 0.76 μm (30 μin.) gold		5 = 0.38 μm (15 μin.) GXT™	
		Dimension A		Dimension B	
		mm	in.	mm	in.
2 x 2	X04	2.00	0.079	4.00	0.157
2 x 3	X06	4.00	0.157	6.00	0.236
2 x 4	X08	6.00	0.236	8.00	0.315
2 x 5	X10	8.00	0.315	10.00	0.394
2 x 6	X12	10.00	0.394	12.00	0.472
2 x 7	X14	12.00	0.472	14.00	0.551
2 x 8	X16	14.00	0.551	16.00	0.630
2 x 9	X18	16.00	0.630	18.00	0.709
2 x 10	X20	18.00	0.709	20.00	0.787
2 x 11	X22	20.00	0.787	22.00	0.866
2 x 12	X24	22.00	0.866	24.00	0.945
2 x 13	X26	24.00	0.945	26.00	1.024
2 x 14	X28	26.00	1.024	28.00	1.102
2 x 15	X30	28.00	1.102	30.00	1.181
2 x 16	X32	30.00	1.181	32.00	1.260
2 x 17	X34	32.00	1.260	34.00	1.339
2 x 18	X36	34.00	1.339	36.00	1.417
2 x 19	X38	36.00	1.417	38.00	1.496
2 x 20	X40	38.00	1.496	40.00	1.575
2 x 21	X42	40.00	1.575	42.00	1.654
2 x 22	X44	42.00	1.654	44.00	1.732
2 x 23	X46	44.00	1.732	46.00	1.811
2 x 24	X48	46.00	1.811	48.00	1.890
2 x 25	X50	48.00	1.890	50.00	1.969

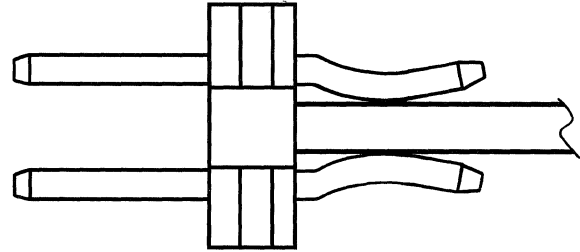
Pin length and polarization may be customized to suit individual applications.

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

# Straddle-Mount Headers

2.00 x 2.00 mm (0.079 x 0.079 in.)  
Centerlines

## Minitek™ Straddle-Mount Headers



### Features

- 2 x 2 through 2 x 25 positions.
- 0.50 mm (0.020 in.) square drawn wire pin provides four smooth mating surfaces.
- High-temperature plastic for hand, wave, or reflow soldering
- Attaches to 0.80 mm (0.032 in.) thick printed circuit board
- Straddle-mount connector reduces Z-height of circuit board package.
- Formed solder tails hold header firmly in place during soldering process.

### Options

- Polarization by omitting pins.
- Different mating pin or solder tail lengths.
- Straddle-mount for different board thicknesses.

### Mating Data

- Designed for attachment to 0.80 mm (0.032 in.) thick printed circuit board.


#### Berg Electronics Products Page


- Minitek™ board-mounted receptacles . . . . . 9-26 to 9-37
- Minitek™ shunt . . . . . 9-24
- Minitek™ crimp-to-wire receptacle and housing assembly . . . . . 9-43 to 9-46
- Minitek™ 2.00 mm (0.079 in.) IDC receptacles . . . . . 9-48

### Specifications

- JIS-5020
- MIL-STD-202

### Approvals and Certifications

 File no. E66906

 File no. LR46923

### Technical Data

#### Materials

- High-temperature housing . . . . . Glass-filled PCT (UL 94 V-0)
  - ▶ Color . . . . . Cream
  - ▶ Applicable soldering processes Wave, IR, vapor-phase
- Pin . . . . . Phosphor-bronze

#### Operating Environment

- Temperature range . . . . . PCT: -55°C to +125°C

#### Plating

- Underplate . . . . . 1.27 µm (50 µin.) min nickel
- Finish
  - ▶ Pin . . . . . 0.20 µm (8 µin.) min gold or 0.76 µm (30 µin.) min gold or 0.38 µm (15 µin.) min GXT™

#### Electrical Performance

- Insulation resistance . . . . . 1000 MΩ min
- Withstanding voltage . . . . . 650 V rms
- Current rating . . . . . 2 amp continuous
- Contact resistance . . . . . 25 mΩ max
- Voltage rating . . . . . 200 V ac/dc

#### Mechanical Performance

- Durability (mating cycles) . . . . . 100

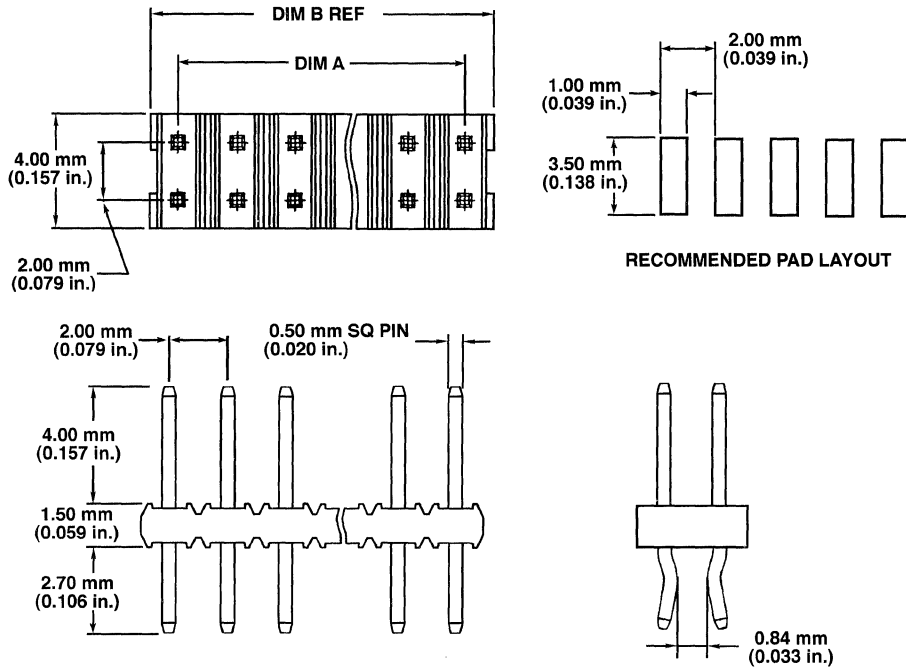
#### Packaging

- Bags

### Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawings . . . . .	By Part No.	Product Bulletin . . . . .	950522-001
Product Samples . . . . .	By Part No.	Product Specifications . . . . .	DPS-12-011

### Description Straddle-Mount Header



### Ordering Data Straddle-Mount Header Part Number 91733

Dash number specifies plating (X)  
and number of positions (YY).

**9 1 7 3 3 - X Y Y**

		Dash Number					
		X: Plating					
		0 = 0.20 μm (8 μin.) gold		1 = 0.76 μm (30 μin.) gold		5 = 0.38 μm (15 μin.) GXT™	
No. of Positions	Dash Number	Dimension A		Dimension B			
		mm	in.	mm	in.		
2 x 2	X04	2.00	0.079	4.00	0.157		
2 x 3	X06	4.00	0.157	6.00	0.236		
2 x 4	X08	6.00	0.236	8.00	0.315		
2 x 5	X10	8.00	0.315	10.00	0.394		
2 x 6	X12	10.00	0.394	12.00	0.472		
2 x 7	X14	12.00	0.472	14.00	0.551		
2 x 8	X16	14.00	0.551	16.00	0.630		
2 x 9	X18	16.00	0.630	18.00	0.709		
2 x 10	X20	18.00	0.709	20.00	0.787		
2 x 11	X22	20.00	0.787	22.00	0.866		
2 x 12	X24	22.00	0.866	24.00	0.945		
2 x 13	X26	24.00	0.945	26.00	1.024		
2 x 14	X28	26.00	1.024	28.00	1.102		
2 x 15	X30	28.00	1.102	30.00	1.181		
2 x 16	X32	30.00	1.181	32.00	1.260		
2 x 17	X34	32.00	1.260	34.00	1.339		
2 x 18	X36	34.00	1.339	36.00	1.417		
2 x 19	X38	36.00	1.417	38.00	1.496		
2 x 20	X40	38.00	1.496	40.00	1.575		
2 x 21	X42	40.00	1.575	42.00	1.654		
2 x 22	X44	42.00	1.654	44.00	1.732		
2 x 23	X46	44.00	1.732	46.00	1.811		
2 x 24	X48	46.00	1.811	48.00	1.890		
2 x 25	X50	48.00	1.890	50.00	1.969		

Pin length and polarization may be customized to suit individual applications.

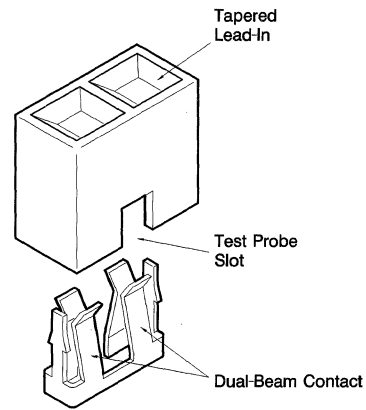
Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.



# Shunts

2.00 x 2.00 mm (0.079 x 0.079 in.)  
Centerlines

## Minitek™ Shunts



A18398-0499

### Features

- 1-row, 2 positions
- Reliable, cost effective alternative to switches for on-board programming
- Early-entry, dual-beam contacts provide long wiping action for reliable electrical contact
- closed front and beveled lead-in ramps at receptacle openings protect against contact damage
- Housing stands just 3.50 mm (0.137 in.) tall permitting close board-to-board spacing
- Test probe slot
- shunts can be stacked end-to-end and side-by-side on 2.00 mm (0.079 in.) pitch

- Gold plating in contact areas
- Retention barbs stabilize the terminal within the housing

### Options

- Blue housing color

### Mating Data

Mates with 0.50 mm (0.020 in.) square pin  $\geq$  3.50 mm (0.138 in.) long.


### Berg Electronics Products Page


- Minitek™ unshrouded headers . . . . . 9-8 to 9-21

### Specifications

- JIS-5020
- MIL-STD-202

### Approvals and Certifications

 File no. E66906

 File no. LR46923

### Technical Data

#### Materials

- Housing . . . . . Glass-filled PBT (UL 94 V-0)
  - ▶ Color . . . . . Black
- Terminal . . . . . Phosphor-bronze

#### Mechanical Performance

- Insertion force per contact . . . . . 6.41 N (650 gf) max
- Withdrawal force per contact . . . . . 0.49 N (50 gf) min
- Contact retention . . . . . 6.86 N (700 gf) min
- Durability (mating cycles) . . . . . 50  
for 0.76  $\mu$ m (30 $\mu$ in.) gold

#### Electrical Performance

- Insulation resistance . . . . . 1000 M $\Omega$  min
- Withstanding voltage . . . . . 650 V rms
- Current rating . . . . . 1 amp continuous
- Contact resistance . . . . . 20 m $\Omega$  max
- Voltage rating . . . . . 200 V ac

#### Plating

- Underplate . . . . . 1.27  $\mu$ m (50  $\mu$ in.) min nickel
- Finish . . . . . 0.20  $\mu$ m (8  $\mu$ in.) min gold  
or 0.76  $\mu$ m (30  $\mu$ in.) min gold

#### Operating Environment

- Temperature range . . . . . -40°C to +105°C

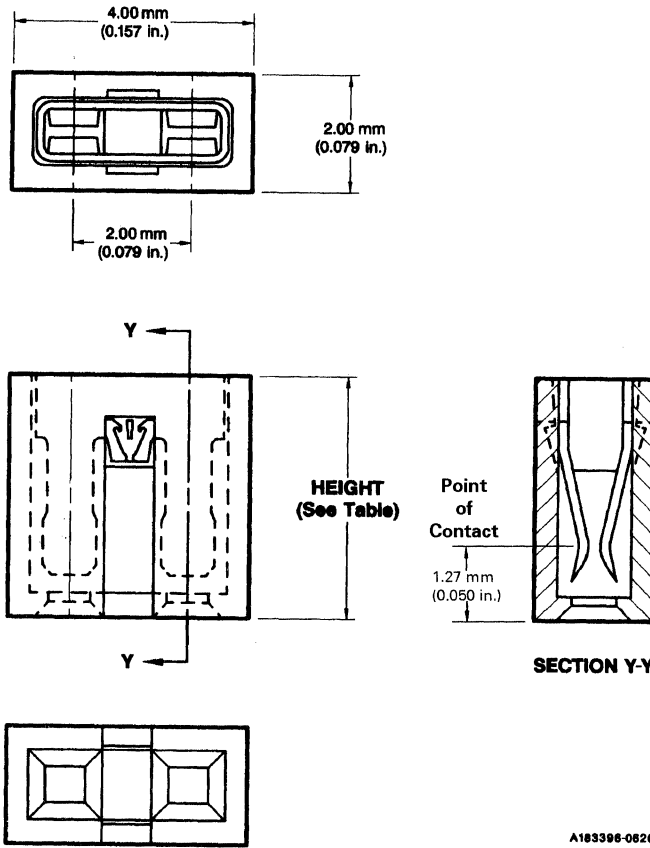
#### Packaging

- Bags

### Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawings . . . . .	By Part No.	Product Bulletin . . . . .	950522-001
Product Samples . . . . .	By Part No.	Product Specifications . . . . .	DPS-12-012

**Description**  
Shunt



**Ordering Data**  
Shunt

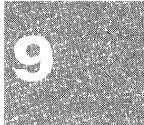
Base number specifies height of shunt.

Dash number specifies contact plating (XX) and color (Y).

□ □ □ □ □ - X X Y

<b>XX: Terminal Plating</b>	<b>Y: Color</b>
00 = 0.20 μm (8 μin.) min gold overplate	1 black
10 = 0.76 μm (30 μin.) min gold overplate	
<b>Base Number</b>	<b>Height</b>
86730	3.50 mm (0.138 in.)

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

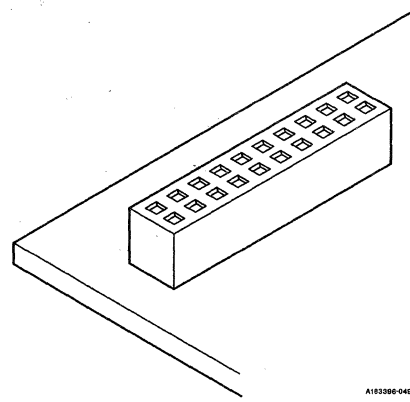




# PCB Mounted Receptacles

2.00 x 2.00 mm (0.079 x 0.079 in.) Centerlines

**Minitek™ Vertical Receptacles**  
**Top-Entry, Through-Mount,**  
**4.50 mm (0.177 in.) Body Height**



A103300-0407

## Features

- 2 x 2 through 2 x 25 positions
- Closed front and beveled lead-in ramps at receptacle openings protect against contact damage
- Housing stands 4.50 mm (0.177 in.) tall permitting close board-to-board spacing
- Dual-beam contact design for reliable electrical performance
- Duplex-plated with gold finish in contact areas and tin-lead in solder areas
- Standoffs provide clearance for easy cleaning after soldering
- Packaged in tubes for protection
- Available short solder tails eliminate lead-trimming on flex circuit assemblies

## Options

- High temperature plastic compatible with reflow soldering.
- Polarization through molded-in position or post inserted plug.
- Center key for latching with Minitek™ shrouded headers

## Mating Data

Mates with 0.50 mm (0.020 in.) square pin 4.00 mm (0.157 in.) long.


### Berg Electronics Products Page


- Minitek™ unshrouded headers..... 9-8 to 9-21
- Minitek™ shrouded headers..... 9-38 to 9-39
- Minitek™ straddle-mount headers..... 9-22

## Specifications

- JIS-5020
- MIL-STD-202

## Approvals and Certifications

 File no. E66906

 File no. LR46923

## Technical Data

### Materials

- Standard Housing..... Glass-filled PBT (UL 94 V-0)
  - ▶ Color ..... Black
  - ▶ Applicable soldering processes..... wave
- High-temperature housing..... Glass-filled PCT (UL 94 V-0)
  - ▶ Color ..... Cream
  - ▶ Applicable soldering processes. Wave, IR, vapor-phase
- Receptacle..... Phosphor-bronze

### Mechanical Performance

- Insertion force..... 1.8 N (180 gf) max per contact
- Withdrawal force..... 0.20 N (20 gf) min per contact
- Terminal retention force..... 4.9 N (500 gf) min
- Durability (mating cycles)..... 100

### Electrical Performance

- Insulation resistance..... 1000 MΩ min

- Withstanding voltage..... 650 V rms
- Current rating..... 2 amp continuous
- Contact resistance..... 25 mΩ max
- Voltage rating..... 200 V ac/dc

### Plating

- Underplate..... 1.27 μm (50 μin.) min nickel
- Finish
  - ▶ Contact area..... 0.20 μm (8 μin.) min gold or 0.76 μm (30 μin.) min gold
  - ▶ Solder area..... 1.5 μm (60 μin.) min tin-lead

### Operating Environment

- Temperature range..... PBT: -40°C to +105°C  
PCT: -55°C to +105°C

### Packaging

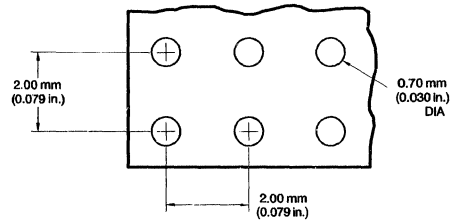
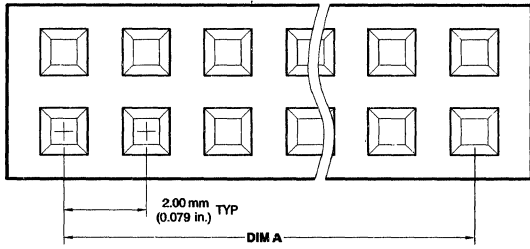
- Tubes

## Customer Support Materials

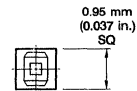
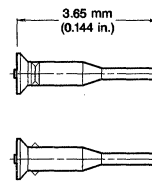
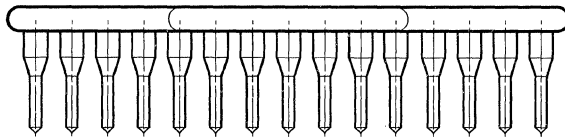
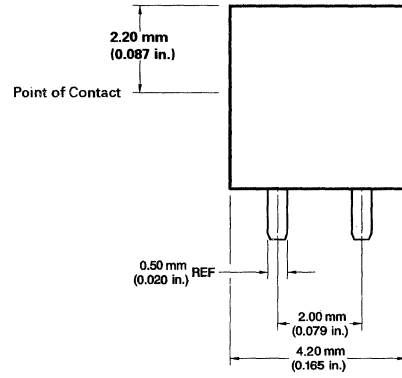
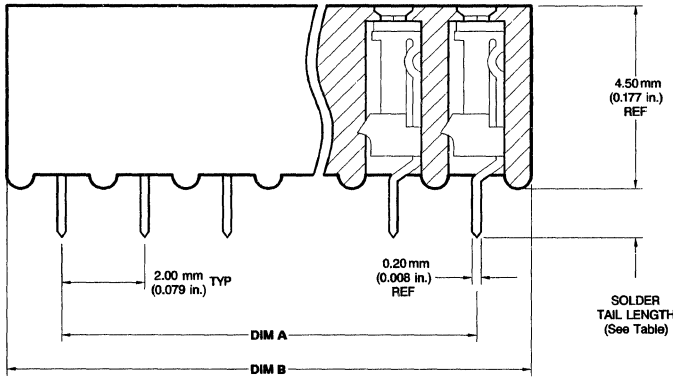
Description	Order No.	Description	Order No.
Customer Product Drawings.....	By Part No.	Product Bulletin.....	950522-001
Product Samples.....	By Part No.	Product Specifications.....	DPS-12-011

### Description Vertical Receptacles

Through-Mount, Top-Entry, Unkeyed 4.50 mm (0.177 in.) Body Height



RECOMMENDED HOLE PATTERN



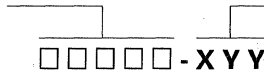
POST INSERTED POLARIZATION PLUG 90543-001

A183206-0466

**PCB Mounted Receptacles**  
**2.00 x 2.00 mm (0.079 x 0.079 in.)**

**Ordering Data**  
**Vertical Receptacles**

Base number specifies configuration, solder tail length, and housing material.



Dash number specifies contact finish (X) and number of positions (YY).

Base Number	Solder Tail Length		Housing Material	Color
	mm	in.		
86991	1.27	0.050	Glass-filled PBT	Black
87175	1.27	0.050	Glass-filled PCT	Cream
86456	1.50	0.059	Glass-filled PBT	Black
87174	1.50	0.059	Glass-filled PCT	Cream
86455	2.50	0.098	Glass-filled PBT	Black
87173	2.50	0.098	Glass-filled PCT	Cream

**Dash Number**  
**X: Contact Finish**

0 = 0.20 µm (8 µin.) gold

1 = 0.76 µm (30 µin.) gold

No. of Positions	Dash Number	Dimension A		Dimension B	
		mm	in.	mm	in.
2 x 2	X04	2.00	0.079	4.80	0.189
2 x 3	X06	4.00	0.157	6.80	0.268
2 x 4	X08	6.00	0.236	8.80	0.346
2 x 5	X10	8.00	0.315	10.80	0.425
2 x 6	X12	10.00	0.394	12.80	0.504
2 x 7	X14	12.00	0.472	14.80	0.583
2 x 8	X16	14.00	0.551	16.80	0.661
2 x 9	X18	16.00	0.630	18.80	0.740
2 x 10	X20	18.00	0.709	20.80	0.819
2 x 11	X22	20.00	0.787	22.80	0.898
2 x 12	X24	22.00	0.866	24.80	0.976
2 x 13	X26	24.00	0.945	26.80	1.055
2 x 14	X28	26.00	1.024	28.80	1.134
2 x 15	X30	28.00	1.102	30.80	1.213
2 x 16	X32	30.00	1.181	32.80	1.291
2 x 17	X34	32.00	1.260	34.80	1.370
2 x 18	X36	34.00	1.339	36.80	1.449
2 x 19	X38	36.00	1.417	38.80	1.528
2 x 20	X40	38.00	1.496	40.80	1.606
2 x 21	X42	40.00	1.575	42.80	1.685
2 x 22	X44	42.00	1.654	44.80	1.764
2 x 23	X46	44.00	1.732	46.80	1.843
2 x 24	X48	46.00	1.811	48.80	1.921
2 x 25	X50	48.00	1.890	50.80	2.000

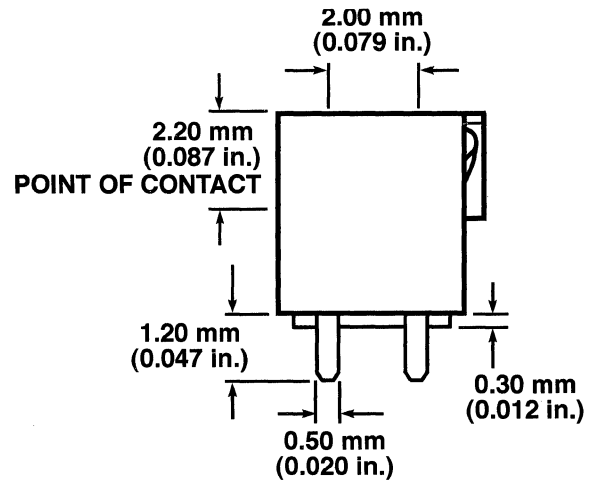
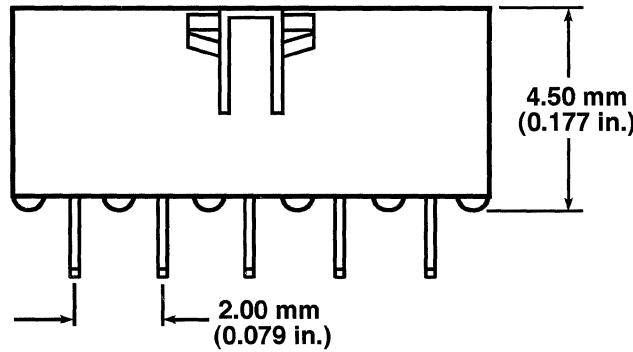
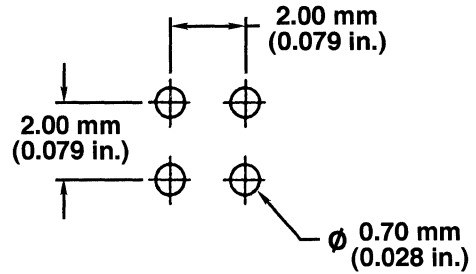
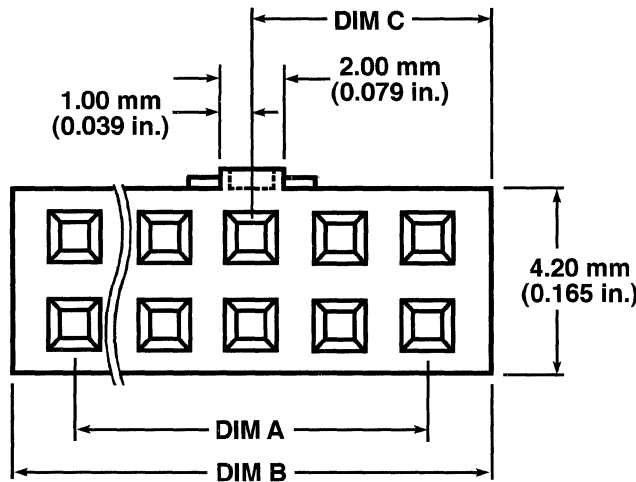
Selected positions may be molded in/polarized on request.

For polarization through post inserted plug, order part number 90543-001.

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

**Description**  
**Vertical Receptacles**

**Top-Entry, Through-Mount, Keyed 4.50 mm (0.177 in.) Body Height**



**Ordering Data**  
**Part Number 90310**

Dash number specifies contact finish (X) and number of positions (YY).

**90310 - XYY**

Note: Housing material is glass-filled PCT, color cream.

**Dash Number**

**X: Contact Finish**

0 = 0.20  $\mu$ m (8  $\mu$ in.) gold

1 = 0.76  $\mu$ m (30  $\mu$ in.) gold

No. of Positions	Dash Number	Dimension A		Dimension B		Dimension C	
		mm	in.	mm	in.	mm	in.
2 x 2*	X04	2.00	0.079	4.80	0.189	2.40	0.094
2 x 4	X08	6.00	0.236	8.80	0.346	4.40	0.173
2 x 14	X28	26.00	1.024	28.80	1.134	14.40	0.567

\* Note: 2 x 2 has single latching tab and no center key.

Selected positions may be molded in/polarized on request.

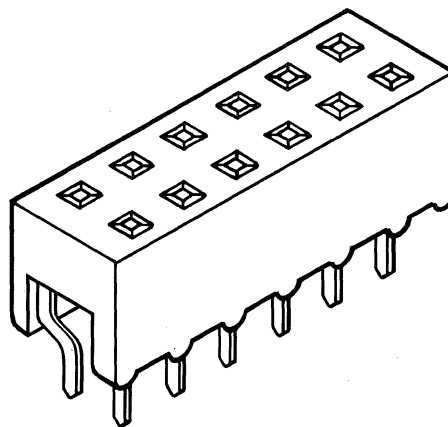
For polarization through post inserted plug, order part number 90543-001.

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

# PCB Mounted Receptacles

2.00 x 2.00 mm (0.079 x 0.079 in.) Centerlines

**Minitek™ Vertical Receptacles**  
**Top-Entry, Through-Mount 3.00 mm (0.118 in.) and 4.00 mm (0.157 in.) Body Heights**



## Features

- 2 x 2 through 2 x 15 positions.
- Early-entry dual-beam contacts provide long wiping action for reliable electrical contact
- Closed front and beveled lead-in ramps at receptacle openings protect against contact damage
- Housing stands just 3.00 mm (0.118 in.) or 4.00 mm (0.157 in.) tall permitting close board-to-board spacing.
- Duplex-plated contact with gold finish in contact areas and tin-lead in solder areas
- Can be stacked end-to-end on 2.00 mm (0.079 in.) pitch
- High temperature plastic withstands reflow soldering temperatures.
- Packaged in tubes for protection

## Options

- Polarization through molded-in position.
- Locating posts.

## Mating Data

Mates with 0.50 mm (0.020 in.) square pin 2.00 mm (0.079 in.) long.


### Berg Electronics Products Page


- Minitek™ unshrouded headers . . . . . 9-8 to 9-21
- Minitek™ straddle-mount headers . . . . . 9-22
- Minitek™ pins (in pre-loaded pin carrier) . . . . . 9-18

## Specifications

- JIS-5020
- MIL-STD-202

## Approvals and Certifications

 File no. E66906

 File no. LR46923

## Technical Data

### Materials

- High-temperature housing. . . . . Glass-filled PCT (UL 94 V-0)
  - ▶ Color . . . . . Black
  - ▶ Applicable soldering processes. . . . . IR, vapor-phase
- Receptacle . . . . . Beryllium copper

### Mechanical Performance

- Insertion force . . . . . 1.95 N (200 gf) max per contact
- Withdrawal force . . . . . 0.20 N (20 gf) min per contact
- Terminal retention force . . . . . 2.20 N (227 gf) min
- Durability (mating cycles) . . . . . 25

### Electrical Performance

- Insulation resistance . . . . . 1000 MΩ min
- Withstanding voltage . . . . . 500 V rms
- Current rating . . . . . 1 amp continuous
- Contact resistance . . . . . 20 mΩ max

### Plating

- Underplate . . . . . 1.27 μm (50 μin.) min nickel
- Finish
  - ▶ Contact area . . . . . 0.38 μm (15 μin.) min gold or 0.76 μm (30 μin.) min gold
  - ▶ Solder area . . . . . 2.54 μm (100 μin.) min tin-lead

### Operating Environment

- Temperature range . . . . . -55°C to +105°C

### Packaging

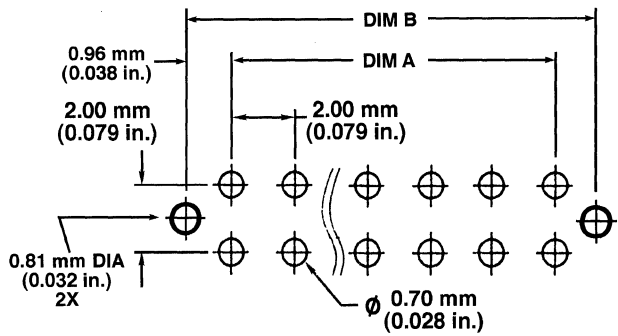
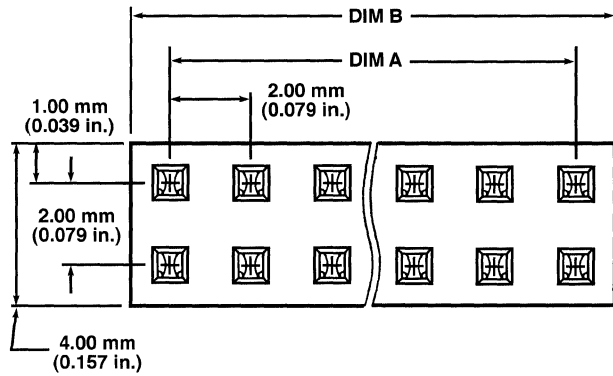
- Tubes

## Customer Support Materials

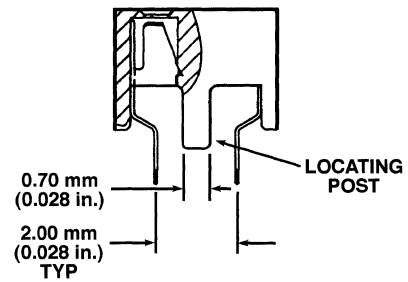
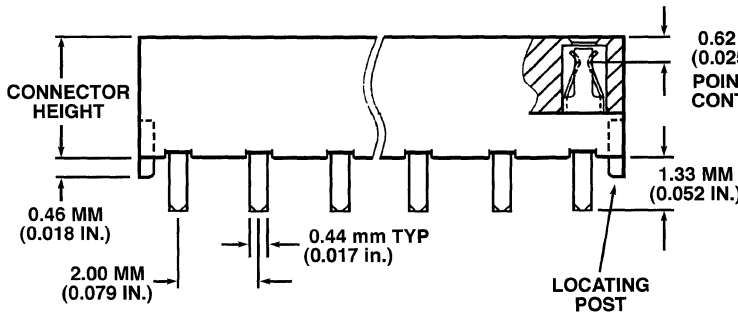
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Customer Product Drawings . . . . .	By Part No.	Product Bulletin . . . . .	950522-001
Product Samples . . . . .	By Part No.	Product Specifications . . . . .	GES-12-008

### Description

### Vertical, Top-Entry, Through-Mount Receptacle



RECOMMENDED HOLE PATTERN



NOTE: PRODUCT IS SHOWN WITH OPTIONAL LOCATING POSTS.

### Ordering Data

### Vertical, Top-Entry, Through-Mount Receptacle

Base number specifies housing configuration, solder tail length, and connector height.

□ □ □ □ □ - X Y Y

Dash number specifies contact finish (X) and number of positions (YY).

Base Number	Connector Height		Locating Posts
	mm	in.	
91803	3.00	0.118	no
92912	3.00	0.118	yes
91813	4.00	0.157	no
92091	4.00	0.157	yes

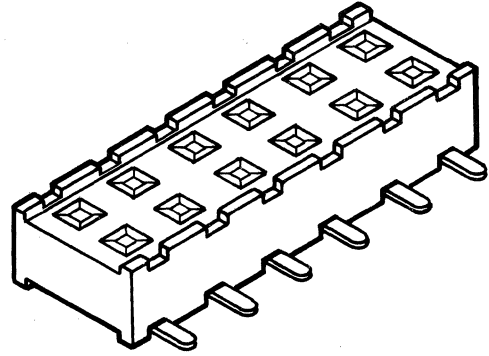
		X: Contact Finish			
		1 = 0.76 μm (30 μin.) gold		3 = 0.38 μm (15 μin.) gold	
No. of Positions	Dash Number	Dimension A		Dimension B	
		mm	in.	mm	in.
2 x 5	X10	8.00	0.315	9.92	0.391
2 x 6	X12	10.00	0.394	11.92	0.469
2 x 7	X14	12.00	0.472	13.92	0.548
2 x 8	X16	14.00	0.551	15.92	0.627
2 x 9	X18	16.00	0.630	17.92	0.706
2 x 10	X20	18.00	0.709	19.92	0.784
2 x 11	X22	20.00	0.787	21.92	0.863
2 x 12	X24	22.00	0.866	23.92	0.942
2 x 13	X26	24.00	0.945	25.92	1.020
2 x 14	X28	26.00	1.024	27.92	1.099
2 x 15	X30	28.00	1.102	29.92	1.178

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

# PCB Mounted Receptacles

2.00 x 2.00 mm (0.079 x 0.079 in.) Centerlines

**Minitek™ Vertical Receptacles**  
**Top-Entry, Surface-Mount**



## Features

- 2 x 2 through 2 x 15 positions.
- Early-entry dual-beam contacts provide long wiping action for reliable electrical contact
- Closed front and beveled lead-in ramps at receptacle openings protect against contact damage
- Low profile housing stands just 2.10 mm (0.083 in.) tall permitting close board-to-board spacing.
- Taller 2.30 mm (0.091 in.), 3.00 mm (0.118 in.) or 4.00 mm (0.157 in.) body heights can be used to provide additional clearance between boards for larger components.
- Duplex-plated contact with gold finish in contact areas and tin-lead in solder areas
- Can be stacked end-to-end on 2.00 mm (0.079 in.) pitch
- High temperature plastic withstands reflow soldering temperatures.

- Packaged in tubes for protection
- 0.10 mm (0.004 in.) coplanarity

## Options

- Tape-and-reel packaging
- Polarization through molded-in position.
- Locating posts.

## Mating Data


Mates with 0.50 mm (0.020 in.) square pin 2.00 mm (0.079 in.) long.


Berg Electronics Products	Page
▪ Minitek™ unshrouded headers.....	9-8 to 9-21
▪ Minitek™ straddle-mount headers.....	9-22
▪ Minitek™ pins (in pre-loaded pin carrier) .....	9-18

## Specifications

- JIS-5020
- MIL-STD-202

## Approvals and Certifications

 File no. E66906

 File no. LR46923

## Technical Data

### Materials

- High-temperature housing..... Glass-filled PCT (UL 94 V-0)
  - ▶ Color ..... Black
  - ▶ Applicable soldering processes..... IR, vapor-phase
- Receptacle..... Beryllium copper

### Mechanical Performance

- Insertion force..... 1.95 N (200 gf) max per contact
- Withdrawal force ..... 0.20 N (20 gf) min per contact
- Terminal retention force..... 2.20 N (227 gf) min
- Durability (mating cycles)..... 25

### Electrical Performance

- Insulation resistance..... 1000 MΩ min
- Withstanding voltage..... 500 V rms
- Current rating ..... 1 amp continuous
- Contact resistance ..... 20 mΩ max

### Plating

- Underplate..... 1.27 μm (50 μin.) min nickel
- Finish
  - ▶ Contact area ..... 0.38 μm (15 μin.) min gold or 0.76 μm (30 μin.) min gold
  - ▶ Solder area ..... 2.54 μm (100 μin.) min tin-lead

### Operating Environment

- Temperature range..... -55°C to +105°C

### Packaging

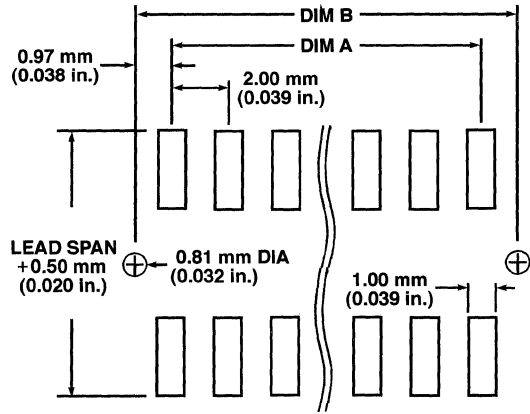
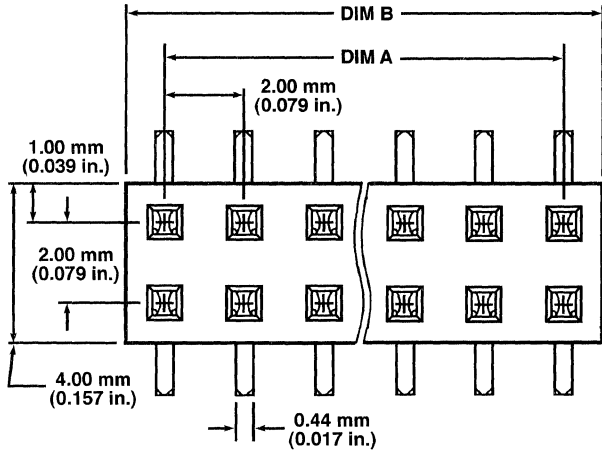
- Tubes
- Tape-and-reel (optional)

## Customer Support Materials

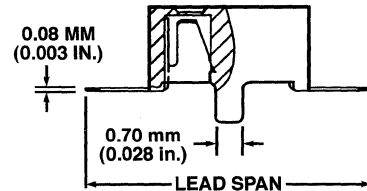
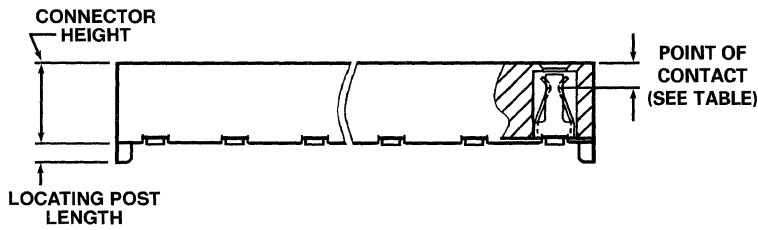
Description	Order No.	Description	Order No.
Customer Product Drawings.....	By Part No.	Product Bulletin.....	950522-001
Product Samples .....	By Part No.	Product Specifications .....	GES-12-008

### Description

### Vertical, Top-Entry, Surface Mount Receptacle



RECOMMENDED PAD LAYOUT



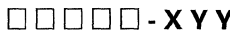
NOTE: PRODUCT IS SHOWN WITH OPTIONAL LOCATING POSTS.

### Ordering Data

### Vertical, Top-Entry, Surface Mount Receptacle

Base number specifies housing configuration, and connector height.

Dash number specifies contact finish (X) and number of positions (YY).



Add suffix "TR" to dash number for tape-and-reel packaging.

Base Number	Connector Height		Lead Span		Locating Post		Point of Contact	
	mm	in.	mm	in.	mm	in.	mm	in.
92844	2.10	0.083	6.78	0.267	N/A	N/A	0.62	0.025
92429	2.10	0.083	6.78	0.267	0.76	0.030	0.62	0.025
92431	2.10	0.083	6.78	0.267	0.30	0.012	0.62	0.025
91592	2.30	0.091	6.00	0.236	N/A	N/A	0.81	0.032
92082	2.30	0.091	6.78	0.267	0.30	0.012	0.81	0.032
92090	2.30	0.091	6.78	0.267	0.76	0.030	0.81	0.032
91802	3.00	0.118	6.00	0.236	N/A	N/A	0.62	0.025
92911	3.00	0.118	6.00	0.236	0.46	0.018	0.62	0.025
91812	4.00	0.157	6.00	0.236	N/A	N/A	0.62	0.025
92086	4.00	0.157	6.00	0.236	0.46	0.018	0.62	0.025

X: Contact Finish

1 = 0.76 μm (30 μ in.) gold

3 = 0.38 μm (15 μ in.) gold

No. of Positions	Dash Number	Dimension A		Dimension B		No. of Positions	Dash Number	Dimension A		Dimension B	
		mm	in.	mm	in.			mm	in.	mm	in.
2 x 2	X04	2.00	0.079	3.92	0.154	2 x 9	X18	16.00	0.630	17.92	0.706
2 x 3	X06	4.00	0.157	5.92	0.233	2 x 10	X20	18.00	0.709	19.92	0.784
2 x 4	X08	6.00	0.236	7.92	0.312	2 x 11	X22	20.00	0.787	21.92	0.863
2 x 5	X10	8.00	0.315	9.92	0.391	2 x 12	X24	22.00	0.866	23.92	0.942
2 x 6	X12	10.00	0.394	11.92	0.469	2 x 13	X26	24.00	0.945	25.92	1.020
2 x 7	X14	12.00	0.472	13.92	0.548	2 x 14	X28	26.00	1.024	27.92	1.099
2 x 8	X16	14.00	0.551	15.92	0.627	2 x 15	X30	28.00	1.102	29.92	1.178

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

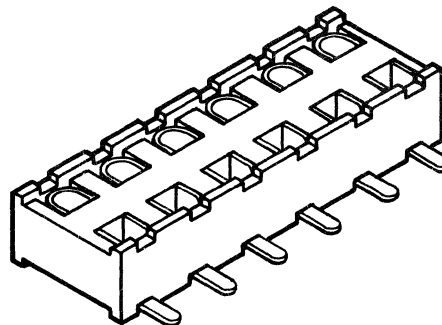




# PCB Mounted Receptacles

2.00 x 2.00 mm (0.079 x 0.079 in.)  
Centerlines

## Minitek™ Vertical Receptacles Bottom-Entry, Surface-Mount



### Features

- 2 x 2 through 2 x 15 positions.
- Early-entry dual-beam contacts provide long wiping action for reliable electrical contact
- Closed bottom and beveled lead-in ramps at receptacle openings protect against contact damage
- Housing stands just 2.30 mm (0.091 in.) tall permitting close board-to-board spacing.
- Duplex-plated contact with gold finish in contact areas and tin-lead in solder areas
- Can be stacked end-to-end on 2.00 mm (0.079 in.) pitch
- High temperature plastic withstands reflow soldering temperatures.
- Packaged in tubes for protection
- 0.10 mm (0.004 in.) coplanarity

### Options

- Tape-and-reel packaging
- Polarization through molded-in position.
- Locating posts.

### Mating Data

Mates with 0.50 mm (0.020 in.) square pin with pin length  $\geq$  to PC Board thickness plus 2.00 mm (0.079 in.)


#### Berg Electronics Products Page


- Minitek™ unshrouded headers . . . . . 9-8 to 9-21
- Minitek™ straddle-mount headers . . . . . 9-22
- Minitek™ pins (in pre-loaded pin carrier) . . . . . 9-18

### Specifications

- JIS-5020
- MIL-STD-202

### Approvals and Certifications

 File no. E66906

 File no. LR46923

### Technical Data

#### Materials

- High-temperature housing. . . . . Glass-filled PCT (UL 94 V-0)
  - ▶ Color . . . . . Black
  - ▶ Applicable soldering processes. . . . . IR, vapor-phase
- Receptacle . . . . . Beryllium copper

#### Mechanical Performance

- Insertion force . . . . . 1.95 N (200 gf) max per contact
- Withdrawal force . . . . . 0.20 N (20 gf) min per contact
- Terminal retention force. . . . . 2.20 N (227 gf) min
- Durability (mating cycles) . . . . . 25

#### Electrical Performance

- Insulation resistance. . . . . 1000 M $\Omega$  min
- Withstanding voltage . . . . . 500 V rms
- Current rating . . . . . 1 amp continuous
- Contact resistance . . . . . 20 m $\Omega$  max

#### Plating

- Underplate. . . . . 1.27  $\mu$ m (50  $\mu$ in.) min nickel
- Finish
  - ▶ Contact area . . . . . 0.38  $\mu$ m (15  $\mu$ in.) min gold or 0.76  $\mu$ m (30  $\mu$ in.) min gold
  - ▶ Solder area . . . . . 2.54  $\mu$ m (100  $\mu$ in.) min tin-lead

#### Operating Environment

- Temperature range . . . . . -55°C to +105°C

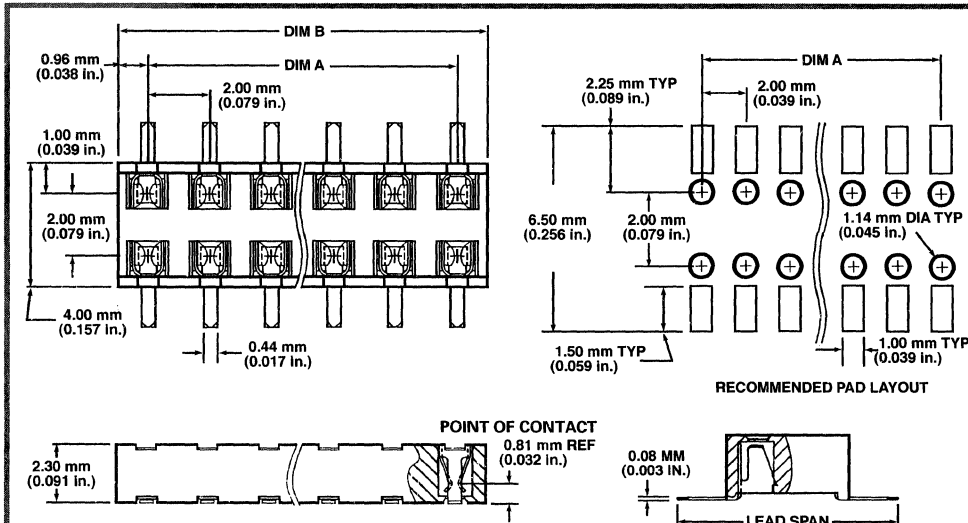
#### Packaging

- Tubes
- Tape-and-reel (optional)

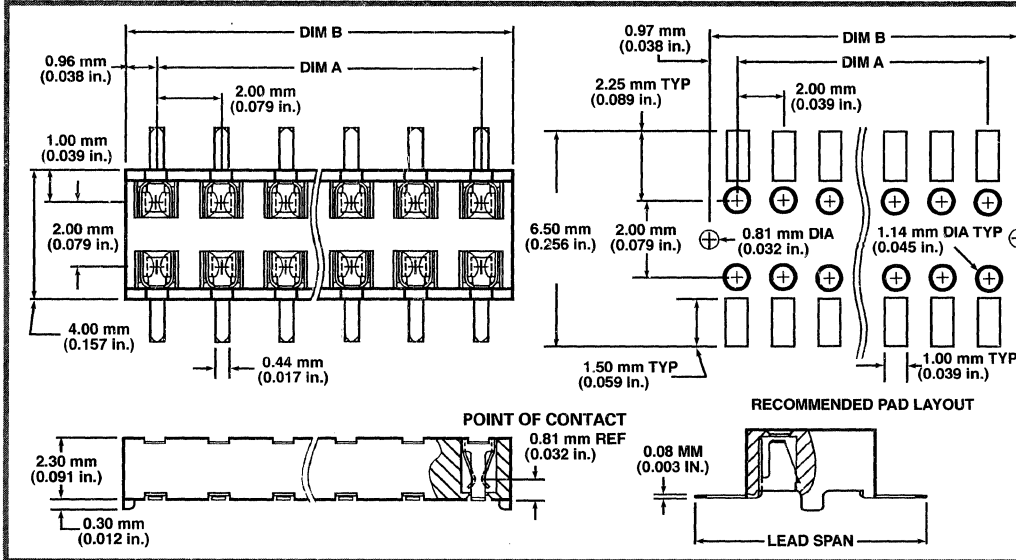
### Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawings . . . . .	By Part No.	Product Bulletin . . . . .	950522-001
Product Samples . . . . .	By Part No.	Product Specifications . . . . .	GES-12-008

**Description**  
**Bottom-Entry,**  
**Surface-Mount**  
**Part Number 91596**  
**Without**  
**Locating Post**



**Part Numbers**  
**91763**  
**92084**  
**With**  
**Locating Post**



**Ordering Data**  
**Vertical Receptacles**  
**Bottom-Entry, Surface-Mount**

Base number specifies housing configuration, lead configuration, and connector height. Dash number specifies contact finish (X) and number of positions (YY).

□ □ □ □ □ - X Y Y

Base Number	Connector Height		Lead Span	
	mm	in.	mm	in.
91596	2.30	0.091	6.00	0.236
91763	2.30	0.091	6.00	0.236
92084	2.30	0.091	5.21	0.205

**X: Contact Finish**

1 = 0.76 μm (30 μ in.) gold

3 = 0.38 μm (15 μ in.) gold

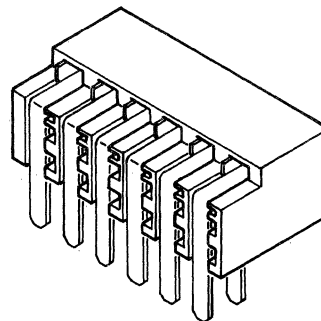
No. of Positions	Dash Number	Dimension A		Dimension B		No. of Positions	Dash Number	Dimension A		Dimension B	
		mm	in.	mm	in.			mm	in.	mm	in.
2 x 2	X04	2.00	0.079	3.92	0.154	2 x 9	X18	16.00	0.630	17.92	0.706
2 x 3	X06	4.00	0.157	5.92	0.233	2 x 10	X20	18.00	0.709	19.92	0.784
2 x 4	X08	6.00	0.236	7.92	0.312	2 x 11	X22	20.00	0.787	21.92	0.863
2 x 5	X10	8.00	0.315	9.92	0.391	2 x 12	X24	22.00	0.866	23.92	0.942
2 x 6	X12	10.00	0.394	11.92	0.469	2 x 13	X26	24.00	0.945	25.92	1.020
2 x 7	X14	12.00	0.472	13.92	0.548	2 x 14	X28	26.00	1.024	27.92	1.099
2 x 8	X16	14.00	0.551	15.92	0.627	2 x 15	X30	28.00	1.102	29.92	1.178

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

# PCB Mounted Receptacles

2.00 x 2.00 mm (0.079 x 0.079 in.) Centerlines

## Minitek™ Right-Angle Receptacles Through-Mount



### Features

- 2 x 20, 2 x 22 or 2 x 25 positions.
- 2 x 22 assemblies can be used for direct docking of hard disk drives (HDD) to system boards.
- Closed front and beveled lead-in ramps at receptacle openings protect against pin stubbing and contact damage
- Duplex-plated contact with gold finish in contact areas and tin-lead in solder areas
- Standoffs provide clearance for easy cleaning after soldering.

### Options

- High-temperature housings that withstand reflow soldering temperatures.

- Locating/retention posts to assist placement and increase mechanical strength.
- Polarization through molded-in position.

### Mating Data

Mates with 0.50 mm (0.020 in.) square pin 4.00 mm (0.157 in.) long.


### Berg Electronics Products Page


- Minitek™ unshrouded headers . . . . . 9-8 to 9-21
- Minitek™ straddle-mount headers . . . . . 9-22

### Specifications

- JIS-5020
- MIL-STD-202

### Approvals and Certifications

 File no. E66906

 File no. LR46923

### Technical Data

#### Materials

- Standard housing . . . . . Glass-filled PBT (UL 94 V-0)
  - ▶ Color . . . . . Black
  - ▶ Applicable soldering processes. . . . . wave
- High-temperature housing. . . . . Glass-filled PCT or Glass-filled PPS (UL 94 V-0)
  - ▶ Color . . . . . Cream (PCT) or Brown (PPS)
  - ▶ Applicable soldering processes. Wave, IR, vapor-phase
- Receptacle . . . . . Phosphor-bronze

#### Mechanical Performance

- Insertion force . . . . . 1.80 N (180 gf) max per contact
- Withdrawal force . . . . . 0.20 N (20 gf) min per contact
- Terminal retention force . . . . . 4.9 N (500 gf) min
- Durability (mating cycles) . . . . . 25

#### Electrical Performance

- Insulation resistance . . . . . 1000 MΩ min
- Withstanding voltage . . . . . 500 V rms

- Current rating . . . . . 1 amp continuous
- Contact resistance . . . . . 35 mΩ max
- Voltage rating . . . . . 200 V ac/dc

#### Plating

- Underplate . . . . . 1.27 μm (50 μin.) min nickel
- Finish
  - ▶ Contact area . . . . . 0.20 μm (8 μin.) min gold
  - ▶ Solder area . . . . . 1.5 μm (60 μin.) min tin-lead

#### Operating Environment

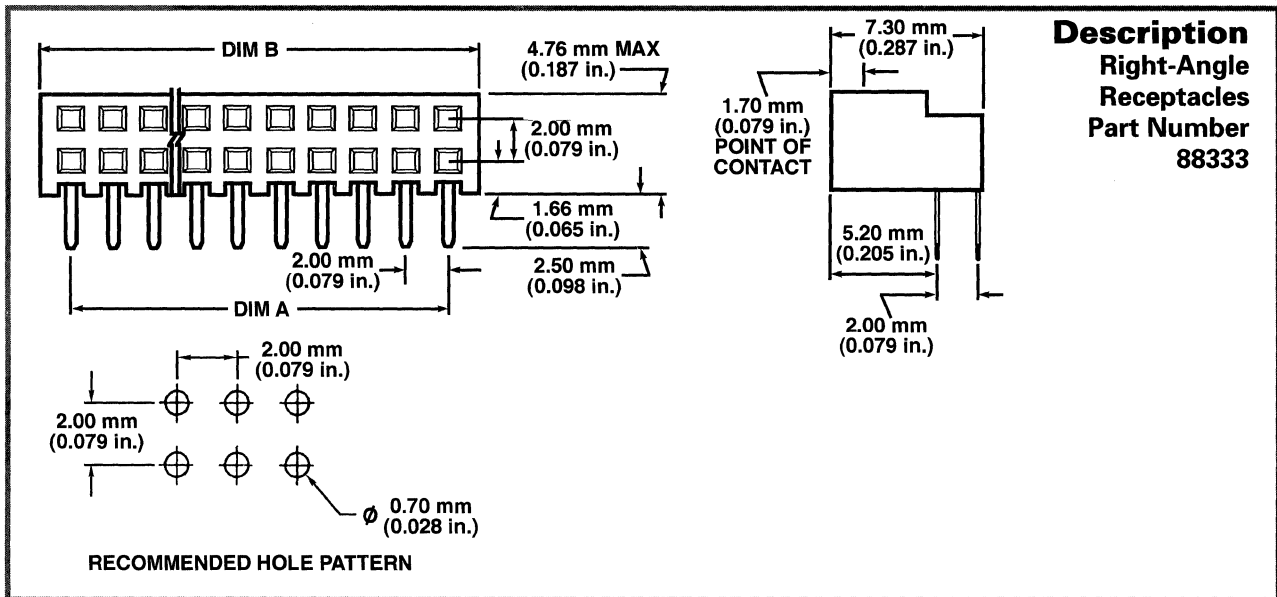
- Temperature range . . . . . -40°C to +105°C

#### Packaging

- Trays

### Customer Support Materials

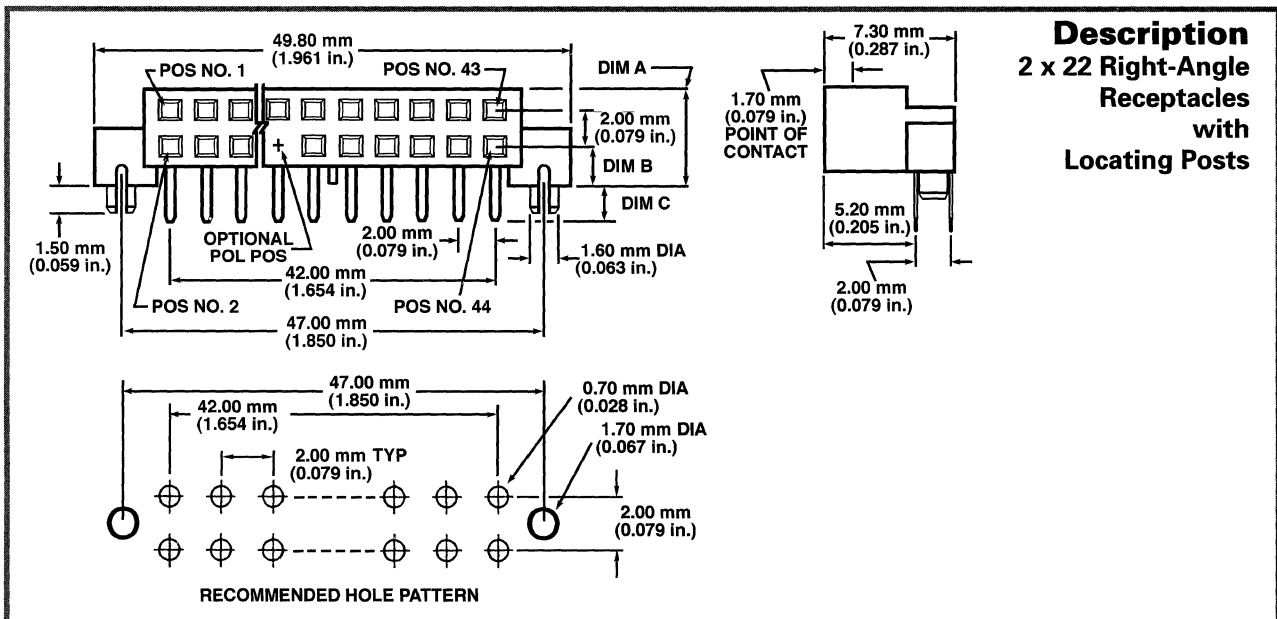
Description	Order No.	Description	Order No.
Customer Product Drawings . . . . .	By Part No.	Product Bulletin . . . . .	950522-001
Product Samples . . . . .	By Part No.	Product Specifications . . . . .	110-218



**Ordering Data**  
Part Number 88333

Note: Housing material is glass-filled PBT. **88333-0YY** Dash number specifies number of positions (YY).

No. of Positions	Dash Number	Dimension A		Dimension B	
		mm	in.	mm	in.
2 x 20	-040	38.00	1.496	40.80	1.606
2 x 22	-044	42.00	1.654	44.80	1.764
2 x 25	-050	48.00	1.890	50.80	2.000



**Ordering Data**

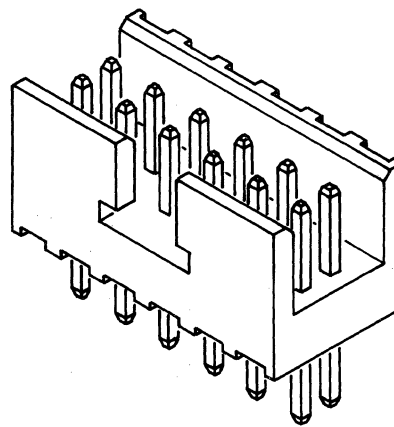
No. of Positions	Part Number	Dimension A		Dimension B		Dimension C		Polarized Position	Housing Material
		mm	in.	mm	in.	mm	in.		
2 x 22	90972-044	4.76	0.187	1.66	0.065	1.50	0.059	none	Glass-filled PCT
2 x 22	94823-001	4.76	0.187	1.66	0.065	2.25	0.890	none	Glass-filled PCT
2 x 22	94882-001	5.09	0.200	1.99	0.078	2.20	0.087	20	Glass-filled PPS

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

# Shrouded Headers

2.00 x 2.00 mm (0.079 x 0.079 in.)  
Centerlines

## Minitek™ Vertical Headers Through-Mount and Surface-Mount Double-Row



### Features

- 2 x 2 through 2 x 17 positions.
- Two-wall shroud protects pins from damage.
- Shroud provides latching keyway for keyed Minitek™ receptacles
- 0.50 mm (0.020 in.) square drawn wire pin provides four smooth mating surfaces.
- High-temperature plastic for wave or reflow soldering
- Standoffs provide clearance for easy cleaning after soldering.

### Options

- Polarization by omitting pins.
- Tape-and-reel packaging for surface-mount headers



### Mating Data

Berg Electronics Products	Page
▪ Minitek™ 4.50 mm ( in.) tall vertical receptacles . . . . .	9-26
▪ Minitek™ crimp-to-wire receptacle and housing assembly . . . . .	9-43 to 9-46
▪ Minitek™ 2.00 mm (0.079 in.) IDC receptacles . . . . .	9-48

### Specifications

- JIS-5020
- MIL-STD-202

### Approvals and Certifications

-  File no. E66906
-  File no. LR46923

### Technical Data

#### Materials

- Housing . . . . . LCP (UL 94 V-0)
  - ▶ Color . . . . . Cream
  - ▶ Applicable soldering processes. Wave, IR, vapor-phase
- Pin . . . . . Phosphor-bronze

#### Operating Environment

- Temperature range . . . . . -40°C to +105°C

#### Plating

- Underplate . . . . . 1.27 µm (50 µin.) min nickel
- Finish
  - ▶ Pin . . . . . 0.20 µm (8 µin.) min gold or 0.76 µm (30 µin.) min gold or 0.38 µm (15 µin.) min GXT™

#### Electrical Performance

- Insulation resistance . . . . . 1000 MΩ min
- Withstanding voltage . . . . . 650 V rms
- Current rating . . . . . 2 amp continuous
- Contact resistance . . . . . 25 mΩ max
- Voltage rating . . . . . 200 V ac/dc

#### Mechanical Performance

- Durability (mating cycles) . . . . . 100

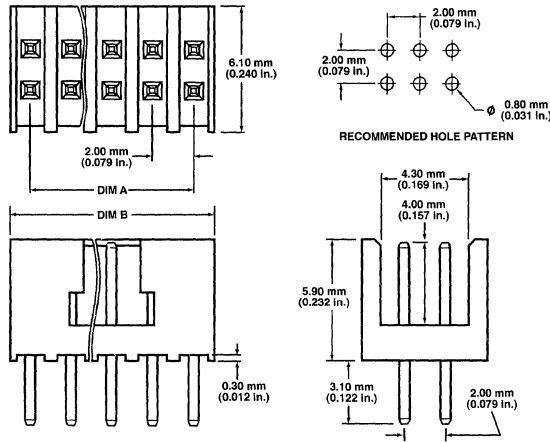
#### Packaging

- Bags

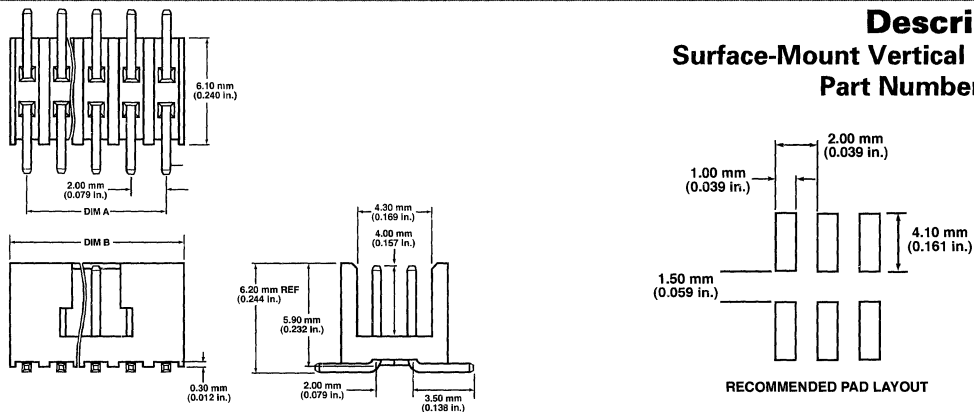
### Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawings . . . . .	By Part No.	Product Bulletin . . . . .	950522-001
Product Samples . . . . .	By Part No.	Product Specifications . . . . .	DPS-12-011

**Description**  
**Through-Mount Vertical Header**  
**Part Number 90309**

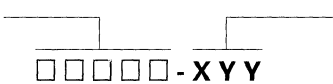


**Description**  
**Surface-Mount Vertical Header**  
**Part Number 95615**



**Ordering Data**  
**Vertical Headers**  
**Part Number 90309 Through-Mount**  
**Part Number 95615 Surface-Mount**

Base number specifies configuration.



Dash number specifies plating (X) and number of positions (YY).

**Dash Number**  
**X: Plating**

No. of Positions	Dash Number	0 = 0.20 µm (8 µin.) gold		1 = 0.76 µm (30 µin.) gold		5 = 0.38 µm (15 µin.) GXT™	
		Dimension A		Dimension B		Dimension B	
		mm	in.	mm	in.	mm	in.
2 x 2*	X04	2.00	0.079	4.00	0.157	4.00	0.157
2 x 3	X06	4.00	0.157	6.00	0.236	6.00	0.236
2 x 4	X08	6.00	0.236	8.00	0.315	8.00	0.315
2 x 5	X10	8.00	0.315	10.00	0.394	10.00	0.394
2 x 6	X12	10.00	0.394	12.00	0.472	12.00	0.472
2 x 7	X14	12.00	0.472	14.00	0.551	14.00	0.551
2 x 8	X16	14.00	0.551	16.00	0.630	16.00	0.630
2 x 9	X18	16.00	0.630	18.00	0.709	18.00	0.709
2 x 10	X20	18.00	0.709	20.00	0.787	20.00	0.787
2 x 11	X22	20.00	0.787	22.00	0.866	22.00	0.866
2 x 12	X24	22.00	0.866	24.00	0.945	24.00	0.945
2 x 13	X26	24.00	0.945	26.00	1.024	26.00	1.024
2 x 14	X28	26.00	1.024	28.00	1.102	28.00	1.102
2 x 15	X30	28.00	1.102	30.00	1.181	30.00	1.181
2 x 16	X32	30.00	1.181	32.00	1.260	32.00	1.260
2 x 17	X34	32.00	1.260	34.00	1.339	34.00	1.339

\* Note: 2 x 2 header has single latching feature and no center keyway.

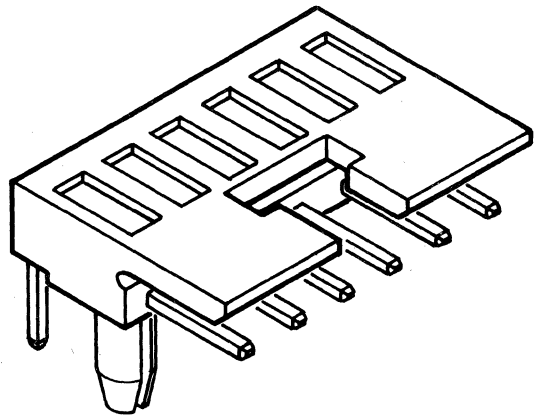
Polarization may be customized to suit individual applications.

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

# Shrouded Headers

2.00 x 2.00 mm (0.079 x 0.079 in.)  
Centerlines

## Minitek™ Right-Angle Headers Through-Mount and Surface-Mount Single-Row



### Features

- 1 x 3 through 1 x 17 positions.
- Shroud protects pins from damage.
- Shroud provides latching keyway for keyed Minitek™ receptacles
- 0.50 mm (0.020 in.) square drawn wire pin provides four smooth mating surfaces.
- High-temperature plastic for wave or reflow soldering
- Standoffs provide clearance for easy cleaning after soldering.

### Options

- Polarization by omitting pins.
- Tape-and-reel packaging for surface-mount headers



### Mating Data

Berg Electronics Products	Page
▪ Minitek™ crimp-to-wire receptacle and housing assembly . . . . .	9-43 to 9-46

### Specifications

- JIS-5020
- MIL-STD-202

### Approvals and Certifications

-  File no. E66906
-  File no. LR46923

### Technical Data

#### Materials

- Housing . . . . . LCP (UL 94 V-0)
  - ▶ Color . . . . . Cream
  - ▶ Applicable soldering processes. Wave, IR, vapor-phase
- Pin . . . . . Phosphor-bronze

#### Operating Environment

- Temperature range . . . . . -40°C to +105°C

#### Plating

- Underplate . . . . . 1.27 µm (50 µin.) min nickel
- Finish
  - ▶ Pin . . . . . 0.20 µm (8 µin.) min gold or 0.76 µm (30 µin.) min gold or 0.38 µm (15 µin.) min GXT™

#### Electrical Performance

- Insulation resistance . . . . . 1000 MΩ min
- Withstanding voltage . . . . . 650 V rms
- Current rating . . . . . 2 amp continuous
- Contact resistance . . . . . 25 mΩ max
- Voltage rating . . . . . 200 V ac/dc

#### Mechanical Performance

- Durability (mating cycles) . . . . . 100

#### Packaging

- Bags

### Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawings . . . . .	By Part No.	Product Bulletin . . . . .	950522-001
Product Samples . . . . .	By Part No.	Product Specifications . . . . .	DPS-12-011

### Description

**Through-Mount Right-Angle Header**  
Part Number 92688 Without Posts  
Part Number 91269 With Posts

NOTE: OPTIONAL LOCATING POSTS ARE SHOWN.

### Description

**Surface-Mount Right-Angle Header**  
Part Number 95000

### Ordering Data

#### Right-Angle Headers

Base number specifies configuration, solder tail length, and housing material.      Dash number specifies plating (X) and number of positions (YY).

□ □ □ □ □ - X Y Y

Dash Number		X: Plating					
		0 = 0.20 μm (8 μin.) gold		1 = 0.76 μm (30 μin.) gold		5 = 0.38 μm (15 μin.) GXT™	
No. of Positions	Dash Number	Dimension A		Dimension B		Dimension D	
		mm	in.	mm	in.	mm	in.
1 x 3	X03	4.00	0.157	6.00	0.236	4.40	0.173
1 x 4	X04	6.00	0.236	8.00	0.315	6.40	0.252
1 x 5	X05	8.00	0.315	10.00	0.394	8.40	0.331
1 x 6	X06	10.00	0.394	12.00	0.472	10.40	0.409
1 x 7	X07	12.00	0.472	14.00	0.551	12.40	0.488
1 x 8	X08	14.00	0.551	16.00	0.630	14.40	0.567
1 x 9	X09	16.00	0.630	18.00	0.709	16.40	0.646
1 x 10	X10	18.00	0.709	20.00	0.787	18.40	0.724
1 x 11	X11	20.00	0.787	22.00	0.866	20.40	0.803
1 x 12	X12	22.00	0.866	24.00	0.945	22.40	0.882
1 x 13	X13	24.00	0.945	26.00	1.024	24.40	0.961
1 x 14	X14	26.00	1.024	28.00	1.102	26.40	1.039
1 x 15	X15	28.00	1.102	30.00	1.181	28.40	1.118
1 x 16	X16	30.00	1.181	32.00	1.260	30.40	1.197
1 x 17	X17	32.00	1.260	34.00	1.339	32.40	1.276

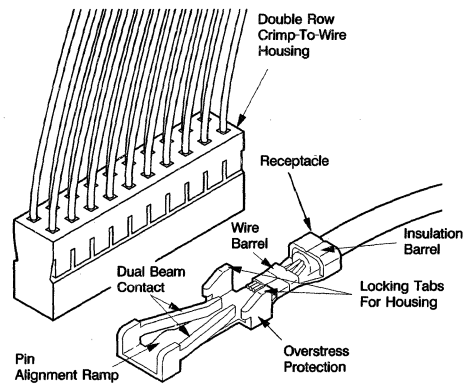
Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.



# Discrete Crimp-to-Wire Receptacles/Housings

2.00 x 2.00 mm (0.079 x 0.079 in.) Centerlines

## Minitek™ Receptacles and Housings



### Features

#### Receptacle

- Applicable to wire sizes 26 through 36 AWG.
- Dual-beam design ensures reliable electrical performance.
- Gold plated contact area.
- Pin alignment ramp for precision mating.
- Overstress protection feature protects against damage during mating.
- Locking tabs ensure stability within the housing.

#### Housing

- 2 x 2 through 2 x 25 unkeyed housings.
- 2 x 2 through 2 x 17 and 1 x 3 through 1 x 17 keyed housings.

- Latching when used with Minitek™ shrouded headers increases mating/unmating force by approximately 1 kg (2.2 lbs).
- Polarization through molded-in position or post inserted plug.


### Mating Data


Mates with 0.50 mm (0.020 in.) square pin 4.00 mm (0.157 in.) long. Point of contact is 2.50 mm (0.098 in.) from the mating face of the housing.

#### Berg Electronics Products

- |                                    | Page         |
|------------------------------------|--------------|
| ▪ Minitek™ unshrouded headers..... | 9-8 to 9-21  |
| ▪ Minitek™ shrouded headers.....   | 9-38 to 9-41 |

### Approvals and Certifications

 File no. E66906

 File no. LR46923

### Application Equipment

Description	Page
▪ Olympian Model 740 Semi-automatic two-ton bench press.....	9-47
▪ HT-151 for 26--30 AWG.....	9-47
▪ HT-152 for 32--36 AWG.....	9-47

### Options

- Center key polarization

### Specifications

- JIS-5020
- MIL-STD-202

### Technical Data

#### Materials

- Housing..... Nylon (UL 94 V-0)
  - ▶ Color..... Black
- Receptacle..... Phosphor-bronze

#### Operating Environment

- Temperature range..... -40°C to +105°C

#### Plating

- Underplate..... 1.27 µm (50 µin.) min nickel
- Finish..... 0.20 µm (8 µin.) min gold or 0.76 µm (30 µin.) min gold

#### Electrical Performance

- Insulation resistance..... 1000 MΩ min
- Withstanding voltage..... 650 V rms

- Voltage rating..... 200 V ac/dc
- Current rating..... 2 amp continuous
- Contact resistance..... 20 mΩ max

#### Mechanical Performance

- Mating force per contact..... 1.77 N (180 gf) max
- Unmating force per contact..... 0.20 N (20 gf) min
- Terminal retention force..... 7.83 N (800 gf) min
- Durability (mating cycles)..... 100

#### Packaging

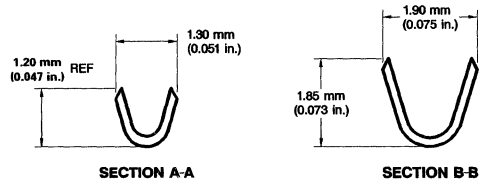
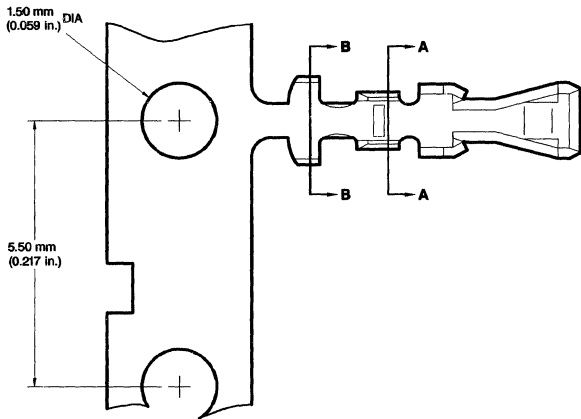
- Housings..... cartons
- Receptacles..... reels

### Customer Support Materials

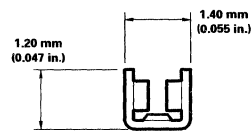
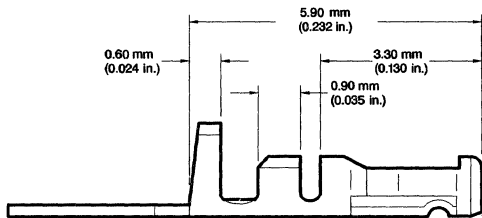
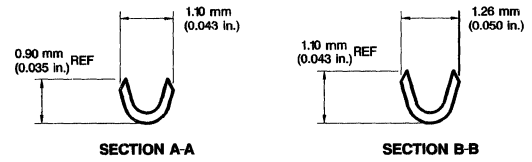
Description	Order No.	Description	Order No.
Customer Product Drawings.....	By Part No.	Product Bulletin.....	950522-001
Product Samples.....	By Part No.	Product Specifications.....	110-036
		▪ Crimp Specification.....	100-006

### Description Receptacle

PART NO. 77138



PART NO. 77139



A183386-0468



### Ordering Data Receptacle

Base number specifies wire size AWG.

Dash number specifies plating.

□ □ □ □ □ - X X X

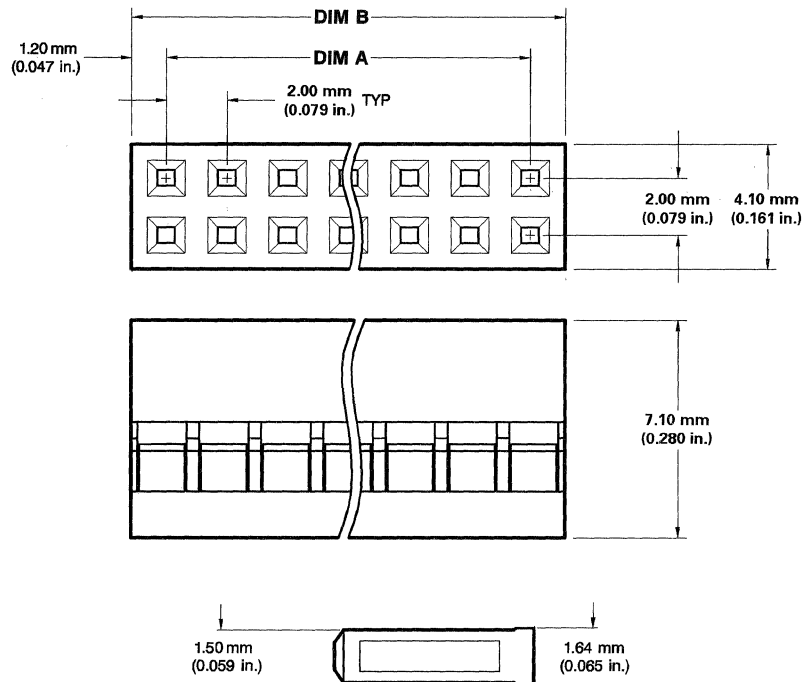
Base Number	Wire Gauge
77138	26 AWG to 30 AWG
77139	32 AWG to 36 AWG
Dash Number	Plating
-001	0.20 $\mu$ m (8 $\mu$ in.) min gold over nickel
-101	0.76 $\mu$ m (30 $\mu$ in.) min gold over nickel

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

**Discrete Crimp-to-Wire Receptacles/Housings**  
**2.00 x 2.00 (0.079 x 0.079 in.)**

**Description**

**Housing,  
 Double-Row,  
 Un-Keyed**



**POLARIZATION PLUG 69316-001**  
 (Used with all housing types.)

**Ordering Data**

**Housing**  
**Part No. 69307**

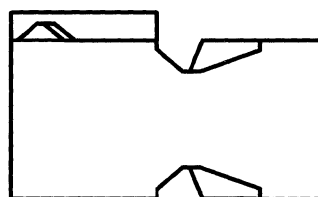
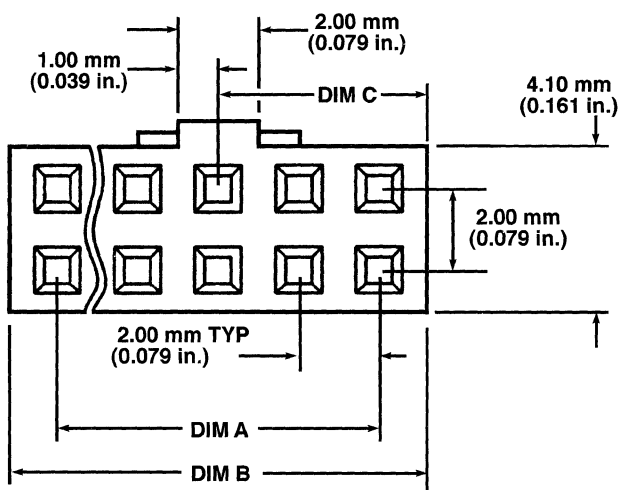
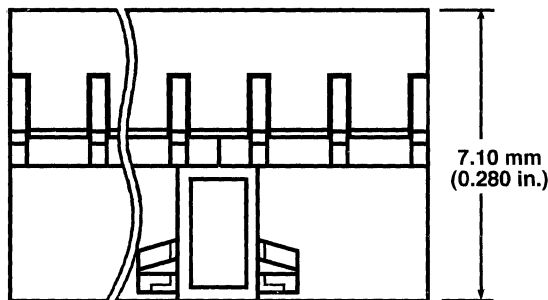
Dash number specifies number of positions.

**69307 - XXX**

Number of Positions	Dash Number	Dimension A		Dimension B	
		mm	in.	mm	in.
2 x 2	-004	2.00	0.079	4.40	0.173
2 x 3	-006	4.00	0.157	6.40	0.252
2 x 4	-008	6.00	0.236	8.40	0.331
2 x 5	-010	8.00	0.315	10.40	0.409
2 x 6	-012	10.00	0.394	12.40	0.488
2 x 7	-014	12.00	0.472	14.40	0.567
2 x 8	-016	14.00	0.551	16.40	0.646
2 x 9	-018	16.00	0.630	18.40	0.724
2 x 10	-020	18.00	0.709	20.40	0.803
2 x 11	-022	20.00	0.787	22.40	0.882
2 x 12	-024	22.00	0.866	24.40	0.961
2 x 13	-026	24.00	0.945	26.40	1.039
2 x 14	-028	26.00	1.024	28.40	1.118
2 x 15	-030	28.00	1.102	30.40	1.197
2 x 16	-032	30.00	1.181	32.40	1.276
2 x 17	-034	32.00	1.260	34.40	1.354
2 x 18	-036	34.00	1.339	36.40	1.433
2 x 19	-038	36.00	1.417	38.40	1.512
2 x 20	-040	38.00	1.496	40.40	1.591
2 x 21	-042	40.00	1.575	42.40	1.669
2 x 22	-044	42.00	1.654	44.40	1.748
2 x 23	-046	44.00	1.732	46.40	1.827
2 x 24	-048	46.00	1.811	48.40	1.906
2 x 25	-050	48.00	1.890	50.40	1.984

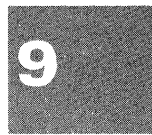
Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

**Description**  
**Housing, Double-Row, Keyed**



See page 9-44 for polarization plug.

**Ordering Data**  
**Housing**  
**Part No. 90311**



Dash number specifies number of positions.

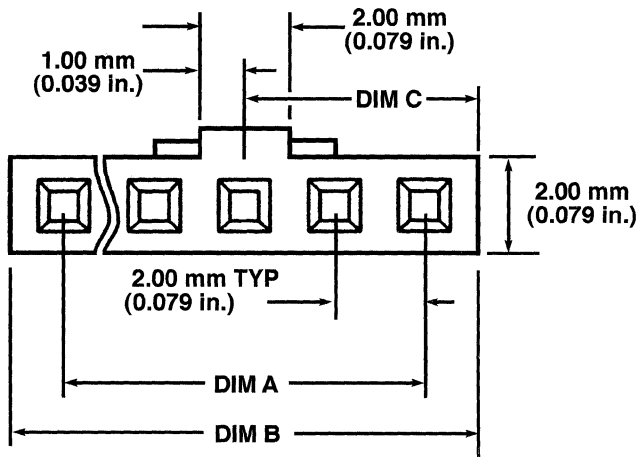
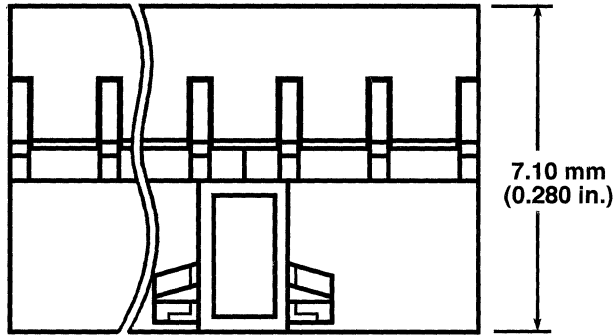
**90311-XXX**

Number of Positions	Dash Number	Dimension A		Dimension B		Dimension C	
		mm	in.	mm	in.	mm	in.
2 x 2*	-004	2.00	0.079	4.40	0.173	2.20	0.087
2 x 3	-006	4.00	0.157	6.40	0.252	3.20	0.126
2 x 4	-008	6.00	0.236	8.40	0.331	4.20	0.165
2 x 5	-010	8.00	0.315	10.40	0.409	5.20	0.205
2 x 6	-012	10.00	0.394	12.40	0.488	6.20	0.244
2 x 7	-014	12.00	0.472	14.40	0.567	7.20	0.283
2 x 8	-016	14.00	0.551	16.40	0.646	8.20	0.323
2 x 9	-018	16.00	0.630	18.40	0.724	9.20	0.362
2 x 10	-020	18.00	0.709	20.40	0.803	10.20	0.402
2 x 11	-022	20.00	0.787	22.40	0.882	11.20	0.441
2 x 12	-024	22.00	0.866	24.40	0.961	12.20	0.480
2 x 13	-026	24.00	0.945	26.40	1.039	13.20	0.520
2 x 14	-028	26.00	1.024	28.40	1.118	14.20	0.559
2 x 15	-030	28.00	1.102	30.40	1.197	15.20	0.598
2 x 16	-032	30.00	1.181	32.40	1.276	16.20	0.638
2 x 17	-034	32.00	1.260	34.40	1.354	17.20	0.677

\* Note: 2 x 2 housing has single latching tab and no center key.

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

**Description**  
 Housing, Single-Row, Keyed



See page 9-44 for polarization plug.

**Ordering Data**  
 Housing  
 Part No. 90312

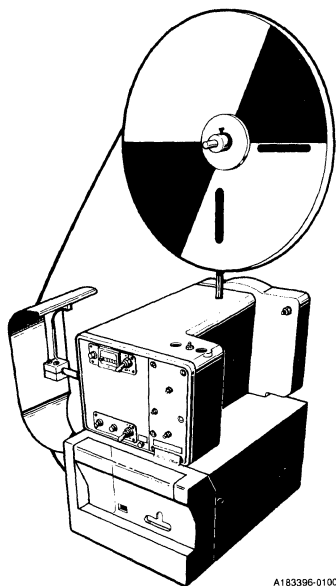
Dash number specifies number of positions.

9 0 3 1 2 - X X X

No. of Positions	Dash Number	Dimension A		Dimension B		Dimension C	
		mm	in.	mm	in.	mm	in.
1 x 3	-003	4.00	0.157	6.40	0.252	3.20	0.126
1 x 4	-004	6.00	0.236	8.40	0.331	4.20	0.165
1 x 5	-005	8.00	0.315	10.40	0.409	5.20	0.205
1 x 6	-006	10.00	0.394	12.40	0.488	6.20	0.244
1 x 7	-007	12.00	0.472	14.40	0.567	7.20	0.283
1 x 8	-008	14.00	0.551	16.40	0.646	8.20	0.323
1 x 9	-009	16.00	0.630	18.40	0.724	9.20	0.362
1 x 10	-010	18.00	0.709	20.40	0.803	10.20	0.402
1 x 11	-011	20.00	0.787	22.40	0.882	11.20	0.441
1 x 12	-012	22.00	0.866	24.40	0.961	12.20	0.480
1 x 13	-013	24.00	0.945	26.40	1.039	13.20	0.520
1 x 14	-014	26.00	1.024	28.40	1.118	14.20	0.559
1 x 15	-015	28.00	1.102	30.40	1.197	15.20	0.598
1 x 16	-016	30.00	1.181	32.40	1.276	16.20	0.638
1 x 17	-017	32.00	1.260	34.40	1.354	17.20	0.677

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

# Application Equipment for Crimp-to-Wire Minitek™ Receptacles



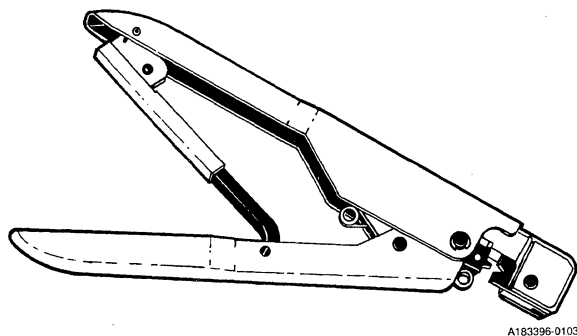
## OLYMPIAN Model 740 Semi-automatic Two-ton Bench Press

### Features

- Ideal for medium-volume production requirements.
- Rugged construction, requires little maintenance.
- Electrically operated.
- Uses Precision Interchangeable Crimpers. These applicators allow quick tooling changeovers for various wire sizes and styles of terminals. Fine-tuning knobs allow fast, precise adjustment of the terminal's wire and insulation barrel crimp height.
- Easy to operate.

<b>Technical Data</b>	
	<b>OL-740</b>
Application Rate (crimps/hour)	2400*
Electrical Requirements	115 V ac, 60 Hz, 10 amp
*Application rates given are approximate. Actual rates achieved depend on operator dexterity.	

<b>Ordering Data</b>		
Machines (for strip-form receptacles)	Wire Size AWG	Identification Number
OLYMPIAN Model 740 (press only)	N/A	133911-002
OL-740 applicators	26--30	155250-001
	32--36	155250-002
OLYMPIAN MODEL 740 (press with applicator)	26--30	133911-527



## Hand Tools

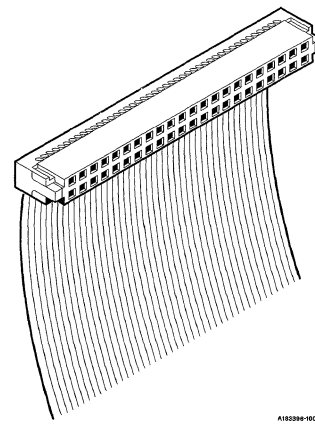
### Features

- Lightweight.
- Rugged.
- Ratchet-action handle assures complete crimp cycle.
  - ▶ HT-151 for 26-30 AWG
  - ▶ HT-152 for 32-36 AWG

# Round Conductor, Flat Cable IDC Connectors

2.00 x 2.00 mm (0.079 x 0.079 in.)  
Centerlines

## Minitek™ IDC Receptacles



A18399-001

### Features

- 2.00 mm (0.079 in.) pitch.
- 2 x 3 through 2 x 25 positions available.
- Accepts 28 AWG stranded 1mm cable.
- Standard plating available in 0.76 µm (30 µin.) gold and 0.76 µm (30 µin.) GXT™ (palladium-nickel alloy with gold flash).
- Pre-loaded adjustable bridge-type cover suits a wide range of cables, reduces assembly time, protects contacts, and offers precise cover-to-base alignment ensuring a reliable termination.
- Early-entry single-beam contact provides long wiping action during mating cycle.

- Post-inserted polarization plug is Part Number 90543-001.


### Mating Data


Mates with 0.50 mm (0.020 in.) square or round pin from 3.50 mm (0.140 in.) min to 4.50 mm (0.180 in.) maximum length. A nominal 4.00 mm (0.160 in.) length is recommended.

### Berg Electronics Products Page

- Minitek™ unshrouded headers . . . . . 9-8 to 9-21
- Minitek™ pins (in pre-loaded pin carrier) . . . . . 9-18
- Minitek™ shrouded headers . . . . . 9-38 to 9-41

### Approvals and Certifications

 File no. E66906

 File no. LR46923

### Application Equipment

Description	Page
▪ Hand-operated cable cutter HT-209A . . . . .	9-52
▪ Hand-operated bench press QP-104 . . . . .	9-52
▪ Semi-automatic bench assembly machine QP-106 . . . . .	9-52

### Options

- Center key polarization.
- Friction Latch

### Technical Data

#### Materials

- Housing material . . . . . Glass-filled thermoplastic polyester (UL 94 V-0)
  - ▶ Color . . . . . Black
- Contact body material . . . . . Phosphor-bronze

#### Plating

- Underplate . . . . . 1.27 µm (50 µin.) min nickel
- Finish . . . . . 0.76 µm (30 µin.) min gold or 0.20 µm (8 µin.) min gold

#### Electrical Performance

- Insulation resistance . . . . .  $1 \times 10^3$  MΩ min
- Contact resistance . . . . . 30 mΩ max
- Withstanding voltage . . . . . 650 V ac rms (sea level)
- Current rating . . . . . 1 amp continuous

#### Mechanical Performance

- Mating force per contact . . . . . 2.0 N (200 gf) max per contact
- Unmating force per contact . . . . . 0.40 N (40 gf) min per contact
- Durability (mating cycles) . . . . . 100

#### Operating Environment

- Temperature range . . . . . -40°C to +105°C

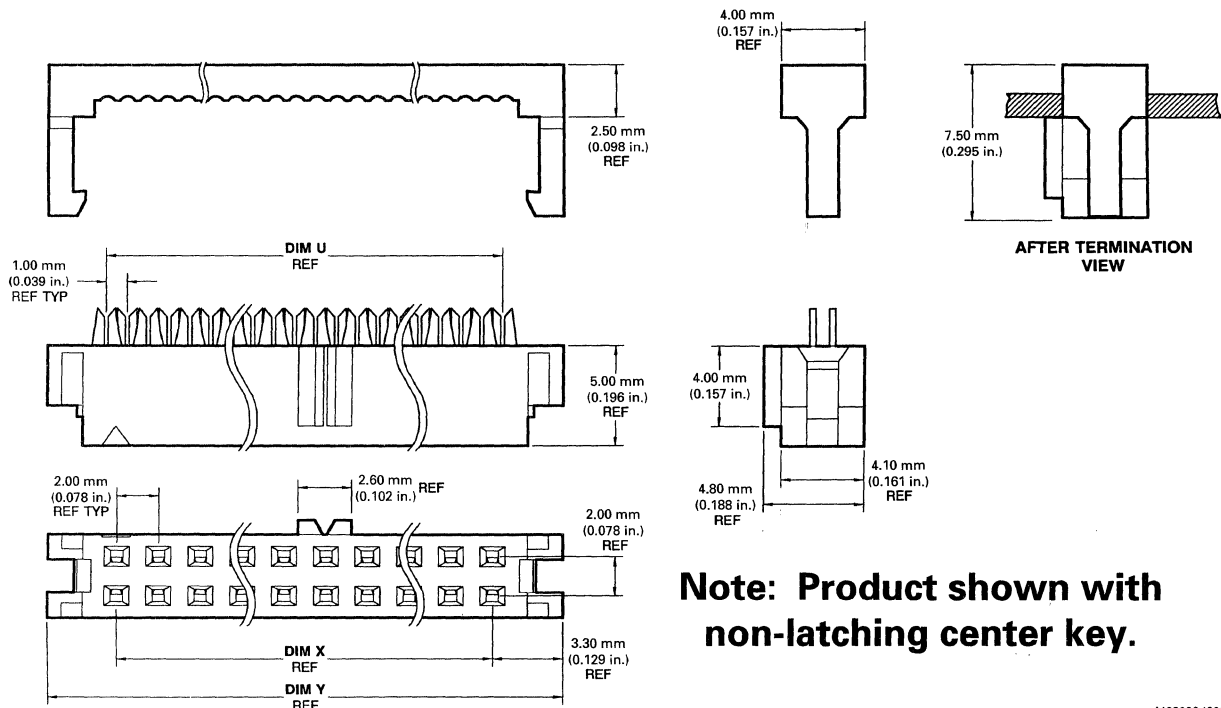
#### Packaging

- Antistatic tubes

### Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawing . . . . .	By Part Number	Product Sample . . . . .	By Part Number
Product Specification . . . . .	BUS-12-115		

### Description IDC Receptacles



**Note: Product shown with non-latching center key.**

A183396-1002

### Ordering Data

Base number specifies plating type

Dash number specifies total positions for each base number

□ □ □ □ □ - X Y Y

Specifies polarization

Base Number 89947: 0.76 μm (30 μin.) gold over nickel  
Base Number 89361: 0.20 μm (8 μin.) gold over nickel

Number of Positions	Dash Numbers With Center Key	Dash Numbers Without Center Key	Dash Numbers With Latching Center Key	Dimensions					
				U		X		Y	
				mm	in.	mm	in.	mm	in.
2 x 3	-306	-106	-706	5.00	0.197	4.00	0.157	10.60	0.417
2 x 4	-308	-108	-708	7.00	0.276	6.00	0.236	12.60	0.496
2 x 5	-310	-110	-710	9.00	0.354	8.00	0.315	14.60	0.575
2 x 6	-312	-112	-712	11.00	0.433	10.00	0.394	16.60	0.654
2 x 7	-314	-114	-714	13.00	0.512	12.00	0.472	18.60	0.732
2 x 8	-316	-116	-716	15.00	0.591	14.00	0.551	20.60	0.811
2 x 9	-318	-118	-718	17.00	0.669	16.00	0.630	22.60	0.890
2 x 10	-320	-120	-720	19.00	0.748	18.00	0.709	24.60	0.969
2 x 12	-324	-124	-724	23.00	0.906	22.00	0.866	28.60	1.126
2 x 13	-326	-126	-726	25.00	0.984	24.00	0.945	30.60	1.205
2 x 15	-330	-130	-730	29.00	1.142	28.00	1.102	34.60	1.362
2 x 17	-334	-134	-734	33.00	1.299	32.00	1.260	38.60	1.520
2 x 18	-336	-136		35.00	1.378	34.00	1.339	40.60	1.598
2 x 20	-340	-140		39.00	1.535	38.00	1.496	44.60	1.756
2 x 22	-344	-144		43.00	1.693	42.00	1.654	48.60	1.913
2 x 24	-348	-148		47.00	1.850	46.00	1.811	52.60	2.071
2 x 25	-350	-150		49.00	1.929	48.00	1.890	54.60	2.150

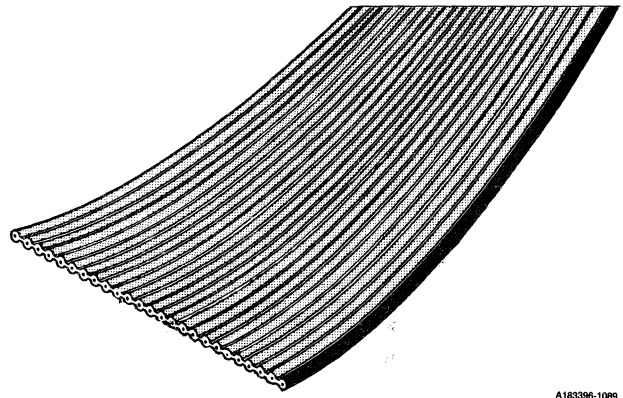
Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.



# Round Conductor, Flat Cable

1.00 mm (0.039 in.) pitch

## Minitek™ IDC 1 mm Round Conductor, Flat Cable





A183396-1089

### Features

- PVC insulation.
- Conductor pitch 1.00 mm (0.039 in.).
- UL and CSA recognized.
- Cables are available in gray with an identification stripe to indicate the first position (UL listed-style 2651).

### Approvals and Certifications

 File no. E66906

 File no. LR46923

### Application Equipment

Description	Page
▪ Hand-operated cable cutter HT-209A	9-52
▪ Hand-operated bench press QP-104	9-52
▪ Semi-automatic bench assembly machine QP-106	9-52

### Technical Data

#### Materials

- Conductor material . . . . . Annealed copper  
Tin finish
  - ▶ Type . . . . . 28 AWG (Stranded) (7 strand, 36 AWG)
  - ▶ Color . . . . . Gray
- Insulation material . . . . . Polyvinyl chloride, UL-rated VW-1

#### Electrical Performance

- Insulation resistance . . . . . 1.52 MΩ/meter
- Dielectric withstanding voltage . . . . . 1000 V ac rms (sea level)

- Conductor resistance . . . . . 216 Ω max/1000 meters
- Voltage rating . . . . . 300 V rms
- Impedance . . . . . 83 Ω stranded
- Capacitance . . . . . 60 pF/m stranded

#### Operating Environment

- Temperature range . . . . . -65°C to +105°C

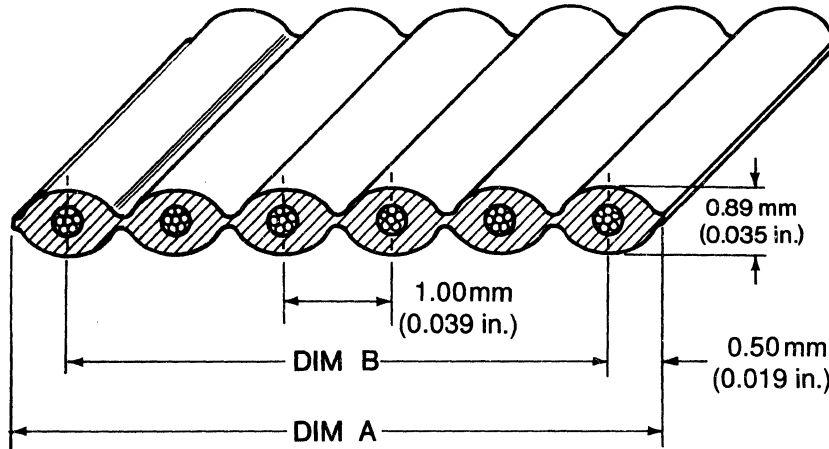
#### Packaging

- Reels of 30.5 meters (100 feet).

### Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawings . . . . .	By Part Number	Product Sample . . . . .	By Part Number
Product Specifications . . . . .	BUS-12-116		

**Description**  
1mm (0.039 in.) Round Conductor Cable



A183396-1013

**Ordering Data**  
1mm (0.039 in.) Round Conductor Cable  
Base Number 91820

Specifies number of positions

9 1 8 2 0 - 0 X X

Number of Positions	Dash Number	Dimensions			
		mm	in.	mm	in.
6	-006	6.00	0.236	5.00	0.197
8	-008	8.00	0.315	7.00	0.276
10	-010	10.00	0.394	9.00	0.354
12	-012	12.00	0.472	11.00	0.453
14	-014	14.00	0.551	13.00	0.512
16	-016	16.00	0.630	15.00	0.591
18	-018	18.00	0.709	17.00	0.669
20	-020	20.00	0.787	19.00	0.748
24	-024	24.00	0.945	23.00	0.906
26	-026	26.00	1.024	25.00	0.984
30	-030	30.00	1.181	29.00	1.142
34	-034	34.00	1.339	33.00	1.299
36	-036	36.00	1.417	35.00	1.378
40	-040	40.00	1.575	39.00	1.535
44	-044	44.00	1.732	43.00	1.693
48	-048	48.00	1.890	47.00	1.850
50	-050	50.00	1.969	49.00	1.929

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

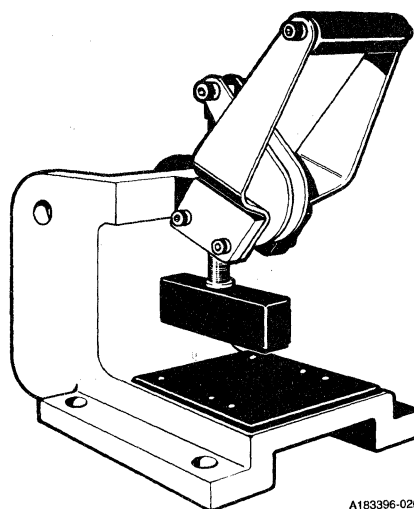


# Application Equipment for Minitek™ IDC Connectors

## QP-104 Hand Press

### Features

- For mass-termination of IDC connectors for specified stranded and solid round conductor flat cable.
- Simple to operate.
- Low operating force.
- Adjustable to different pc board thicknesses.
- Virtually maintenance-free.
- Can be bench-mounted or easily moved from job to job.

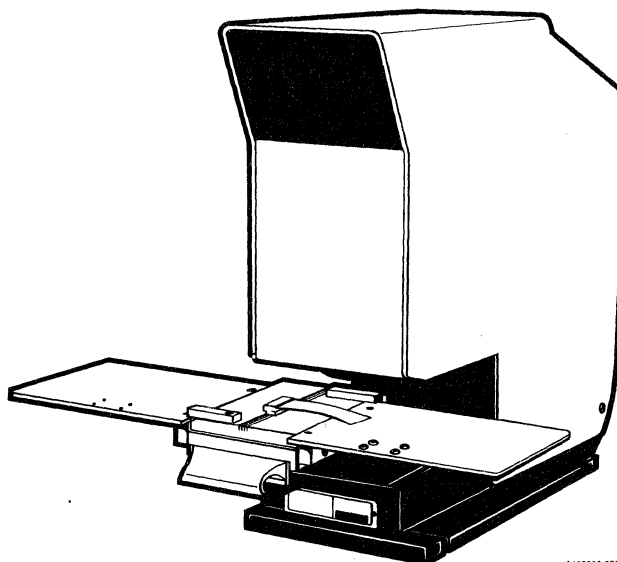


A183396-0268

## QP-106 Semi-Automatic Press

### Features

- For mass-termination of IDC connectors for specified stranded and solid round conductor flat cable.
- Simple to operate.
- Pneumatically operated.
- Virtually maintenance-free, does not require lubrication.

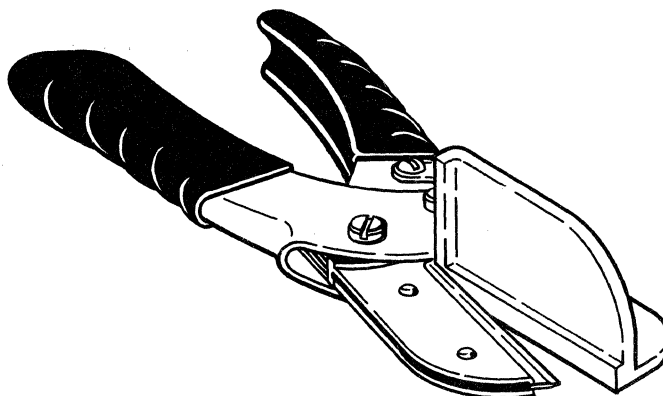


A183396-0269

## HT-209A Cable Shear

### Features

- Cuts perpendicularly all flat cable up to 50 conductors on 1.27 mm (0.050 in. centers).
- Lightweight and easy to operate.
- Low operating force.
- Rugged.
- Ideal for maintenance and small-scale production.

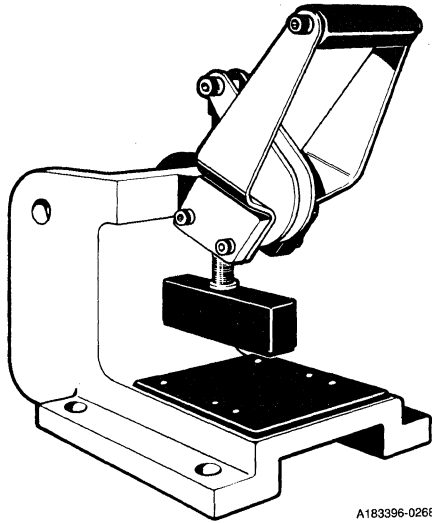


A183396-0271

## Ordering Data

Machines (for strip-form terminals)	Identification Number	
QP-104 Hand Press (machine only)	107484-002	
QP-106 Pneumatic Press (machine only)	117545-001	
QP-104 and QP-106 Optional Fixtures	QP-104	QP-106
QP-104 Cable Shear	119218-002	---
QP-104 Set-up Gauge	116098-002	---
QP-106 Cable Shear Assembly (includes cable shear which can be ordered separately):	---	117741-001
Cable Shear	---	119218-001
Minitek™ 2 mm IDC Receptacles	160561-001	160479-001
Hand Tools: HT-209A	HT-209A	
<p>*Special part numbers not listed in the catalog are required to use Edge Card I and PCB product with this tooling. Please contact your Berg Electronics sales representative.</p>		

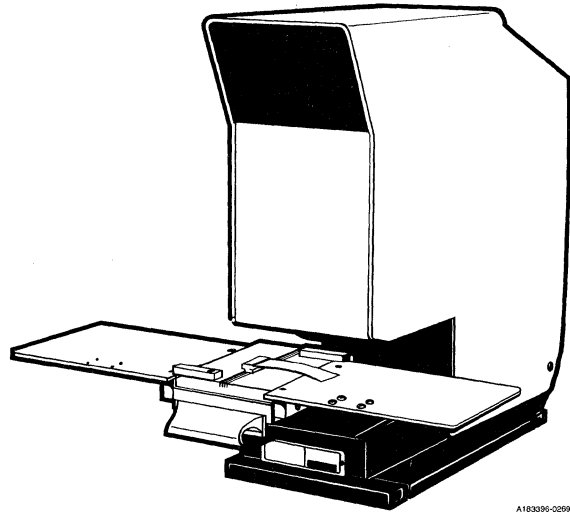
## Application Machines Features



A183396-0268

### QP-104 Hand Press

- Operator fatigue reduced, and production increased by the over-center handle design.
- Virtually maintenance-free.
- Eliminates misassembly of cover to base with positive stop action.
- Can be bench-mounted or easily moved from job to job.



A183396-0269

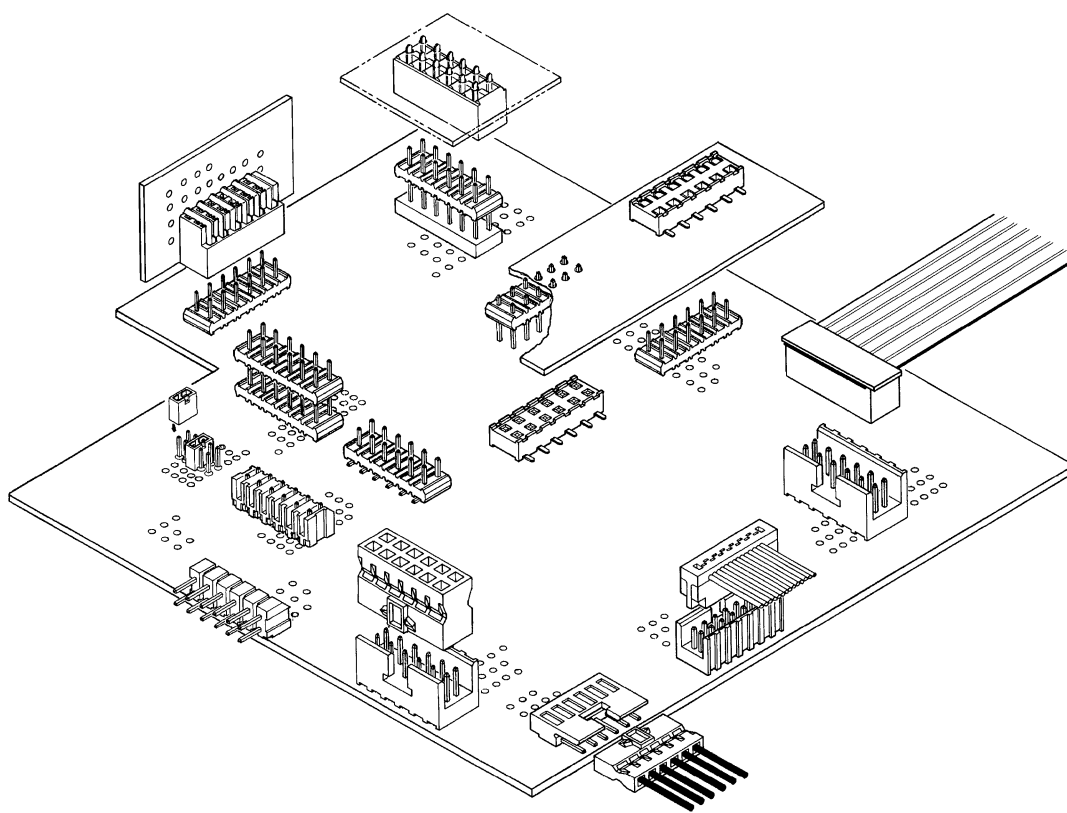
### QP-106 Air Press

- Replaces time-consuming two-handed operation with one-handed slide-motion which automatically completes termination.
- Precise positioning in applicator by connector and cable clamp.
- Precise crimp height determined by stop block on the fixtures. No ram adjustment needed.
- Consistent termination of all sizes achieved through cylindrical pad which assures even pressure distribution.

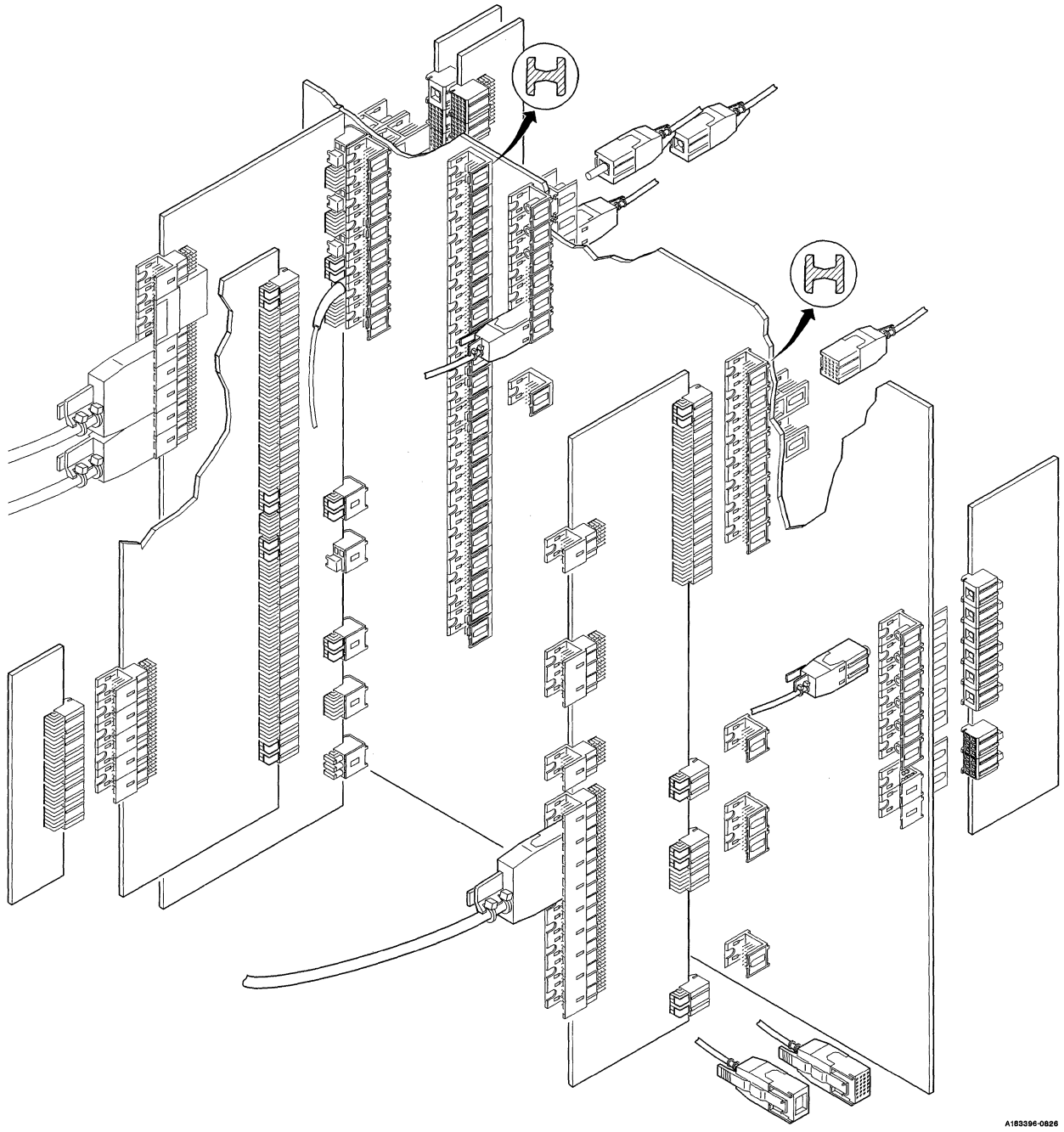
## Technical Data

	QP-104	QP-106
Application Rate (Crimps/hour)	360*	360*
Air Consumption	N/A	12.6-l/min. (6 scfm)
Air Pressure	N/A	552 kPa (80 psi)
Weight	3.6 kg (8 lb.)	9 kg (45 lb.)
Dimensions (HxWxD)	33 x 15 x 30 cm (13 x 6 x 12 in.)	46 x 46 x 58 cm (18 x 18 x 23 in.)

\* Application rates are approximate. Actual rates are dependent upon operator dexterity.

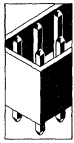


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A183396-0826

**2.00 mm (0.079 in.) Centerline Products**



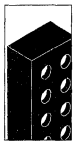
**Shrouded Headers**

Futurebus + Application Guide . . . . . 10-4  
 Straight Solder-to-Board Wide Body  
 Signal Header . . . . . 10-12  
 Straight Press-Fit Signal Header . . . . . 10-14  
 Straight Solder-to-Board Wide Body  
 Power Header . . . . . 10-22  
 Straight Press-Fit Power Header . . . . . 10-24  
 Right-Angle Solder-to-Board  
 Signal Header . . . . . 10-28



**Compliant Press-Fit Pin Headers**

Futurebus + Application Guide . . . . . 10-4  
 Straight Press-Fit Signal Header . . . . . 10-14  
 Straight Press-Fit Power Header . . . . . 10-24



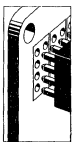
**Shrouds**

Shroud . . . . . 10-26  
 Low Profile Backplane Retainer . . . . . 10-34



**PCB-Mounted Receptacle Assemblies**

Futurebus + Application Guide . . . . . 10-4  
 Right-Angle Solder-to-Board  
 Signal Receptacle . . . . . 10-6  
 Right-Angle Press-Fit Signal Receptacle . . . . . 10-8  
 Straight Solder-to-Board  
 Signal Receptacle . . . . . 10-10  
 Right-Angle Solder-to-Board Power  
 Receptacle . . . . . 10-16  
 Right-Angle Press-Fit Power Receptacle . . . . . 10-18  
 Straight Solder-to-Board  
 Power Receptacle . . . . . 10-20



**Backpanel Connectors**

Futurebus + Application Guide . . . . . 10-4  
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 Signal Header . . . . . 10-12  
 Straight Press-Fit Signal Header . . . . . 10-14  
 Straight Solder-to-Board Wide Body  
 Power Header . . . . . 10-22  
 Straight Press-Fit Power Header . . . . . 10-24  
 Shroud . . . . . 10-26



**Hybrid Connectors**

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 Application Guide . . . . . 10-36  
 DIN-Standard High-Power Inserts . . . . . 10-38  
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 DIN-Standard High-Power Housings . . . . . 10-42  
 Crimp-to-Wire/Solder-to-Cable  
 DIN-Standard High-Power Assembly . . . . . 10-42  
 DIN-Standard Coax Application Guide . . . . . 10-45  
 DIN-Standard Coax Inserts . . . . . 10-46  
 Right-Angle Solder-to-Board and Straight  
 DIN-Standard Coax Housings . . . . . 10-50  
 Crimp-to-Wire DIN-Standard Coax  
 Assembly . . . . . 10-50  
 6-Position Mini Coax Application Guide . . . . . 10-53  
 9-Position Mini Coax Application Guide . . . . . 10-55  
 Mini Coax Inserts . . . . . 10-58  
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 Straight Mini Coax Housings . . . . . 10-64  
 Crimp-to-Wire Mini Coax Assembly . . . . . 10-64



**Round Conductor, Round Cable Insulation-Piercing Connectors**

Round Cable Connector . . . . . 10-30  
 Low Profile IDC Cable Connector . . . . . 10-32



**Coax Cable Connectors**

DIN-Standard Coax Application Guide . . . . . 10-45  
 DIN-Standard Coax Inserts . . . . . 10-46  
 Right-Angle Solder-to-Board and Straight  
 DIN-Standard Coax Housing . . . . . 10-50  
 Crimp-to-Wire DIN-Standard  
 Coax Assembly . . . . . 10-50  
 6-Position Mini Coax Application Guide . . . . . 10-53  
 9-Position Mini Coax Application Guide . . . . . 10-55  
 Mini Coax Inserts . . . . . 10-58  
 Right-Angle Solder-to-Board and  
 Straight Mini Coax Housings . . . . . 10-64  
 Crimp-to-Wire Mini Coax Assembly . . . . . 10-64



## 2.00 mm (0.079 in.) Centerline Products



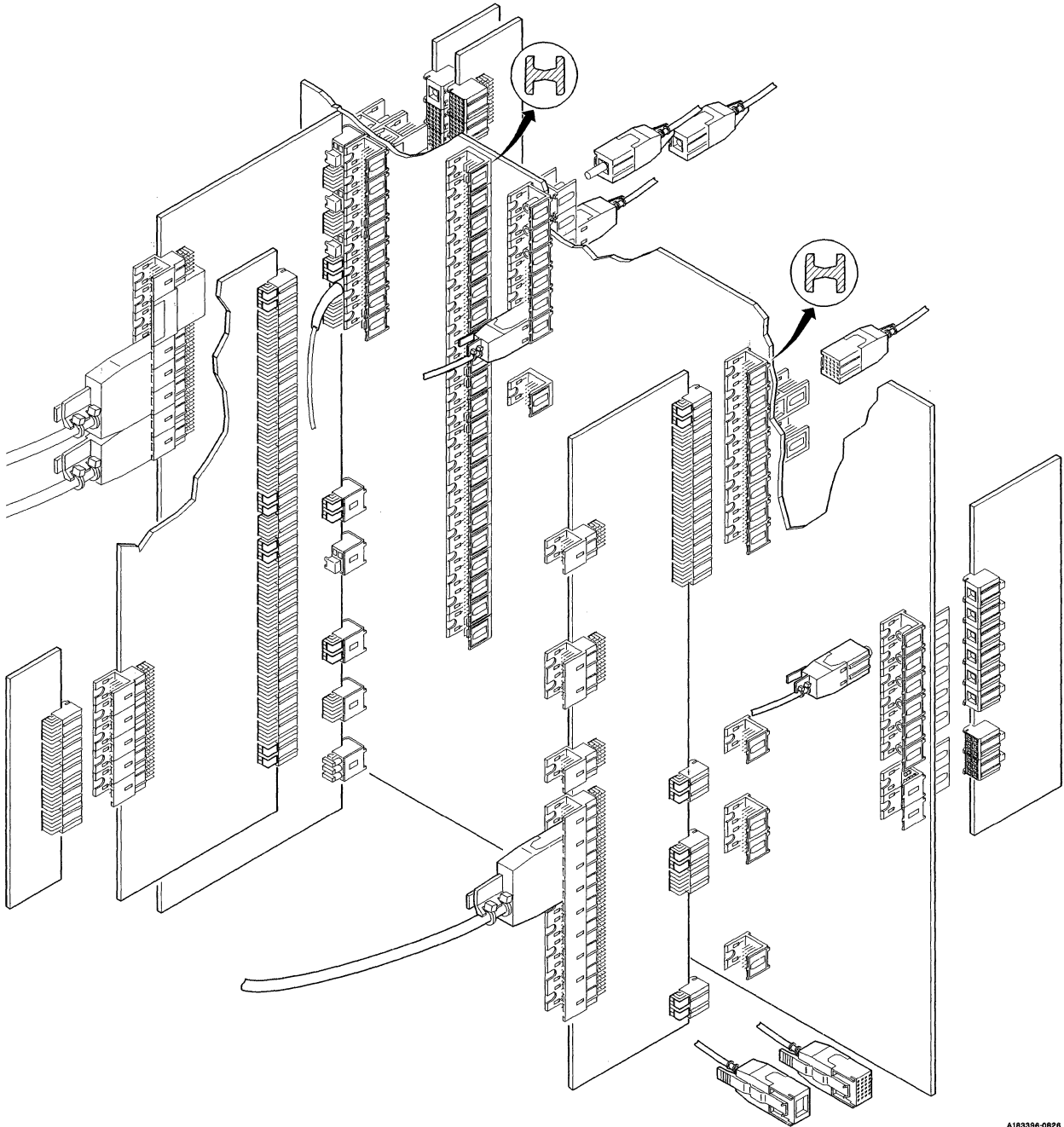
### Accessories

Cable-to-Board Coding System .....	10-70
Board-to-Board Coding System .....	10-72
Board-to-Board Keying System .....	10-74
Guide Pin System .....	10-78
Ramping Module .....	10-80



### Application Equipment

MT-120 Single Riveting Hand Tool .....	10-82
MT-130 Multiple Riveting Machine .....	10-83
MT-200 Hand Tool .....	10-84
MT-220 IDC Machine .....	10-85
MT-230 Low Profile IDC Machine .....	10-86
MT-301 (For press-fit straight headers) Insertion Bench Press .....	10-87
MT-310 (For press-fit straight headers) Insertion Air Press .....	10-88
MT-320 (For press-fit straight headers) Semi-Automatic Insertion Air Press .....	10-89
Press-Fit Straight Header Tooling Set .....	10-90
MT-330 Press-Fit Repair Kit (Rear Side) .....	10-92
MT-340 Press-Fit Repair Kit (Front Side) .....	10-92
HT-334 Crimp Tool for Power Inserts .....	10-93
HT-333 Extraction Tool for DIN-Standard Coax and Power Inserts (From receptacle housings) .....	10-93
HT-420 Extraction Tool for DIN-Standard Coax and Power Inserts (From header housings) .....	10-93
HT-430 Crimp Tool for DIN-Standard Coax and Mini Coax Inserts .....	10-94
HT-400 Extraction Tool for Mini Coax Inserts (From header housings) .....	10-95
HT-410 Extraction Tool for Mini Coax Inserts (From receptacle housings) .....	10-95
MT-510 Insertion Bench Press (For right angle headers and receptacles) .....	10-96
MT-511 Insertion Air Press (For right angle headers and receptacles) .....	10-97
Press-Fit, Right-Angle Receptacle Tooling Set .....	10-98

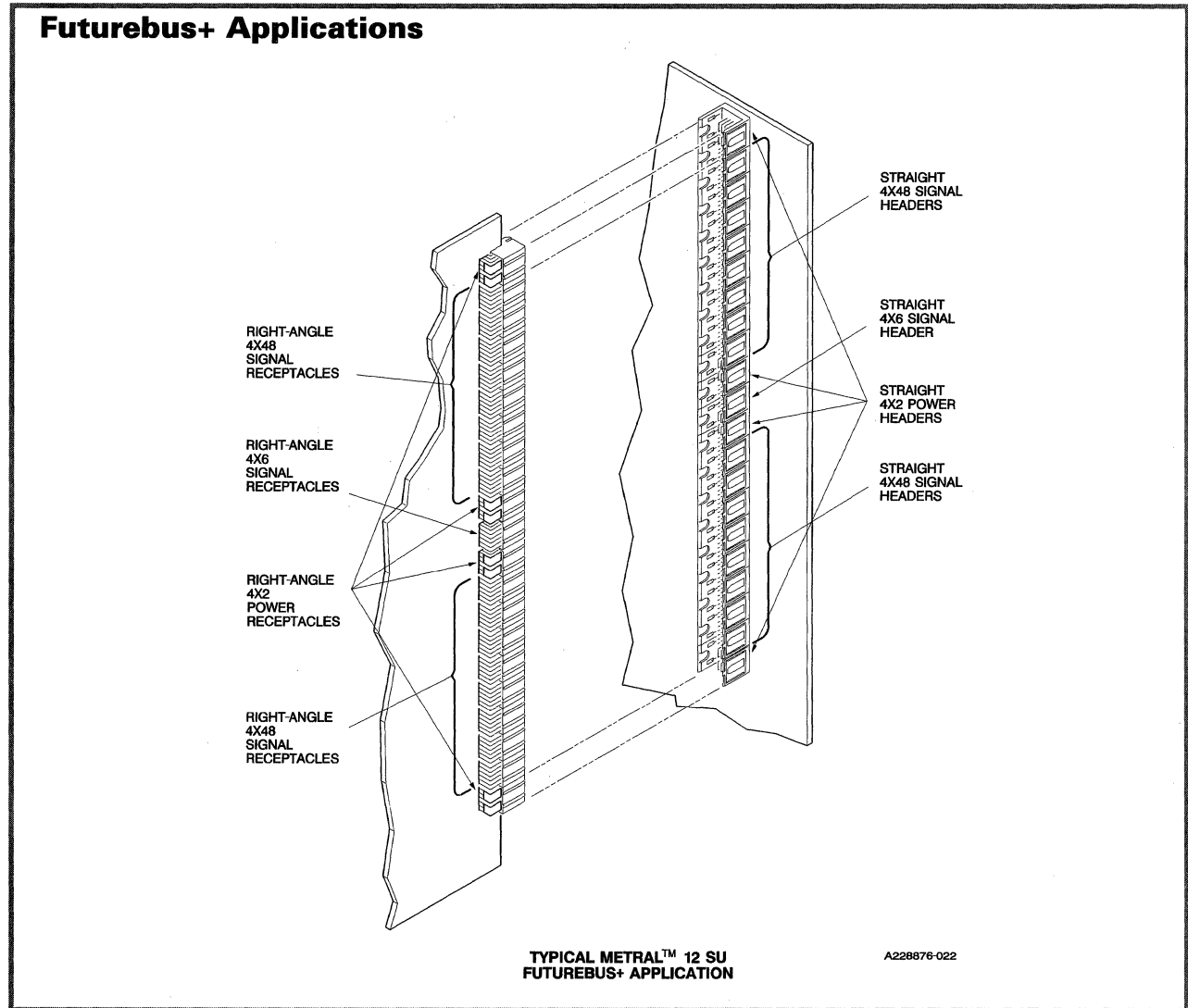


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A183398-0826

# Shrouded Headers Compliant Press-Fit Pin Headers PCB-Mounted Receptacle Assemblies Backpanel Connectors

## Futurebus+ (Profile A, B, F and T) Application Guide



Profile	If you have a 12 SU* slot Press-Fit Backpanel application		
	you need 4 x 2 straight power headers (see page 10-24)	and 1 4 x 6 straight signal header (see page 10-14)	and 2 4 x 48 straight signal headers (see page 10-14)
A, B, F	70236-X03	70232-X15	70235-X15
T	70236-X43	70232-X72	70235-X19

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

Profile	If you have a 12 SU* slot Wide Body Solder-to-Board Backpanel application				
	and if you have a Backpanel Thickness of		you need 4 4 x 2 straight power headers (see page 10-22)	and 1 4 x 6 straight signal header (see page 10-12)	and 2 4 x 48 straight signal headers (see page 10-12)
	mm	in.			
A, B, F	1.60	0.062	88960-X61	88951-X65	88954-X65
	2.40	0.093	88960-X31	88951-X35	88954-X35
	3.20	0.125	88960-X01	88951-X05	88954-X05

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

Profile	If you have a 12 SU* Solder-to-Board Daughter Card application							
	and if you have a Daughter Card Thickness of		you need 4 4 x 2 right-angle power receptacle (see page 10-16)		and 1 4 x 6 right-angle signal receptacle (see page 10-6)		and 2 4 x 48 right-angle signal receptacles (see page 10-6)	
	mm	in.	Heat Stake Peg	Press Peg	Heat Stake Peg	Press Peg	Heat Stake Peg	Press Peg
A, B, F and T	1.60	0.062	70231-X01	89039-X01	70227-X01	89035-X01	70230-X01	89038-X01
	2.40	0.093	70231-X11	89039-X11	70227-X11	89035-X11	70230-X11	89038-X11

X refers to plating thickness.

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

Profile	If you have a 12 SU* Press-Fit Daughter Card application				
	and if you have a Daughter Card Thickness of		you need 4 4 x 2 right-angle power receptacle (see page 10-18)	and 1 4 x 6 right-angle signal receptacle (see page 10-8)	and 2 4 x 48 right-angle signal receptacles (see page 10-8)
	mm	in.			
A, B, F and T	1.60	0.062	88949-X02	88945-X02	88948-X02
	2.40	0.093	88949-X02	88945-X02	88948-X02

X refers to plating thickness.

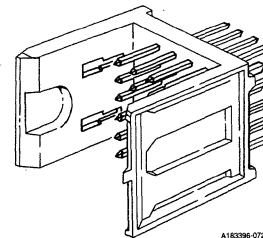
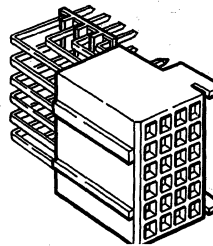
Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

\*SU = System unit; SU is the rack and cabinet reference, an incremental mounting pitch for height, width, and depth. 1 SU = 25.0 mm

# PCB-Mounted Receptacle Assemblies

2.00 mm (0.079 in.) Centerlines

## Right-Angle Solder-to-Board Signal Receptacle



A18396-0727

### Features

- For Futurebus + and SCl users.
- 4 and 5 rows and 2-mm pitch permit high signal density (20 or 25 contacts per cm connector length).
- Modular design guarantees flexibility.
- Stackable end-to-end without loss of positions.
- Stackable with other METRAL™ function modules (e.g., power, coax, guide pin).
- Duplex-plated with gold or GXT™ (palladium-nickel alloy with gold flash) for optimum mating performance and solderability.
- Reliable dual-beam contact.
- Stable high-strength PCB attachment.
- Wafer ensures true positioning of solder tails for easy mounting.
- Suitable for robotic PCB assembly.
- Plug polarization.

### Options

- Contact plating
- Tail Length.
- Coding.
- Board attachment.


### Mating Data


Berg Electronics Products	Page
▪ METRAL™ right-angle solder-to-board signal headers . . . . .	10-28
▪ METRAL™ straight solder-to-board wide body signal headers . . . . .	10-12
▪ METRAL™ straight press-fit signal headers . . . . .	10-14

### Specifications

EIA/SP-3179  
IEC 1076-4-104 (Draft)  
CECC 75 101-810

### Approvals and Certifications

 File no. E66906

 File no. LR46923

Bellcore TR-NWT-001217

### Application Equipment

Berg Electronics Products	Page
▪ MT-120 single riveting hand tool . . . . .	10-82
▪ MT-130 multiple riveting machine . . . . .	10-83
▪ MT-510 insertion bench press . . . . .	10-96
▪ MT-511 insertion air press . . . . .	10-97

### Technical Data

#### Materials

- Housing . . . . . Glass filled LCP (UL 94 V-0)
  - ▶ Color . . . . . Natural
  - ▶ Applicable soldering processes . . . . . Wave, IR vapor phase
- Contact . . . . . Phosphor-bronze

#### Mechanical Performance

- Insertion force per contact . . . . . 0.45 N max
- Withdrawal force per contact . . . . . 0.20 N min
- Durability (mating cycles) . . . . . 250

#### Environmental Properties

- Temperature range . . . . . -55°C to + 105°C

#### Electrical Performance

- Insulation resistance . . . . .  $5 \times 10^3$  M $\Omega$  min initially;  
 $1 \times 10^3$  M $\Omega$  after environmental testing
- Withstanding voltage . . . . . 1000 V rms (sea level)
- Current rating . . . . . 1 amp

#### Plating

- Contact area finish . . . . . See Ordering Data
- Remainder . . . . . Tin-lead

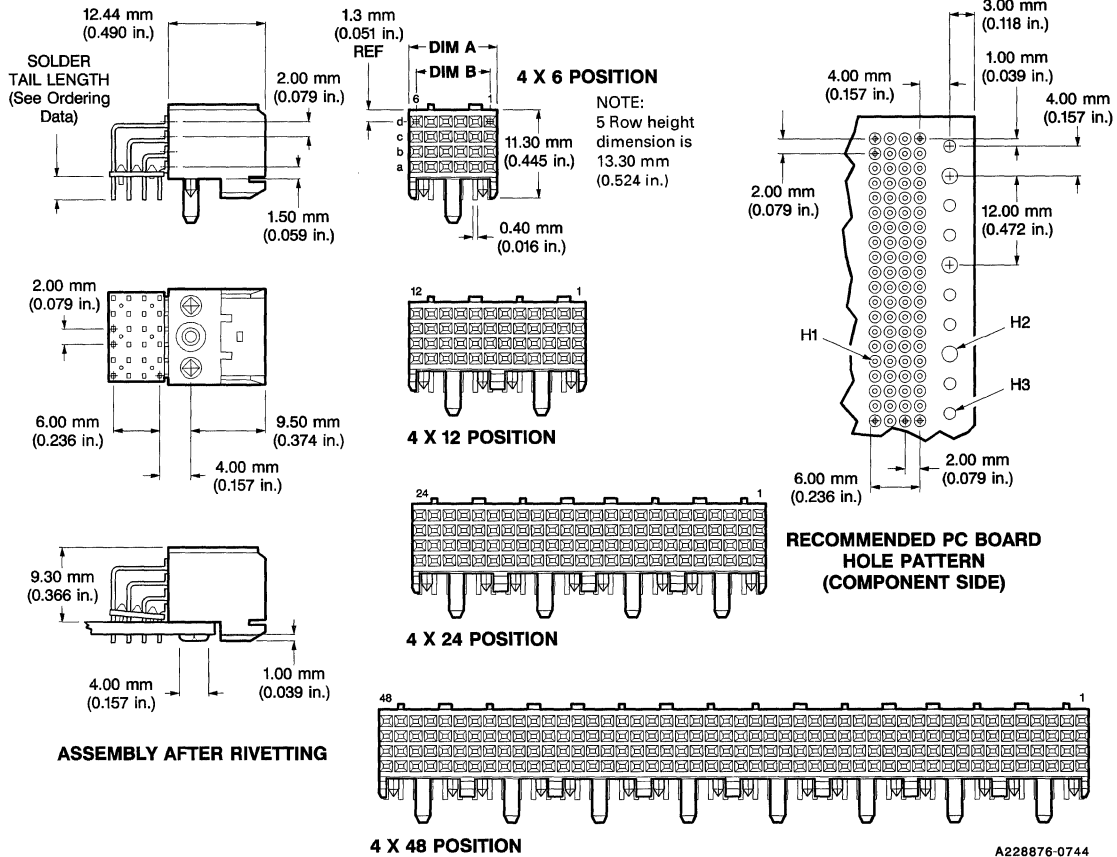
#### Packaging (see Ordering Data for quantity)

- Tubes

### Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawings . . . . .	By Part No.	Product Samples . . . . .	Upon Request
Product Specifications . . . . .	GES-12-002		

## Description 4 Row Versions Shown



English units shown for reference only. For "H" hole specifications, see page 10-99.

## Ordering Data

Base number indicates number of positions and board attachment type.

□ □ □ □ - XYY

**Contact area finish (gold over nickel):**

- 1 = 0.8 µm (30 µin.)
- 9 = 0.8 µm (30 µin.) GXT™ over nickel

**Solder tail length - 4 Row**

- 01 = 2.73 mm (0.108 in.); 1.6 mm (0.062 in.) PCB thickness
- 11 = 3.53 mm (0.139 in.); 2.4 mm (0.093 in.) PCB thickness

**Solder tail length - 5 Row**

- 02 = 2.73 mm (0.108 in.); 1.6 mm (0.062 in.) PCB thickness
- 12 = 3.53 mm (0.139 in.); 2.4 mm (0.093 in.) PCB thickness

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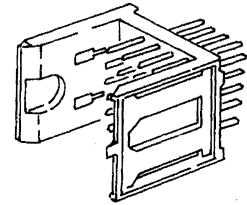
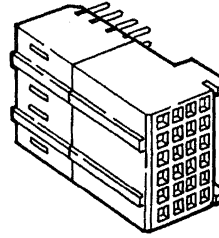
Number of Positions	Dimensions				Base Number		Pkg. Qty.
	A		B		Heat Stake Peg	Press Peg	
	mm	in.	mm	in.			
4 x 6	11.95	0.470	10.00	0.394	70227-XY	89035-XY	96
4 x 12	23.95	0.943	22.00	0.866	70228-XY	89036-XY	48
4 x 24	47.95	1.888	46.00	1.811	70229-XY	89037-XY	24
4 x 48	95.95	3.778	94.00	3.701	70230-XY	89038-XY	24
5 x 6	11.95	0.470	10.00	0.394	89013-XY	85863-XY	96
5 x 12	23.95	0.943	22.00	0.866	89014-XY	85864-XY	48
5 x 24	47.95	1.888	46.00	1.811	89015-XY	85865-XY	24
5 x 48	95.95	3.778	94.00	3.701	89016-XY	85866-XY	24

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

# PCB-Mounted Receptacle Assemblies

2.00 mm (0.079 in.) Centerlines

## Right-Angle Press-Fit Signal Receptacle



### Features

- For Futurebus + and SCI users.
- 4 and 5 rows and 2-mm pitch permit high signal density (20 or 25 contacts per cm connector length).
- Surface mount compatible board processing.
- Modular design guarantees flexibility.
- Stackable end-to-end without loss of positions.
- Stackable with other METRAL™ function modules (e.g., power, coax, guide pin).
- Duplex-plated with gold or GXT™ (palladium-nickel alloy with gold flash) for optimum mating performance and solderability.
- Reliable dual-beam contact.
- Stable high-strength PCB attachment prevents stress on press-fit tails.
- Press block ensures true positioning of press-fit tails for easy mounting.

- Suitable for robotic PCB assembly.
- Plug polarization.

### Options

- Contact plating
- Coding.


### Mating Data


Berg Electronics Products	Page
▪ METRAL™ right-angle solder-to-board signal headers . . . . .	10-28
▪ METRAL™ straight solder-to-board wide body signal headers . . . . .	10-12
▪ METRAL™ straight press-fit signal headers . . . . .	10-14

### Specifications

EIA/SP-3179  
IEC 1076-4-104 (Draft)  
CECC 75 101-810

### Approvals and Certifications

 File no. E66906

 File no. LR46923

Bellcore TR-NWT-001217

### Application Equipment

Berg Electronics Products	Page
▪ MT-120 single riveting hand tool . . . . .	10-82
▪ MT-130 multiple riveting machine . . . . .	10-83
▪ MT-510 insertion bench press . . . . .	10-96
▪ MT-511 insertion air press . . . . .	10-97

### Technical Data

#### Materials

- Housing . . . . . Glass filled LCP (UL 94 V-0)
  - Color . . . . . Natural
- Contact . . . . . Phosphor-bronze

#### Mechanical Performance

- Insertion force per contact . . . . . 0.45 N max
- Withdrawal force per contact . . . . . 0.20 N min
- Durability (mating cycles) . . . . . 250

#### Environmental Properties

- Temperature range . . . . . -55°C to + 105°C

#### Electrical Performance

- Insulation resistance . . . . .  $5 \times 10^3$  M $\Omega$  min initially;  
 $1 \times 10^3$  M $\Omega$  after environmental testing
- Withstanding voltage . . . . . 1000 V rms (sea level)
- Current rating . . . . . 1 amp

#### Plating

- Contact area finish . . . . . See Ordering Data
- Remainder . . . . . Tin-lead

#### Packaging (see Ordering Data for quantity)

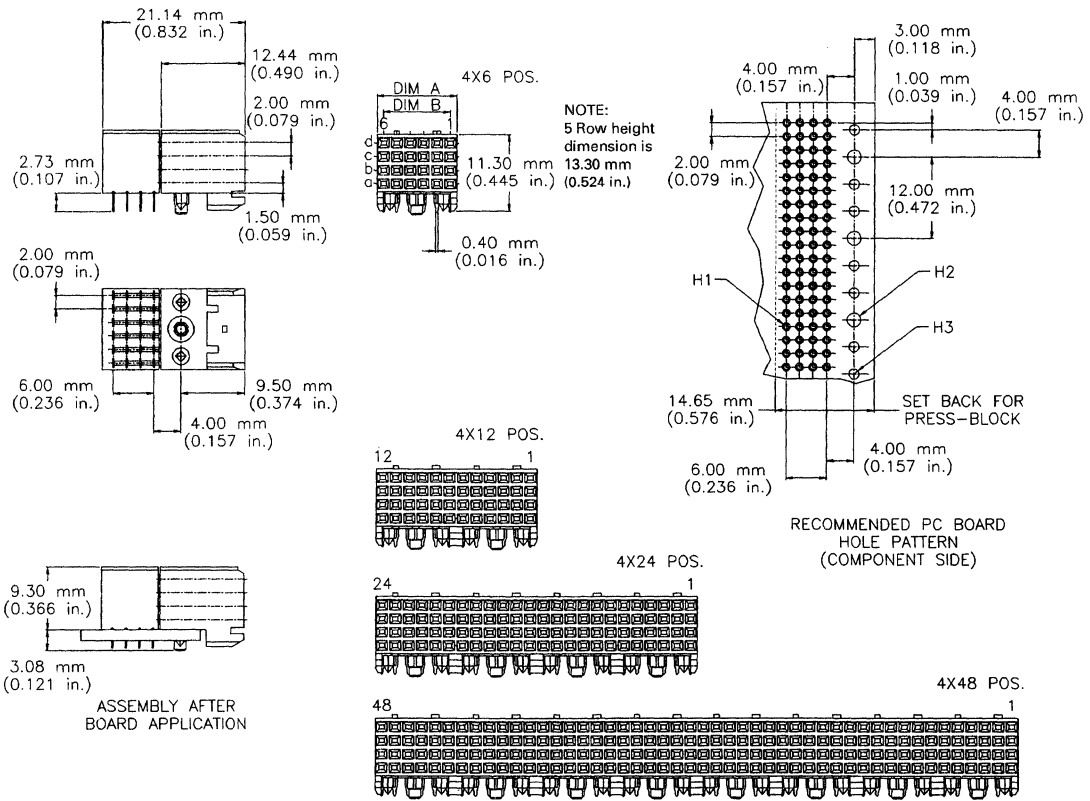
- Tubes

### Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawings . . . . .	By Part No.	Product Samples . . . . .	Upon Request
Product Specifications . . . . .	GES-12-002	Application Drawing . . . . .	TA-941

## Description

### 4 Row Versions Shown



English units shown for reference only. For "H" hole specifications, see page 10-99.

## Ordering Data

Base number indicates number of positions.

□ □ □ □ - X 0 2

Contact area finish (gold over nickel):

1 = 0.8 μm (30 μin.)

9 = 0.8 μm (30 μin.) GXT™ over nickel

Number of Positions	Dimensions				Base Number	Pkg. Qty.
	A		B			
4 x 6	11.95	0.470	10.00	0.394	88945-X02	96
4 x 12	23.95	0.943	22.00	0.866	88946-X02	48
4 x 24	47.95	1.888	46.00	1.811	88947-X02	24
4 x 48	95.95	3.778	94.00	3.701	88948-X02	24
5 x 6	11.95	0.470	10.00	0.394	89047-X02	96
5 x 12	23.95	0.943	22.00	0.866	89093-X02	48
5 x 24	47.95	1.888	46.00	1.811	89094-X02	24
5 x 48	95.95	3.778	94.00	3.701	89095-X02	24

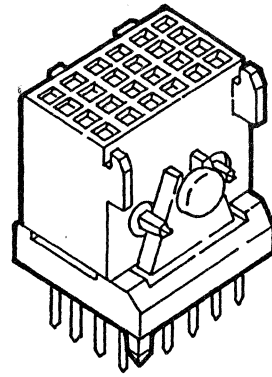
Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.



# PCB-Mounted Receptacle Assemblies

2.00 mm (0.079 in.) Centerlines

## Straight Solder-to-Board Signal Receptacle



### Features

- Parallel Board Applications.
- 4 rows and 2-mm pitch permit high signal density (20 contacts per cm connector length).
- Modular design guarantees flexibility.
- Stackable end-to-end without loss of positions.
- Duplex-plated with gold or GXT™ (palladium-nickel alloy with gold flash) for optimum mating performance and solderability.
- Reliable dual-beam contact.
- Wafer ensures true positioning of solder tails for easy mounting.
- Standoffs on wafer allow easy cleaning after soldering.
- Suitable for robotic PCB assembly.
- Plug polarization.

### Options

- Contact plating
- Tail Length.



### Mating Data

Berg Electronics Products	Page
▪ METRAL™ right-angle solder-to-board signal headers . . . . .	10-28
▪ METRAL™ straight solder-to-board wide body signal headers . . . . .	10-12
▪ METRAL™ straight press-fit signal headers . . . . .	10-14

### Specifications

EIA/SP-3179  
IEC 1076-4-104 (Draft)  
CECC 75 101-810

### Approvals and Certifications

 File no. E66906  
  
 File no. LR46923  
Bellcore TR-NWT-001217

### Technical Data

#### Materials

- Housing . . . . . Glass filled LCP (UL 94 V-0)
  - ▶ Color . . . . . Natural
  - ▶ Applicable soldering processes. . . . . Wave, IR vapor phase
- Contact. . . . . Phosphor-bronze

#### Mechanical Performance

- Insertion force per contact. . . . . 0.45 N max
- Withdrawal force per contact . . . . . 0.20 N min
- Durability (mating cycles) . . . . . 250

#### Environmental Properties

- Temperature range. . . . . -55°C to + 105°C

#### Electrical Performance

- Insulation resistance . . . . . 5 x 10<sup>3</sup> MΩ min initially; 1 x 10<sup>3</sup> MΩ after environmental testing
- Withstanding voltage . . . . . 1000 V rms (sea level)
- Current rating . . . . . 1 amp

#### Plating

- Contact area finish . . . . . See Ordering Data
- Remainder. . . . . Tin-lead

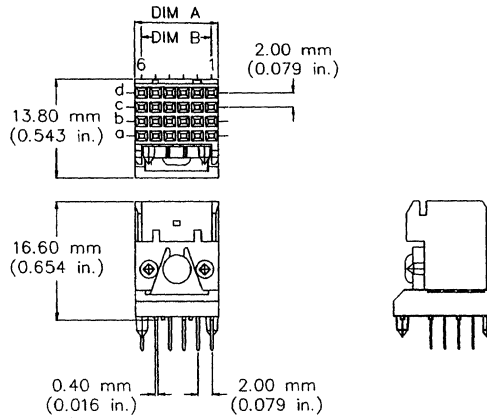
#### Packaging (see Ordering Data for quantity)

- Tubes

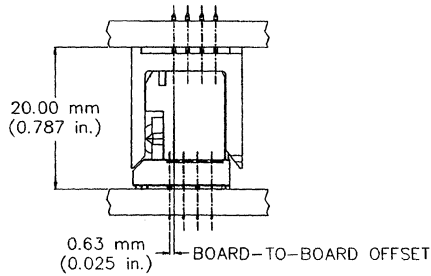
### Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawings. . . . .	By Part No.	Product Samples. . . . .	Upon Request
Product Specifications. . . . .	GES-12-002		

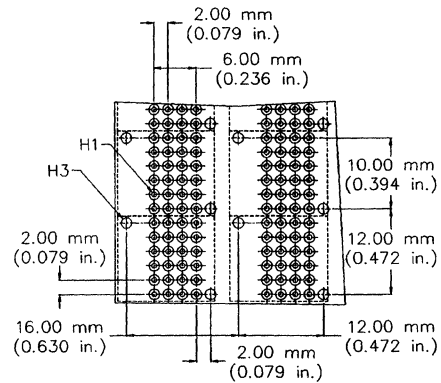
## Description



APPLICATION EXAMPLE



RECOMMENDED PC BOARD LAY-OUT



English units shown for reference only. For "H" hole specifications, see page 10-99

## Ordering Data

9 3 2 3 5 - X Y Z

Contact area finish (gold over nickel):

1 = 0.8  $\mu$ m (30  $\mu$ in.)

9 = 0.8  $\mu$ m (30  $\mu$ in.) GXT™ over nickel

Number of positions(see table)

Solder tail length (see table)

### Solder Tail Length

4.25 mm (0.167 in.)  
[3.2 mm (0.125 in.) PCB]  
-XY3

3.45 mm (0.136 in.)  
[2.4 mm (0.093 in.) PCB]  
-XY2

2.65 mm (0.104 in.)  
[1.6 mm (0.062 in.) PCB]  
-XY1

### Number of Positions

	Dimensions				Part Number	Pkg. Qty.
	A		B			
	mm	in.	mm	in.		
4 x 6	11.95	0.470	10.00	0.394	93235-X1Z	96
4 x 12	23.95	0.943	22.00	0.866	93235-X2Z	48
4 x 24	47.95	1.888	46.00	1.811	93235-X3Z	24
4 x 48	95.95	3.778	94.00	3.701	93235-X4Z	24

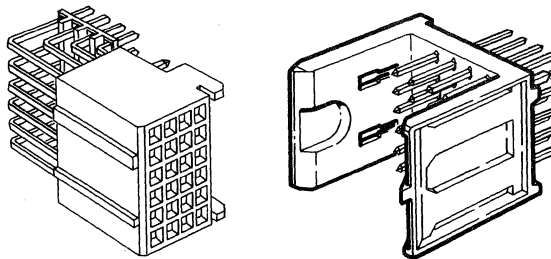
Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

10

# Shrouded Headers Backpanel Connectors

2.00 mm (0.079 in.) Centerline

**Straight  
Solder-to-Board  
Wide Body Signal Header**



A163396-0729

## Features

- For Futurebus + and SCI users.
- 4 rows and 2-mm pitch permit high signal density (20 contacts per cm connector length).
- Modular design guarantees flexibility.
- Stackable end-to-end without loss of positions.
- Stackable with other METRAL™ function modules (e.g., power, coax, guide pin).
- Wide lead-in for easy receptacle capture.
- Duplex-plated with gold or GXT™ (palladium-nickel alloy with gold flash) for optimum mating performance and solderability.
- Locating pegs.
- Plug polarization.
- Suitable for robotic PCB assembly.

## Options

- Contact plating
- Mate lengths from 5.0 mm to 8.0 mm
- Tail Length.
- Coding.


## Mating Data


Berg Electronics Products	Page
▪ METRAL™ right-angle solder-to-board signal receptacles .....	10-6
▪ METRAL™ right-angle press-fit signal receptacles .....	10-8
▪ METRAL™ straight solder-to-board signal receptacles .....	10-10
▪ METRAL™ round cable connectors .....	10-30

## Specifications

EIA/SP-3179  
IEC 1076-4-104 (Draft)  
CECC 75 101-810

## Approvals and Certifications

 File no. E66906

 File no. LR46923  
Bellcore TR-NWT-001217

## Technical Data

### Materials

- Housing ..... Glass filled LCP (UL 94 V-0)
  - ▶ Color ..... Natural
  - ▶ Applicable soldering processes..... Wave, IR vapor phase
- Contact ..... Phosphor-bronze

### Environmental Properties

- Temperature range..... -55°C to + 105°C

### Mechanical Performance

- Durability (mating cycles) ..... 250

### Electrical Performance

- Insulation resistance ..... 5 x 10<sup>3</sup> MΩ min initially; 1 x 10<sup>3</sup> MΩ after environmental testing
- Withstanding voltage ..... 1000 V rms (sea level)
- Current rating ..... 1 amp

### Plating

- Contact area finish ..... See Ordering Data
- Remainder..... Tin-lead

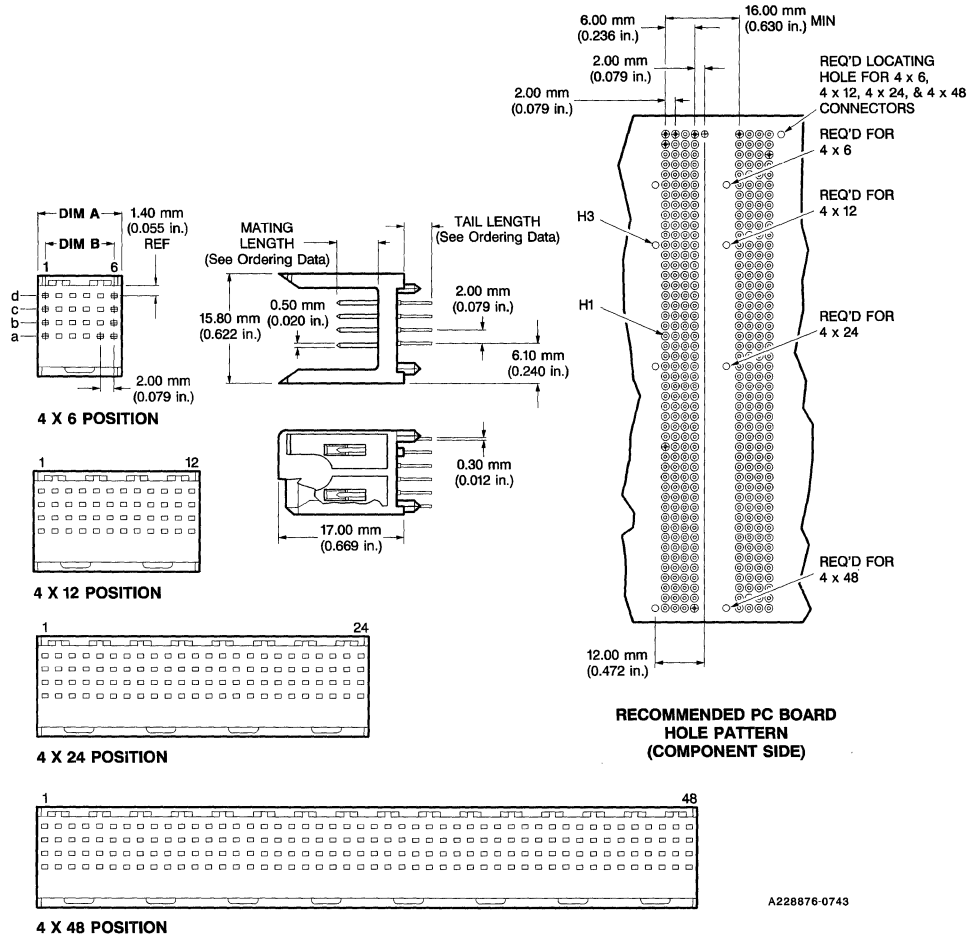
### Packaging (see Ordering Data for quantity)

- Tubes

## Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawings.....	By Part No.	Product Samples.....	Upon Request
Product Specifications.....	GES-12-002		

**Description**



A228876-0743

English units shown for reference only. For "H" hole specifications, see page 10-99

**Ordering Data**

Base number indicates number of positions.

□ □ □ □ - X Y Y

Contact area finish (gold over nickel):

1 = 0.8 μm (30 μin.)

9 = 0.8 μm (30 μin.) GXT™ over nickel

Mating and solder tail lengths (see table)

Mating Length Rows a - d		Dash Number		
		Solder Tail Length		
mm	in.	4.25 mm (0.167 in.) [3.2 mm (0.125 in.) PCB]	3.45 mm (0.136 in.) [2.4 mm (0.093 in.) PCB]	2.65 mm (0.104 in.) [1.6 mm (0.062 in.) PCB]
5.00	0.197	-X01	-X31	-X61
6.50	0.256	-X05	-X35	-X65

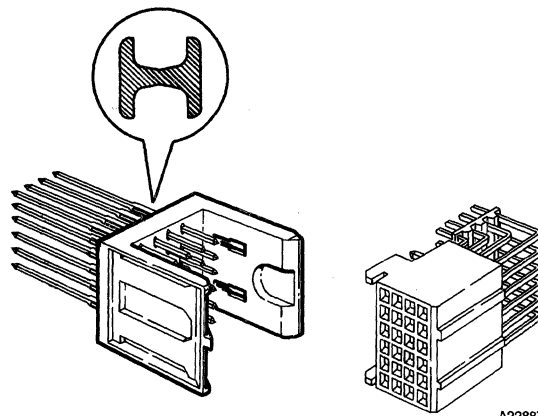
Number of Positions	Base Number				Part Number	Pkg. Qty.
	Dimensions		Dimensions			
	A	B	A	B		
	mm	in.	mm	in.		
4 x 6	11.95	0.470	10.00	0.394	88951-XYX	96
4 x 12	23.95	0.943	22.00	0.866	88952-XYX	48
4 x 24	47.95	1.888	46.00	1.811	88953-XYX	24
4 x 48	95.95	3.778	94.00	3.701	88954-XYX	24

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

# Shrouded Headers Compliant Press-Fit Pin Headers Backpanel Connectors

2.00 mm (0.079 in.) Centerlines

## Straight Press-Fit Signal Header



A228876-0729

### Features

- For Futurebus + and SCI users.
- 4 and 5 rows and 2-mm pitch permit high signal density (20 or 25 contacts per cm connector length).
- Modular design guarantees flexibility.
- Stackable end-to-end without loss of positions.
- Stackable with other METRAL™ function modules (e.g., power, coax, guide pin).
- Wide lead-in for easy receptacle capture.
- Duplex-plated with gold or GXT™ (palladium-nickel alloy with gold flash) for optimum mating performance and solderability.
- Compliant press-fit section with H-shaped design provides optimum pin stability and gas-tight connections in four contact areas.
- Large hole tolerance of 0.65- 0.80 mm.
- Plug polarization.
- Suitable for robotic PCB assembly.

### Options

- Contact plating
- Mate Lengths from 5.0 mm to 8.25 mm.
- First-make, last-break.
- Rear plug-up and wire wrap.
- Coding.

### Mating Data


Berg Electronics Products	Page
▪ METRAL™ right-angle solder-to-board signal receptacles . . . . .	10-6
▪ METRAL™ right-angle press-fit signal receptacles . . . . .	10-8
▪ METRAL™ straight solder-to-board signal receptacles . . . . .	10-10
▪ METRAL™ round cable connectors . . . . .	10-30


### Specifications

EIA/SP-3179  
IEC 1076-4-104 (Draft)  
CECC 75 101-810  
EIA 280

### Approvals and Certifications

Bellcore TR-NWT-001217

 File no. E66906

 File no. LR46923

### Application Equipment

Berg Electronics Products	Page
▪ MT-301 press-fit insertion bench press. . . . .	10-87
▪ MT-310 press-fit insertion air press . . . . .	10-88
▪ MT-320 press-fit semi-automatic insertion air press . . . . .	10-89
▪ MT-330 press-fit repair kit. . . . .	10-92
▪ MT-340 press-fit repair kit. . . . .	10-92
▪ Press-fit tooling sets . . . . .	10-90

### Other Products

Other Products	Order No.
▪ Wire wrap tools (Cooper Industries)	
▶ Bit . . . . .	XE15145
▶ Sleeve. . . . .	511274

### Technical Data

#### Materials

- Housing . . . . . Glass filled LCP (UL 94 V-0)
  - ▶ Color . . . . . Natural
- Contact. . . . . Phosphor-bronze

#### Environmental Properties

- Temperature range. . . . . -55°C to + 105°C

#### Mechanical Performance

- Insertion force per pin . . . . . 100 N (22.5 lbf) max
- Retention force per pin. . . . . 30 N (6.7 lbf) min
- Durability (mating cycles) . . . . . 250

#### Electrical Performance

- Insulation resistance . . . . . 5 x 10<sup>3</sup> MΩ min initially; 1 x 10<sup>3</sup> MΩ after environmental testing
- Withstanding voltage . . . . . 1000 V rms (sea level)
- Current rating . . . . . 1 amp

#### Plating

- Contact area finish . . . . . See Ordering Data
- Press-fit area . . . . . Tin-lead

#### Packaging (see Ordering Data for quantity)

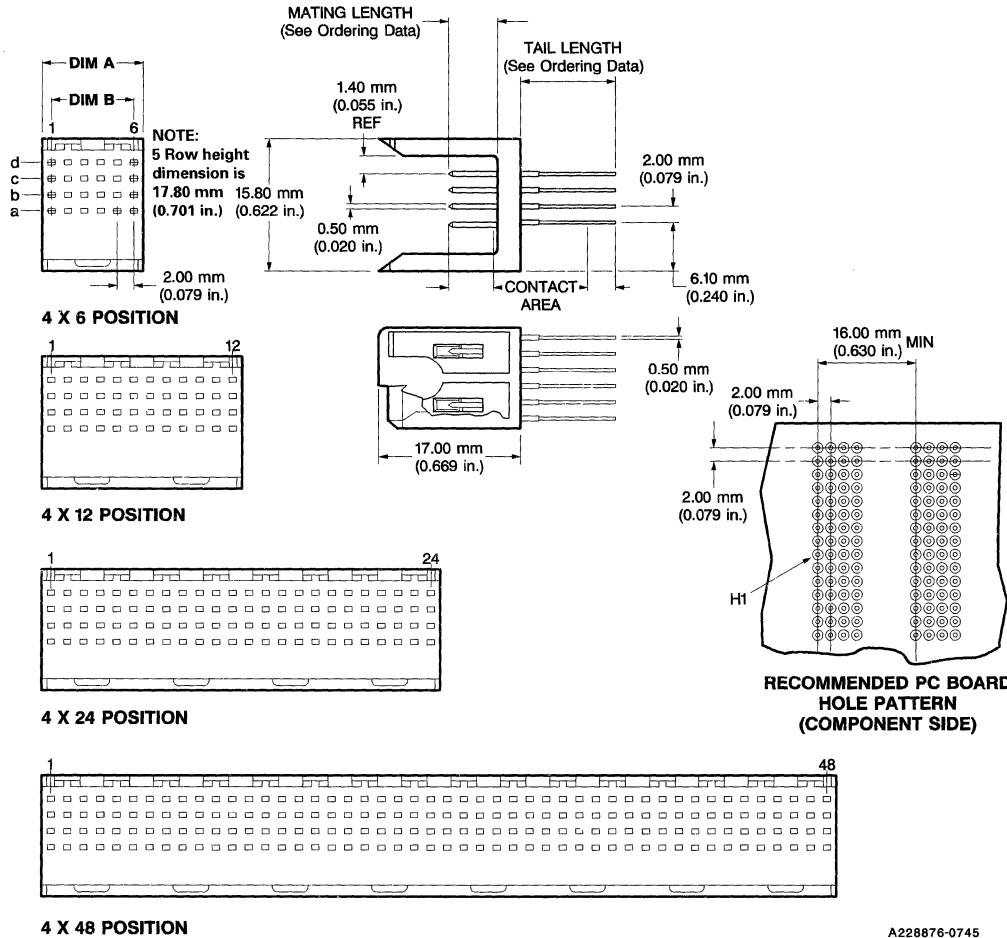
- Tubes

### Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawings. . . . .	By Part No.	Product Samples. . . . .	Upon Request
Product Specifications. . . . .	GES-12-002	Application Drawing. . . . .	TA-926
Compliant Pin Specifications . . . . .	GES-12-004		

## Description

### 4 Row Versions Shown



A228876-0745

English units shown for reference only. For "H" hole specifications, see page 10-99

## Ordering Data

Base number indicates number of positions

□ □ □ □ - XYZ

Tail length (after assembly)

- 1 = 4.30 mm (0.169 in.)
- 2 = 13.60 mm (0.535 in.) Available with Au plating only
- 3 = 17.00 mm (0.669 in.) Available with Au plating only

Contact area finish (gold over nickel):

- 1 = 0.8 μm (30 μin.)
- 9 = 0.8 μm (30 μin.) GXT™ over nickel

Mating Length

- |                         |                         |
|-------------------------|-------------------------|
| <b>4 Row (Rows A-D)</b> | <b>5 Row (Rows A-E)</b> |
| 1 = 5.00 mm (0.197 in.) | 0 = 5.00 mm (0.197 in.) |
| 5 = 6.50 mm (0.256 in.) | 1 = 6.50 mm (0.256 in.) |

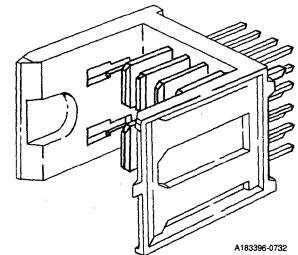
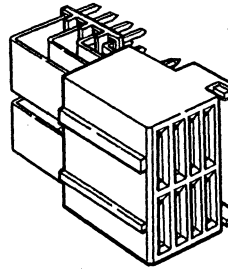
Number of Positions	Dimensions				Part Number	Pkg. Qty.
	A		B			
	mm	in.	mm	in.		
4 x 6	11.95	0.470	10.00	0.394	70232-XYZ	96
4 x 12	23.95	0.943	22.00	0.866	70233-XYZ	48
4 x 24	47.95	1.888	46.00	1.811	70234-XYZ	24
4 x 48	95.95	3.778	94.00	3.701	70235-XYZ	24
5 x 6	11.95	0.470	10.00	0.394	89006-XYZ	96
5 x 12	23.95	0.943	22.00	0.866	89007-XYZ	48
5 x 24	47.95	1.888	46.00	1.811	89008-XYZ	24
5 x 48	95.95	3.778	94.00	3.701	89009-XYZ	24

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

# PCB-Mounted Receptacle Assemblies

2.00 mm (0.079 in.) Centerline

**Right-Angle Solder-to-Board Power Receptacle**



A18396-0732

## Features

- For Futurebus + and SCI users.
- 4 and 5 rows and 2-mm pitch permit high signal density.
- Modular design guarantees flexibility.
- Stackable end-to-end without loss of positions.
- Stackable with other METRAL™ function modules (e.g., power, coax, guide pin).
- Duplex-plated with gold or GXT™ (palladium-nickel alloy with gold flash) for optimum mating performance and solderability.
- Power modules are form-and-fit interchangeable with signal modules on same footprint.
- Stable high-strength PCB attachment.
- Reliable dual-beam contact.
- Wafer ensures true position of solder tails for easy mounting.
- Suitable for robotic PCB assembly.
- Plug polarization.

## Options

- Contact plating
- Tail Length.
- Coding.


## Mating Data


Berg Electronics Products	Page
▪ METRAL™ straight solder-to-board wide body power headers . . . . .	10-22
▪ METRAL™ straight press-fit power headers . . . . .	10-24

## Specifications

EIA/SP-3179  
IEC 1076-4-104 (Draft)  
CECC 75 101-810

## Approvals and Certifications

 File no. E66906

 File no. LR46923

Bellcore TR-NWT-001217  
Application Equipment

## Berg Electronics Products Page

- MT-120 single riveting hand tool . . . . . 10-82
- MT-130 multiple riveting machine . . . . . 10-83
- MT-510 insertion bench press . . 10-96
- MT-511 insertion air press . . . . . 10-97

## Technical Data

### Materials

- Housing . . . . . Glass filled LCP (UL 94 V-0)
  - ▶ Color . . . . . Natural
  - ▶ Applicable soldering processes. . . . . Wave, IR vapor phase
- Contact. . . . . Phosphor-bronze

### Environmental Properties

- Temperature range. . . . . -55°C to + 105°C

### Mechanical Performance

- Insertion force per contact. . . . . 1.50 N max
- Withdrawal force per contact . . . . . 0.50 N min
- Durability (mating cycles) . . . . . 250

### Electrical Performance

- Insulation resistance. . . . .  $5 \times 10^3$  M $\Omega$  min initially;  
 $1 \times 10^3$  M $\Omega$  after environmental testing
- Withstanding voltage . . . . . 1000 V rms (sea level)
- Current rating . . . . . 3 amp

### Plating

- Contact area finish . . . . . See Ordering Data

### Packaging (see Ordering Data for quantity)

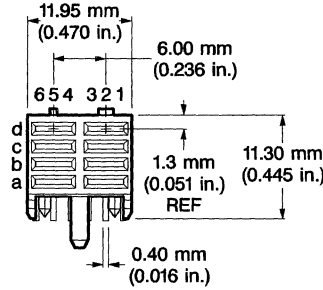
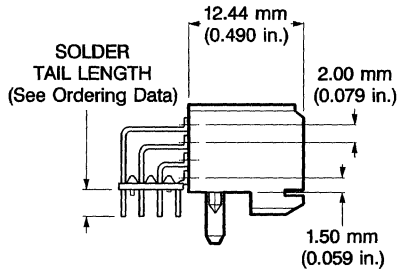
- Tubes . . . . . 96

## Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawings. . . . .	By Part No.	Product Samples. . . . .	Upon Request
Product Specifications. . . . .	GES-12-002		

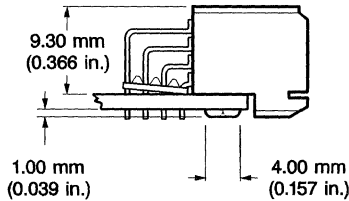
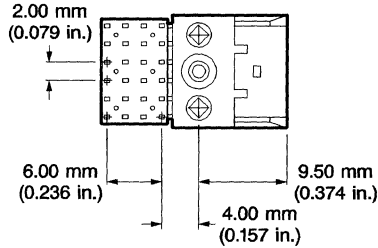
## Description

### 4 Row Versions Shown

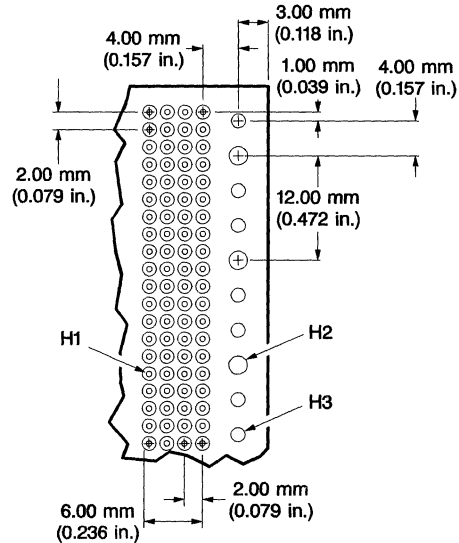


NOTE:  
5 Row height dimension is  
13.30 mm  
(0.524 in.)

### 4 X 2 POSITION



ASSEMBLY AFTER RIVETTING



RECOMMENDED PC BOARD HOLE PATTERN (COMPONENT SIDE)

English units shown for reference only. For "H" hole specifications, see page 10-99.

## Ordering Data

Base number indicates number of positions and board attachment type.

□ □ □ □ - X Y Y

Contact area finish (gold over nickel):

- 1 = 0.8 μm (30 μin.)
- 9 = 0.8 μm (30 μin.) GXT™ over nickel

Solder tail length - 4 Row

- 01 = 2.73 mm (0.108 in.); 1.6 mm (0.062 in.) PCB thickness
- 11 = 3.53 mm (0.139 in.); 2.4 mm (0.093 in.) PCB thickness

Solder tail length - 5 Row

- 02 = 2.73 mm (0.108 in.); 1.6 mm (0.062 in.) PCB thickness
- 12 = 3.53 mm (0.139 in.); 2.4 mm (0.093 in.) PCB thickness

Number of Positions	Board Attachment Type	Base Number
4 x 2	Heat Stake Peg	70231-XY Y
4 x 2	Press Peg	89039-XY Y
5 x 2	Heat Stake Peg	85810-XY Y
5 x 2	Press Peg	85876-XY Y

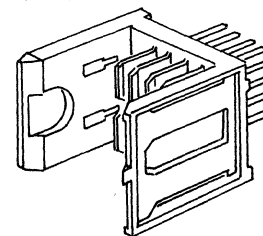
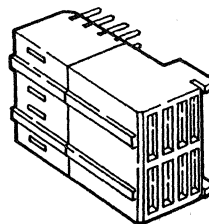
Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.



# PCB-Mounted Receptacle Assemblies

2.00 mm (0.079 in.) Centerline

**Right-Angle Press-Fit Power Receptacle**



## Features

- For Futurebus+ and SCI users.
- 4 and 5 rows and 2-mm pitch permit high signal density.
- Surface mount compatible processing.
- Modular design guarantees flexibility.
- Stackable end-to-end without loss of positions.
- Stackable with other METRAL™ function modules (e.g., power, coax, guide pin).
- Duplex-plated with gold or GXT™ (palladium-nickel alloy with gold flash) for optimum mating performance and solderability.
- Power modules are form-and-fit interchangeable with signal modules on same footprint.
- Stable high-strength PCB attachment prevents stress on press-fit tails.
- Reliable dual-beam contact.

- Press-block ensures true position of press-fit tails for easy mounting.
- Suitable for robotic PCB assembly.
- Plug polarization.

## Options

- Contact plating
- Coding.


## Mating Data


Berg Electronics Products	Page
▪ METRAL™ straight solder-to-board wide body power headers . . . . .	10-22
▪ METRAL™ straight press-fit power headers . . . . .	10-24

## Specifications

EIA/SP-3179  
IEC 1076-4-104 (Draft)  
CECC 75 101-810

## Approvals and Certifications

 File no. E66906

 File no. LR46923

Bellcore TR-NWT-001217

## Application Equipment

Berg Electronics Products	Page
▪ MT-120 single riveting hand tool . . . . .	10-82
▪ MT-130 multiple riveting machine . . . . .	10-83
▪ MT-510 insertion bench press . . . . .	10-96
▪ MT-511 insertion air press . . . . .	10-97

## Technical Data

### Materials

- Housing . . . . . Glass filled LCP (UL 94 V-0)
  - ▶ Color . . . . . Natural
- Contact . . . . . Phosphor-bronze

### Environmental Properties

- Temperature range . . . . . -55°C to + 105°C

### Mechanical Performance

- Insertion force per contact . . . . . 1.50 N max
- Withdrawal force per contact . . . . . 0.50 N min
- Durability (mating cycles) . . . . . 250

### Electrical Performance

- Insulation resistance . . . . . 5 x 10<sup>3</sup> MΩ min initially;  
1 x 10<sup>3</sup> MΩ after environmental testing
- Withstanding voltage . . . . . 1000 V rms (sea level)
- Current rating . . . . . 3 amp

### Plating

- Contact area finish . . . . . See Ordering Data

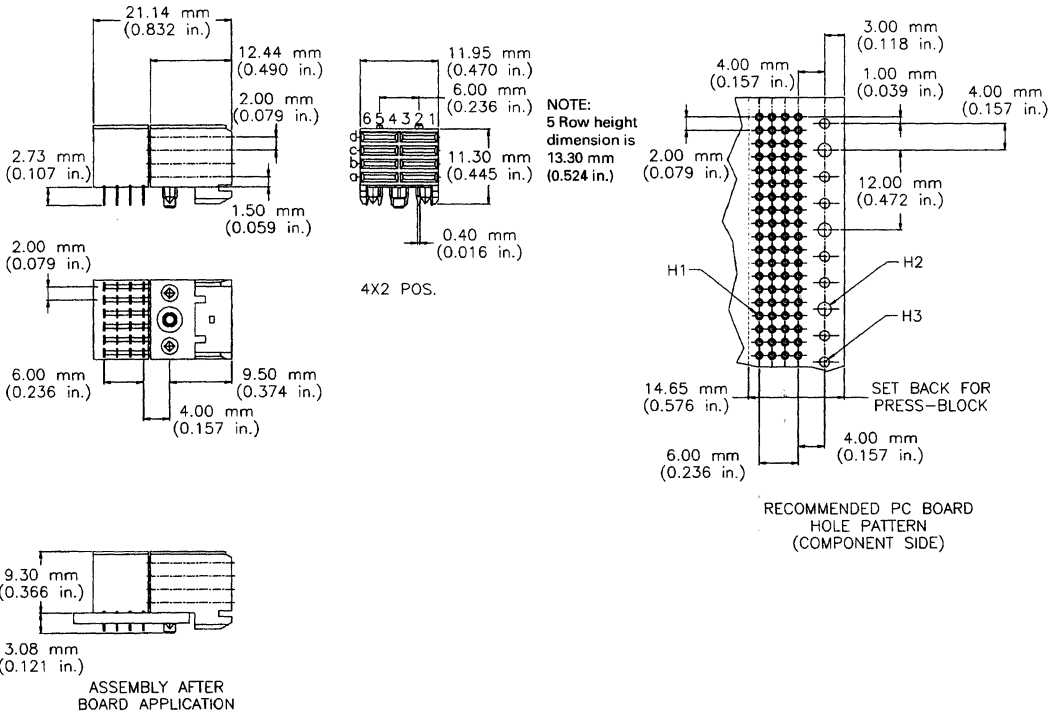
### Packaging (see Ordering Data for quantity)

- Tubes . . . . . 96

## Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawings . . . . .	By Part No.	Product Samples . . . . .	Upon Request
Product Specifications . . . . .	GES-12-002	Application Drawing . . . . .	TA-941

**Description**  
**4 Row Versions Shown**



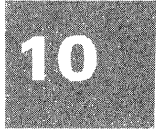
English units shown for reference only. For "H" hole specifications, see page 10-99.

**Ordering Data**

Base number indicates number of positions:      - X 0 2      **Contact area finish (gold over nickel):**  
 1 = 0.8 µm (30 µin.)  
 9 = 0.8 µm (30 µin.) GXT™ over nickel

Number of Positions	Base Number
4 x 2	88949-X02
5 x 2	89096-X02

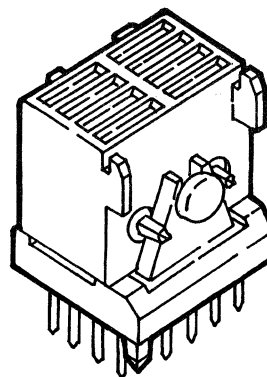
Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.



# PCB-Mounted Receptacle Assemblies

2.00 mm (0.079 in.) Centerline

## Straight Solder-to-Board Power Receptacle



### Features

- Parallel board applications.
- For Futurebus + and SCI users.
- 4 rows and 2-mm pitch permit high signal density.
- Modular design guarantees flexibility.
- Stackable end-to-end without loss of positions.
- Duplex-plated with gold or GXT™ (palladium-nickel alloy with gold flash) for optimum mating performance and solderability.
- Power modules are form-and-fit interchangeable with signal modules on same footprint.
- Reliable dual-beam contact.
- Standoffs on wafer allow easy cleaning after soldering.

- Wafer ensures true position of solder tails for easy mounting.
- Suitable for robotic PCB assembly.
- Plug polarization.

### Options

- Contact plating
- Tail length.


### Mating Data


Berg Electronics Products	Page
▪ METRAL™ straight solder-to-board wide body power headers . . . .	10-22
▪ METRAL™ straight press-fit power headers . . . . .	10-24

### Specifications

EIA/SP-3179  
IEC 1076-4-104 (Draft)  
CECC 75 101-810

### Approvals and Certifications

 File no. E66906

 File no. LR46923

### Technical Data

#### Materials

- Housing . . . . . Glass filled LCP (UL 94 V-0)
  - ▶ Color . . . . . Natural
  - ▶ Applicable soldering processes . . . . . Wave, IR vapor phase
- Contact . . . . . Phosphor-bronze

#### Environmental Properties

- Temperature range . . . . . -55°C to + 105°C

#### Mechanical Performance

- Insertion force per contact . . . . . 1.50 N max
- Withdrawal force per contact . . . . . 0.50 N min
- Durability (mating cycles) . . . . . 250

#### Electrical Performance

- Insulation resistance . . . . .  $5 \times 10^3 \text{ M}\Omega$  min initially;  
 $1 \times 10^3 \text{ M}\Omega$  after environmental testing
- Withstanding voltage . . . . . 1000 V rms (sea level)
- Current rating . . . . . 3 amp

#### Plating

- Contact area finish . . . . . See Ordering Data

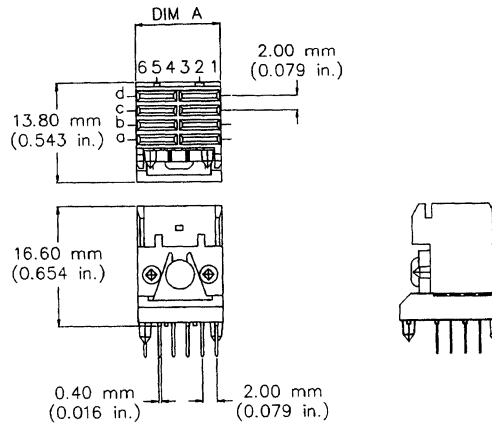
#### Packaging (see Ordering Data for quantity)

- Tubes . . . . . 96

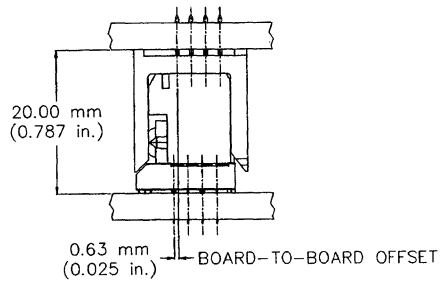
### Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawings . . . . .	By Part No.	Product Samples . . . . .	Upon Request
Product Specifications . . . . .	GES-12-002		

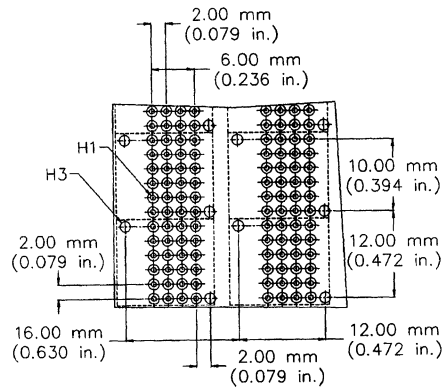
## Description



APPLICATION EXAMPLE



RECOMMENDED PC BOARD LAY-OUT



English units shown for reference only. For "H" hole specifications, see page 10-99.

## Ordering Data

**9 3 2 3 9 - X Y Y**

**Contact area finish (gold over nickel):**

1 = 0.8  $\mu$ m (30  $\mu$ in.)

9 = 0.8  $\mu$ m (30  $\mu$ in.) GXT™ over nickel

Solder tail length (see table)

### Solder Tail Length

4.25 mm (0.167 in.)  
[3.2 mm (0.125 in.) PCB]

-X13

3.45 mm (0.136 in.)  
[2.4 mm (0.093 in.) PCB]

-X12

2.65 mm (0.104 in.)  
[1.6 mm (0.062 in.) PCB]

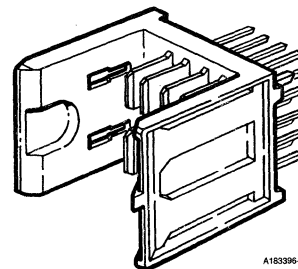
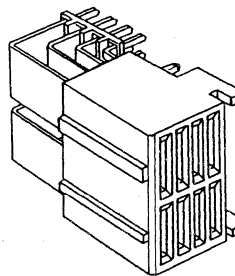
-X11

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

# Shrouded Headers Backpanel Connectors

2.00 mm (0.079 in.) Centerline

**Straight  
Solder-to-Board  
Wide Body Power Header**



A183396-0733

## Features

- For Futurebus + and SCI users.
- 4 rows and 2-mm pitch permit high signal density.
- Modular design guarantees flexibility.
- Stackable end-to-end without loss of positions.
- Stackable with other METRAL™ function modules (e.g., signal, coax, guide pin).
- Wide lead-in for easy receptacle capture.
- Duplex-plated with gold or GXT™ (palladium-nickel alloy with gold flash) for optimum mating performance and solderability.
- Power modules are form-and-fit interchangeable with signal modules on same footprint.
- Locating Pegs.

- Plug polarization.
- Suitable for robotic PCB assembly.

## Options

- Contact plating.
- Mate lengths from 6.5 mm to 8.0 mm.
- First-make, last-break.
- Tail length.
- Coding.


## Mating Data


Berg Electronics Products	Page
▪ METRAL™ right-angle solder-to-board power receptacles . . . . .	10-16
▪ METRAL™ right-angle press-fit power receptacles . . . . .	10-18
▪ METRAL™ straight solder-to-board power receptacles . . . . .	10-20

## Specifications

EIA/SP-3179  
IEC 1076-4-104 (Draft)  
CECC 75 101-810

## Approvals and Certifications

 File no. E66906

 File no. LR46923  
Bellcore TR-NWT-001217

## Technical Data

### Materials

- Housing . . . . . Glass filled LCP (UL 94 V-0)
  - ▶ Color . . . . . Natural
  - ▶ Applicable soldering processes. . . . . Wave, IR vapor phase
- Contact. . . . . Phosphor-bronze

### Environmental Properties

- Temperature range . . . . . -55°C to + 105°C

### Mechanical Performance

- Durability (mating cycles) . . . . . 250

### Electrical Performance

- Insulation resistance. . . . .  $5 \times 10^3$  M $\Omega$  min initially;  
 $1 \times 10^3$  M $\Omega$  after environmental testing
- Withstanding voltage. . . . . 1000 V rms (sea level)
- Current rating . . . . . 3 amp

### Plating

- Contact area finish . . . . . See Ordering Data
- Remainder. . . . . Tin-lead

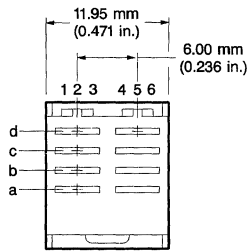
### Packaging (see Ordering Data for quantity)

- Tubes . . . . . 96

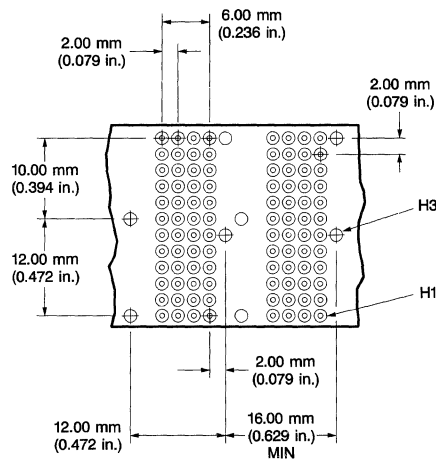
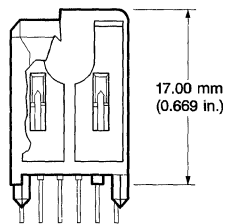
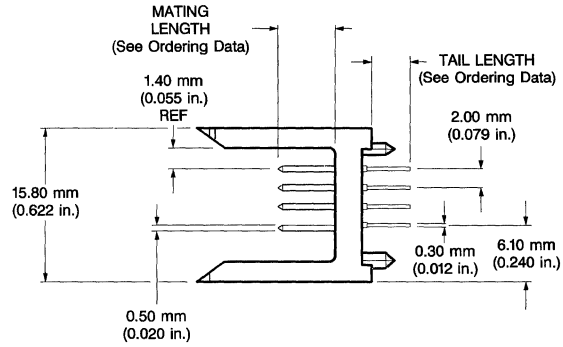
## Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawings. . . . .	By Part No.	Product Samples. . . . .	Upon Request
Product Specifications. . . . .	GES-12-002		

## Description



4 X 2 POSITION



RECOMMENDED PC BOARD  
HOLE PATTERN  
(COMPONENT SIDE)

A228876-0749

English units shown for reference only. For "H" hole specifications, see page 10-99.

## Ordering Data

8 8 9 6 0 - X Y Y

Contact area finish (gold over nickel):

1 = 0.8  $\mu$ m (30  $\mu$ in.)

9 = 0.8  $\mu$ m (30  $\mu$ in.) GXT™ over nickel

Mating and solder tail lengths (see table)

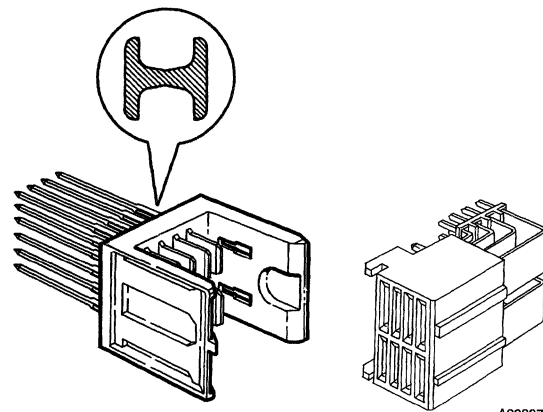
Mating Length								Solder Tail Length		
Row a		Row b		Row c		Row d		4.25 mm (0.167 in.) [3.2 mm (0.125 in.) PCB]	3.45 mm (0.136 in.) [2.4 mm (0.093 in.) PCB]	2.65 mm (0.104 in.) [1.6 mm (0.062 in.) PCB]
mm	in.	mm	in.	mm	in.	mm	in.			
6.50	0.256	6.50	0.256	6.50	0.256	6.50	0.256	-X01	-X31	-X61
6.50	0.256	8.00	0.315	6.50	0.256	6.50	0.256	-X03	-X33	-X63

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

# Shrouded Headers Compliant Press-Fit Pin Headers Backpanel Connectors

2.00 mm (0.079 in.) Centerlines

## Straight Press-Fit Power Header



A228876-0734

### Features

- For Futurebus + and SCL users.
- 4 and 5 rows and 2-mm pitch permit high signal density.
- Modular design guarantees flexibility.
- Stackable end-to-end without loss of positions.
- Stackable with other METRAL™ function modules (e.g., power, coax, guide pin).
- Wide lead-in for easy receptacle capture.
- Duplex-plated with gold or GXT™ (palladium-nickel alloy with gold flash) for optimum mating performance.
- Power modules are form-and-fit interchangeable with signal modules of same footprint.
- Compliant press-fit section with H-shaped design provides optimum pin stability and gas-tight connection in four contact areas.
- Large hole tolerance of 0.65 - 0.80 mm.
- Suitable for robotic PCB assembly.
- Plug polarization.

### Options

- Contact plating.
- Mating lengths from 6.5 mm to 8.0 mm.
- First-make, last-break.
- Rear plug-up and wire-wrap.
- Coding.

### Mating Data


#### Berg Electronics Products


- METRAL™ right-angle solder-to-board power receptacles . . . . . 10-16
- METRAL™ right-angle press-fit power receptacles . . . . . 10-18
- METRAL™ straight solder-to-board power receptacles . . . . . 10-20

### Specifications

EIA/SP-3179  
IEC 1076-4-104 (Draft)  
CECC 75 101-810  
EIA 280

### Approvals and Certifications

 File no. E66906

 File no. LR46923

Bellcore TR-NWT-001217

### Application Equipment

Berg Electronics Products	Page
▪ MT-301 press-fit insertion bench press. . . . .	10-87
▪ MT-310 press-fit insertion air press. . . . .	10-88
▪ MT-320 press-fit semi-automatic insertion air press. . . . .	10-89
▪ MT-330 press-fit repair kit. . . . .	10-92
▪ MT-340 press-fit repair kit. . . . .	10-92
▪ Press-fit tooling sets . . . . .	10-90

#### Other Products Order No.

- Wire wrap tools (Cooper Industries)
  - ▶ Bit . . . . . XE15145
  - ▶ Sleeve . . . . . 511274

### Technical Data

#### Materials

- Housing . . . . . Glass filled LCP (UL 94 V-0)
  - ▶ Color . . . . . Natural
- Contact . . . . . Phosphor-bronze

#### Environmental Properties

- Temperature range . . . . . -55°C to + 105°C

#### Mechanical Performance

- Insertion force per contact . . . . . 300 N (67.6 lbf) max
- Withdrawal force per contact . . . . . 60 N (13.5 lbf) min
- Durability (mating cycles) . . . . . 250

#### Electrical Performance

- Insulation resistance . . . . .  $5 \times 10^3 \text{ M}\Omega$  min initially;  
 $1 \times 10^3 \text{ M}\Omega$  after environmental testing
- Withstanding voltage . . . . . 1000 V rms (sea level)
- Current rating . . . . . 3 amp

#### Plating

- Contact area finish . . . . . See Ordering Data
- Press-fit area . . . . . Tin-lead

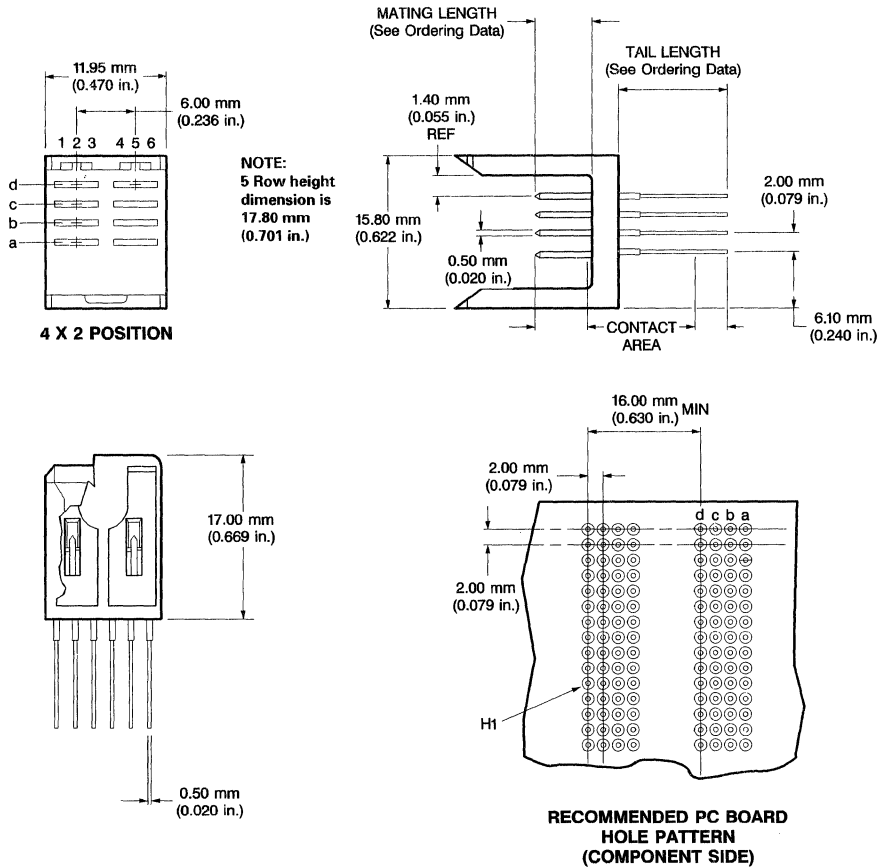
#### Packaging (order in multiples of quantity shown)

- Tubes . . . . . 96

### Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawings . . . . .	By Part No.	Product Samples . . . . .	Upon Request
Product Specifications . . . . .	GES-12-002	Application Drawing . . . . .	TA-926
Compliant Pin Specifications . . . . .	GES-12-004		

## Description 4 Row Versions Shown



A228876-0754

English units shown for reference only. For "H" hole specifications, see page 10-99.

## Ordering Data

Base number indicates number of positions. Tail length

□ □ □ □ - X Y Z

0 = 4.30 mm (0.169 in.) (4 Row only)  
1 = 4.30 mm (0.169 in.) (5 Row only)  
2 = 13.60 mm (0.535 in.) available with Au plating only  
3 = 17.00 mm (0.669 in.) available with Au plating only

Contact area finish (gold over nickel):

1 = 0.8 μm (30 μin.)  
9 = 0.8 μm (30 μin.) GXT™ over nickel

Mating length

Number of Positions	Mating Length										Part Number
	Row a		Row b		Row c		Row d		Row e		
	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	
4 x 2	6.50	0.256	6.50	0.256	6.50	0.256	6.50	0.256	N/A	N/A	70236-XY1
4 x 2	6.50	0.256	8.00	0.315	6.50	0.256	6.50	0.256	N/A	N/A	70236-XY3
5 x 2	7.25	0.285	8.00	0.315	7.25	0.285	6.50	0.256	6.50	0.256	89099-XY0

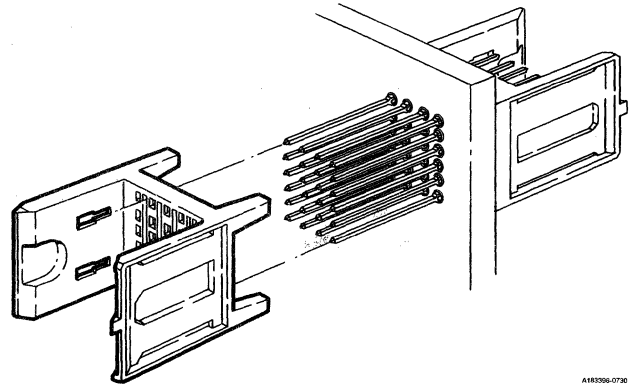
Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.



# Shrouds Backpanel Connectors

2.00 mm (0.079 in.) Centerline

## Shroud



A183296-0726

### Features

- For Futurebus + and SCI users.
- 4 and 5 rows and 2-mm pitch permit high signal density.
- Two different standoff versions for connectors with rear plug-up or wire wrap.
- Easy direct mounting of the shroud on the pins.
- High retention force between shroud and pin.
- Wide lead-in for easy receptacle capture.
- Plug polarization.


### Options


- Coding.
- Standoff for wire wrap.

### Mating Data

Berg Electronics Products	Page
▪ METRAL™ right-angle solder-to-board signal receptacles	10-6
▪ METRAL™ right-angle press-fit signal receptacles	10-8
▪ METRAL™ straight solder-to-board signal receptacles	10-10
▪ METRAL™ round cable connectors	10-30

### Approvals and Certifications

 File no. E66906

 File no. LR46923

### Application Equipment

Berg Electronics Products	Page
▪ MT-301 press-fit insertion bench press	10-87
▪ MT-310 press-fit insertion air press	10-88
▪ MT-320 press-fit semi-automatic insertion air press	10-89
▪ MT-330 press-fit repair kit	10-92
▪ MT-340 press-fit repair kit	10-92
▪ Press-fit tooling set	10-90

### Technical Data

#### Materials

- Housing ..... Glass filled LCP (UL 94 V-0)
  - Color ..... Natural

#### Environmental Properties

- Temperature range ..... -55°C to +105°C

#### Mechanical Performance

- Retention force per position ..... 2 N min

#### Electrical Performance

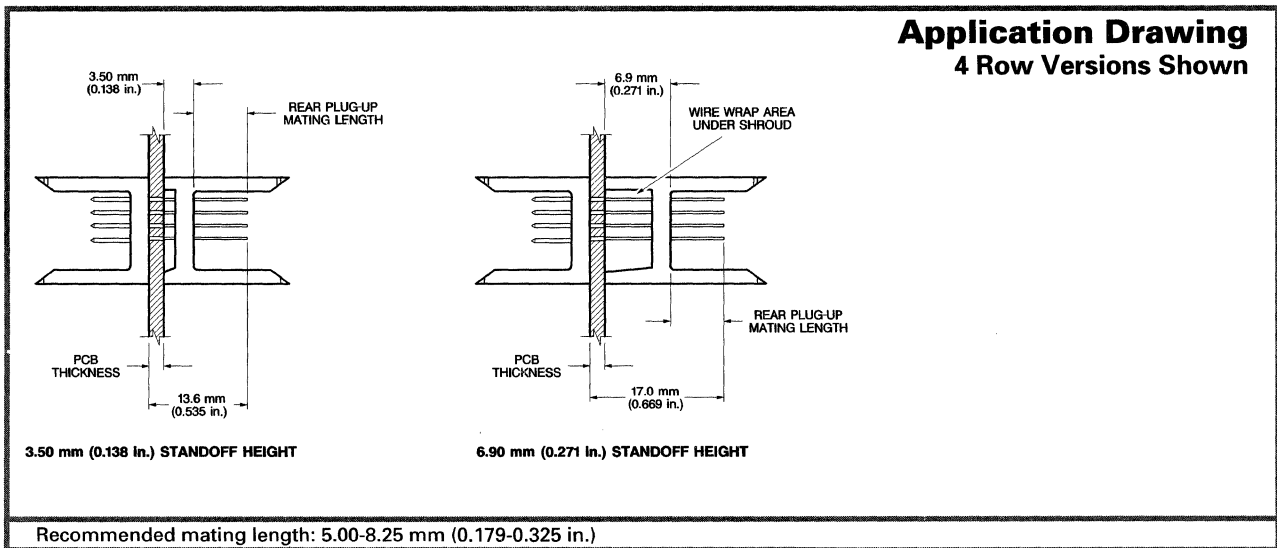
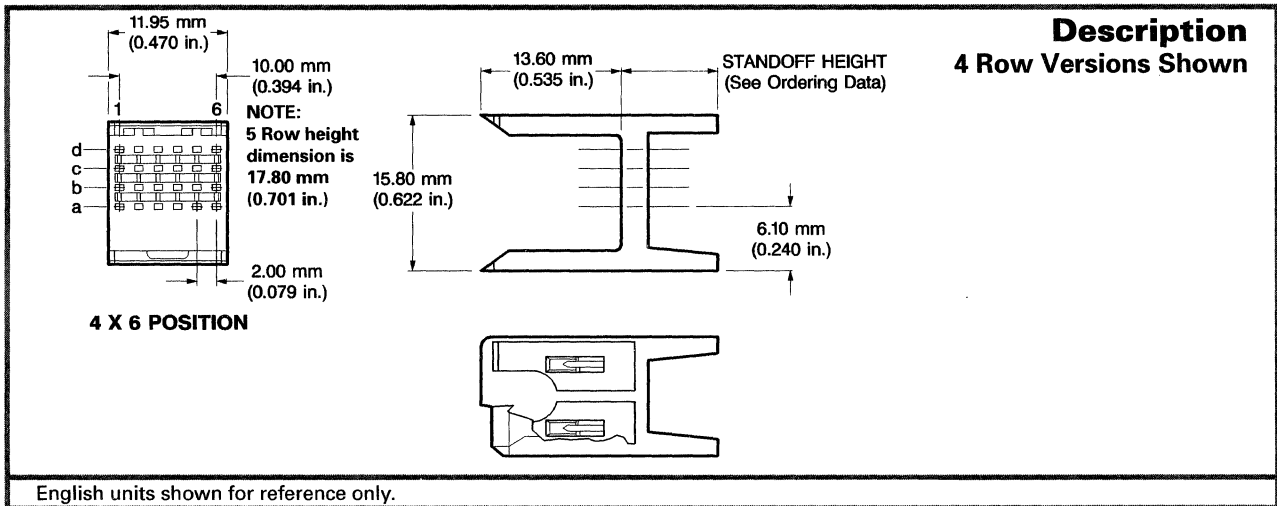
- Insulation resistance .....  $5 \times 10^3 \text{ M}\Omega$  min initially;  
 $1 \times 10^3 \text{ M}\Omega$  after environmental testing
- Withstanding voltage ..... 1000 V rms (sea level)

#### Packaging (order in multiples of quantity shown)

- Bags ..... 100

### Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawings	By Part No.	Application Drawings	TA-926
Product Specifications	GES-12-002	Product Samples	Upon Request



### Ordering Data

4 Row **70203-XXY**      Standoff height  
or  
5 Row **89055**      Shroud Length

Press-Fit Header Tail Length		Shroud Dash Number		Shroud Standoff Height		Rear-Side Mating Lengths												
						1.6 mm (0.062 in.) PCB		2.4 mm (0.093 in.) PCB		3.2 mm (0.125 in.) PCB		4.0 mm (0.156 in.) PCB		4.8 mm (0.187 in.) PCB		5.6 mm (0.218 in.) PCB		6.4 mm (0.250 in.) PCB
mm	in.			mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	
13.60	0.535	-11Y	3.50	0.138	-	-	7.70	0.303	6.90	0.271	6.10	0.240	5.30	0.209	-	-	-	-
13.60	0.535	-13Y	4.40	0.173	7.60	0.299	6.80	0.268	6.00	0.236	5.20	0.205	-	-	-	-	-	-
13.60	0.535	-12Y	6.90	0.271	5.10	0.201	-	-	-	-	-	-	-	-	-	-	-	-
17.00	0.669	-11Y	3.50	0.138	-	-	-	-	-	-	-	-	-	-	7.900	0.311	7.10	0.280
17.00	0.669	-13Y	4.40	0.173	-	-	-	-	-	-	-	-	7.80	0.307	7.10	0.280	6.30	0.248
17.00	0.669	-12Y	6.90	0.271	-	-	7.70	0.303	6.90	0.271	6.10	0.240	5.30	0.209	-	-	-	-

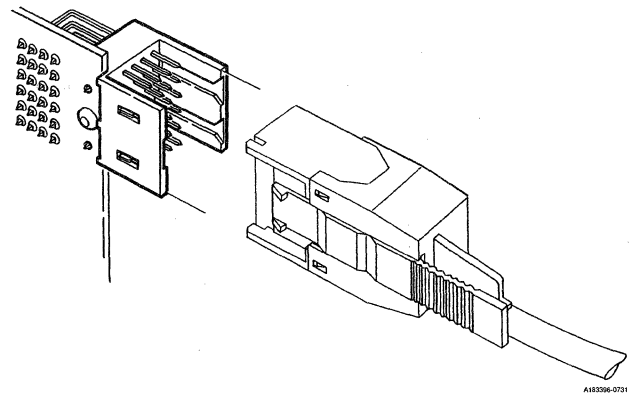
Shroud Type	Standoff Height		Dash Number
	mm	in.	
Rear Plug-up	3.50	0.138	-11Y
Rear Plug-up and Wire Wrap	6.90	0.271	-12Y
1.6 mm (0.062 in.) PCB	4.40	0.173	-13Y

Number of Positions	Shroud Length		Dash Number
	mm	in.	
4x6, 5x6	11.95	0.470	-XX1
4x12	23.95	0.943	-XX2
4x24, 5x24	47.95	1.888	-XX3
4x48, 5x48	95.95	3.778	-XX4

# Shrouded Headers

2.00 mm (0.079 in.) Centerlines

**Right-Angle  
Solder-to-Board  
Signal Header**



## Features

- For Futurebus + and SCI users.
- 4 rows and 2-mm pitch permit high signal density (20 contacts per cm connector length).
- Modular design guarantees flexibility.
- Stackable end-to-end without loss of positions.
- Duplex-plated with gold or GXT™ (palladium-nickel alloy with gold flash) for optimum mating performance and solderability.
- Stable high-strength PCB attachment.
- Wafer ensures true positioning of solder tails for easy mounting.
- Plug polarization.
- Suitable for robotic PCB assembly.


## Options


- Contact plating
- Coding
- Board attachment
- First make, last break

## Mating Data

Berg Electronics Products	Page
▪ METRAL™ right-angle solder-to-board signal receptacles	10-6
▪ METRAL™ right-angle press-fit signal receptacles	10-8
▪ METRAL™ straight solder-to-board signal receptacles	10-10
▪ METRAL™ round cable connectors	10-30

## Specifications Approvals and Certifications

 File no. E66906

 File no. LR46923  
Bellcore TR-NWT-001217

## Application Equipment

Berg Electronics Products	
▪ MT-120 single riveting hand tool	10-82
▪ MT-130 multiple riveting machine	10-83

## Technical Data

### Materials

- Housing ..... Glass filled LCP (UL 94 V-0)
  - ▶ Color ..... Natural
  - ▶ Applicable soldering processes..... Wave, IR vapor phase
- Contact..... Phosphor-bronze

### Environmental Properties

- Temperature range..... -55°C to + 105°C

### Mechanical Performance

- Durability (mating cycles) ..... 250

### Electrical Performance

- Insulation resistance..... 5 x 10<sup>3</sup> MΩ min initially; 1 x 10<sup>3</sup> MΩ after environmental testing
- Withstanding voltage..... 1000 V rms (sea level)
- Current rating ..... 1 amp

### Plating

- Contact area finish ..... See Ordering Data
- Remainder..... Tin-lead

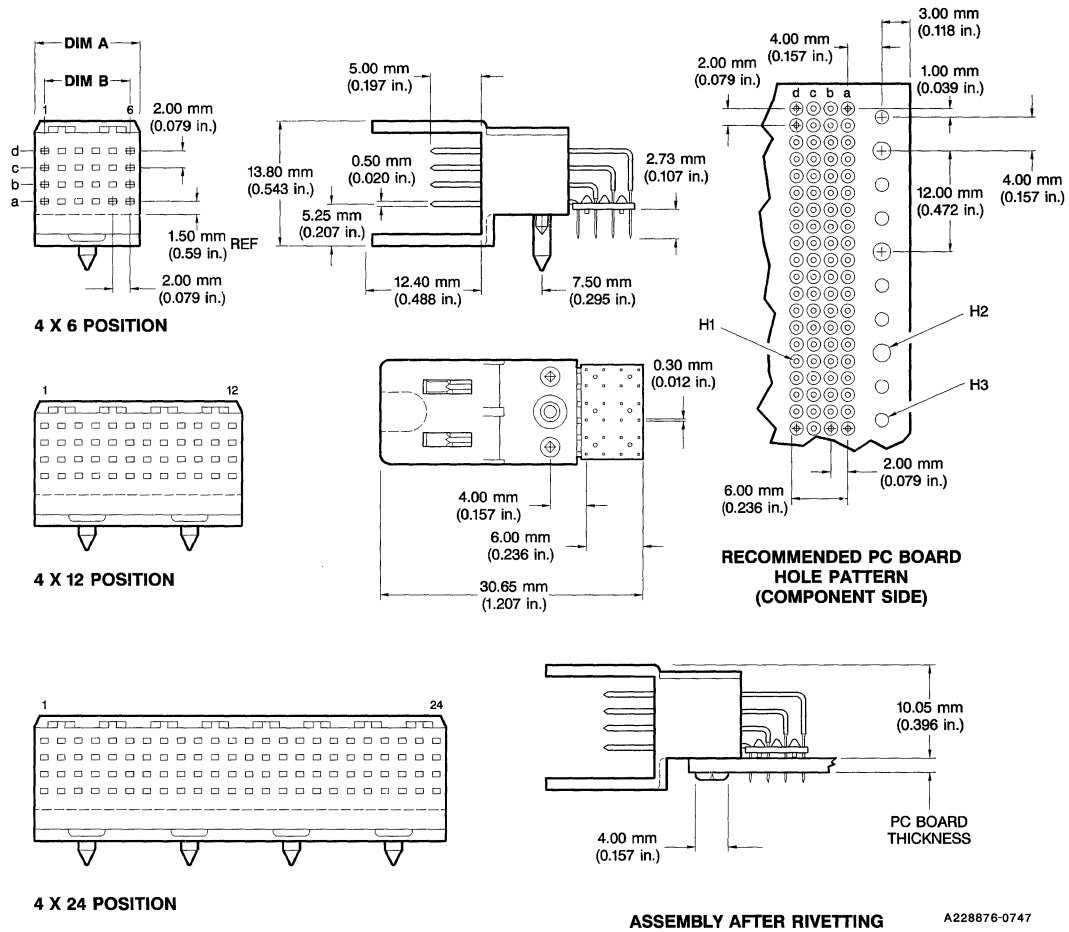
### Packaging (see Ordering Data for quantity)

- Tubes

## Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawings.....	By Part No.	Product Samples.....	Upon Request
Product Specifications.....	GES-12-002		

## Description



English units shown for reference only. For "H" hole specifications, see page 10-99.

## Ordering Data

Base number indicates board attachment type and number of positions.

□ □ □ □ □ - X 0 1

Contact area finish (gold over nickel):

1 = 0.8 μm (30 μin.)

9 = 0.8 μm (30 μin.) GXT™ over nickel

10

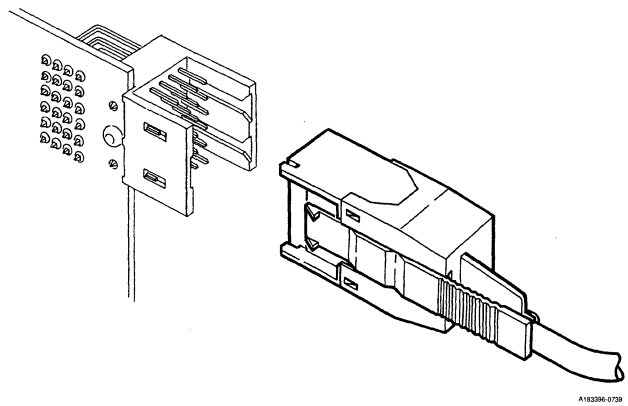
Number of Positions	Dimensions				Base Number		Pkg. Qty.
	A		B		Heat Stake Peg	Press Peg	
	mm	in.	mm	in.			
4 x 6	11.95	0.470	10.00	0.394	70284-X01	85822-X01	96
4 x 12	23.95	0.943	22.00	0.866	70285-X01	85823-X01	48
4 x 24	47.95	1.888	46.00	1.811	70286-X01	85824-X01	24

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

# Round Conductor, Round Cable Insulation-Piercing Connectors

2.00 mm (0.079 in.) Centerlines

## Round Cable Connector



### Features

- For Futurebus + and SCI users.
- 4 rows and 2-mm pitch permit high signal density (20 contacts per cm connector length).
- Ideal for backpanel (front or rear) and front-side daughter card cabling.
- Modular design guarantees flexibility.
- Stackable end-to-end without loss of positions.
- 28 and 30 AWG solid or stranded wire.
- Active latching system.
- Reliable dual-beam contact.
- Cost-effective cable termination.
- Duplex-plated with gold or GXT™ (palladium-nickel alloy with gold flash) for optimum mating performance and solderability.
- Redundant IDC wire terminations.
- Plug polarization.

### Options

- Contact plating
- Wire size.
- Coding.


### Mating Data


Mates with METRAL™ 2.00 mm (0.079 in.) signal headers.

#### Berg Electronics Products Page

- METRAL™ right-angle solder-to-board signal headers . . . . . 10-28
- METRAL™ straight solder-to-board wide body signal headers . . . . . 10-12
- METRAL™ straight press-fit signal headers . . . . . 10-14

### Approvals and Certifications

 File no. E66906

 File no. LR46923

### Application Equipment

#### Berg Electronics Products

- MT-200 hand tool . . . . . 10-84
- MT-220 IDC machine . . . . . 10-85

### Technical Data

#### Materials

- Terminal block . . . . . Glass-filled LCP (UL 94 V-0)
  - ▶ Color . . . . . Natural
- Cover . . . . . Thermoplastic polyester glass-filled (UL 94 V-0)
  - ▶ Color . . . . . Black
- Contact . . . . . Phosphor-bronze
- Latch . . . . . Polyetherimide (UL 94 V-0)
  - ▶ Color . . . . . Black

#### Mechanical Performance

- Insertion force per contact . . . . . 0.45 N max
- Withdrawal force per contact . . . . . 0.2 N min
- Durability (mating cycles) . . . . . 250

#### Environmental Properties

- Temperature range . . . . . -55°C to + 105°C

#### Electrical Performance

- Insulation resistance . . . . .  $5 \times 10^3$  M $\Omega$  min initially;  $1 \times 10^3$  M $\Omega$  after environmental testing
- Withstanding voltage . . . . . 1000 V rms (sea level)
- Current rating . . . . . 1 amp

#### Plating

- Contact area finish . . . . . See Ordering Data
- Remainder . . . . . Tin-lead

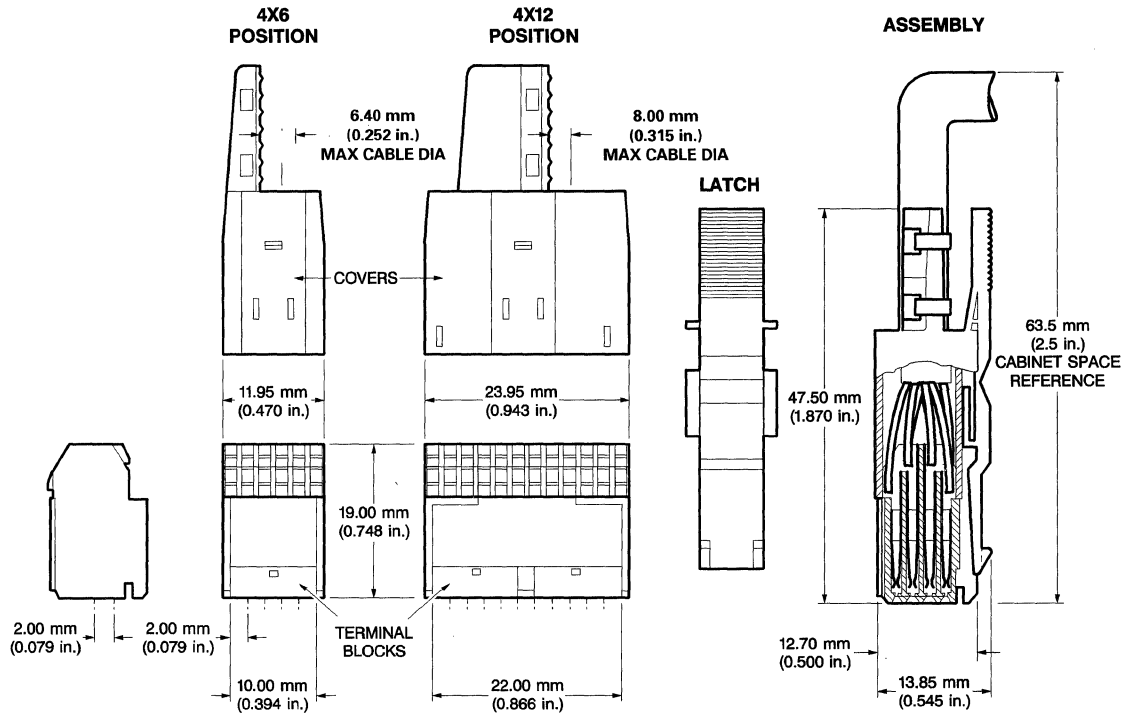
#### Packaging (see Ordering Data for quantity)

- Terminal blocks . . . . . Tubes
- Covers/latches . . . . . Bags

### Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawings . . . . .	By Part No.	Product Samples . . . . .	Upon Request
Product Specifications . . . . .	GES-12-002	Application Drawing . . . . .	TA-584

### Description



A228876-0755

English units shown for reference only.

### Ordering Data

Base number indicates terminal block.

□ □ □ □ □ - X 0 1

Contact area finish (gold over nickel):

1 = 0.8 μm (30 μin.)

9 = 0.8 μm (30 μin.) GXT™ over nickel

10

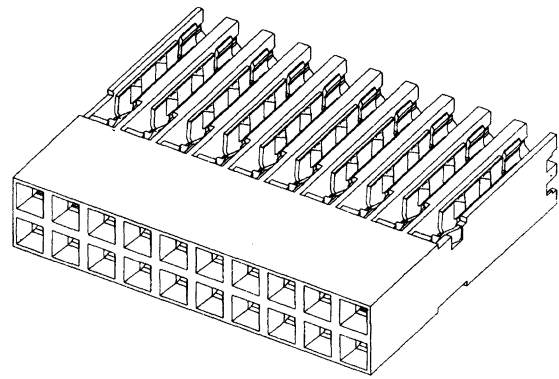
Number of Positions	Wire Size AWG (solid or stranded)	Part Numbers		Cover		Latch	
		Terminal block	Qty.	Qty.	Qty.	Qty.	
4 x 6	28 or 30	70287-X01	96	70282-001	100	70289-001	100
4 x 12	28 or 30	70288-X01	48	70283-001	100	70289-001	100

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

# Round Conductor, Round Cable Insulation-Piercing Connectors

2.00 mm (0.079 in.) Centerlines

## Low Profile IDC Cable Connector





### Features

- Side-by-side and end-to-end stackable.
- 2 x 10 and 2 x 6 configurations.
- Terminates 26 and 28 AWG solid wire.
- Redundant insulation displacement contact design.
- Each terminated wire is strain relieved.
- Latches into the low profile backplane retainer.

### Mating Data

Berg Electronics Products	Page
▪ METRAL™ straight press-fit signal headers (rear side only) . . . . .	10-14
▪ METRAL™ straight press-fit power headers (rear side only) . . . . .	10-24
▪ METRAL™ backplane retainer . . . . .	10-34

### Approvals and Certifications

-  File no. E66906
-  File no. LR46923
- Bellcore TR-NWT-001217

### Application Equipment

Berg Electronics Products	Page
▪ MT-230 low profile IDC machine . . . . .	10-86

### Technical Data

#### Materials

- Terminal block . . . . . Glass-filled (LCP) UL 94-0
  - ▶ Color . . . . . Natural
- Contacts . . . . . Phosphor-bronze

#### Mechanical Performance

- Insertion force per contact . . . . . 0.64 N (64 gf) nom.
- Withdrawal force per contact . . . . . 0.36 N (36 gf) nom.
- Durability (mating cycles) . . . . . 200

#### Environmental Properties

- Temperature range . . . . . -55°C to + 85°C

#### Electrical Performance

- Withstanding voltage . . . . . 1000 V rms (sea level)
- Current rating . . . . . 1 amp

#### Plating

- Contact area . . . . . 1.75 μm (70 μin.)  
Au-Pd-Ag over Nickel (DGR 156)

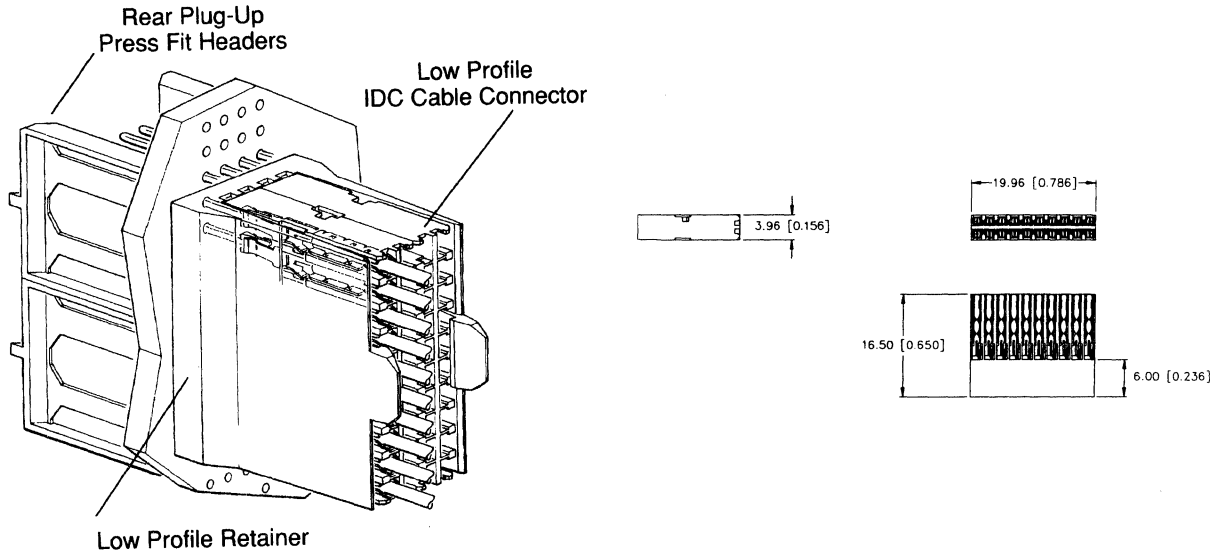
#### Packaging

- Terminal blocks . . . . . Tubes

### Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawings . . . . .	By Part No.	Product Samples . . . . .	Upon Request

**Description**



English units shown for reference only.

**Ordering Data**

Number of Positions	Part Number	Quantity
2 x 6	88940-002	100
2 x 10	88940-001	100

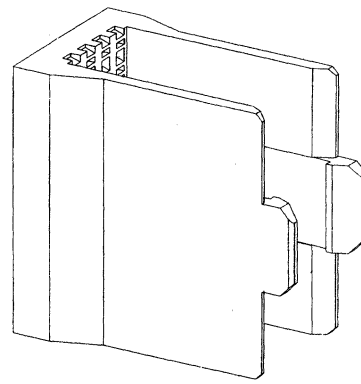
Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.



# Shrouds Backpanel Connectors

2.00 mm (0.079 in.) Centerlines

Low Profile Backplane Retainer





## Features

- Retains one or two low profile IDC cable connectors.
- Self-attaching pinless header/interference fit retainer.
- 4 x 10 and 4 x 24 configurations.
- Provides pin protection for rear plug-up applications.
- Compatible with 16 mm board spacing.

## Mating Data

Berg Electronics Products	Page
▪ METRAL™ straight press-fit signal headers (rear side only) . . . . .	10-14
▪ METRAL™ straight press-fit power headers (rear side only) . . . . .	10-24
▪ METRAL™ low profile IDC cable connector . . . . .	10-32

## Approvals and Certifications

-  File no. E66906
-  File no. LR46923

## Technical Data

### Materials

- Shroud . . . . . Glass-filled nylon UL 94 V-0
  - Color . . . . . Natural

### Environmental Properties

- Temperature range . . . . . -55°C to + 85°C

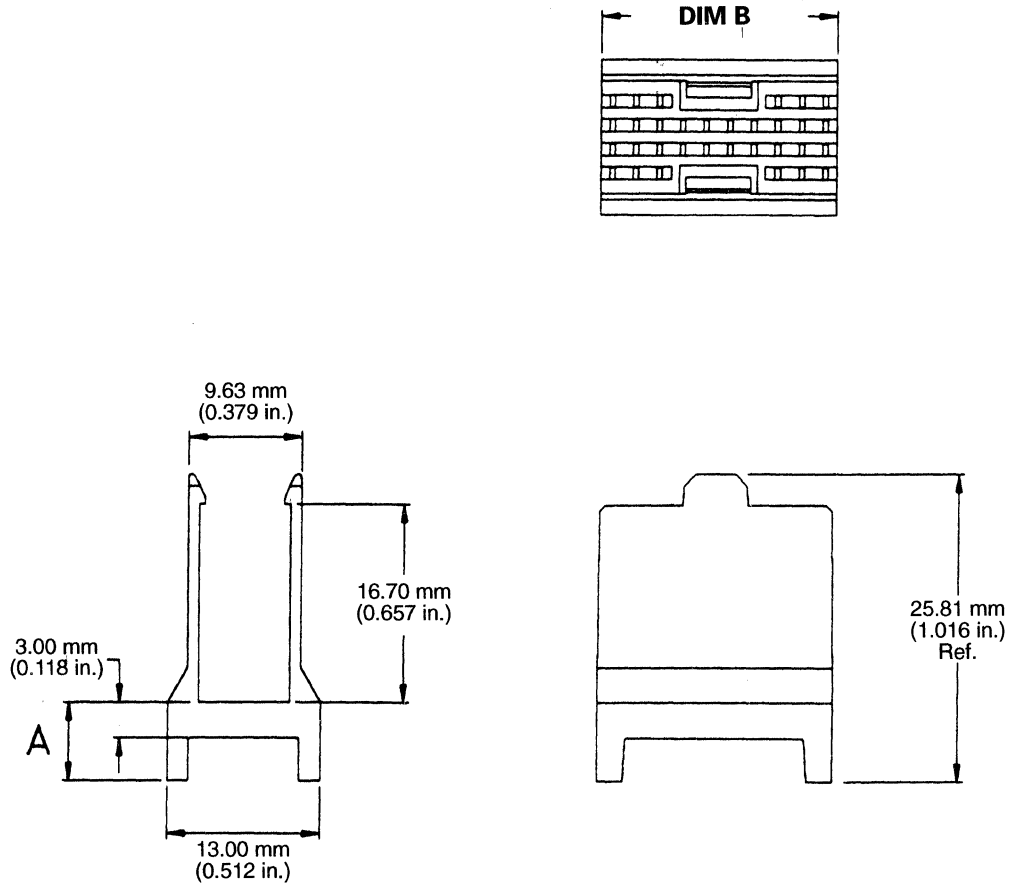
### Packaging

- Bags . . . . . 100

## Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawings . . . . .	By Part No.	Product Samples . . . . .	Upon Request

**Description**



English units shown for reference only.

**Ordering Data**

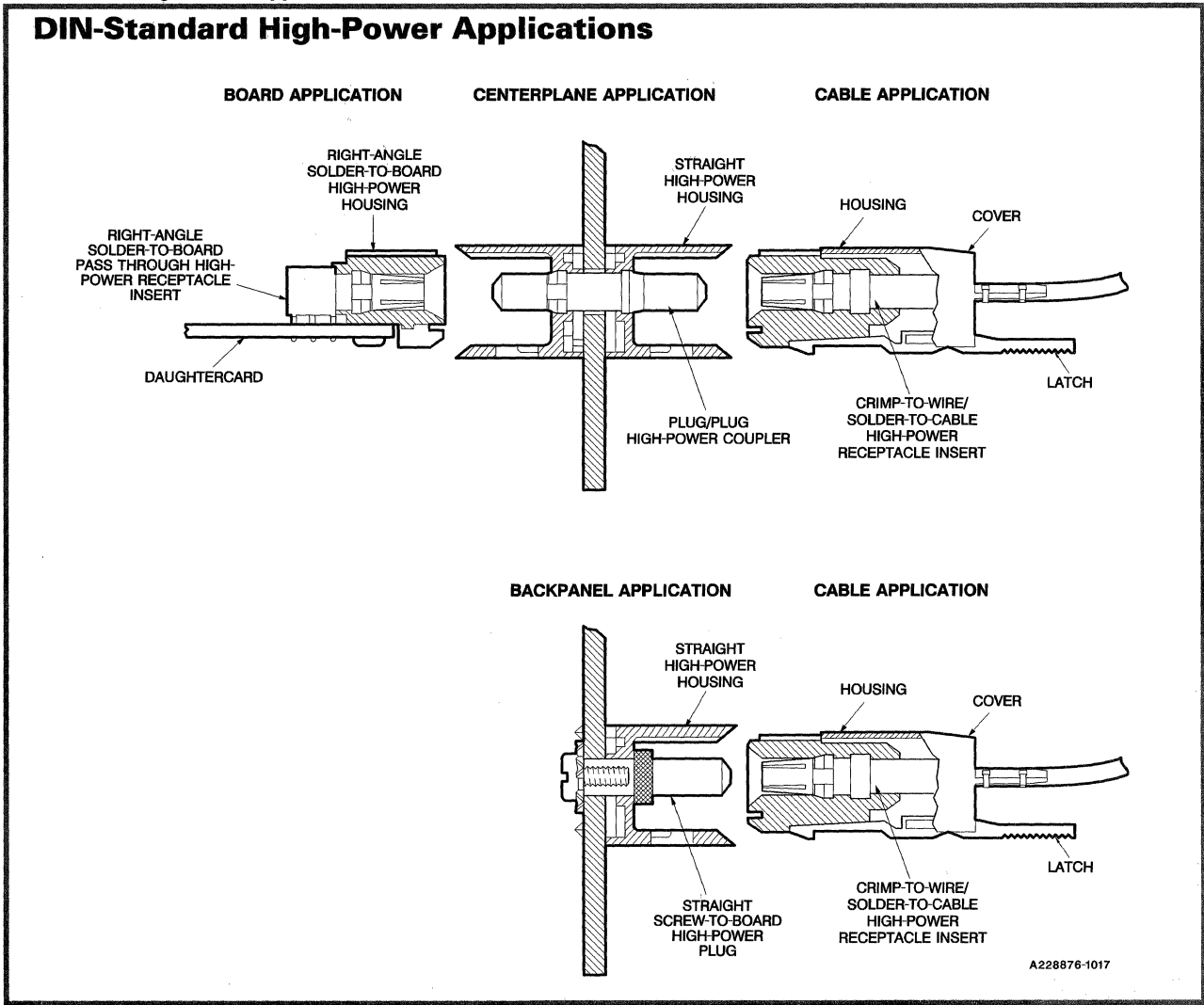
Part Number	Number of Positions	Dimension A		Dimension B		Description
		mm	in.	mm	in.	
88941-011	4 x 10	3.00	0.118	19.96	0.786	Standard Base
88941-012	4 x 10	6.60	0.260	19.96	0.786	Wire Wrap
88942-013	4 x 24	3.00	0.118	47.96	1.888	Standard Base

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

10

# Hybrid Connectors

DIN-Standard High-Power Application Guide



If you have a Centerplane application					
and if you have a Centerplane Thickness of		mm	in.	you need 2 Straight High-Power Housings (see page 10-42)	and 1 30-amp Plug/Plug High-Power Coupler (see page 10-38)
		1.60	0.062	88911-101	70201-001
		2.40	0.093	88911-101	70201-002
		3.20	0.125	88911-101	70201-003
		4.00	0.156	88911-101	70201-004
		4.80	0.187	88911-101	70201-005
		5.60	0.218	88911-101	70201-006

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

If you have a Backpanel application					
you need 1 Straight High-Power Housings (see page 10-42)			and 1 30-amp Straight Screw-to-Board High Power Plug Insert (see page 10-38)		
88911-101			see below		
Straight Screw-to-Board High-Power Plug Insert (see page 10-38)					
Mating Length		Part Number	Dimension A		
mm	in.		mm	in.	
8.00	0.315	91570-001	11.50	0.453	
9.50	0.374	91570-003	13.00	0.512	
11.00	0.433	91570-004	14.50	0.571	
12.50	0.492	91570-005	16.00	0.630	
28.50	1.122	91570-002	32.00	1.260	

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

If you have a Board application				
and if you have a Board Thickness of		you need 1 Right-Angle Solder-to-Board High-Power Housing (see page 10-42)		and 1 30-amp Right-Angle Solder-to-Board Pass-Through High-Power Receptacle Insert (see page 10-38)
mm	in.	Heat Stake Peg	Press Peg	
1.6	0.062	70292-101	89092-101	91877-001
2.4	0.093	70292-101	89092-101	91877-002

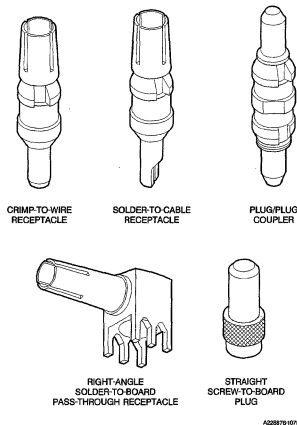
Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

If you have a Board application (see page 10-42)						
You need 1 Housing		1 Cover		1 Latch		and 1 Insert
70242-001		70282-001		70289-001		see table, below
Crimp-to-Wire/Solder-to-Cable High-Power Receptacle Inserts (see page 10-38)						
Maximum Recommended Wire Size (AWG)		Maximum Current Rating (amp)	Terminal Barrel Dia.		Straight Crimp-to-Wire High-Power Receptacle Insert	Solder-to-Cable High-Power Receptacle Insert
Solid Conductor	Stranded Conductor		mm	in.		
6	6	30	4.80	0.189	N/A	77428-145
8	10	25	3.50	0.138	77428-134	77428-135
10	12	20	2.80	0.110	77428-124	77428-125
14	16	10	1.70	0.067	77428-114	77428-115

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

# Hybrid Connectors

## DIN-Standard High-Power Inserts



### Features

- For 30 amp per pin max applications.
- Can be used alone or with other METRAL™ modules.
- Beryllium-copper receptacle contacts.

### Options

- Variable straight screw-to-board insert mating lengths.

### Mating Data

See DIN-Standard High-Power Application Guide, page 10-36

### Specifications

- MIL STD 202
- BS9525 F0011
- DIN 41626

### Application Equipment

Berg Electronics Products	Page
▪ HT-333 extraction tool for receptacle housings	10-93
▪ HT-420 extraction tool for header housings	10-93
▪ HT-334 power crimp tool	10-93

### Technical Data

#### Materials

- Contact
  - ▶ Plug ..... Brass
  - ▶ Receptacle ..... Beryllium-copper
  - ▶ Ferrule ..... Beryllium-copper
- Screw ..... Brass
- Lock washer ..... Bronze

#### Plating

- Contact area finish ..... 1.3 μm (50 μin.) gold over nickel
- Remainder ..... Gold flash over nickel

#### Environmental Properties

- Temperature range ..... -55°C to + 105°C

#### Electrical Performance

- Contact resistance ..... 1 mΩ max
- Current rating (at 70°C) ..... 30 amp max

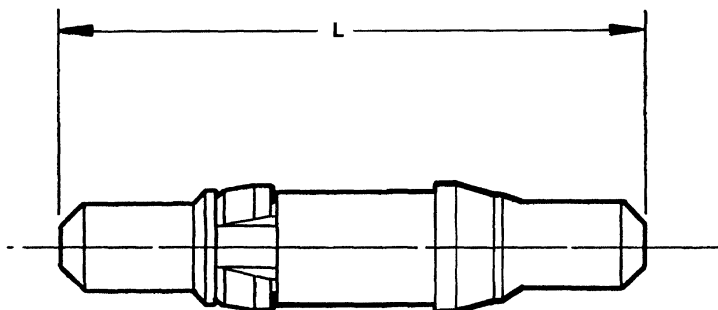
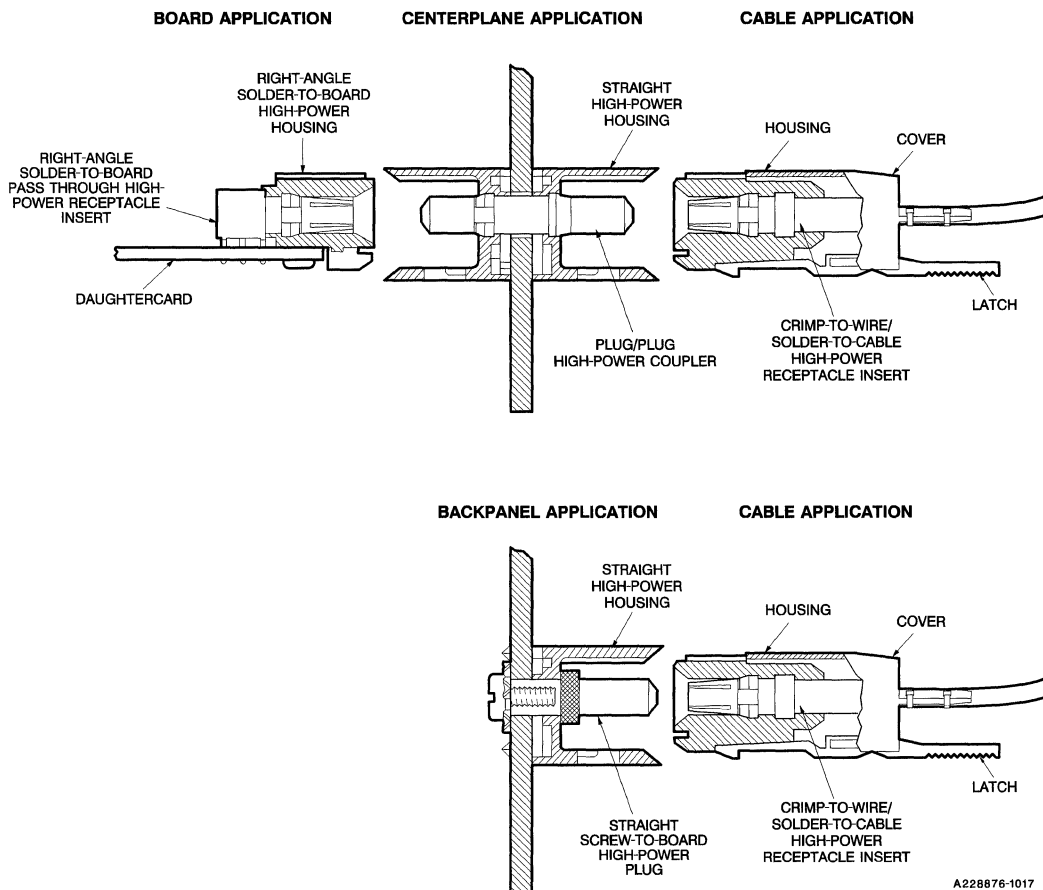
#### Packaging

- Bags ..... 100

### Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawings.....	By Part No.	Product Samples.....	Upon Request

### Description



### Description Centerplane Application Plug/Plug High-Power Coupler

10

7 0 2 0 1 - X X X

Dash number specifies dimension "L"

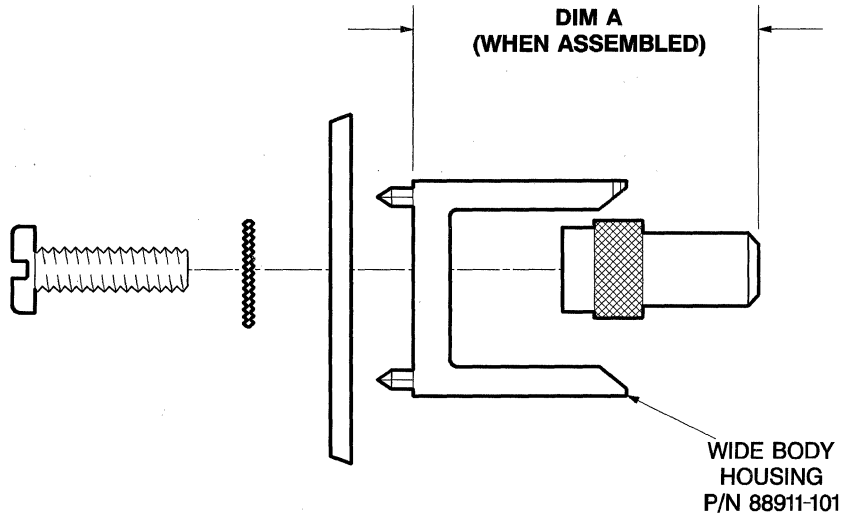
### Ordering Data Centerplane Application Plug/Plug High-Power Coupler

Centerplane Thickness		Dimension L		Dash Number
mm	in.	mm	in.	
1.60	0.062	24.50	0.965	-001
2.40	0.093	25.30	0.996	-002
3.20	0.125	26.10	1.028	-003
4.00	0.156	26.90	1.059	-004
4.80	0.187	27.70	1.090	-005
5.60	0.218	28.50	1.121	-006

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

**Description**

**Backpanel Application  
Straight Screw-to-Board  
High-Power Plug Insert**



A228876-036

**Ordering Data**

**Backpanel Application  
Straight Screw-to-Board  
High-Power Plug Insert**

9 1 5 7 0 - X X X

Mating length (see table)

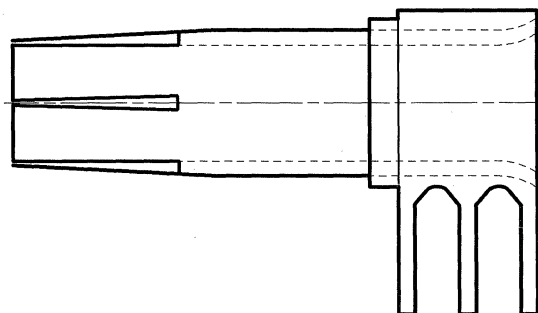
Mating Length		Dash Number	Dimension A	
mm	in.		mm	in.
8.00	0.315	-001	11.50	0.453
9.50	0.374	-003	13.00	0.512
11.00	0.433	-004	14.40	0.571
12.50	0.492	-005	16.00	0.630
28.50	1.122	-002	32.00	1.260

Includes screw and washer, unassembled.

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

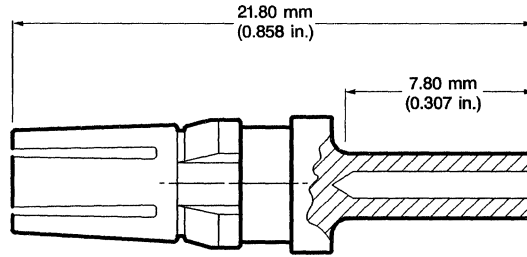
**Description and Ordering Data**

**Board Application  
Right-Angle Solder-to-Board Pass-Through  
High-Power Receptacle Insert**  
Part Number 91877-001 (1.6 mm, 0.062 in. P.C.B.)  
Part Number 91877-002 (2.4 mm, 0.094 in. P.C.B.)



**Description**  
**Cable Application**

**Crimp-to-Wire High-Power Receptacle Insert**

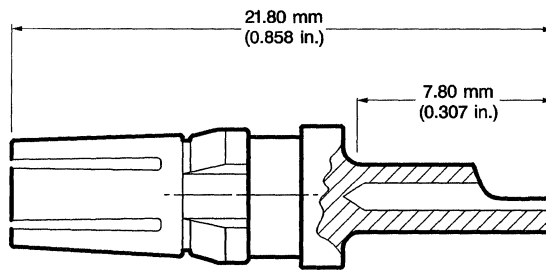


A228876-1077

Power cable maximum strip length 7.8 mm (0.307 in.)

**Description**  
**Cable Application**

**Solder-to-Cable High-Power Receptacle Insert**



A228876-1078

Power cable maximum strip length 7.8 mm (0.307 in.)

**Ordering Data**  
**Cable Application**

**Crimp-to-Wire/Solder-to-Cable High-Power Receptacle Insert**

Maximum recommended wire size

**7 7 4 2 8 - X X X**

Maximum Recommended Wire Size (AWG)		Maximum Current Rating (amp)	Terminal Barrel Dia.		Dash Number	
Solid Conductor	Stranded Conductor		mm	in.	Straight Crimp-to-Wire High-Power Receptacle Insert	Straight Solder-to-Cable High-Power Receptacle Insert
6	6	30	4.80	0.189	N/A	-145
8	10	25	3.50	0.138	-134	-135
10	12	20	2.80	0.110	-124	-125
14	16	10	1.70	0.067	-114	-115

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

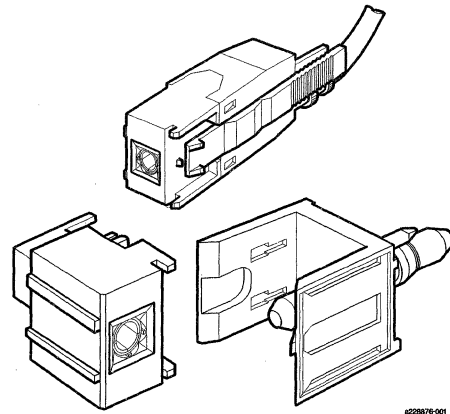
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# Hybrid Connectors

## Right-Angle Solder-to-Board and Straight DIN-Standard High-Power Housings

## Crimp-to-Wire/Solder-to-Cable DIN-Standard High-Power Assembly



220876-001


### Features


- Modular design guarantees flexibility.
- Stackable end-to-end without loss of positions.
- Stackable with other METRAL™ function modules (e.g., signal, power).
- Polarization.
- Stable high-strength PCB attachment.

### Specifications

- MIL STD 202
- BS9525 F0011
- DIN 41626

### Approvals and Certifications

 File no. E66906

 File no. LR46923

### Application Equipment

Berg Electronics Products	Page
▪ MT-120 single riveting and tool . . . . .	10-82
▪ MT-130 multiple riveting machine . . . . .	10-83
▪ MT-510 insertion bench press . . . . .	10-96
▪ MT-511 insertion air press . . . . .	10-97

### Mating Data

See DIN-Standard High-Power Application Guide, page 10-36.

### Technical Data

#### Materials

- Straight and Right-Angle Housings . . . . . Glass-filled LCP (UL 94-V0)
  - ▶ Color . . . . . Natural
  - ▶ Applicable soldering processes. . . . . Wave, IR, vapor phase
- Cable housing . . . . . Glass-filled thermoplastic (UL 94 V-0)
  - ▶ Color . . . . . Gray
- Cable cover . . . . . Glass-filled thermoplastic (UL 94 V-0)
  - ▶ Color . . . . . Black
- Cable latch . . . . . Polyetherimide (UL 94 V-0)
  - ▶ Color . . . . . Black

#### Environmental Properties

- Temperature range . . . . . -55°C to + 105°C

#### Electrical Performance

- Insulation resistance. . . . .  $5 \times 10^3$  M $\Omega$  min initially;  $1 \times 10^3$  M $\Omega$  after environmental testing
- Withstanding voltage . . . . . 1000 V rms (sea level)

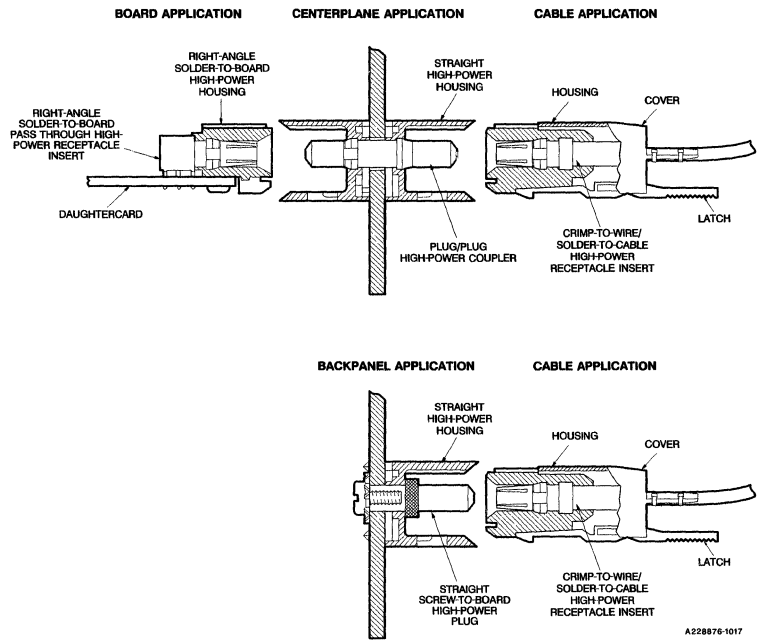
#### Packaging (order in multiples of quantity shown)

- Bags . . . . . 100

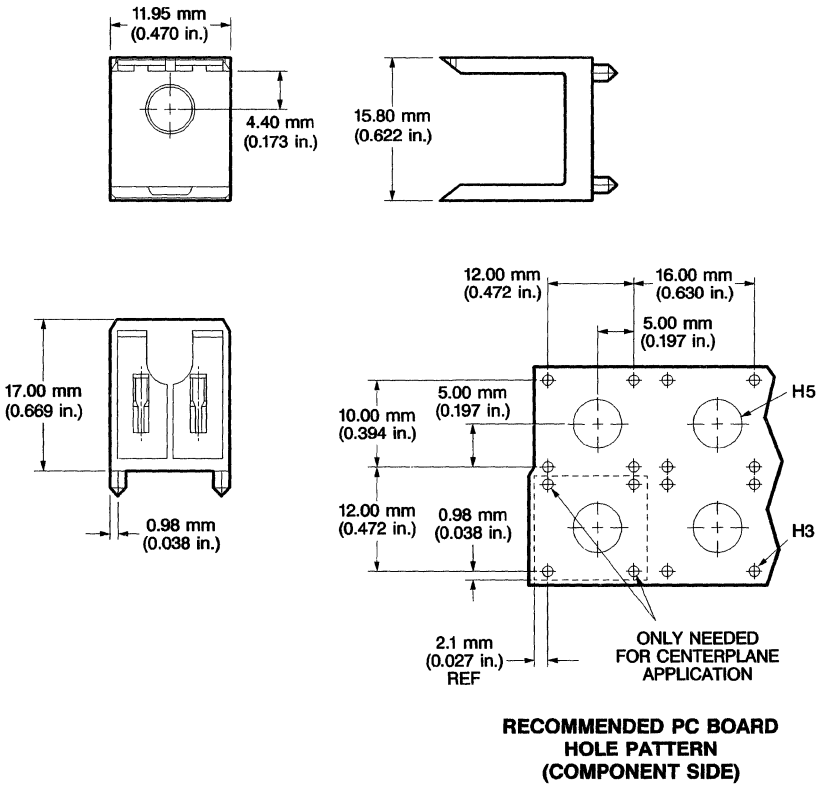
### Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawings. . . . .	By Part No.	Product Samples. . . . .	Upon Request

### DIN-Standard High-Power Applications



### Description and Ordering Data Centerplane or Backpanel Application Straight Housing Part Number 88911-101



A228876-006

For "H" hole specifications, see page 10-99.

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

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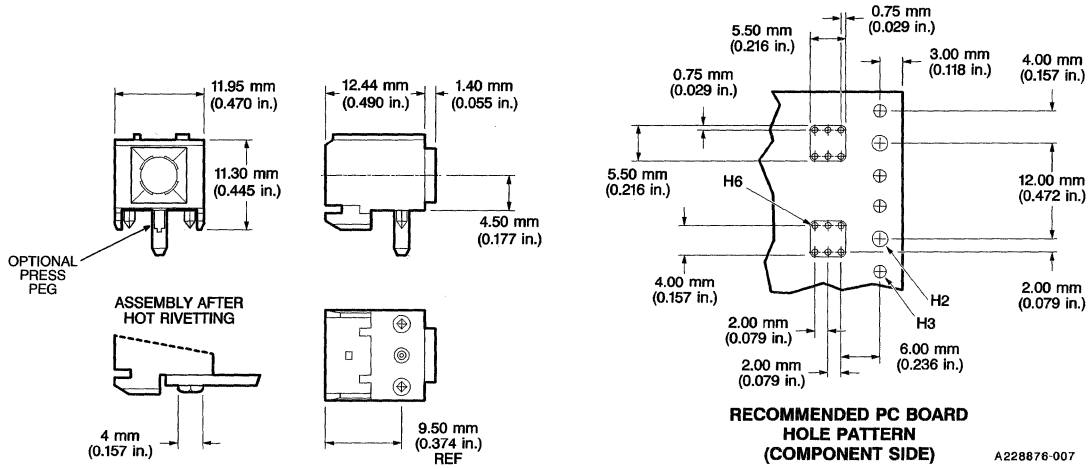
**Description and Ordering Data**

**Board Application**

**Right-Angle Solder-to-Board Housing**

**Part Number 70292-101 (Heat Stake Peg)**

**Part Number 89092-101 (Press Peg)**



For "H" hole specifications, see page 10-99.

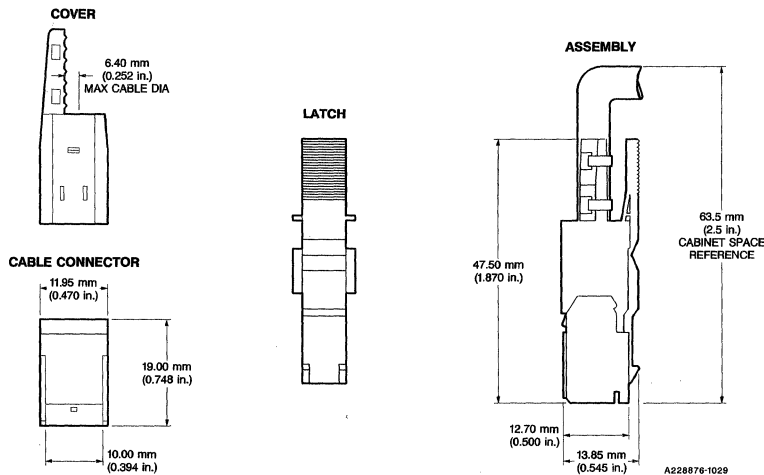
Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

**Description**

**Cable Application**

**Crimp-to-Wire/Solder-to-Cable Assembly**

(parts of assembly supplied individually; see Ordering Data)



**Ordering Data**

**Cable Application**

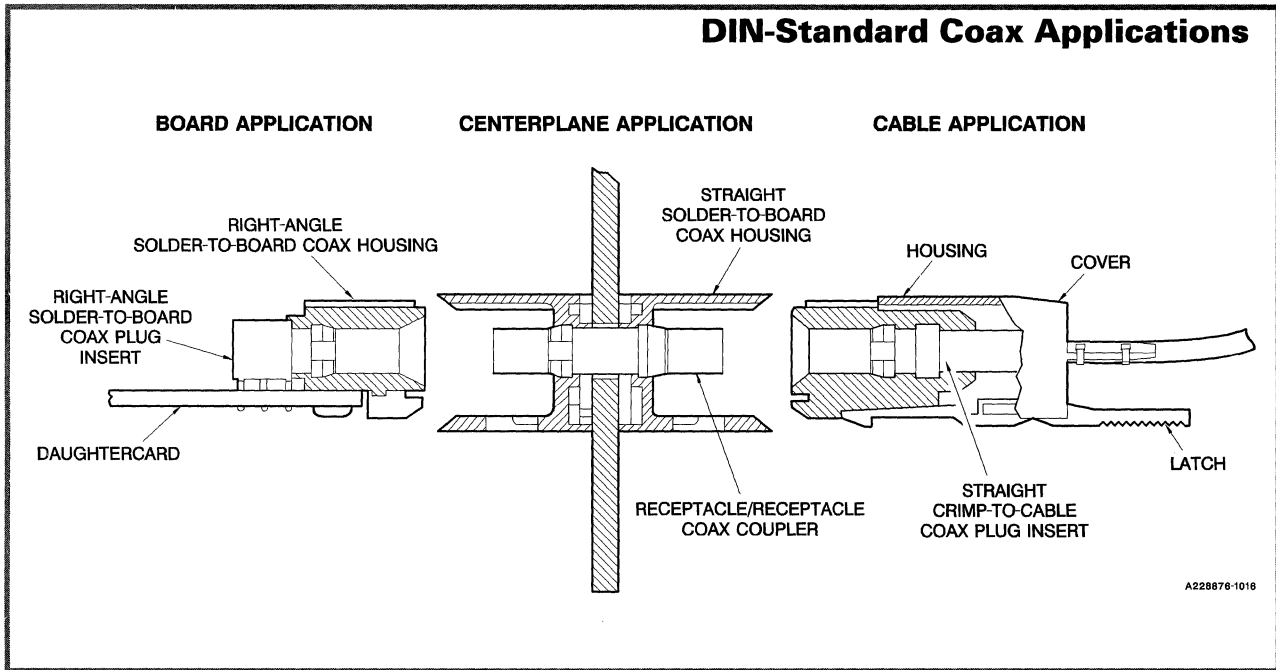
**Crimp-to-Wire/Solder-to-Cable Assembly (parts of assembly supplied individually)**

Parts of Assembly (order 1 of each)	Part Number
Housing	70242-001
Cover	70282-001
Latch	70289-001

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

# Hybrid Connectors

## Coax Cable Connectors DIN-Standard Coax Application Guide



If you have a Centerplane application					
and you have a Centerplane Thickness of		you need 2 Straight Coax Housings (see page 10-50)		and 1 Receptacle/Receptacle Coax Coupler (see page 10-46)	
mm	in.			50 OHM	75 OHM
1.60	0.062	88911-101		70200-001	70212-001
2.40	0.093	88911-101		70200-002	70212-002
3.20	0.125	88911-101		70200-003	70212-003
4.00	0.156	88911-101		70200-004	70212-004
4.80	0.187	88911-101		70200-005	70212-005
5.60	0.218	88911-101		70200-006	70212-006

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

If you have a Board application					
and you have a Board Thickness of		you need 1 Right-Angle Solder-to-Board Coax Housings (see page 10-50)		Impedance (Ohms)	and 1 Right-Angle Solder-to-Board Coax Plug Insert (see page 10-46)
mm	in.	Heat Stake Peg	Press Peg		
1.60	0.062	70292-101	89092-101	50	77427-103
1.60	0.062	70292-101	89092-101	75	71634-103
2.40	0.093	70292-101	89092-101	50	93904-001
2.40	0.093	70292-101	89092-101	75	93903-001

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

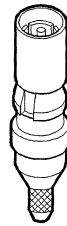
If you have a Cable application (see page 10-50)					
You need 1 Housing	1 Cover	1 Latch		and 1 Insert	
70242-001	70282-001	70289-001		see table, below	
Crimp-to-Wire Coax Plug Inserts (see page 10-46)					
Impedance (ohms)	Cable type	Cable O.D. (max)		Part Number	
		mm	in.		
50	RG178B/U, RG196A/U	2.00	0.079	77427-111	
50	RG174A/U, RG188 A/U, RG316/U	2.80	0.110	77427-121	
50	RG316/U (double braid shield)	3.10	0.122	77427-131	
75	RG179B/U, RG187A/U	2.80	0.110	71634-121	

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

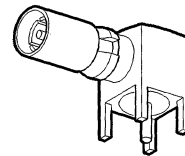
10

# Hybrid Connectors Coax Cable Connectors

## DIN-Standard Coax Inserts



CRIMP-TO-CABLE  
PLUG



RIGHT-ANGLE  
SOLDER-TO-BOARD  
PLUG



RECEPTACLE/  
RECEPTACLE  
COUPLER

A228876-1083

### Features

- For 50 or 75 ohm impedance applications.
- Can be used alone or with other METRAL™ modules.
- Beryllium-copper receptacle contacts.
- Very low reflection coefficient.

### Mating Data

See DIN-Standard Coax Application Guide, page 10-45.

### Specifications

- MIL STD 202
- BS9525 F0011
- DIN 41626

### Application Equipment

Berg Electronics Products	Page
▪ HT-333 extraction tool for DIN-standard coax receptacles . . . . .	10-93
▪ HT-420 extraction tool for DIN-standard coax headers . . . . .	10-93
▪ HT-430 coax crimp tool . . . . .	10-94

### Technical Data

#### Materials

- Contact
  - ▶ Ground . . . . . Brass
  - ▶ Conductor . . . . . Beryllium-copper
- Insulator . . . . . PTFE (TEFLON™)
- Ferrule . . . . . Beryllium-copper
- Body . . . . . Brass

#### Plating

- Contact area finish
  - ▶ Ground . . . . . 1.3 μm (50 μin.) gold over nickel
  - ▶ Conductor . . . . . 2.5 μm (100 μin.) gold over nickel
- Remainder . . . . . Gold flash over nickel

#### Electrical Performance

- Characteristic impedance . . . . . 50Ω or 75 Ω

- Working frequency (optimum)
  - ▶ 50 Ω . . . . . 0 - 10 GHz
  - ▶ 75 Ω . . . . . 0 - 1.5 GHz
- Reflection coefficient (maximum)
  - ▶ 50 Ω . . . . . 0.05 (max 1 GHz)  
0.07 (max 5 GHz)  
0.1 (max 10 GHz)
  - ▶ 75 Ω . . . . . 0.1 (max 1.5 GHz)
- Peak voltage . . . . . 750 V<sup>eff</sup>
- Operating voltage . . . . . 250 V<sup>eff</sup>
- Insulation resistance . . . . . 1 x 10<sup>6</sup> MΩ

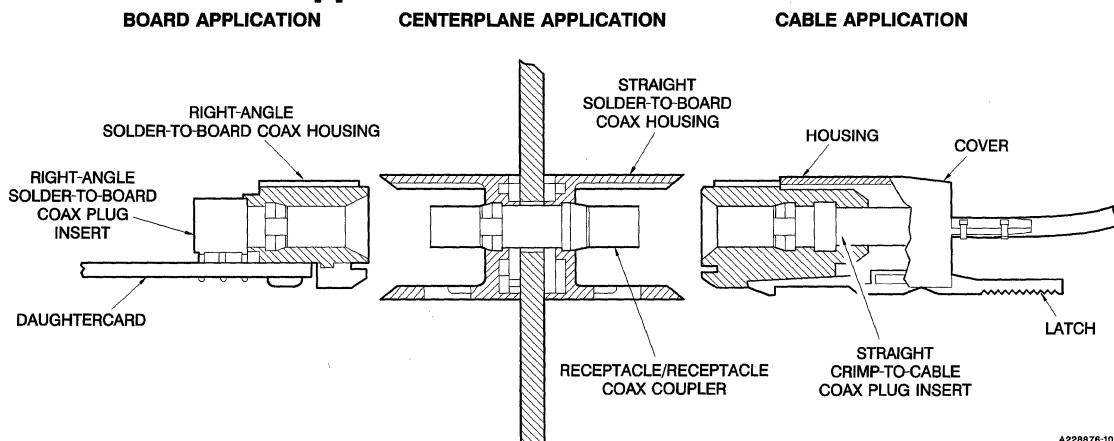
#### Environmental Properties

- Temperature range . . . . . -55°C to + 105°C

#### Packaging (see Ordering Data for quantity)

- Bags . . . . . 100

### DIN-Standard Coax Applications



A228876-1016

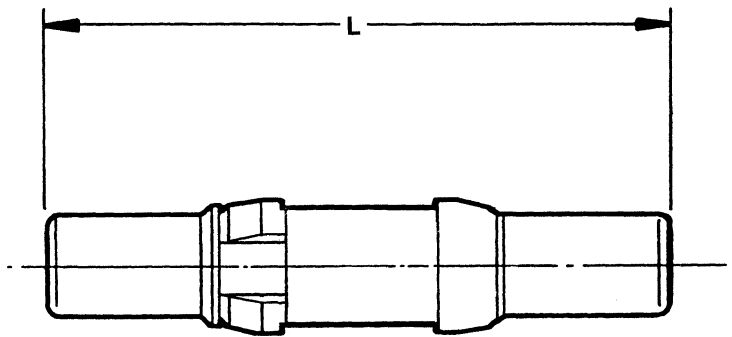
### Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawings . . . . .	By Part No.	Product Samples . . . . .	Upon Request

**Description**

**Centerplane Application**

**Receptacle/Receptacle DIN-Standard Coax Coupler**



A183396-1080

**Ordering Data**

**Centerplane Application**

**Receptacle/Receptacle DIN-Standard Coax Coupler**

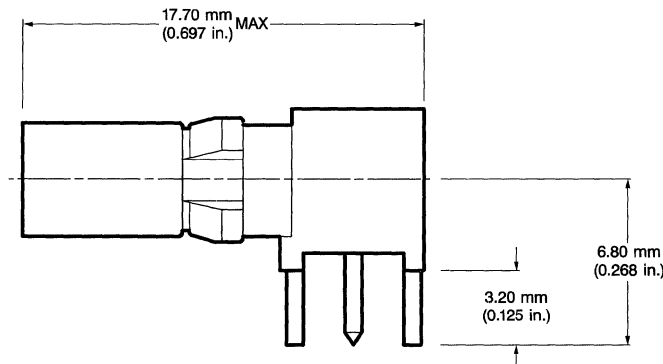
Centerplane Thickness		Length L		Part Number	
mm	in.	mm	in.	50 Ω	75 Ω
1.60	0.062	25.00	0.984	70200-001	70212-001
2.40	0.093	25.80	1.016	70200-002	70212-002
3.20	0.125	26.60	1.047	70200-003	70212-003
4.00	0.156	27.40	1.078	70200-004	70212-004
4.80	0.187	28.20	1.109	70200-005	70212-005
5.60	0.218	29.00	1.140	70200-006	70212-006

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

**Description**

**Board Application**

**Right-Angle Solder-to-Board DIN-Standard Coax Plug Insert**



A228876-1082

**Ordering Data**

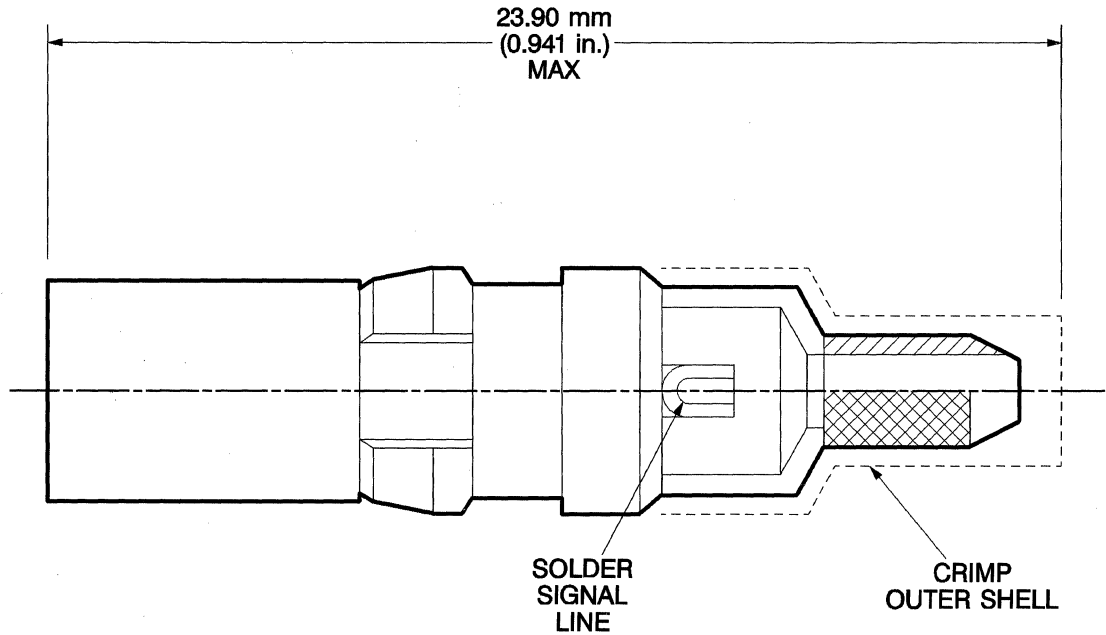
**Board Application**

**Right-Angle Solder-to-Board DIN-Standard Coax Plug Insert**

Board Thickness		Impedance (ohms)	Part Number
mm	in.		
1.60	0.062	50	77427-103
1.60	0.062	75	71634-103
2.40	0.093	50	93904-001
2.40	0.093	75	93903-001

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

**Description**  
Cable Application  
Crimp-to-Cable Coax Plug Insert

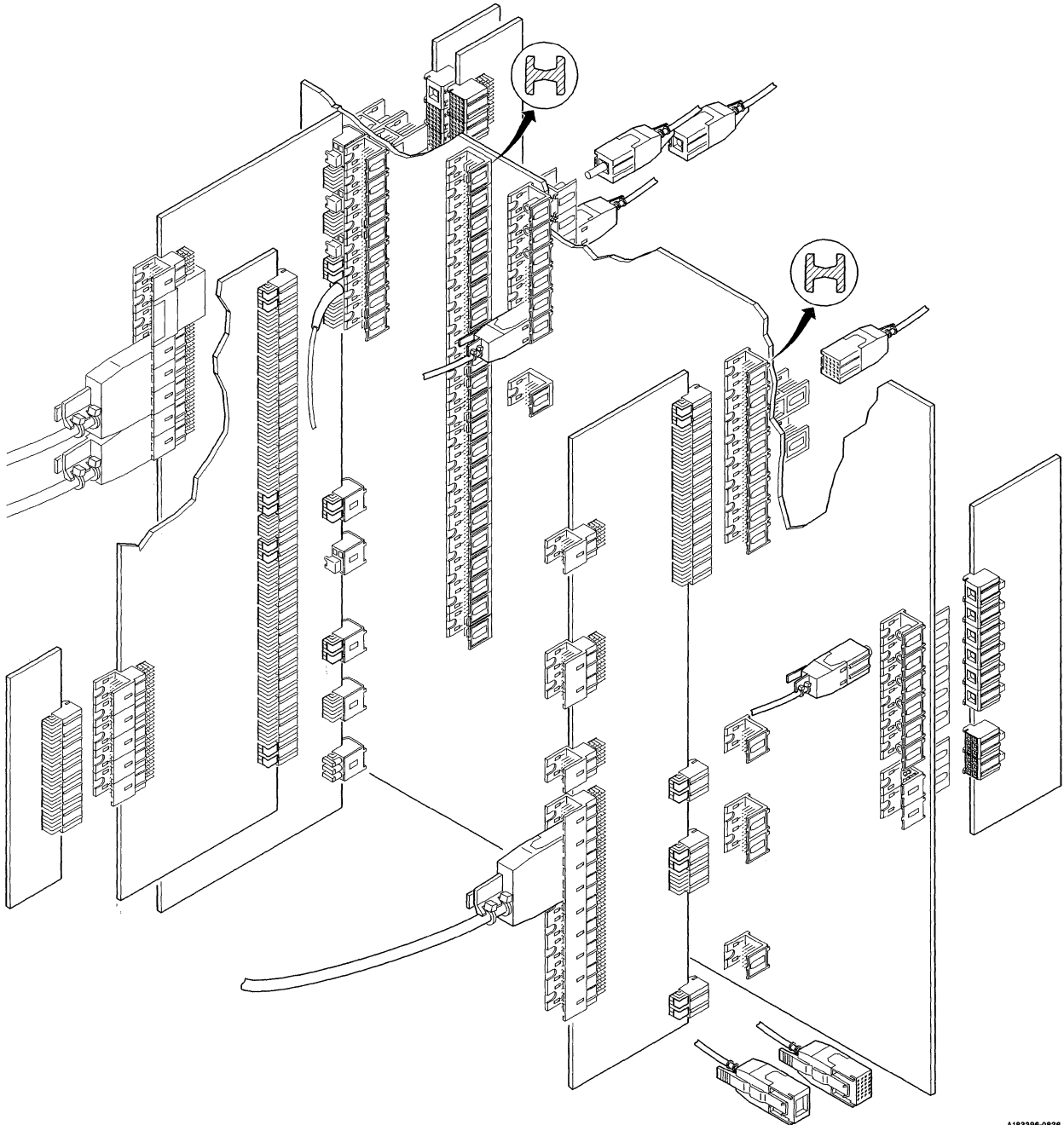


A228876-1081

**Ordering Data**  
Cable Application  
Crimp-to-Cable Coax Plug Insert

Impedance (ohms)	Cable Type	Cable O.D. (max)		Part Number
		mm	in.	
50	RG178B/U, RG196A/U	2.00	0.079	77427-111
50	RG174A/U, RG188A/U, RG316/U	2.80	0.110	77427-121
50	RG316/U (double braid shield)	3.10	0.122	77427-131
75	RG179B/U, RG187A/U	2.80	0.110	71634-121

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.



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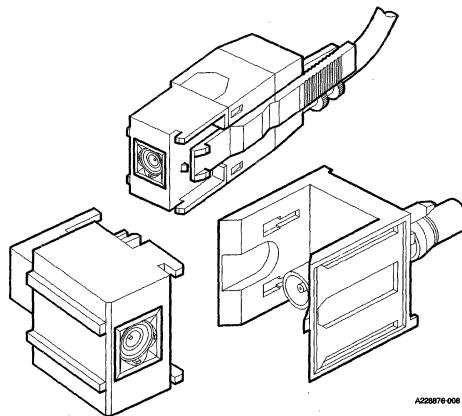
A183396-0828



# Hybrid Connectors Coax Cable Connectors

**Right-Angle Solder-to-Board  
and Straight DIN-Standard  
Coax Housings**

**Crimp-to-Wire DIN-Standard  
Coax Assembly**



A228976-006

## Features

- Modular design guarantees flexibility.
- Stackable end-to-end without loss of positions.
- Stackable with other METRAL™ function modules (e.g., signal, power).
- Polarization.
- Stable high-strength PCB attachment.
- Termination by crimping outer braid and soldering inner conductor.

## Mating Data

See DIN-Standard Coax Application Guide, page 10-45

## Specifications

- MIL STD 202
- BS9525 F0011
- DIN 41626

## Approvals and Certifications



File no. E66906



File no. LR46923

## Application Equipment

Berg Electronics Products	Page
▪ MT-120 single riveting hand tool	10-82
▪ MT-130 multiple riveting machine	10-83
▪ MT-510 insertion bench press	10-96
▪ MT-511 insertion air press	10-97

## Technical Data

### Materials

- Straight and right-angle housings ..... Glass-filled LCP (UL 94 V-0)
  - ▶ Color ..... Natural
  - ▶ Applicable soldering processes..... Wave, IR vapor phase
- Cable housing ..... Glass-filled thermoplastic polyester (UL 94 V-0)
  - ▶ Color ..... Gray
- Cable cover ..... Glass-filled thermoplastic polyester (UL 94 V-0)
  - ▶ Color ..... Black
- Cable latch..... Polyetherimide (UL 94 V-0)
  - ▶ Color ..... Black

### Environmental Properties

- Temperature range ..... -55°C to + 105°C

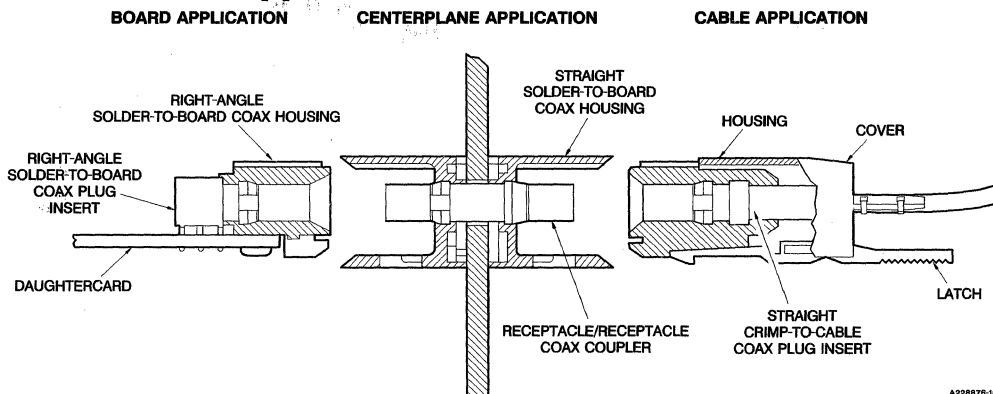
### Electrical Performance

- Insulation resistance.....  $5 \times 10^3 \text{ M}\Omega$  min initially;  $1 \times 10^3 \text{ M}\Omega$  after environmental testing
- Withstanding voltage..... 1000 V rms (sea level)

### Packaging (see Ordering Data for quantity)

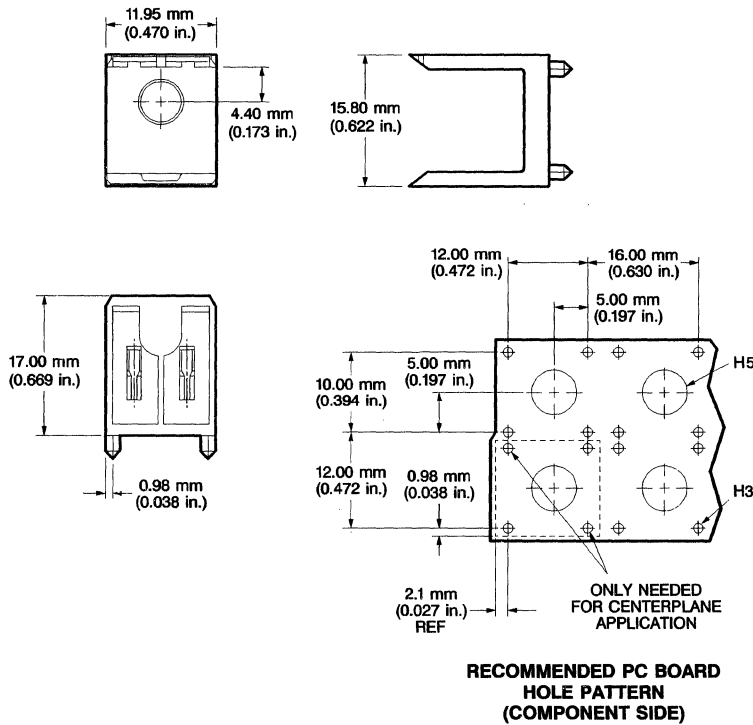
- Bags ..... 100

## DIN-Standard Coax Applications



A228976-1016

**Description and Ordering Data**  
Centerplane Application  
Straight Housing  
Part Number 88911-101

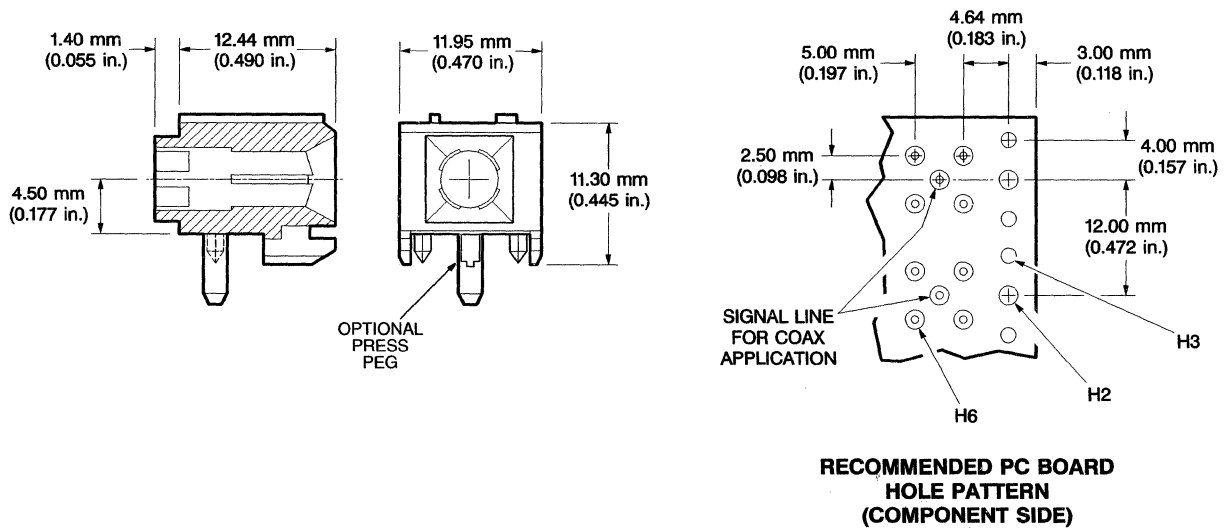


A228876-006

For "H" hole specifications, see page 10-99.

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

**Description and Ordering Data**  
Board Application  
Right-Angle Solder-to-Board Housing  
Part Number 70292-101 (Heat Stake Peg)  
Part Number 89092-101 (Press Peg)



A228876-0753

For "H" hole specifications, see page 10-99.

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

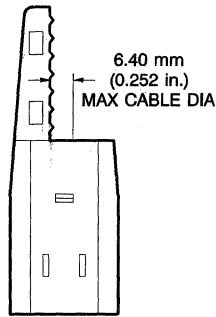
**Description**

**Cable Application**

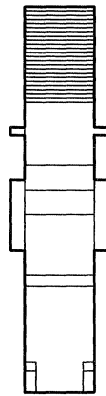
**Crimp-to-Wire Assembly**

(parts of assembly supplied individually;  
see Ordering Data)

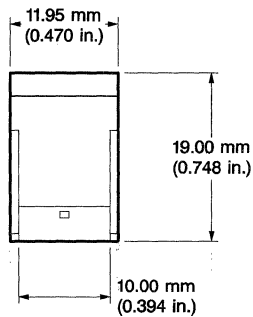
**COVER**



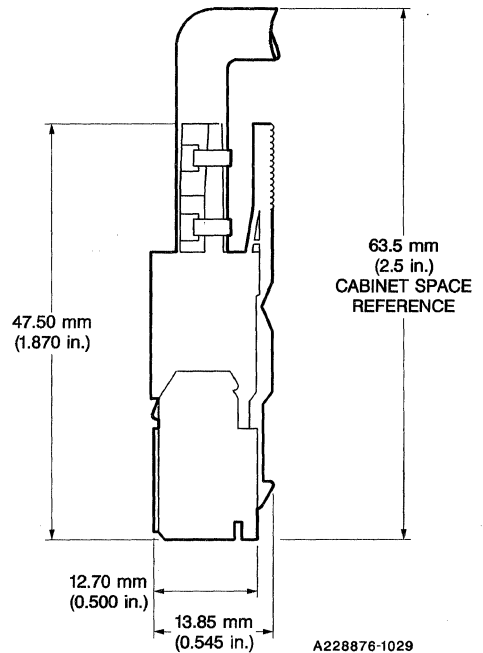
**LATCH**



**CABLE CONNECTOR**



**ASSEMBLY**



**Ordering Data**

**Cable Application**

**Crimp-to-Wire Assembly**

(parts of assembly supplied individually)

Parts of Assembly (order 1 of each)	Part Number
Housing	70242-001
Cover	70282-001
Latch	70289-001

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

**Customer Support Materials**

Description

Order No.

Description

Order No.

Customer Product Drawings..... By Part No.

Product Samples..... Upon Request

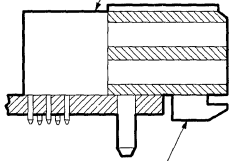
# Hybrid Connectors

## Coax Cable Connectors 6-Position Mini Coax Application Guide

### 6-Position Mini Coax Applications

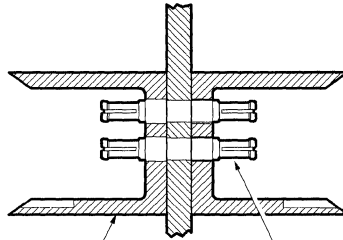
#### RECEPTACLE BOARD APPLICATION

RIGHT-ANGLE SOLDER-TO-BOARD RECEPTACLE INSERT



RIGHT-ANGLE RECEPTACLE HOUSING

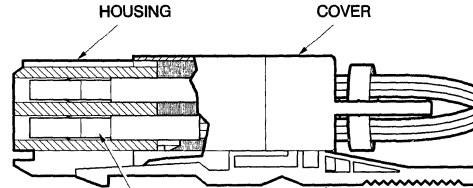
#### CENTERPLANE APPLICATION



STRAIGHT HEADER HOUSING

PLUG/PLUG COUPLER

#### CABLE APPLICATION

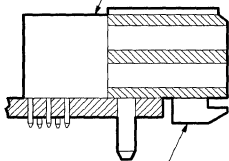


CRIMP-TO-WIRE RECEPTACLE INSERT

LATCH

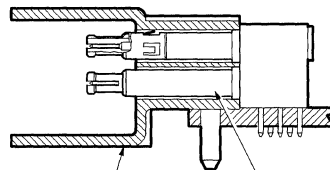
#### RECEPTACLE BOARD APPLICATION

RIGHT-ANGLE SOLDER-TO-BOARD RECEPTACLE INSERT



RIGHT-ANGLE RECEPTACLE HOUSING

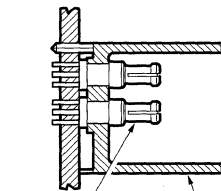
#### HEADER BOARD APPLICATION



RIGHT-ANGLE HEADER HOUSING

RIGHT-ANGLE INSERT PLUG

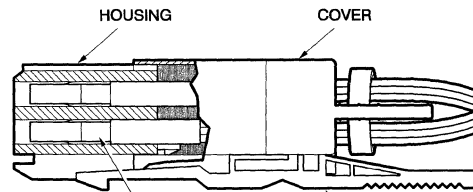
#### BACKPANEL APPLICATION



STRAIGHT PLUG INSERT

STRAIGHT NARROW BODY HEADER HOUSING

#### CABLE APPLICATION



CRIMP-TO-WIRE RECEPTACLE INSERT

LATCH

A228876-009

# Hybrid Connectors

## Coax Cable Connectors 6-Position Mini Coax Application Guide

If you have a Wide Body Centerplane application					
and if you have a Centerplane Thickness of		you need 2 Straight Wide Body Header Housings (see page 10-64)		and 2-6 Wide Body Plug/Plug Couplers (see page 10-58)	
mm	in.				
1.60	0.062	88913-101		70296-003	
2.40	0.093	88913-101		70296-002	
3.20	0.125	88913-101		70296-001	
4.00	0.156	88913-101		70296-004	
4.80	0.187	88913-101		70296-005	
5.60	0.218	88913-101		70296-006	

If you have a Narrow Body Centerplane application					
and if you have a Centerplane Thickness of		you need 2 Straight Narrow Body Header Housings (see page 10-64)		and 2-6 Narrow Body Plug/Plug Couplers (see page 10-58)	
mm	in.				
1.60	0.062	70243-101		88971-003	
2.40	0.093	70243-101		88971-002	
3.20	0.125	70243-101		88971-001	
4.00	0.156	70243-101		88971-004	
4.80	0.187	70243-101		88971-005	
5.60	0.218	70243-101		88971-006	

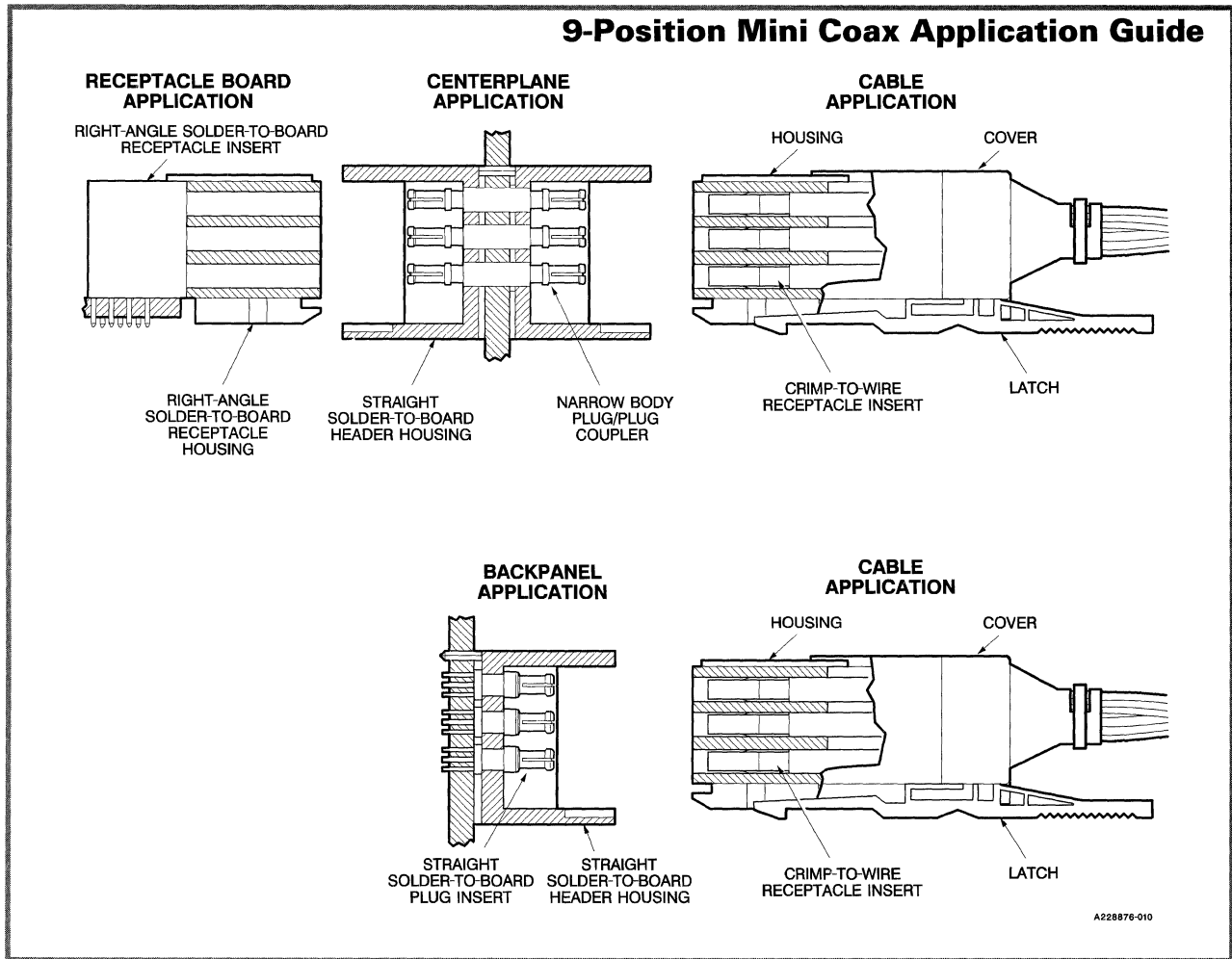
If you have a Backpanel application					
and if you have a Backpanel Thickness of		you need 1 Straight Narrow Body Header Housings (see page 10-64)		and 2-6 Straight Plug Inserts (see page 10-58)	
mm	in.	Solder-to-Board	Press-Fit	Solder-to-Board	Press-Fit
1.60	0.062	70243-101	70243-111	88980-001	88978-001
2.40	0.093	70243-101	70243-111	88980-002	88978-001

If you have a Header Board application					
and if you have a Board Thickness of		you need 1 Right-Angle Header Housings (see page 10-64)		and 1-3 Right-Angle Plug Insert(s) (see page 10-58)	
mm	in.	Heat Stake Peg	Press Peg	Solder-to-Board	Press-Fit
1.60	0.062	88982-101	88982-102	88983-002	N/A
2.40	0.093	88982-101	88982-102	88983-002	N/A

If you have a Receptacle Board application					
and if you have a Board Thickness of		you need 1 Right-Angle Receptacle Housings (see page 10-64)		and 1-3 Right-Angle Receptacle Insert(s) (see page 10-58)	
mm	in.	Heat Stake Peg	Press Peg	Solder-to-Board	Press-Fit
1.60	0.062	70244-101	70244-102	70239-002	N/A
2.40	0.093	70244-101	70244-102	70239-002	N/A

If you have a Cable application (see page 10-64)					
you need 1 Housing		1 Cover		and 2-6 Inserts	
70245-101		70246-001		see table, below	
				1 Latch	
				70289-001	
Crimp-to-Receptacle Inserts (see page 10-58)					
Cable Type		Max. Cable O.D.		Part Number	
50 OHM	75 OHM	mm	in.		
RG178B/U, RG196A/U	W.L. GORE CXN 2582	2.00	0.079	70297-001	
RG188A/U, RG174A/U, RG316U	RG179B/U, RG187A/U	2.70	0.106	70297-002	

## Coax Cable Connectors 9-Position Mini Coax Application Guide



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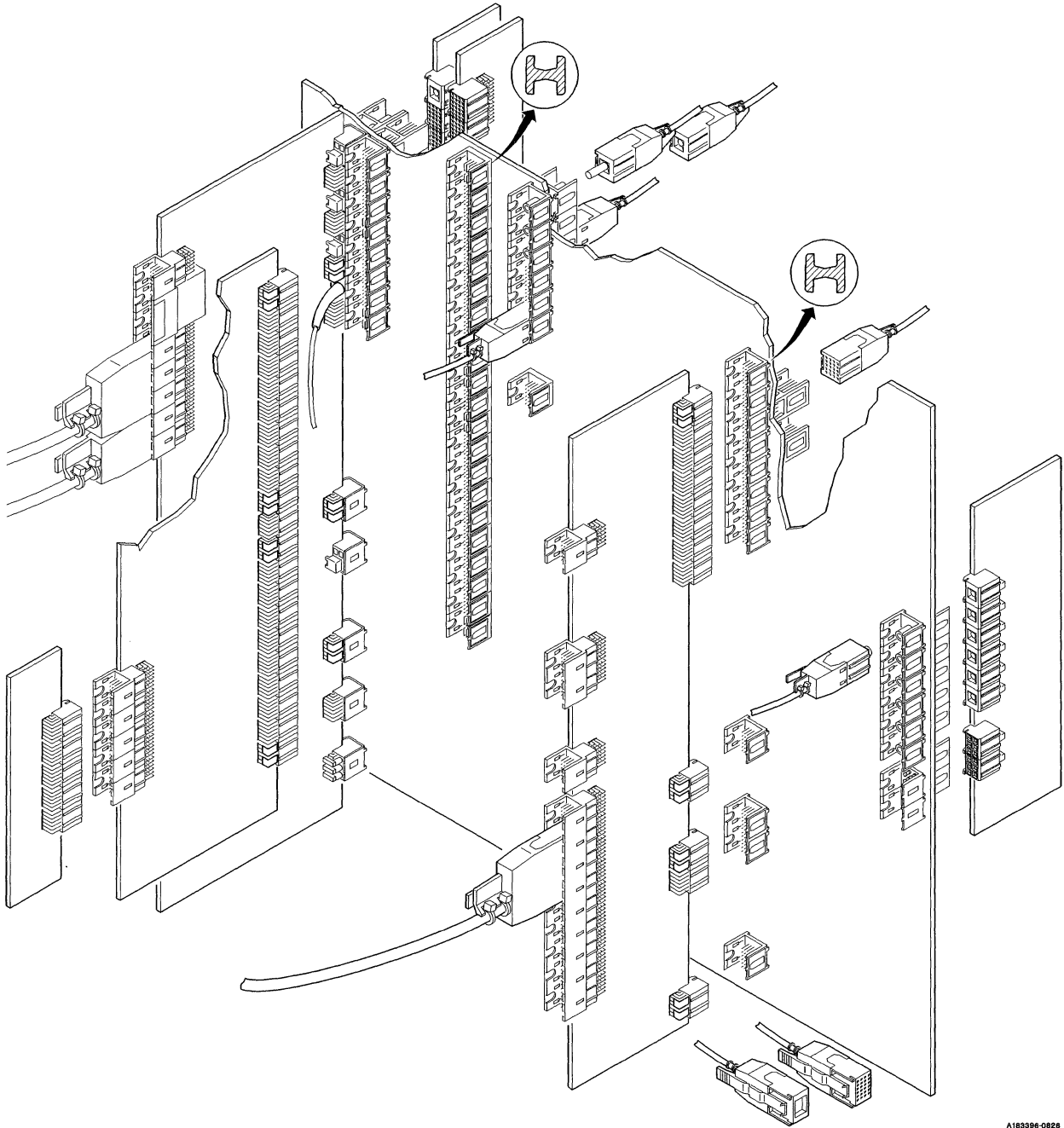
If you have a Narrow Body Centerplane application			
and if you have a Centerplane Thickness of		you need 2 Straight Solder-to-Board Narrow Body Header Housings (see page 10-64)	and 4-9 Narrow Body Plug/Plug Couplers (see page 10-58)
mm	in.		
1.60	0.062	88973-101	88971-003
2.40	0.093	88973-101	88971-002
3.20	0.125	88973-101	88971-001
4.00	0.156	88973-101	88971-004
4.80	0.187	88973-101	88971-005
5.60	0.218	88973-101	88971-006

If you have a Narrow Body Backpanel application			
and if you have a Backpanel Thickness of		you need 1 Straight Solder-to-Board Narrow Body Header Housings (see page 10-64)	and 4-9 Straight Solder-to-Board Plug Inserts (see page 10-58)
mm	in.		
1.60	0.062	88973-101	88980-001
2.40	0.093	88973-101	88980-002

If you have a Receptacle Board application			
and if you have a Board Thickness of		you need 1 Right-Angle Solder-to-Board Receptacle Housings (see page 10-64)	and 2-3 Right-Angle Solder-to-Board Receptacle Inserts (see page 10-58)
mm	in.		
1.60	0.062	88974-101	88981-002
2.40	0.093	88974-101	88981-002

**Hybrid Connectors  
Coax Cable Connectors**

If you have a Cable application (see page 10-64)				
you need 1 Housing	1 Cover	1 Latch		and 4-9 Inserts (see page 10-58)
88975-101	88976-001	70289-001		see table, below
Cable Type		Cable O.D.		Part Number
50 OHM	75 OHM	mm	in.	
RG178B/U RG196A/U	W.L. GORE CXN 2582	2.00	0.079	70297-001
*Do not use 70297-002 in this application				

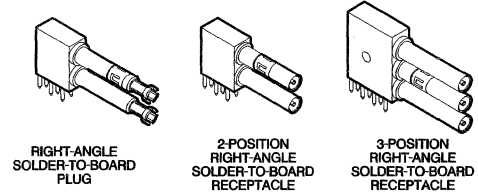


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A183396-0826



# Hybrid Connectors Coax Cable Connectors



A228676-028

## Mini Coax Inserts

### Features

- For 50 and 75 ohm impedance applications.
- Can be used alone or with other METRAL™ modules.
- Beryllium-copper receptacle.
- Very low VSWR.

### Mating Data

Berg Electronic Products	Page
6-position Mini Coax Application Guide	10-53
9-position Mini Coax Application Guide	10-55

### Application Equipment

Berg Electronics Products	Page
HT-400 extraction tool for right-angle headers and 6-position wide body vertical headers.	10-95
HT-410 extraction tool for receptacles.	10-95
HT-430 mini coax crimp tool	10-94

### Technical Data

#### Materials

- Contact
  - ▶ Ground..... Brass
  - ▶ Conductor..... Beryllium-copper
- Insulator..... PTEF (TEFLON™)
- Ferrule..... Beryllium-copper
- Body..... Brass

#### Plating

- Contact area finish
  - ▶ Ground..... 1.3 μm (50 μin.) gold over nickel
  - ▶ Conductor..... 2.5 μm (100 μin.) gold over nickel
- Remainder..... Gold flash over nickel

#### Electrical Performance

- Characteristic impedance..... 50 Ω

- Working frequency
  - ▶ Maximum..... 10 GHz
  - ▶ Optimum..... 3 GHz
- VSWR (maximum)
  - ▶ 50 Ω..... 1.08 (0-1 GHz)  
1.12 (1-3 GHz)  
1.35 (3-6 GHz)
  - ▶ 75 Ω..... 1.35 (1-3 GHz)
- Peak voltage..... 750 Veff
- Operating voltage..... 500 Veff
- Insulation resistance..... 1 x 10<sup>6</sup> MΩ

#### Environmental Properties

- Temperature range..... -55°C to + 105°C

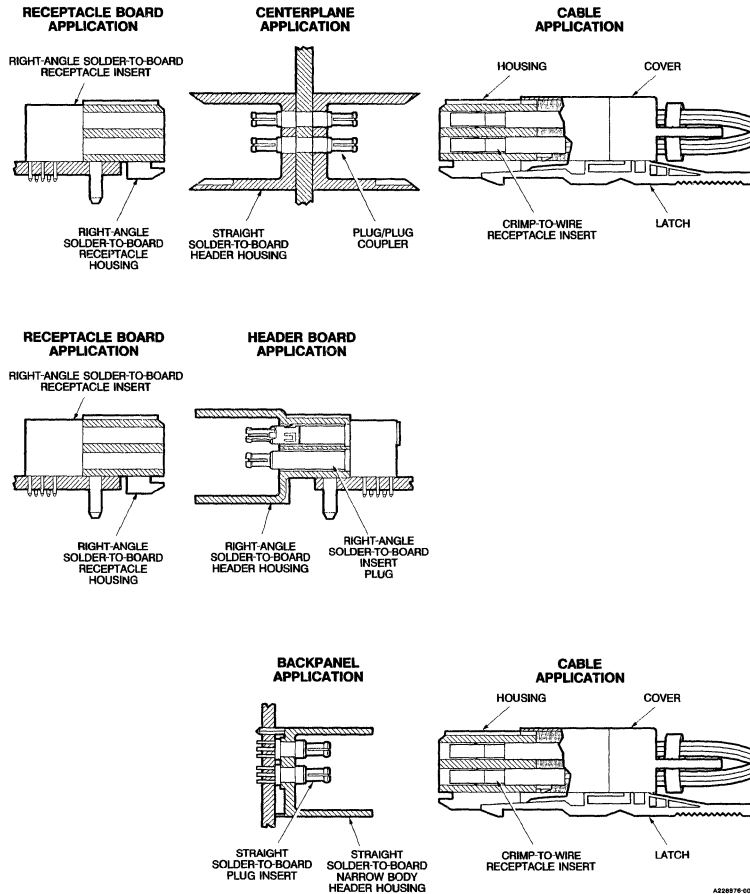
#### Packaging (see Ordering Data for quantity)

- Bags..... 100

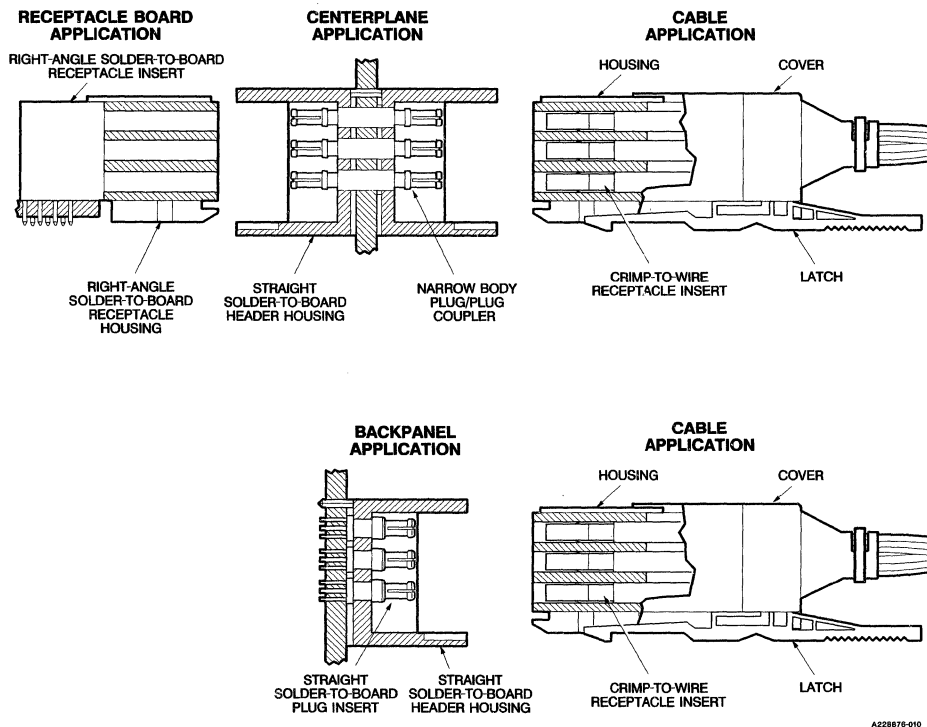
### Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawings.....	By Part No.	Product Samples.....	Upon Request

## 6-Position Mini Coax Applications



## 9-Position Mini Coax Applications



10

**Description**  
Wide Body Centerplane Application  
Wide Body Plug/Plug Coupler

A228878-020

**Description**  
Narrow Body Centerplane Application  
Narrow Body Plug/Plug Coupler

NOTE: NON-TOLERANCED DIMENSIONS  
ARE FOR REFERENCE ONLY.

A6878-035

**Ordering Data**  
Centerplane Application  
Plug/Plug Coupler

Mating and solder tail lengths (see table)

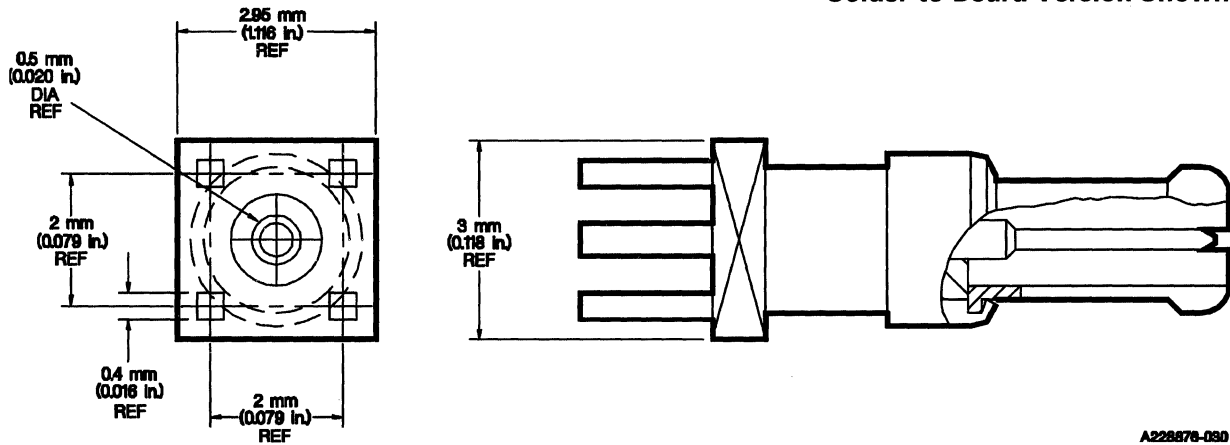
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Base Number		Dash Number		
Wide Body	70296			
Narrow Body	88971			
Centerplane Thickness		Length L		Dash Number
mm	in.	mm	in.	
1.60	0.062	17.40	0.685	-003
2.40	0.093	18.20	0.717	-002
3.20	0.125	19.00	0.748	-001
4.00	0.156	19.80	0.780	-004
4.80	0.187	20.60	0.811	-005
5.60	0.218	21.40	0.843	-006

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

**Description**

**Backpanel Application**  
**Straight Solder-to-Board and Press-Fit Header Insert**  
**Solder-to-Board Version Shown**



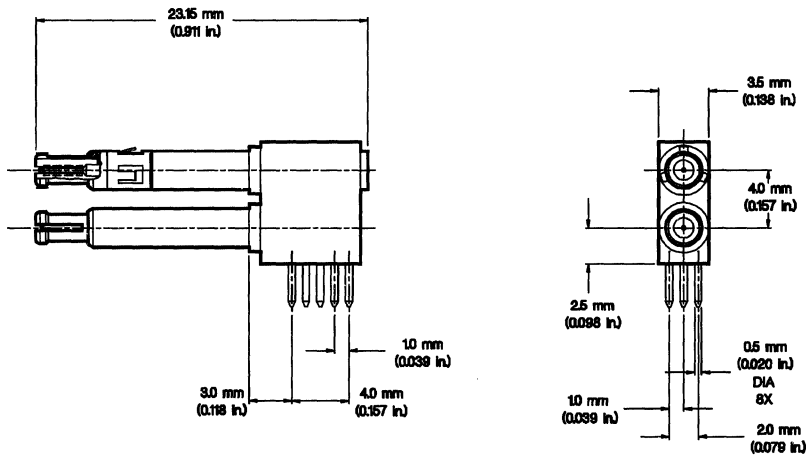
**Ordering Data**  
**Backpanel Application**  
**Straight Header Insert**

Backpanel Thickness		Part Number	
mm	in.	Solder-to-Board	Press-Fit
1.60	0.062	88980-001	88978-001
2.40	0.093	88980-002	88978-001

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

**Description**

**Header Board Application**  
**2-Position Right-Angle Solder-to-Board**



Solder-to-Board Version Shown

**Ordering Data**  
**Header Board Application**

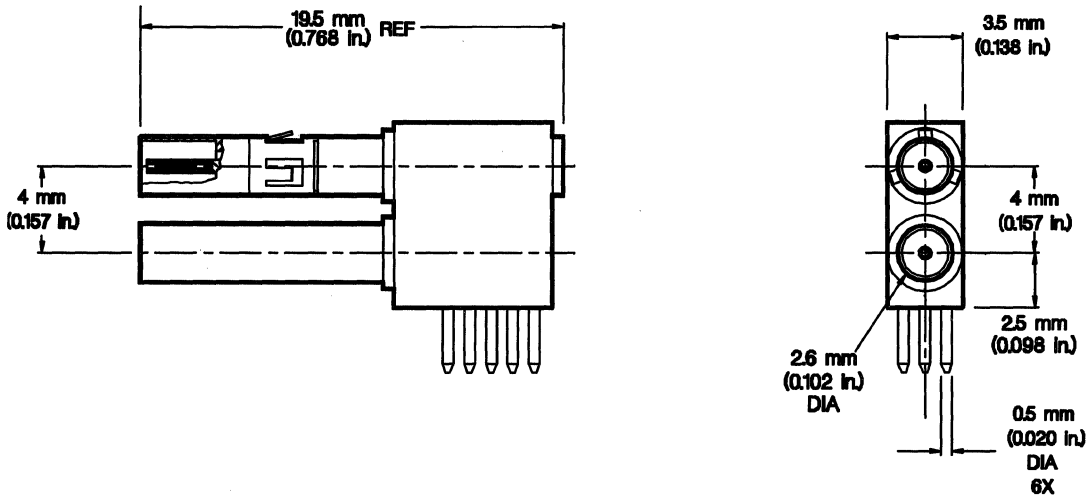
**2-Position Right-Angle Solder-to-Board and Press-Fit Header Insert**  
Part Number 88983-002 (Solder-to-Board)

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

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**Description**

Receptacle Board Application  
2-Position Right-Angle Solder-to-Board  
Solder-to-Board Version Shown



**Ordering Data**

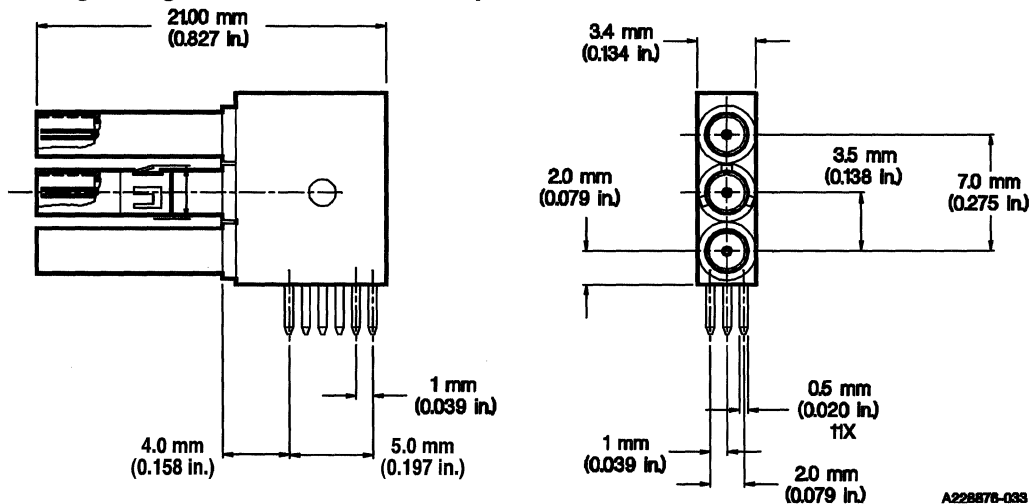
Receptacle Board Application  
2-Position Right-Angle Receptacle Insert

Part Number 70239-002 (Solder-to-Board)

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

**Description**

Receptacle Board Application  
3-Position Right-Angle Solder-to-Board Receptacle Insert



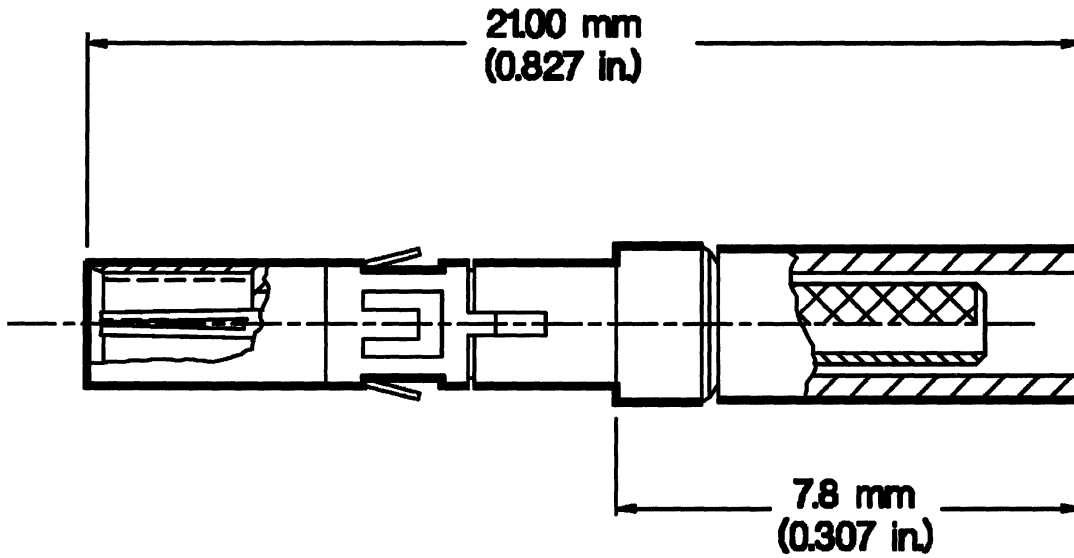
**Ordering Data**

Receptacle Board Application  
3-Position Right-Angle Solder-to-Board Receptacle Insert

Part Number 88981-002

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

**Description**  
Cable Application  
Crimp-to-Wire Receptacle



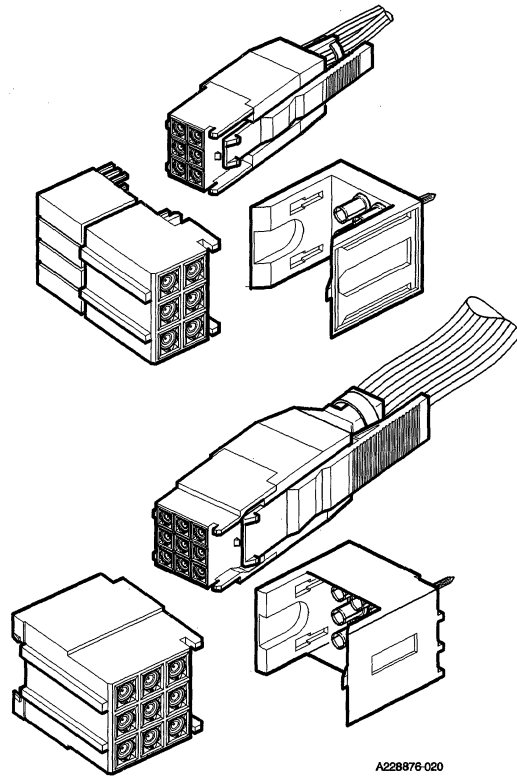
**Ordering Data**  
Cable Application  
Crimp-to-Wire Receptacle

Cable Type		Max. Cable O.D.		Part Number
50 OHM	75 OHM	mm	in.	
RG178B/U, RG196A/U	W.L. GORE CXN 2582	2.00	0.079	70297-001
RG188A/U, RG174A/U, RG316U	RG179B/U RG187A/U	2.70	0.106	70297-002

# Hybrid Connectors Coax Cable Connectors

## Right-Angle Solder-to-Board and Straight Mini Coax Housings

### Crimp-to-Wire Mini Coax Assembly



A228876-020


### Features


- Modular design guarantees flexibility.
- Stackable end-to-end without loss of positions.
- Stackable with other METRAL™ function modules (e.g., signal, power).
- Polarization.
- Stable high-strength PCB attachment.
- Termination without soldering.
- High signal density:
  - ▶ 6-position: 50 contacts/100 mm board length.
  - ▶ 9-position: 75 contacts/100 mm board length.

### Mating Data

Berg Electronics	Page
▪ 6-position Mini Coax Application Guide .....	10-53
▪ 9-position Mini Coax Application Guide .....	10-55

### Approvals and Certifications

 File no. E66906

 File no. LR46923

### Application Equipment

Berg Electronics Products	Page
▪ MT-120 single riveting hand tool .....	10-82
▪ MT-130 multiple riveting machine .....	10-83
▪ MT-310 Press-fit insertion press .....	10-88
▪ MT-320 Press-fit semi-automatic air press. ....	10-89
▪ Press-fit straight header tooling sets .....	10-90
▪ MT-510 insertion bench press ..	10-96
▪ MT-511 insertion air press .....	10-97
▪ Press-fit right-angle tooling sets .....	10-98

### Technical Data

#### Materials

- Straight and Right-Angle Housings ..... Glass filled LCP (UL 94-VO)
  - ▶ Color .....
  - ▶ Applicable soldering processes. .... Wave, IR, vapor phase
- Cable housing ..... Glass filled thermoplastic polyester (UL 94-VO)
  - ▶ Color .....
- Cable cover ..... Glass filled thermoplastic polyester (UL 94-VO)
  - ▶ Color .....
- Cable latch ..... Polyetherimide (UL 94 V-O)
  - ▶ Color .....

#### Environmental Properties

- Temperature range .....

#### Electrical Performance

- Insulation resistance. ....  $5 \times 10^3$  M $\Omega$  min initially;  $1 \times 10^3$  M $\Omega$  after environmental testing
- Withstanding voltage .....

#### Packaging (Order in multiples of quantity shown)

- Bags .....

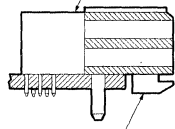
### Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawings .....	By Part No.	Product Samples .....	Upon Request

## 6-Position Mini Coax Applications

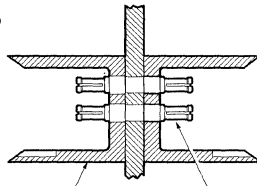
### RECEPTACLE BOARD APPLICATION

RIGHT-ANGLE SOLDER-TO-BOARD RECEPTACLE INSERT



RIGHT-ANGLE RECEPTACLE HOUSING

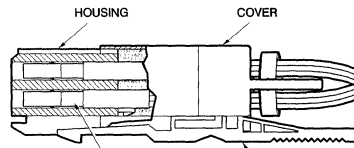
### CENTERPLANE APPLICATION



STRAIGHT HEADER HOUSING

PLUG/PLUG COUPLER

### CABLE APPLICATION

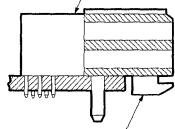


CRIMP-TO-WIRE RECEPTACLE INSERT

LATCH

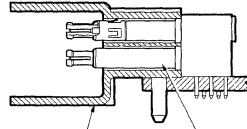
### RECEPTACLE BOARD APPLICATION

RIGHT-ANGLE SOLDER-TO-BOARD RECEPTACLE INSERT



RIGHT-ANGLE RECEPTACLE HOUSING

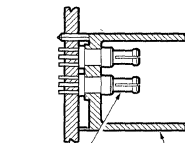
### HEADER BOARD APPLICATION



RIGHT-ANGLE HEADER HOUSING

RIGHT-ANGLE INSERT PLUG

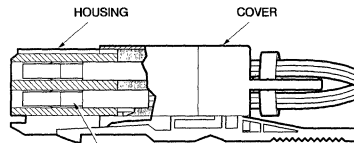
### BACKPANEL APPLICATION



STRAIGHT SOLDER-TO-BOARD PLUG INSERT

STRAIGHT SOLDER-TO-BOARD NARROW BODY HEADER HOUSING

### CABLE APPLICATION



CRIMP-TO-WIRE RECEPTACLE INSERT

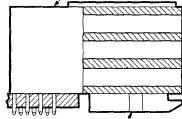
LATCH

A228978-009

## 9-Position Mini Coax Applications

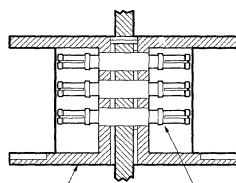
### RECEPTACLE BOARD APPLICATION

RIGHT-ANGLE SOLDER-TO-BOARD RECEPTACLE INSERT



RIGHT-ANGLE SOLDER-TO-BOARD RECEPTACLE HOUSING

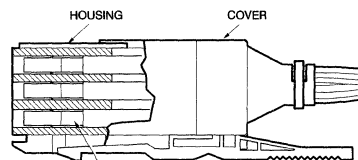
### CENTERPLANE APPLICATION



STRAIGHT SOLDER-TO-BOARD HEADER HOUSING

NARROW BODY PLUG/PLUG COUPLER

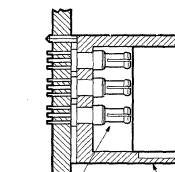
### CABLE APPLICATION



CRIMP-TO-WIRE RECEPTACLE INSERT

LATCH

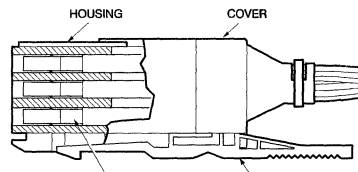
### BACKPANEL APPLICATION



STRAIGHT SOLDER-TO-BOARD PLUG INSERT

STRAIGHT SOLDER-TO-BOARD HEADER HOUSING

### CABLE APPLICATION



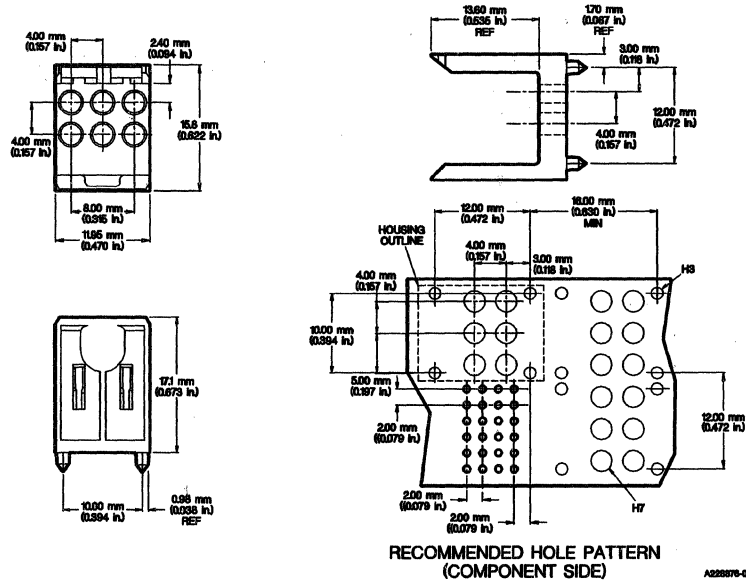
CRIMP-TO-WIRE RECEPTACLE INSERT

LATCH

A228978-010



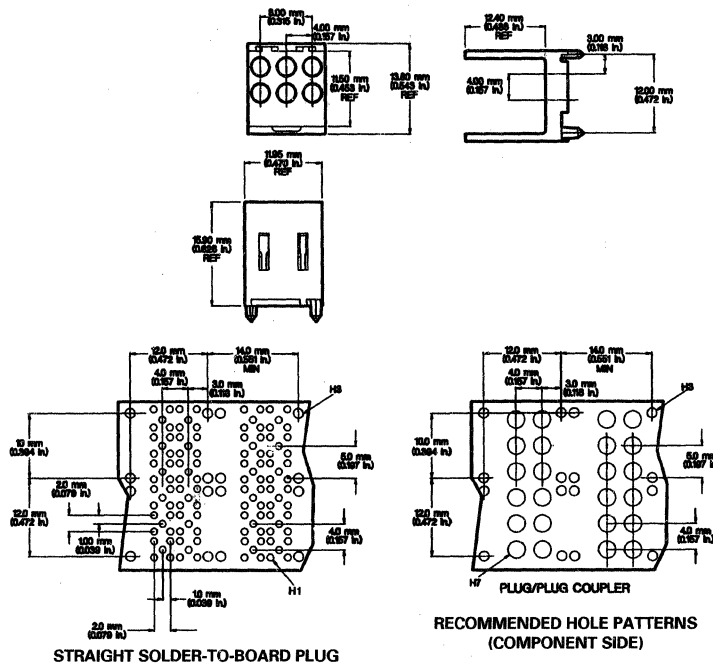
**Description and Ordering Data**  
Wide Body Centerplane Application  
6-Position Straight Wide Body Housing  
Part Number 88913-101



For "H" hole specifications, see page 10-99.

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

**Description and Ordering Data**  
Narrow Body Centerplane and Backplane Applications  
6-Position Straight Narrow Body Housing  
Part Number 70243-101 (Solder-to-Board)  
Part Number 70243-111 (Press-Fit)



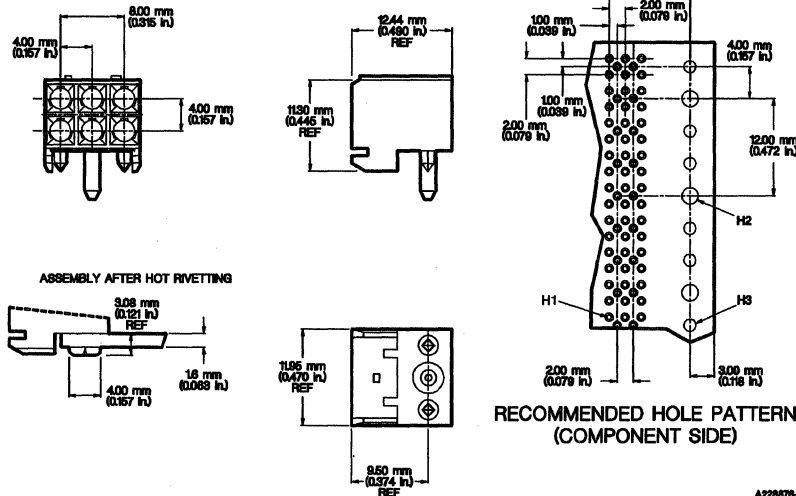
For "H" hole specifications, see page 10-99.

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.



**Description and Ordering Data**  
**Receptacle Board Application**  
**6-Position Right-Angle Receptacle Housing**  
**Part Number 70244-101 (Heat Stake Peg)**  
**Part Number 70244-102 (Press Peg)**

**Heat Stake Version Shown**

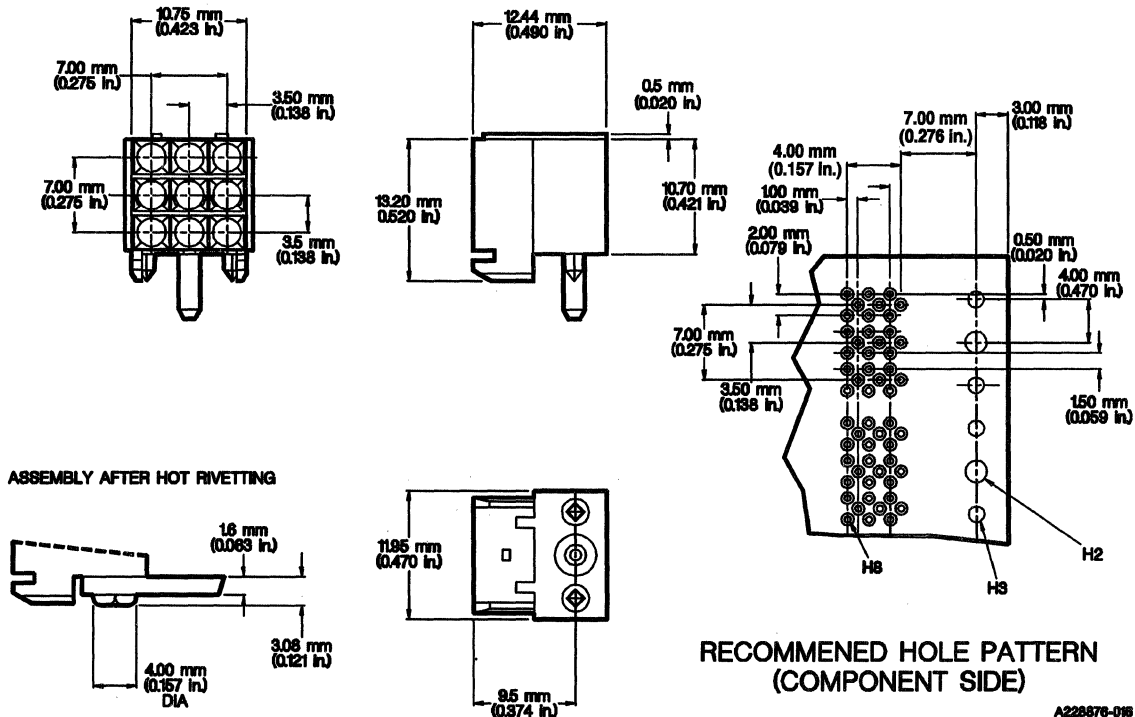


A228876-016

For "H" hole specifications, see page 10-99.

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

**Description and Ordering Data**  
**Receptacle Board Application**  
**9-Position Right-Angle Solder-to-Board Receptacle Housing**  
**Part Number 88974-101**



A228876-016

For "H" hole specifications, see page 10-99.

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

**Description**  
Cable Application  
**6-Position Crimp-to-Wire Assembly**  
(parts of assembly supplied individually;  
see Ordering Data)

A203628-017

**Description**  
Cable Application  
**9-Position Crimp-to-Wire Assembly**  
(parts of assembly supplied individually;  
see Ordering Data)

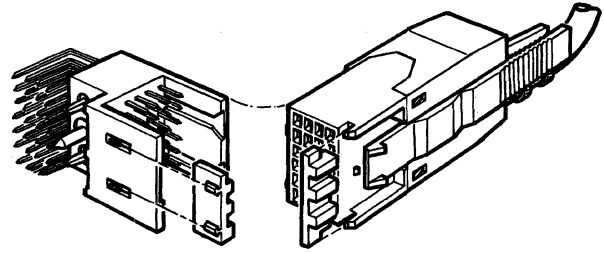
A228876-018

<b>Ordering Data</b> Cable Application <b>6- and 9-Position Crimp-to-Wire Assembly</b> (parts of assembly supplied individually)	
<b>6-position Parts of Assembly</b> (order 1 of each)	<b>Part Number</b>
Housing	70245-101
Cover	70246-001
Latch	70289-001
<b>9-position Parts of Assembly</b> (order 1 of each)	<b>Part Number</b>
Housing	88975-101
Cover	88976-001
Latch	70289-001

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

# Accessories

## Cable-to-Board Coding System



A228876-0740



### Features

- For Futurebus + and SCI users.
- User-friendly system with easy application.
- No additional space required.
- Provides 18 coding possibilities for cable-to-board connection.
- Can be inserted full-length (9 keys) or broken to desired length.

### Specifications

EIA/SP-3179  
IEC 1076-4-104 (Draft)  
CECC 75 101-810

### Approvals and Certifications

-  File no. E66906
-  File no. LR46923

### Technical Data

#### Materials

- Coding parts ..... Thermoplastic polyester glass-filled (UL 94 V-O)
- Color ..... Black

#### Environmental Properties

- Temperature range ..... -55°C to + 105°C

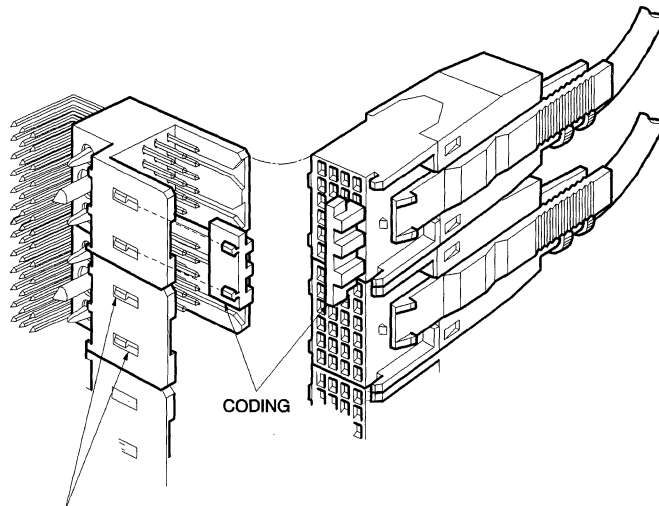
#### Packaging

- Box of 25 coding parts (each header and each receptacle coding part consists of 18 units)

### Customer Support Materials

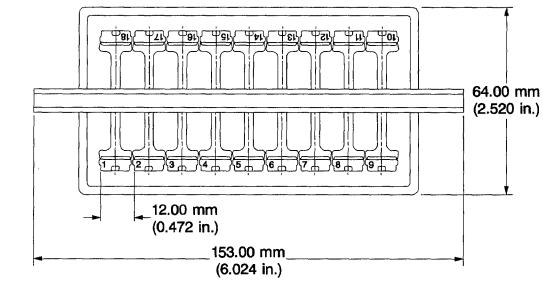
Description	Order No.	Description	Order No.
Customer Product Drawings.....	By Part No.	Product Samples.....	Upon Request

# Description

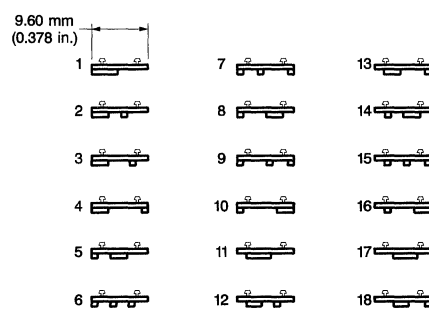
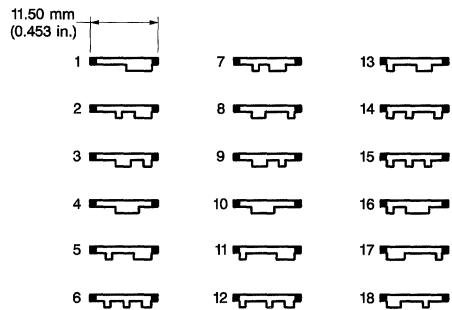
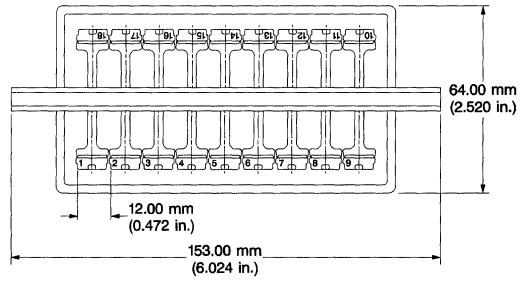


SLOTS FOR CODING AND LATCHING

Receptacle Coding Part



Header Coding Part



A228876-0756

English units shown for reference only.

10

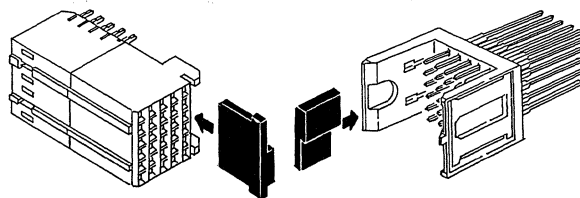
## Ordering Data

Description	Part Number
Header coding	70274-001
Receptacle coding	70275-001

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

# Accessories

## Board-to-Board Coding System




### Features


- For Futurebus + and SCI users.
- User friendly system with easy application.
- No additional space required.
- Provides many coding possibilities for board-to-board connection.

### Specifications

EIA/SP-3179  
IEC 1076-4-104 (Draft)  
CECC 75 101-810

### Approvals and Certifications

 File no. E66906

 File no. LR46923

### Options

- Extended keys for early engagement.

### Technical Data

#### Materials

- Coding Parts ..... Glass filled LCP (UL 94 V-0)
- Color ..... Black

#### Environmental Properties

- Temperature range ..... -55°C to + 105°C

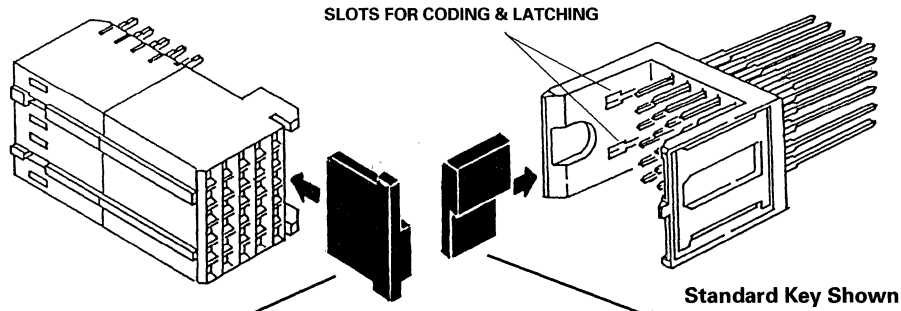
#### Packaging (see Ordering Data for quantity)

- Bag of 100 coding parts

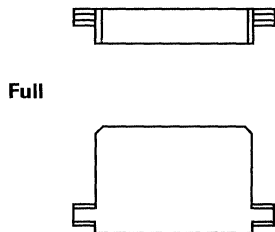
### Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawings.....	By Part No.	Product Samples.....	Upon Request

**Description**

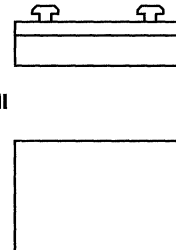


**Receptacle Coding**



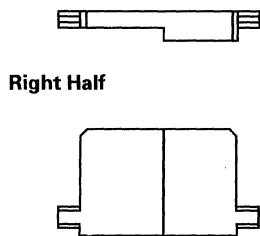
Full

**Header Coding**



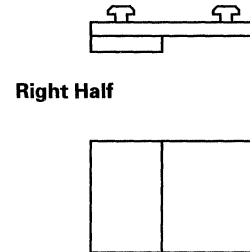
Full

**Receptacle Coding**



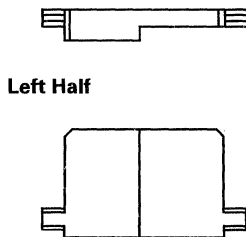
Right Half

**Header Coding**



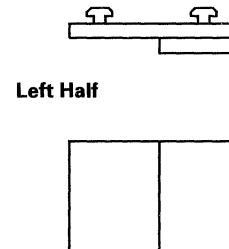
Right Half

**Receptacle Coding**



Left Half

**Header Coding**



Left Half

10

**Ordering Data**

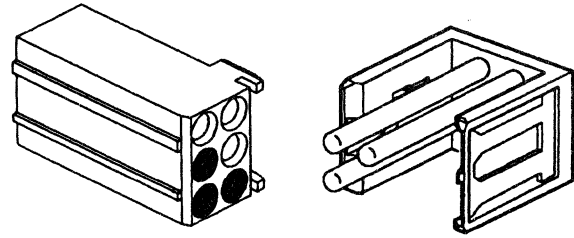
Mating Pairs	Part Number			
	Receptacle Coding		Header Coding	
	Standard (4 row only)	Extended 5 row only)	Standard (4 row only)	Extended (5 row only)
Full	None	None	90837-101	85811-101
Full	91210-101	85812-101	None	None
Right	91290-101	85814-101	91289-101	85813-101
Left	91290-102	85814-102	91289-102	85813-102

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.



# Accessories

## Board-to-Board Keying System




### Features


- Daughter card keying.
- Provides 20 keying combinations.
- Modular design guarantees flexibility.
- Stackable end-to-end without loss of positions.
- Engagement before 8.25 mm pins.
- Precedes card latch engagement.

### Options

- Receptacle available as 20 unique molded parts.
- Board attachment.

### Approvals and Certifications

 File no. E66906

 File no. LR46923

### Application Equipment

Berg Electronics Products	Page
▪ MT-120 Single riveting hand tool .....	10-82
▪ MT-130 Multiple riveting machine .....	10-83
▪ MT-510 Insertion bench press .	10-96
▪ MT-511 Insertion air press ....	10-97

### Technical Data

#### Materials

- Header & Receptacle ..... Glass filled LCP (UL 94 V-0)
  - Color ..... Natural
- Applicable soldering processes ..... Wave, IR vapor phase
- Keying pins ..... Stainless Steel

#### Environmental Properties

- Temperature range ..... -55°C to + 105°C

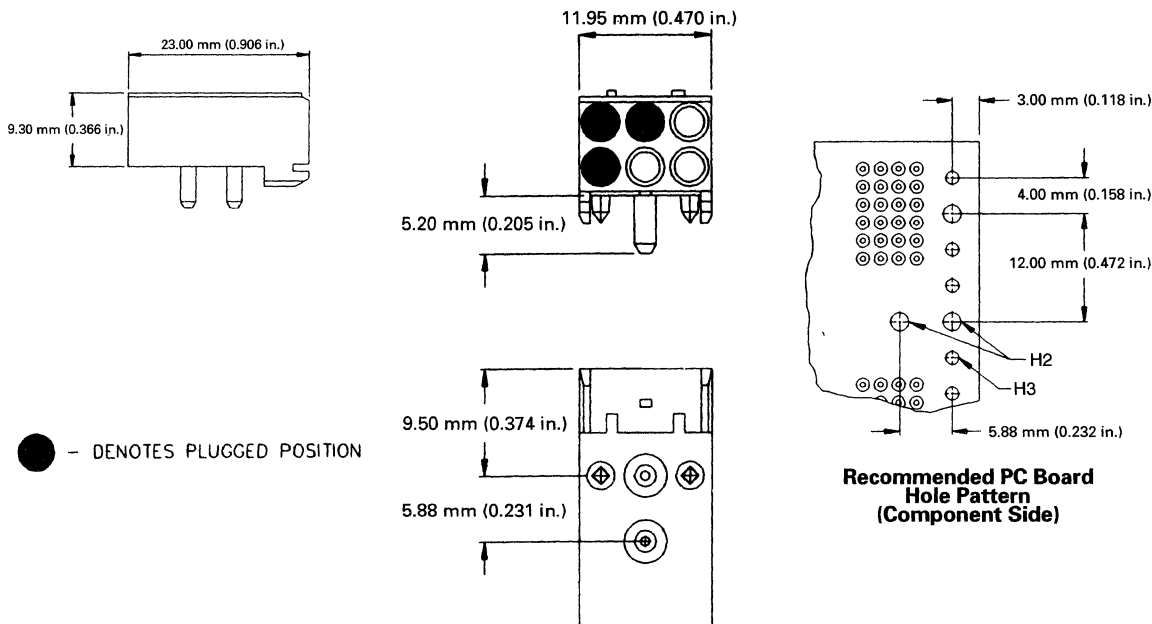
#### Packaging (bags)

- Receptacles ..... 50
- Headers ..... 100
- Keying pins (with screws) ..... 300

### Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawings .....	By Part No.	Product Samples .....	Upon Request

### Description Receptacle



For "H" hole specifications, see page 10-99.

### Ordering Data

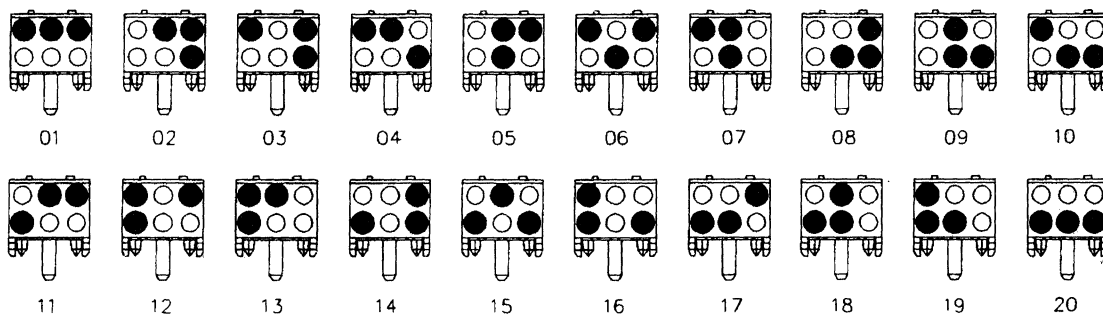
**Board attachment type**

- 1 = Heat stake peg
- 2 = Press peg

Configuration number.

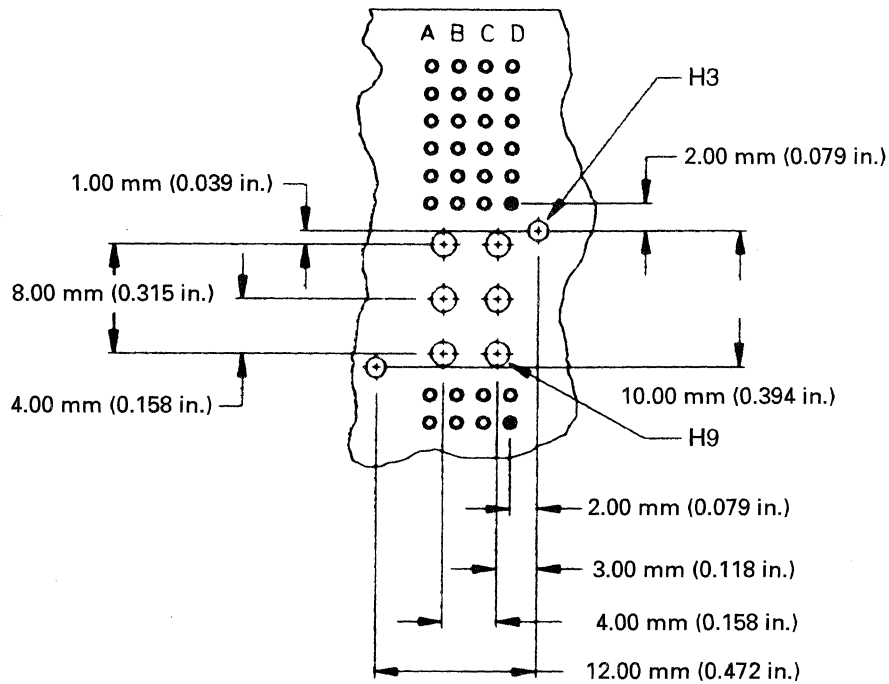
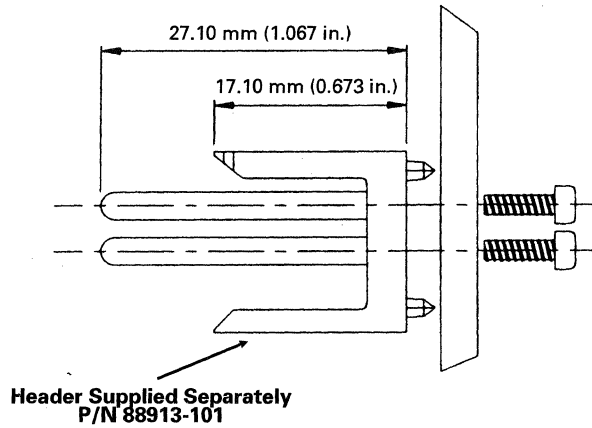
8 8 9 1 6 - X Y Y

### Receptacle Configurations



Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

**Header**



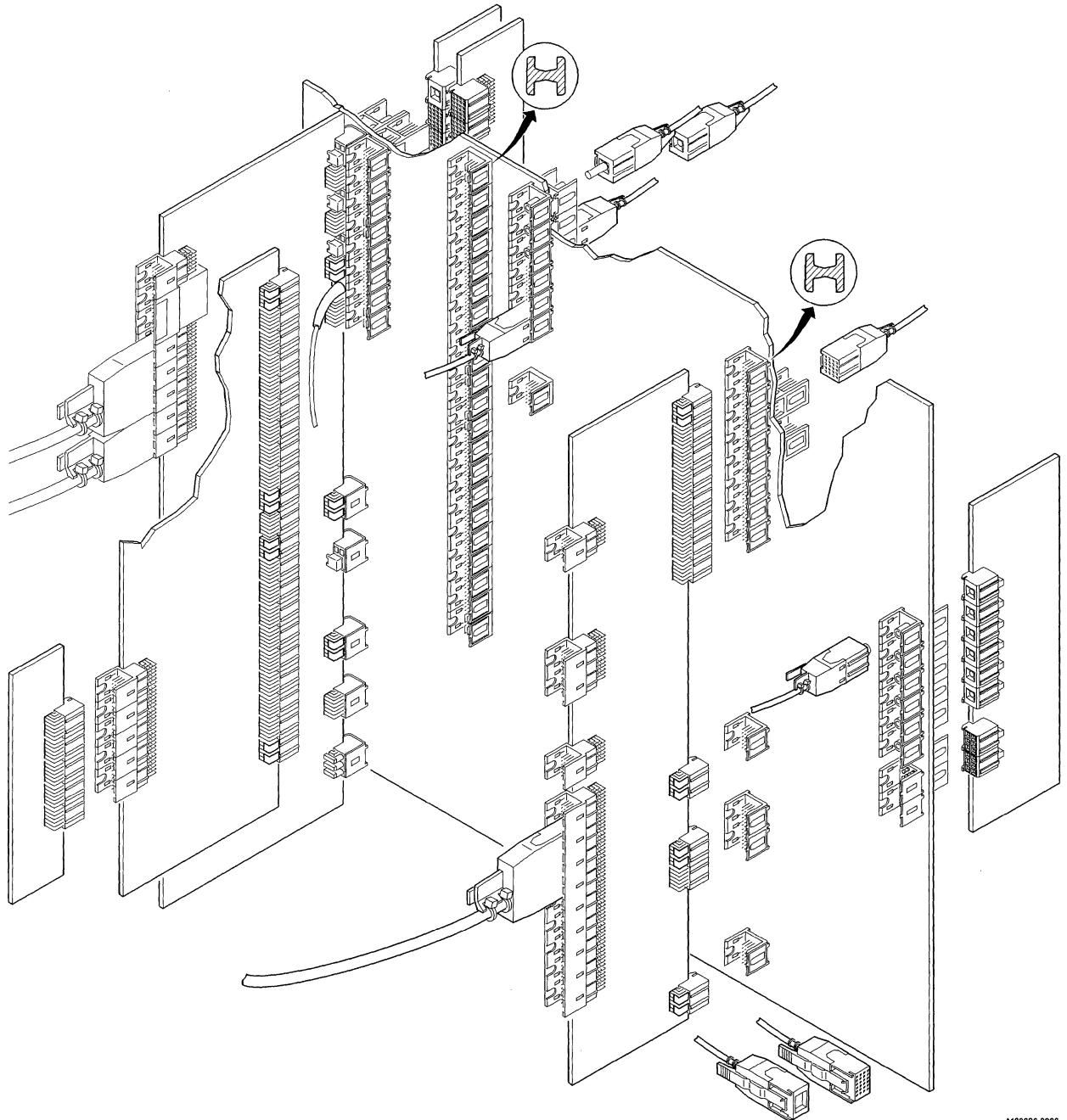
For "H" hole specifications, see page 10-99.

**Ordering Data**  
**Keying Pin**

Dash number indicates backplane thickness.

**88914-0YY**

Backplane Thickness		Dash Number
mm	in.	
2.31 - 3.10	0.091 - 0.122	-011
3.10 - 3.89	0.122 - 0.153	-012
3.89 - 4.67	0.153 - 0.184	-013
4.67 - 5.46	0.184 - 0.215	-014
5.46 - 6.25	0.215 - 0.246	-015
6.25 - 7.06	0.246 - 0.278	-016
7.06 - 8.00	0.278 - 0.315	-017

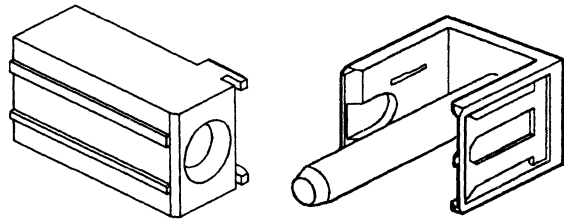


10

A18396-0826

# Accessories

## Guide Pin System (unassembled)



### Features

- For Futurebus + and SCI users.
- Enables early capture of daughter card.
- Stackable end-to-end without loss of positions.
- Stackable with other METRAL™ function modules (e.g., signal, power, coax).
- Front or rear guiding.
- Plug polarization.


### Options


- Pin length.
- Double guide pin assembly,

### Application Equipment

Berg Electronics Products	Page
▪ MT-120 Single riveting hand tool	10-82
▪ MT-130 Multiple riveting machine	10-83
▪ MT-510 Insertion bench press	10-96
▪ MT-511 Insertion air press	10-97

### Approvals and Certifications

 File no. E66906

 File no. LR46923

### Technical Data

#### Materials

- Guide pin ..... Stainless steel
- Receptacle ..... Glass filled LCP (UL 94 V-0)
  - ▶ Color ..... Natural
  - ▶ Applicable soldering processes ..... Wave, IR vapor phase

#### Packaging (see Ordering Data for quantity)

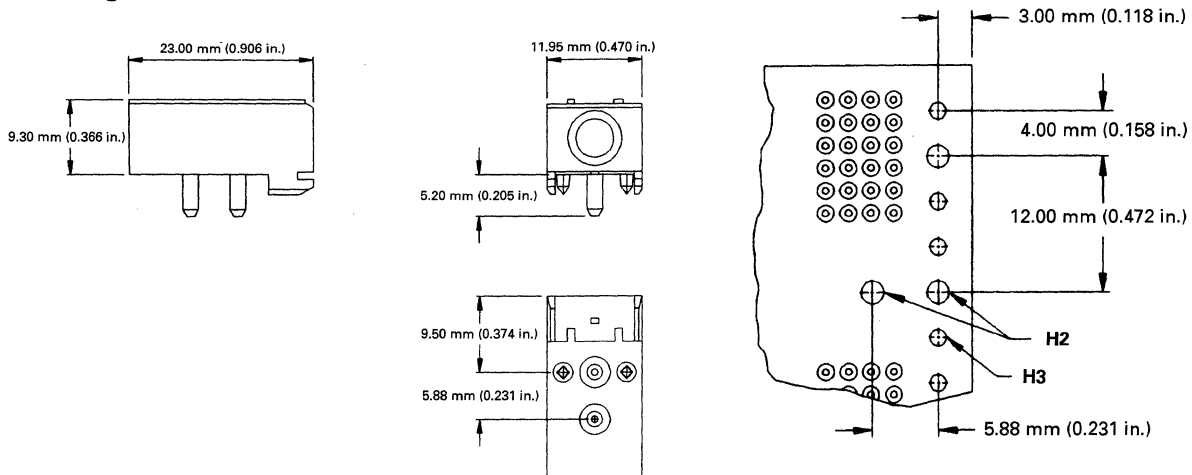
- Bags (unassembled as kit) ..... 100

### Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawings.....	By Part No.	Product Samples.....	Upon Request

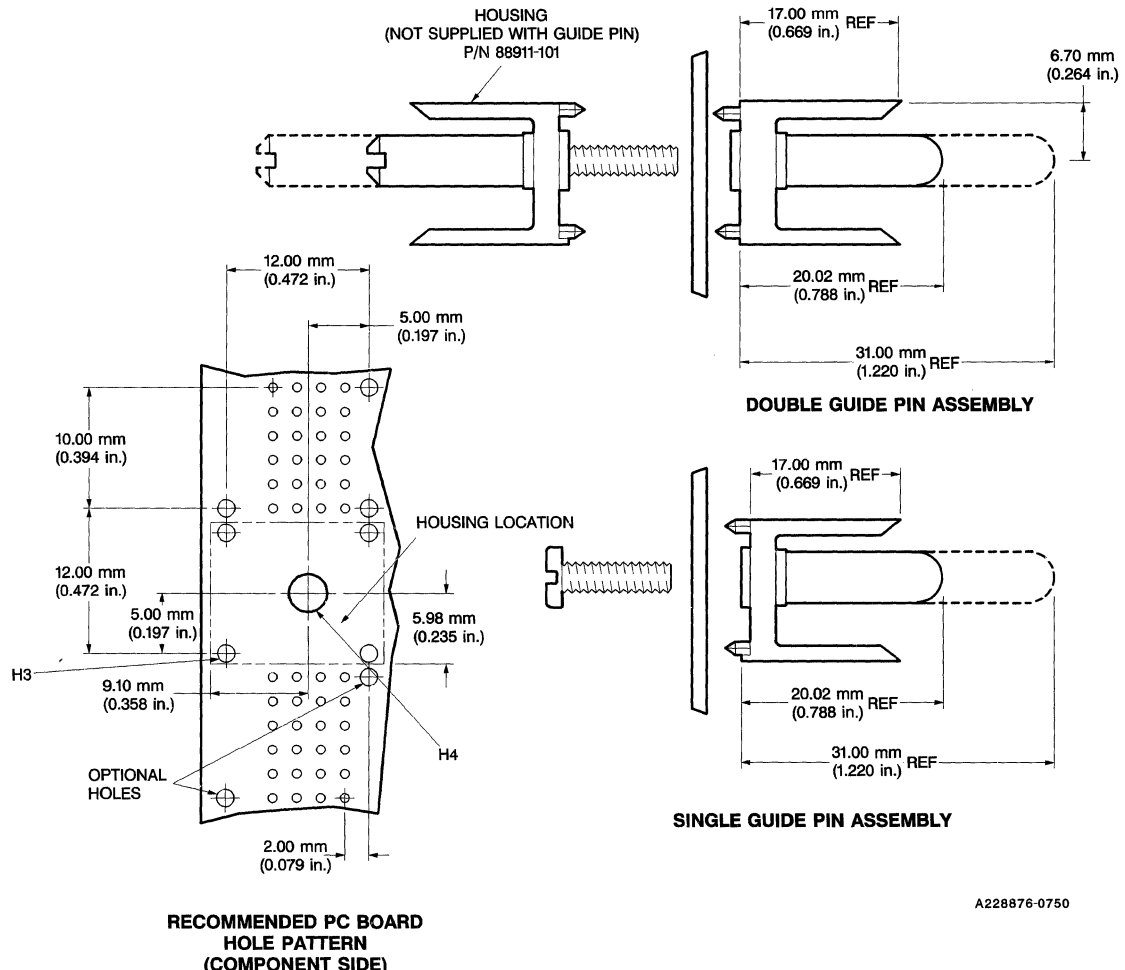
### Description and Ordering Data

Receptacle Housing  
Heat Stake Peg Part Number 88917-101  
Press Peg Part Number 88917-201



For "H" hole specifications, see page 10-99.

**Description**



A228876-0750

English units shown for reference only.  
 Optional holes not required for press-fit connectors; needed for STB connectors.  
 This product comes as a kit and is unassembled.  
 For "H" hole specifications, see page 10-99.

**Ordering Data  
 Guide Pin**

Dash number indicates guide pin type.

**7 0 2 9 5 - X X X**

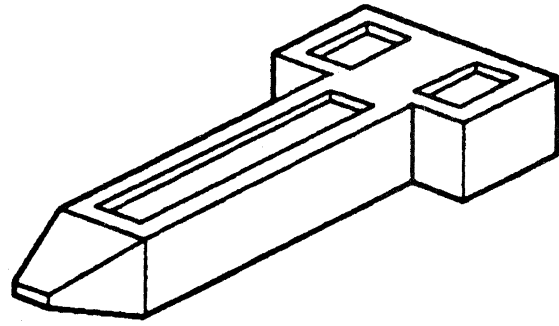
Guide Pin Type	Use With Board Stiffener	Required Number of Straight Solder-to-Board Header Housings (88911-101)**	Dash Number
Single-sided, short	Y	1	-001
Single-sided, long	N	1	-002
Double-sided, short	Y	2	-003
Double-sided, long	N	2	-004

\*\*Order separately. See page 10-43.

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

# Accessories

## Ramping Module




### Features


- Provides initial vertical alignment of daughter card.
- Symmetrical application 2 required per slot.
- Utilizes 6 mm of slot space.
- Provides end caps for backplane header slot.
- Used independently of cabinet hardware design.

### Options

- Ramp Height.

### Approvals and Certifications

 File no. E66906

 File no. LR46923

### Technical Data

#### Materials

- Ramping module ..... Glass filled nylon (UL 94 V-0)
  - ▶ Color ..... Natural

#### Environmental Properties

- Temperature range ..... -55°C to + 85°C

#### Packaging (Order in multiples of quantity shown)

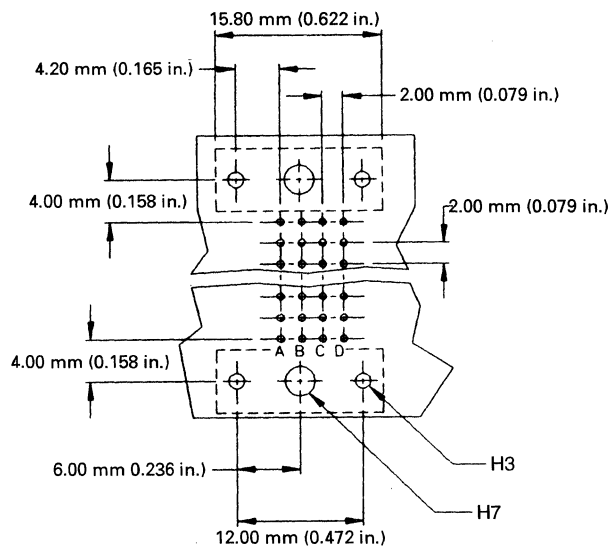
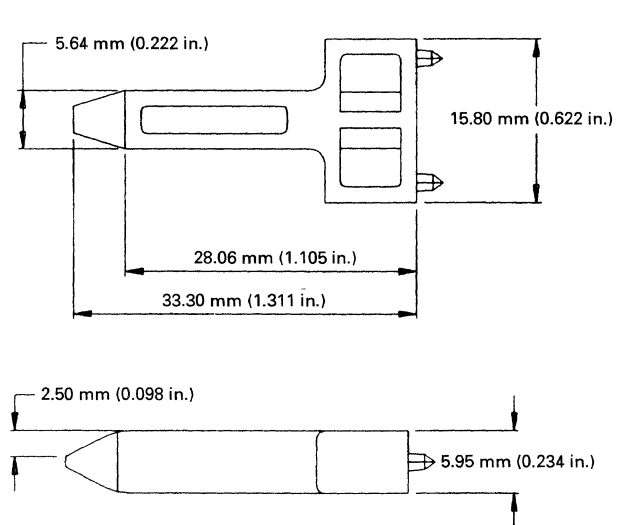
- Bags ..... 500

### Customer Support Materials

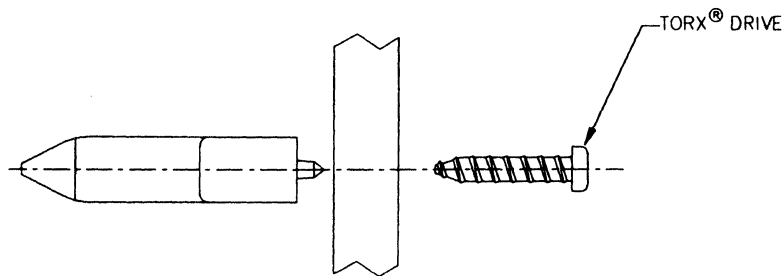
Description	Order No.	Description	Order No.
Customer Product Drawings.....	By Part No.	Product Samples.....	Upon Request

**Description**

**Standard Version Shown**



**Recommended P.C. Board Hole Pattern (Component Side)**



For "H" hole specifications, see page 10-99.

10

**Ordering Data**

Dash number indicates ramp height

**88910-0XX**

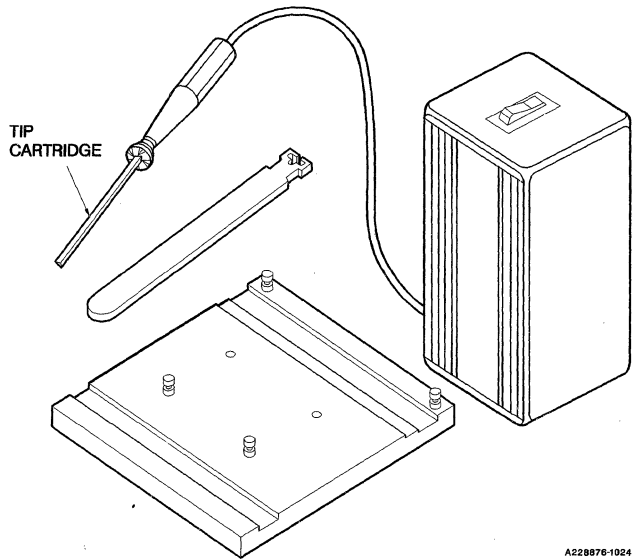
Ramp Type	Ramp Height		Dash Number
	mm	in.	
Standard	33.30	1.311	-012
Short	25.45	1.002	-011



## MT-120 Single Riveting Hand Tool

### Features

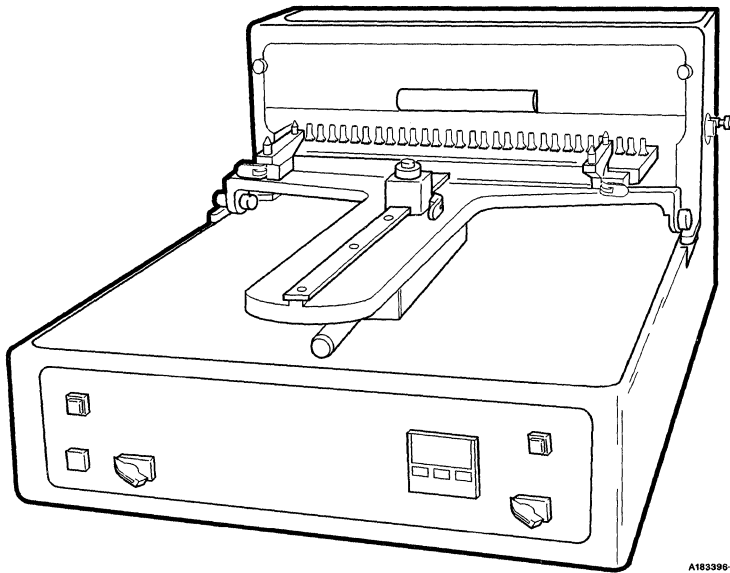
- Simple, easy operation.
- No temperature adjustment.
- Ideal for prototype and small lot production.
- Rapid heat-up and recovery.



A229876-1024

<b>Technical Data</b>	
Application rate (depending on operator dexterity)	up to 150 rivets per hour
Electrical requirements	110 V, 60 Hz 220 V, 50 Hz
Weight	5 kg (10 lbs)

<b>Ordering Data</b>		
Equipment	Voltage	Order Number
MT120	110 V, 60 Hz	160508-001
MT120	220 V, 50 Hz	160508-002
Cartidge tip set (2 tips per set)	N/A	160510-001



A18398-1023

## MT-130 Multiple Riveting Machine

### Features

- Table top unit.
- Adjustable and accurate stroke.
- Stands alone or can be integrated into automatic assembly system.
- PC-programmable.
- Two pre-programmed board thicknesses allow for quick board thickness changeover.
- Accurate temperature.
- Below-board riveting.
- Maximum triple-high Eurocard width.
- Rivets on standard 12 mm pitch.

<b>Technical Data</b>	
Cycle time	15 sec
Maximum rivets per cycle	33 on 12 mm centerlines
Machine dimensions (h x w x d)	330 x 508 x 737 mm (13 x 20 x 29 in.)
Weight	91 kg (200 lbs)
Electrical requirements	110 V, 50-60 Hz, 15 amp or 208-230 V, 50-60 Hz, 7 amp
Control voltage	24 V dc
PCB size (l x w)	min: 60 x 48 mm (2.4 x 1.9 in.) max: 438 x 415 mm (17.1 x 16.2 in.)
PCB thickness	1.27 to 2.54 mm (0.050 to 0.100 in.)
Application rate (depending on operator dexterity)	up to 6000 rivets per hour

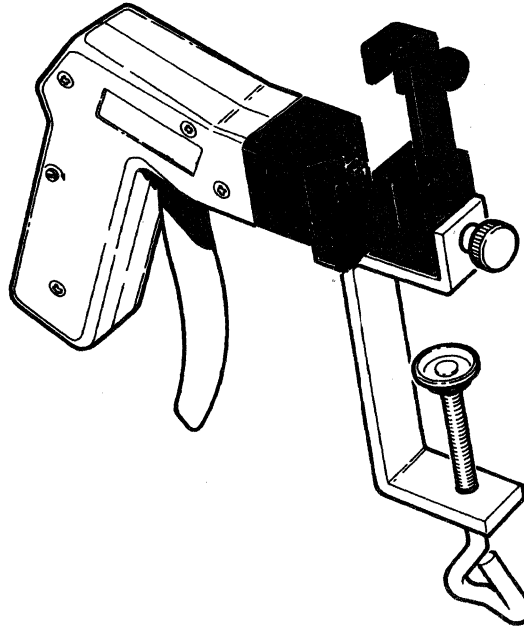
10

<b>Ordering Data</b>	
Voltage	Order Number
110 V	160509-001
220 V	160509-002

## MT-200 Hand Tool

### Features

- Pistol grip.
- For 4 x 6 and 4 x 12 position connectors.
- Low operation force.
- Manual indexing system.
- Table clamp for maximum operator flexibility.



A228876-0719

### Technical Data

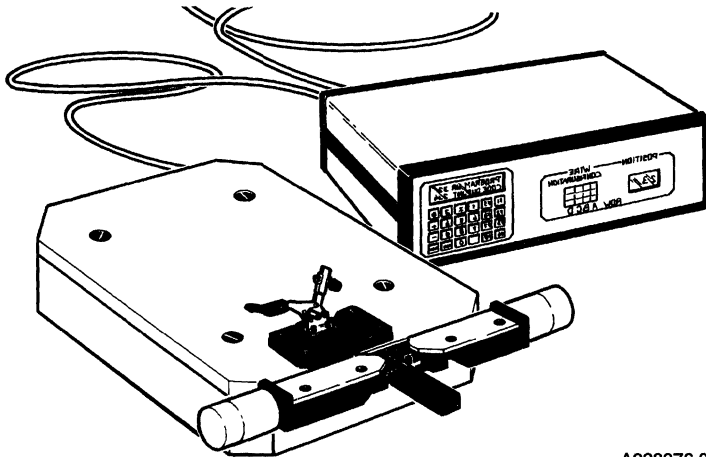
Application rate (depending on operator dexterity)	up to 10 connectors (4 x 6 pos.) per hour
Wire size	28 and 30 AWG (solid and stranded)

### Ordering Data

Equipment	Order Number
MT 200	194192-001

Note: Use with part numbers 70287 and 70288 round cable connectors only.

## MT-220 IDC Machine



A228876-0721

### Features

- Semi-automatic operation.
- Electronically controlled positioning.
- For 4 x 6 and 4 x 12 position connectors.
- Two wires terminated in one step.
- Programmable to terminate selected positions.
- 110 V or 220 V.

<b>Technical Data</b>	
Application rate (depending on operator dexterity)	up to 40 connectors (4 x 6 pos.) per hour
Wire size	28 and 30 AWG (solid and stranded)
Electrical requirements	110 V, 60 Hz or 220-240 V, 50 Hz
Machine dimensions (h x w x d)	150 x 420 x 490 mm (6 x 17 x 19 in.)
Machine weight	10 kg (22 lbs)
Control unit dimensions (h x w x d)	220 x 370 x 320 mm (9 x 15 x 13 in.)
Control unit weight	8 kg (18 lbs)

<b>Ordering Data</b>	
Equipment	Order Number
MT-220	194194-001

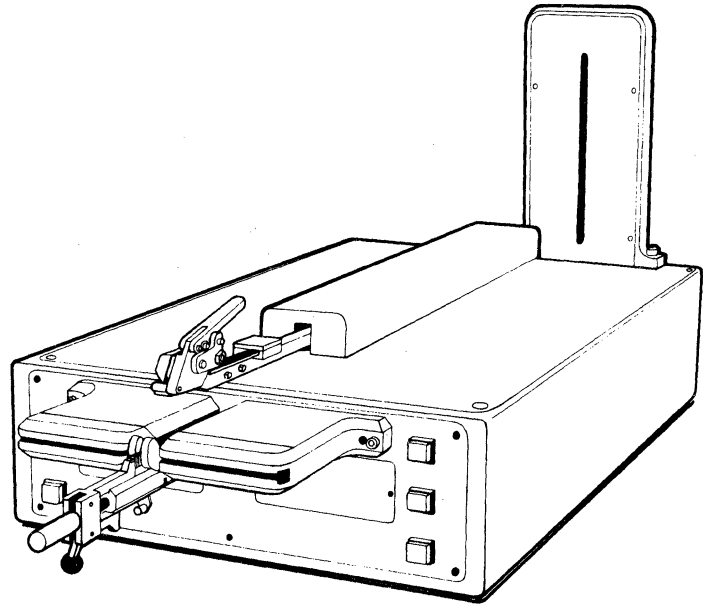
10

Note: Use with part numbers 70287 and 70288 round cable connectors only.

## MT-230 Low Profile IDC Machine

### Features

- Terminates wires to Low Profile IDC Cable Connector
- Programmable for up to 10 configurations
- Rapid changeover
- Facilitates easy cable manipulation
- Programs stored in battery-backed RAM
- An LED screen indicates contact row position
- Supported by user-friendly software
- Diagnostics can be run on all inputs and outputs
- Tooling is hardened or hard chromium-plated steel
- Available in 110 V and 220 V versions



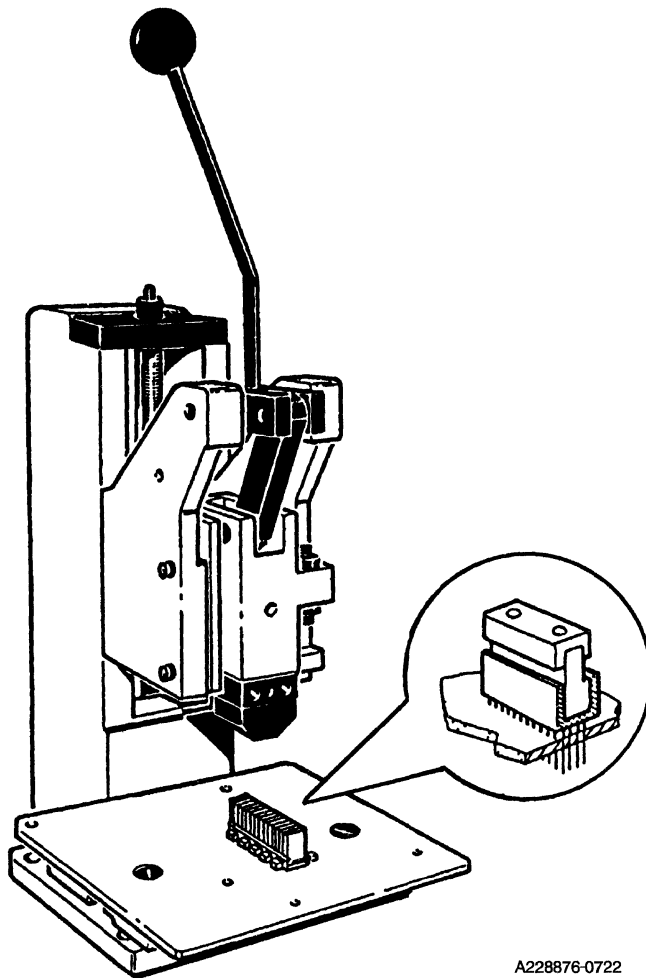
Technical Data	
Operating Voltages	110 V to 120 V, 50 Hz to 60 Hz, 15 A 208 V to 240 V, 50 Hz to 60 Hz, 7 A
Control Voltage	24 V
Dimensions (H x W x D):	406 x 610 x 127 mm (16 x 24 x 5 in.)
Weight	52 kg (115 lbs.)
Indexing Increments	0.025 mm (0.001 in.)
Maximum Configurations Available	10 (configurations are switch selectable)
Wire Sizes:	26 AWG and 28 AWG
Insertion Blade Adjustability Range	±0.635 mm (0.025 in.)
Insertion Blade Repeatability Range	±0.025 mm (0.001 in.)
Available User Memory	2 kbytes (battery backed)

Ordering Data	
Voltage	Order Number
110 V	MT230-01
220 V	MT230-02

Note: Use with part number 88940 round cable connector only.

## MT-301 Insertion Bench Press

(For Press-fit Straight Headers)



A228876-0722

### Features

- Applies vertical press-fit header.
  - ▶ 4 row and 5 row
  - ▶ Signal and power
- Easy to operate.
- For maximum 4 x 24 position connectors.
- Modular press-fit tooling (ordered separately).
- Low maintenance.
- No air or electric required.
- Adjustable shut height.

10

### Technical Data

Application rate (depending on operator dexterity)	up to 50 cycles per hour
Number of pins inserted in one cycle (maximum)	96
Machine dimensions (h x w x d)	600 x 180 x 260 mm (24 x 7 x 10 in.)
Weight	15 kg (33 lbs)
PCB width	180 mm (7in.)

### Ordering Data

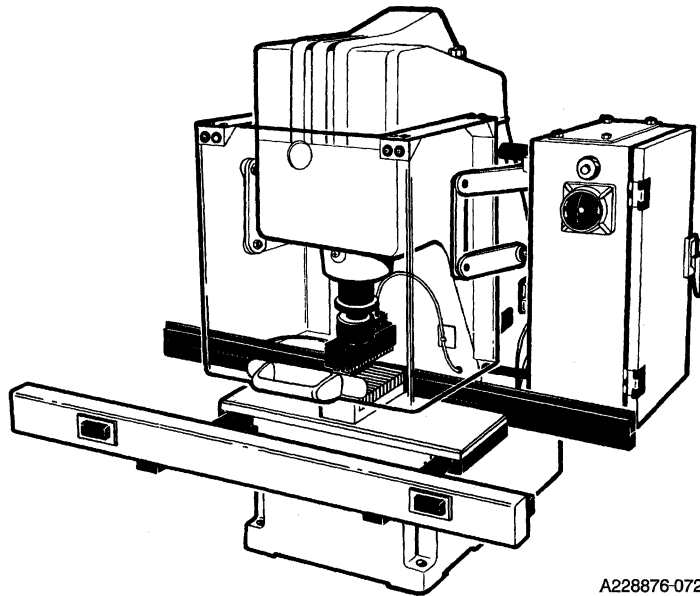
Equipment	Order Number
MT-301	194205-002
Tooling	Order separately. See page 10-90.

## MT-310 Insertion Air Press

(For Press-fit Straight Headers)

### Features

- Applies vertical press-fit headers:
  - ▶ 4 row and 5 row
  - ▶ signal and power
- Versatile, three-ton air press.
- Modular press-fit tooling (ordered separately).
- Sensor for PCB thickness variations.
- Easy positioning.
- Adjustable shut height.
- Low maintenance.
- Two-hands safety operation.
- 110 V and 220 V.



A228876-0723

### Technical Data

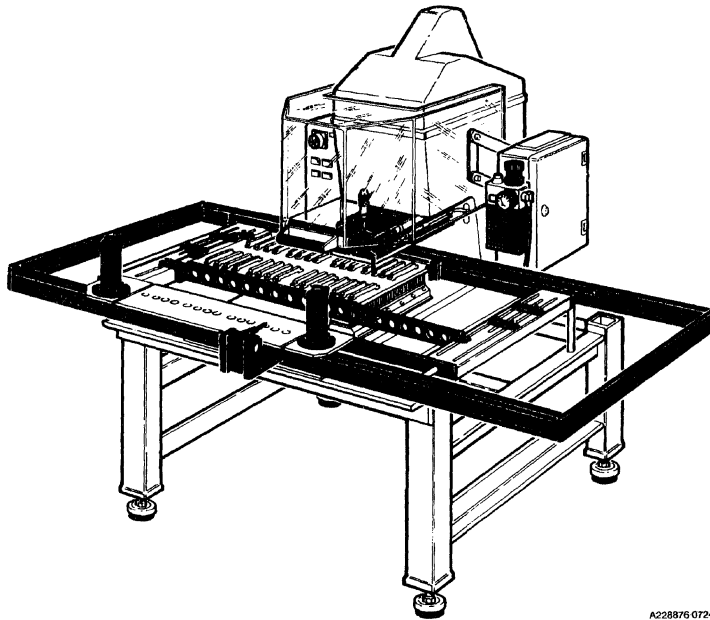
Application rate (depending on operator dexterity)	up to 300 cycles per hour
Number of pins inserted in one cycle (maximum)	384
Air pressure	6-7 Bar (87-102 psig)
Electrical requirements	110 V, 60 Hz; 220 V, 50 Hz
Machine dimensions (h x w x d)	700 x 700 x 860 mm (28 x 28 x 34 in.)
Weight	170 kg (154 lbs)
Working height above table	225 mm (9 in.)
PCB dimensions	260 x 485 mm (10.2 x 19 in.)

### Ordering Data

Equipment	Order Number
MT-310	194206-001
Tooling	Order separately. See page 10-90.

## MT-320 Semi-Automatic Insertion Air Press

(For Press-fit Straight Headers)



A228876 0724

### Features

- Applies vertical press-fit headers:
  - ▶ 4 row and 5 row
  - ▶ signal and power
- Mass insertion.
- Sliding table.
- Pantograph with tooling plate for exact PCB positioning. (Customer PCB specifications and layout required.)
- Modular press-fit tooling (ordered separately).
- Modular force secures modular press-fit tooling.
- 768 pins maximum can be pressed into the PCB simultaneously.
- 110 V or 220 V.

### Technical Data

Application rate (depending on operator dexterity)	up to 600 cycles per hour
Number of pins inserted in one cycle (maximum)	768
Air pressure	6-7 Bar (87-102 psig)
Electrical requirements	110 V, 60 Hz; 220 V, 50 Hz
Machine dimensions (h x w x d)	1600 x 1650 x 1200 mm (63 x 65 x 47 in.)
Weight	1300 kg (650 lbs)
Working area	2.0 x 2.0 m (7 x 7 ft.)
Working height above floor	820 mm (32.3 in.)
PCB dimensions	min: 100 x 500 mm (4 x 19.7 in.) max: 500 x 600 mm (19.7 x 23.6 in.)

10

### Ordering Data

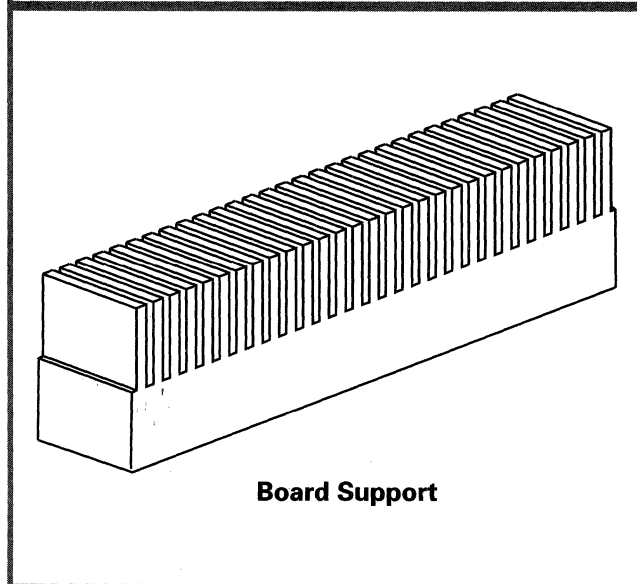
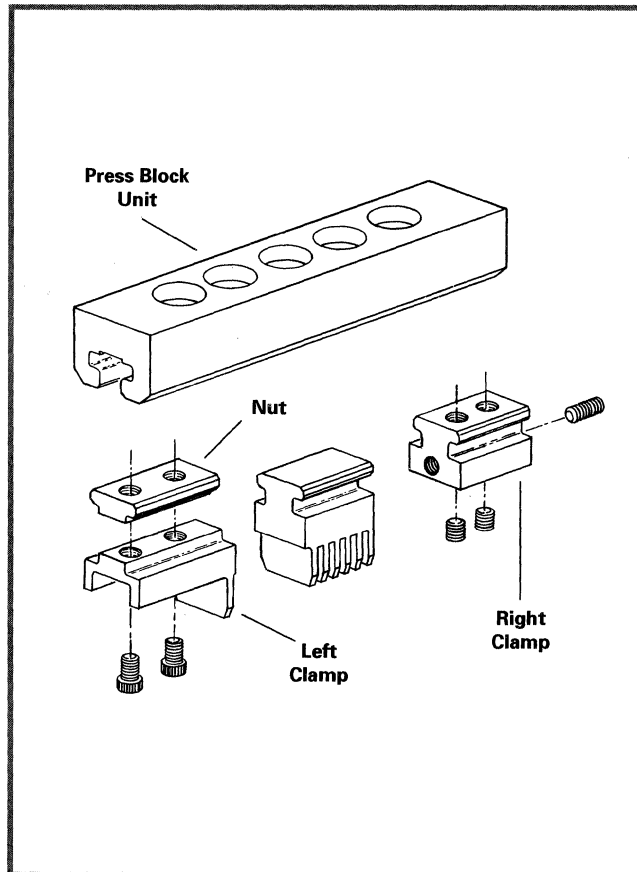
Equipment	Order Number
MT-320	194207-001
Tooling	Order separately. See page 10-90.



## Tooling Set Straight Press Fit Headers

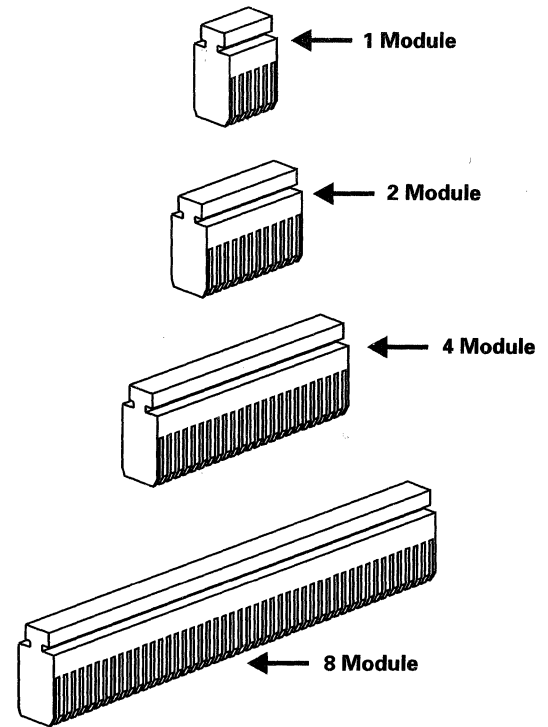
### Features

- Modular, flexible system.
- Available for four and five row headers.
- Configuration can match any board layout.
- Individual parts of the tooling set are end-to-end stackable.
- Tooling sets can be used on all MT-300 series presses.

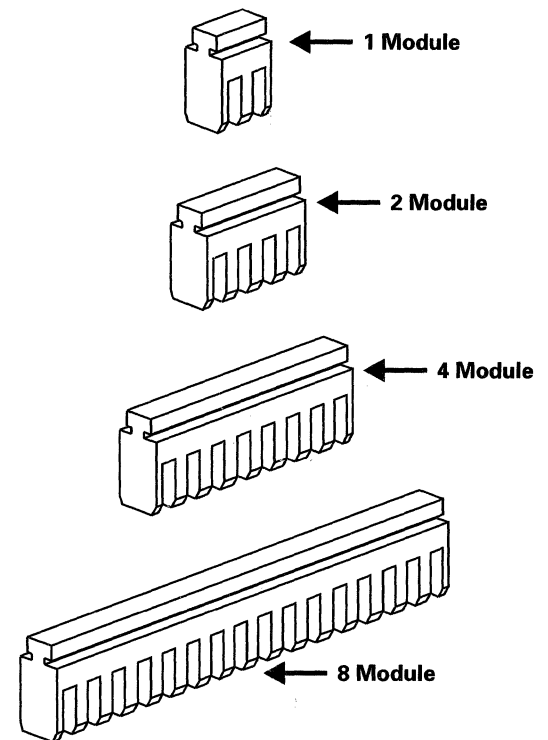


## Available Press-blocks

### Press-blocks Signal



### Press-blocks Power



## Technical Data

4 Row System		5 Row System									
Description	Part Number	Description	Part Number								
<b>Press Block - Unit (1)</b>		<b>Press Block - Unit (1)</b>									
4 module length	178444-01	4 module length	178444-01								
12 module length	178444-02	12 module length	178444-02								
21 module length	178444-03	21 module length	178444-03								
<b>Press Block - Signal</b>		<b>Press Block - Signal</b>									
4 x 6 pos. (1 module)	178441-1	5 x 6 pos. (1 module)	178451-1								
4 x 12 pos. (2 module)	178441-2	5 x 12 pos. (2 module)	178451-2								
4 x 24 pos. (4 module)	178441-3	5 x 24 pos. (4 module)	178451-3								
4 x 48 pos. (8 module)	178441-4	5 x 48 pos. (8 module)	178451-4								
<b>Press Block - Power</b>		<b>Press Block - Power</b>									
1 module	178442-1	1 module	178452-1								
2 module	178442-2	2 module	178452-2								
4 module	178442-3	4 module	178452-3								
8 module	178442-4	8 module	178452-4								
<b>Back-up Clamp Assy.</b>		<b>Back-up Clamp Assy.</b>									
Right & Left (2)	166621-001	Right & Left (2)	166621-002								
<b>Board Support</b>		<b>Board Support</b>									
4 module	178379-01	4 module	178379-01								
5 module	178379-02	5 module	178379-02								
6 module	178379-03	6 module	178379-03								
7 module	178379-04	7 module	178379-04								
8 module	178379-05	8 module	178379-05								
<p>(1) Each assembly of one Press Block - Unit, one Back-up Clamp - Left, and one Back-up Clamp - Right also requires the screws listed below (must be ordered separately).</p> <table style="width: 100%; margin-top: 10px;"> <thead> <tr> <th style="text-align: left;">Part Number</th> <th style="text-align: right;">Quantity</th> </tr> </thead> <tbody> <tr> <td style="text-align: left;">5305-001-024</td> <td style="text-align: right;">2</td> </tr> <tr> <td style="text-align: left;">5305-008-009</td> <td style="text-align: right;">2</td> </tr> <tr> <td style="text-align: left;">5305-008-012</td> <td style="text-align: right;">1</td> </tr> </tbody> </table>				Part Number	Quantity	5305-001-024	2	5305-008-009	2	5305-008-012	1
Part Number	Quantity										
5305-001-024	2										
5305-008-009	2										
5305-008-012	1										
<p>(2) Each left side clamp also requires one nut, part number 178447-1 (must be ordered separately).</p>											

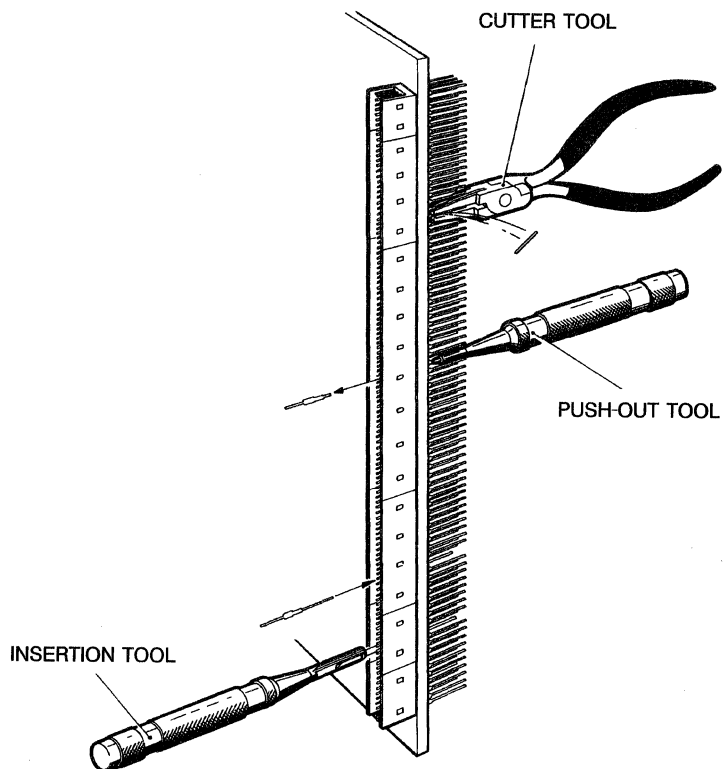
## MT-330 Press-Fit Repair Kit

### Features

- Rear-side backpanel pin removal.
- Simple and reliable.
- For easy field repair.
- Lightweight.
- Includes cutter tool, push-out tool, and insertion tool.

### Order Number

- 194208-001



A228876-0725

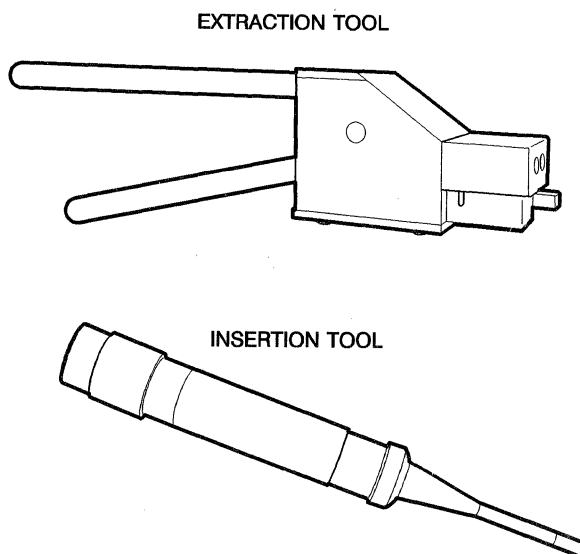
## MT-340 Press-Fit Repair Kit

### Features

- Front-side backpanel pin removal.
- Simple and reliable.
- For easy field repair.
- Lightweight.
- Includes extraction tool and insertion tool.

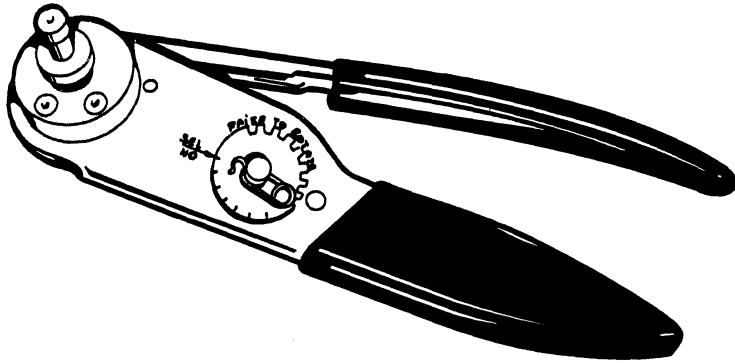
### Order Number

- MT-340



A228876-0428

## HT-334 Crimp Tool for Power Inserts



A183396-0416

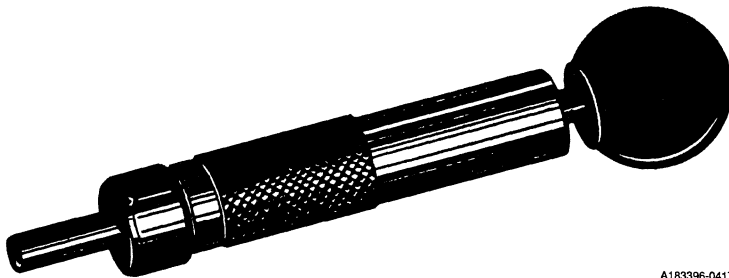
### Features

- Simple and reliable.
- Low operating force.
- Lightweight.
- Adjustable from 6 to 14 AWG (solid) or 6 to 16 AWG (stranded).

### Order Number

- HT-334

## HT-333 and HT-420 Extraction Tools for DIN- Standard Coax and Power Inserts



A183396-0417

### Features

- Simple and reliable.
- Multifunctional tool.
- Low operating force.
- Lightweight.

10

### Ordering Data

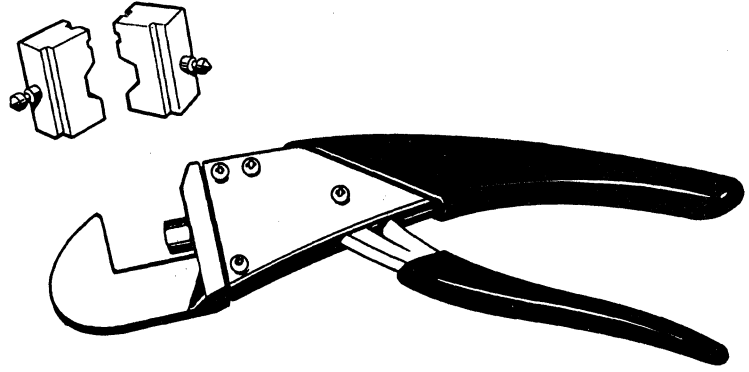
Application	Order Number
Extraction from receptacle housings	HT-333
Extraction from header housings	HT-420

## HT-430 Crimp Tool for DIN-Standard Coax and Mini Coax Inserts

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### Features

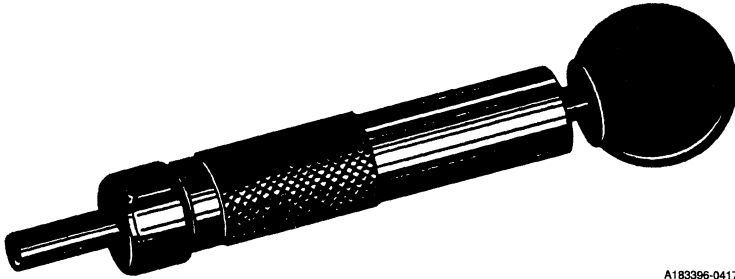
- Simple and reliable.
- Low operating force.
- Lightweight.



A18336-0415

<b>Ordering Data</b>	
<b>Equipment</b>	<b>Order Number</b>
Crimp tool	HT-430 (order die set separately)
Die set for DIN-standard coax inserts	193428-001
Die set for mini coax inserts	193460-001

## HT-400 and HT-410 Extraction Tools for Mini Coax Inserts



A183396-0417

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### Features

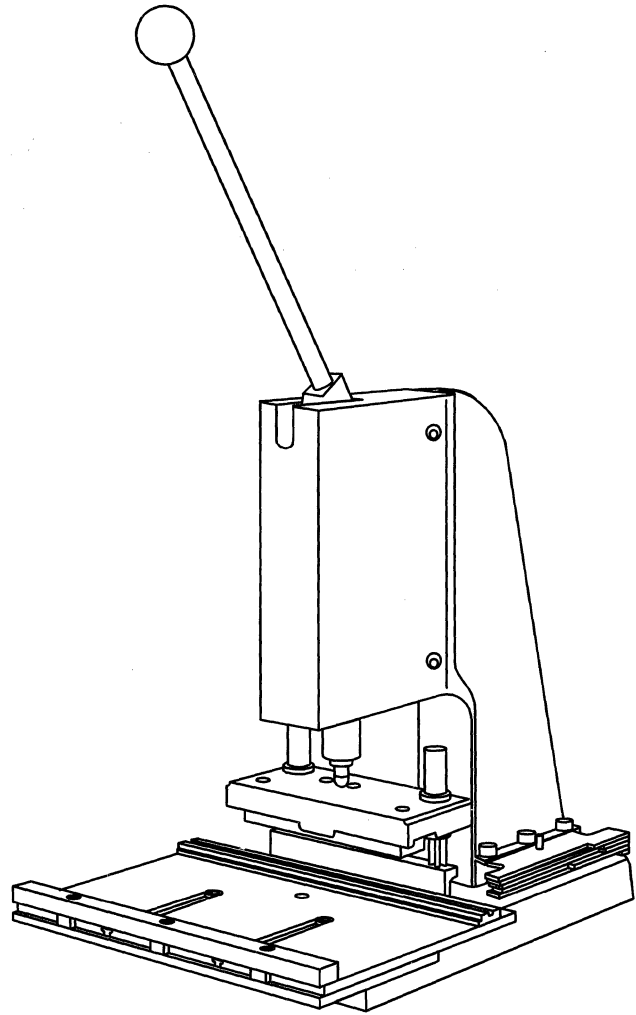
- Simple and reliable.
- Multifunctional tool.
- Low operating force.
- Lightweight.

Ordering Data	
Application	Order Number
Extraction from receptacle housings	HT-410
Extraction from header housings	HT-400

## MT-510 Insertion Bench Press

### Features

- Applies right angle press-peg:
  - ▶ Headers and receptacles
  - ▶ 4 row and 5 row, signal and power
  - ▶ Solder tail versions
  - ▶ Press-fit tail versions
- Easy to operate.
- Simple flat rock tooling included.
- Alignment tooling included.
- Adjustable P.C.B. support included.
- Adjustable shut height.
- Low maintenance.
- No air or electric required.



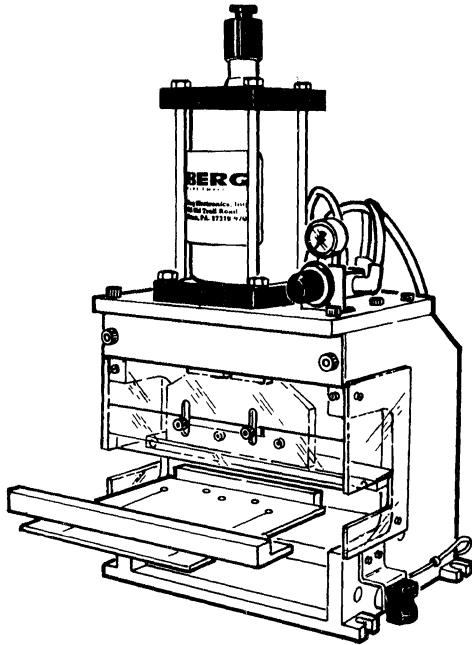
### Technical Data

Application rate (depending on operator dexterity)	up to 150 rivets per hour
Number of pins inserted in one cycle (maximum)	144
Machine dimensions (h x w x d)	710 x 280 x 560 mm (28 x 11 x 22 in.)
Weight	34 kg (75 lbs)
PCB Depth	250 mm (10 in.)

### Ordering Data

Equipment	Order Number
MT-510	162452-001

## MT-511 Insertion Air Press



### Features

- Versatile bench top air press
- Electronic control system
- Terminates one to twenty-one 12 mm modules per cycle
- Terminates 4 & 5 row, right angle, press peg headers and receptacles
- Simple flat rock and support tooling included.
- Low maintenance.

### Technical Data

Application Rate (Depending on operator dexterity)	Up to 240 cycles per hour
Air Pressure	80 psig
Electrical requirements	120 V, 60 Hz
Machine Dimensions (h x w x d)	900 x 450 x 680 mm (36 x 18 x 27 in.)
Weight	170 kg (375 lbs)
PCB dimensions	355 x 455 mm (14 x 18 in.) maximum
PCB thickness	1.5 to 3.18 mm (0.062 to 0.125 in.)

10

### Ordering Data

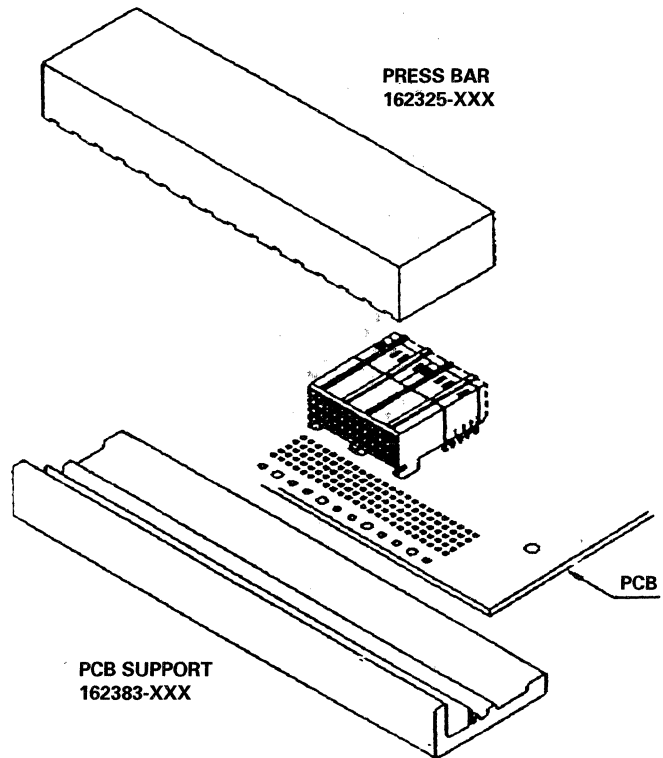
Equipment	Order Number
MT-511	166380-001
Optional Loading Station	166505-001



## Tooling Set Press-Fit Right-Angle Receptacle

### Features

- Available in 8, 12, and 21 module lengths.
- Compatible with 4 and 5 row receptacles.
- No tooling change required for power or signal receptacles.
- Tooling sets are included with the purchase of an MT-500 series press.



<b>Ordering Data</b>						
Number of Modules	Press Bar			PCB Support		
	Part Number	Length		Part Number	Length	
		mm	in.		mm	in.
8	162325-001	96.00	3.78	162383-001	146.80	5.78
12	162325-002	144.00	5.67	162383-002	194.80	7.67
21	162325-003	252.00	9.92	162383-003	302.80	11.92

# "H" Hole Specifications

## Hole H1

- Drill size..... 0.85 mm (0.0335 in.)
- Drilled hole tolerance..... 0.81-0.86 mm (0.0319-0.0339 in.)
- Copper plating ..... 0.025 mm (0.001 in.) min
- Tin-lead plating..... 0.005-0.015 mm (0.0002-0.0006 in.)
- Finished hole size..... 0.65-0.80 mm (0.026-0.0315 in.)
- Recommended land size ..... 1.17 mm (0.046 in.)

## Hole H2

- Unplated ..... 2.05 +0.05/-0.00 mm (0.081 + 0.002/-0.000 in.)

## Hole H3

- Unplated ..... 1.50 +0.10/-0.00 mm (0.059 +0.004/-0.000 in.)

## Hole H4

- Unplated-when used with guide pin ..... 3.25 ±0.10 mm (0.128 ±0.004 in.)
- Plated - when used with straight screw-to-board high-power plug insert;  
use pad 5.00 mm (0.197 in.) min. in dia ..... 3.25 ±0.10 mm (0.128 ±0.004 in.)

## Hole H5

- Unplated ..... 6.00 +0.10/-0.00 mm (0.236 +0.004/-0.000 in.)

## Hole H6

- Plated
  - ▶ When used with right-angle solder-to-board pass-through high-power receptacle insert,  
use common pad to tie all six holes together ..... 1.00 ±0.10 mm (0.039 ±0.004 in.)
  - ▶ When used with right-angle solder-to-board coax plug insert,  
surround each hole with pad 1.50 mm (0.059 in.) in dia. .... 1.00 ±0.10 mm (0.039 ±0.004 in.)

## Hole H7

- Unplated ..... 2.80 +0.10/-0.00 mm (0.110 +0.004/-0.000 in.)

## Hole H8

- Plated..... 0.6 ±0.10 mm (0.024 ±0.004 in.)
- Recommended land size ..... 1.00 mm (0.039 in.) max

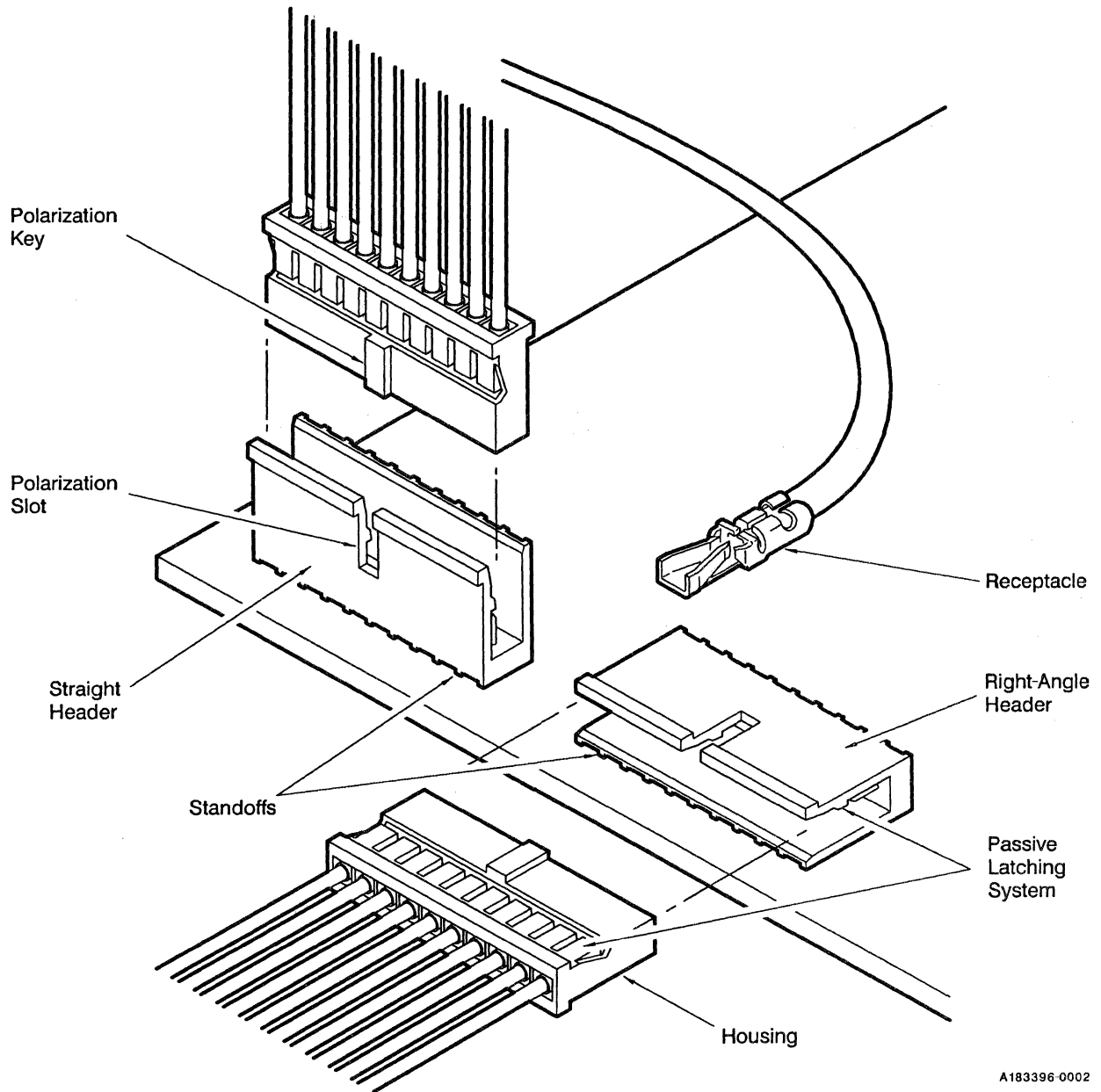
## Hole H9

- Unplated ..... 1.85 ±0.05 mm (0.073 ±0.002 in.)



# Duramate™ System

2.0 mm (0.079 in.)



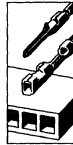
A183396-0002

## 2.0 mm (0.079 in.) Centerline Products



### Shrouded Headers

Headers ..... 11-2



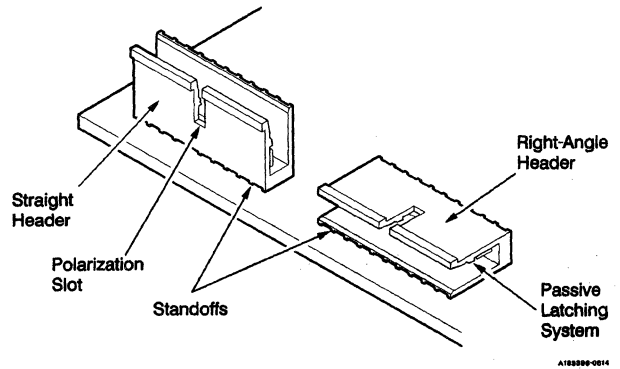
### Discrete Crimp-to-Wire Pins/Receptacles/Housings

Receptacles and Housings ..... 11-4

# Shrouded Headers

2.0 mm (0.079 in.) Centerline

## Duramate™ Headers



### Features

- 1-row: 2 through 15 positions.
- Available in vertical and right-angle through-mount configurations.
- Passive latching between housing and header body enables connector to withstand high shock and vibration.
- Polarization slot ensures proper mating.
- Standoffs allow for easy cleaning of PCB.
- Tapered edges for easy engagement.


### Mating Data


Mates with Berg Electronics Duramate receptacle.

#### Berg Electronics Products Page

- Duramate receptacle/housing assembly only ..... 11-4

### Approvals and Certifications

 File no. E66906

 File no. LR46923

### Technical Data

#### Materials

- Header ..... Glass-filled nylon (UL 94V-0)
  - ▶ Color ..... Beige
- Pin ..... Brass
- Applicable soldering processes ..... wave

#### Operating Temperature

- Temperature range ..... -40° to +105°C

#### Electrical Performance

- Withstanding voltage ..... 650 V
- Insulation resistance ..... 1000 MΩ min
- Current rating ..... 2 amp ac/dc
- Voltage rating ..... 200 V ac/dc
- Contact resistance ..... 20 mΩ max

#### Mechanical Performance

- Durability (mating cycles) ..... 100

#### Plating

- Pin
  - ▶ Underplate ..... 1 μm (40 μin.) copper
  - ▶ Finish ..... 3.0 μm (120 μin.) min tin-lead

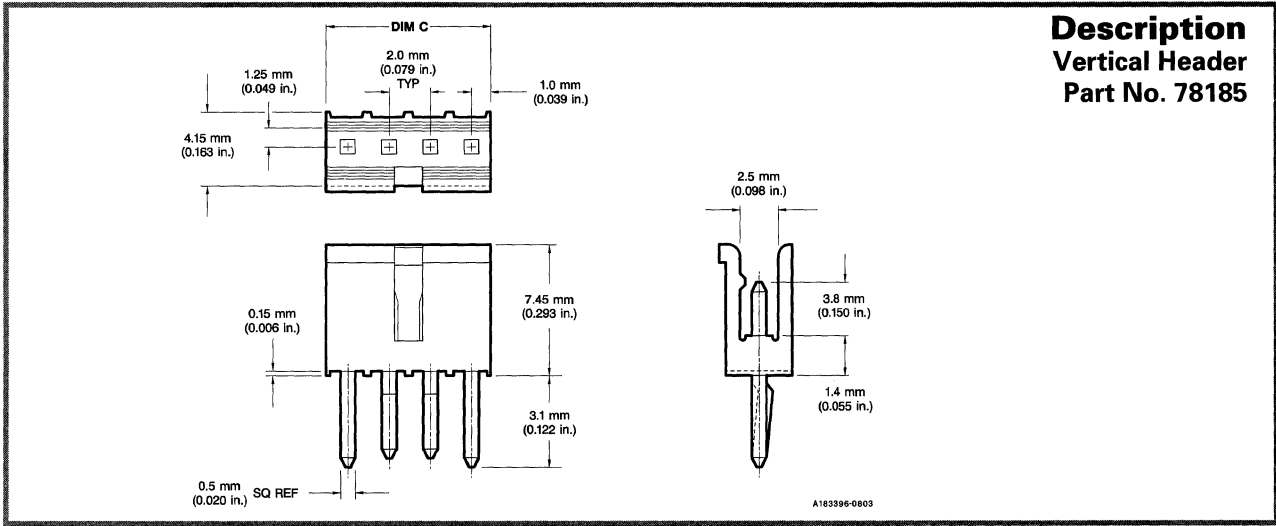
#### Packaging

- Bags

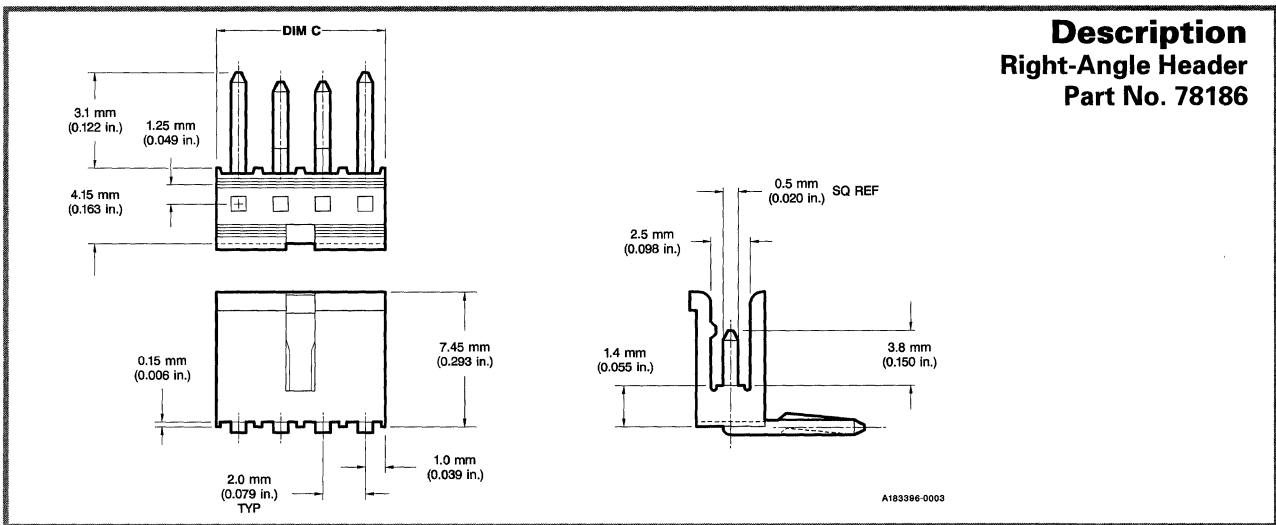
### Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawings.....	By Part Number	Product Samples.....	Upon Request
Product Specifications.....	DPS-12-001	Product Substitutions.....	Upon Request

**Description**  
**Vertical Header**  
**Part No. 78185**

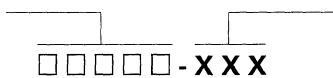


**Description**  
**Right-Angle Header**  
**Part No. 78186**



**Ordering Data**

Base number specifies header configuration.



Dash number specifies number of positions.

Number of Positions	Dash Number	Dimension C	
		mm	in.
2	-002	4.00	0.157
3	-003	6.00	0.236
4	-004	8.00	0.315
5	-005	10.00	0.394
6	-006	12.00	0.472
7	-007	14.00	0.551
8	-008	16.00	0.630
9	-009	18.00	0.709
10	-010	20.00	0.787
11	-011	22.00	0.866
12	-012	24.00	0.945
13	-013	26.00	1.024
14	-014	28.00	1.102
15	-015	30.00	1.181

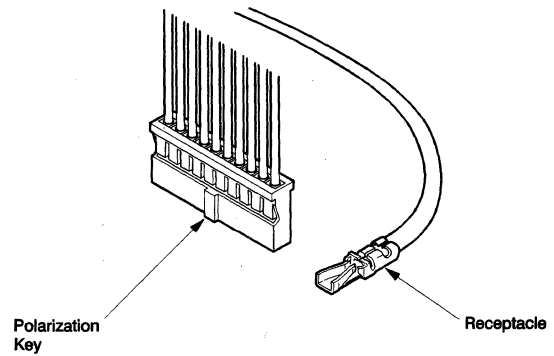
"Kinking" feature for straight and right-angle header  
for 2 positions: both pins "kinked"  
for 3 positions: first and last pins "kinked"  
for 4-15 positions: second and second-last pins "kinked"

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

# Discrete Crimp-to-Wire Pins/Receptacles/Housings

2.0 mm (0.079 in.) Centerline

## Duramate™ Receptacles and Housings



### Features

#### Receptacle

- Applicable to wire sizes 26 through 30 AWG.
- Dual-beam design ensures reliable electrical performance.
- Overstress protection feature protects against damage during mating.
- Pin alignment ramp for precision mating.
- Terminal latches ensure proper retention within the housing.

#### Housing

- 2.0 mm (0.079 in.) centerline.
- 1-row: 2 through 15 positions.
- Low-profile design saves board-to-board space.
- High density design saves PCB space.
- Passive latching between CTW housing and header body enables connector to withstand high shock and vibration.


- Molded-in polarization keys prevent mating errors.
- Tapered lead-in ensures proper mating and protects against contact finish damage during mating.
- Stand-offs allow for easy PCB cleaning.


### Mating Data

Mates with 0.05 mm (0.020 in.) square pin 3.8 mm (0.150 in.) long.

Berg Electronics Products	Page
▪ Duramate headers only.....	11-2

### Approvals and Certifications

 File no. E66906

 File no. LR46923

### Application Equipment

Berg Electronics Products	Page
▪ OL-740 Semi-automatic, two-ton bench press.....	11-6
▪ Hand Tool HT-153 for 26-30 AWG.....	11-7

### Technical Data

#### Materials

- Housing ..... Polyphenylene oxide (UL 94V-0)
  - ▶ Color ..... Beige
- Contact body..... Phosphor-bronze

#### Operating Temperature

- Temperature range..... -40°C to +105°C

#### Mechanical Performance

- Insertion force..... 5.7 N (580 gf) max per contact
- Withdrawal force ..... 0.8 N (80 gf) min
- Retention force ..... ≥15 N (1.5 kgf)
- Durability (mating cycles) ..... 100

#### Electrical Performance

- Withstanding voltage ..... 650 V
- Insulation resistance..... 1000 MΩ min
- Current rating ..... 2 amp ac/dc
- Contact resistance ..... 20 mΩ
- Voltage rating ..... 200 V ac/dc

#### Plating

- Finish ..... 0.8 μm (30 μin.) tin-lead
- Underplate..... 1 μm (40 μin.) min copper

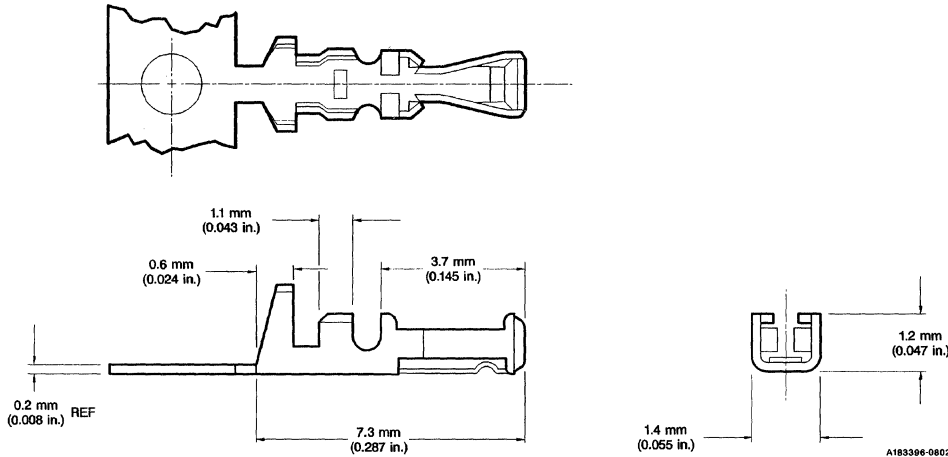
#### Packaging

- Terminals: reels
- Housings: cartons

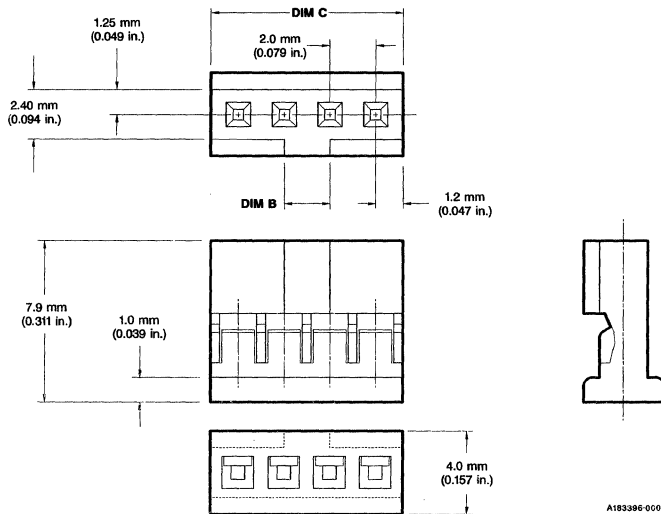
### Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawings.....	By Part Number	Product Samples.....	Upon Request
Product Specifications.....	DPS-12-001	Product Substitutions.....	Upon Request
Crimping Specifications.....	DPS-23-001		

### Description and Ordering Data Receptacle Part No. 78180-101 for 26-30 AWG

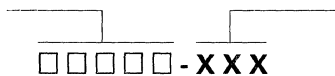


### Description Housing Part No. 78183



### Ordering Data Housing Part No. 78183

Base number specifies configuration.



Dash number specifies number of positions.

11

Number of Positions	Dash Number	Dimension B		Dimension C	
		mm	in.	mm	in.
2	-002	0.80	0.031	4.40	0.173
3	-003	0.80	0.031	6.40	0.252
4	-004	2.00	0.079	8.40	0.331
5	-005	2.00	0.079	10.40	0.409
6	-006	2.00	0.079	12.40	0.488
7	-007	2.00	0.079	14.40	0.567
8	-008	2.00	0.079	16.40	0.646
9	-009	2.00	0.079	18.40	0.724
10	-010	2.00	0.079	20.40	0.803
11	-011	2.00	0.079	22.40	0.882
12	-012	2.00	0.079	24.40	0.961
13	-013	2.00	0.079	26.40	1.039
14	-014	2.00	0.079	28.40	1.118
15	-015	2.00	0.079	30.40	1.197

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.



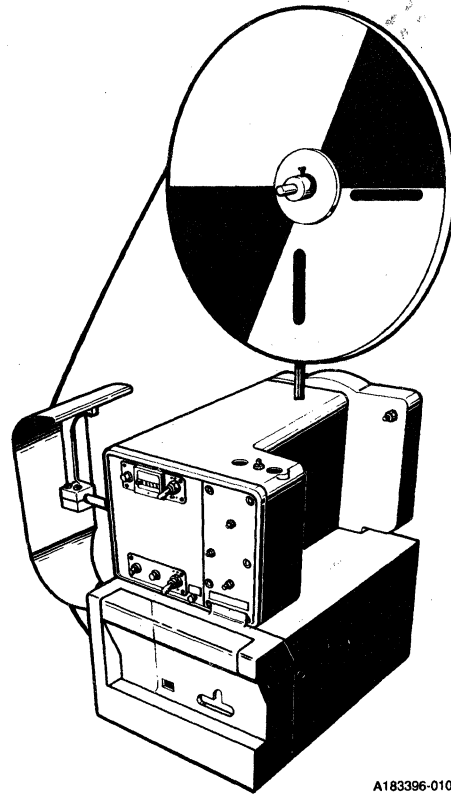
# Application Equipment for Crimp-to-Wire Duramate™ Receptacles

## OLYMPIAN Model 740 Semi-automatic two-ton Bench Press (14-36 AWG)

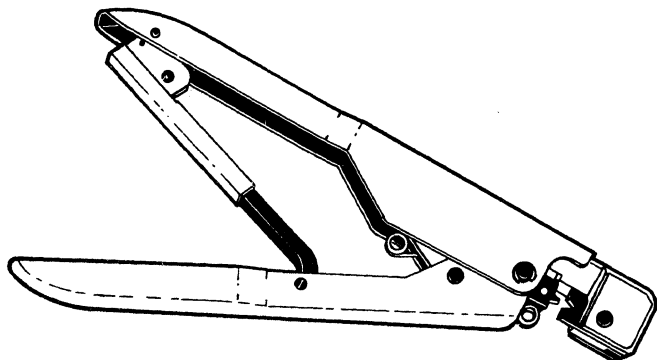
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### Features

- Ideal for medium-volume production requirements.
- Rugged construction, requires little maintenance.
- Electrically operated.
- Uses Precision Interchangeable Crimpers. These applicators allow quick tooling changeovers for various wire sizes and styles of terminals. Fine-tuning knobs allow fast, precise adjustment of the terminal's wire and insulation barrel crimp height.
- Easy to operate.



A183396-0100



A183396-0103

## Hand Tool (22--30 AWG)

---

### Features

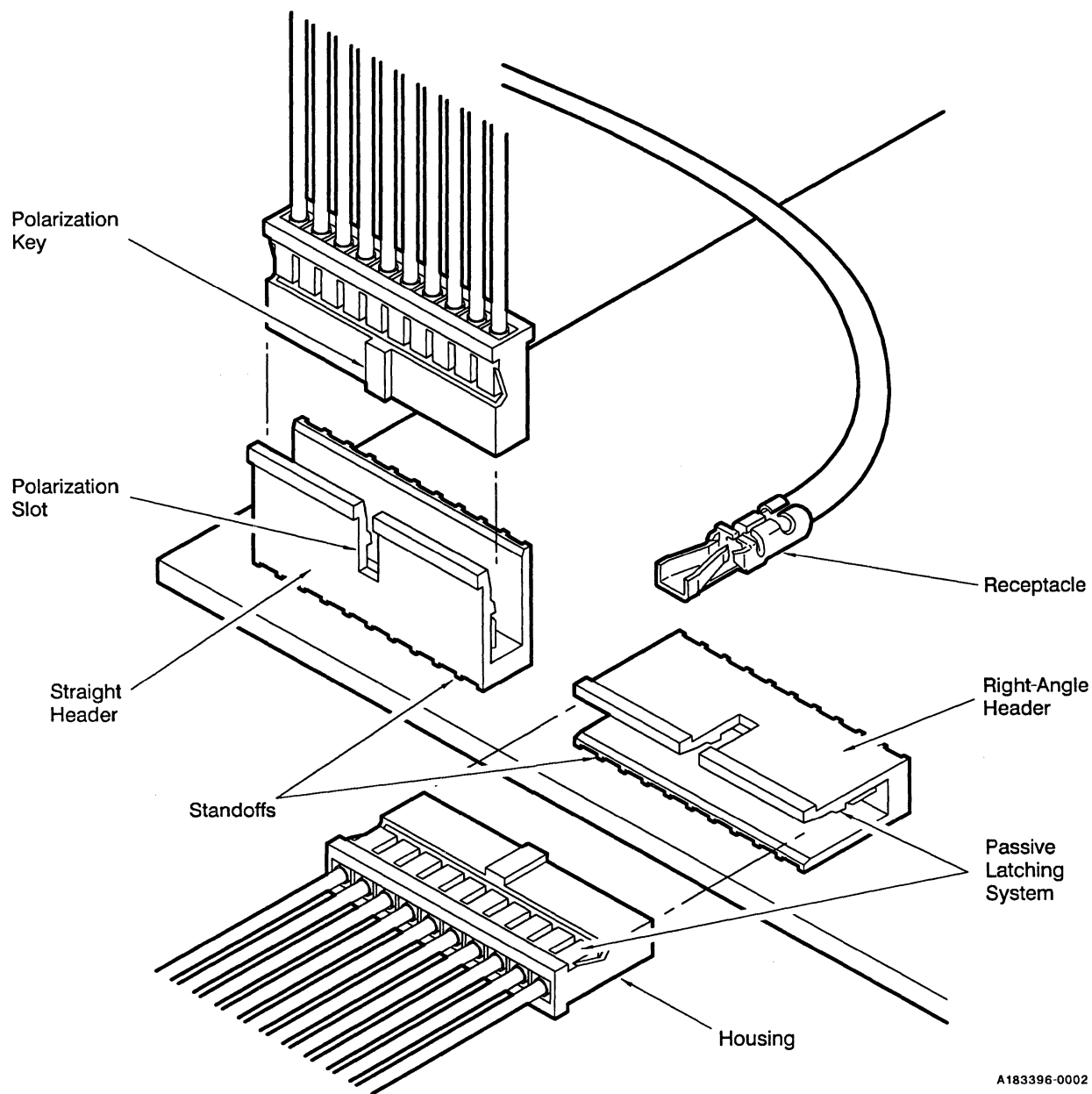
- For terminating loose-piece receptacles.
- Lightweight.
- Rugged.
- Ratchet-action handle assures complete crimp cycle.  
HT-153 for 26--30 AWG

**Application Equipment for  
Crimp-to-Wire Duramate™ Receptacles**

<b>Technical Data</b>	
	<b>OL-740</b>
Application Rate (crimps/hour)	2400*
Air Consumption	N/A
Air Pressure	N/A
Electrical Requirements	115 V AC, 60 Hz,, 10 amp
Machine Weight	95 kg (209 lb.)
Controller Weight	N/A
Machine Dimensions (H x W x D)	114 x 51 x 58 cm (45 x 20 x 23 in.)
Controller Dimensions (H x W x D)	N/A
Recommended Floor Space	N/A

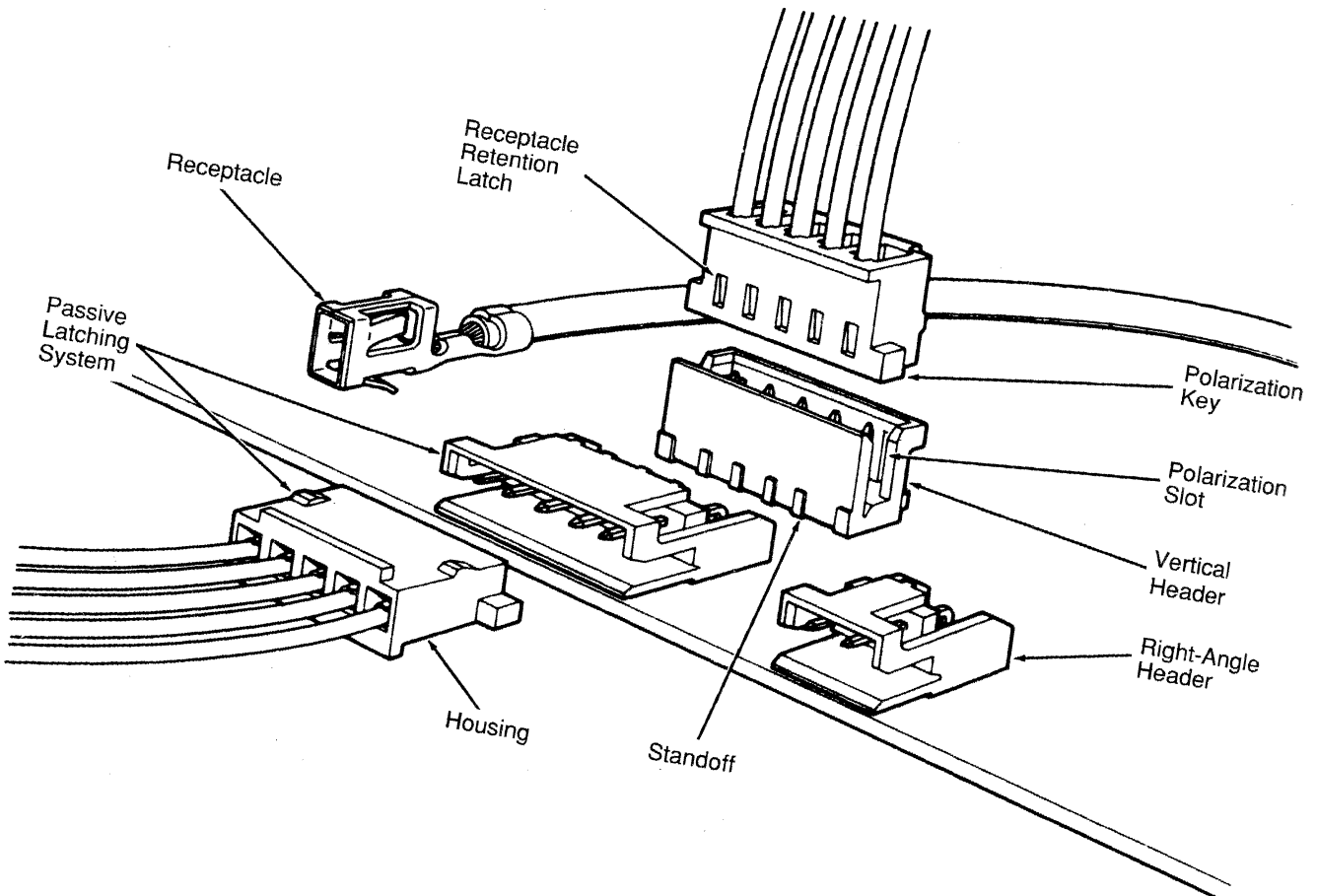
\*Application rates given are approximate. Actual rates achieved depend on operator dexterity.

<b>Ordering Data</b>		
<b>Machines (for strip-form receptacles)</b>	<b>Wire Size (AWG)</b>	<b>Identification Number</b>
OLYMPIAN Model 740 (press only)	---	133911-002
OL-740 Applicators	26--30	411231-000
OLYMPIAN Model 740 (press with applicator)	26--30	133911-520
Hand Tools (for loose-piece receptacles) HT-153	26--30	HT-153



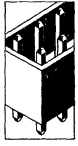
# Relimate® System

2.5 mm (0.098 in.)



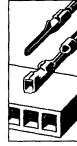
A183396-0004

## 2.5 mm (0.098 in.) Centerline Products



### Shrouded Headers

Vertical and Right-Angle Headers ..... 12-2



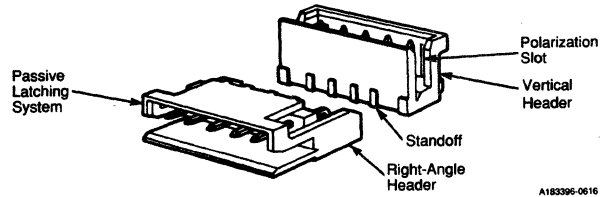
### Discrete Crimp-to-Wire Pins/Receptacles/Housings

Receptacles and Housings ..... 12-4

# Shrouded Headers

2.5 mm (0.098 in.) Centerline

## Relimate® System Headers



### Features

- 1-row: 2 through 20 positions.
- Available in shrouded vertical and right-angle configurations.
- Standoffs allow for easy PCB cleaning.
- Passive latching system provides reliable connection.
- Polarization slot ensures proper mating.
- Tapered edges for easy engagement.

### Options


- Gold finish.


### Mating Data

Mates with Berg Electronics crimp-to-wire receptacle.

Berg Electronics Products	Page
▪ Relimate crimp-to-wire housing/receptacle assembly only	12-4

### Approvals and Certifications

 File no. E66906

 File no. LR46923

### Technical Data

#### Materials

- Header ..... Glass-filled thermoplastic polyester (UL 94 V-0)
  - ▶ Color ..... Black
- Pin ..... Brass
- Applicable soldering processes ..... Wave

#### Operating Temperature

- Temperature range ..... -25°C to +85°C

#### Mechanical Performance

- Durability (mating cycles)
  - ▶ Gold ..... 50
  - ▶ Tin-lead ..... 20

#### Electrical Performance

- Withstanding voltage ..... 750 V
- Insulation resistance ..... 500 MΩ min
- Current rating ..... 2 amp DC
- Contact resistance ..... 20 mΩ max

#### Plating

- Gold
  - ▶ Finish ..... 0.5 μm (20 μin.) gold
  - ▶ Underplate ..... 1.27 μm (50 μin.) nickel
- Tin-lead
  - ▶ Finish ..... 0.8 μm (32 μin.) tin-lead
  - ▶ Underplate ..... 1.0 μm (40 μin.) copper

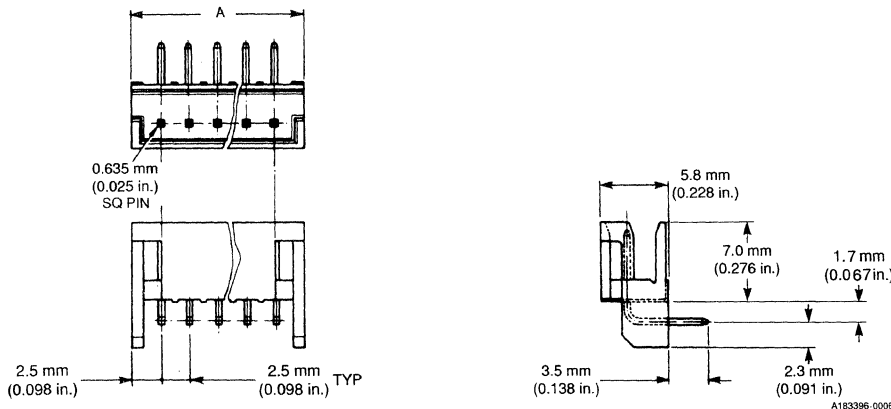
#### Packaging

- Loose piece

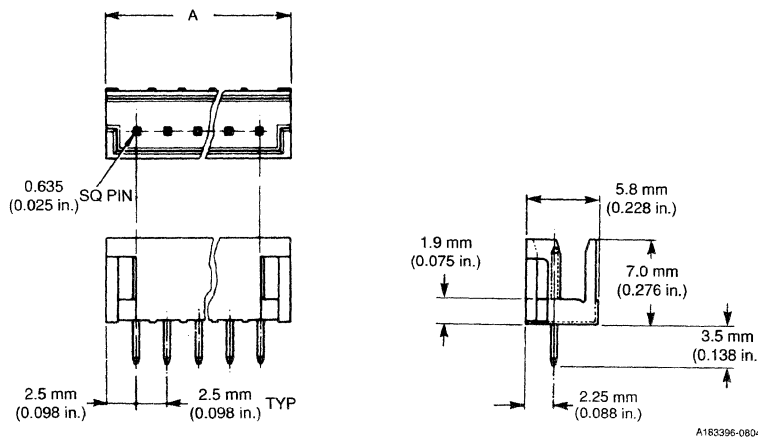
### Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawings	By Part Number	Product Specifications	
Product Samples	Upon Request	▪ Gold finish	BUS-110-009
		▪ Tin-lead finish	BUS-110-002

### Description Right-Angle Header



### Description Vertical Header



### Ordering Data Headers

Base number specifies configuration.

Dash number specifies finish and number of positions.

□ □ □ □ □ - X X X

Base Numbers Vertical 67094 Right-Angle 67095

Number of Positions	Dash Numbers				Dimension A	
	Vertical		Right-Angle		mm	in.
	Gold	Tin-lead	Gold	Tin-lead		
2	-057	-002	-060	-002	7.50	0.295
3	-058	-003	-058	-003	10.00	0.393
4	-059	-004	-057	-004	12.50	0.492
5	-063	-005	-061	-005	15.00	0.590
6	-064	-006	-062	-006	17.50	0.688
7	-065	-007	-063	-007	20.00	0.787
8	-060	-008	-064	-008	22.50	0.885
9	-066	-009	-065	-009	25.00	0.984
10	-061	-010	-066	-010	27.50	1.082
11	-067	-011	-067	-011	30.00	1.181
12	-068	-012	-068	-012	32.50	1.279
13	-069	-013	-069	-013	35.00	1.377
14	-070	-014	-059	-014	37.50	1.476
15	-071	-015	-070	-015	40.00	1.574
16	-072	-016	-071	-016	42.50	1.673
17	-073	-017	-072	-017	45.00	1.771
18	-074	-018	-073	-018	47.50	1.870
19	-075	-019	-074	-019	50.00	1.968
20	-076	-020	-075	-020	52.50	2.066

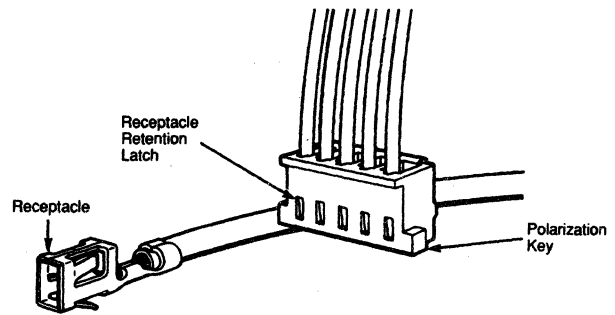
Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.



# Discrete Crimp-to-Wire Pins/Receptacles/Housings

2.5 mm (0.098 in.) Centerline

## Relimate® Receptacles and Housings



A18396-0617

### Features

#### Receptacle

- Applicable to wire sizes 22 through 30 AWG.
- Preloaded, dual-beam design ensures reliable electrical performance.

#### Housing

- 1-row: 2 through 20 positions.
- Low-profile design.
- Retention latches allow receptacles to be removed for easy repair.
- Passive latching provides reliable connection.
- Molded-in polarization keys prevent mating errors.
- Full 4-sided tapered lead-in assures proper pin alignment.
- 
- 

### Options

- Available in 0.5  $\mu\text{m}$  (20  $\mu\text{in.}$ ) min and 0.3  $\mu\text{m}$  (12  $\mu\text{in.}$ ) min gold contact plating.


### Mating Data


Mates with 0.64 mm (0.025 in.) square pin 4.4 mm (0.173 in.) long.

#### Berg Electronics Products Page

- Relimate only . . . . . 12-2

### Approvals and Certifications

 File no. E66906

 File no. LR46923

### Application Equipment

#### Berg Electronics Products Page

- OL-740 Semi-automatic, two-ton bench press. . . . . 12-7
- OL-700 Computer-controlled, fully automatic cut, strip, and apply machine . . . . . 12-8
- Hand Tools
  - HT-129 for 22--26 AWG . . . . . 12-8
  - HT-130 for 26--30 AWG . . . . . 12-8

### Technical Data

#### Materials

- Housing . . . . . Glass-filled thermoplastic polyester (UL 94 V-0)
  - Color . . . . . Black
- Contact body . . . . . Phosphor-bronze

#### Operating Environment

- Temperature range . . . . . -25°C to +85°C

#### Mechanical Performance

- Insertion force . . . . . 5.5 N (550 gf) max
- Withdrawal force . . . . . 0.3 N (30 gf) min
- Retention force . . . . .  $\geq 15$  N (1.5 kgf)
- Durability (mating cycles)
  - Gold . . . . . 50
  - Tin-lead . . . . . 20

#### Electrical Performance

- Withstanding voltage . . . . . 750 V
- Insulation resistance . . . . . 500 M $\Omega$  min
- Current rating . . . . . 2 amp DC
- Contact resistance . . . . . 20 m $\Omega$  max

#### Plating

- Gold
  - Contact area finish . . . . . 0.5  $\mu\text{m}$  (20  $\mu\text{in.}$ ) min gold or 0.3  $\mu\text{m}$  (12  $\mu\text{in.}$ ) min gold
  - Underplate . . . . . 0.8  $\mu\text{m}$  (30  $\mu\text{in.}$ ) nickel
- Tin-lead . . . . . 1  $\mu\text{m}$  (40  $\mu\text{in.}$ ) min tin-lead

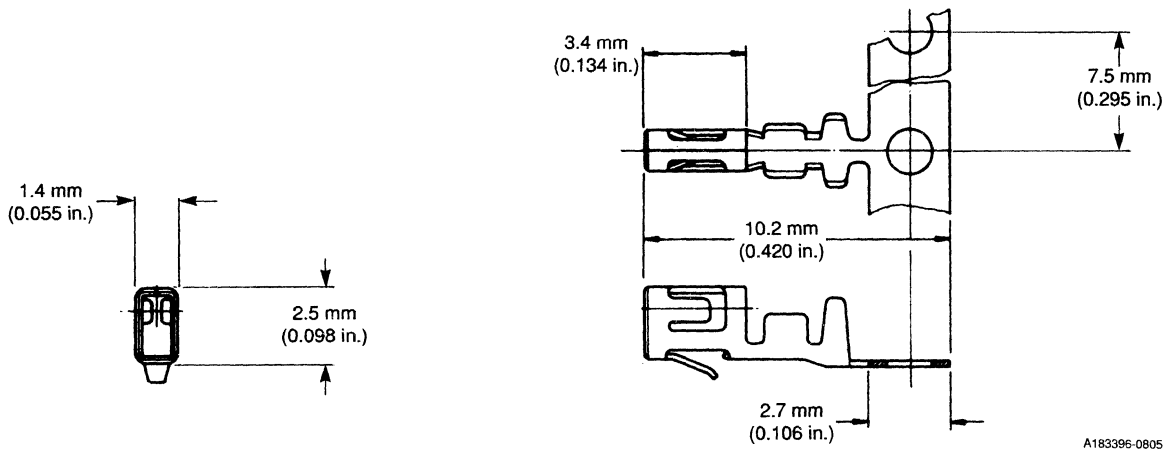
#### Packaging

- Terminals
  - Strip form
  - Loose piece
- Housings: box

### Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawings . . . . .	By Part Number	Product Specifications	
Product Samples . . . . .	Upon Request	▪ Gold finish . . . . .	BUS-110-009
		▪ Tin-lead finish . . . . .	BUS-110-002

**Description**  
**Receptacle**



A183396-0805

**Ordering Data**  
**Receptacle**

Base number specifies packaging style and wire size.

Dash number specifies finish.

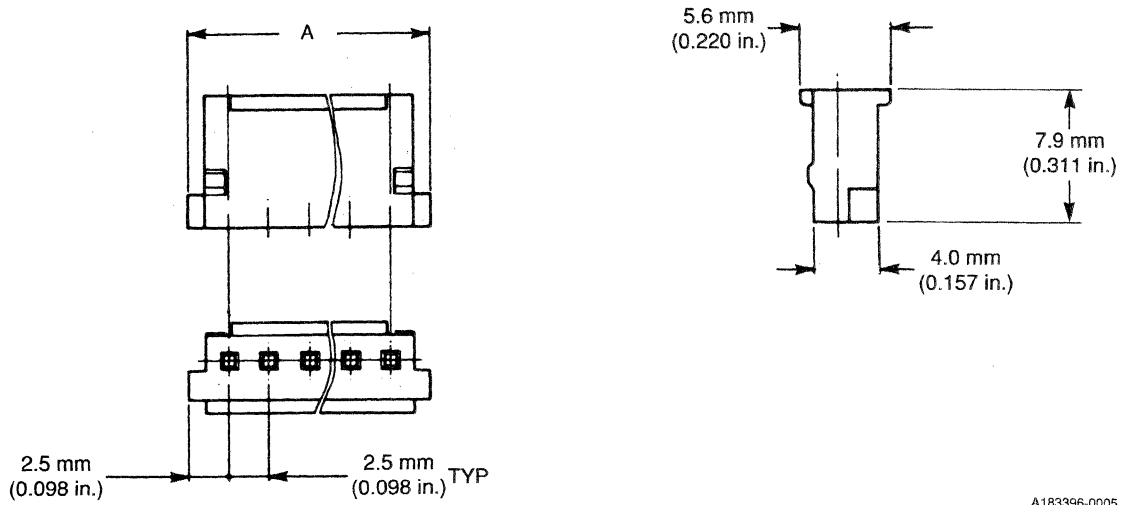
□ □ □ □ - X X X

Wire Size (AWG)	Insulation OD Size	Base Number		Dash Number		
		Strip form	Loose piece	0.5 μm (20 μin.) Gold	0.3 μm (12 μin.) Gold	Tin-lead
22--26	1.20--1.70 mm (0.047--0.067 in.)	76624	76806	-101	-201	-001
26--30	1.00--1.40 mm (0.039--0.005 in.)	76630	76807	-101	-201	-001

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

**Discrete Crimp-to-Wire Pins/Receptacles/Housings**  
**2.5 mm (0.098 in.)**

**Description**  
**Housing Part No. 67096**



A183396-0005

**Ordering Data**  
**Housing**

Base number specifies configuration.

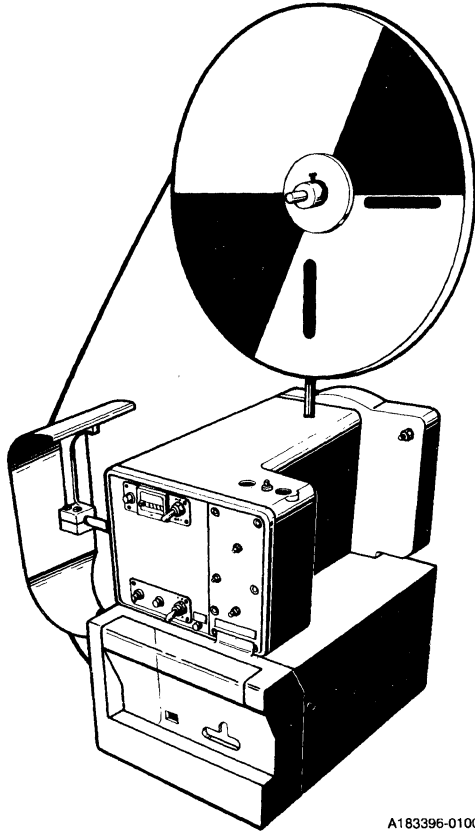
Dash number specifies number of positions.

□ □ □ □ □ - X X X

Number of Positions	Dash Number	Dimension A	
		mm	in.
2	-002	7.50	0.295
3	-003	10.00	0.393
4	-004	12.50	0.492
5	-005	15.00	0.590
6	-006	17.50	0.688
7	-007	20.00	0.787
8	-008	22.50	0.885
9	-009	25.00	0.984
10	-010	27.50	1.082
11	-011	30.00	1.181
12	-012	32.50	1.279
13	-013	35.00	1.377
14	-014	37.50	1.476
15	-015	40.00	1.574
16	-016	42.50	1.673
17	-017	45.00	1.771
18	-018	47.50	1.870
19	-019	50.00	1.968
20	-020	52.50	2.066

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

# Application Equipment for Crimp-to-Wire Relimate® Receptacles



A183396-0100

## **OLYMPIAN Model 740 Semi-automatic two-ton Bench Press (14–36 AWG)**

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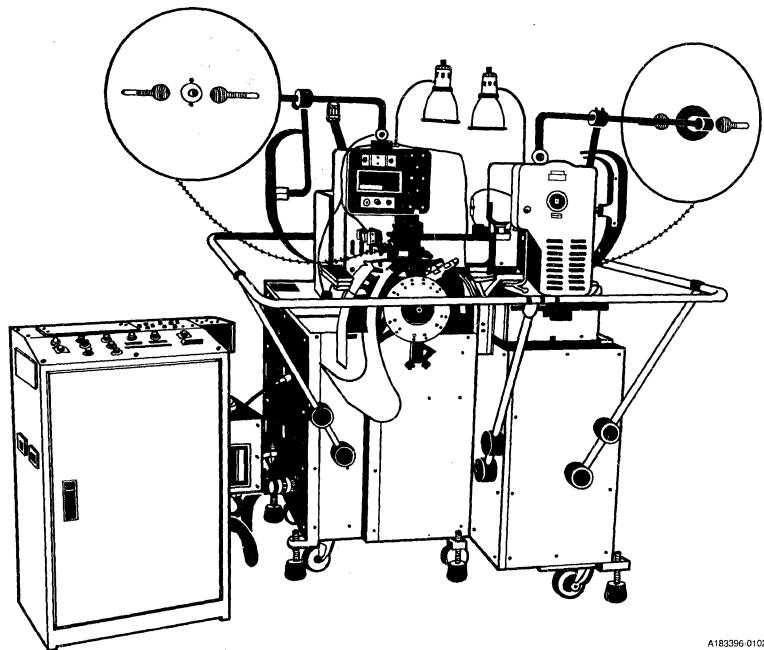
### **Features**

- Ideal for medium-volume production requirements.
- Rugged construction, requires little maintenance.
- Electrically operated.
- Uses Precision Interchangeable Crimpers. These applicators allow quick tooling changeovers for various wire sizes and styles of terminals. Fine-tuning knobs allow fast, precise adjustment of the terminal's wire and insulation barrel crimp height.
- Easy to operate.

## OLYMPIAN Model 700 Fully Automatic Application Machine (14–26 AWG)

### Features

- Ideal for high-volume production requirements.
- Automatically measures wire lengths ranging from 2 to 393 inches, cuts the wire, strips the insulation off one or both ends, crimps a terminal to one or both ends, and stacks in the terminated wires.
- Uses Precision Interchangeable Crimpers. These applicators allow quick tooling changeovers for various wire sizes and styles of terminals. Fine-tuning knobs allow fast, precise adjustment of the terminal's wire and insulation barrel crimp height.
- Built-in detectors monitor the machine's operation. Signal lights on the control panel indicate the location of the problem.
- Simple to learn, easy to operate.

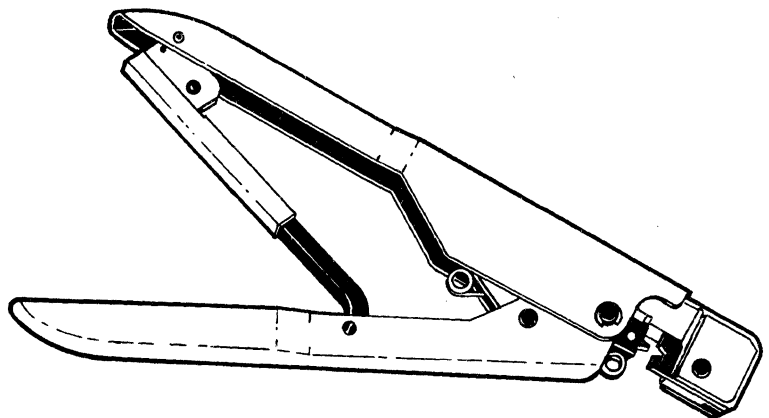


A183396-0102

## Hand Tool (22–30 AWG)

### Features

- For terminating loose-piece receptacles.
  - Lightweight.
  - Rugged.
  - Ratchet-action handle assures complete crimp cycle.
- HT-129 for 22-26 AWG  
HT-130 for 26-30 AWG



A183396-0103

<b>Technical Data</b>		
	<b>OL-740</b>	<b>OL-700</b>
Application Rate (crimps/hour)	2400*	10,000* (5000 leads terminated both ends)
Air Consumption	N/A	8.5 L/min. (0.3 scfm)
Air Pressure	N/A	552 kPa (80 psi)
Electrical Requirements	115 V AC, 60 Hz,, 10 amp	220 V AC, 50/60 Hz,, 3-phase, 15 amp
Machine Weight	95 kg (209 lb.)	719 kg (1584 lb.)
Controller Weight	N/A	80 kg (176 lb.)
Machine Dimensions (H x W x D)	114 x 51 x 58 cm (45 x 20 x 23 in.)	208 x 157 x 226 cm (82 x 62 x 98 in.)
Controller Dimensions (H x W x D)	N/A	99 x 72 x 47 cm (39 x 28.5 x 18.5 in.)
Recommended Floor Space	N/A	3 x 3 m (10 x 10 ft.)

\*Application rates given are approximate. Actual rates achieved depend on operator dexterity.

<b>Ordering Data</b>		
<b>Machines (for strip-form receptacles)</b>	<b>Wire Size (AWG)</b>	<b>Identification Number</b>
OLYMPIAN Model 740 (press only)	---	133911-002
OL-740 Applicators	22-26 26-30	143333-001 143333-002
OLYMPIAN Model 740 (press with applicator)	22-26 26-30	133911-519 133911-520
OLYMPIAN Model 700 (machine only)	---	146085-501
OL-700 Applicators	22-26	143333-001
Hand Tools (for loose-place receptacles)		
HT-129	22-26	HT-129
HT-130	26-30	HT-130

# BergCon® System

2.54 x 2.54 mm (0.100 x 0.100 in.)

2.54 x 5.08 mm (0.100 x 0.200 in.)

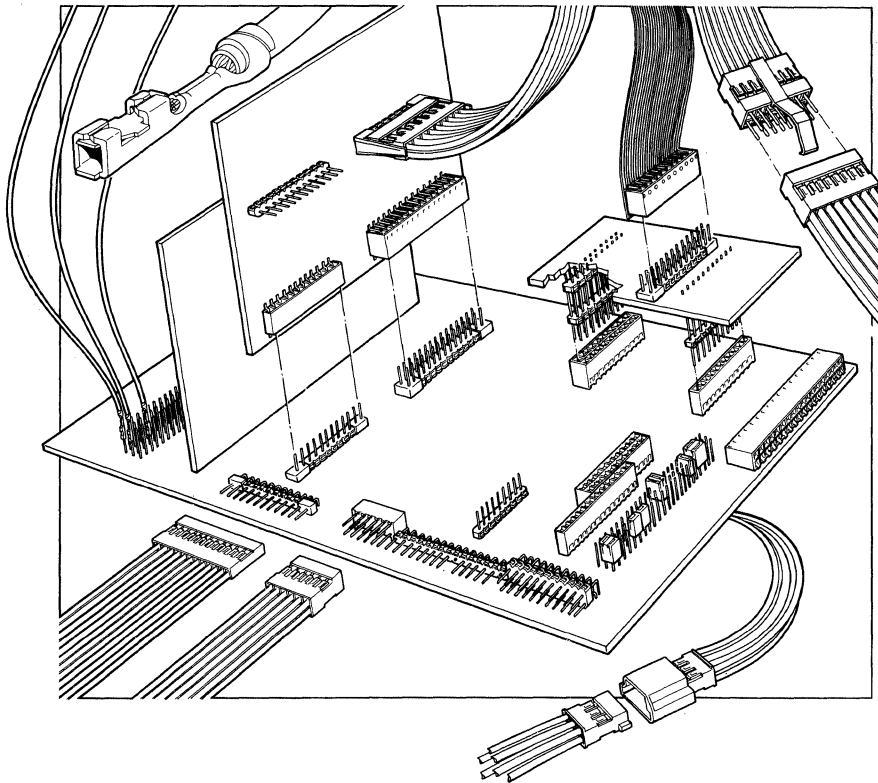
2.54 x 6.35 mm (0.100 x 0.250 in.)

2.54 x 7.62 mm (0.100 x 0.300 in.)

3.18 mm (0.125 in.)

3.81 mm (0.150 in.)

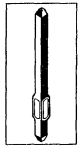
5.08 mm (0.200 in.)



A183396-0316

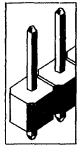
2.54 x 2.54 mm (0.100 x 0.100 in.)  
 2.54 x 5.08 mm (0.100 x 0.200 in.)  
 2.54 x 6.35 mm (0.100 x 0.250 in.)  
 2.54 x 7.62 mm (0.100 x 0.300 in.)  
 3.18 mm (0.125 in.)

## 2.54 mm (0.100 in.) Centerline Products



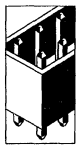
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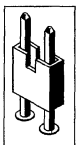
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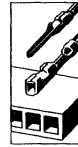
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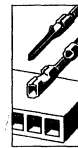
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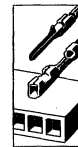
## 2.54 x 5.08 mm (0.100 x 0.200 in.) Centerline Products



### Discrete Crimp-to-Wire Pins/Receptacles/Housings

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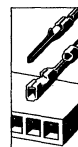
## 2.54 x 6.35 mm (0.100 x 0.250 in.) Centerline Products



### Discrete Crimp-to-Wire Pins/Receptacles/Housings

Mini-Latch Housing .....	13-22
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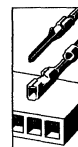
## 2.54 x 7.62 mm (0.100 x 0.300 in.) Centerline Products



### Discrete Crimp-to-Wire Pins/Receptacles/Housings

Mini-Latch Housing .....	13-22
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## 3.18 mm (0.125 in.) Centerline Products



### Discrete Crimp-to-Wire Pins/Receptacles/Housings

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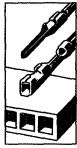
# BergCon® System

3.18 x 6.35 mm (0.125 x 0.250 in.)

3.81 mm (0.150 in.)

5.08 mm (0.200 in.)

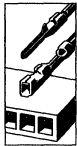
## 3.18 x 6.35 mm (0.125 x 0.250 in.) Centerline Products



### Discrete Crimp-to-Wire Pins/Receptacles/Housings

Mini-Latch Housing .....	13-26
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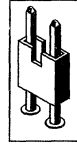
## 3.81 mm (0.150 in.) Centerline Products



### Discrete Crimp-to-Wire Pins/Receptacles/Housings

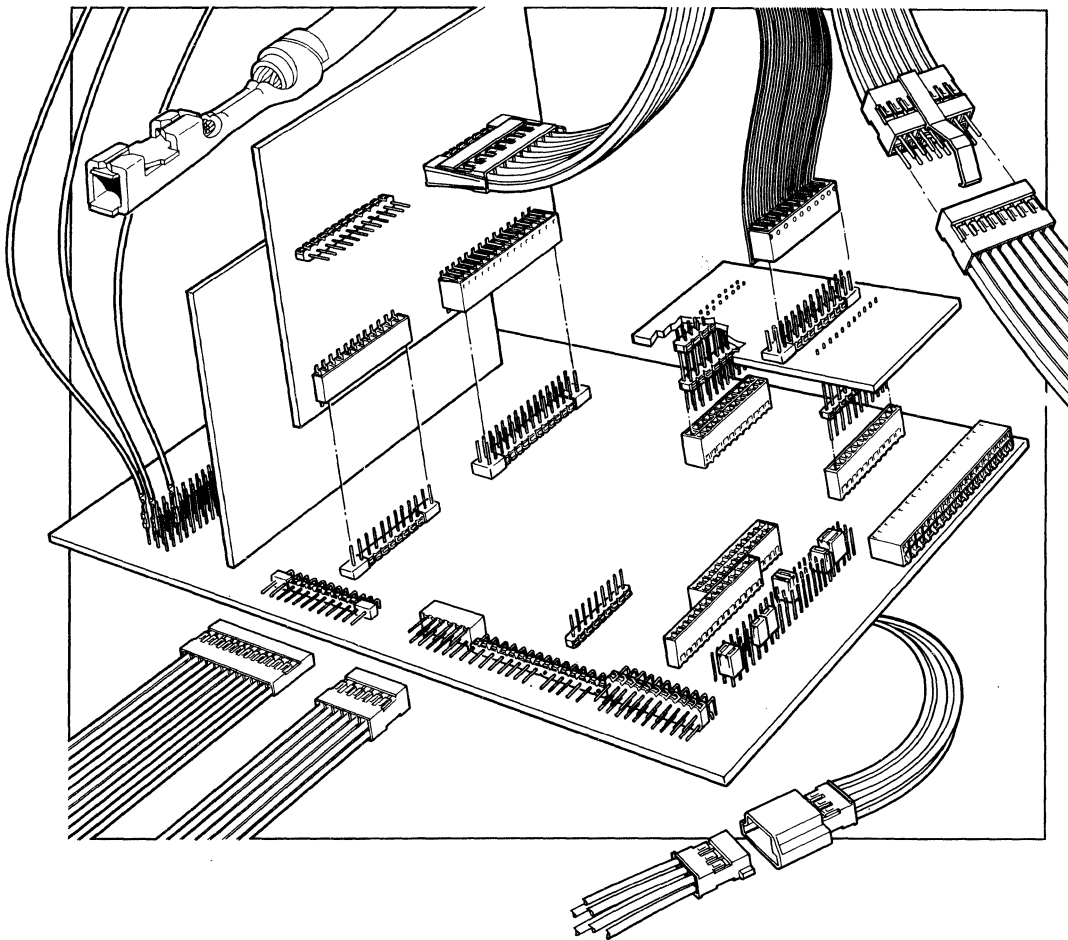
Mini-Latch Housing .....	13-30
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## 5.08 mm (0.200 in.) Centerline Products



### Shunts

Mini-Jump Shunts .....	13-44
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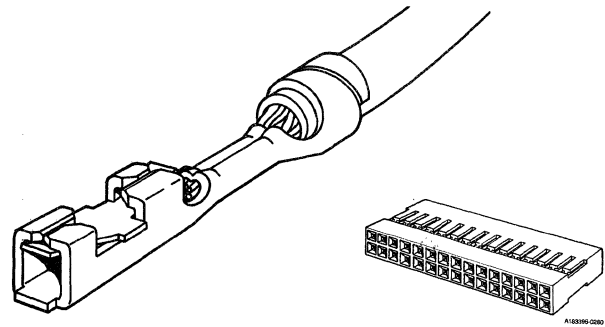


A183396-0316

# Discrete Crimp-to-Wire Pins/Receptacles/Housings

2.54 mm (0.100 in.) Centerline

## Crimp-to-Wire Mini-PV™ Receptacle



### Features

- Dual-metal contact design provides constant retention force after repeated cycles.
- Choice of three spring thicknesses to meet specific insertion and withdrawal requirements.
- A wide range of application machines is offered to reduce application costs.
- Available in a variety of gold and tin-lead platings.

### Mating Data

Mates with most 2.54 mm (0.100 in.) min centerline products with 0.64 mm (0.025 in.) square or round pins. See Table below for mating pin lengths.

#### Mating Pin Lengths

- Discrete applications
  - ▶ Minimum . . . . . 4.32 mm (0.170 in.)
  - ▶ Nominal . . . . . 5.08 mm (0.200 in.)
  - ▶ Maximum . . . . . 5.59 mm (0.220 in.)

- Housing applications
  - ▶ Minimum . . . . . 5.08 mm (0.200 in.)
  - ▶ Nominal . . . . . 5.84 mm (0.230 in.)
  - ▶ Maximum . . . . . 6.22 mm (0.245 in.)

#### Berg Electronics Products Page

- Crimp-to-Wire Pin in Mini-Latch Housing . . . . . 13-10 and 13-16
- Friction Latch Passive Latching System II . . . . . 13-14
- BergStik® . . . . . 13-50
- BergPin® . . . . . 13-106 to 13-116
- Right-Angle 2-Row Header . . . . . 13-61
- Shrouded Header . . . . . 13-84 to 13-104

### Specifications

- ASTM B-122
- MIL-M-20693
- MIL-P-46129
- QQ-C-533
- ASTM B-579
- MIL-G-45204
- QQ-N-290
- QQ-B-613

### Approvals and Certifications

File no. E66906

File no. LR46923

### Application Equipment

#### Berg Electronics Products Page

- PV-250A Semi-automatic application machine . . . . . 13-34
- PV-272 Semi-automatic crimping machine . . . . . 13-34
- OL-740 Semi-automatic two-ton bench press . . . . . 13-35
- OL-700 Fully automatic application machine (14–26 AWG) . . . . . 13-35
- Handtools . . . . . 13-36

### Technical Data

#### Materials

- Body . . . . . Brass or cupro-nickel
- Spring . . . . . Beryllium-copper

#### Plating

- Option 1
  - ▶ Contact area . . . . . 2.54 µm (100 µin.) min 60/40 tin-lead
  - ▶ Remainder . . . . . 2.54 µm (100 µin.) min 60/40 tin-lead
  - ▶ Spring . . . . . 0.76 µm (30 µin.) 93/7 tin-lead
- Option 2
  - ▶ Contact area . . . . . 0.38 µm (15 µin.) min gold over nickel
  - ▶ Remainder . . . . . Gold flash
  - ▶ Spring . . . . . Gold flash over nickel
- Option 3
  - ▶ Contact area . . . . . 0.76 µm (30 µin.) min gold over nickel
  - ▶ Remainder . . . . . Gold flash
  - ▶ Spring . . . . . Gold flash over nickel
- Option 4
  - ▶ Contact area . . . . . 1.02 µm (40 µin.) min gold over nickel
  - ▶ Remainder . . . . . Gold flash
  - ▶ Spring . . . . . Gold flash over nickel
- Option 5
  - ▶ Contact area . . . . . 0.76 µm (30 µin.) min gold
  - ▶ Remainder . . . . . Cupro-nickel base material
  - ▶ Spring . . . . . Gold flash over nickel

#### Spring Thickness

- Standard (for use in Mini-Latch housings with 40–72 positions) . . . . . 0.09 mm (0.0035 in.)

- High (for use in Mini-Latch housings with 10–50 positions) . . . . . 0.12 mm (0.0048 in.)
- Ultra-high (for use in Mini-Latch housings with 2–20 positions) . . . . . 0.17 mm (0.0065 in.)

#### Electrical Performance

- Insulation resistance . . . . . 5000 MΩ min
- Contact resistance . . . . . 15 mΩ max after environmental tests
- Withstanding voltage . . . . . 1000 V ac rms
- Current rating . . . . . 3 amp continuous, depending on wire size

#### Mechanical Performance

- Insertion force (max), gold finish
  - ▶ Standard spring . . . . . 2.35 N (240 gf)
  - ▶ High spring . . . . . 4.41 N (450 gf)
  - ▶ Ultra high spring . . . . . 10.79 N (1100 gf)
- Withdrawal force (min), gold finish
  - ▶ Standard spring . . . . . 0.45 N (45 gf)
  - ▶ High spring . . . . . 0.75 N (75 gf)
  - ▶ Ultra high spring . . . . . 1.75 N (175 gf)
- Durability (mating cycles, gold finish) . . . . . 1000

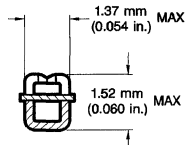
#### Operating Environment

- Temperature range . . . . . -65°C to +125°C
- Relative humidity range . . . . . 10% to 95%

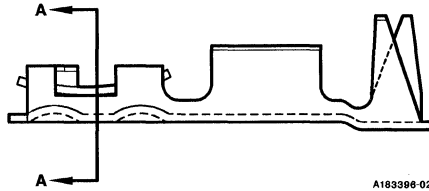
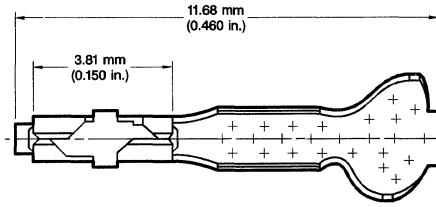
#### Packaging

- Reels
- Boxes (loose piece)

### Description



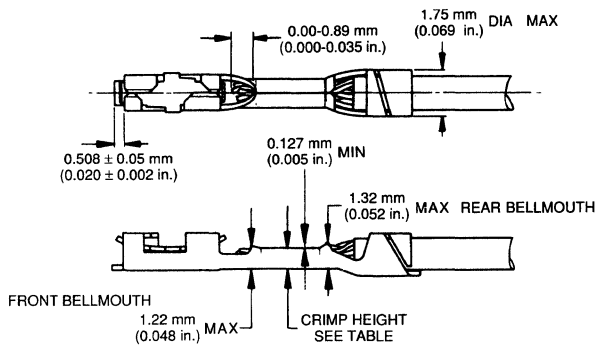
SECTION A-A



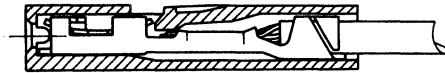
A183396-0281

### Crimping Specifications

MINI-PV™ TERMINAL



MINI-PV™ LATCH HOUSING



A183396-0282

Wire Size (AWG)	Crimp Height	Insulation Diameter	
		Loose Wire Application	Housing Application
18--20	1.07--1.12 mm (0.042--0.044 in.)	1.07--2.62 mm (0.042--0.103 in.)	1.07--1.52 mm (0.042--0.060 in.)
22--26	0.81--0.86 mm (0.032--0.034 in.)	0.91--2.62 mm (0.036--0.103 in.)	0.91--1.52 mm (0.036--0.060 in.)
28--32	0.66--0.71 mm (0.026--0.028 in.)	0.71--1.37 mm (0.028--0.054 in.)	0.71--1.37 mm (0.028--0.054 in.)
32--36	0.56--0.61 mm (0.022--0.024 in.)	0.51--1.02 mm (0.020--0.040 in.)	0.51--1.02 mm (0.020--0.040 in.)

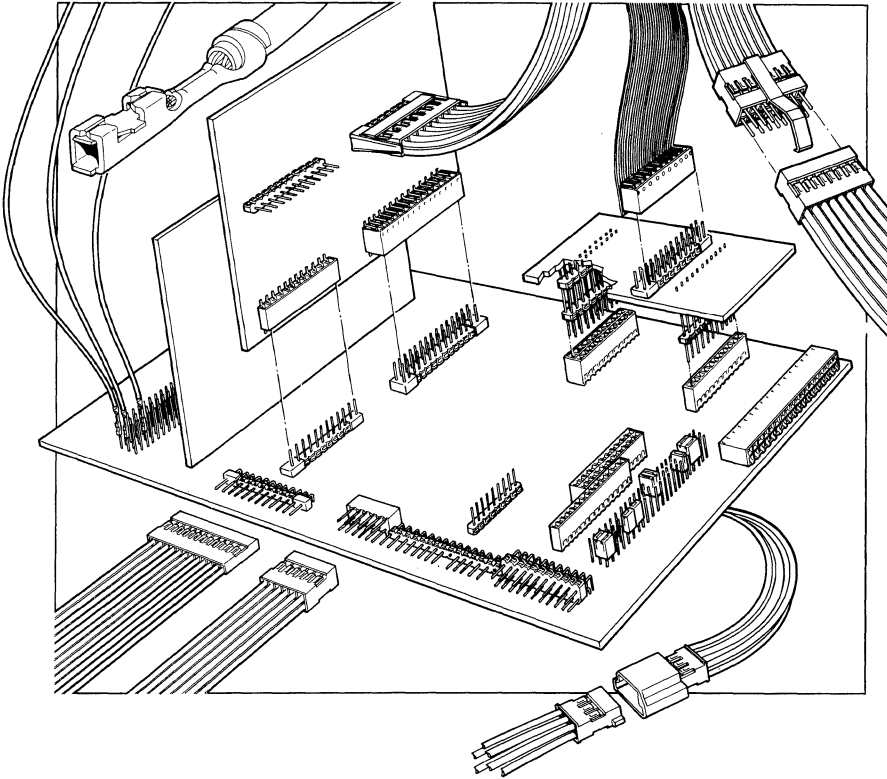
**Discrete Crimp-to-Wire Pins/Receptacles/Housings**  
**2.54 mm (0.100 in.)**

<b>Ordering Data</b>							
				<b>Finishing Options</b>			
<b>Option</b>	<b>Contact Area</b>	<b>Remainder</b>		<b>Spring</b>			
1	2.54 $\mu\text{m}$ (100 $\mu\text{in.}$ ) min 60/40 tin-lead	2.54 $\mu\text{m}$ (100 $\mu\text{in.}$ ) min 60/40 tin-lead		0.76 $\mu\text{m}$ (30 $\mu\text{in.}$ ) 93/7 tin-lead			
2	0.38 $\mu\text{m}$ (15 $\mu\text{in.}$ ) min gold over nickel	Gold flash		Gold flash over nickel			
3	0.76 $\mu\text{m}$ (30 $\mu\text{in.}$ ) min gold over nickel	Gold flash		Gold flash over nickel			
4	1.02 $\mu\text{m}$ (40 $\mu\text{in.}$ ) min gold over nickel	Gold flash		Gold flash over nickel			
<b>Part Numbers</b>							
<b>Wire Size AWG</b>	<b>Insulation OD Size</b>	<b>Spring Force</b>	<b>Packaging</b>	<b>Finishing Option (see Finishing Options Table)</b>			
				<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
18, 20 or Two 22 or Two 24	1.07--1.52 mm (0.042--0.060 in.)	Standard Standard High High	Reel Loose piece Reel Loose piece	--- --- 47221-000 47716-000	48241-000 48250-000 48244-000 48253-000	48231-000 48266-000 48047-000 48232-000	48276-000 --- 47441-000 47713-000
22, 24, 26 or Two 26 or Two 28	0.91--1.52 mm (0.036--0.060 in.)	Ultra-high	Reel	47648-000	48247-000	48052-000	47566-000
		Ultra-high	Loose piece	47749-000	48256-000	48233-000	47746-000
		Standard	Reel	47445-000	48242-000	48049-000	47457-000
		Standard	Loose piece	47747-000	48251-000	48235-000	47743-000
		High	Reel	47217-000	48245-000	48046-000	47439-000
28, 30, 32 or Two 30 or Two 32	0.71--1.37 mm (0.028--0.054 in.)	High	Loose piece	47715-000	48254-000	48234-000	47712-000
		Ultra-high	Reel	47649-000	48248-000	48051-000	47565-000
		Ultra-high	Loose piece	47750-000	48257-000	48236-000	47745-000
		Standard	Reel	47446-000*	48243-000*	48048-000*	47456-000*
		Standard	Loose piece	47748-000*	48252-000*	48238-000*	47742-000*
32, 34, 36	0.51--1.02 mm (0.020--0.040 in.)	High	Reel	47213-000*	48246-000*	48045-000*	47437-000*
		High	Loose piece	47714-000*	48255-000*	48237-000*	47711-000*
		Ultra-high	Reel	47650-000*	48249-000*	48050-000*	47564-000*
		Ultra-high	Loose piece	47751-000*	48258-000	48239-000*	47744-000*
		Standard	Reel	75543-009*	---	75543-015*	75543-003*
High	Loose piece	Standard	Loose piece	75543-010*	---	75543-016*	75543-004*
		High	Reel	75543-007*	---	75543-013*	75543-001*
		High	Loose piece	75543-008*	---	75543-014*	75543-002*
		Ultra-high	Reel	75543-011*	---	75543-017*	75543-005*
Ultra-high	Loose piece	75543-012*	---	75543-018*	75543-006*		

Ordering data shown is for our standard product offering. For special sizes or high-volume orders, contact your authorized Berg Electronics representative.

\*Indicates UL recognition only.

<b>Customer Support Materials</b>			
<b>Description</b>	<b>Order No.</b>	<b>Description</b>	<b>Order No.</b>
Customer Product Drawings.....	By Part No.	Application Drawings.....	TA-75, TA-146
Product Specifications.....	BUS-12-067	Product Samples.....	Upon Request

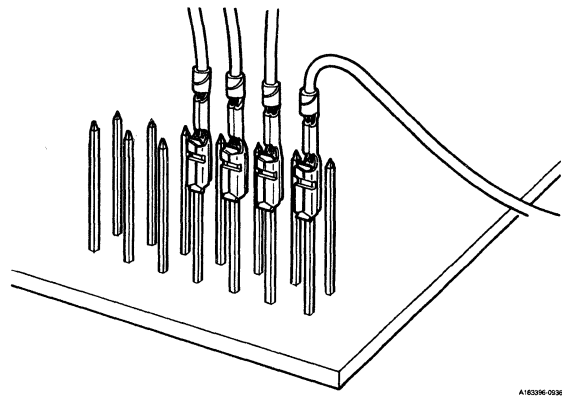


A183396-0316

# Discrete Crimp-to-Wire Pins/Receptacles/Housings

3.18 mm (0.125 in.) Centerline

## Crimp-to-Wire Maxi-PV™ Receptacle



A18396-036

### Features

- Two-piece design provides low resistance, high pressure, and gas-tight connection.
- Choice of three spring thicknesses to meet specific insertion and withdrawal requirements.
- Receptacles are available to crimp wire sizes 18–32 AWG.
- Available in gold and tin-lead platings.

### Mating Data

Mates with most 3.18 mm (0.125 in.) centerline products with 0.64 mm (0.025 in.) square or round pins. See Table at right for mating pin lengths.

### Mating Pin Lengths

- Discrete applications
  - ▶ Minimum . . . . . 5.58 mm (0.220 in.)
  - ▶ Nominal . . . . . 5.84 mm (0.230 in.)
- Housing applications
  - ▶ Minimum . . . . . 5.08 mm (0.200 in.)
  - ▶ Nominal . . . . . 5.84 mm (0.230 in.)



### Berg Electronics Products Page

- Crimp-to-Wire Pin in Maxi-Latch Housing . . . . . 13-10 and 13-32
- BergPin® . . . . . 13-106 to 13-116
- BergStik® . . . . . 13-50

### Specifications

- ASTM B-36
- MIL-G-45204
- QQ-C-533
- UL 94 V-0
- ASTM B-194
- QQ-B-613A
- QQ-N-290

### Approvals and Certifications

-  File no. E66906
-  File no. LR46923

### Application Equipment

#### Berg Electronics Products Page

- PV-250A Semi-automatic application machine . . . . . 13-34
- PV-272 Semi-automatic crimping machine . . . . . 13-34
- OL-740 Semi-automatic two-ton bench press . . . . . 13-35
- OL-700 Fully automatic application machine (14–26 AWG) . . . . . 13-35

### Technical Data

#### Materials

- Body . . . . . Brass
- Spring . . . . . Beryllium-copper

#### Plating

- Finish
- Contact area . . . . . 1 μm (40 μin.) gold over nickel
- Remainder . . . . . Gold flash or
- Entire contact . . . . . 5 μm (200 μin.) min tin-lead

#### Spring Thickness

- Standard (for use in Maxi-Latch housings with 12–56 positions) . . . . . 0.13 mm (0.005 in.)
- High (for use in Maxi-Latch housings with 10–40 positions) . . . . . 0.15 mm (0.006 in.)
- Ultra-high (for use in Maxi-Latch housings with 2–12 positions) . . . . . 0.20 mm (0.008 in.)

#### Electrical Performance

- Insulation resistance . . . . . 5000 MΩ min
- Contact resistance . . . . . 4 mΩ max
- Withstanding voltage . . . . . 1000 V ac rms
- Current rating . . . . . 5 amp continuous, depending on wire size

#### Mechanical Performance

- Insertion force (max), gold finish
  - ▶ Standard spring . . . . . 4.3 N (430 gf)
  - ▶ High spring . . . . . 6 N (600 gf)
  - ▶ Ultra high spring . . . . . 11 N (1100 gf)
- Insertion force (max), tin-lead finish
  - ▶ Standard spring . . . . . 6 N (600 gf)
  - ▶ High spring . . . . . 7.5 N (750 gf)
  - ▶ Ultra high spring . . . . . 12 N (1200 gf)
- Withdrawal force (min), gold finish
  - ▶ Standard spring . . . . . 0.75 N (75 gf)
  - ▶ High spring . . . . . 1 N (100 gf)
  - ▶ Ultra high spring . . . . . 2.25 N (225 gf)
- Withdrawal force (min), tin-lead finish
  - ▶ Standard spring . . . . . 0.80 N (80 gf)
  - ▶ High spring . . . . . 1.25 N (125 gf)
  - ▶ Ultra high spring . . . . . 2.5 N (250 gf)
- Durability (mating cycles) . . . . . 500

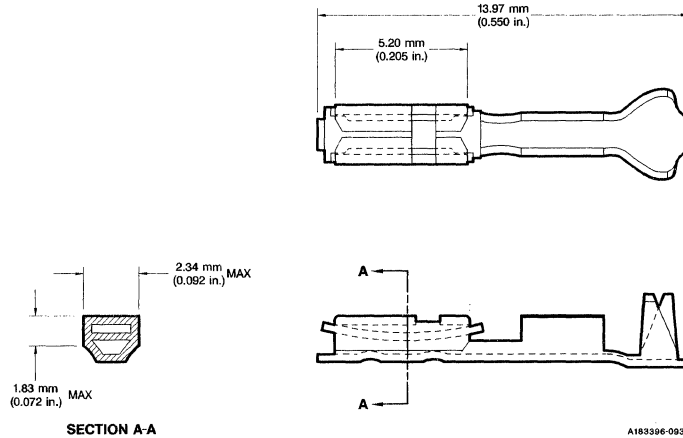
#### Operating Environment

- Temperature range . . . . . -65°C to +125°C
- Relative humidity range . . . . . 10% to 95%

#### Packaging

- Reels
- Boxes (loose piece)

**Description**



**Ordering Data**

Wire Size AWG	Insulation Diameter	Spring Force	Packaging	Finishing Option	
				Gold	Tin-Lead
18, 20 or Two 22 or Two 24	1.07--2.62 mm (0.042--0.103 in.)	Standard	Reel	46226-000	---
		Standard	Loose piece	46227-000	---
		High	Reel	46221-000	47388-000
		High	Loose piece	46225-000	47391-000
		Ultra-high	Reel	46223-000	46580-000
		Ultra-high	Loose piece	47387-000	46581-000
22, 24, 26 or Two 26 or Two 28	0.92--2.61 mm (0.036--0.103 in.)	Standard	Reel	46236-000*	---
		Standard	Loose piece	46237-000	---
		High	Reel	46231-000	47389-000
		High	Loose piece	46235-000	47392-000
		Ultra-high	Reel	46233-000	46590-000
		Ultra-high	Loose piece	47384-000	46591-000
28, 30, 32 or Two 30 or Two 32	0.71--1.37 mm (0.028--0.054 in.)	Standard	Reel	46246-000*	---
		Standard	Loose piece	46247-000*	---
		High	Reel	46241-000*	---
		High	Loose piece	46245-000*	---
		Ultra-high	Reel	46243-000*	---
		Ultra-high	Loose piece	47403-000*	---

Ordering data shown is for our standard product offering. For special sizes or high-volume orders, contact your authorized Berg Electronics representative.

\*Indicates UL recognition only.

**Customer Support Materials**

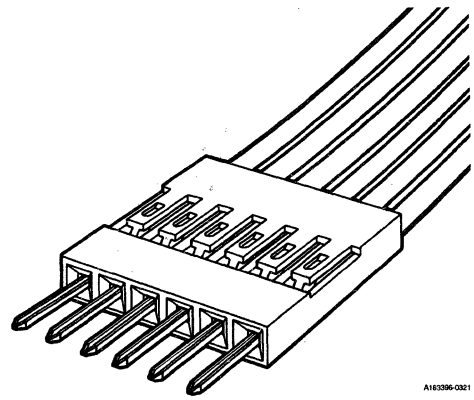
Description	Order No.	Description	Order No.
Customer Product Drawings .....	By Part No.	Application Drawings.....	TA-213, TA-356
Product Specifications .....	BUS-12-096	Product Samples.....	Upon Request



# Discrete Crimp-to-Wire Pins/Receptacles/Housings

2.54 mm (0.100 in.) Centerline

## Crimp-to-Wire Pin



A18396-021

### Features

- Fits in Mini-Latch Housings.
- A wide range of application machines is offered to reduce application costs.
- Available in gold and tin-lead platings.

### Mating Data


Mates with receptacles requiring a 0.64 mm (0.025 in.) square, 5.84 mm (0.230 in.) long pin.


<b>Berg Electronics Products</b>	<b>Page</b>
▪ Mini-PV™ Receptacle.....	13-4

### Specifications

- ASTM B-36-71
- MIL-C-45204
- MIL-STD-202
- UNS-C26000

### Approvals and Certifications

 File no. E66906

 File no. LR46923

### Application Equipment

<b>Berg Electronics Products</b>	<b>Page</b>
▪ OL-740 Semi-automatic two-ton bench press.....	13-35
▪ OL-700 Fully automatic application machine (14--26 AWG) .....	13-35

### Technical Data

#### Materials

- Contact..... Brass

#### Plating

- Contact area ..... 1.25 μm (50 μin.) gold over  
1.27 mm (50 μin.) nickel
- Remainder..... Gold flash or
- Contact area ..... 2.50 μm (100 μin.) tin-lead
- Remainder..... 2.50 μm (100 μin.) tin-lead

#### Electrical Performance

- Insulation resistance..... 5000 MΩ min

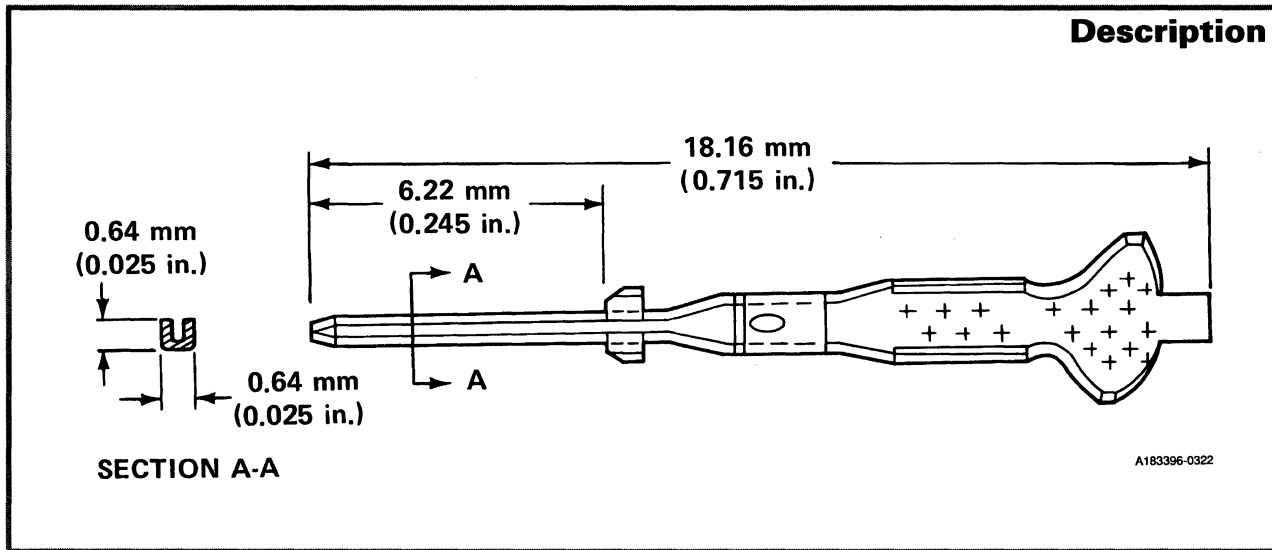
- Contact resistance..... 5 mΩ max after environmental tests
- Withstanding voltage..... 1000 V ac rms
- Current rating..... 3 amp continuous

#### Operating Environment

- Temperature range..... -65°C to +125°C
- Relative humidity range..... 10% to 95%

#### Packaging

- Reels
- Boxes (loose piece)



<b>Crimping Specifications</b>			
Wire Size (AWG)	Crimp Height	Insulation Diameter	
		Loose Wire Application	Housing Application
18-20	1.02-1.07 mm (0.040-0.042 in.)	1.07-2.62 mm (0.042-0.103 in.)	1.07-1.52 mm (0.042-0.060 in.)
22-26	0.76-0.81 mm (0.030-0.032 in.)	0.97-2.62 mm (0.038-0.103 in.)	0.97-1.52 mm (0.038-0.060 in.)
28-32	0.61-0.66 mm (0.024-0.026 in.)	0.81-1.37 mm (0.032-0.054 in.)	0.71-1.37 mm (0.032-0.054 in.)

<b>Ordering Data</b>			
Wire Size (AWG)	Finish	Part Numbers	
		Reel	Box (Loose Piece)
18-20	Gold	47793-003*	48117-000*
22-26	Gold	47792-003*	48116-000*
28-32	Gold	47791-003*	48115-000*
18-20	Tin-Lead	75653-006	75654-003
22-26	Tin-Lead	75653-005	75654-002
28-32	Tin-Lead	75653-004	75654-001

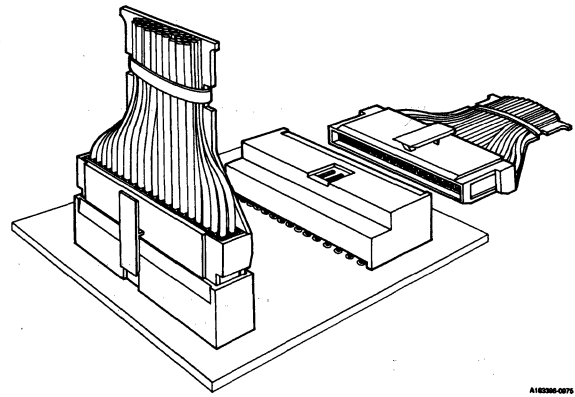
\*Indicates UL recognition only.

<b>Customer Support Materials</b>			
Description	Order No.	Description	Order No.
Customer Product Drawings .....	By Part No.	Product Specifications .....	BUS-12-098
Application Drawings .....	TA-211	Product Samples .....	Upon Request

# Discrete Crimp-to-Wire Pins/Receptacles/ Housings

2.54 x 2.54 mm (0.100 x 0.100 in.)  
Centerlines

## Latching System I



A18286-0075



### Features

- Uses Mini-PV™ Receptacles and drawn-wire pins for high reliability.
- Active latching.
- Optional polarization and strain relief available.
- Double-row configuration for maximum density.

### Specifications

- ASTM B-122
- ASTM B-579
- MIL-G-45204
- QQ-N-290
- QQ-B-613
- ASTM B-159
- MIL-M-20693
- MIL-P-46129
- QQ-C-533

### Approvals and Certifications

-  File no. E66906
-  File no. LR46923

### Accessories

Description	Page
▪ Polarization plug .....	13-39

### Technical Data

#### Materials

- Housing ..... Modified polyphenylene oxide (UL 94 V-1)
  - ▶ Color ..... Black
- Header ..... Thermoplastic (UL 94 V-1)
  - ▶ Color ..... Black

#### Electrical Performance

- Housing/Header
  - ▶ Insulation resistance .....  $1 \times 10^5$  M $\Omega$  min
  - ▶ Withstanding voltage ..... 1000 V rms (sea level)
- Contact
  - ▶ Resistance ..... 5m $\Omega$  max after environmental tests
  - ▶ Current rating ..... 3 amp continuous, depending on wire size

#### Mechanical Performance

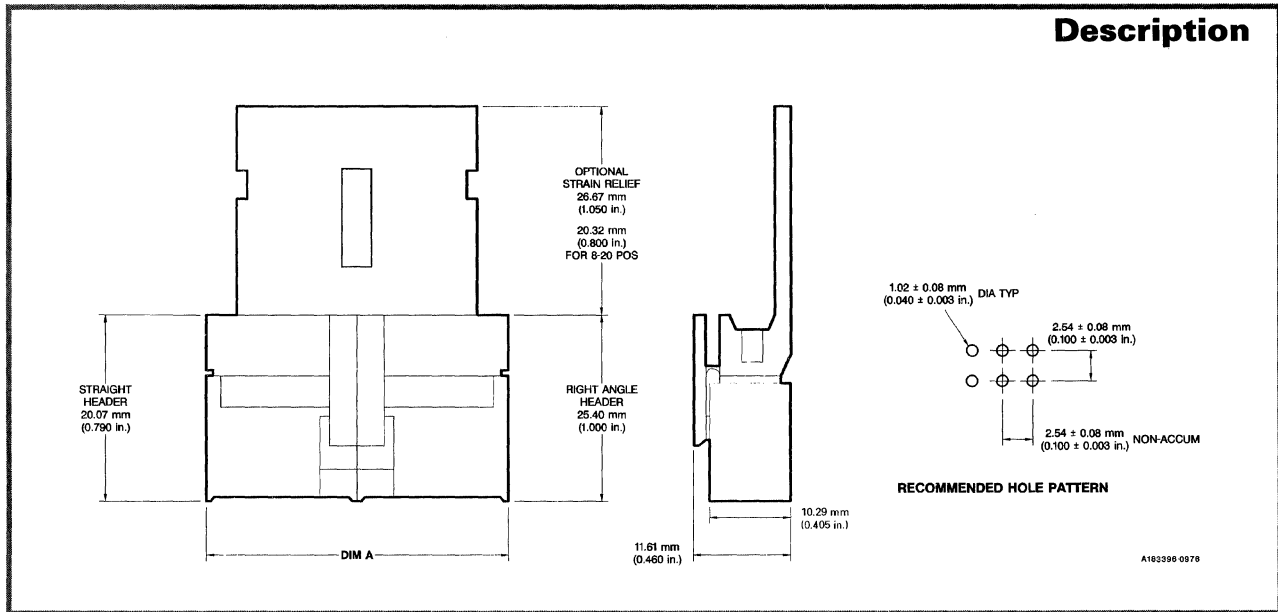
- Contact latching force ..... 29 N (6.5 lbf) min per position

#### Operating Environment

- Temperature range ..... -40°C to +105°C

#### Packaging

- Antistatic bags



**Application Data**

Accepts crimp-to-wire Mini-PV™ receptacle, 22--36 AWG.

**Ordering Data**

Number of Positions	Header*		Housing		Dimension A	
	Straight	Right Angle	With Strain Relief	Without Strain Relief	mm	in.
8	68664-002	68668-002	69150-033	69153-033	13.00	0.512
12	68664-004	68668-004	69150-031	69153-031	18.08	0.712
14	68664-005	68668-005	69150-030	69153-030	20.62	0.812
20	68664-008	68668-008	69150-027	69153-027	28.24	1.112
26	68664-011	68668-011	69150-024	69153-024	35.86	1.412
28	68664-012	68668-012	69150-023	69153-023	38.40	1.512
34	68664-015	68668-015	69150-020	69153-020	46.02	1.812
44	68664-020	68668-020	69150-015	69153-015	58.72	2.312

\*Header is 0.76 μm (30 μin.) gold with 3.30 mm (0.130 in.) solder tail. For other configurations, contact your authorized Berg Electronics Representative.

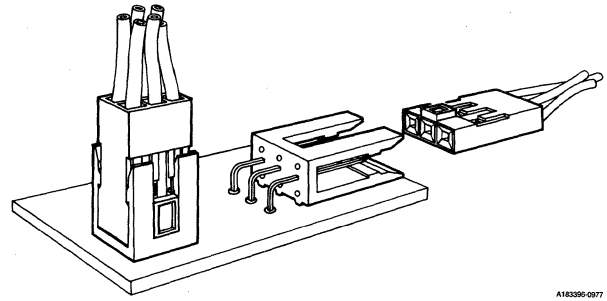
Select a Mini-PV™ part number from page 13-4.

Description		Customer Support Materials	
		Description	Order No.
Customer Product Drawings .....		By Part No.	Upon Request
Product Specifications .....		BUS-12-067	

# Discrete Crimp-to-Wire Pins/Receptacles/ Housings

2.54 x 2.54 mm (0.100 x 0.100 in.)  
Centerlines

## Latching System II



A18395-0077



### Features

- Uses Mini-PV™ Receptacles and drawn-wire pins for high reliability.
- Passive latching.
- Optional polarization available.
- Single- and double-row configurations occupy minimal real estate.

### Specifications

- ASTM B-122
- ASTM B-579
- MIL-G-45204
- QQ-N-290
- QQ-B-613
- ASTM B-159
- MIL-M-20693
- MIL-P-46129
- QQ-C-533

### Approvals and Certifications

-  File no. E66906
-  File no. LR46923

### Accessories

Description	Page
▪ Polarization plug .....	13-39

### Technical Data

#### Materials

- Housing ..... Modified polyphenylene oxide (UL 94 V-1) for 65039 and 65043  
Glass-filled nylon (UL 94 V-0) for 69167 and 78211
  - ▶ Color ..... Black
- Header ..... Glass-filled nylon (UL 94 V-0)
  - ▶ Color ..... Black

#### Plating (Header)

- Underplate ..... 1.27 µm (50 µin.) nickel
- Finish ..... 0.38 µm (15 µin.) gold  
or 0.76 µm (30 µin.) gold  
or 1.27 µm (50 µin.) gold  
or 0.38 µm (15 µin.) GXT™  
or 0.76 µm (30 µin.) GXT™
- Finish ..... 3.81 µm (150 µin.) tin-lead

#### Electrical Performance

- Housing/Header
  - ▶ Insulation resistance ..... 1 x 10<sup>5</sup> MΩ min
  - ▶ Withstanding voltage ..... 1000 V rms (sea level)
- Contact
  - ▶ Resistance ..... 5 mΩ max after environmental tests
  - ▶ Current rating ..... 3 amp continuous, depending on wire size

#### Operating Environment

- Temperature range ..... -40°C to +105°C

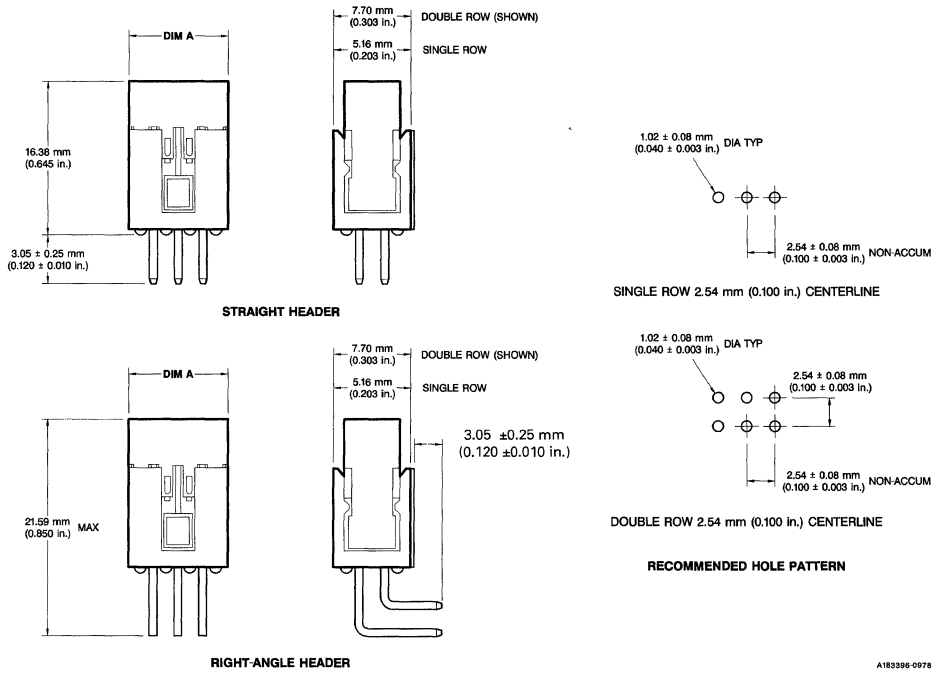
#### Packaging

- Antistatic bags

### Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawings .....	By Part No.	Product Samples .....	Upon Request
Product Specifications .....	BUS-12-067, BUS-12-075		

**Description**



Base number specifies pin length and style  
This digit specifies plating

□ □ □ □ - X Y Y

These digits specify total number of positions

**Ordering Data**

0.76 μm (30 μin.) gold over 1.27 μm (50 μin.) nickel -1YY  
 0.38 μm (15 μin.) gold over 1.27 μm (50 μin.) nickel -2YY  
 1.27 μm (50 μin.) gold over 1.27 μm (50 μin.) nickel -3YY

3.81 μm (150 μin.) tin-lead -4YY  
 0.38 μm (15 μin.) GXT™ over 1.27 μm (50 μin.) nickel -5YY  
 0.76 μm (30 μin.) GXT™ over 1.27 μm (50 μin.) nickel -6YY

**Plating Header**

Number of Positions	Header		Housing		Dimension A	
	Straight	Right Angle	With Polarization	Without Polarization	mm	in.
<b>Single Row</b>						
3	69167-X03	78208-X03	78211-003	65039-034	7.62	0.300
4	69167-X04	78208-X04	78211-004	65039-033	10.16	0.400
5	69167-X05	78208-X05	78211-005	65039-032	12.70	0.500
6	69167-X06	78208-X06	78211-006	65039-031	15.24	0.600
7	69167-X07	78208-X07	78211-007	65039-030	17.78	0.700
8	69167-X08	78208-X08	78211-008	65039-029	20.32	0.800
9	69167-X09	78208-X09	78211-009	65039-028	22.86	0.900
10	69167-X10	78208-X10	78211-010	65039-027	25.40	1.000
11	69167-X11	78208-X11	78211-011	65039-026	27.94	1.100
12	69167-X12	78208-X12	78211-012	65039-025	30.48	1.200
13	69167-X13	78208-X13	78211-013	65039-024	33.02	1.300
14	69167-X14	78208-X14	78211-014	65039-023	35.56	1.400
15	69167-X15	78208-X15	78211-015	65039-022	38.10	1.500
<b>Double Row</b>						
6	69168-X06	78207-X06	69176-006	65043-034	7.62	0.300
8	69168-X08	78207-X08	69176-008	65043-033	10.16	0.400
10	69168-X10	78207-X10	69176-010	65043-032	12.70	0.500
12	69168-X12	78207-X12	69176-012	65043-031	15.24	0.600
14	69168-X14	78207-X14	69176-014	65043-030	17.78	0.700
16	69168-X16	78207-X16	69176-016	65043-029	20.32	0.800
18	69168-X18	78207-X18	69176-018	65043-028	22.86	0.900
20	69168-X20	78207-X20	69176-020	65043-027	25.40	1.000
22	69168-X22	78207-X22	69176-022	65043-026	27.94	1.100
24	69168-X24	78207-X24	69176-024	65043-025	30.48	1.200
26	69168-X26	78207-X26	69176-026	65043-024	33.02	1.300
28	69168-X28	78207-X28	69176-028	65043-023	35.56	1.400
30	69168-X30	78207-X30	69176-030	65043-022	38.10	1.500

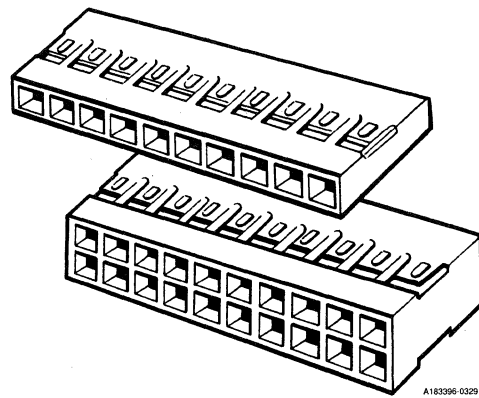
Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics Representative.

Select a Mini-PV™ receptacle part number from page 13-4. Accepts Mini-PV™ receptacles 22 to 36 AWG.

# Discrete Crimp-to-Wire Pins/Receptacles/ Housings

2.54 x 2.54 mm (0.100 x 0.100 in.)  
Centerlines

## Mini-Latch Housing



A18396 0329

### Features

- For use with highly reliable dual-metal Mini-PV™ contacts and crimp-to-wire pins.
- Available in single- and double-row configurations:  
Single-row: 1--36 positions  
Double-row: 4--72 positions
- Tapered lead-in edges align pins during mating.
- Stackable end to end and side by side.
- Position markings available.
- Contact can be removed with hand tool HT 80.

### Used With

Berg Electronics Products	Page
▪ Crimp-to-Wire Mini-PV™	13-4
▪ Crimp-to-Wire Pin™	13-10

### Specifications

▪ ASTM B-122	▪ ASTM B-579
▪ MIL-M-20693	▪ MIL-G-45204
▪ MIL-P-46129	▪ QQ-N-290
▪ QQ-C-533	▪ QQ-B-613

### Approvals and Certifications



File no. E66906



File no. LR46923

### Accessories

Description	Page
▪ Polarization plug	13-39
▪ Latching key	13-41

### Technical Data

#### Materials

- Housing ..... Modified polyphenylene oxide (UL 94 V-1)
  - ▶ Color ..... Black

#### Electrical Performance

- Insulation resistance ..... 1 x 10<sup>5</sup> MΩ min
- Withstanding voltage ..... 1000 V rms (sea level)

#### Operating Environment

- Temperature range ..... -40°C to +105°C

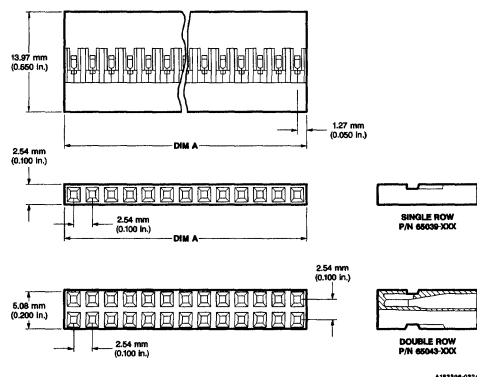
#### Packaging

- Antistatic bags

### Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawings	By Part No.	Product Specifications	BUS-12-067
Application Drawing	TA-531	Product Samples	Upon Request

### Description

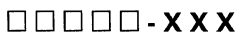


Accepts crimp-to-wire Mini-PV™ 22–36 AWG.  
Accepts crimp-to-wire pin 22–32 AWG.  
For 18–20 AWG, contact your authorized Berg Electronics representative.

### Application Data

### Ordering Data

Base number specifies style and number of rows.      Dash number specifies total number of positions.



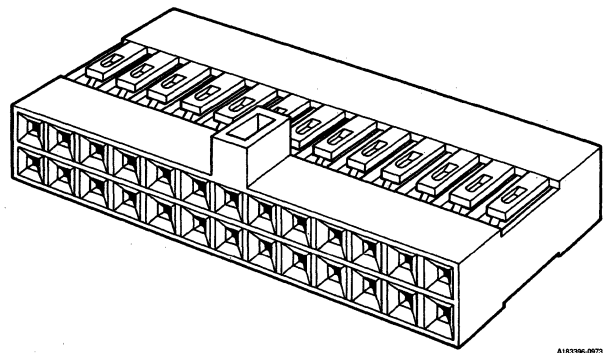
Single Row				Double Row			
Number of Positions	Part Number	Dimension A max		Number of Positions	Part Number	Dimension A max	
		mm	in.			mm	in.
1	65039-036	2.54	0.100	4	65043-035	5.08	0.200
2	65039-035	5.08	0.200	6	65043-034	7.62	0.300
3	65039-034	7.62	0.300	8	65043-033	10.16	0.400
4	65039-033	10.16	0.400	10	65043-032	12.70	0.500
5	65039-032	12.70	0.500	12	65043-031	15.24	0.600
6	65039-031	15.24	0.600	14	65043-030	17.78	0.700
7	65039-030	17.78	0.700	16	65043-029	20.32	0.800
8	65039-029	20.32	0.800	18	65043-028	22.86	0.900
9	65039-028	22.86	0.900	20	65043-027	25.40	1.000
10	65039-027	25.40	1.000	22	65043-026	27.94	1.100
11	65039-026	27.94	1.100	24	65043-025	30.48	1.200
12	65039-025	30.48	1.200	26	65043-024	33.02	1.300
13	65039-024	33.02	1.300	28	65043-023	35.56	1.400
14	65039-023	35.56	1.400	30	65043-022	38.10	1.500
15	65039-022	38.10	1.500	32	65043-021	40.64	1.600
16	65039-021	40.64	1.600	34	65043-020	43.18	1.700
17	65039-020	43.18	1.700	36	65043-019	45.72	1.800
18	65039-019	45.72	1.800	38	65043-018	48.26	1.900
19	65039-018	48.26	1.900	40	65043-017	50.80	2.000
20	65039-017	50.80	2.000	42	65043-016	53.34	2.100
21	65039-016	53.34	2.100	44	65043-015	55.88	2.200
22	65039-015	55.88	2.200	46	65043-014	58.42	2.300
23	65039-014	58.42	2.300	48	65043-013	60.96	2.400
24	65039-013	60.96	2.400	50	65043-012	63.50	2.500
25	65039-012	63.50	2.500	52	65043-011	66.04	2.600
26	65039-011	66.04	2.600	54	65043-010	68.58	2.700
27	65039-010	68.58	2.700	56	65043-009	71.12	2.800
28	65039-009	71.12	2.800	58	65043-008	73.66	2.900
29	65039-008	73.66	2.900	60	65043-007	76.20	3.000
30	65039-007	76.20	3.000	62	65043-006	78.74	3.100
31	65039-006	78.74	3.100	64	65043-005	81.28	3.200
32	65039-005	81.28	3.200	66	65043-004	83.82	3.300
33	65039-004	83.82	3.300	68	65043-003	86.36	3.400
34	65039-003	86.36	3.400	70	65043-002	88.90	3.500
35	65039-002	88.90	3.500	72	65043-001	91.44	3.600
36	65039-001	91.44	3.600				



# Discrete Crimp-to-Wire Pins/Receptacles/Housings

2.54 x 2.54 mm (0.100 x 0.100 in.)  
Centerlines

## Mini-Latch Housing, Polarized



A18336-0972

### Features

- For use with highly reliable dual-metal Mini-PV™ contacts and crimp-to-wire pins.
- Available in single- and double-row configurations:
  - ▶ Single-row: 1–36 positions
  - ▶ Double-row: 4–72 positions
- Polarization prevents mismatching.
- Tapered lead-in edges align pins during mating.
- Stackable end to end.
- Contact can be removed with hand tool HT 80.


### Used With


Berg Electronics Products	Page
▪ Crimp-to-Wire Mini-PV™	13-4
▪ Crimp-to-Wire Pin™	13-10

### Specifications

▪ ASTM B-122	▪ ASTM B-579
▪ MIL-M-20693	▪ MIL-G-45204
▪ MIL-P-46129	▪ QQ-N-290
▪ QQ-C-533	▪ QQ-B-613

### Approvals and Certifications

 File no. E66906

 File no. LR46923

### Accessories

Description	Page
▪ Polarization plug	13-39
▪ Latching key	13-41

### Technical Data

#### Materials

- Housing ..... Modified polyphenylene oxide (UL 94 V-1)
  - ▶ Color ..... Black

#### Electrical Performance

- Insulation resistance .....  $1 \times 10^5$  M $\Omega$  min
- Withstanding voltage ..... 1000 V ac rms (sea level)

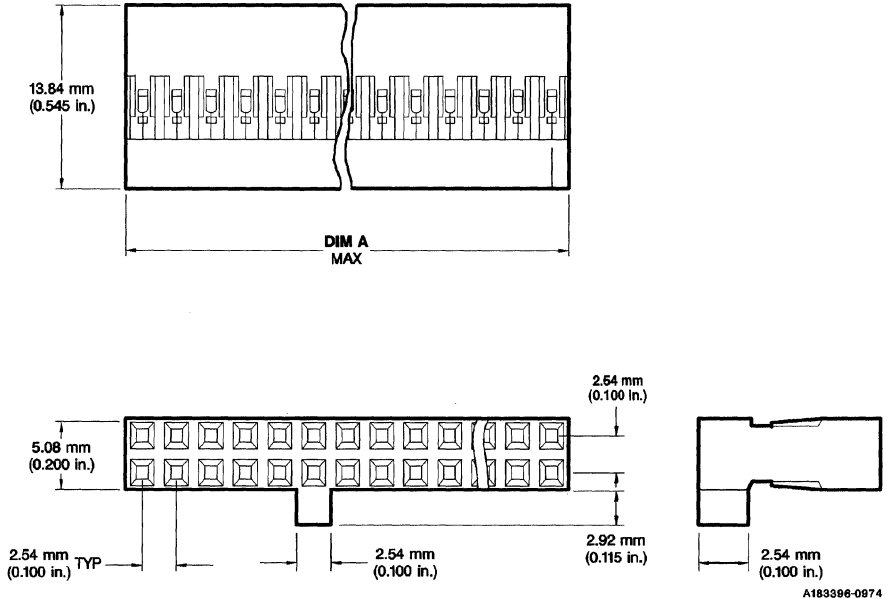
#### Operating Environment

- Temperature range ..... -40°C to +105°C

#### Packaging

- Antistatic bags

### Description



### Application Data

Accepts crimp-to-wire Mini-PV™ 22--36 AWG.  
Accepts crimp-to-wire pin 22--32 AWG.  
For 18--20 AWG, contact your authorized Berg Electronics representative.

### Ordering Data

Base number specifies style and number of rows. Dash number specifies total number of positions.

□ □ □ □ □ - X X X

Number of Positions*	Part Number	Dimension A max		Number of Positions	Part Number	Dimension A max	
		mm	in.			mm	in.
4	65846-014	5.08	0.200	40	65846-024	50.80	2.000
6	65846-015	7.62	0.300	42	65846-025	53.34	2.100
8	65846-016	10.16	0.400	44	65846-004	55.88	2.200
10	65846-010	12.70	0.500	46	65846-026	58.42	2.300
12	65846-017	15.24	0.600	48	65846-027	60.96	2.400
14	65846-007	17.78	0.700	50	65846-012	63.50	2.500
16	65846-011	20.32	0.800	52	65846-028	66.04	2.600
18	65846-008	22.86	0.900	54	65846-005	68.58	2.700
20	65846-006	25.40	1.000	56	65846-029	71.12	2.800
22	65846-018	27.94	1.100	58	65846-030	73.66	2.900
24	65846-001	30.48	1.200	60	65846-013	76.20	3.000
26	65846-019	33.02	1.300	62	65846-031	78.74	3.100
28	65846-020	35.56	1.400	64	65846-009	81.28	3.200
30	65846-002	38.10	1.500	66	65846-032	83.82	3.300
32	65846-021	40.64	1.600	68	65846-033	86.36	3.400
34	65846-022	43.18	1.700	70	65846-034	88.90	3.500
36	65846-023	45.72	1.800	72	65846-035	91.44	3.600
38	65846-003	48.26	1.900				

\*When used with latching headers, order 4 positions larger to allow 2 positions at each end for latching.

13

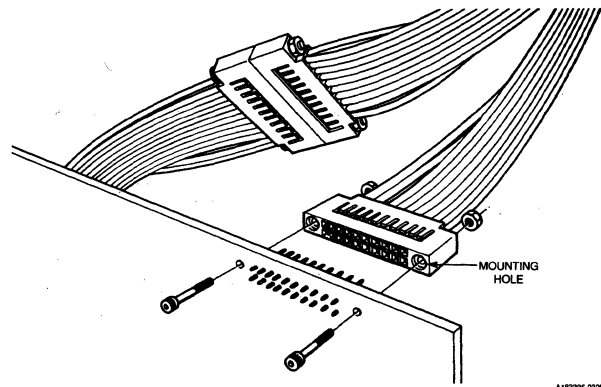
### Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawings .....	By Part No.	Product Specifications .....	BUS-12-067
Application Drawing .....	TA-531	Product Samples .....	Upon Request

# Discrete Crimp-to-Wire Pins/Receptacles/Housings

2.54 x 2.54 mm (0.100 x 0.100 in.)  
Centerlines

## Mini-Latch Housing, Bulkhead Mount



### Features

- Mounting holes permit positive locking of the flying connection.
- For use with highly reliable dual-metal Mini-PV™ contacts and crimp-to-wire pins.
- Double-row configuration, 4–56 positions.
- Tapered lead-in edges align pins during mating.
- Stackable side by side.
- Position markings available.
- Contact can be removed with hand tool HT 80.


### Used With


Berg Electronics Products	Page
▪ Crimp-to-Wire Mini-PV™	13-4
▪ Crimp-to-Wire Pin™	13-10

### Specifications

▪ ASTM B-122	▪ ASTM B-579
▪ MIL-M-20693	▪ MIL-G-45204
▪ MIL-P-46129	▪ QQ-N-290
▪ QQ-C-533	▪ QQ-B-613

### Approvals and Certifications

 File no. E66906

 File no. LR46923

### Accessories

Description	Page
▪ Polarization plug	13-39
▪ Latching key	13-41

### Technical Data

#### Materials

- Housing ..... Modified polyphenylene oxide (UL 94 V-1)
  - Color ..... Black

#### Electrical Performance

- Insulation resistance .....  $1 \times 10^5$  MΩ min
- Withstanding voltage ..... 1000 V rms (sea level)

#### Operating Environment

- Temperature range ..... -40°C to +105°C

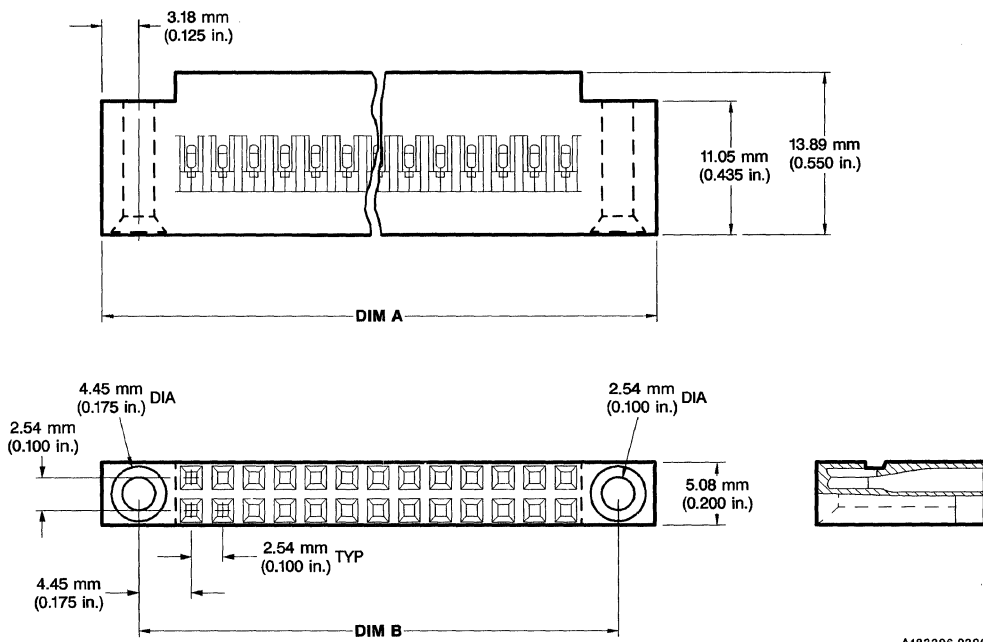
#### Packaging

- Antistatic bags

### Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawings	By Part No.	Product Specifications	BUS-12-067
Application Drawing	TA-531	Product Samples	Upon Request

### Description



A183396-0326

### Application Data

Accepts crimp-to-wire Mini-PV™ 22--36 AWG.  
Accepts crimp-to-wire pin 22--32 AWG.  
For 18--20 AWG, contact your authorized Berg Electronics representative.

### Ordering Data

Number of Positions	Part Numbers	Dimension A max		Dimension B max	
		mm	in.	mm	in.
4	65817-007	17.78	0.700	11.43	0.450
6	65817-008	20.32	0.800	13.97	0.550
8	65817-009	22.86	0.900	16.51	0.650
10	65817-010	25.40	1.000	19.05	0.750
12	65817-011	27.94	1.100	21.59	0.850
14	65817-012	30.48	1.200	24.13	0.950
16	65817-001	33.02	1.300	26.67	1.050
18	65817-013	35.56	1.400	29.21	1.150
20	65817-002	38.10	1.500	31.75	1.250
22	65817-014	40.64	1.600	34.29	1.350
24	65817-015	43.18	1.700	36.83	1.450
26	65817-003	45.72	1.800	39.37	1.550
28	65817-016	48.26	1.900	41.91	1.650
30	65817-017	50.80	2.000	44.45	1.750
32	65817-004	53.34	2.100	46.99	1.850
34	65817-018	55.88	2.200	49.53	1.950
36	65817-019	58.42	2.300	52.07	2.050
38	65817-020	60.96	2.400	54.61	2.150
40	65817-005	63.50	2.500	57.15	2.250
42	65817-021	66.04	2.600	59.69	2.350
44	65817-006	68.58	2.700	62.23	2.450
46	65817-022	71.12	2.800	64.77	2.550
48	65817-023	73.66	2.900	67.31	2.650
50	65817-024	76.20	3.000	69.85	2.750
52	65817-025	78.74	3.100	72.39	2.850
54	65817-026	81.28	3.200	74.93	2.950
56	65817-027	83.82	3.300	77.47	3.050

Military approved part numbers (XX = Number of positions): DD-86108-XX

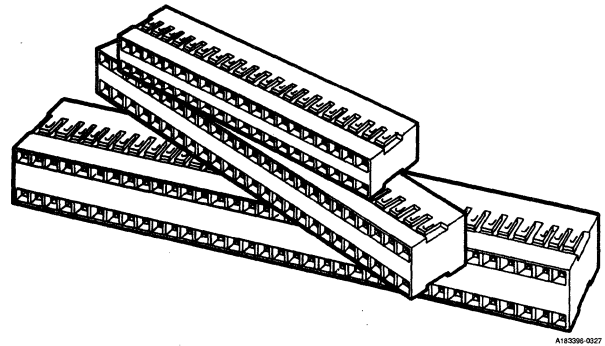
# Discrete Crimp-to-Wire Pins/Receptacles/Housings

2.54 x 5.08 mm (0.100 x 0.200 in.)

2.54 x 6.35 mm (0.100 x 0.250 in.)

2.54 x 7.62 mm (0.100 x 0.300 in.)

Centerlines



## Mini-Latch Housing

### Features

- Three centerline spacings to meet your design requirements.
- For use with highly reliable dual-metal Mini-PV™ contacts and crimp-to-wire pins.
- Double-row configuration.
- Tapered lead-in edges align pins during mating.
- Stackable end to end and side by side.
- Position markings available.
- Contact can be removed with hand tool HT 80.


### Used With


Berg Electronics Products	Page
▪ Crimp-to-Wire Mini-PV™	13-4
▪ Crimp-to-Wire Pin™	13-10

### Specifications

▪ ASTM B-122	▪ ASTM B-579
▪ MIL-M-20693	▪ MIL-G-45204
▪ MIL-P-46129	▪ QQ-N-290
▪ QQ-C-533	▪ QQ-B-613

### Approvals and Certifications

 File no. E66906

 File no. LR46923

### Accessories

Description	Page
▪ Polarization plug	13-39
▪ Latching key	13-41

### Technical Data

#### Materials

- Housing ..... Modified polyphenylene oxide (UL 94 V-1)
  - ▶ Color ..... Black

#### Electrical Performance

- Insulation resistance .....  $1 \times 10^5$  M $\Omega$  min
- Withstanding voltage ..... 1000 V rms (sea level)

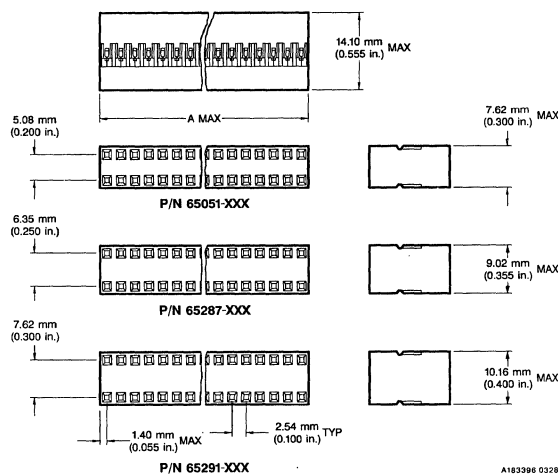
#### Operating Environment

- Temperature range ..... -40°C to +105°C

#### Packaging

- Antistatic bags

## Description



A183386 0328

## Application Data

Accepts crimp-to-wire Mini-PV™ 22–36 AWG.  
 Accepts crimp-to-wire pin 22–32 AWG.  
 For 18–20 AWG, contact your authorized Berg Electronics representative.

## Ordering Data

2.54 x 5.08 mm (0.100 x 0.200 in.) Centerlines				
Number of Positions	Part Number	Dimension A max		
		mm	in.	
4	65051-035	5.08	0.200	
6	65051-034	7.62	0.300	
8	65051-033	10.16	0.400	
10	65051-032	12.70	0.500	
12	65051-031	15.24	0.600	
14	65051-030	17.78	0.700	
16	65051-029	20.32	0.800	
18	65051-028	22.86	0.900	
20	65051-027	25.40	1.000	
22	65051-026	27.94	1.100	
24	65051-025	30.48	1.200	
26	65051-024	33.02	1.300	
28	65051-023	35.56	1.400	
30	65051-022	38.10	1.500	
32	65051-021	40.64	1.600	
34	65051-020	43.18	1.700	
36	65051-019	45.72	1.800	
38	65051-018	48.26	1.900	
40	65051-017	50.80	2.000	
42	65051-016	53.34	2.100	
44	65051-015	55.88	2.200	
46	65051-014	58.42	2.300	
48	65051-013	60.96	2.400	
50	65051-012	63.50	2.500	
52	65051-011	66.04	2.600	
54	65051-010	68.58	2.700	
56	65051-009	71.12	2.800	
58	65051-008	73.66	2.900	
60	65051-007	76.20	3.000	
62	65051-006	78.74	3.100	
64	65051-005	81.28	3.200	
66	65051-004	83.82	3.300	
68	65051-003	86.36	3.400	
70	65051-002	88.90	3.500	
72	65051-001	91.44	3.600	

**Discrete Crimp-to-Wire Pins/Receptacles/Housings**

2.54 x 5.08 mm (0.100 x 0.200 in.)

2.54 x 6.35 mm (0.100 x 0.250 in.)

2.54 x 7.62 mm (0.100 x 0.300 in.)

<b>Ordering Data (cont'd)</b>				
<b>2.54 x 6.35 mm (0.100 x 0.250 in.) Centerlines</b>				
Number of Positions	Part Number	Dimension A max		
		mm	in.	
2	65287-007	2.67	0.105	
6	65287-008	7.75	0.305	
8	65287-009	10.29	0.405	
12	65287-005	15.36	0.605	
14	65287-003	17.91	0.705	
20	65287-002	25.53	1.005	
22	65287-001	28.07	1.105	
24	65287-006	30.61	1.205	
72	65287-004	91.57	3.605	
<b>2.54 x 7.62 mm (0.100 x 0.300 in.) Centerlines</b>				
Number of Positions	Part Number	Dimension A max		
		mm	in.	
2	65291-008	2.54	0.100	
4	65291-009	5.08	0.200	
6	65291-010	7.62	0.300	
8	65291-006	10.16	0.400	
10	65291-011	12.70	0.500	
12	65291-012	15.24	0.600	
14	65291-001	17.78	0.700	
16	65291-002	20.32	0.800	
18	65291-013	22.86	0.900	
20	65291-003	25.40	1.000	
22	65291-014	27.94	1.100	
24	65291-015	30.48	1.200	
26	65291-016	33.02	1.300	
28	65291-017	35.56	1.400	
30	65291-018	38.10	1.500	
32	65291-019	40.64	1.600	
34	65291-020	43.18	1.700	
36	65291-021	45.72	1.800	
38	65291-022	48.26	1.900	
40	65291-023	50.80	2.000	
42	65291-024	53.34	2.100	
44	65291-025	55.88	2.200	
46	65291-026	58.42	2.300	
48	65291-027	60.96	2.400	
50	65291-028	63.50	2.500	
52	65291-029	66.04	2.600	
54	65291-030	68.58	2.700	
56	65291-031	71.12	2.800	
58	65291-032	73.66	2.900	
60	65291-033	76.20	3.000	
62	65291-034	78.74	3.100	
64	65291-035	81.28	3.200	
66	65291-036	83.82	3.300	
68	65291-037	86.36	3.400	
70	65291-038	88.90	3.500	
72	65291-005	91.44	3.600	

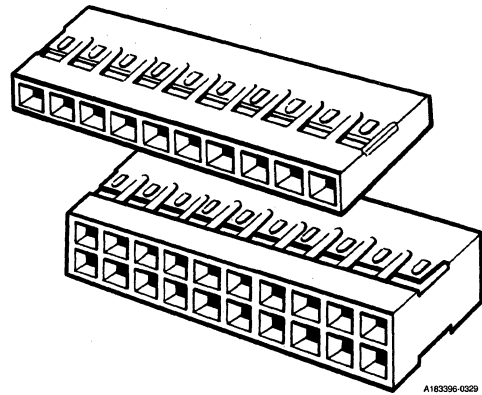
<b>Customer Support Materials</b>			
Description	Order No.	Description	Order No.
Customer Product Drawings.....	By Part No.	Product Specifications .....	BUS-12-067
Application Drawings .....	TA-531	Product Samples .....	Upon Request





# Discrete Crimp-to-Wire Pins/Receptacles/Housings

3.18 x 3.18 mm (0.125 x 0.125 in.)  
 3.18 x 6.35 mm (0.125 x 0.250 in.)  
 Centerlines



A182396-0229

## Mini-Latch Housing

### Features

- For use with highly reliable dual-metal Mini-PV™ contacts and crimp-to-wire pins.
- Available in single- and double-row configurations:
  - ▶ Single-row: 2–36 positions
  - ▶ Double-row: 4–72 positions
- Tapered lead-in edges align pins during mating.
- Stackable end to end and side by side.
- Position markings available.
- Contact can be removed with hand tool HT 80.



### Used With

- |                                    |             |
|------------------------------------|-------------|
| <b>Berg Electronics Products</b>   | <b>Page</b> |
| ▪ Crimp-to-Wire Mini-PV™ . . . . . | 13-4        |
| ▪ Crimp-to-Wire Pin™ . . . . .     | 13-10       |

### Specifications

- |               |               |
|---------------|---------------|
| ▪ ASTM B-122  | ▪ ASTM B-579  |
| ▪ MIL-M-20693 | ▪ MIL-G-45204 |
| ▪ MIL-P-46129 | ▪ QQ-N-290    |
| ▪ QQ-C-533    | ▪ QQ-B-613    |

### Approvals and Certifications

-  File no. E66906
-  File no. LR46923

### Accessories

- |                               |             |
|-------------------------------|-------------|
| <b>Description</b>            | <b>Page</b> |
| ▪ Polarization plug . . . . . | 13-39       |
| ▪ Latching key . . . . .      | 13-41       |

### Technical Data

#### Materials

- Housing . . . . . Modified polyphenylene oxide (UL 94 V-1)
  - ▶ Color . . . . . Black

#### Electrical Performance

- Insulation resistance . . . . .  $1 \times 10^5$  M $\Omega$  min
- Withstanding voltage . . . . . 1000 V rms (sea level)

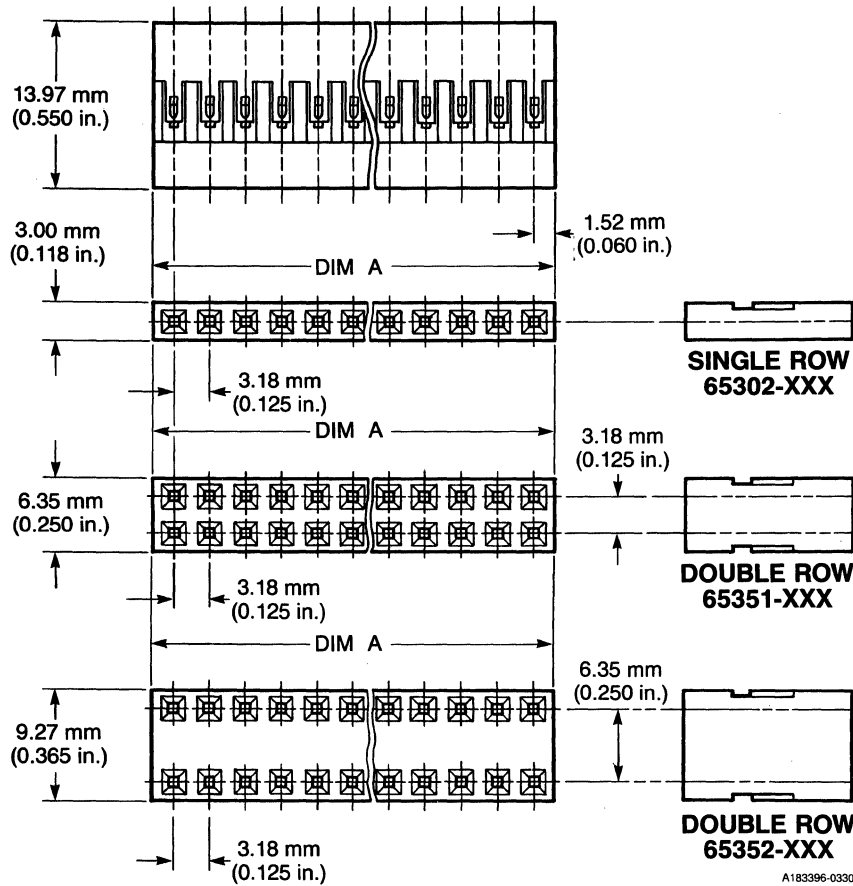
#### Operating Environment

- Temperature range . . . . . -40°C to +105°C

#### Packaging

- Antistatic bags

## Description



## Application Data

Accepts crimp-to-wire Mini-PV™ 22--36 AWG.  
 Accepts crimp-to-wire pin 22--32 AWG.  
 For 18--20 AWG, contact your authorized Berg Electronics representative.

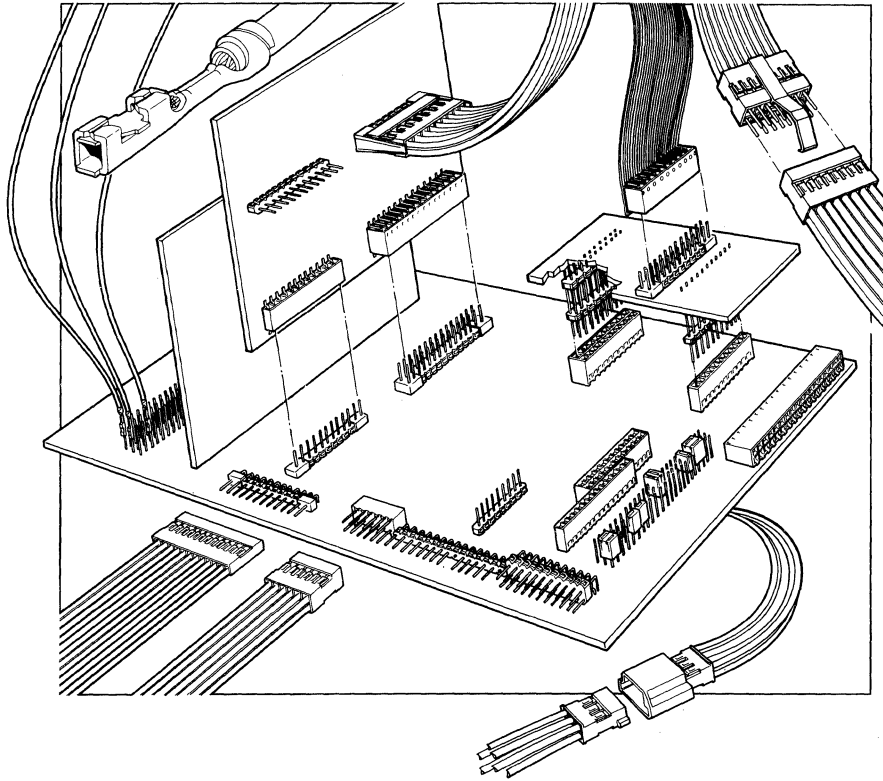
## Ordering Data

3.18 mm (0.125 in.) Centerline, Single Row							
Number of Positions	Part Numbers	Dimension A max		Number of Positions	Part Numbers	Dimension A max	
		mm	in.			mm	in.
2	65302-035	6.35	0.250	20	65302-017	63.50	2.500
3	65302-034	9.53	0.375	21	65302-016	66.68	2.625
4	65302-033	12.70	0.500	22	65302-015	69.85	2.750
5	65302-032	15.88	0.625	23	65302-014	73.03	2.875
6	65302-031	19.05	0.750	24	65302-013	76.20	3.000
7	65302-030	22.23	0.875	25	65302-012	79.38	3.125
8	65302-029	25.40	1.000	26	65302-011	82.55	3.250
9	65302-028	28.58	1.125	27	65302-010	85.73	3.375
10	65302-027	31.75	1.250	28	65302-009	88.90	3.500
11	65302-026	34.93	1.375	29	65302-008	92.08	3.625
12	65302-025	38.10	1.500	30	65302-007	95.25	3.750
13	65302-024	41.28	1.625	31	65302-006	98.43	3.875
14	65302-023	44.45	1.750	32	65302-005	101.60	4.000
15	65302-022	47.63	1.875	33	65302-004	104.78	4.125
16	65302-021	50.80	2.000	34	65302-003	107.95	4.250
17	65302-020	53.98	2.125	35	65302-002	111.13	4.375
18	65302-019	57.15	2.250	36	65302-001	114.30	4.500
19	65302-018	60.33	2.375				

**Discrete Crimp-to-Wire Pins/Receptacles/Housings**  
**3.18 x 3.18 mm (0.125 x 0.125 in.)**  
**3.18 x 6.35 mm (0.125 x 0.250 in.)**

<b>Ordering Data (cont'd)</b>							
<b>3.18 x 3.18 mm (0.125 x 0.125 in.) Centerlines, Double Row</b>				<b>3.18 x 6.35 mm (0.125 x 0.250 in.) Centerlines, Double Row</b>			
<b>Number of Positions</b>	<b>Part Number</b>	<b>Dimension A max</b>		<b>Number of Positions</b>	<b>Part Number</b>	<b>Dimension A max</b>	
		<b>mm</b>	<b>in.</b>			<b>mm</b>	<b>in.</b>
4	65351-035	6.35	0.250	4	65352-035	6.35	0.250
6	65351-034	9.53	0.375	6	65352-034	9.53	0.375
8	65351-033	12.70	0.500	8	65352-033	12.70	0.500
10	65351-032	15.88	0.625	10	65352-032	15.88	0.625
12	65351-031	19.05	0.750	12	65352-031	19.05	0.750
14	65351-030	22.23	0.875	14	65352-030	22.23	0.875
16	65351-029	25.40	1.000	16	65352-029	25.40	1.000
18	65351-028	28.58	1.125	18	65352-028	28.58	1.125
20	65351-027	31.75	1.250	20	65352-027	31.75	1.250
22	65351-026	34.93	1.375	22	65352-026	34.93	1.375
24	65351-025	38.10	1.500	24	65352-025	38.10	1.500
26	65351-024	41.28	1.625	26	65352-024	41.28	1.625
28	65351-023	44.45	1.750	28	65352-023	44.45	1.750
30	65351-022	47.63	1.875	30	65352-022	47.63	1.875
32	65351-021	50.80	2.000	32	65352-021	50.80	2.000
34	65351-020	53.98	2.125	34	65352-020	53.98	2.125
36	65351-019	57.15	2.250	36	65352-019	57.15	2.250
38	65351-018	60.33	2.375	38	65352-018	60.33	2.375
40	65351-017	63.50	2.500	40	65352-017	63.50	2.500
42	65351-016	66.68	2.625	42	65352-016	66.68	2.625
44	65351-015	69.85	2.750	44	65352-015	69.85	2.750
46	65351-014	73.03	2.875	46	65352-014	73.03	2.875
48	65351-013	76.20	3.000	48	65352-013	76.20	3.000
50	65351-012	79.38	3.125	50	65352-012	79.38	3.125
52	65351-011	82.55	3.250	52	65352-011	82.55	3.250
54	65351-010	85.73	3.375	54	65352-010	85.73	3.375
56	65351-009	88.90	3.500	56	65352-009	88.90	3.500
58	65351-008	92.08	3.625	58	65352-008	92.08	3.625
60	65351-007	95.25	3.750	60	65352-007	95.25	3.750
62	65351-006	98.43	3.875	62	65352-006	98.43	3.875
64	65351-005	101.60	4.000	64	65352-005	101.60	4.000
66	65351-004	104.78	4.125	66	65352-004	104.78	4.125
68	65351-003	107.95	4.250	68	65352-003	107.95	4.250
70	65351-002	111.13	4.375	70	65352-002	111.13	4.375
72	65351-001	114.30	4.500	72	65352-001	114.30	4.500

<b>Customer Support Materials</b>			
<b>Description</b>	<b>Order No.</b>	<b>Description</b>	<b>Order No.</b>
Customer Product Drawings.....	By Part No.	Product Specifications .....	BUS-12-067
Application Drawing .....	TA-531	Product Samples.....	Upon Request

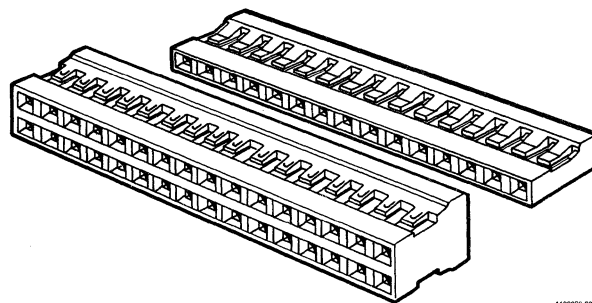


A18396-0316

# Discrete Crimp-to-Wire Pins/Receptacles/Housings

3.81 x 3.81 mm (0.150 x 0.150 in.),  
Centerlines

## Mini-Latch Housing



A182096-0321

### Features

- For use with highly reliable dual-metal Mini-PV™ contacts and crimp-to-wire pins.
- Available in single- and double-row configurations:
  - ▶ Single-row: 1–31 positions
  - ▶ Double-row: 2–62 positions
- Tapered lead-in edges align pins during mating.
- Stackable end to end and side by side.
- Position markings available.
- Contact can be removed with hand tool HT 80.



### Used With

Berg Electronics Products	Page
▪ Crimp-to-Wire Mini-PV™	13-4
▪ Crimp-to-Wire Pin™	13-10

### Specifications

▪ ASTM B-122	▪ ASTM B-579
▪ MIL-M-20693	▪ MIL-G-45204
▪ MIL-P-46129	▪ QQ-N-290
▪ QQ-C-533	▪ QQ-B-613

### Approvals and Certifications

-  File no. E66906
-  File no. LR46923

### Accessories

Description	Page
▪ Polarization plug	13-39
▪ Latching key	13-41

### Technical Data

#### Materials

- Housing . . . . . Modified polyphenylene oxide (UL 94 V-1)
  - ▶ Color . . . . . Black

#### Electrical Performance

- Insulation resistance . . . . .  $1 \times 10^5$  M $\Omega$  min
- Withstanding voltage . . . . . 1000 V rms (sea level)

#### Operating Environment

- Temperature range . . . . . -40°C to +105°C

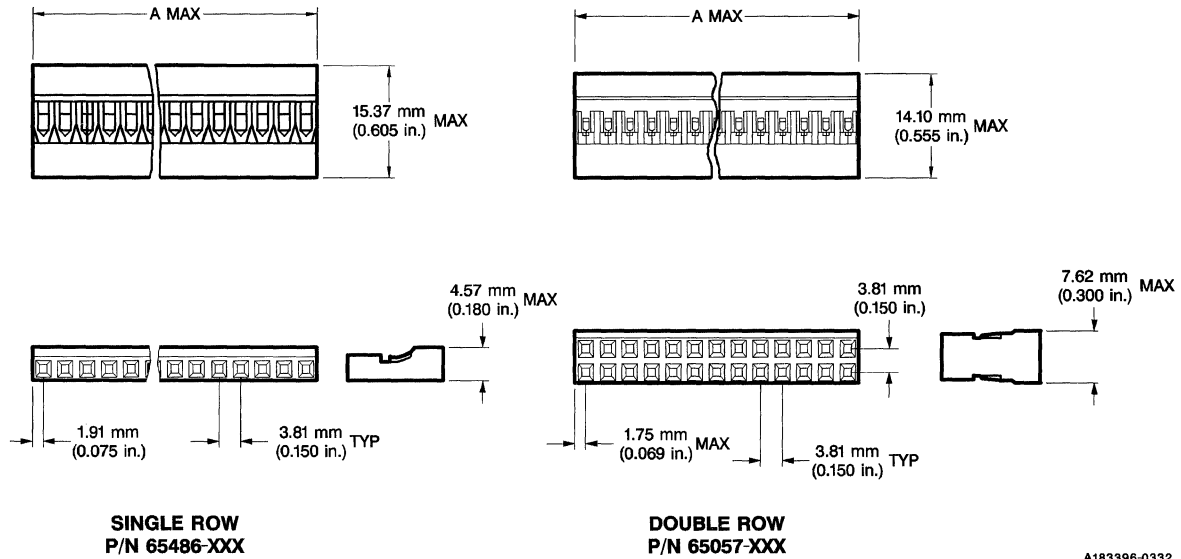
#### Packaging

- Antistatic bags

### Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawings . . . . .	By Part No.	Product Specifications . . . . .	BUS-12-067
Application Drawing . . . . .	TA-531	Product Samples . . . . .	Upon Request

### Description



**SINGLE ROW**  
P/N 65486-XXX

**DOUBLE ROW**  
P/N 65057-XXX

A183396-0332

### Application Data

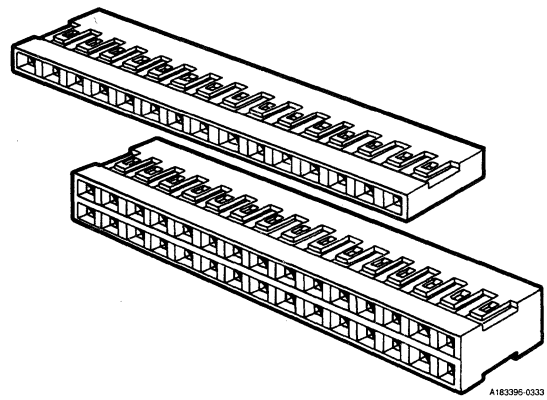
Accepts crimp-to-wire Mini-PV™ 22–36 AWG.  
Accepts crimp-to-wire pin 22–32 AWG.  
For 18 AWG, contact your authorized representative.

### Ordering Data

Single Row				Double Row			
Number of Positions	Part Number	Dimension A max		Number of Positions	Part Number	Dimension A max	
		mm	in.			mm	in.
1	65486-001	3.94	0.155	2	65057-031	3.81	0.150
2	65486-002	7.75	0.305	4	65057-030	7.62	0.300
3	65486-003	11.56	0.455	6	65057-029	11.43	0.450
4	65486-004	15.37	0.605	8	65057-028	15.24	0.600
5	65486-005	19.18	0.755	10	65057-027	19.05	0.750
6	65486-006	22.99	0.905	12	65057-026	22.86	0.900
7	65486-007	26.80	1.055	14	65057-025	26.67	1.050
8	65486-008	30.61	1.205	16	65057-024	30.48	1.200
9	65486-009	34.42	1.355	18	65057-023	34.29	1.350
10	65486-010	38.23	1.505	20	65057-022	38.10	1.500
11	65486-011	42.04	1.655	22	65057-021	41.91	1.650
12	65486-012	45.85	1.805	24	65057-020	45.72	1.800
13	65486-013	49.66	1.955	26	65057-019	49.53	1.950
14	65486-014	53.47	2.105	28	65057-018	53.34	2.100
15	65486-015	57.28	2.255	30	65057-017	57.15	2.250
16	65486-016	61.09	2.405	32	65057-016	60.96	2.400
17	65486-017	64.90	2.555	34	65057-015	64.77	2.550
18	65486-018	68.71	2.705	36	65057-014	68.58	2.700
19	65486-019	72.52	2.855	38	65057-013	72.39	2.850
20	65486-020	76.33	3.005	40	65057-012	76.20	3.000
21	65486-021	80.14	3.155	42	65057-011	80.01	3.150
22	65486-022	83.95	3.305	44	65057-010	83.82	3.300
23	65486-023	87.76	3.455	46	65057-009	87.63	3.450
24	65486-024	91.57	3.605	48	65057-008	91.44	3.600
25	65486-025	95.38	3.755	50	65057-007	92.25	3.750
26	65486-026	99.19	3.905	52	65057-006	99.06	3.900
27	65486-027	103.00	4.055	54	65057-005	102.87	4.050
28	65486-028	106.81	4.205	56	65057-004	106.68	4.200
29	65486-029	110.62	4.355	58	65057-003	110.49	4.350
30	65486-030	114.43	4.505	60	65057-002	114.30	4.500
31	65486-031	118.24	4.655	62	65057-001	118.11	4.650

# Discrete Crimp-to-Wire Pins/Receptacles/Housings

3.18 x 3.18 mm (0.125 x 0.125 in.),  
3.18 x 6.35 mm (0.125 x 0.250 in.)  
Centerlines



## Maxi-Latch Housing

### Features

- For use with highly reliable dual-metal Maxi-PV™ contacts.
- Available in single- and double-row configurations:
  - ▶ Single-row: 1--28 positions
  - ▶ Double-row: 4--56 positions
- Tapered lead-in edges align pins during mating.
- Single-row version is stackable side by side.
- Position markings available.
- Contact can be removed with hand tool HT 80.



### Used With

Berg Electronics Products	Page
▪ Crimp-to-Wire Maxi-PV™ Receptacle . . . . .	13-8

### Specifications

- MIL-G-45204
- MIL-P-46129
- QQ-B-613
- QQ-C-533
- QQ-N-290
- UL 94 V-0

### Approvals and Certifications

-  File no. E66906
-  File no. LR46923

### Accessories

Description	Page
▪ Polarization plug . . . . .	13-39
▪ Latching key . . . . .	13-41

### Technical Data

#### Materials

- Housing . . . . . Modified polyphenylene oxide (UL 94 V-1)
  - ▶ Color . . . . . Black

#### Electrical Performance

- Insulation resistance . . . . .  $1 \times 10^5$  M $\Omega$  min
- Withstanding voltage . . . . . 1000 V rms (sea level)

#### Operating Environment

- Temperature range . . . . . -40°C to +105°C

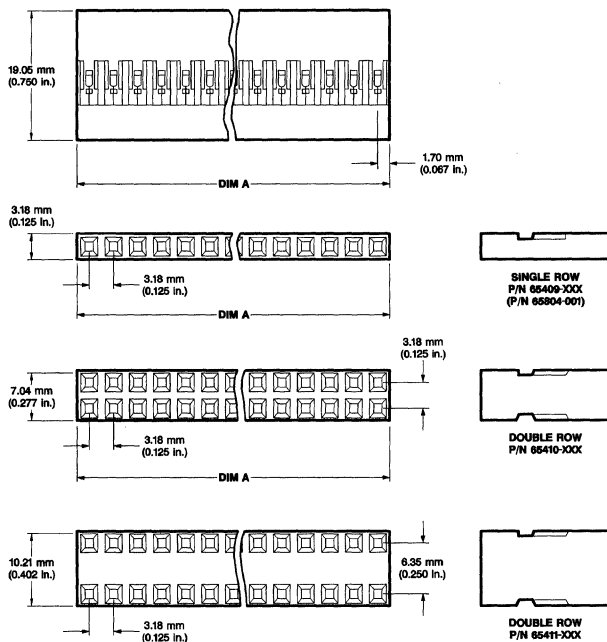
#### Packaging

- Antistatic bags

### Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawings . . . . .	By Part No.	Product Specifications . . . . .	BUS-12-100
Application Drawing . . . . .	TA-531	Product Samples . . . . .	Upon Request

## Description



A163386-0354

## Application Data

Accepts crimp-to-wire Maxi-PV™ 18–32 AWG.

## Ordering Data

Number of Positions	Single Row			Number of Positions	Double Row		Dimension A max	
	Part Numbers	3.18 x 6.35 mm (0.125 x 0.250 in.)			Part Numbers 3.18 x 3.18mm (0.125 x 0.125 in.)	Part Numbers 3.18 x 6.35mm (0.125 x 0.250 in.)	mm	in.
		mm	in.					
1	65804-001	3.30	0.130	4	65410-004	65411-004	6.78	0.267
2	65409-002	6.78	0.267	6	65410-006	65411-006	9.96	0.392
3	65409-003	9.96	0.392	8	65410-008	65411-008	13.13	0.517
4	65409-004	13.13	0.517	10	65410-010	65411-010	16.31	0.642
5	65409-005	16.31	0.642	12	65410-012	65411-012	19.48	0.767
6	65409-006	19.48	0.767	14	65410-014	65411-014	22.66	0.892
7	65409-007	22.66	0.892	16	65410-016	65411-016	25.83	1.017
8	65409-008	25.83	1.017	18	65410-018	65411-018	29.01	1.142
9	65409-009	29.01	1.142	20	65410-020	65411-020	32.18	1.267
10	65409-010	32.18	1.267	22	65410-022	65411-022	35.36	1.392
11	65409-011	35.36	1.392	24	65410-024	65411-024	38.53	1.517
12	65409-012	38.53	1.517	26	65410-026	65411-026	41.71	1.642
13	65409-013	41.71	1.642	28	65410-028	65411-028	44.88	1.767
14	65409-014	44.88	1.767	30	65410-030	65411-030	48.06	1.892
15	65409-015	48.06	1.892	32	65410-032	65411-032	51.23	2.017
16	65409-016	51.23	2.017	34	65410-034	65411-034	54.41	2.142
17	65409-017	54.41	2.142	36	65410-036	65411-036	57.58	2.267
18	65409-018	57.58	2.267	38	65410-038	65411-038	60.76	2.392
19	65409-019	60.76	2.392	40	65410-040	65411-040	63.93	2.517
20	65409-020	63.93	2.517	42	65410-042	65411-042	67.11	2.642
21	65409-021	67.11	2.642	44	65410-044	65411-044	70.28	2.767
22	65409-022	70.28	2.767	46	65410-046	65411-046	73.46	2.892
23	65409-023	73.46	2.892	48	65410-048	65411-048	76.63	3.017
24	65409-024	76.63	3.017	50	65410-050	65411-050	79.81	3.142
25	65409-025	79.81	3.142	52	65410-052	65411-052	82.98	3.267
26	65409-026	82.98	3.267	54	65410-054	65411-054	86.16	3.392
27	65409-027	86.16	3.392	56	65410-056	65411-056	89.33	3.517
28	65409-028	89.33	3.517					



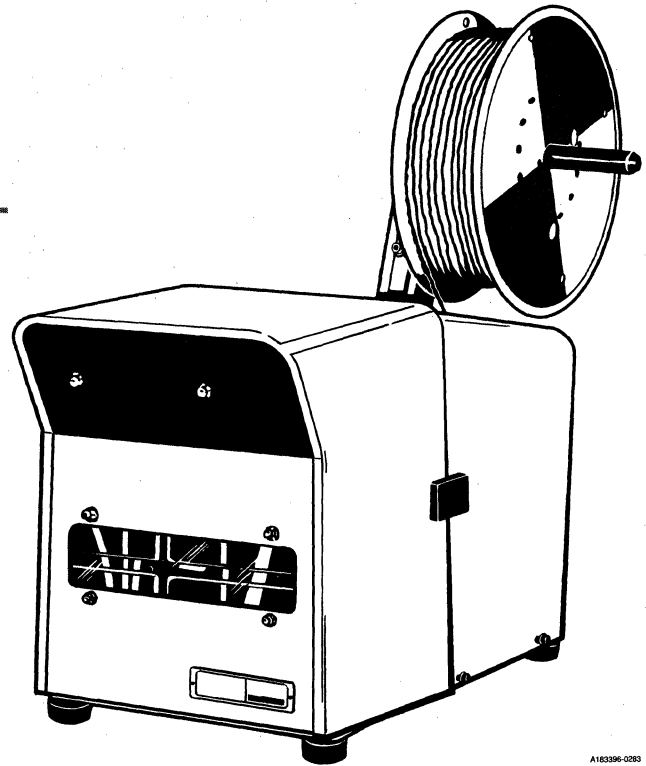
# Application Equipment for Crimp-to-Wire PV™ Receptacles and Pins

## PV-250A Semi-Automatic Crimping Machine

---

### Features

- For terminating Mini-PV and Maxi-PV receptacles.
- Simple to operate.
- Pneumatically operated.
- Low cost.



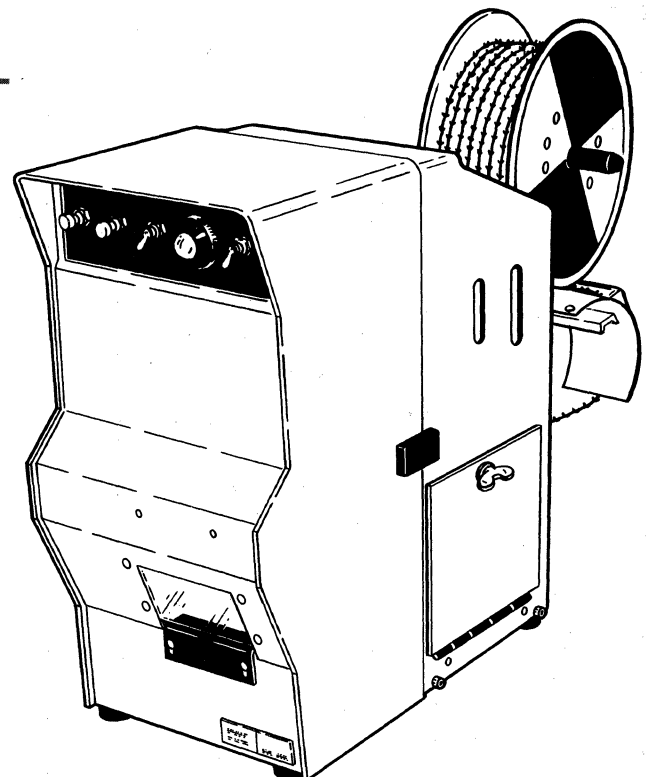
A183396-0283

## PV-272 Semi-Automatic Stripper-Crimper Machine

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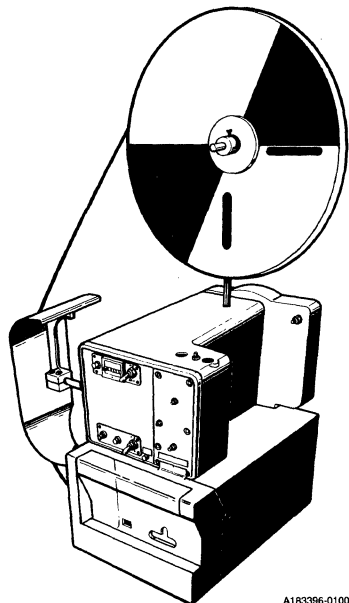
### Features

- For terminating Mini-PV and Maxi-PV receptacles.
- Simple to operate.
- Pneumatically operated.
- Strips and crimps the wire in one step.



A183396-0284

## OL-740 Semi-Automatic Two-Ton Bench Press

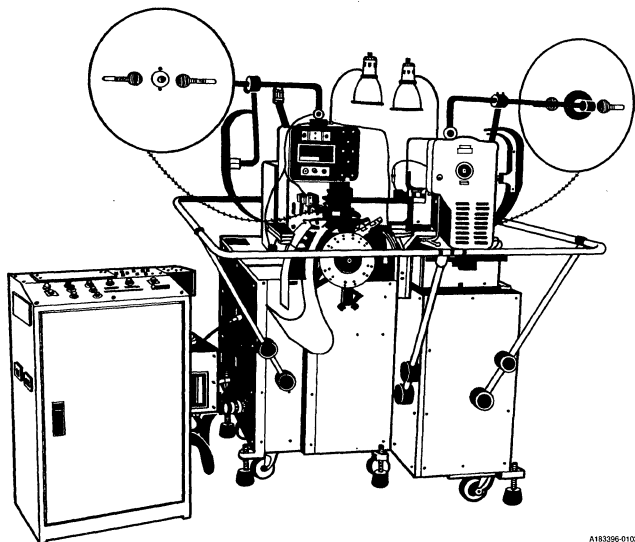


A183396-0100

### Features

- For terminating Mini-PV™ and Maxi-PV receptacles and pin contacts.
- Ideal for medium-volume production requirements.
- Rugged construction, requires little maintenance.
- Electrically operated.
- Uses precision interchangeable crimpers. These applicators allow quick tooling changeovers for various wire sizes and styles of terminals. Fine-tuning knobs allow fast, precise adjustment of terminal wire and insulation barrel crimp height.
- Easy to operate.

## OL-700 Fully Automatic Application Machine (14–26 AWG)



A183396-0102

### Features

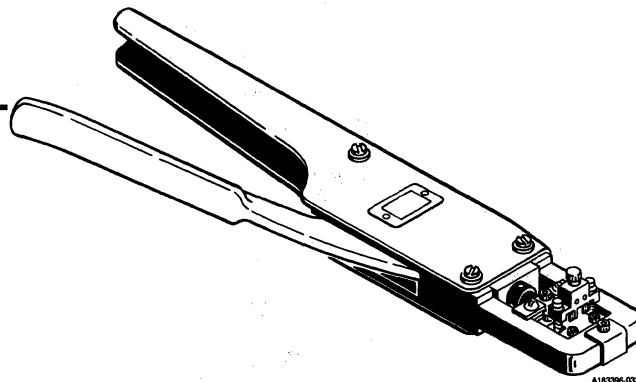
- For terminating Mini-PV and Maxi-PV receptacles and pin contacts.
- Ideal for high-volume production requirements.
- Automatically measures wire lengths ranging from 3 to 393 inches, cuts the wire, strips insulation off one or both ends, crimps a terminal to one or both ends, and stacks the terminated wires.
- Uses precision interchangeable crimpers. These applicators allow quick tooling changeovers for various wire sizes and styles of terminals. Fine-tuning knobs allow fast, precise adjustment of terminal wire and insulation barrel crimp height.
- Simple to learn, easy to operate.

## Hand Tools

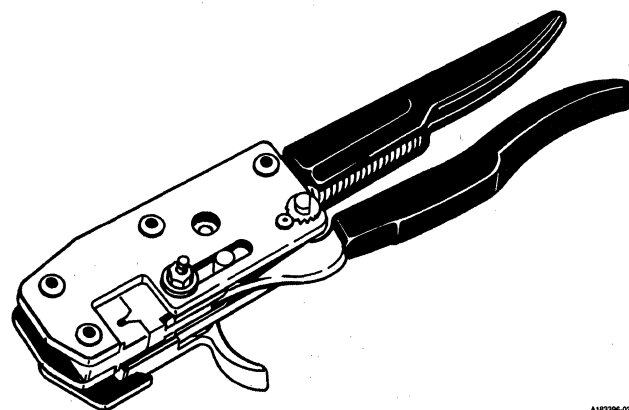
### Features

- Lightweight.
- Rugged.
- Ratchet-action handle ensures complete crimp cycle.

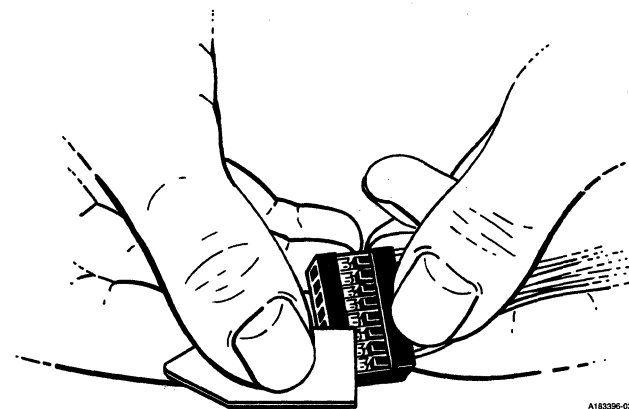
HT-73 Mini-PV™, 18--20 AWG  
HT-95 Mini-PV, 22--32 AWG  
HT-112 Mini-PV, 32--36 AWG  
HT-49 Maxi-PV, 18--20 AWG  
HT-48 Maxi-PV, 22--26 AWG  
HT-47 Maxi-PV, 28--32 AWG  
HT-110 Pin contacts, 18--20 AWG  
HT-102 Pin contacts, 22--32 AWG



HT-208 Mini-PV, 22--26 AWG  
HT-213 Mini-PV, 28--32 AWG



HT-80 PV removal tool



**Technical Data**

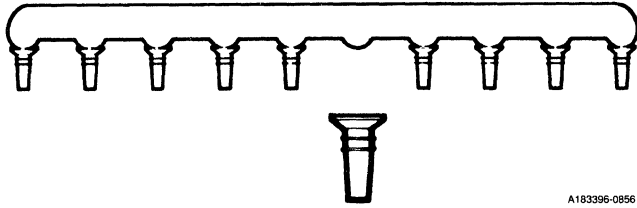
	<b>PV-250A</b>	<b>PV-272</b>	<b>OL-740</b>	<b>OL-700</b>
Application rate (1) (crimps/hour)	1000	1500	2400	10,000 (5000 leads, both ends)
Air consumption	35.4 L/min. (1.25 scfm)	49 L/min. (1.73 scfm)	N/A	8.5 L/min. (0.3 scfm)
Air pressure	552 kPa (80 psi)	552 kPa (80 psi)	N/A	552 kPa (80 psi)
Electrical requirements	115 V ac, 60 Hz 36 mA	115 V ac, 60 Hz 36 mA	115 V ac, 60 Hz 10 amp	220 V ac, 50/60 Hz 3-phase, 15 amp
Machine weight	30 kg (65 lb)	68 kg (150lb)	95 kg (209 lb)	719 kg (1584 lb)
Controller weight	N/A	N/A	N/A	80 kg (176 lb)
Machine dimensions (h x w x d)	57 x 29 x 71 cm (22.5 x 11.5 x 28 in.)	61 x 27 x 73 cm (24 x 10.5 x 30 in.)	114 x 51 x 58 cm (45 x 30 x 23 in.)	208 x 157 x 226 cm (82 x 62 x 98 in.)
Controller dimensions (h x w x d)	N/A	N/A	N/A	99 x 72 x 47 cm (39 x 28.5 x 18.5 in.)
Recommended floor space (l x w)	N/A	N/A	N/A	3 x 3 m (10 x 10 ft)
Recommended annual usage	Up to 200,000 per year	Up to 2 million per shift	Up to 4 million per shift	Greater than 4 million per shift
Function	Crimp	Strip and crimp	Crimp	Cut
Wire size range	18-36	18-32(2)	18-36	18-26(2)
Inter-changeable applicators	No	No	Yes	Yes

- (1) Application rates given are approximate. Actual rates achieved depend on operator dexterity.  
 (2) Supply sample of actual wire to be used for Berg testing as some types of insulation may require machine modifications.

**Application Equipment for Crimp-to-Wire  
PV™ Receptacles and Pins**

<b>Ordering Data</b>					
<b>Machines (for strip-form terminals)</b>	<b>Product</b>	<b>Wire Size (AWG)</b>	<b>Part Number</b>		
PV-250A Semi-automatic crimping machine	Mini-PV™	18-20	107416-001		
		22-26	107416-002		
		28-32	107416-003		
		32-36	107416-004		
	Maxi-PV	18-20	107416-005		
		22-26	107416-006		
	Mini-PV	28-32	107416-007		
PV-272 Semi-automatic crimping machine	Maxi-PV	18-20	118616-001		
		22-26	118616-002		
		28-32	118616-003		
		18-20	118616-004		
		22-26	118616-005		
OL-740 Semi-automatic two-ton bench press Press only Applicators	---	---	133911-002		
	Mini-PV	18-20	133867-004		
		22-26	133867-005		
		28-32	133867-006		
		32-36	133867-008		
	Stackable Mini-PV	22-26	144830-001		
		Maxi-PV	18-20	140787-001	
	Pin	22-26	140787-002		
		28-32	140787-003		
		18-20	132818-004		
		22-26	132818-005		
	Press with applicator	Mini-PV	28-32	132818-006	
			18-20	133911-510	
			22-26	133911-511	
			28-32	133911-512	
		Stackable Mini-PV	32-36	133911-513	
			Maxi-PV	22-26	133911-522
			18-20	133911-516	
	Pin	22-26	133911-517		
		28-32	133911-518		
18-20		133911-507			
22-26		133911-508			
28-32		133911-509			
OL-700 Fully automatic application machine (14-26 AWG) Machine only	---	---	146085-501		
	Mini-PV	18-20	133867-001		
		22-26	133867-002		
	Maxi-PV	18-20	140785-001		
		22-26	140785-002		
	Pin	18-20	132818-001		
		22-26	132818-002		
HT-73 Hand tool for loose piece terminals	Mini-PV	18-20	HT-73		
HT-95 Hand tool for loose piece terminals	Mini-PV	22-32	HT-95		
HT-112 Hand tool for loose piece terminals	Mini-PV	32-36	HT-112		
HT-208 Hand tool for loose piece terminals	Mini-PV	22-26	HT-208		
HT-213 Hand tool for loose piece terminals	Mini-PV	28-32	HT-213		
HT-49	Maxi-PV	18-20	HT-49		
HT-48	Maxi-PV	22-26	HT-48		
HT-47	Maxi-PV	28-32	HT-47		
HT-110	Pin	18-20	HT-110		
HT-102	Pin	22-32	HT-102		

# Accessories for BergCon® PV™ Receptacles and Latch Housings



**Polarization Plug**

A183396-0856

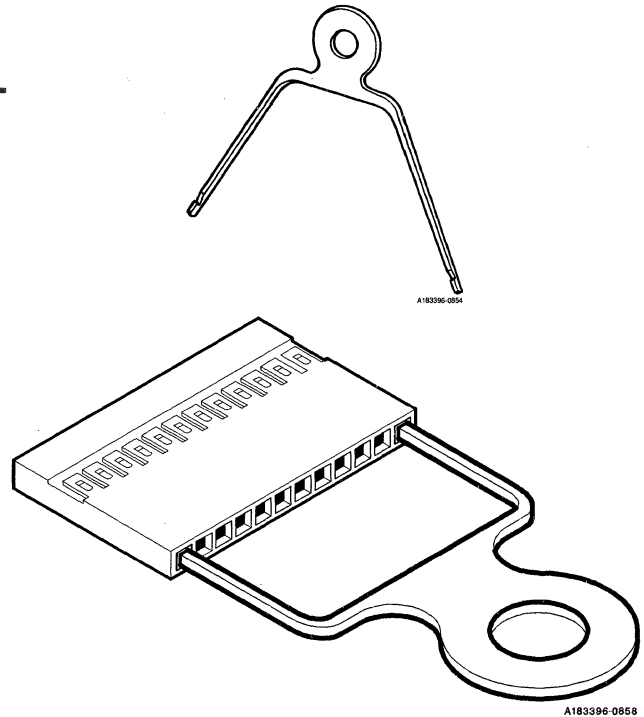
<b>Technical Data</b>			
Materials	Color	Temperature Range	Packaging
Nylon (UL 94 V-0)	White	-40°C to +105°C	Boxes

<b>Ordering Data</b>	
Description	Part Number
For Mini-Latch and Maxi-Latch Housings	65307-001

## Strain Relief

### Features

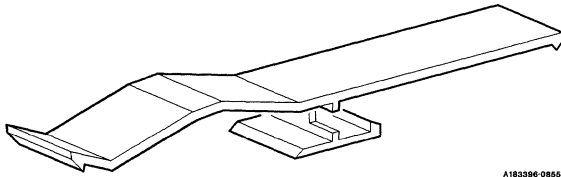
- For use with Mini-Latch housings.



Technical Data			
Materials	Color	Temperature Range	Packaging
Nylon (UL 94 V-0)	Blue	-40°C to +65°C	Boxes

Ordering Data			
Housing Spacing			Part Number
2.54 mm (0.100 in.)	3.18 mm (0.125 in.)	3.81 mm (0.150 in.)	
6--25 pos.	5--20 pos.	4--17 pos.	65921-001
22--36 pos.	18--32 pos.	15--27 pos.	65921-002

## Latch



A183396-0855

### Features

- For crimp-to-wire male-female connections in Mini-Latch housings.

<b>Technical Data</b>			
Materials	Color	Temperature Range	Packaging
Modified polyphenylene oxide (UL 94 V-1)	Blue	-40°C to +105°C	Boxes

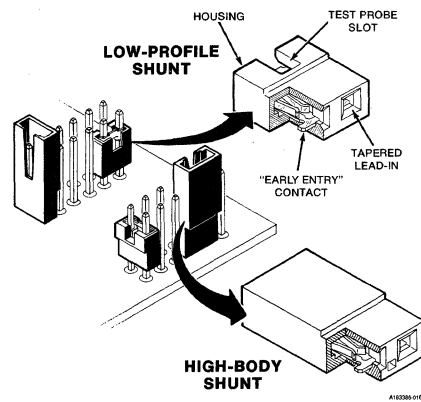
<b>Ordering Data</b>	
Description	Part Number
Single-row	67008-001
Double-row	67009-001



# Shunts

2.54 mm (0.100 in.) Centerline

## Low-Profile and High-Body Shunts BergCon® System



### Features

- 1-Row: 2 positions.
- Reliable, cost-effective alternatives to switches for on-board programming.
- Dual-beam contacts for added reliability.
- Both low-profile and high-body shunts can be stacked side-by-side and end-to-end.
- Slotted cutout in housing simplifies electrical testing.
- Low-profile shunt stands just 5.08 mm (0.200 in.) above pc board and is ideally suited for high-density packaging applications.
- The taller high-body shunt is easy to handle during installation.

### Options

- Contact your Berg Electronics technical representative for non-standard colors.


### Mating Data


Mates with 0.64 mm (0.025 in.) square pins of 3.68 mm (0.145 in.) minimum length. Maximum pin length is unrestricted since pins may extend through top.

#### Berg Electronics Products Page

- BergStik® Headers ..... 13-50
- BergPin® Terminals 13-106 to 13-116
- Press-Fit Pin Terminals ..... 13-116

### Approvals and Certifications

 File no. E66906

 File no. LR46923

### Technical Data

#### Materials

- Housing ..... Glass-filled thermoplastic polyester (UL 94 V-0)
  - ▶ Color ..... Black
- Contact material ..... Phosphor-bronze

#### Plating

- Underplate ..... 1.27 µm (50 µin.) nickel
- Finish ..... 0.38 µm (15 µin.) gold or 0.76 µm (30 µin.) gold or 2.54 µm (100 µin.) tin-lead

#### Electrical Performance

- Insulation resistance ..... 50,000 MΩ min
- Contact resistance ..... 15 mΩ max initial, 20 mΩ max after environmental tests
- Withstanding voltage ..... 800 V ac rms (sea level)

- Current rating ..... 2.5 amp max per contact

#### Mechanical Performance

- Insertion force per contact
  - ▶ Gold finish ..... 450 gf (1.0 lbf) max
  - ▶ Tin-lead finish ..... 500 gf (1.1 lbf) max
- Withdrawal force per contact
  - ▶ Gold finish ..... 30 gf (0.06 lbf) min
  - ▶ Tin-lead finish ..... 30 gf (0.06 lbf) min
- Durability (mating cycles) ..... 50 cycles for gold finish  
25 cycles for tin-lead finish

#### Operating Environment

- Temperature range ..... -55°C to +120°C

#### Packaging

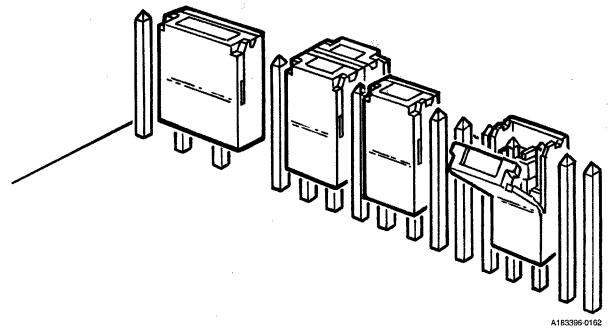
- Bags



# Shunts

2.54 mm (0.100 in.) and 5.08 mm (0.200 in.)  
Centerlines

## Mini-Jump™ Shunts BergCon® System



### Features

- 1-Row: 2 positions.
- Reliable, cost-effective alternatives to switches for on-board programming.
- PV™ contacts have beryllium-copper springs to provide high retention and normal forces for excellent electrical performance after repeated cycling.
- Stackable on 2.54 mm (0.100 in.) centers.
- Closed top protects fingertips during application.

### Options

- Contact your Berg Electronics technical representative for non-standard colors.


### Mating Data


Mates with 0.64 mm (0.025 in.) square or round pins of 4.83 mm (0.190 in.) min length. Pins bottom at 8.13 mm (0.320 in.)

#### Berg Electronics Products Page

- BergStik® Headers . . . . . 13-50
- BergPin® Terminals. 13-106 to 13-116
- Press-Fit Pin Terminals . . . . . 13-116

### Approvals and Certifications

 File no. E66906

 File no. LR46923

### Technical Data

#### Materials

- Housing . . . . . Thermoplastic polyester (UL 94 V-0)
  - ▶ Color . . . . . Blue for 65474, Black for 65771
- Contact
  - ▶ Body material . . . . . Brass
  - ▶ Spring material . . . . . Beryllium-copper

#### Plating

- Underplate . . . . . 1.27 μm (50 μin.) nickel
- Finish . . . . . 0.76 μm (30 μin.) gold or 1.02 μm (40 μin.) gold or 2.54 μm (100 μin.) tin-lead in contact area

#### Electrical Performance

- Insulation resistance . . . . . 50,000 MΩ min

- Contact resistance . . . . . 11 mΩ max initial, 15 mΩ after environmental tests
- Withstanding voltage . . . . . 2800 V ac rms (sea level)
- Current rating . . . . . 3 amp max per contact

#### Mechanical Performance

- Insertion force per contact . . . . . 450 gf (1.0 lbf) max
- Withdrawal force per contact . . . . . 50 gf (0.1 lbf) min
- Durability (mating cycles) . . . . . 50 cycles

#### Operating Environment

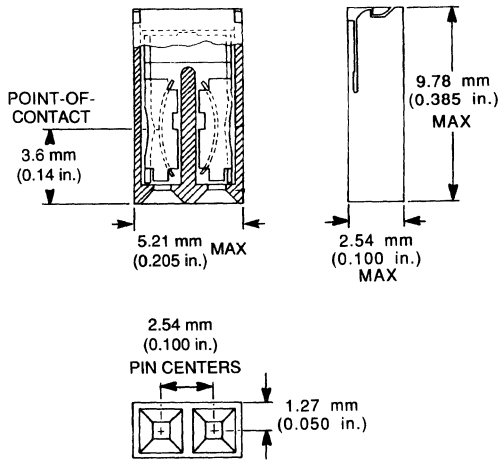
- Temperature range . . . . . -55°C to +120°C

#### Packaging

- Bags

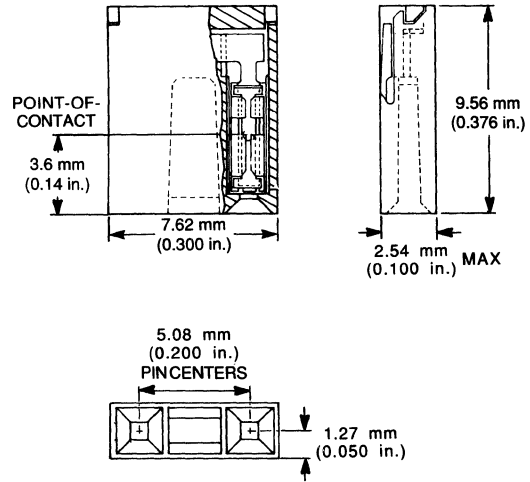
### Description

**MINI-JUMP™ SHUNT**  
 2.54 mm (0.100 in.)  
 CENTERLINES  
 65474-XXX



A183396-0163

**MINI-JUMP™ SHUNT**  
 5.08 mm (0.200 in.)  
 CENTERLINES  
 65771-XXX



A183396-0164

### Ordering Data

Base number specifies centerline spacing

Dash number specifies contact finish and housing color

□ □ □ □ □ - X X X

Base Numbers	Centerline Spacing		Color Housing	Finish		
	mm	in.		0.76 μm (30 μin.) gold	1.02 μm (40 μin.) gold	2.54 μm (100 μin.) tin-lead
65474	2.54	0.100	Blue	-010	-001	-002
65771	5.08	0.200	Black	-005	-001	-002

### Customer Support Materials

**Description**  
 Customer Product Drawings ..... By Base Number  
 Product Specifications ..... BUS-12-023

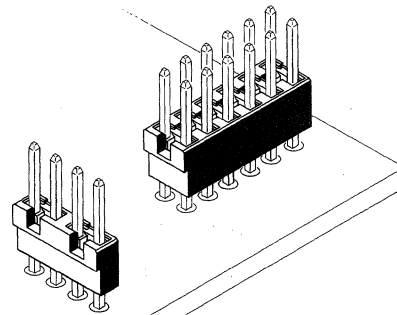
**Description**  
 Product Samples ..... By Part Number

# Shunts

2.54 x 2.54 mm (0.100 x 0.100 in.)

Centerlines

## Low-Profile, Multi-Position Shunts BergCon® System



A182006-0107

### Features

- 1-row: 2 through 10 positions.  
2-row: 4 through 20 positions.
- Reliable, cost-effective alternatives to switches for on-board programming.
- Dual-beam contacts for added reliability.
- Can be stacked side-by-side and end-to-end on 2.54 x 2.54 mm (0.100 x 0.100 in.) centerlines.
- Stands just 5.08 mm (0.200 in.) above pc board.
- Replaces individual shunts to lower total applied cost.

### Options

- Polarizing plug available; order part number 65762-001.

- Contact your Berg Electronics technical representative for non-standard contact finishes or colors.


### Mating Data


Mates with 0.64 mm (0.025 in.) square pins of 3.68 mm (0.145 in.) minimum length. Maximum pin length is unrestricted since pins may extend through top.

#### Berg Electronics Products Page

- BergStik® Headers . . . . . 13-50
- BergPin® Terminals. 13-106 to 13-116
- Press-Fit Pin Terminals . . . . . 13-116

### Approvals and Certifications

 File no. E66906

 File no. LR46923

### Technical Data

#### Materials

- Housing . . . . . Thermoplastic polyester (UL 94 V-0)
  - ▶ Color . . . . . Black
- Contact . . . . . Phosphor-bronze

#### Plating

- Underplate . . . . . 1.27 µm (50 µin.) nickel
- Finish . . . . . 0.76 µm (30 µin.) gold

#### Electrical Performance

- Insulation resistance . . . . . 50,000 MΩ min
- Contact resistance . . . . . 15 mΩ max initial, 20 mΩ max after environmental tests

- Withstanding voltage . . . . . 800 V ac rms (sea level)
- Current rating . . . . . 2.0 amp max per contact

#### Mechanical Performance

- Insertion force per contact . . . . . 450 gf (1.0 lbf) max
- Withdrawal force per contact . . . . . 30 gf (0.06 lbf) min
- Durability (mating cycles) . . . . . 50

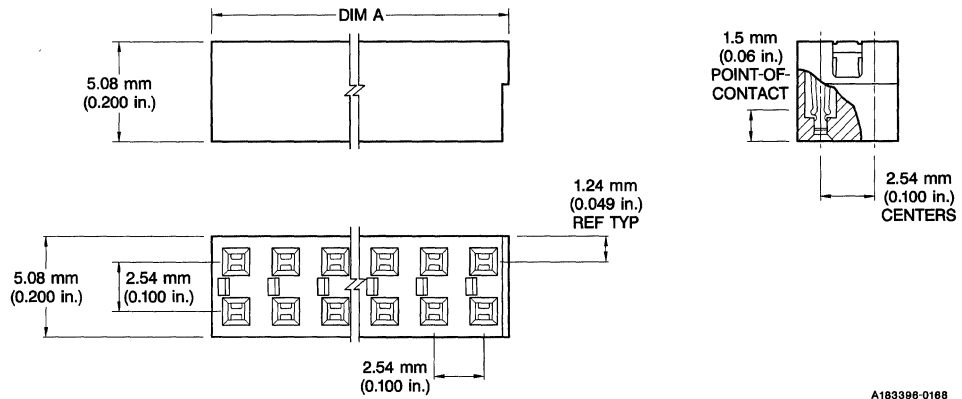
#### Operating Environment

- Temperature range . . . . . -55°C to +120°C

#### Packaging

- Bags

**Description**  
**2-Row Multi-Position Shunts**  
**69145-2XX**



A183396-0168

**Ordering Data**  
**Base Number 69145**

Base number specifies shunt configuration

First digit specifies contact finish  
[2 is 0.76  $\mu$ m (30  $\mu$ m.) gold]

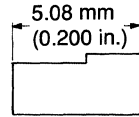
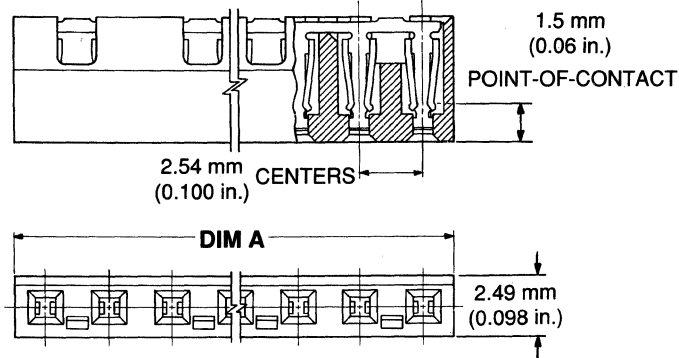
□ □ □ □ □ - 2 X X

Last two digits specify number of positions

Number of Positions	Dash Numbers	Dimension A	
		mm	in.
4	-204	5.08	0.200
6	-206	7.62	0.300
8	-208	10.16	0.400
10	-210	12.70	0.500
12	-212	15.24	0.600
14	-214	17.78	0.700
16	-216	20.32	0.800
18	-218	22.86	0.900
20	-220	25.40	1.000

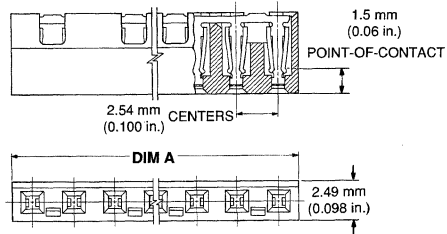
**Shunts**  
2.54 x 2.54 mm (0.100 x in.)

**Description**  
**Bus Bar Shunts**  
**69144-2XX**

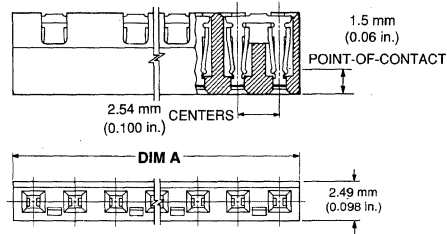


A183396-0169

**1-Row Multi-Position Shunts**  
**69146-2XX**



A183396-0169



A183396-0170

**Ordering Data**  
**Bus Bar Shunts---Base Number 69144**  
**1-Row Multi-Position Shunts---Base Number 69146**

Base number specifies shunt configuration

□ □ □ □ □ - 2 X X

First digit specifies contact finish  
[2 is 0.76 μm (30 μin.) gold]

Last two digits specify number of positions

Number of Positions	Dash Numbers	Dimension A	
		mm	in.
4	-204	10.16	0.400
6	-206	15.24	0.600
8	-208	20.32	0.800
10	-210	25.40	1.000
12	-212	30.48	1.200
14	-214	35.56	1.400
16	-216	40.64	1.600
18	-218	45.72	1.800
20	-220	50.80	2.000

**Customer Support Materials**

**Description**

**Order No.**

Customer Product Drawing ..... By Base Number  
 Product Specification ..... BUS-12-071

**Description**

**Order No.**

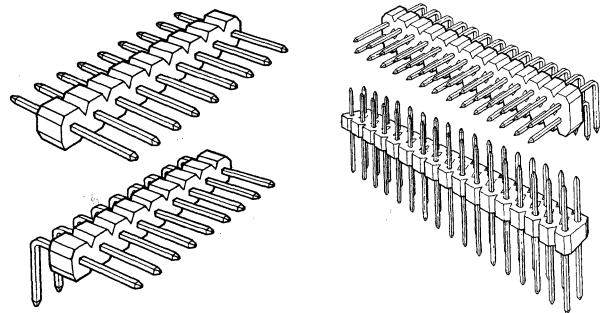
Product Samples ..... By Part Number



# Unshrouded Headers

2.54 x 2.54 mm (0.100 x 0.100 in.)  
Centerlines

**BergStik® II Headers**  
**BergCon® System**



A183396-0775

## Features

- 1-Row: 1 through 36 total positions.  
2-Row: 2 through 72 total positions.  
3-Row: 9 through 108 total positions.
- End-to-end and side-to-side stackable on 2.54 mm (0.100 in.) centerlines.
- Can be manually broken to the desired length.
- Drawn (not stamped) 0.64 mm (0.025 in.) square wire presents four surfaces of equal quality.
- Standoffs allow cleaning to eliminate soldering contaminants.
- Optional retention tail provides 2.224 N (0.5 lbf) minimum retention prior to soldering on 1.58 mm (0.062 in.) thick pc boards.
- High-temperature plastic for infra-red soldering operations.
- Available with gold, GXT™ (palladium nickel allow with gold flash) and tin-lead platings.

## Options

- Advanced ground.
- Retentive leg solder tails.
- Custom polarization available.

## Mating Data


Mates with 0.64 mm (0.025 in.) compatible receptacles on 2.54 mm (0.100 in.) centerlines.


Berg Electronics Products	Page
▪ Card Connectors . . . . .	13-122, 13-132, and 13-136
▪ PV™/Mini-latch Housing . . . . .	13-4 and 13-16
▪ Quickie III™ . . . . .	23-4
▪ Clincher™ . . . . .	20-2
▪ Mini-jump™ . . . . .	13-44

## Specifications

- MIL-G-45204
- MIL-P-55110
- MIL-P-81728
- QQ-W-343
- ASTM B-159

## Approvals and Certifications

 File no. E66906

 File no. LR46923

## Application Equipment

Description	Page
▪ Cutting tool HT-320 . . . . .	13-69

## Technical Data

### Materials

- Housing material . . . . . High temperature, Glass-filled PCT (UL 94 V-0)
  - ▶ Color . . . . . Black
  - ▶ Applicable soldering processes. . . . . Wave, Vapor-phase, IR reflow
- Pin . . . . . Phosphor-bronze

### Plating

- Underplate . . . . . 1.27 µm (50 µin.) nickel
- Finish . . . . . 0.38 µm (15 µin.) gold or 0.76 µm (30 µin.) gold or 1.27 µm (50 µin.) gold or 0.38 µm (15 µin.) GXT™ or 0.76 µm (30 µin.) GXT™
- Finish . . . . . 3.81 µm (150 µin.) tin-lead

### Electrical Performance

- Insulation resistance . . . . . 5000 MΩ min
- Withstanding voltage . . . . . 1500 V ac rms (sea level)

- Current rating . . . . . 3 amp continuous

### Mechanical Performance

- Retentive leg insertion force\* . . . . . >44.48 N (10 lbf) max\*
- Retentive leg connector retention. . . . . 2.22 N (0.5 lbf) min\*
- Contact retention (pin to housing). . . . . 8.88 N (2 lbf)

### Operating Environment

- Temperature range . . . . . -65°C to +130°C

### Packaging

- Antistatic Bags
- Antistatic Tubes . . . . . available on selected part numbers

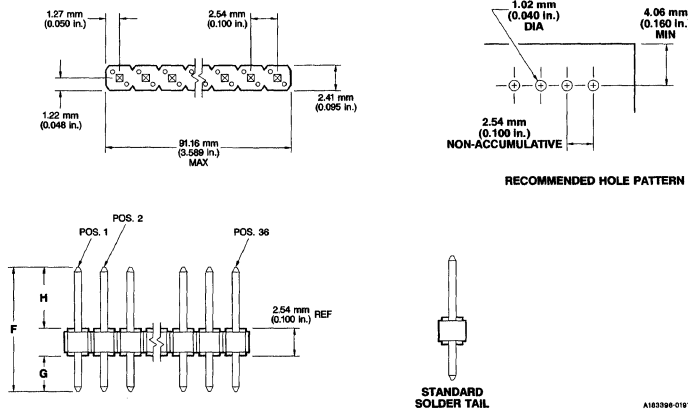
\*Per retentive pin-pair.

## Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawings . . . . .	By Part Number	Product Samples . . . . .	Upon Request
Product Specifications . . . . .	BUS-12-050	Test Data . . . . .	Upon Request
Product Substitutions . . . . .	Contact Technical Support		

## Description

### Straight 1-Row BergStik® II Headers



## Ordering Data

Base number specifies pin length and style

These digits specify total number of positions (1 through 36 available)

□ □ □ □ □ - X Y Y H

This digit specifies plating

High temperature plastic

0.76 µm (30 µin.) gold over 1.27 µm (50 µin.) nickel  
0.38 µm (15 µin.) gold over 1.27 µm (50 µin.) nickel  
1.27 µm (50 µin.) gold over 1.27 µm (50 µin.) nickel

-1YY  
-2YY  
-3YY

3.81 µm (150 µin.) tin-lead  
0.38 µm (15 µin.) GXT™ over 1.27 µm (50 µin.) nickel  
0.76 µm (30 µin.) GXT™ over 1.27 µm (50 µin.) nickel

-4YY  
-5YY  
-6YY

## Plating

Part Numbers	Dimensions					
	H-Mating (Length Above Plastic)		G-Tail (Length Below Plastic)		F (Overall Pin Length)	
	mm	in.	mm	in.	mm	in.
68797-XYHH	2.54	0.100	5.41	0.213	10.49	0.413
68659-XYHH	2.79	0.110	10.11	0.398	15.44	0.608
68796-XYHH	2.79	0.110	10.74	0.423	16.08	0.633
68657-XYHH	3.05	0.120	9.35	0.368	14.94	0.588
94611-XYHH	3.18	0.125	2.41	0.095	8.13	0.320
68033-XYHH	3.43	0.135	12.01	0.473	17.98	0.708
94063-XYHH	3.51	0.138	3.51	0.138	9.55	0.376
95104-XYHH	3.66	0.144	3.20	0.126	9.40	0.370
87827-XYHH	4.06	0.160	3.05	0.120	9.65	0.380
69751-XYHH	4.32	0.170	4.32	0.170	11.18	0.440
78998-XYHH	4.45	0.175	3.94	0.155	10.92	0.430
92020-XYHH	4.52	0.178	2.39	0.094	9.45	0.372
90719-XYHH	4.52	0.178	2.69	0.106	9.75	0.384
94094-XYHH	4.52	0.178	7.98	0.314	15.04	0.592
68705-XYHH	5.08	0.200	2.41	0.095	10.03	0.395
86506-XYHH	5.59	0.220	3.05	0.120	11.18	0.440
89232-XYHH	5.84	0.230	0.00	0.000	8.26	0.325
93992-XYHH	5.84	0.230	2.16	0.085	10.54	0.415
68000-XYHH	5.84	0.230	2.41	0.095	10.80	0.425
90726-XYHH	5.84	0.230	2.79	0.110	11.18	0.440
68001-XYHH	5.84	0.230	3.05	0.120	11.43	0.450
68002-XYHH	5.84	0.230	3.81	0.150	12.19	0.480
68031-XYHH	5.84	0.230	4.65	0.183	13.03	0.513
68003-XYHH	5.84	0.230	4.95	0.195	13.34	0.525
68032-XYHH	5.84	0.230	5.41	0.213	13.79	0.543
68730-XYHH	5.84	0.230	5.72	0.225	14.10	0.555
68630-XYHH	5.84	0.230	6.93	0.273	15.32	0.603
68717-XYHH	5.84	0.230	7.24	0.285	15.62	0.615
78240-XYHH	5.84	0.230	8.46	0.333	16.84	0.663
68479-XYHH	5.84	0.230	9.86	0.388	18.24	0.718
68418-XYHH	5.84	0.230	10.16	0.400	18.54	0.730
68632-XYHH	5.84	0.230	10.49	0.413	18.87	0.743
68443-XYHH	5.84	0.230	10.80	0.425	19.18	0.755
68416-XYHH	5.84	0.230	12.27	0.483	20.65	0.813
68642-XYHH	5.84	0.230	14.81	0.583	23.19	0.913
68465-XYHH	5.84	0.230	15.11	0.595	23.50	0.925

Ordering data shown is for our standard product offering. for non-standard or custom products, contact your authorized Berg Electronics representative.

Ordering Data (continued)

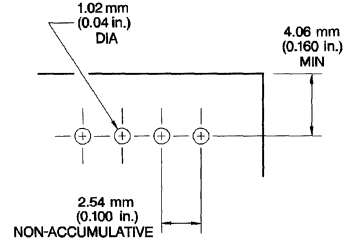
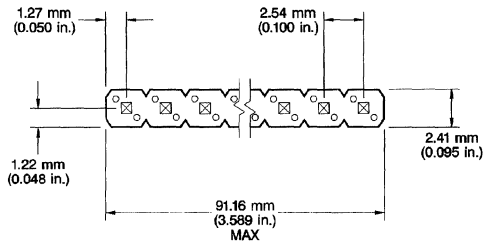
Part Numbers	Dimensions					
	H-Mating (Length Above Plastic)		G-Tail (Length Below Plastic)		F (Overall Pin Length)	
	mm	in.	mm	in.	mm	in.
68634-XYYH	5.84	0.230	17.35	0.683	25.73	1.013
68490-XYYH	5.84	0.230	17.65	0.695	26.04	1.025
68489-XYYH	5.84	0.230	19.43	0.765	27.81	1.095
93167-XYYH	5.97	0.235	1.50	0.059	10.01	0.394
68771-XYYH	6.86	0.270	2.54	0.100	11.94	0.470
68762-XYYH	6.99	0.275	5.41	0.213	14.94	0.588
68654-XYYH	7.11	0.280	17.02	0.670	26.67	1.050
69173-XYYH	7.49	0.295	3.43	0.135	13.46	0.530
90547-XYYH	7.95	0.313	2.41	0.095	12.90	0.508
68004-XYYH	8.08	0.318	2.72	0.107	13.34	0.525
78511-XYYH	8.08	0.318	3.05	0.120	13.67	0.538
68457-XYYH	8.08	0.318	3.30	0.130	13.92	0.548
68024-XYYH	8.08	0.318	3.81	0.150	14.43	0.568
68629-XYYH	8.08	0.318	5.16	0.203	15.77	0.621
68422-XYYH	8.08	0.318	5.41	0.213	16.03	0.631
68633-XYYH	8.08	0.318	5.72	0.225	16.33	0.643
68781-XYYH	8.08	0.318	6.93	0.273	17.55	0.691
68655-XYYH	8.08	0.318	7.37	0.290	17.98	0.708
69188-XYYH	8.08	0.318	8.46	0.333	19.08	0.751
68483-XYYH	8.08	0.318	10.59	0.417	21.21	0.835
94544-XYYH	8.38	0.330	3.30	0.130	13.97	0.550
68603-XYYH	8.51	0.335	3.05	0.120	14.10	0.555
68795-XYYH	8.59	0.338	1.57	0.062	12.70	0.500
68731-XYYH	8.64	0.340	11.18	0.440	22.35	0.880
88005-XYYH	8.66	0.341	2.41	0.095	13.61	0.536
69148-XYYH	8.89	0.350	0.00	0.000	11.43	0.450
68760-XYYH	8.89	0.350	8.97	0.353	20.40	0.803
92418-XYYH	8.99	0.354	3.00	0.118	14.53	0.572
68604-XYYH	9.65	0.380	3.05	0.120	15.24	0.600
68735-XYYH	10.06	0.396	13.21	0.520	25.81	1.016
95017-XYYH	10.16	0.400	1.52	0.060	14.22	0.560
93287-XYYH	10.16	0.400	2.16	0.085	14.86	0.585
68415-XYYH	10.16	0.400	2.92	0.115	15.62	0.615
79849-XYYH	10.16	0.400	3.05	0.120	15.75	0.620
95648-XYYH	10.16	0.400	3.94	0.155	16.64	0.655
68631-XYYH	10.16	0.400	5.16	0.203	17.86	0.703
68472-XYYH	10.16	0.400	10.49	0.413	23.19	0.913
68656-XYYH	10.16	0.400	15.57	0.613	28.27	1.113
68497-XYYH	10.85	0.427	2.16	0.085	15.54	0.612
90522-XYYH	11.00	0.433	3.43	0.135	16.97	0.668
71417-XYYH	11.40	0.449	2.92	0.115	16.87	0.664
78287-XYYH	11.63	0.458	3.05	0.120	17.22	0.678
68686-XYYH	11.63	0.458	11.63	0.458	25.81	1.016
79428-XYYH	12.07	0.475	3.05	0.120	17.65	0.695
68487-XYYH	12.57	0.495	2.79	0.110	17.91	0.705
69152-XYYH	12.70	0.500	3.05	0.120	18.29	0.720
95103-XYYH	13.49	0.531	11.00	0.433	27.03	1.064
68755-XYYH	13.54	0.533	13.54	0.533	29.62	1.166
68653-XYYH	13.72	0.540	2.41	0.095	18.67	0.735
68658-XYYH	14.99	0.590	3.30	0.130	20.83	0.820
68689-XYYH	15.24	0.600	5.41	0.213	23.19	0.913
68456-XYYH	15.49	0.610	2.92	0.115	20.96	0.825
78290-XYYH	16.51	0.650	12.70	0.500	31.75	1.250
87204-XYYH	17.15	0.675	3.05	0.120	22.73	0.895
68466-XYYH	17.70	0.697	3.25	0.128	23.50	0.925
86793-XYYH	17.78	0.700	2.54	0.100	22.86	0.900
88706-XYYH	17.78	0.700	2.54	0.100	22.86	0.900
68652-XYYH	17.78	0.700	17.02	0.670	37.34	1.470
93944-XYYH	18.06	0.711	3.30	0.130	23.90	0.941
87241-XYYH	19.81	0.780	3.05	0.120	25.40	1.000
86899-XYYH	20.32	0.800	3.05	0.120	25.91	1.020
87916-XYYH	21.08	0.830	3.25	0.128	26.87	1.058
91276-XYYH	22.86	0.900	5.72	0.225	31.12	1.225
95655-XYYH	24.61	0.969	2.41	0.095	29.57	1.164
87185-XYYH	26.49	1.043	2.41	0.095	31.45	1.238

Ordering data shown is for our standard product offering. for non-standard or custom products, contact your authorized Berg Electronics representative.

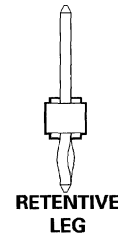
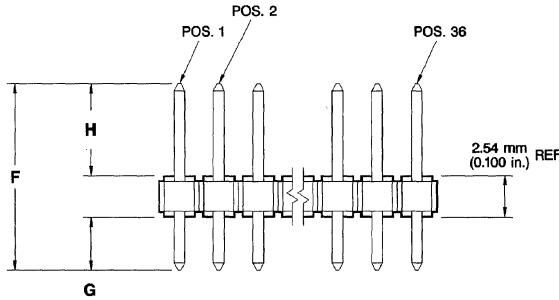
## Description

### Straight 1-Row BergStik® II Headers

### Retentive Leg

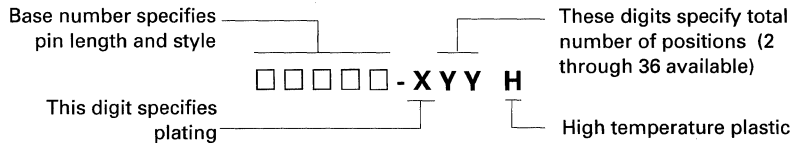


RECOMMENDED HOLE PATTERN



A183396-01978

## Ordering Data



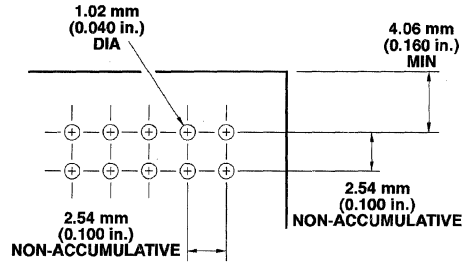
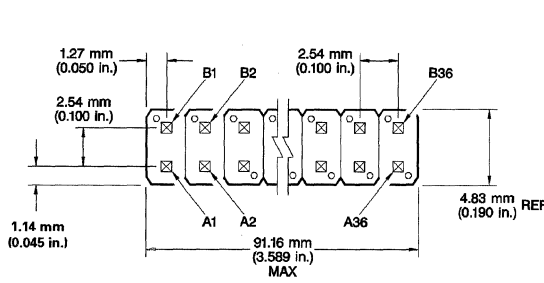
Plating	Plating
0.76 µm (30 µin.) gold over 1.27 µm (50 µin.) nickel	-1YY
0.38 µm (15 µin.) gold over 1.27 µm (50 µin.) nickel	-2YY
1.27 µm (50 µin.) gold over 1.27 µm (50 µin.) nickel	-3YY
3.81 µm (150 µin.) tin-lead	-4YY
0.38 µm (15 µin.) GXT™ over 1.27 µm (50 µin.) nickel	-5YY
0.76 µm (30 µin.) GXT™ over 1.27 µm (50 µin.) nickel	-6YY

Part Numbers	Dimensions					
	H-Mating (Length Above Plastic)		G-Tail (Length Below Plastic)		F (Overall Pin Length)	
	mm	in.	mm	in.	mm	in.
86505-XYH	5.59	0.220	3.05	0.120	11.18	0.440
94549-XYH	5.84	0.230	2.16	0.085	10.54	0.415
90603-XYH	5.84	0.230	2.54	0.100	10.92	0.430
69190-XYH	5.84	0.230	3.05	0.120	11.43	0.450
78229-XYH	8.08	0.318	3.05	0.120	13.67	0.538
78538-XYH	10.16	0.400	3.05	0.120	15.75	0.620
79429-XYH	12.07	0.475	3.05	0.120	17.65	0.695
87918-XYH	12.95	0.510	3.05	0.120	18.54	0.730
78594-XYH	13.72	0.540	3.05	0.120	19.30	0.760
87036-XYH	15.49	0.610	3.05	0.120	21.08	0.830
87452-XYH	15.75	0.620	3.05	0.120	21.34	0.840
90610-XYH	18.47	0.727	2.54	0.100	23.55	0.927
87453-XYH	19.56	0.770	3.05	0.120	25.15	0.990
87280-XYH	19.81	0.780	3.05	0.120	25.40	1.000

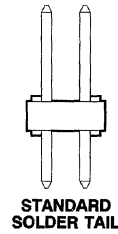
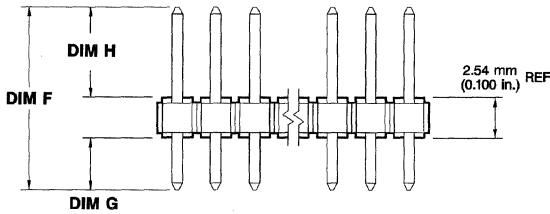
Ordering data shown is for our standard product offering. for non-standard or custom products, contact your authorized Berg Electronics representative.

**Unshrouded Headers**  
**2.54 x 2.54 mm (0.100 x 0.100 in.)**

**Description**  
**Straight 2-Row BergStik® II Headers**



**RECOMMENDED HOLE PATTERN**

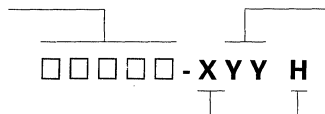


**STANDARD SOLDER TAIL**

A183396-0198 A

**Ordering Data**

Base number specifies pin length and style



These digits specify total number of positions (2 through 72)

This digit specifies plating

High temperature plastic

**Plating**

0.76 µm (30 µin.) gold over 1.27 µm (50 µin.) nickel	-1YY	3.81 µm (150 µin.) tin-lead	-4YY
0.38 µm (15 µin.) gold over 1.27 µm (50 µin.) nickel	-2YY	0.38 µm (15 µin.) GXT™ over 1.27 µm (50 µin.) nickel	-5YY
1.27 µm (50 µin.) gold over 1.27 µm (50 µin.) nickel	-3YY	0.76 µm (30 µin.) GXT™ over 1.27 µm (50 µin.) nickel	-6YY

Part Numbers	Dimensions					
	H-Mating (Length Above Plastic)		G-Tail (Length Below Plastic)		F (Overall Pin Length)	
	mm	in.	mm	in.	mm	in.
95105-XYH	3.66	0.144	3.20	0.126	9.40	0.370
95645-XYH	3.81	0.150	2.54	0.100	8.89	0.350
78269-XYH	4.83	0.190	2.41	0.095	9.78	0.385
79425-XYH	4.83	0.190	3.05	0.120	10.41	0.410
93217-XYH	5.08	0.200	2.41	0.095	10.03	0.395
69157-XYH	5.08	0.200	2.79	0.110	10.41	0.410
68783-XYH	5.84	0.230	1.14	0.045	9.53	0.375
67996-XYH	5.84	0.230	2.41	0.095	10.80	0.425
68692-XYH	5.84	0.230	2.54	0.100	10.92	0.430
68737-XYH	5.84	0.230	2.79	0.110	11.18	0.440
67997-XYH	5.84	0.230	3.05	0.120	11.43	0.450
68602-XYH	5.84	0.230	3.81	0.150	12.19	0.480
68739-XYH	5.84	0.230	3.96	0.156	12.34	0.486
68438-XYH	5.84	0.230	5.72	0.225	14.10	0.555
69133-XYH	5.84	0.230	7.24	0.285	15.62	0.615
68799-XYH	5.84	0.230	15.11	0.595	23.50	0.925
78286-XYH	6.10	0.240	4.06	0.160	12.70	0.500
86503-XYH	6.35	0.250	3.05	0.120	11.94	0.470
68491-XYH	6.48	0.255	3.05	0.120	12.07	0.475
78212-XYH	6.60	0.260	8.89	0.350	18.03	0.710
68481-XYH	7.24	0.285	2.41	0.095	12.19	0.480
68734-XYH	7.24	0.285	5.84	0.230	15.62	0.615
87203-XYH	7.49	0.295	3.81	0.150	13.84	0.545
78988-XYH	7.75	0.305	3.43	0.135	13.72	0.540

Ordering data shown is for our standard product offering. for non-standard or custom products, contact your authorized Berg Electronics representative.

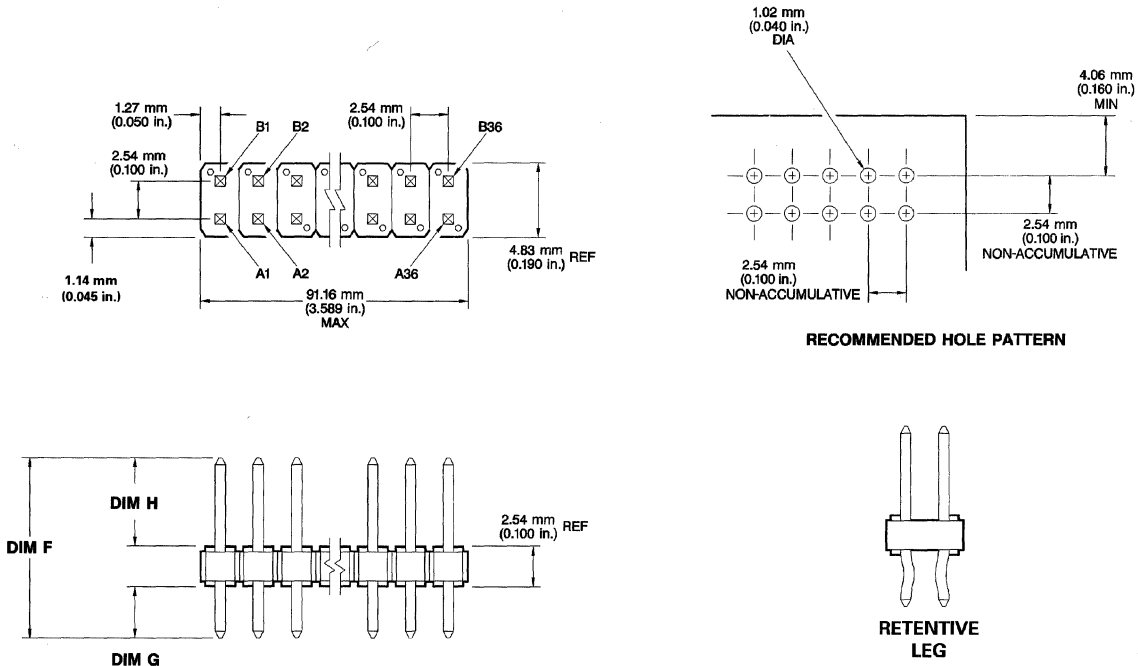
**Ordering Data (Cont'd)**

Part Numbers	Dimensions					
	H-Mating (Length Above Plastic)		G-Tail (Length Below Plastic)		F (Overall Pin Length)	
	mm	in.	mm	in.	mm	in.
94010-XYHH	7.77	0.306	8.89	0.350	19.20	0.756
78933-XYHH	7.87	0.310	7.24	0.285	17.65	0.695
67998-XYHH	8.08	0.318	2.72	0.107	13.34	0.525
68690-XYHH	8.08	0.318	2.92	0.115	13.54	0.533
68691-XYHH	8.08	0.318	3.05	0.120	13.67	0.538
67999-XYHH	8.08	0.318	3.30	0.130	13.92	0.548
78233-XYHH	8.08	0.318	3.81	0.150	14.43	0.568
93216-XYHH	8.08	0.318	3.94	0.155	14.55	0.573
87894-XYHH	8.08	0.318	4.32	0.170	14.94	0.588
68743-XYHH	8.08	0.318	5.59	0.220	16.21	0.638
68779-XYHH	8.08	0.318	8.08	0.318	18.69	0.736
68716-XYHH	8.08	0.318	10.41	0.410	21.03	0.828
68749-XYHH	8.08	0.318	10.67	0.420	21.29	0.838
68693-XYHH	8.08	0.318	13.21	0.520	23.83	0.938
92417-XYHH	8.13	0.320	2.79	0.110	13.46	0.530
86832-XYHH	8.26	0.325	2.54	0.100	13.34	0.525
95652-XYHH	8.38	0.330	1.78	0.070	12.70	0.500
93254-XYHH	8.97	0.353	2.79	0.110	14.30	0.563
87869-XYHH	9.14	0.360	5.84	0.230	17.53	0.690
95687-XYHH	9.14	0.360	9.14	0.360	20.83	0.820
86837-XYHH	9.65	0.380	3.05	0.120	15.24	0.600
89540-XYHH	9.65	0.380	7.11	0.280	19.30	0.760
68738-XYHH	10.16	0.400	2.92	0.115	15.62	0.615
68601-XYHH	10.16	0.400	3.05	0.120	15.75	0.620
95665-XYHH	10.16	0.400	8.51	0.335	21.21	0.835
68464-XYHH	10.92	0.430	3.05	0.120	16.51	0.650
79821-XYHH	10.92	0.430	5.08	0.200	18.54	0.730
87381-XYHH	11.30	0.445	2.54	0.100	16.38	0.645
71217-XYHH	11.43	0.450	11.43	0.450	25.40	1.000
87382-XYHH	12.07	0.475	2.54	0.100	17.15	0.675
86827-XYHH	12.19	0.480	3.05	0.120	17.78	0.700
79242-XYHH	12.45	0.490	8.64	0.340	23.62	0.930
68439-XYHH	12.70	0.500	3.05	0.120	18.29	0.720
71222-XYHH	12.70	0.500	6.35	0.250	21.59	0.850
79271-XYHH	12.70	0.500	12.70	0.500	27.94	1.100
68482-XYHH	13.21	0.520	8.08	0.318	23.83	0.938
87903-XYHH	13.36	0.526	8.56	0.337	24.46	0.963
88797-XYHH	13.46	0.530	8.13	0.320	24.13	0.950
69132-XYHH	13.72	0.540	3.05	0.120	19.30	0.760
68600-XYHH	15.49	0.610	2.92	0.115	20.96	0.825
95727-XYHH	15.62	0.615	2.79	0.110	20.96	0.825
86836-XYHH	16.51	0.650	3.05	0.120	22.10	0.870
86834-XYHH	16.51	0.650	14.86	0.585	33.91	1.335
87349-XYHH	17.27	0.680	2.79	0.110	22.61	0.890
94532-XYHH	17.78	0.700	11.43	0.450	31.75	1.250
86817-XYHH	17.91	0.705	3.05	0.120	23.50	0.925
89446-XYHH	18.03	0.710	3.05	0.120	23.62	0.930
87345-XYHH	18.08	0.712	10.31	0.406	30.94	1.218
87900-XYHH	18.29	0.720	3.05	0.120	23.88	0.940
87348-XYHH	18.54	0.730	2.54	0.100	23.62	0.930
79243-XYHH	18.80	0.740	9.91	0.390	31.24	1.230
87052-XYHH	19.56	0.770	3.05	0.120	25.15	0.990
79268-XYHH	20.32	0.800	3.05	0.120	25.91	1.020
87901-XYHH	20.83	0.820	3.05	0.120	26.42	1.040
89542-XYHH	21.34	0.840	3.18	0.125	27.05	1.065
95712-XYHH	22.35	0.880	2.79	0.110	27.69	1.090
88886-XYHH	23.62	0.930	7.01	0.276	33.17	1.306
87037-XYHH	25.91	1.020	3.05	0.120	31.50	1.240
89639-XYHH	26.47	1.042	3.00	0.118	32.00	1.260
87344-XYHH	26.82	1.056	5.56	0.219	34.93	1.375

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

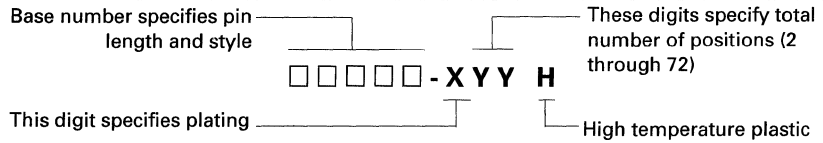
**Unshrouded Headers**  
**2.54 x 2.54 mm (0.100 x 0.100 in.)**

**Description**  
**Straight 2-Row BergStik® II Headers**  
**Retentive Leg**



A183386-0198 B

**Ordering Data**



**Plating**

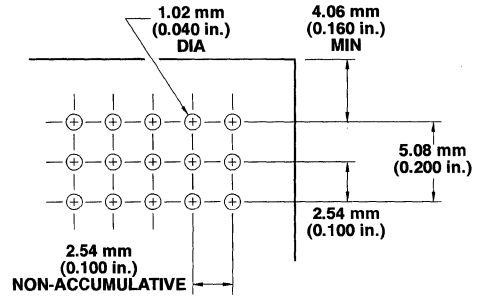
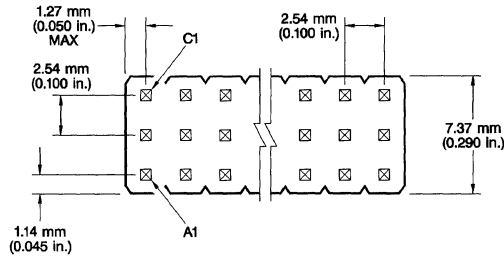
0.76 µm (30 µin.) gold over 1.27 µm (50 µin.) nickel	-1YY	3.81 µm (150 µin.) tin-lead	-4YY
0.38 µm (15 µin.) gold over 1.27 µm (50 µin.) nickel	-2YY	0.38 µm (15 µin.) GXT™ over 1.27 µm (50 µin.) nickel	-5YY
1.27 µm (50 µin.) gold over 1.27 µm (50 µin.) nickel	-3YY	0.76 µm (30 µin.) GXT™ over 1.27 µm (50 µin.) nickel	-6YY

Part Numbers	Dimensions					
	H-Mating (Length Above Plastic)		G-Tail (Length Below Plastic)		F (Overall Pin Length)	
	mm	in.	mm	in.	mm	in.
90824-XYHH	5.08	0.200	3.05	0.120	10.67	0.420
94654-XYHH	5.84	0.230	2.16	0.085	10.80	0.425
69192-XYHH	5.84	0.230	3.05	0.120	11.43	0.450
86380-XYHH	6.35	0.250	3.05	0.120	11.94	0.470
78548-XYHH	8.08	0.318	3.05	0.120	13.67	0.538
87837-XYHH	9.27	0.365	3.05	0.120	14.86	0.585
79214-XYHH	10.16	0.400	3.05	0.120	15.75	0.620
88714-XYHH	10.67	0.420	3.05	0.120	16.26	0.640
78577-XYHH	10.92	0.430	3.05	0.120	16.51	0.650
86584-XYHH	13.72	0.540	3.05	0.120	19.30	0.760
87920-XYHH	15.49	0.610	3.05	0.120	21.08	0.830
87456-XYHH	15.75	0.620	3.05	0.120	21.34	0.840
95654-XYHH	16.76	0.660	3.05	0.120	22.35	0.880
89580-XYHH	18.03	0.710	3.05	0.120	23.62	0.930
87457-XYHH	19.56	0.770	3.05	0.120	25.15	0.990
95066-XYHH	25.91	1.020	3.05	0.120	31.50	1.240
88526-XYHH	28.45	1.120	3.05	0.120	34.04	1.340

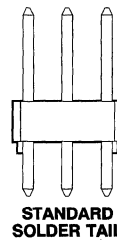
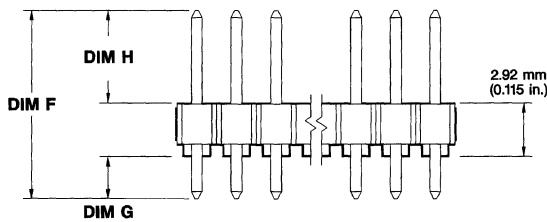
Ordering data shown is for our standard product offering. for non-standard or custom products, contact your authorized Berg Electronics representative.

## Description

### Straight 3-Row BergStik® II Headers



RECOMMENDED HOLE PATTERN



A183398-0199 A

Base number specifies  
pin length and style

□ □ □ □ □ - X Y Y H

This digit specifies  
plating

These digits specify total number of  
columns (3 through 36 available)

High temperature plastic

## Ordering Data

0.76 μm (30 μin.) gold over 1.27 μm (50 μin.) nickel  
0.38 μm (15 μin.) gold over 1.27 μm (50 μin.) nickel  
1.27 μm (50 μin.) gold over 1.27 μm (50 μin.) nickel

-1YY  
-2YY  
-3YY

3.81 μm (150 μin.) tin-lead  
0.38 μm (15 μin.) GXT™ over 1.27 μm (50 μin.) nickel  
0.76 μm (30 μin.) GXT™ over 1.27 μm (50 μin.) nickel

-4YY  
-5YY  
-6YY

## Plating

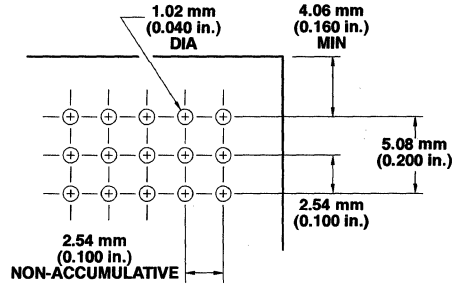
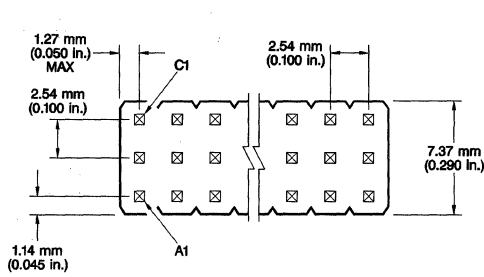
Part Numbers	Dimensions					
	H-Mating (Length Above Plastic)		G-Tail (Length Below Plastic)		F (Overall Pin Length)	
	mm	in.	mm	in.	mm	in.
78537-XYH	5.84	0.230	2.41	0.095	11.18	0.440
68702-XYH	5.84	0.230	3.05	0.120	11.81	0.465
78536-XYH	5.84	0.230	3.81	0.150	12.57	0.495
95660-XYH	6.35	0.250	6.35	0.250	15.62	0.615
78535-XYH	8.08	0.318	3.05	0.120	14.05	0.553

Ordering data shown is for our standard product offering. for non-standard or custom products, contact your authorized Berg Electronics representative.

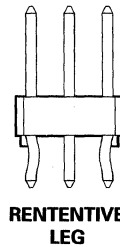
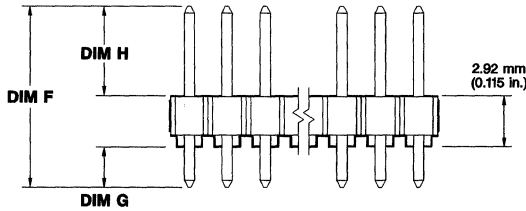


**Unshrouded Headers**  
**2.54 x 2.54 mm (0.100 x 0.100 in.)**

**Description**  
**Straight 3-Row BergStik® II Headers**  
**Retentive Leg**



**RECOMMENDED HOLE PATTERN**



**RETENTIVE LEG**

A183398-0199B

**Ordering Data**  
**Retentive Leg**

Base number specifies pin length and style

□ □ □ □ □ - X Y Y H

These digits specify total number of columns (3 through 36 available)

This digit specifies plating

High temperature plastic

**Plating**

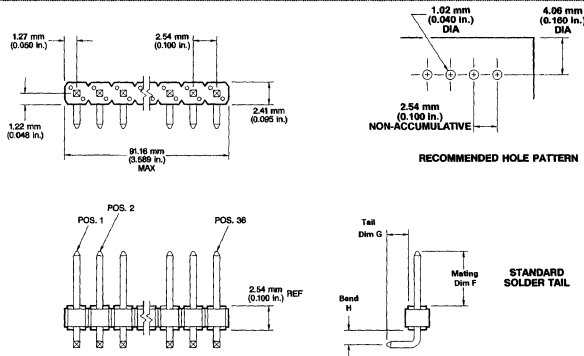
0.76 µm (30 µin.) gold over 1.27 µm (50 µin.) nickel	-1YY	3.81 µm (150 µin.) tin-lead	-4YY
0.38 µm (15 µin.) gold over 1.27 µm (50 µin.) nickel	-2YY	0.38 µm (15 µin.) GXT™ over 1.27 µm (50 µin.) nickel	-5YY
1.27 µm (50 µin.) gold over 1.27 µm (50 µin.) nickel	-3YY	0.76 µm (30 µin.) GXT™ over 1.27 µm (50 µin.) nickel	-6YY

Part Numbers	Dimensions					
	H-Mating (Length Above Plastic)		G-Tail (Length Below Plastic)		F (Overall Pin Length)	
	mm	in.	mm	in.	mm	in.
69194-XYXH	5.84	0.230	3.05	0.120	11.81	0.465
79298-XYXH	8.08	0.318	3.05	0.120	14.05	0.553

Ordering data shown is for our standard product offering. for non-standard or custom products, contact your authorized Berg Electronics representative.

## Description

### Right-Angle 1-Row BergStik® II Headers



Base number specifies pin length and style

These digits specify total number of positions (1 through 36 available)

□ □ □ □ - X Y Y H

This digit specifies plating

High temperature plastic

## Ordering Data

0.76 $\mu$ m (30 $\mu$ in.) gold over 1.27 $\mu$ m (50 $\mu$ in.) nickel	-1YY	3.81 $\mu$ m (150 $\mu$ in.) tin-lead	-4YY
0.38 $\mu$ m (15 $\mu$ in.) gold over 1.27 $\mu$ m (50 $\mu$ in.) nickel	-2YY	0.38 $\mu$ m (15 $\mu$ in.) GXT™ over 1.27 $\mu$ m (50 $\mu$ in.) nickel	-5YY
1.27 $\mu$ m (50 $\mu$ in.) gold over 1.27 $\mu$ m (50 $\mu$ in.) nickel	-3YY	0.76 $\mu$ m (30 $\mu$ in.) GXT™ over 1.27 $\mu$ m (50 $\mu$ in.) nickel	-6YY

## Plating

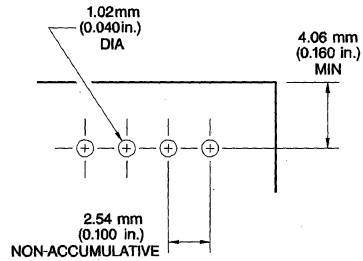
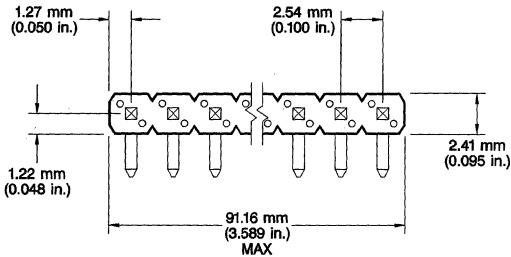
### Dimensions

Part Numbers	Dimensions					
	F-Mating (Length Above Plastic)		G-Tail (Length Below Plastic)		H (Bend Distance from Plastic)	
	mm	in.	mm	in.	mm	in.
78955-XYH	1.91	0.075	2.29	0.090	1.52	0.060
94671-XYH	2.29	0.090	2.16	0.085	4.57	0.180
68764-XYH	2.54	0.100	3.05	0.120	1.52	0.060
92632-XYH	2.54	0.100	8.08	0.318	1.52	0.060
68660-XYH	2.79	0.110	5.84	0.230	3.43	0.135
68798-XYH	2.79	0.110	5.84	0.230	4.06	0.160
78938-XYH	3.05	0.120	3.05	0.120	1.52	0.060
68627-XYH	3.05	0.120	4.70	0.185	3.81	0.150
94529-XYH	3.05	0.120	7.49	0.295	3.43	0.135
78978-XYH	3.05	0.120	8.08	0.318	3.43	0.135
68023-XYH	3.43	0.135	7.75	0.305	3.43	0.135
94099-XYH	3.99	0.157	2.29	0.090	1.52	0.060
92050-XYH	4.11	0.162	3.05	0.120	1.52	0.060
88813-XYH	5.84	0.230	2.16	0.085	1.52	0.060
68015-XYH	5.84	0.230	2.29	0.090	1.52	0.060
68016-XYH	5.84	0.230	3.05	0.120	1.52	0.060
78234-XYH	5.84	0.230	3.56	0.140	4.06	0.160
95666-XYH	5.84	0.230	3.68	0.145	1.52	0.060
68488-XYH	5.84	0.230	4.57	0.180	1.52	0.060
68468-XYH	5.84	0.230	4.95	0.195	4.06	0.160
68498-XYH	5.84	0.230	5.59	0.220	4.06	0.160
68626-XYH	5.84	0.230	7.49	0.295	1.52	0.060
68417-XYH	5.84	0.230	9.91	0.390	1.52	0.060
68641-XYH	5.84	0.230	12.45	0.490	1.52	0.060
68628-XYH	5.84	0.230	14.99	0.590	1.52	0.060
68758-XYH	6.99	0.275	3.05	0.120	1.52	0.060
69189-XYH	7.87	0.310	6.35	0.250	1.52	0.060
78231-XYH	7.87	0.310	7.37	0.290	1.52	0.060
78230-XYH	7.87	0.310	8.38	0.330	1.52	0.060
78541-XYH	8.08	0.318	2.03	0.080	1.52	0.060
68458-XYH	8.08	0.318	2.79	0.110	1.52	0.060
68423-XYH	8.08	0.318	3.05	0.120	1.52	0.060
68782-XYH	8.08	0.318	4.57	0.180	1.52	0.060
95653-XYH	8.38	0.330	7.87	0.310	4.06	0.160
68757-XYH	8.89	0.350	5.59	0.220	2.54	0.100
68494-XYH	10.16	0.400	2.79	0.110	1.52	0.060
92909-XYH	10.16	0.400	5.59	0.220	1.52	0.060
68461-XYH	10.16	0.400	8.13	0.320	6.60	0.260
68694-XYH	15.24	0.600	3.05	0.120	1.52	0.060

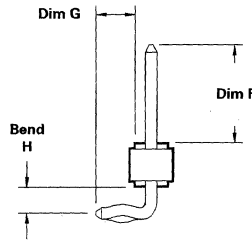
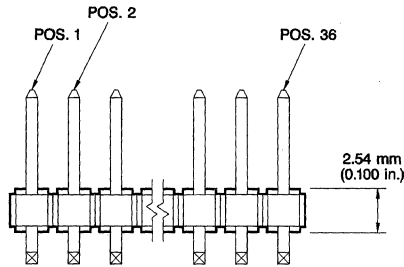
Ordering data shown is for our standard product offering. for non-standard or custom products, contact your authorized Berg Electronics representative.

**Unshrouded Headers**  
**2.54 x 2.54 mm (0.100 x 0.100 in.)**

**Description**  
**Right-Angle 1-Row BergStik® II Headers**  
**Retentive Leg**



**RECOMMENDED HOLE PATTERN**

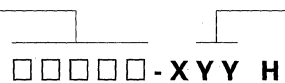


**RETENTIVE LEG**

A183396-0200 B

**Ordering Data**

Base number specifies pin length and style



These digits specify total number of positions (2 through 36 available)\*

This digit specifies plating

High temperature plastic

**Plating**

0.76 µm (30 µin.) gold over 1.27 µm (50 µin.) nickel	-1YY	3.81 µm (150 µin.) tin-lead	-4YY
0.38 µm (15 µin.) gold over 1.27 µm (50 µin.) nickel	-2YY	0.38 µm (15 µin.) GXT™ over 1.27 µm (50 µin.) nickel	-5YY
1.27 µm (50 µin.) gold over 1.27 µm (50 µin.) nickel	-3YY	0.76 µm (30 µin.) GXT™ over 1.27 µm (50 µin.) nickel	-6YY

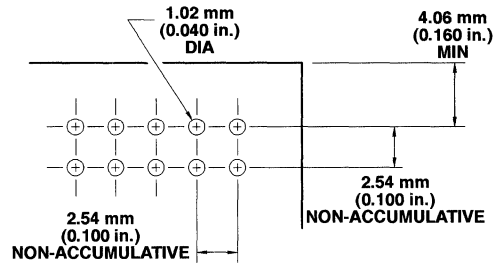
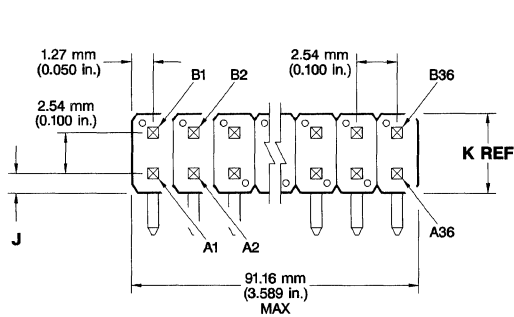
Part Numbers	Dimensions					
	H-Mating (Length Above Plastic)		G-Tail (Length Below Plastic)		H (Bend Distance from Plastic)	
	mm	in.	mm	in.	mm	in.
86641-XYH	3.05	0.120	3.05	0.120	1.52	0.060
90304-XYH	4.19	0.165	3.05	0.120	1.52	0.060
94669-XYH*	5.84	0.230	2.16	0.085	1.52	0.060
69191-XYH	5.84	0.230	3.05	0.120	1.52	0.060
78554-XYH	8.08	0.318	3.05	0.120	1.52	0.060
94670-XYH*	10.16	0.400	2.16	0.085	1.52	0.060

\* Part Numbers 94669 and 94670 available in 4 through 36 positions.

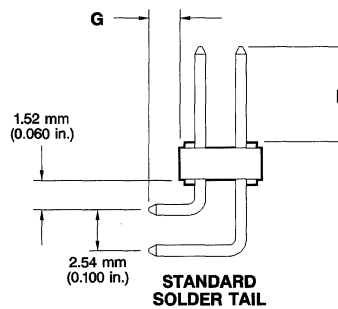
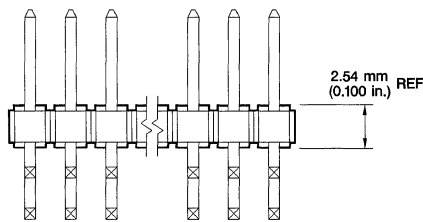
Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

## Description

### Right-Angle 2-Row BergStik® II Headers



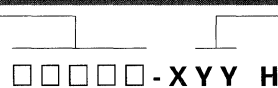
RECOMMENDED HOLE PATTERN



STANDARD SOLDER TAIL

A183398-0201A

Base number specifies pin length and style



These digits specify total number of positions (2 through 72 available)

## Ordering Data

This digit specifies plating

High temperature plastic

Plating	Plating	Plating	Plating
0.76 µm (30 µin.) gold over 1.27 µm (50 µin.) nickel	-1YY	3.81 µm (150 µin.) tin-lead	-4YY
0.38 µm (15 µin.) gold over 1.27 µm (50 µin.) nickel	-2YY	0.38 µm (15 µin.) GXT™ over 1.27 µm (50 µin.) nickel	-5YY
1.27 µm (50 µin.) gold over 1.27 µm (50 µin.) nickel	-3YY	0.76 µm (30 µin.) GXT™ over 1.27 µm (50 µin.) nickel	-6YY

## Plating

Part Numbers	Dimensions							
	F-Mating (Length Above Plastic)		G-Tail (Length Below Plastic)		H (Pin To Side)		K (Body Width)	
	mm	in.	mm	in.	mm	in.	mm	in.
79841-XYHH	1.52	0.060	5.84	0.230	1.14	0.045	4.83	0.190
78576-XYHH	3.05	0.120	3.05	0.120	1.78	0.070	6.10	0.240
90234-XYHH	3.30	0.130	4.95	0.195	1.14	0.045	4.83	0.190
68715-XYHH	3.51	0.138	3.51	0.138	1.14	0.045	4.83	0.190
79200-XYHH	3.94	0.155	7.11	0.280	1.78	0.070	6.10	0.240
93939-XYHH	4.06	0.160	3.05	0.120	1.78	0.070	6.10	0.240
79204-XYHH	4.32	0.170	10.41	0.410	1.78	0.070	6.10	0.240
93932-XYHH	5.08	0.200	3.05	0.120	1.78	0.070	6.10	0.240
79201-XYHH	5.72	0.225	7.11	0.280	1.78	0.070	6.10	0.240
68780-XYHH	5.84	0.230	0.99	0.039	1.14	0.045	4.83	0.190
68695-XYHH	5.84	0.230	2.29	0.090	1.14	0.045	4.83	0.190
68020-XYHH	5.84	0.230	2.41	0.095	1.14	0.045	4.83	0.190
68405-XYHH	5.84	0.230	2.41	0.095	1.78	0.070	6.10	0.240
68463-XYHH	5.84	0.230	2.79	0.110	1.78	0.070	6.10	0.240
68021-XYHH	5.84	0.230	3.05	0.120	1.14	0.045	4.83	0.190

Ordering data shown is for our standard product offering. for non-standard or custom products, contact your authorized Berg Electronics representative.

**Unshrouded Headers**  
**2.54 x 2.54 mm (0.100 x 0.100 in.)**

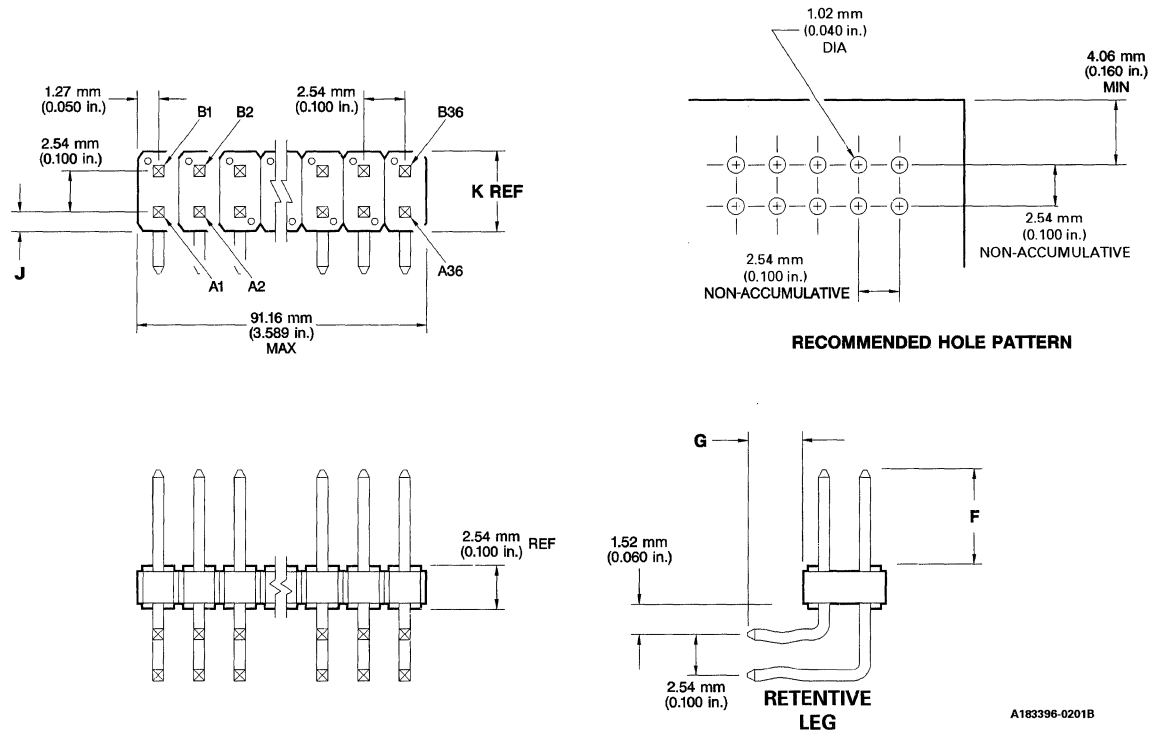
**Ordering Data (Cont'd)**

Part Numbers	Dimensions							
	F-Mating (Length Above Plastic)		G-Tail (Length Below Plastic)		H (Pin To Side)		K (Body Width)	
	mm	in.	mm	in.	mm	in.	mm	in.
79257-XYHH	5.84	0.230	3.05	0.120	1.78	0.070	6.10	0.240
68697-XYHH	5.84	0.230	3.18	0.125	1.14	0.045	4.83	0.190
68492-XYHH	5.84	0.230	3.81	0.150	1.78	0.070	6.10	0.240
68025-XYHH	5.84	0.230	4.95	0.195	1.14	0.045	4.83	0.190
95035-XYHH	5.84	0.230	10.16	0.400	1.14	0.045	4.83	0.190
78923-XYHH	6.10	0.240	2.41	0.095	1.78	0.070	6.10	0.240
79205-XYHH	6.17	0.243	10.41	0.410	1.78	0.070	6.10	0.240
79202-XYHH	6.22	0.245	7.11	0.280	1.78	0.070	6.10	0.240
86385-XYHH	6.60	0.260	3.05	0.120	1.78	0.070	6.10	0.240
68759-XYHH	6.99	0.275	3.05	0.120	1.14	0.045	4.83	0.190
79203-XYHH	8.00	0.315	7.11	0.280	1.78	0.070	6.10	0.240
79206-XYHH	8.00	0.315	10.41	0.410	1.78	0.070	6.10	0.240
88822-XYHH	8.08	0.318	2.03	0.080	1.78	0.070	6.10	0.240
68480-XYHH	8.08	0.318	2.79	0.110	1.14	0.045	4.83	0.190
68022-XYHH	8.08	0.318	2.79	0.110	1.78	0.070	6.10	0.240
79258-XYHH	8.08	0.318	3.05	0.120	1.78	0.070	6.10	0.240
68696-XYHH	8.08	0.318	3.18	0.125	1.14	0.045	4.83	0.190
68459-XYHH	8.08	0.318	3.81	0.150	1.78	0.070	6.10	0.240
86840-XYHH	8.08	0.318	5.84	0.230	1.78	0.070	6.10	0.240
92634-XYHH	8.08	0.318	8.08	0.318	1.14	0.045	4.83	0.190
68740-XYHH	8.76	0.345	2.79	0.110	1.78	0.070	6.10	0.240
68452-XYHH	9.65	0.380	2.79	0.110	1.78	0.070	6.10	0.240
94688-XYHH	9.78	0.385	7.11	0.280	1.78	0.070	6.10	0.240
95182-XYHH	10.16	0.400	2.79	0.110	1.78	0.070	6.10	0.240
68462-XYHH	10.16	0.400	3.05	0.120	1.14	0.045	4.83	0.190
94687-XYHH	10.92	0.430	5.84	0.230	1.14	0.045	4.83	0.190
78951-XYHH	12.70	0.500	3.05	0.120	1.14	0.045	4.83	0.190
69147-XYHH	13.72	0.540	6.60	0.260	1.14	0.045	4.83	0.190

Ordering data shown is for our standard product offering. for non-standard or custom products, contact your authorized Berg Electronics representative.

### Description

#### Right-Angle 2-Row BergStik® II Headers Retentive Leg



Base number specifies pin length and style

□ □ □ □ - X Y Y H

This digit specifies plating

These digits specify total number of positions (2 through 72 available)

High temperature plastic

### Ordering Data

0.76 μm (30 μin.) gold over 1.27 μm (50 μin.) nickel  
0.38 μm (15 μin.) gold over 1.27 μm (50 μin.) nickel  
1.27 μm (50 μin.) gold over 1.27 μm (50 μin.) nickel

-1YY  
-2YY  
-3YY

3.81 μm (150 μin.) tin-lead  
0.38 μm (15 μin.) GXT™ over 1.27 μm (50 μin.) nickel  
0.76 μm (30 μin.) GXT™ over 1.27 μm (50 μin.) nickel

-4YY  
-5YY  
-6YY

### Plating

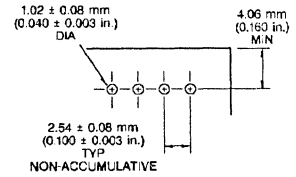
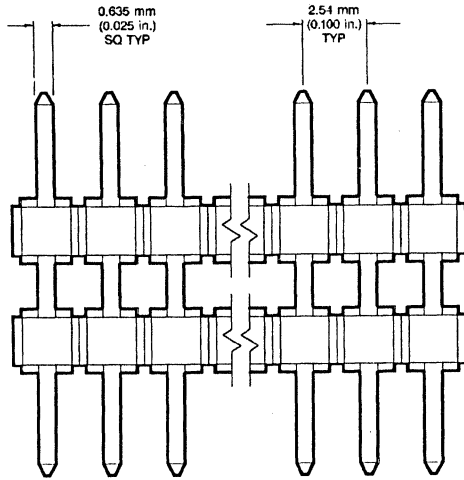
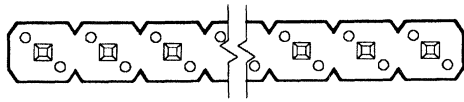
#### Dimensions

Part Numbers	F-Mating (Length Above Plastic)		G-Tail (Length Below Plastic)		J (Pin To Side)		K (Body Width)	
	mm	in.	mm	in.	mm	in.	mm	in.
69193-XYH	5.84	0.230	3.05	0.120	1.14	0.045	4.83	0.190
78299-XYH	5.84	0.230	3.05	0.120	1.78	0.070	6.10	0.240
86381-XYH	6.35	0.250	3.05	0.120	1.78	0.070	6.10	0.240
93150-XYH	6.99	0.275	3.05	0.120	1.14	0.045	4.83	0.190
78276-XYH	8.08	0.318	3.05	0.120	1.78	0.070	6.10	0.240
87227-XYH	8.08	0.318	3.05	0.120	1.14	0.045	4.83	0.190
93240-XYH	8.59	0.338	3.05	0.120	1.78	0.070	6.10	0.240
94048-XYH	9.65	0.380	3.05	0.120	1.78	0.070	6.10	0.240

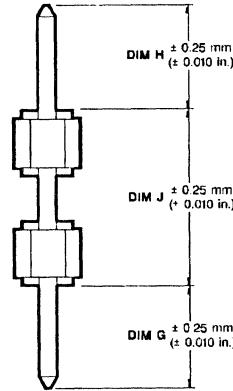
Ordering data shown is for our standard product offering. for non-standard or custom products, contact your authorized Berg Electronics representative.

**Unshrouded Headers**  
**2.54 x 2.54 mm (0.100 x 0.100 in.)**

**Description**  
**1-Row Railroad Track BergStik® II Headers**



**RECOMMENDED HOLE PATTERN**



A183386-09#2

**Ordering Data**

Base number specifies pin length and style

These digits specify total number of positions (2 through 36 available)

This digit specifies plating

□ □ □ □ - X Y Y H

High temperature plastic

**Plating**

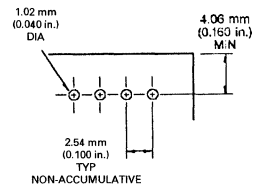
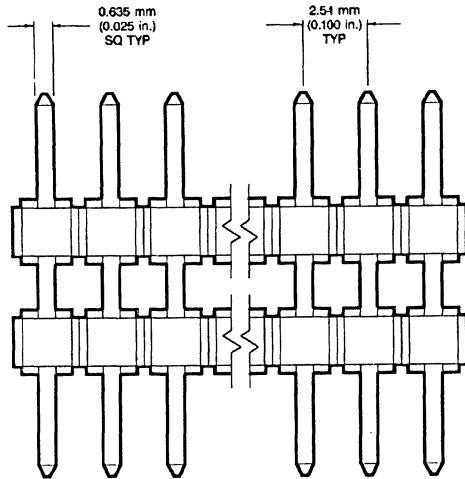
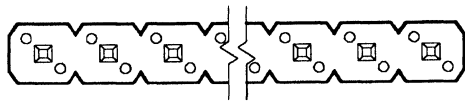
0.76 µm (30 µin.) gold over 1.27 µm (50 µin.) nickel	-1YY	3.81 µm (150 µin.) tin-lead	-4YY
0.38 µm (15 µin.) gold over 1.27 µm (50 µin.) nickel	-2YY	0.38 µm (15 µin.) GXT™ over 1.27 µm (50 µin.) nickel	-5YY
1.27 µm (50 µin.) gold over 1.27 µm (50 µin.) nickel	-3YY	0.76 µm (30 µin.) GXT™ over 1.27 µm (50 µin.) nickel	-6YY

Part Numbers	Dimensions					
	H-Mating Length		G-Tail Length		J-Height Above Board	
	mm	in.	mm	in.	mm	in.
95710-XYHH	1.19	0.047	3.18	0.125	5.33	0.210
78973-XYHH	2.54	0.100	2.54	0.100	6.35	0.250
94655-XYHH	2.54	0.100	8.38	0.330	20.32	0.800
95610-XYHH	2.79	0.110	2.79	0.110	6.86	0.270
71269-XYHH	2.92	0.115	2.92	0.115	19.99	0.787
78935-XYHH	3.05	0.120	3.05	0.120	10.16	0.400
91861-XYHH	3.05	0.120	3.05	0.120	13.72	0.540
95065-XYHH	3.05	0.120	5.59	0.220	7.37	0.290
79403-XYHH	3.05	0.120	8.08	0.318	9.53	0.375
68606-XYHH	3.86	0.152	3.86	0.152	6.73	0.265
71727-XYHH	3.99	0.157	2.54	0.100	21.49	0.846
68460-XYHH	5.84	0.230	2.95	0.116	10.39	0.409
90377-XYHH	5.84	0.230	3.05	0.120	13.46	0.530
87205-XYHH	6.73	0.265	3.05	0.120	12.95	0.510
95641-XYHH	7.11	0.280	3.05	0.120	25.40	1.000
68040-XXYH	7.21	0.284	7.21	0.284	9.53	0.375
68729-XYHH	7.21	0.284	8.00	0.315	8.74	0.344
91574-XYHH	8.08	0.318	3.18	0.125	10.54	0.415
95109-XYHH	8.89	0.350	8.89	0.350	6.35	0.250
68444-XYHH	9.25	0.364	3.25	0.128	11.00	0.433
68427-XYHH	9.98	0.393	10.01	0.394	6.50	0.256
92629-XYHH	10.16	0.400	3.18	0.125	17.15	0.675
67817-XYHH	13.41	0.528	3.40	0.134	11.00	0.433

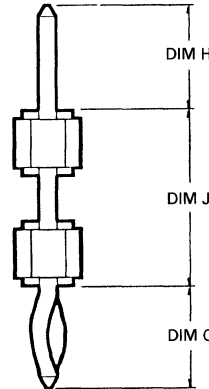
Ordering data shown is for our standard product offering. for non-standard or custom products, contact your authorized Berg Electronics representative.

## Description

### 1-Row Railroad Track BergStik® II Headers Retentive Leg



RECOMMENDED HOLE PATTERN



A183366-0982

Base number specifies  
pin length and style

□ □ □ □ - X Y Y H

This digit specifies  
plating

These digits specify total  
number of positions (4  
through 36 available)

High temperature  
plastic

## Ordering Data

0.76 μm (30 μin.) gold over 1.27 μm (50 μin.) nickel  
0.38 μm (15 μin.) gold over 1.27 μm (50 μin.) nickel  
1.27 μm (50 μin.) gold over 1.27 μm (50 μin.) nickel

-1YY  
-2YY  
-3YY

3.81 μm (150 μin.) tin-lead  
0.38 μm (15 μin.) GXT™ over 1.27 μm (50 μin.) nickel  
0.76 μm (30 μin.) GXT™ over 1.27 μm (50 μin.) nickel

-4YY  
-5YY  
-6YY

## Plating

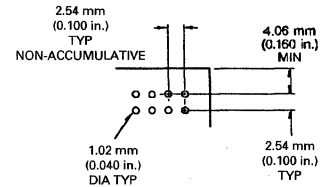
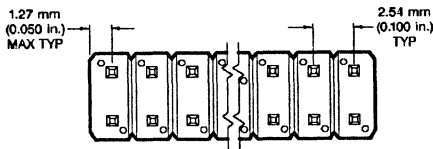
Part Numbers	Dimensions					
	H-Mating Length		G-Tail Length		J-Height Above Board	
	mm	in.	mm	in.	mm	in.
95611-XXXX	2.79	0.110	3.05	0.120	6.86	0.270
95179-XXXX	2.79	0.110	3.05	0.120	10.41	0.410
94510-XXXX	2.84	0.112	3.05	0.120	14.99	0.590
86504-XXXX	3.05	0.120	3.05	0.120	5.08	0.200
87446-XXXX	3.05	0.120	3.05	0.120	15.24	0.600
87447-XXXX	3.05	0.120	3.05	0.120	19.05	0.750
71279-XXXX	5.84	0.230	3.05	0.120	5.69	0.224
87917-XXXX	6.35	0.250	3.05	0.120	9.14	0.360
89695-XXXX	7.11	0.280	3.05	0.120	13.72	0.540
87038-XXXX	7.62	0.300	3.05	0.120	10.41	0.410
87231-XXXX	7.62	0.300	3.05	0.120	14.73	0.580
94619-XXXX	10.16	0.400	3.05	0.120	7.62	0.300
90228-XXXX	11.43	0.450	3.05	0.120	22.35	0.880

Ordering data shown is for our standard product offering. for non-standard or custom products, contact your authorized Berg Electronics representative.

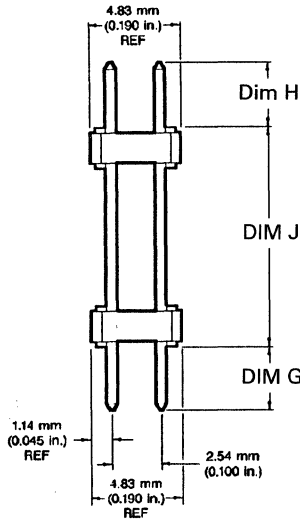
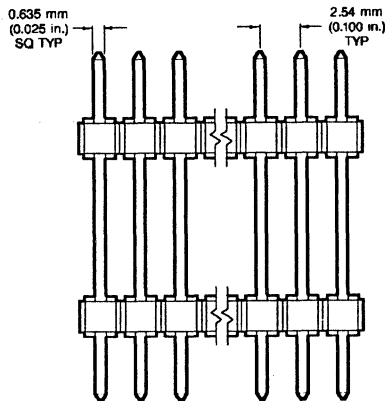


**Unshrouded Headers**  
**2.54 x 2.54 mm (0.100 x 0.100 in.)**

**Description**  
**2-Row Railroad Track BergStik® II Headers**



**RECOMMENDED HOLE PATTERN**



A103390 0083

**Ordering Data**

Base number specifies pin length and style

These digits specify total number of positions (4 through 72 available)

□ □ □ □ - X Y Y H

This digit specifies plating

High temperature plastic

**Plating**

0.76 µm (30 µin.) gold over 1.27 µm (50 µin.) nickel	-1YY	3.81 µm (150 µin.) tin-lead	-4YY
0.38 µm (15 µin.) gold over 1.27 µm (50 µin.) nickel	-2YY	0.38 µm (15 µin.) GXT™ over 1.27 µm (50 µin.) nickel	-5YY
1.27 µm (50 µin.) gold over 1.27 µm (50 µin.) nickel	-3YY	0.76 µm (30 µin.) GXT™ over 1.27 µm (50 µin.) nickel	-6YY

Part Numbers	Dimensions					
	H-Mating Length		G-Tail Length		J-Board to Board	
	mm	in.	mm	in.	mm	in.
95711-XYHH	2.54	0.100	4.57	0.180	19.05	0.750
92900-XYHH	2.79	0.110	2.79	0.110	6.35	0.250
71739-XYHH	2.79	0.110	2.79	0.110	18.42	0.725
78937-XYHH	3.05	0.120	3.05	0.120	6.35	0.250
78936-XYHH	3.05	0.120	3.05	0.120	13.84	0.545
86816-XYHH	3.05	0.120	3.05	0.120	17.40	0.685
87053-XYHH	3.05	0.120	3.05	0.120	19.05	0.750
87039-XYHH	3.05	0.120	3.05	0.120	25.40	1.000
95064-XYHH	3.05	0.120	5.59	0.220	7.37	0.290
95788-XYHH	4.45	0.175	3.94	0.155	20.32	0.800
92094-XYHH	4.57	0.180	4.57	0.180	17.02	0.670
90806-XYHH	5.08	0.200	9.14	0.360	21.34	0.840
94552-XYHH	5.21	0.205	2.79	0.110	23.24	0.915
71282-XYHH	5.41	0.213	2.59	0.102	5.79	0.228
86831-XYHH	5.72	0.225	2.54	0.100	5.08	0.200
95787-XYHH	5.72	0.225	2.54	0.100	15.37	0.605
93223-XYHH	5.84	0.230	2.29	0.090	8.00	0.315
86869-XYHH	5.84	0.230	3.05	0.120	17.02	0.670
92628-XYHH	5.84	0.230	3.05	0.120	20.57	0.810
95762-XYHH	5.84	0.230	3.81	0.150	17.02	0.670
95656-XYHH	5.84	0.230	5.84	0.230	11.43	0.450
95657-XYHH	5.84	0.230	7.62	0.300	11.43	0.450

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

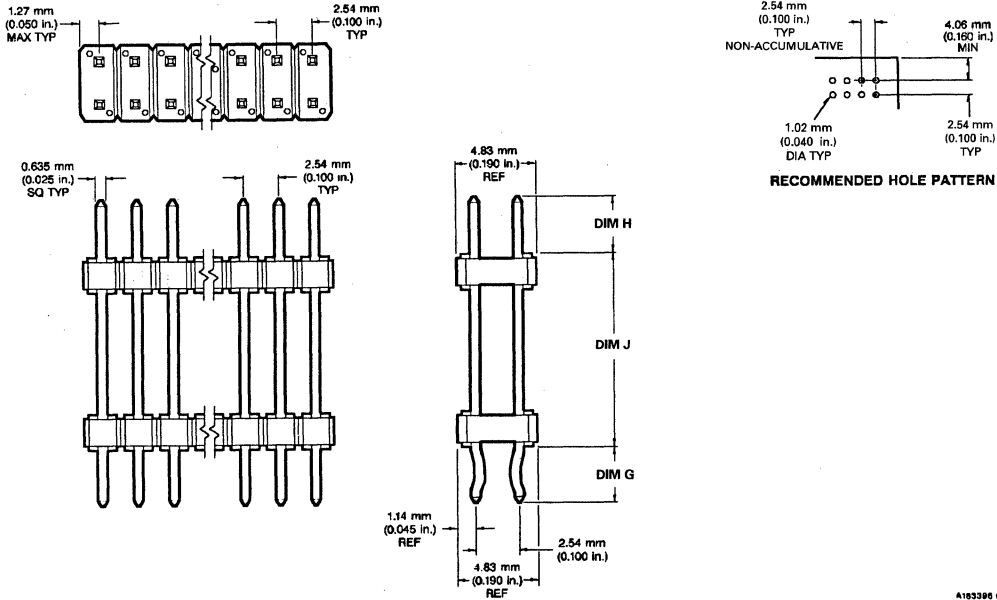
### Ordering Data (Cont'd)

Part Numbers	Dimensions					
	H-Mating Length		G-Tail Length		J-Board to Board	
	mm	in.	mm	in.	mm	in.
91507-XXXH	6.10	0.240	3.05	0.120	6.35	0.250
94046-XXXH	6.35	0.250	3.05	0.120	6.35	0.250
86824-XXXH	6.35	0.250	3.05	0.120	9.91	0.390
71728-XXXH	6.45	0.254	2.54	0.100	21.49	0.846
90608-XXXH	6.48	0.255	3.05	0.120	5.59	0.220
94621-XXXH	6.60	0.260	2.54	0.100	5.84	0.230
94084-XXXH	6.73	0.265	3.30	0.130	9.65	0.380
94085-XXXH	6.73	0.265	3.30	0.130	10.92	0.430
94605-XXXH	6.86	0.270	2.79	0.110	11.43	0.450
89638-XXXH	6.86	0.270	3.05	0.120	16.51	0.650
87347-XXXH	7.11	0.280	2.79	0.110	12.70	0.500
95124-XXXH	7.34	0.289	2.84	0.112	11.10	0.437
95036-XXXH	7.37	0.290	7.37	0.290	18.39	0.724
91862-XXXH	7.54	0.297	3.05	0.120	8.89	0.350
91863-XXXH	7.54	0.297	3.05	0.120	9.53	0.375
94550-XXXH	7.62	0.300	3.18	0.125	17.40	0.685
95088-XXXH	7.62	0.300	7.62	0.300	12.70	0.500
94632-XXXH	7.75	0.305	2.79	0.110	15.88	0.625
89444-XXXH	7.87	0.310	3.05	0.120	12.70	0.500
94553-XXXH	7.87	0.310	3.05	0.120	20.32	0.800
89637-XXXH	8.00	0.315	3.00	0.118	21.01	0.827
71726-XXXH	8.00	0.315	8.00	0.315	19.05	0.750
90237-XXXH	8.08	0.318	3.05	0.120	9.53	0.375
94082-XXXH	8.08	0.318	3.05	0.120	10.16	0.400
94083-XXXH	8.08	0.318	3.05	0.120	24.38	0.960
87346-XXXH	8.38	0.330	2.54	0.100	12.70	0.500
71741-XXXH	8.38	0.330	2.79	0.110	22.86	0.900
86826-XXXH	8.38	0.330	3.05	0.120	6.35	0.250
94554-XXXH	8.38	0.330	3.05	0.120	20.32	0.800
92013-XXXH	8.38	0.330	3.05	0.120	25.40	1.000
95063-XXXH	8.38	0.330	3.43	0.135	11.10	0.437
94672-XXXH	8.51	0.335	3.05	0.120	7.49	0.295
95685-XXXH	8.64	0.340	8.64	0.340	5.46	0.215
78563-XXXH	8.64	0.340	8.64	0.340	6.35	0.250
95616-XXXH	8.71	0.343	4.32	0.170	18.80	0.740
95129-XXXH	8.89	0.350	1.52	0.060	23.37	0.920
92012-XXXH	8.89	0.350	2.29	0.090	12.70	0.500
71285-XXXH	8.89	0.350	2.79	0.110	15.62	0.615
95686-XXXH	8.89	0.350	8.89	0.350	5.08	0.200
71704-XXXH	8.99	0.354	8.99	0.354	11.10	0.437
71725-XXXH	9.40	0.370	2.79	0.110	16.00	0.630
87899-XXXH	9.40	0.370	3.05	0.120	13.97	0.550
71284-XXXH	9.45	0.372	3.10	0.122	10.82	0.426
94620-XXXH	9.70	0.382	3.05	0.120	12.70	0.500
94555-XXXH	9.78	0.385	9.78	0.385	12.70	0.500
78564-XXXH	9.91	0.390	9.91	0.390	11.43	0.450
71758-XXXH	10.01	0.394	10.01	0.394	8.51	0.335
95731-XXXH	10.03	0.395	2.79	0.110	21.08	0.830
87887-XXXH	10.03	0.395	3.05	0.120	10.80	0.425
87323-XXXH	10.31	0.406	5.56	0.219	19.05	0.750
87324-XXXH	10.31	0.406	10.31	0.406	10.31	0.406
92002-XXXH	10.41	0.410	3.05	0.120	11.43	0.450
94551-XXXH	10.54	0.415	10.54	0.415	7.37	0.290
95116-XXXH	11.30	0.445	2.79	0.110	22.23	0.875
91508-XXXH	12.70	0.500	3.05	0.120	6.81	0.268
91510-XXXH	12.70	0.500	3.05	0.120	8.64	0.340
91509-XXXH	12.70	0.500	3.05	0.120	16.26	0.640

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

**Unshrouded Headers**  
**2.54 x 2.54 mm (0.100 x 0.100 in.)**

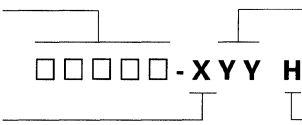
**Description**  
**2-Row Railroad Track BergStik® II Headers**  
**Retentive Leg**



A163396 0985

**Ordering Data**

Base number specifies pin length and style



This digit specifies plating

These digits specify total number of positions (4 through 72 available)

High temperature plastic

**Plating**

0.76  $\mu$ m (30  $\mu$ in.) gold over 1.27  $\mu$ m (50  $\mu$ in.) nickel  
 0.38  $\mu$ m (15  $\mu$ in.) gold over 1.27  $\mu$ m (50  $\mu$ in.) nickel  
 1.27  $\mu$ m (50  $\mu$ in.) gold over 1.27  $\mu$ m (50  $\mu$ in.) nickel

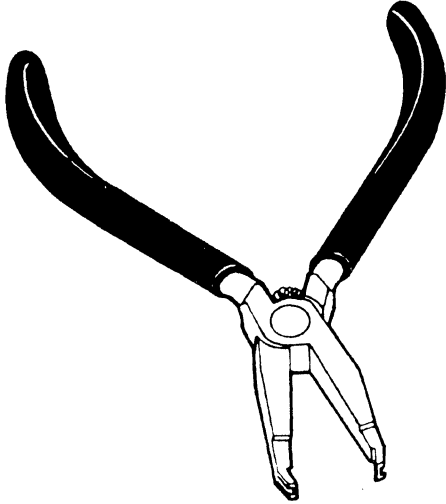
-1YY  
 -2YY  
 -3YY

3.81  $\mu$ m (150  $\mu$ in.) tin-lead  
 0.38  $\mu$ m (15  $\mu$ in.) GXT™ over 1.27  $\mu$ m (50  $\mu$ in.) nickel  
 0.76  $\mu$ m (30  $\mu$ in.) GXT™ over 1.27  $\mu$ m (50  $\mu$ in.) nickel

-4YY  
 -5YY  
 -6YY

Part Numbers	Dimensions					
	H-Mating Length		G-Tail Length		J-Board to Board (Height Above Board)	
	mm	in.	mm	in.	mm	in.
87450-XYYH	3.05	0.120	3.05	0.120	15.24	0.600
87451-XYYH	3.05	0.120	3.05	0.120	19.05	0.750
71733-XYYH	5.08	0.200	3.05	0.120	15.24	0.600
88715-XYYH	5.33	0.210	3.05	0.120	7.87	0.310
93978-XYYH	5.84	0.230	2.16	0.085	17.78	0.700
88808-XYYH	5.84	0.230	3.05	0.120	5.08	0.200
71278-XYYH	5.84	0.230	3.05	0.120	5.69	0.224
95779-XYYH	5.84	0.230	3.05	0.120	7.87	0.310
71259-XYYH	5.84	0.230	3.05	0.120	9.91	0.390
92663-XYYH	5.84	0.230	3.05	0.120	11.43	0.450
95778-XYYH	5.84	0.230	3.05	0.120	26.92	1.060
86823-XYYH	6.35	0.250	3.05	0.120	9.91	0.390
95090-XYYH	6.48	0.255	3.05	0.120	16.89	0.665
94536-XYYH	6.48	0.255	3.05	0.120	23.24	0.915
89696-XYYH	7.11	0.280	3.05	0.120	13.72	0.540
87919-XYYH	7.37	0.290	3.05	0.120	10.67	0.420
87048-XYYH	7.49	0.295	3.05	0.120	23.50	0.925
89579-XYYH	7.87	0.310	3.05	0.120	12.70	0.500
93968-XYYH	8.08	0.318	3.05	0.120	9.53	0.375
94622-XYYH	8.38	0.330	3.05	0.120	6.35	0.250
92028-XYYH	9.47	0.373	3.05	0.120	17.53	0.690
95708-XYYH	10.03	0.395	3.05	0.120	5.08	0.200
71260-XYYH	10.03	0.395	3.05	0.120	11.43	0.450
95606-XYYH	10.03	0.395	3.05	0.120	15.24	0.600
95034-XYYH	10.03	0.395	3.05	0.120	19.05	0.750
94618-XYYH	10.16	0.400	3.05	0.120	7.62	0.300

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

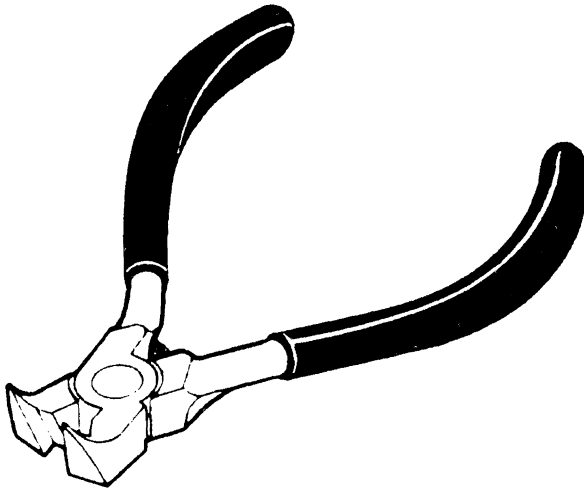


## HT-115 BergStik® Header Polarizing Tool

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### Features

- Used to polarize BergStik® Headers

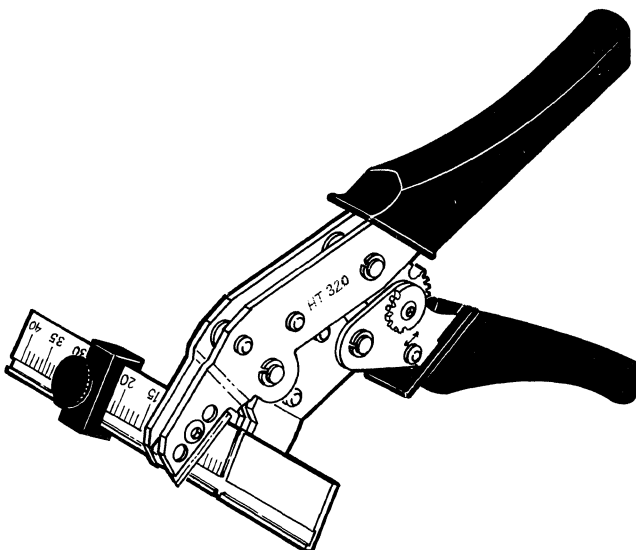


## HT-116 BergStik® Header Parting Tool

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### Features

- Used to break or cut to length single row BergStik® Headers



## HT-320 BergStik® Header Cutting Tool

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### Features

- Used to cut BergStik® Headers to specified number of positions

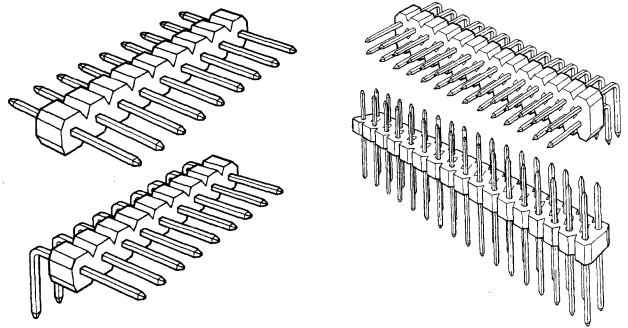
A18396-0777

# Unshrouded Headers

2.54 x 2.54 mm (0.100 x 0.100 in.)

Centerlines

**BergStik® II Duplex-Plated Headers**  
**BergCon® System**



A18396-0775

## Features

- 1-Row: 1 through 36 total positions.  
2-Row: 2 through 72 total positions.  
3-Row: 9 through 108 total positions.
- End-to-end and side-to-side stackable on 2.54 mm (0.100 in.) centerlines.
- Can be manually broken to the desired length.
- Drawn (not stamped) 0.64 mm (0.025 in.) square wire presents four surfaces of equal quality.
- Standoffs allow cleaning to eliminate soldering contaminants.
- High-temperature plastic for infra-red soldering operations.
- Available with gold and tin-lead platings.

## Options

- Custom polarization available.

## Mating Data

Mates with 0.64 mm (0.025 in.) compatible receptacles on 2.54 mm (0.100 in.) centerlines.


### Berg Electronics Products Page


- Card Connectors . . . . . 13-122, 13-132, and 13-136
- PV™/Mini-latch Housing . . . . . 13-4 and 13-16
- Quickie III™ . . . . . 23-4
- Clincher™ . . . . . 20-2
- Mini-jump™ . . . . . 13-44

## Specifications

- MIL-G-45204
- MIL-P-55110
- MIL-P-81728
- QQ-W-343
- ASTM B-159

## Approvals and Certifications

 File no. E66906

 File no. LR46923

## Technical Data

### Materials

- Housing material . . . . . High temperature, Glass-filled PCT (UL 94 V-0)
  - ▶ Color . . . . . Black
  - ▶ Applicable soldering processes . . . . . Wave, Vapor-phase, IR reflow
- Pin . . . . . Phosphor-bronze

### Plating

- Underplate . . . . . 1.27 µm (50 µin.) nickel
- Finish
  - ▶ Contact area . . . . . 0.38 µm (15 µin.) gold or 0.76 µm (30 µin.) gold
  - ▶ Solder area . . . . . 2.54 µm (100 µin.) tin-lead

### Electrical Performance

- Insulation resistance . . . . . 5000 MΩ min
- Withstanding voltage . . . . . 1500 V ac rms (sea level)
- Current rating . . . . . 3 amp continuous

### Mechanical Performance

- Contact retention (pin to housing) . . . . . 8.88 N (2 lbf)

### Operating Environment

- Temperature range . . . . . -65°C to +130°C

### Packaging

- Antistatic Bags
- Antistatic Tubes . . . . . available on selected part numbers

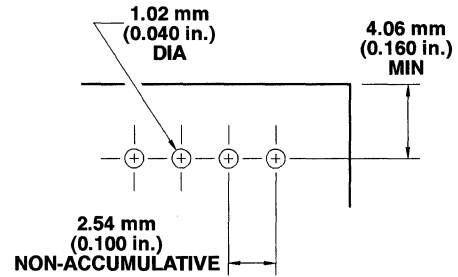
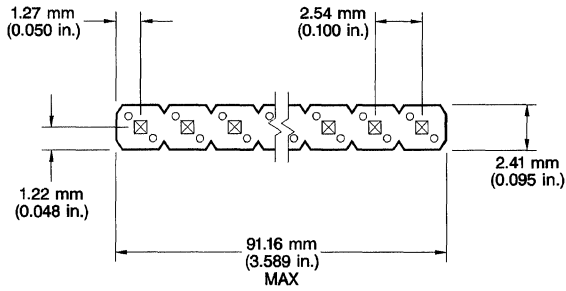
## Customer Support Materials

Description	Order No.
Customer Product Drawings . . . . .	By Part Number
Product Specifications . . . . .	BUS-12-114
Product Substitutions . . . . .	Contact Technical Support

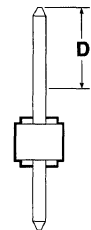
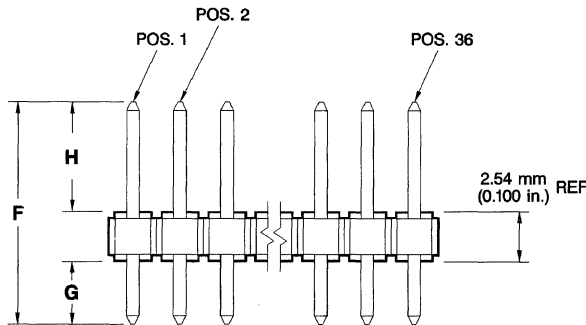
Description	Order No.
Product Samples . . . . .	Upon Request
Test Data . . . . .	Upon Request

## Description

### Straight 1-Row BergStik® II Duplex-Plated Headers

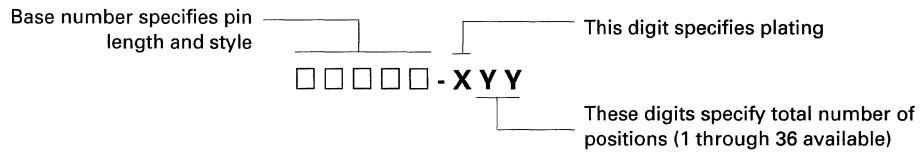


**RECOMMENDED HOLE PATTERN**



**SOLDER TAIL**

## Ordering Data



0.76  $\mu$ m (30  $\mu$ in.) gold over 1.27  $\mu$ m (50  $\mu$ in.) nickel on contact area -1YY  
0.38  $\mu$ m (15  $\mu$ in.) gold over 1.27  $\mu$ m (50  $\mu$ in.) nickel on contact area -2YY

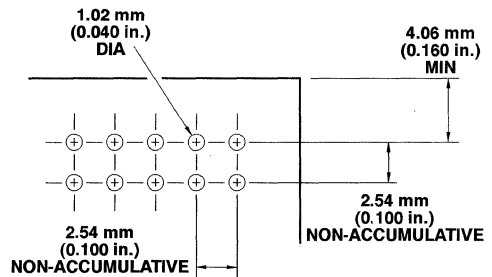
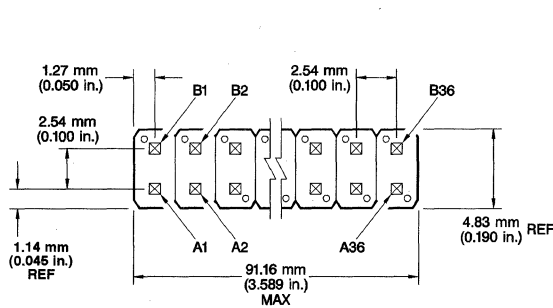
## Plating

Part Numbers	Dimensions							
	H-Mating (Length Above Plastic)		G-Tail (Length Below Plastic)		F (Overall Pin Length)		D (Contact Area)	
	mm	in.	mm	in.	mm	in.	mm	in.
94645-XY	5.84	0.230	2.41	0.095	10.80	0.425	4.70	0.185
94659-XY	5.84	0.230	3.05	0.120	11.43	0.450	4.70	0.185
94684-XY	5.84	0.230	3.81	0.150	12.19	0.480	4.70	0.185
94660-XY	8.08	0.318	2.72	0.107	13.34	0.525	5.08	0.200
94661-XY	8.08	0.318	3.81	0.150	14.43	0.568	5.08	0.200

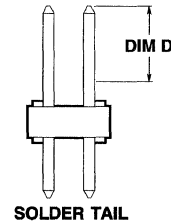
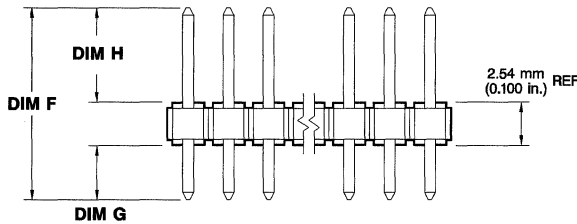
Ordering data shown is for our standard product offering. for non-standard or custom products, contact your authorized Berg Electronics representative.

**Unshrouded Headers**  
**2.54 x 2.54 mm (0.100 x 0.100 in.)**

**Description**  
**Straight 2-Row BergStik® II Duplex-Plated Headers**



**RECOMMENDED HOLE PATTERN**



**Ordering Data**

Base number specifies pin length and style

□ □ □ □ □ - X Y Y

This digit specifies plating

These digits specify total number of positions (2 through 72 available)

**Plating**

0.76  $\mu$ m (30  $\mu$ in.) gold over 1.27  $\mu$ m (50  $\mu$ in.) nickel on contact area  
 0.38  $\mu$ m (15  $\mu$ in.) gold over 1.27  $\mu$ m (50  $\mu$ in.) nickel on contact area

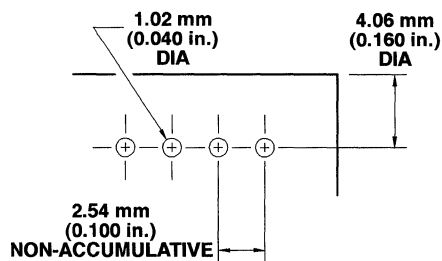
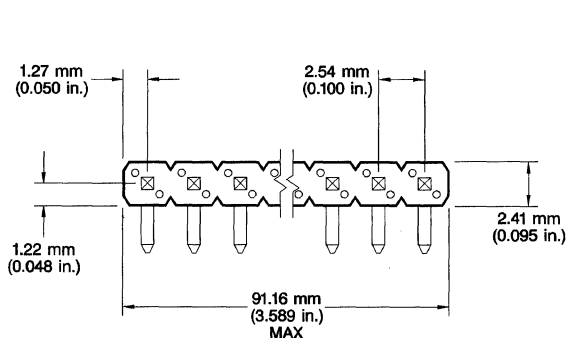
-1YY  
 -2YY

Part Numbers	Dimensions							
	H-Mating (Length Above Plastic)		G-Tail (Length Below Plastic)		F (Overall Pin Length)		D (Contact Area)	
	mm	in.	mm	in.	mm	in.	mm	in.
94644-XY	5.84	0.230	2.41	0.095	10.80	0.425	4.70	0.185
94656-XY	5.84	0.230	3.05	0.120	11.43	0.450	4.70	0.185
94683-XY	5.84	0.230	3.81	0.150	12.19	0.480	4.70	0.185
94657-XY	8.08	0.318	2.72	0.107	13.34	0.525	5.08	0.200
94658-XY	8.08	0.318	3.81	0.150	14.43	0.568	5.08	0.200

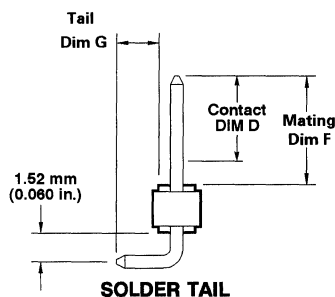
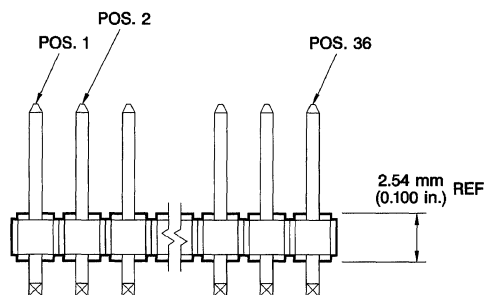
Ordering data shown is for our standard product offering. for non-standard or custom products, contact your authorized Berg Electronics representative.

### Description

### Right-Angle 1-Row BergStik® II Duplex-Plated Headers



RECOMMENDED HOLE PATTERN



SOLDER TAIL

### Ordering Data

Base number specifies pin length and style

This digit specifies plating

□ □ □ □ - X Y Y

These digits specify total number of positions (1 through 36 available)

0.76 μm (30 μin.) gold over 1.27 μm (50 μin.) nickel on contact area  
0.38 μm (15 μin.) gold over 1.27 μm (50 μin.) nickel on contact area

-1YY  
-2YY

### Plating

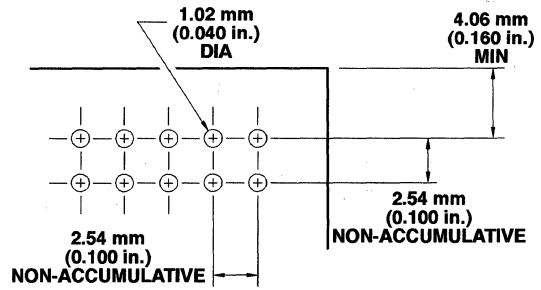
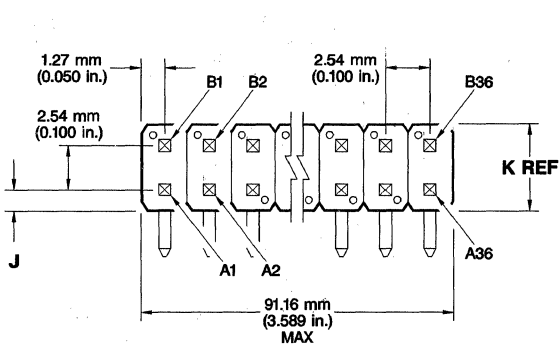
Part Numbers	Dimensions					
	F-Mating (Length Above Plastic)		G-Tail (Length Below Plastic)		D (Contact Area)	
	mm	in.	mm	in.	mm	in.
94647-XY	5.84	0.230	2.41	0.095	4.70	0.185
94651-XY	5.84	0.230	3.05	0.120	4.70	0.185
94652-XY	8.08	0.318	2.72	0.107	5.08	0.200
94653-XY	8.08	0.318	3.81	0.150	5.08	0.200

Ordering data shown is for our standard product offering. for non-standard or custom products, contact your authorized Berg Electronics representative.

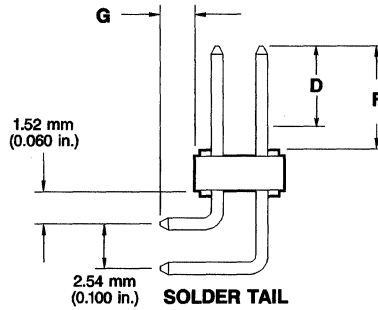
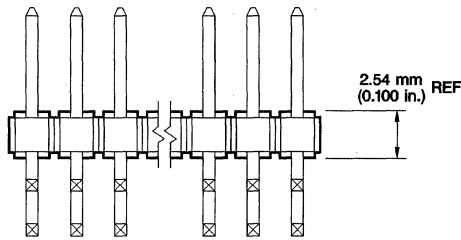


**Unshrouded Headers**  
**2.54 x 2.54 mm (0.100 x 0.100 in.)**

**Description**  
**Right-Angle 2-Row BergStik® II Duplex-Plated Headers**



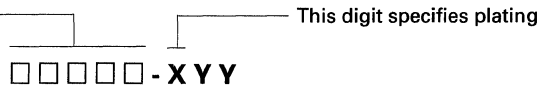
**RECOMMENDED HOLE PATTERN**



**SOLDER TAIL**

**Ordering Data**

Base number specifies pin length and style



These digits specify total number of positions (2 through 72 available)

**Plating**

0.76 µm (30 µin.) gold over 1.27 µm (50 µin.) nickel on contact area  
 0.38 µm (15 µin.) gold over 1.27 µm (50 µin.) nickel on contact area

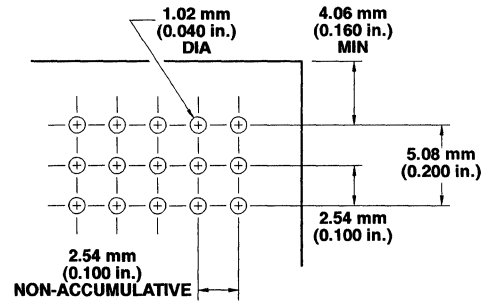
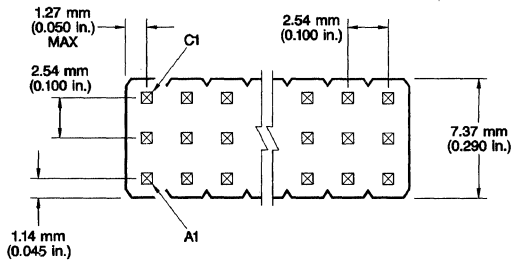
-1YY  
 -2YY

Part Numbers	Dimensions									
	F-Mating (Length Above Plastic)		G-Tail (Length Below Plastic)		J (Pin To Side)		K (Body Width)		D (Contact Area)	
	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.
94646-XY	5.84	0.230	2.41	0.095	1.14	0.045	4.83	0.190	4.70	0.185
94692-XY	5.84	0.230	2.41	0.095	1.78	0.070	6.10	0.240	4.70	0.185
94648-XY	5.84	0.230	3.05	0.120	1.14	0.045	4.83	0.190	4.70	0.185
94693-XY	5.84	0.230	3.05	0.120	1.78	0.070	6.10	0.240	4.70	0.185
94649-XY	8.08	0.318	2.72	0.107	1.14	0.045	4.83	0.190	5.08	0.200
94694-XY	8.08	0.318	2.72	0.107	1.78	0.070	6.10	0.240	5.08	0.200
94650-XY	8.08	0.318	3.81	0.150	1.14	0.045	4.83	0.190	5.08	0.200
94695-XY	8.08	0.318	3.81	0.150	1.78	0.070	6.10	0.240	5.08	0.200

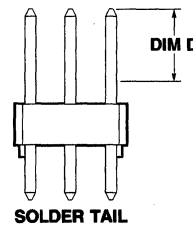
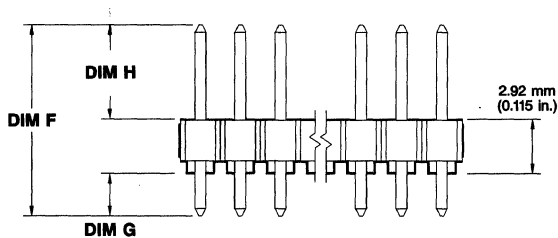
Ordering data shown is for our standard product offering. for non-standard or custom products, contact your authorized Berg Electronics representative.

## Description

### Straight 3-Row BergStik® II Duplex-Plated Headers

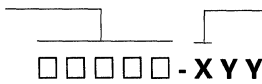


RECOMMENDED HOLE PATTERN



## Ordering Data

Base number specifies pin length and style



This digit specifies plating

These digits specify total number of positions (3 through 36 available)

0.76  $\mu$ m (30  $\mu$ in.) gold over 1.27  $\mu$ m (50  $\mu$ in.) nickel on contact area  
0.38  $\mu$ m (15  $\mu$ in.) gold over 1.27  $\mu$ m (50  $\mu$ in.) nickel on contact area

-1YY  
-2YY

## Plating

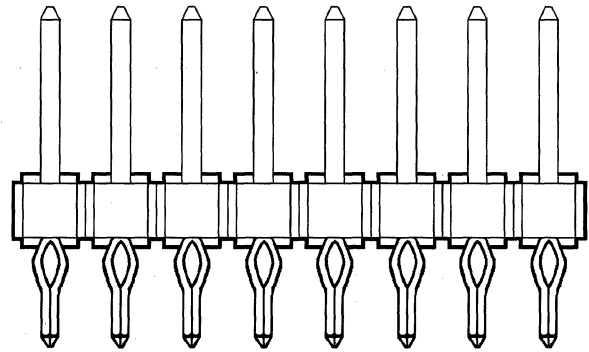
Part Numbers	Dimensions							
	H-Mating (Length Above Plastic)		G-Tail (Length Below Plastic)		F (Overall Pin Length)		D (Contact Area)	
	mm	in.	mm	in.	mm	in.	mm	in.
95051-XY	5.84	0.230	2.41	0.095	11.18	0.440	4.70	0.185
95052-XY	5.84	0.230	3.05	0.120	11.81	0.465	4.70	0.185
95055-XY	5.84	0.230	3.81	0.150	12.57	0.495	4.70	0.185
95053-XY	8.08	0.318	2.72	0.107	13.72	0.540	5.08	0.200
95054-XY	8.08	0.318	3.81	0.150	14.81	0.583	5.08	0.200

Ordering data shown is for our standard product offering. for non-standard or custom products, contact your authorized Berg Electronics representative.

# Unshrouded Headers

2.54 x 2.54 mm (0.100 x 0.100 in.)  
Centerlines

**BergStik® II Press-Fit Headers**  
**BergCon® System**



## Features

- 1-Row: 1 through 36 total positions.  
2-Row: 2 through 72 total positions.  
3-Row: 9 through 108 total positions.
- End-to-end and side-to-side stackable on 2.54 mm (0.100 in.) centerlines.
- Can be manually broken to the desired length.
- Drawn (not stamped) 0.64 mm (0.025 in.) square wire presents four surfaces of equal quality.
- High-temperature plastic.
- Available with duplex (gold/tin-lead) and simplex tin-lead platings.
- Tin-lead plating in press-fit area facilitates pin insertion to P.C. board.
- Press-fit feature is designed for use in the same 1.02 mm (0.040 in.) diameter PCB hole as solder-to-board product. No PCB redesign is necessary.

## Options

- Custom polarization available.

## Mating Data

Mates with 0.64 mm (0.025 in.) compatible receptacles on 2.54 mm (0.100 in.) centerlines.

Berg Electronics Products	Page
▪ Card Connectors . . . . .	13-122, 13-132, and 13-136
▪ PV™/Mini-latch Housing . . . . .	13-4 and 13-16
▪ Quickie III™ . . . . .	23-4
▪ Clincher™ . . . . .	20-2
▪ Mini-jump™ . . . . .	13-44

## Specifications

- MIL-G-45204
- MIL-P-55110
- MIL-P-81728
- QQ-W-343
- ASTM B-159

## Approvals and Certifications

File no. E66906

File no. LR46923

## Application Equipment

Description	Page
▪ Assembly tooling . . . . .	13-80

## Technical Data

### Materials

- Housing material . . . . . High temperature, Glass-filled PCT (UL 94 V-0)
  - ▶ Color . . . . . Black
- Pin . . . . . Phosphor-bronze

### Plating

- Underplate . . . . . 1.27 µm (50 µin.) nickel
- Finish (Duplex-plated)
  - ▶ Contact area . . . . . 0.38 µm (15 µin.) gold or 0.76 µm (30 µin.) gold
  - ▶ Press-fit area . . . . . tin-lead
- Finish (Simplex-plated) . . . . . 3.81 µm (150 µin.) tin-lead

### Electrical Performance

- Insulation resistance . . . . . 5000 MΩ min
- Withstanding voltage . . . . . 1500 V ac rms (sea level)
- Current rating . . . . . 3 amp continuous

### Mechanical Performance

- Contact retention (pin to housing) . . . . . 8.88 N (2 lbf)

### Operating Environment

- Temperature range . . . . . -65°C to +130°C

### Packaging

- Antistatic Bags
- Antistatic Tubes . . . . . available on selected part numbers

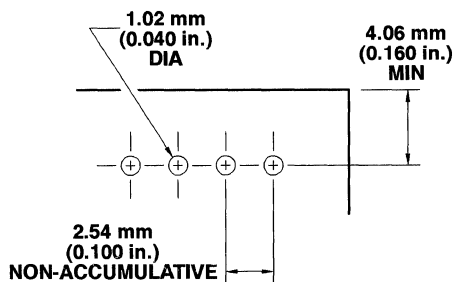
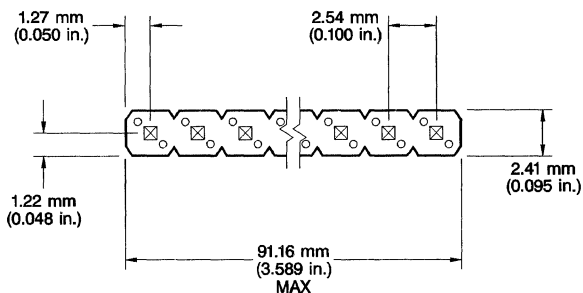
## Customer Support Materials

Description	Order No.
Customer Product Drawings . . . . .	By Part Number
Product Specifications . . . . .	Contact Technical Support
Product Substitutions . . . . .	Contact Technical Support

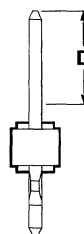
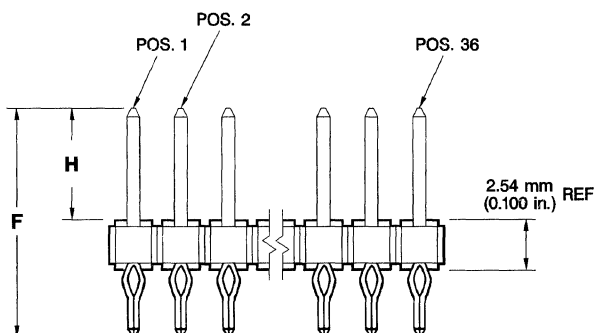
Description	Order No.
Product Samples . . . . .	Upon Request
Test Data . . . . .	Upon Request
Installation Instructions	
▪ Single row . . . . .	Ref. 166576
▪ Double row . . . . .	Ref. 166577
▪ Triple row . . . . .	Ref. 166578

## Description

### Straight 1-Row BergStik® II Duplex-Plated Press-Fit Headers



**RECOMMENDED HOLE PATTERN**



## Ordering Data

Base number specifies pin length and style

This digit specifies plating

□ □ □ □ □ - X Y Y

These digits specify total number of positions (1 through 36 available)

0.76  $\mu\text{m}$  (30  $\mu\text{in.}$ ) gold over 1.27  $\mu\text{m}$  (50  $\mu\text{in.}$ ) nickel on contact area  
0.38  $\mu\text{m}$  (15  $\mu\text{in.}$ ) gold over 1.27  $\mu\text{m}$  (50  $\mu\text{in.}$ ) nickel on contact area  
3.81  $\mu\text{m}$  (150  $\mu\text{in.}$ ) tin-lead on entire pin

-1YY  
-2YY  
-4YY

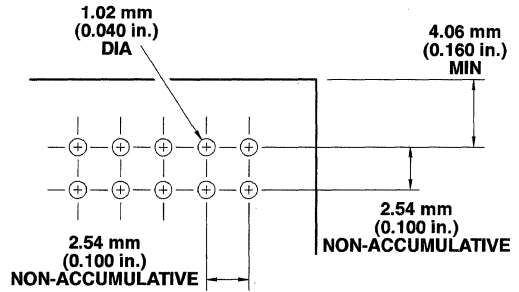
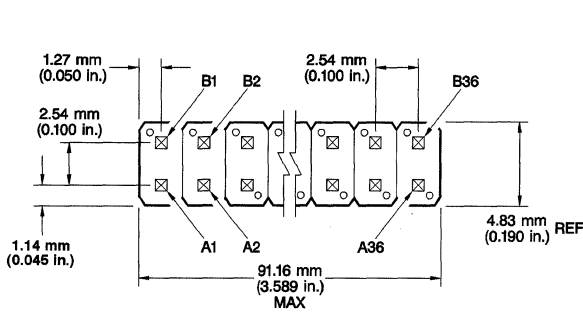
## Plating

Part Numbers	Dimensions					
	H-Mating (Length Above Plastic)		F (Overall Pin Length)		D (Contact Area)	
	mm	in.	mm	in.	mm	in.
94673-XY Y	5.84	0.230	12.83	0.505	4.70	0.185
94676-XY Y	8.08	0.318	15.06	0.593	5.08	0.200

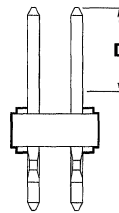
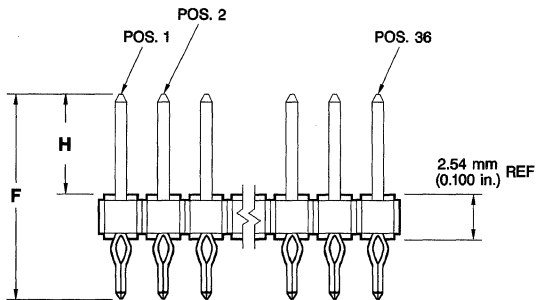
Ordering data shown is for our standard product offering. for non-standard or custom products, contact your authorized Berg Electronics representative.

**Unshrouded Headers**  
**2.54 x 2.54 mm (0.100 x 0.100 in.)**

**Description**  
**Straight 2-Row BergStik® II Duplex-Plated Press-Fit Headers**



**RECOMMENDED HOLE PATTERN**



**Ordering Data**

Base number specifies pin length and style

□ □ □ □ □ - X Y Y

This digit specifies plating

These digits specify total number of positions (2 through 72 available)

**Plating**

0.76  $\mu$ m (30  $\mu$ in.) gold over 1.27  $\mu$ m (50  $\mu$ in.) nickel on contact area  
 0.38  $\mu$ m (15  $\mu$ in.) gold over 1.27  $\mu$ m (50  $\mu$ in.) nickel on contact area  
 3.81  $\mu$ m (150  $\mu$ in.) tin-lead on entire pin

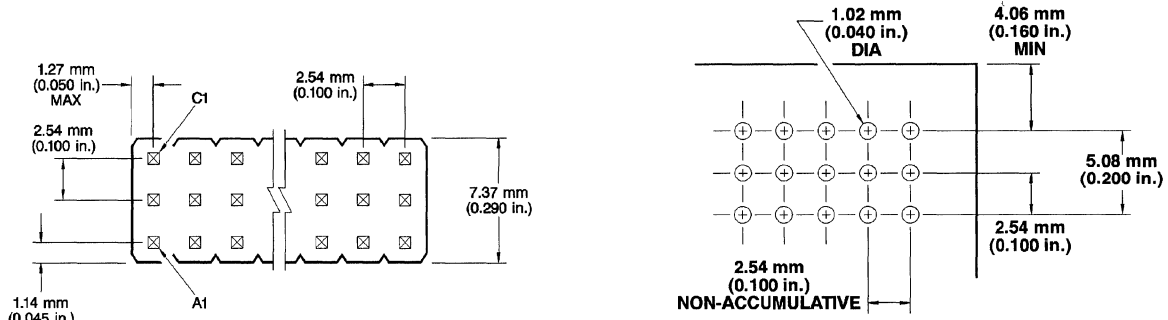
-1YY  
 -2YY  
 -4YY

Part Numbers	Dimensions					
	H-Mating (Length Above Plastic)		F (Overall Pin Length))		D (Contact Area)	
	mm	in.	mm	in.	mm	in.
94674-XY Y	5.84	0.230	12.83	0.505	4.70	0.185
94677-XY Y	8.08	0.318	15.06	0.593	5.08	0.200

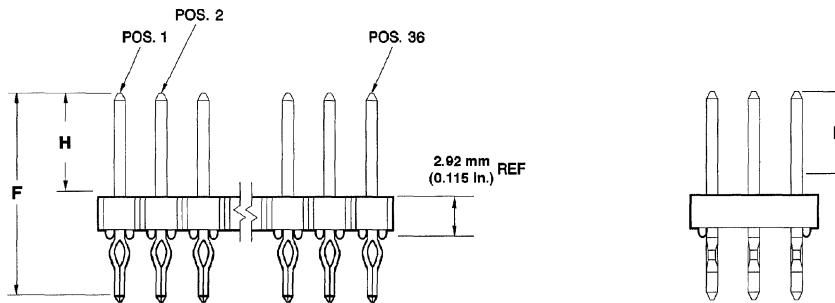
Ordering data shown is for our standard product offering. for non-standard or custom products, contact your authorized Berg Electronics representative.

## Description

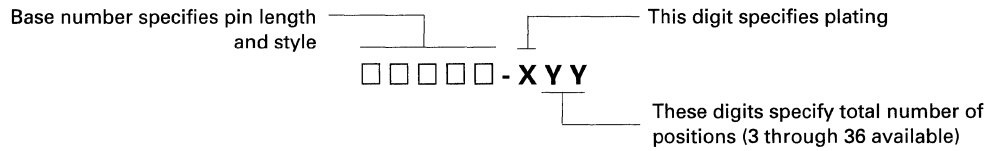
### Straight 3-Row BergStik® II Duplex-Plated Press-Fit Headers



RECOMMENDED HOLE PATTERN



## Ordering Data



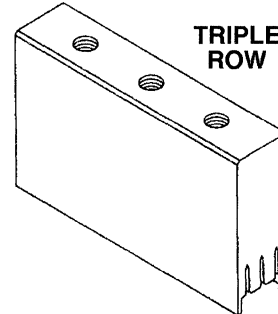
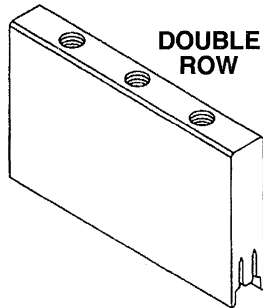
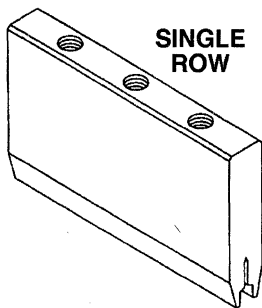
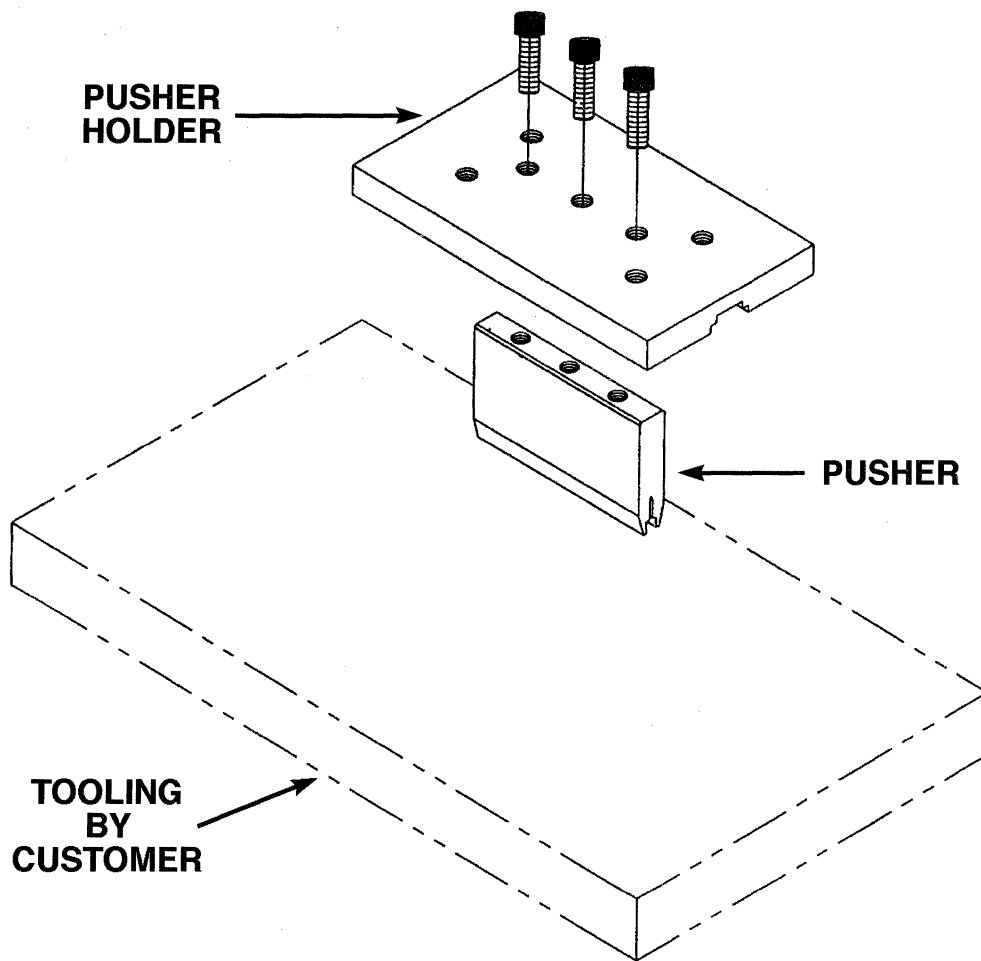
0.76 μm (30 μin.) gold over 1.27 μm (50 μin.) nickel on contact area	-1YY
0.38 μm (15 μin.) gold over 1.27 μm (50 μin.) nickel on contact area	-2YY
3.81 μm (150 μin.) tin-lead on entire pin	-4YY

## Plating

Part Numbers	Dimensions					
	H-Mating (Length Above Plastic)		F (Overall Pin Length)		D (Contact Area)	
	mm	in.	mm	in.	mm	in.
95154-XY Y	5.84	0.230	13.21	0.520	4.70	0.185
95155-XY Y	8.08	0.318	15.44	0.608	5.08	0.200

Ordering data shown is for our standard product offering. for non-standard or custom products, contact your authorized Berg Electronics representative.

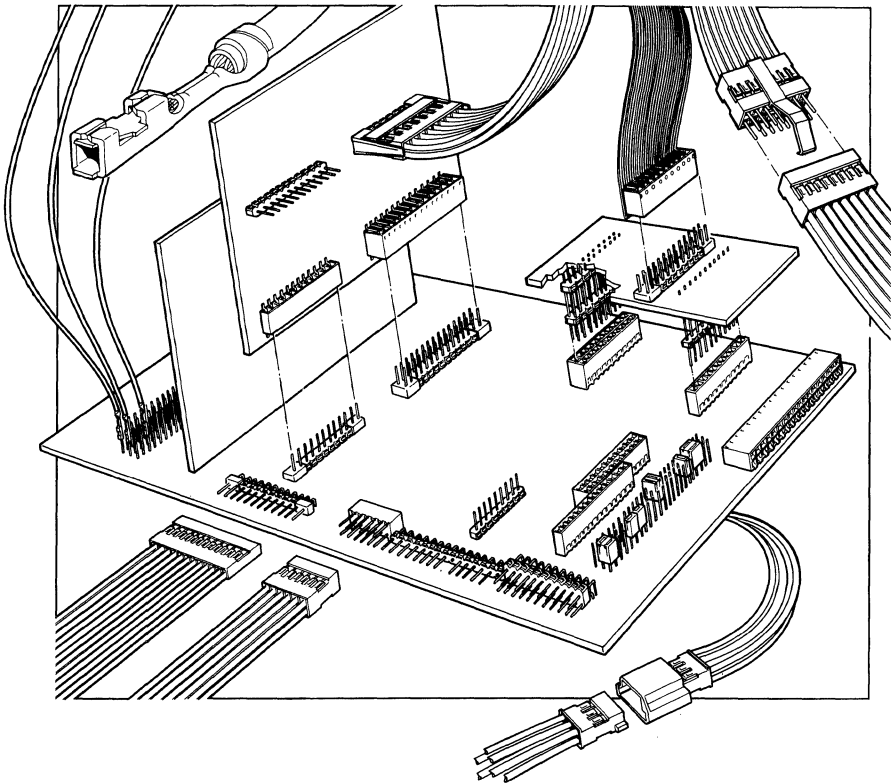
# Assembly Tooling



## Ordering Data

Pin Height		For Product Part Number	Order tooling assembly number
mm	in.		
5.84	0.230	94673-XYX	166576-0YY
5.84	0.230	94674-XYX	166576-2YY
5.84	0.230	95154-XYX	166576-4YY
8.08	0.318	94676-XYX	166576-1YY
8.08	0.318	94677-XYX	166576-3YY
8.08	0.318	95155-XYX	166576-5YY

Note: Assembly tooling consists of one pusher holder and one pusher. Both are sized appropriately for the product type and size indicated.



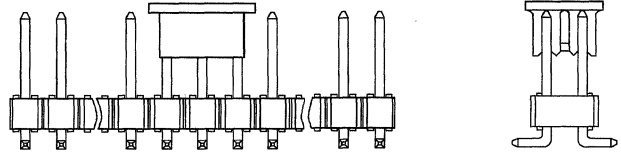
A183396-0316



# Unshrouded Headers

2.54 x 2.54 mm (0.100 x 0.100 in.)  
Centerlines

## BergStik® II Surface-Mount Headers BergCon® System



### Features

- 2-Row: 2 through 34 total positions.
- End-to-end stackable on 2.54 mm (0.100 in.) centerlines.
- Can be manually broken to the desired length.
- Drawn (not stamped) 0.64 mm (0.025 in.) square wire presents four surfaces of equal quality.
- High-temperature plastic for infra-red soldering operations.
- Available with gold and tin-lead platings.

### Options

- Tape-on-reel, bags, or tube packaging.
- Custom polarization available.
- Hi temp vacuum pick up cap for 4 mm nozzle. Vision compatible.

### Mating Data


Mates with 0.64 mm (0.025 in.) compatible receptacles on 2.54 mm (0.100 in.) centerlines.


Berg Electronics Products	Page
▪ Card Connectors . . . . .	13-122, 13-132, and 13-136
▪ PV™/Mini-latch Housing . . . . .	13-4 and 13-16
▪ Quickie III™ . . . . .	23-4
▪ Clincher™ . . . . .	20-2
▪ Mini-jump™ . . . . .	13-44

### Specifications

- MIL-G-45204
- MIL-P-55110
- MIL-P-81728
- QQ-W-343
- ASTM B-159

### Approvals and Certifications

 File no. E66906

 File no. LR46923

### Technical Data

#### Materials

- Housing material . . . . . High temperature, Glass-filled PCT (UL 94 V-0)
  - ▶ Color . . . . . Black
  - ▶ Applicable soldering processes . . . . . Wave, Vapor-phase, IR reflow
- Pin . . . . . Phosphor-bronze

#### Plating

- Underplate . . . . . 1.27 µm (50 µin.) nickel
- Finish (Duplex-plated)
  - ▶ Contact area . . . . . 0.38 µm (15 µin.) gold or 0.76 µm (30 µin.) gold
  - ▶ Surface-mount area . . . . . tin-lead
- Finish (Simplex-plated) . . . . . 0.38 µm (15 µin.) gold or 0.76 µm (30 µin.) gold or 1.27 µm (50µin.) gold or 0.38 µm (15 µin.) GXT™ or 0.76 µm (30 µin.) GXT™
- Finish (Simplex-plated) . . . . . 3.81 µm (150 µin.) tin-lead

#### Electrical Performance

- Insulation resistance . . . . . 5000 MΩ min
- Withstanding voltage . . . . . 1500 V ac rms (sea level)
- Current rating . . . . . 3 amp continuous

#### Mechanical Performance

- Contact retention (pin to housing) . . . . . 8.88 N (2 lbf)

#### Operating Environment

- Temperature range . . . . . -65°C to +130°C

#### Packaging

- Antistatic Bags . . . . . Standard
- Antistatic Tubes . . . . . available on selected part numbers
- Tape-on-reel . . . . . Available on selected part numbers

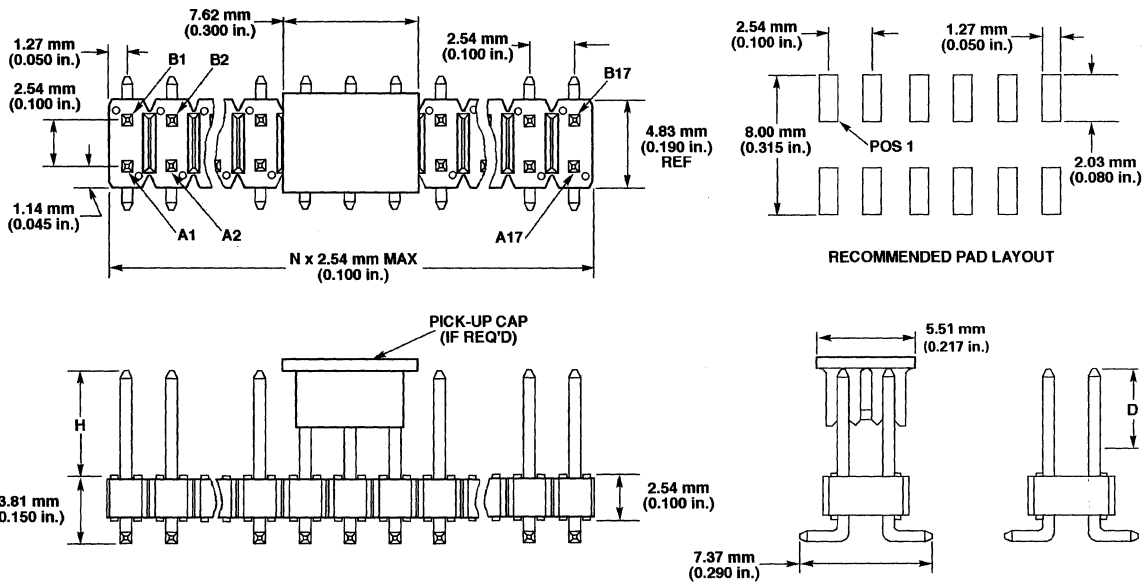
### Customer Support Materials

Description	Order No.
Customer Product Drawings . . . . .	By Part Number
Product Specifications . . . . .	BUS-12-114
Product Substitutions . . . . .	Contact Technical Support

Description	Order No.
Product Samples . . . . .	Upon Request
Test Data . . . . .	Upon Request

### Description

### Straight 2-Row BergStik® II Surface-Mount Headers



### Ordering Data Duplex Plated

Base number specifies pin length and style

This digit specifies plating

□ □ □ □ - X Y Y

These digits specify total number of positions (4 through 34 available)

0.76 μm (30 μin.) gold over 1.27 μm (50 μin.) nickel on contact area  
0.38 μm (15 μin.) gold over 1.27 μm (50 μin.) nickel on contact area

-1YY  
-2YY

### Plating

Part Numbers	Dimensions			
	H-Mating (Length Above Plastic)		D (Contact Area)	
	mm	in.	mm	in.
95157-XY Y	5.84	0.230	4.70	0.185
95159-XY Y	8.08	0.318	5.08	0.200

### Ordering Data Simplex Plated

Base number specifies pin length and style

These digits specify total number of positions (4 through 34 available)

□ □ □ □ □ - X Y Y H

This digit specifies plating

High temperature plastic

0.76 μm (30 μin.) gold over 1.27 μm (50 μin.) nickel  
0.38 μm (15 μin.) gold over 1.27 μm (50 μin.) nickel  
1.27 μm (50 μin.) gold over 1.27 μm (50 μin.) nickel

-1YY  
-2YY  
-3YY

3.81 μm (150 μin.) tin-lead  
0.38 μm (15 μin.) GXT™ over 1.27 μm (50 μin.) nickel  
0.76 μm (30 μin.) GXT™ over 1.27 μm (50 μin.) nickel

-4YY  
-5YY  
-6YY

### Plating

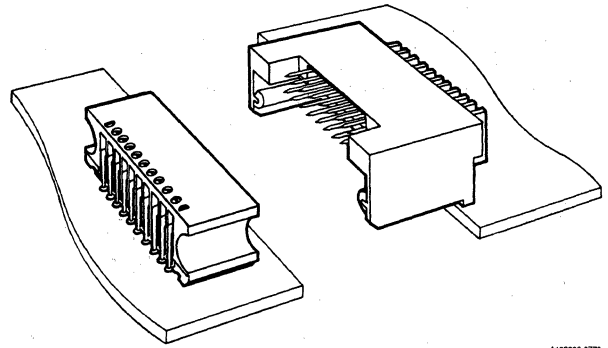
Part Numbers	H-Mating (Length Above Plastic)	
	mm	in.
	71276-XY YH	5.84
71277-XY YH	8.08	0.318

Ordering data shown is for our standard product offering. for non-standard or custom products, contact your authorized Berg Electronics representative.

# Shrouded Headers

2.54 x 2.54 mm (0.100 x 0.100 in.)  
Centerlines

## Right-Angle 2-Row Guide Pin Header BergCon® System



A183396-0778

### Features

- 2-Row: 2 through 50 positions per row.
- Guide posts assure header and card connector alignment before contact engagement in card extender applications.
- Three-wall shielding protects pins in unmated condition and prevents misalignment.
- Standoffs allow cleaning to remove soldering contaminants.
- Connector housing will withstand vapor-phase soldering temperatures.

### Options

- Available with retentive leg.
- Available in GXT™ (palladium-nickel alloy with gold flash) plating.

### Mating Data

Mates with 2-row horizontal and 2-row vertical PV™ card connector with radius end. See page 13-126.

### Specifications

- MIL-G-45205
- MIL-P-55110
- QQ-W-343
- MIL-STD-105

### Approvals and Certifications



File no. E66906



File no. LR46923

### Technical Data

#### Materials

- Housing material ..... Glass-filled thermoplastic (UL 94 V-0)
  - ▶ Color ..... Black
  - ▶ Applicable Soldering processes ..... Wave, Vapor-phase,
- Pin ..... Phosphor-bronze

#### Plating

- Underplate ..... 1.27 μm (50 μin.) min nickel
- Finish ..... Series number 69924-XYX:  
0.38 μm (15 μin.) min gold  
or Series number 69925-XYX:  
0.76 μm (30 μin.) min gold  
or Series number 69923-XYX:  
0.76 μm (30 μin.) min GXT™
- Finish ..... Series number 69927-XYX:  
3.81 μm (150 μin.) min tin-lead

#### Electrical Performance

- Insulation resistance ..... 5000 MΩ min
- Withstanding voltage ..... 1000 V ac rms (sea level)
- Current rating ..... 3 amp continuous

#### Mechanical Performance

- Contact retention ..... 13.34 N (3 lbf)

#### Operating Environment

- Temperature range ..... -65°C to +105°C

#### Packaging

- Antistatic Trays

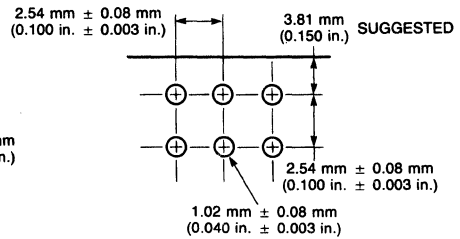
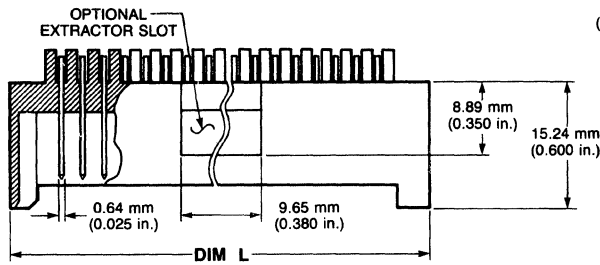
### Customer Support Materials

Description	Order No.
Customer Product Drawings.....	By Part Number
Product Specifications.....	BUS-12-059
Application Drawings.....	N/A

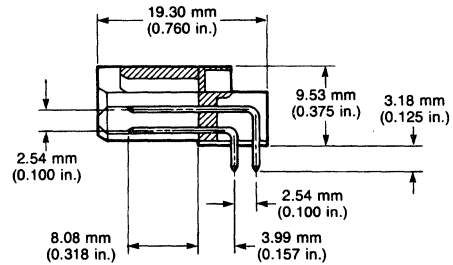
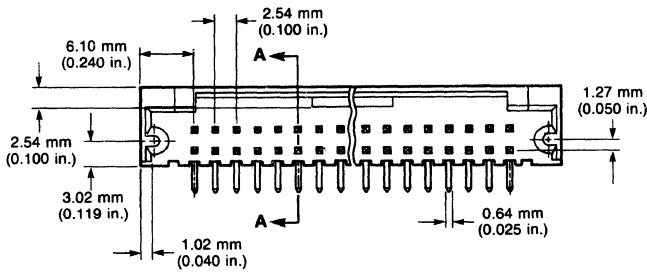
Description	Order No.
Product Samples.....	Upon Request
Test Data.....	Upon Request
Product Substitutions.....	Contact Technical Support

## Description

### Right-Angle 2-Row Guide Pin Header



RECOMMENDED HOLE PATTERN



SECTION A-A

A183396-0779

## Ordering Data

□ □ □ □ □ - X X X

Base number specifies plating

These digits specify total number of positions per row

### Plating Key

- 69924-XXX ..... 0.38  $\mu$ m (15  $\mu$ in.) gold over nickel
- 69925-XXX ..... 0.76  $\mu$ m (30  $\mu$ in.) gold over nickel
- 69923-XXX ..... 0.76  $\mu$ m (30  $\mu$ in.) GXT™ over nickel
- 69927-XXX ..... 3.81  $\mu$ m (150  $\mu$ in.) tin-lead

Dash Number-XXX	Size	Dimensions L*	
		mm	in.
-005	2 x 5	22.35	0.88
through			
-050	2 x 50	136.65	5.38

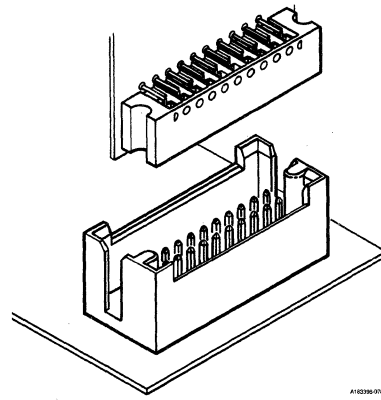
\*For rows 5 through 50, add 2.54 mm (0.100 in.) for each additional row.

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

# Shrouded Headers

2.54 x 2.54 mm (0.100 x 0.100 in.)  
Centerlines

## Vertical 2-Row Guide Pin Header BergCon® System



### Features

- 2-Row: 5 through 50 positions per row.
- Guide posts assure header and card connector alignment before contact engagement in card extender applications.
- Card slot provides polarization.
- Four-wall shielding protects pins in unmated condition and prevents misalignment.
- Standoffs allow cleaning to remove soldering contaminants.
- Connector housing will withstand vapor-phase soldering temperatures.

### Options

- Available with retentive leg.
- Available in GXT™ (palladium-nickel alloy with gold flash) plating.
- Available with drawn-wire square pin for soldering or drawn-wire compliant pin for backplane applications.
- Available in Duplex plating


### Mating Data


Mates with 2-row horizontal and 2-row vertical PV™ card connector with radius end. See page 13-126.

### Specifications

- MIL-G-45205
- MIL-P-55110
- QQ-W-343
- MIL-STD-105

### Approvals and Certifications

 File no. E66906

 File no. LR46923

### Technical Data

#### Materials

- Housing material ..... Hi-temperature thermoplastic (UL 94 V-0)
  - ▶ Color ..... Black
  - ▶ Applicable soldering processes ..... IR reflow
- Pin ..... Phosphor-bronze

#### Plating

- Underplate ..... 1.27 µm (50 µin.) min nickel
- Finish ..... 0.38 µm (15 µin.) min gold or 0.76 µm (30 µin.) min gold or 0.76 µm (30 µin.) min GXT™
- Finish ..... 3.81 µm (150 µin.) min tin-lead or 0.76 µm (30 µin.) min gold with 2.54 µm (100 µ) tin lead tail

#### Electrical Performance

- Insulation resistance ..... 5000 MΩ min
- Withstanding voltage ..... 1000 V ac rms (sea level)
- Current rating ..... 3 amp continuous

#### Mechanical Performance

- Contact retention ..... 13.34 N (3 lbf)

#### Operating Environment

- Temperature range ..... -65°C to +130°C

#### Packaging

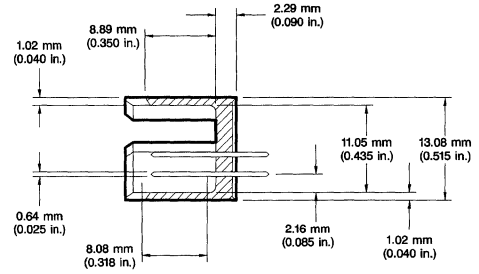
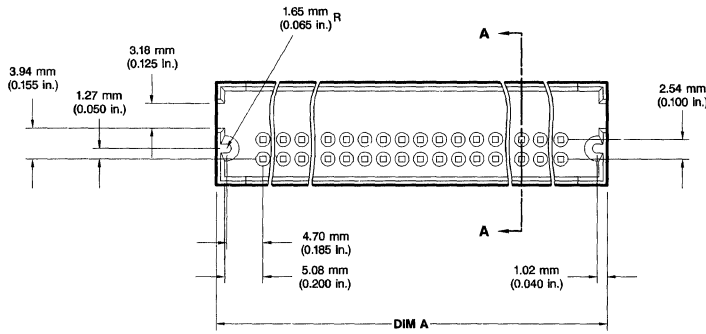
- Antistatic Tubes

### Customer Support Materials

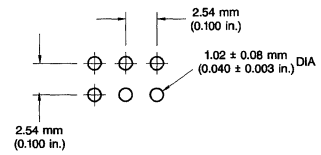
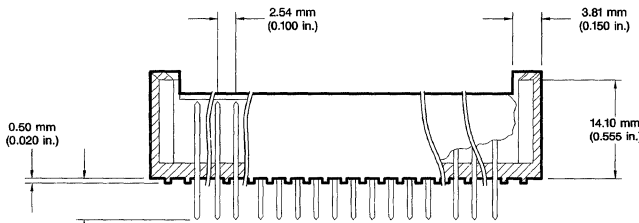
Description	Order No.
Customer Product Drawings.....	By Part Number
Product Specifications.....	BUS-12-059
Application Drawings .....	N/A

Description	Order No.
Product Samples.....	Upon Request
Test Data .....	Upon Request
Product Substitutions.....	Contact Technical Support

### Description Vertical 2-Row Guide Pin Header



SECTION A-A



RECOMMENDED HOLE PATTERN

A183396-0781

### Ordering Data

□ □ □ □ - X X X  
Base number specifies plating ————— These digits specify total number of positions per row

Contact Finish	Dimension L/Base Part Number												
	Solder Tail Lengths				Press Fit Tail Lengths								
	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	
0.38 μm (15 μin.) gold over 1.27 μm (50 μin.) nickel			67274-XXX		67290-XXX		67961-XXX		68831-XXX		68830-XXX		
0.76 μm (30 μin.) gold over 1.27 μm (50 μin.) nickel	68513-XXX		67273-XXX		67289-XXX		67958-XXX		68509-XXX		68251-XXX		
0.76 μm (30 μin.) GXT™ over 1.27 μm (50 μin.) nickel	75850-XXX		68581-XXX		68835-XXX		68833-XXX		68521-XXX		68836-XXX		
3.81 μm (150 μin.) tin-lead			67276-XXX		67292-XXX		69276-XXX		69278-XXX		69280-XXX		
0.76 μm (30 μin.) gold 2.54 μm (100 μin.) tin over 1.27 μm (50 μin.) nickel	90350-XXX		69292-XXX		69284-XXX		69286-XXX		69288-XXX		69290-XXX		

Dash Number-XXX	Size	Dimension A*	
		mm	in.
-005	2 x 5	22.35	0.88
through			
-050	2 x 50	136.65	5.38

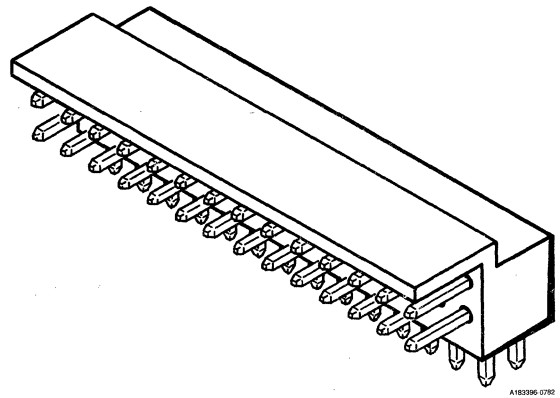
\*For rows 5 through 50, add 2.54 mm (0.100 in.) for each additional row.

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

# Shrouded Headers

2.54 x 2.54 mm (0.100 x 0.100 in.)  
Centerlines

**Right-Angle 2-Row Header**  
**Series 65461**  
**BergCon® System**



## Features

- 2-Row: 6 through 72 total positions.
- Drawn (not stamped) 0.64 mm (0.025 in.) square wire presents four surfaces of equal quality.
- Standoffs allow cleaning to remove soldering contaminants.
- Header material is flame-retardant and unaffected by wave-soldering or board-cleaning agents.

## Options

- Available with optional polarizing slot.
- Available in GXT™ (palladium-nickel alloy with gold flash) plating.

## Mating Data



Mates with 0.64 mm (0.025 in.) receptacles.

Berg Electronics Products	Page
▪ Mini-latch housing . . . . .	13-16
▪ 2-Row horizontal card connector . . . . .	13-122 to 13-128

## Specifications

- MIL-G-45205
- MIL-P-55110
- QQ-W-343
- MIL-STD-105

## Approvals and Certifications

-  File no. E66906
-  File no. LR46923

## Technical Data

### Materials

- Housing material . . . . . Glass-filled thermoplastic (UL 94 V-0)
  - ▶ Color . . . . . Black
  - ▶ Applicable soldering processes . . . . . Wave, Vapor-phase
- Pin . . . . . Phosphor-bronze

### Plating

- Underplate . . . . . 1.27 μm (50 μin.) min nickel
- Finish . . . . . 0.38 μm (15 μin.) min gold or 0.76 μm (30 μin.) min gold or 0.76 μm (30 μin.) min GXT™
- Finish . . . . . 3.81 μm (150 μin.) min tin-lead

### Electrical Performance

- Insulation resistance . . . . . 5000 MΩ min
- Withstanding voltage . . . . . 1000 V ac rms (sea level)
- Current rating . . . . . 3 amp continuous

### Mechanical Performance

- Contact retention . . . . . >44.48 N (10 lbf)

### Operating Environment

- Temperature range . . . . . -65°C to +105°C

### Packaging

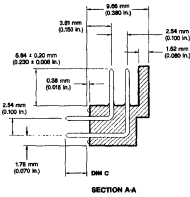
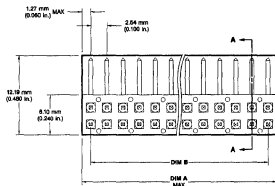
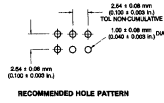
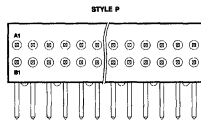
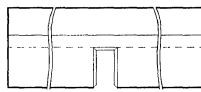
- Trays

## Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawings . . . . .	By Part Number	Product Samples . . . . .	Upon Request
Test Data . . . . .	Upon Request	Product Substitutions . . . . .	Contact Technical Support

## Description

### Right-Angle 2-Row Header, Series 65461



## Ordering Data

### Base No. 65461

□ □ □ □ - X X X

Base number

Dash number specifies total number of positions, style, and plating

Number of Positions	Dash No.	Style (see illustrations)	Plating	Dimensions					
				A		B		C	
				mm	in.	mm	in.	mm	in.
2 x 3	-034	P	0.76 µm (30 µin.) gold	7.62	0.300	5.08	0.200	2.29	0.090
2 x 3	-052	M	0.76 µm (30 µin.) gold	7.62	0.300	5.08	0.200	2.29	0.090
2 x 5	-019	P	0.76 µm (30 µin.) gold	12.70	0.500	10.16	0.400	2.29	0.090
2 x 5	-038	M	0.76 µm (30 µin.) gold	12.70	0.500	10.16	0.400	2.29	0.090
2 x 5	-042	M	0.76 µm (30 µin.) gold	12.70	0.500	10.16	0.400	3.81	0.150
2 x 6	-035	P	0.76 µm (30 µin.) gold	15.24	0.600	12.70	0.500	2.29	0.090
2 x 7	-025	P	0.76 µm (30 µin.) gold	17.78	0.700	15.24	0.600	2.29	0.090
2 x 8	-001	P	0.76 µm (30 µin.) gold	20.32	0.800	17.78	0.700	2.29	0.090
2 x 8	-069	M	0.76 µm (30 µin.) gold	20.32	0.800	17.78	0.700	2.29	0.090
2 x 8	-039	M	0.76 µm (30 µin.) gold	20.32	0.800	17.78	0.700	3.81	0.150
2 x 8	-021	P	0.76 µm (30 µin.) gold	20.32	0.800	17.78	0.700	12.45	0.490
2 x 9	-002	P	0.76 µm (30 µin.) gold	22.86	0.900	22.86	0.900	2.29	0.090
2 x 10	-003	M	0.76 µm (30 µin.) gold	25.40	1.000	25.40	1.000	2.29	0.090
2 x 10	-049	M	0.38 µm (15 µin.) gold	25.40	1.000	25.40	1.000	2.29	0.090
2 x 10	-041	M	0.76 µm (30 µin.) gold	25.40	1.000	25.40	1.000	3.81	0.150
2 x 12	-004	M	0.76 µm (30 µin.) gold	30.48	1.200	30.48	1.200	2.29	0.090
2 x 12	-055	M	0.76 µm (30 µin.) GXT™	30.48	1.200	30.48	1.200	2.79	0.110
2 x 12	-044	M	0.76 µm (30 µin.) gold	30.48	1.200	30.48	1.200	6.60	0.260
2 x 13	-005	M	0.76 µm (30 µin.) gold	33.02	1.300	33.02	1.300	2.29	0.090
2 x 13	-054	M	0.76 µm (30 µin.) GXT™	33.02	1.300	33.02	1.300	2.29	0.090
2 x 13	-058	M	0.76 µm (30 µin.) GXT™	33.02	1.300	33.02	1.300	2.79	0.110
2 x 13	-040	M	0.76 µm (30 µin.) gold	33.02	1.300	33.02	1.300	3.81	0.150
2 x 14	-017	P	0.76 µm (30 µin.) gold	35.56	1.400	35.56	1.400	2.29	0.090
2 x 17	-006	M	0.76 µm (30 µin.) gold	43.18	1.700	43.18	1.700	2.29	0.090
2 x 17	-051	M	0.38 µm (15 µin.) gold	43.18	1.700	43.18	1.700	2.29	0.090
2 x 17	-056	M	0.76 µm (30 µin.) GXT™	43.18	1.700	43.18	1.700	2.79	0.110
2 x 17	-033	M	0.76 µm (30 µin.) gold	43.18	1.700	43.18	1.700	3.81	0.150
2 x 20	-007	M	0.76 µm (30 µin.) gold	50.80	2.000	50.80	2.000	2.29	0.090
2 x 20	-061	M	0.76 µm (30 µin.) GXT™	50.80	2.000	50.80	2.000	2.79	0.110
2 x 20	-043	M	0.76 µm (30 µin.) gold	50.80	2.000	50.80	2.000	3.81	0.150
2 x 20	-037	P	0.76 µm (30 µin.) gold	50.80	2.000	50.80	2.000	12.45	0.490
2 x 24	-036	P	0.76 µm (30 µin.) gold	60.96	2.400	60.96	2.400	2.29	0.090
2 x 25	-008	M	0.76 µm (30 µin.) gold	63.50	2.500	63.50	2.500	2.29	0.090
2 x 25	-016	P	3.81 µm (150 µin.) Sn/Pb	63.50	2.500	63.50	2.500	2.29	0.090
2 x 25	-057	M	0.76 µm (30 µin.) GXT™	63.50	2.500	63.50	2.500	2.79	0.110
2 x 36	-045	M	0.76 µm (30 µin.) gold	91.44	3.600	91.44	3.600	2.29	0.090

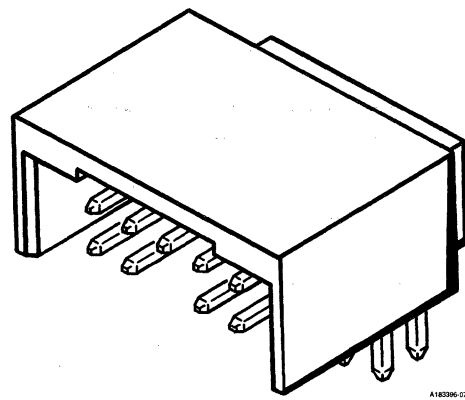
Ordering data shown is for our standard product offering. For special sizes or high-volume orders, contact your authorized Berg Electronics representative.



# Shrouded Headers

2.54 x 2.54 mm (0.100 x 0.100 in.)  
Centerlines

**Right-Angle 2-Row Header**  
**Series 65895**  
**BergCon® System**



## Features

- 2-Row: 10 through 40 total positions.
- Drawn (not stamped) 0.64 mm (0.025 in.) square wire presents four surfaces of equal quality.
- Standoffs allow cleaning to remove soldering contaminants.
- Header material is flame-retardant and uneffected by wave-soldering or board-cleaning agents.
- 8.08 mm (0.318 in.) long mating pin length.

## Options

- Available in GXT™ (palladium-nickel alloy with gold flash) plating.

## Mating Data

Mates with:

### AMP Products

- Modu™ MTE receptacle
- Modu MT receptacle

### Berg Electronics Products


### Page


- 2-Row horizontal card connector . . . . . 13-122 to 13-128
- 2-Row vertical card connector . . . . . 13-136 and 13-142

## Specifications

- MIL-G-45205
- MIL-P-55110
- QQ-W-343
- MIL-STD-105

## Approvals and Certifications

 File no. E66906

 File no. LR46923

## Technical Data

### Materials

- Housing material . . . . . Glass-filled thermoplastic (UL 94 V-0)
  - ▶ Color . . . . . Black
  - ▶ Applicable soldering processes . . . . . Wave, Vapor-phase
- Pin . . . . . Phosphor-bronze

### Plating

- Underplate . . . . . 1.27 µm (50 µin.) min nickel
- Finish . . . . . 0.76 µm (30 µin.) min gold or 0.76 µm (30 µin.) min GXT™
- Finish . . . . . 3.81 µm (150 µin.) min tin-lead

### Electrical Performance

- Insulation resistance . . . . . 5000 MΩ min
- Withstanding voltage . . . . . 1000 V ac rms (sea level)
- Current rating . . . . . 3 amp continuous

### Mechanical Performance

- Contact retention . . . . . >44.48 N (10 lbf)

### Operating Environment

- Temperature range . . . . . -65°C to +105°C

### Packaging

- Trays

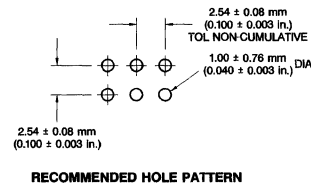
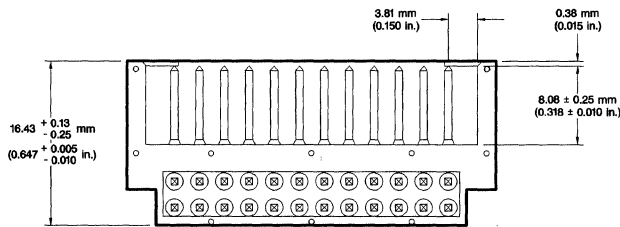
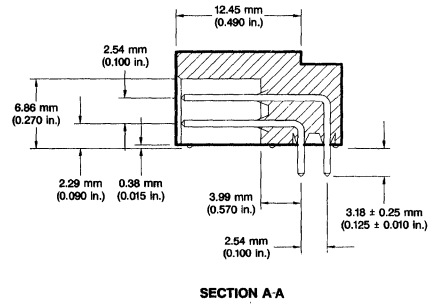
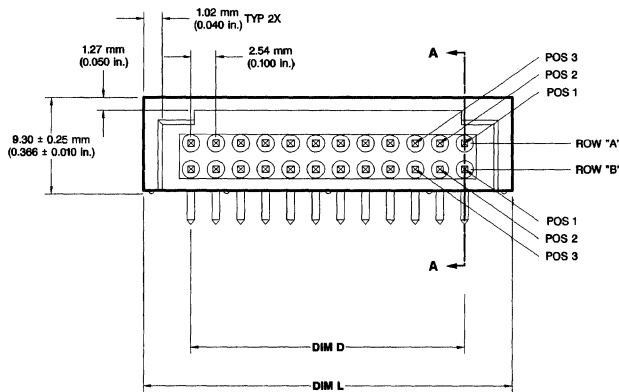
## Customer Support Materials

<b>Description</b>	<b>Order No.</b>
Customer Product Drawings . . . . .	By Part Number
Test Data . . . . .	Upon Request

<b>Description</b>	<b>Order No.</b>
Product Samples . . . . .	Upon Request
Product Substitutions . . . . .	Contact Technical Support

## Description

### Right-Angle 2-Row Header, Series 65895



A193390-0785

## Ordering Data

Base No. 65895

□ □ □ □ - X X X

Base number

Dash number specifies total number of positions, style, and plating

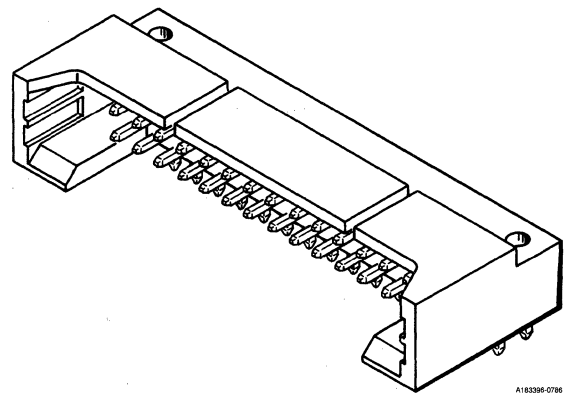
Number of Positions	Dash No.	Polarized Position	Plating	Dimensions			
				D		L	
				mm	in.	mm	in.
2 x 5	-004	None	0.76 μm (30 μin.) gold	10.16	0.400	19.81	0.780
2 x 5	-005	B-3	0.76 μm (30 μin.) gold	10.16	0.400	19.81	0.780
2 x 5	-020	B-3	0.76 μm (30 μin.) GXT™	10.16	0.400	19.81	0.780
2 x 6	-014	None	0.76 μm (30 μin.) gold	12.70	0.500	22.35	0.880
2 x 20	-002	A-19	0.76 μm (30 μin.) gold	48.26	1.900	57.91	2.280
2 x 20	-012	None	0.76 μm (30 μin.) gold	48.26	1.900	57.91	2.280

Ordering data shown is for our standard product offering. For special sizes or high-volume orders, contact your authorized Berg Electronics representative.

# Shrouded Headers

2.54 x 2.54 mm (0.100 x 0.100 in.)  
Centerlines

## Right-Angle 2-Row Header Series 65268 BergCon® System



### Features

- 2-Row: 10 through 50 total positions.
- Drawn (not stamped) 0.64 mm (0.025 in.) square wire presents four surfaces of equal quality.
- Standoffs allow cleaning to remove soldering contaminants.
- Header material is flame-retardant and unaffected by wave-soldering or board-cleaning agents.

### Options

- Available with optional pin position marking.



### Mating Data

Berg Electronics Products	Page
▪ Quickie™ II and Quickie III receptacles . . . . .	23-4 to 23-9 and 23-12
▪ Mini-latch housings with mini-PV receptacle . . .	13-4 and 13-16

### Specifications

- MIL-G-45205
- MIL-P-55110
- QQ-W-343
- MIL-STD-105

### Approvals and Certifications

-  File no. E66906
-  File no. LR46923

### Technical Data

#### Materials

- Housing material . . . . . Glass-filled thermoplastic (UL 94 V-0)
  - ▶ Color . . . . . Black
  - ▶ Applicable soldering processes . . . . . Wave, Vapor-phase
- Pin . . . . . Phosphor-bronze

#### Plating

- Underplate . . . . . 1.27 µm (50 µin.) min nickel
- Finish . . . . . 0.76 µm (30 µin.) min gold or 1.27 µm (50 µin.) min gold

#### Electrical Performance

- Insulation resistance . . . . . 5000 MΩ min
- Withstanding voltage . . . . . 1000 V ac rms (sea level)
- Current rating . . . . . 3 amp continuous

#### Mechanical Performance

- Contact retention . . . . . >44.48 N (10 lbf)

#### Operating Environment

- Temperature range . . . . . -65°C to +105°C

#### Packaging

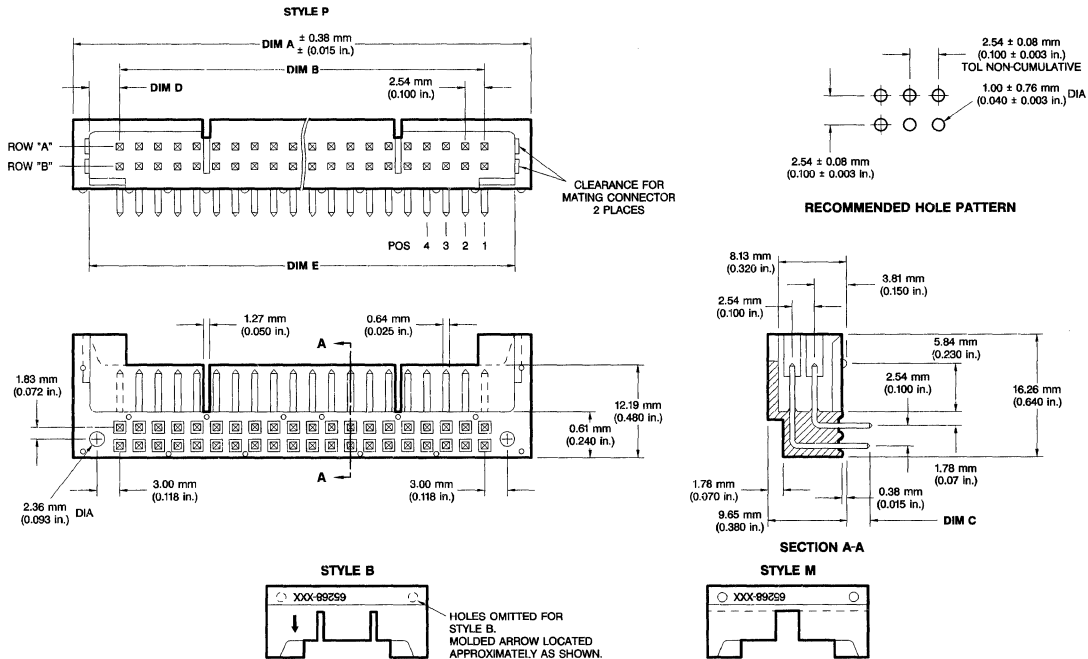
- Trays

### Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawings . . . . .	By Part Number	Product Samples . . . . .	Upon Request
Test Data . . . . .	Upon Request	Product Substitutions . . . . .	Contact Technical Support

## Description

### Right-Angle 2-Row Header, Series 65268



## Ordering Data

### Base No. 65268

□ □ □ □ - X X X

Base number \_\_\_\_\_ Dash number specifies total number of positions, style, and plating

Number of Positions	Dash No.	Style (see above illustration)	Body Material	Dimensions									
				A		B		C		D		E	
				mm	in.	mm	in.	mm	in.	mm	in.	mm	in.
2 x 5	-053	M	Polyester	22.35	0.880	10.16	0.400	2.29	0.090	3.94	0.155	18.29	0.720
2 x 7	-054	M	Polyester	27.43	1.080	15.24	0.600	2.29	0.090	3.94	0.155	23.37	0.920
2 x 10	-008	M	Polyester	35.05	1.380	22.86	0.900	2.29	0.090	3.94	0.155	30.99	1.220
2 x 10	-018	P	Polyester	35.05	1.380	22.86	0.900	12.45	0.490	3.94	0.155	30.99	1.220
2 x 12	-028	B	Nylon	35.05	1.380	27.94	1.100	2.29	0.090	1.40	0.055	30.99	1.220
2 x 13	-009	M	Polyester	42.67	1.680	30.48	1.200	2.29	0.090	3.94	0.155	38.61	1.520
2 x 14	-036	P	Polyester	45.21	1.780	33.02	1.300	3.05	0.120	3.94	0.155	41.15	1.620
2 x 16	-005	P	Polyester	50.29	1.980	38.10	1.500	2.29	0.090	3.94	0.155	46.23	1.820
2 x 16	-050*	B	Nylon	45.21	1.780	38.10	1.500	2.29	0.090	1.40	0.055	41.15	1.620
2 x 17	-010	M	Polyester	52.83	2.080	40.64	1.600	2.29	0.090	3.94	0.155	48.77	1.920
2 x 20	-051*	B	Nylon	55.37	2.180	48.26	1.90	2.29	0.090	1.40	0.055	51.31	2.020
2 x 25	-011	M	Polyester	73.15	2.880	60.96	2.400	2.29	0.090	3.94	0.155	69.09	2.720
2 x 25	-014	P	Polyester	73.15	2.880	60.96	2.400	12.45	0.490	3.94	0.155	69.09	2.720

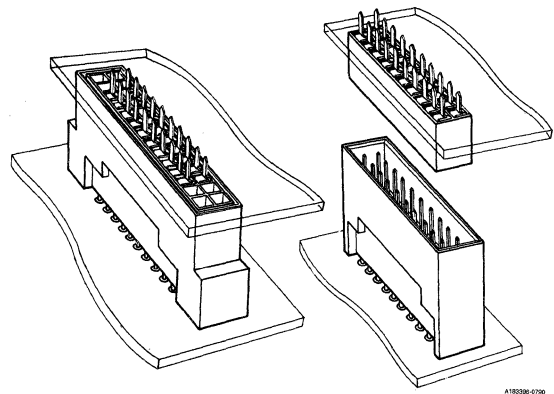
\*All above part numbers have no polarized positions except for -050, which has positions B-26, 10, and 14 polarized, and -051, which has position A-17 polarized. Also, all part numbers above have 0.76 μm (30 μin.) gold plating, except for -050 and -051, which have 1.27 μm (50 μin.) gold plating.

Ordering data shown is for our standard product offering. For special sizes or high-volume orders, contact your authorized Berg Electronics representative.

# Shrouded Headers

2.54 x 2.54 mm (0.100 x 0.100 in.)  
Centerlines

## Vertical Stacking 2-Row Header BergCon® System



### Features

- 2-Row: 10 through 72 total positions.
- Designed for parallel stacking of printed circuit boards.
- Header height provides space for board components and cables. Three heights are available: 12.70 mm (0.500 in.), 19.18 mm (0.755 in.), and 30.48 mm (1.200 in.).
- Standoffs allow cleaning to remove soldering contaminants.
- Four-wall shielding protects pins in unmated condition and prevents misalignment.
- Drawn (not stamped) 0.64 mm (0.025 in.) square wire presents four surfaces of equal quality.

- Header material is flame-retardant and unaffected by wave-soldering or board-cleaning agents.

### Options

- Available with or without mounting ears.
- Available in GXT™ (palladium-nickel alloy with gold flash) plating.
- Available in gold/tin duplex


### Mating Data


Mates with 2-Row vertical card connector, page 13-136.

### Specifications

- MIL-G-45205
- MIL-P-55110
- QQ-W-343
- MIL-STD-105

### Approvals and Certifications

 File no. E66906

 File no. LR46923

### Technical Data

#### Housing

- Housing material ..... Glass-filled nylon (UL 94 V-0)
  - Color ..... Black
  - Applicable soldering processes..... Wave
- Pin ..... Phosphor-bronze

#### Plating

- Underplate ..... 1.27 µm (50 µin.) min nickel
- Finish ..... 0.38 µm (15 µin.) min gold  
or 0.76 µm (30 µin.) min gold  
or 0.76 µm (30 µin.) min GXT™

#### Electrical Performance

- Insulation resistance..... 5000 MΩ min
- Withstanding voltage..... 1000 V ac rms (sea level)
- Current rating ..... 3 amp continuous

#### Mechanical Performance

- Contact retention..... 13.34 N (3 lbf)

#### Operating Environment

- Temperature range ..... -40°C to +105°C

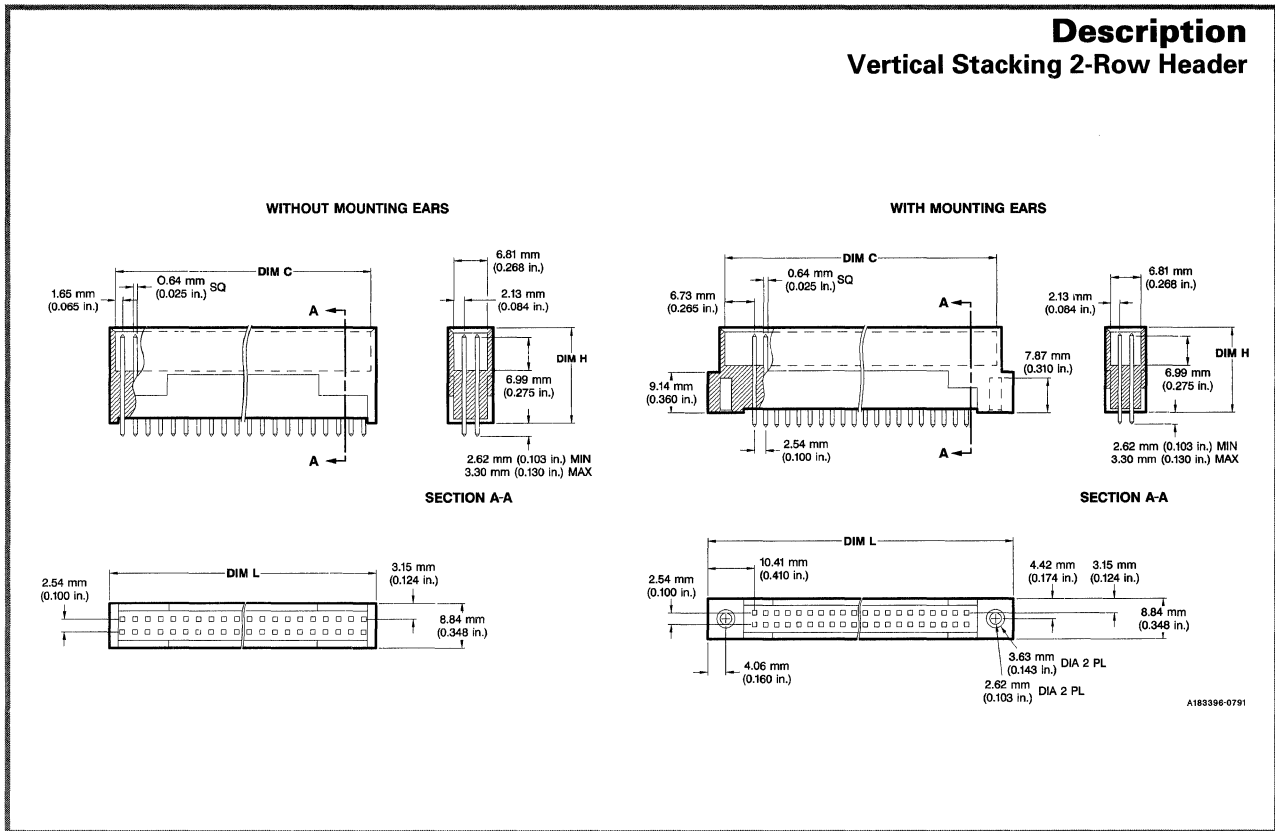
#### Packaging

- Antistatic Trays

### Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawings.....	By Part Number	Product Samples.....	Upon Request
Test Data .....	Upon Request	Application Drawings.....	N/A
Product Substitutions .....	Contact Technical Support		

## Description Vertical Stacking 2-Row Header



## Ordering Data

□ □ □ □ - X X X

Base number specifies plating and style

Dash number specifies total number of positions

Contact Finish	Base Number			
	Dimension H			
	12.70 mm (0.500 in.)	19.18 mm (0.755 in.)	30.48 mm (1.200 in.)	
	Mounting Ears			
	Without	With	Without	Without
0.38 μm (15 μin.) gold over 1.27 μm (50 μin.) nickel	--	67746	68210	68205
0.76 μm (30 μin.) gold over 1.27 μm (50 μin.) nickel	69916	69687	69667	68882
0.76 μm (30 μin.) GXT™ over 1.27 μm (50 μin.) nickel	--	68582	68583	68585

Number of Positions	Base Number	Base Number	Base Number	Dash Number							
				Dimensions							
				(with mounting ears)		(without mounting ears)					
				C	L	C	L				
				mm	in.	mm	in.	mm	in.	mm	in.
2 x 5	-001	-003	--	23.62	0.930	30.98	1.220	13.46	0.530	15.49	0.610
2 x 8	-004	-006	--	31.24	1.230	38.60	1.520	21.08	0.830	23.11	0.910
2 x 10	-006	-008	-006	36.32	1.430	43.68	1.720	26.16	1.030	28.19	1.110
2 x 15	-011	-013	-011	49.02	1.930	56.38	2.220	38.86	1.530	40.89	1.610
2 x 16	-012	-014	--	51.56	2.030	58.92	2.320	41.40	1.630	43.43	1.710
2 x 20	-016	-001	-016	61.72	2.430	69.08	2.720	51.56	2.030	53.59	2.110
2 x 25	-021	-022	--	74.42	2.930	81.78	3.220	64.26	2.530	66.29	2.610
2 x 26	-022	-002	-022	76.96	3.030	84.32	3.320	66.80	2.630	68.83	2.710
2 x 30	-026	-026	--	87.12	3.430	94.48	3.720	76.96	3.030	78.99	3.110
2 x 32	-028	-028	-028	92.20	3.630	99.56	3.920	82.04	3.230	84.07	3.310
2 x 36	-032	-032	--	102.36	4.030	109.72	4.320	92.20	3.630	94.23	3.710

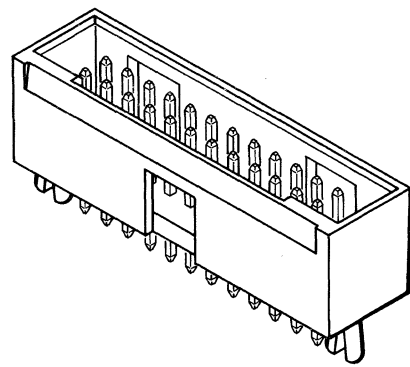
Two-row stacking headers mate with vertical card connectors using PV™ receptacles.

Ordering data shown is for our standard product offering. For special sizes or high-volume orders, contact your authorized Berg Electronics representative.

# Shrouded Headers

2.54 x 2.54 mm (0.100 x 0.100 in.)  
Centerlines

## Straight 4-Wall Header for Flat Cable Receptacle BergCon® System



SHOWN WITH OPTIONAL RETENTION LEGS  
A1030-010

### Features

- 2-Row: 6 through 72 total positions.
- Drawn (not stamped) 0.64 mm (0.025 in.) square wire presents four surfaces of equal quality.
- Four-wall shielding protects pins in unmated condition and prevents misalignment.
- Polarizing slot prevents mismatching of receptacle.

### Options

- Optional retention leg provides a hold-down feature to the PWB to facilitate robotic insertion of headers.

- Polarization: part can be ordered with pin(s) deleted or they can be removed at time of installation by means of a simple polarizing tool (HT-143).
- Available in GXT™ (palladium-nickel alloy with gold flash) plating.


### Mating Data


Mates with Berg Electronics mini-latch housing with PV™ receptacle and shroud; see pages 13-12, 13-14, and 13-16.

### Specifications

- MIL-G-45205
- MIL-P-55110
- QQ-W-343
- MIL-STD-105

### Approvals and Certifications

 File no. E66906

 File no. LR46923

### Technical Data

#### Materials

- Housing material ..... Glass-filled thermoplastic (UL 94 V-0)
  - ▶ Color ..... Black
  - ▶ Applicable soldering processes..... Wave, Vapor-phase
- Pin ..... Phosphor-bronze

#### Plating

- Underplate ..... 1.27 µm (50 µin.) min nickel
- Finish ..... 0.38 µm (15 µin.) min gold or 0.76 µm (30 µin.) min gold or 0.38 µm (15 µin.) min GXT™ or 0.76 µm (30 µin.) min GXT™

#### Electrical Performance

- Insulation resistance ..... 5000 MΩ min
- Withstanding voltage ..... 1000 V ac rms, 60 Hz at sea level
- Current rating ..... 3 amp continuous

#### Mechanical Performance

- Contact retention..... >44.48 N (10 lbf)

#### Operating Environment

- Temperature range ..... -65°C to +105°C

#### Packaging

- Trays

### Customer Support Materials

#### Description

Customer Product Drawings ..... By Part Number  
Application Drawings ..... N/A  
Product Substitutions ..... Contact Technical Support

#### Order No.

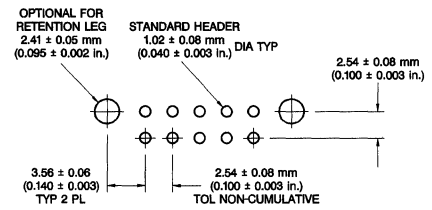
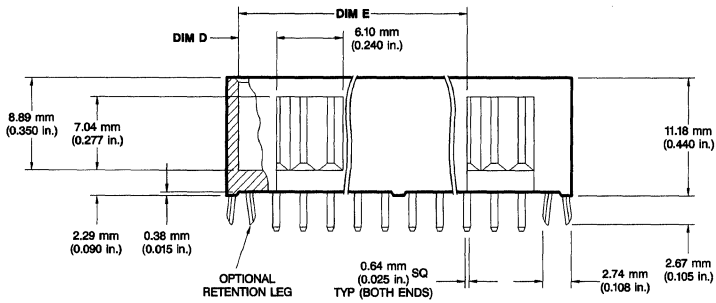
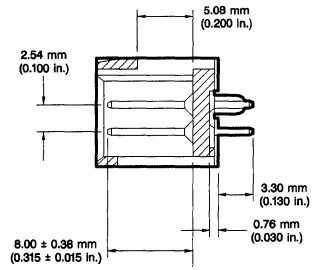
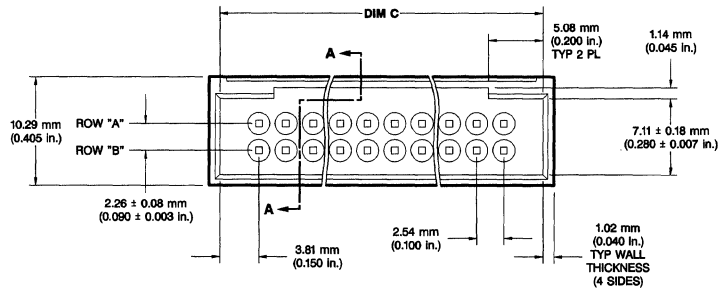
#### Description

Product Samples ..... Upon Request  
Test Data ..... Upon Request

#### Order No.

## Description

### Straight 4-Wall Header for Flat Cable Receptacle



RECOMMENDED HOLE PATTERN

a183386-0793

#### PC Board

- Finish hole size
  - ▶ Standard header . . . 1.02 ± 0.076 mm (0.040 ± 0.003 in.)
  - ▶ Retention leg header 1.09 ± 0.076 mm (0.043 ± 0.003 in.)
- Thickness . . . . . 1.58 mm (0.062 in.) to 3.18 mm (0.125 in.)



**Shrouded Headers**  
**2.54 x 2.54 mm (0.100 x 0.100 in.)**

**Ordering Data**

□ □ □ □ □ - X X X

Base number specifies style and plating

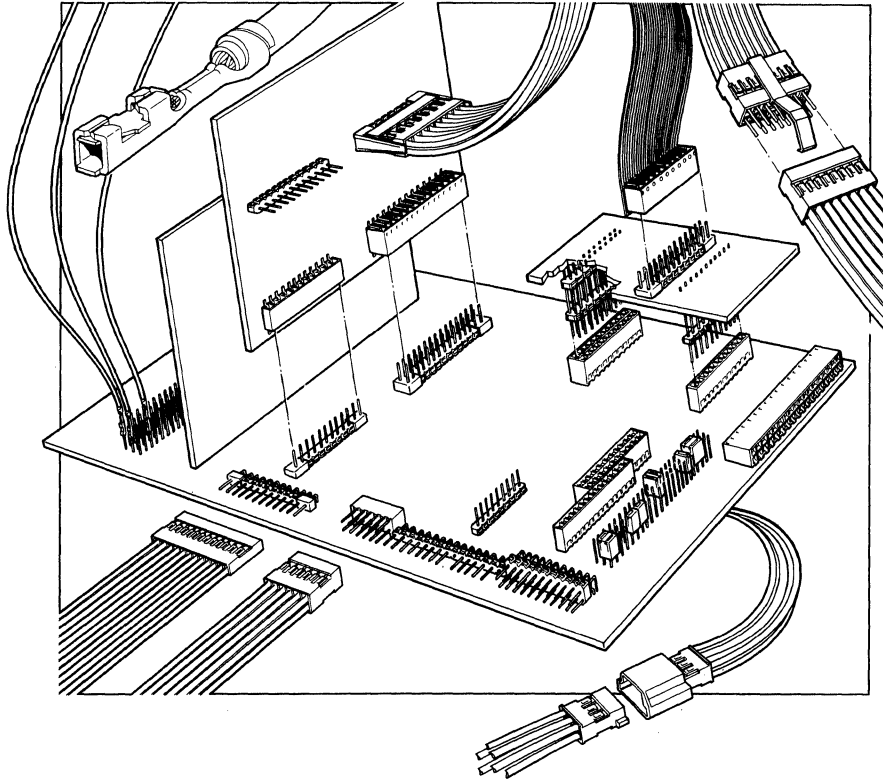
Dash number specifies total number of positions

Number of Positions	Base No. 68419	Base No. 68648	Base No. 68649	Base No. 68650	Dimensions					
	0.38 μm (15 μin.) gold	0.76 μm (30 μin.) gold	0.38 μm (15 μin.) GXT™	0.76 μm (30 μin.) GXT™	C		D		E	
					mm	in.	mm	in.	mm	in.
2 x 3	-001	-001	-001	-001	12.70	0.500	3.81	0.150	--	--
2 x 4	-002	-002	-002	-002	15.24	0.600	3.81	0.150	--	--
2 x 5	-003	-003	-003	-003	17.78	0.700	6.35	0.250	--	--
2 x 6	-004	-004	-004	-004	20.32	0.800	6.35	0.250	--	--
2 x 7	-005	-005	-005	-005	22.86	0.900	8.89	0.350	--	--
2 x 8	-006	-006	-006	-006	25.40	1.000	8.89	0.350	--	--
2 x 9	-007	-007	-007	-007	27.94	1.100	11.43	0.450	--	--
2 x 10	-008	-008	-008	-008	30.48	1.200	3.81	0.150	21.59	0.850
2 x 11	-009	-009	-009	-009	33.02	1.300	3.81	0.150	24.13	0.950
2 x 12	-010	-010	-010	-010	35.56	1.400	3.81	0.150	26.67	1.050
2 x 13	-011	-011	-011	-011	38.10	1.500	3.81	0.150	29.21	1.150
2 x 14	-012	-012	-012	-012	40.64	1.600	3.81	0.150	31.75	1.250
2 x 15	-013	-013	-013	-013	43.18	1.700	3.81	0.150	34.29	1.350
2 x 16	-014	-014	-014	-014	45.72	1.800	3.81	0.150	36.83	1.450
2 x 17	-015	-015	-015	-015	48.26	1.900	3.81	0.150	39.37	1.550
2 x 18	-016	-016	-016	-016	50.80	2.000	3.81	0.150	41.91	1.650
2 x 19	-017	-017	-017	-017	53.34	2.100	3.81	0.150	44.45	1.750
2 x 20	-018	-018	-018	-018	55.88	2.200	3.81	0.150	46.99	1.850
2 x 21	-019	-019	-019	-019	58.42	2.300	3.81	0.150	49.53	1.950
2 x 22	-020	-020	-020	-020	60.96	2.400	3.81	0.150	52.07	2.050
2 x 23	-021	-021	-021	-021	63.50	2.500	3.81	0.150	54.61	2.150
2 x 24	-022	-022	-022	-022	66.04	2.600	3.81	0.150	57.15	2.250
2 x 25	-023	-023	-023	-023	68.58	2.700	3.81	0.150	59.69	2.350
2 x 26	-024	-024	-024	-024	71.12	2.800	3.81	0.150	62.23	2.450
2 x 27	-025	-025	-025	-025	73.66	2.900	3.81	0.150	64.77	2.550
2 x 28	-026	-026	-026	-026	76.20	3.000	3.81	0.150	67.31	2.650
2 x 29	-027	-027	-027	-027	78.74	3.100	3.81	0.150	69.85	2.750
2 x 30	-028	-028	-028	-028	81.28	3.200	3.81	0.150	72.39	2.850
2 x 31	-029	-029	-029	-029	83.82	3.300	3.81	0.150	74.93	2.950
2 x 32	-030	-030	-030	-030	86.36	3.400	3.81	0.150	77.47	3.050
2 x 33	-031	-031	-031	-031	88.90	3.500	3.81	0.150	80.01	3.150
2 x 34	-032	-032	-032	-032	91.44	3.600	3.81	0.150	82.55	3.250
2 x 35	-033	-033	-033	-033	93.98	3.700	3.81	0.150	85.09	3.350
2 x 36	-034	-034	-034	-034	96.52	3.800	3.81	0.150	87.63	3.450

For retention leg option on 0.38 μm (15 μin.) gold, use: 69108-XXX. All dash numbers remain the same.

For other platings, contact your local sales engineer.

Ordering data shown is for our standard product offering. For special sizes or high-volume orders, contact your authorized Berg Electronics representative.

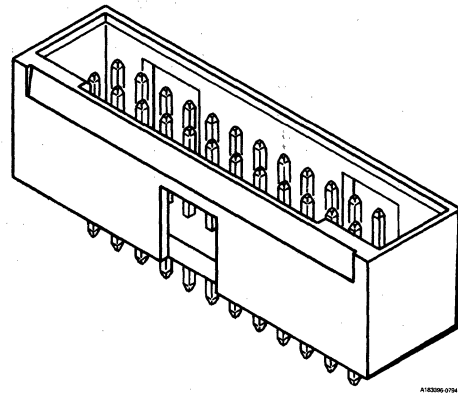


A183396-0316

# Shrouded Headers

2.54 x 2.54 mm (0.100 x 0.100 in.)  
Centerlines

## Straight 4-Wall Header for Round Wire Receptacle BergCon® System



### Features

- 2-Row: 6 through 72 total positions.
- Drawn (not stamped) 0.64 mm (0.025 in.) square wire presents four surfaces of equal quality.
- Four-wall shielding protects pin(s) in unmated condition and prevents misalignment.
- Polarizing slot prevents mismatching of receptacle.
- Requires minimum space on printed wiring board, allowing dense packaging designs.

### Options

- Polarization: part can be ordered with pin(s) deleted.

- Available in GXT™ (palladium-nickel alloy with gold flash) plating.


### Mating Data


Mates with Berg Electronics mini-latch housing with PV receptacle and shroud; see pages 13-12, 13-14, and 13-16.

### Specifications

- MIL-G-45205
- MIL-P-55110
- QQ-W-343
- MIL-STD-105

### Approvals and Certifications

 File no. E66906

 File no. LR46923

### Technical Data

#### Materials

- Housing material ..... Glass-filled thermoplastic (UL 94 V-0)
  - ▶ Color ..... Black
  - ▶ Applicable soldering processes ..... Wave, Vapor-phase
- Pin ..... Phosphor-bronze

#### Plating

- Underplate ..... 1.27 µm (50 µin.) min nickel
- Finish ..... 0.38 µm (15 µin.) min gold or 0.76 µm (30 µin.) min gold or 0.38 µm (15 µin.) min GXT™ or 0.76 µm (30 µin.) min GXT™

#### Electrical Performance

- Insulation resistance ..... 5000 MΩ min
- Withstanding voltage ..... 1000 V ac rms, 60 Hz at sea level
- Current rating ..... 3 amp continuous

#### Mechanical Performance

- Contact retention ..... >44.48 N (10 lbf)

#### Operating Environment

- Temperature range ..... -65°C to +105°C

#### Packaging

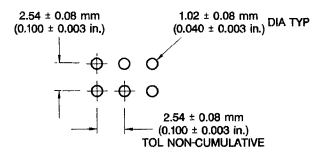
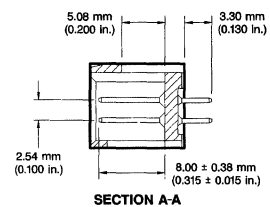
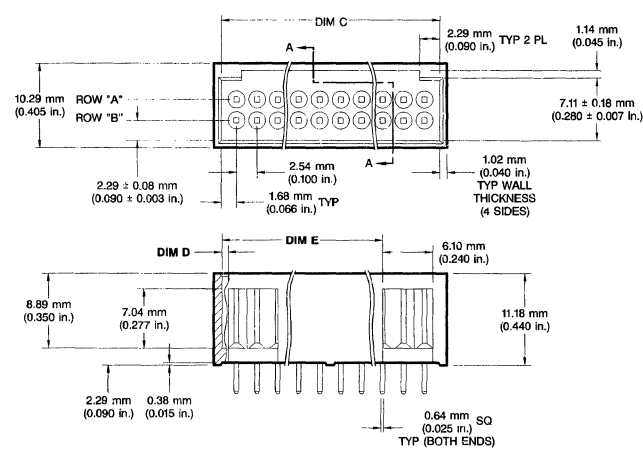
- Trays

### Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawings .....	By Part Number	Product Samples.....	Upon Request
Application Drawings .....	N/A	Test Data .....	Upon Request
Product Substitutions .....	Contact Technical Support		

### Description

### Straight 4-Wall Header for Round Wire Receptacle



a183986 0795

### Ordering Data

□ □ □ □ - X X X

Base number specifies style and plating

Dash number specifies total number of positions

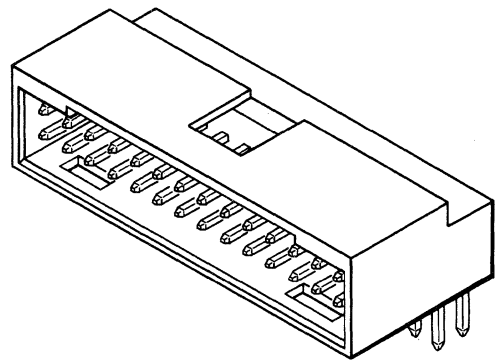
Number of Positions	Base No. 68663	Base No. 68664	Base No. 68665	Base No. 68666	Dimensions					
	0.38 μm (15 μin.) gold	0.76 μm (30 μin.) gold	0.38 μm (15 μin.) GXT™	0.76 μm (30 μin.) GXT™	C		D		E	
					mm	in.	mm	in.	mm	in.
2 x 3	-001	-001	-001	-001	8.43	0.332	1.68	0.066	--	--
2 x 4	-002	-002	-002	-002	10.97	0.432	1.68	0.066	--	--
2 x 5	-003	-003	-003	-003	13.52	0.532	4.22	0.166	--	--
2 x 6	-004	-004	-004	-004	16.05	0.632	4.22	0.166	--	--
2 x 7	-005	-005	-005	-005	18.59	0.732	6.76	0.266	--	--
2 x 8	-006	-006	-006	-006	21.13	0.832	6.76	0.266	--	--
2 x 9	-007	-007	-007	-007	23.67	0.932	9.30	0.366	--	--
2 x 10	-008	-008	-008	-008	26.21	1.032	1.68	0.066	19.46	0.766
2 x 11	-009	-009	-009	-009	28.75	1.132	1.68	0.066	22.00	0.866
2 x 12	-010	-010	-010	-010	31.29	1.232	1.68	0.066	24.54	0.966
2 x 13	-011	-011	-011	-011	33.83	1.332	1.68	0.066	27.08	1.066
2 x 14	-012	-012	-012	-012	36.37	1.432	1.68	0.066	29.62	1.166
2 x 15	-013	-013	-013	-013	38.91	1.532	1.68	0.066	32.16	1.266
2 x 16	-014	-014	-014	-014	41.45	1.632	1.68	0.066	34.70	1.366
2 x 17	-015	-015	-015	-015	43.99	1.732	1.68	0.066	37.24	1.466
2 x 18	-016	-016	-016	-016	46.53	1.832	1.68	0.066	39.78	1.566
2 x 19	-017	-017	-017	-017	49.07	1.932	1.68	0.066	42.32	1.666
2 x 20	-018	-018	-018	-018	51.61	2.032	1.68	0.066	44.86	1.766
2 x 21	-019	-019	-019	-019	54.15	2.132	1.68	0.066	47.40	1.866
2 x 22	-020	-020	-020	-020	56.69	2.232	1.68	0.066	49.94	1.966
2 x 23	-021	-021	-021	-021	59.23	2.332	1.68	0.066	52.48	2.066
2 x 24	-022	-022	-022	-022	61.77	2.432	1.68	0.066	55.02	2.166
2 x 25	-023	-023	-023	-023	64.31	2.532	1.68	0.066	57.56	2.266
2 x 26	-024	-024	-024	-024	66.85	2.632	1.68	0.066	60.10	2.366
2 x 27	-025	-025	-025	-025	69.39	2.732	1.68	0.066	62.64	2.466
2 x 28	-026	-026	-026	-026	71.93	2.832	1.68	0.066	65.18	2.566
2 x 29	-027	-027	-027	-027	74.47	2.932	1.68	0.066	67.72	2.666
2 x 30	-028	-028	-028	-028	77.01	3.032	1.68	0.066	70.26	2.766
2 x 31	-029	-029	-029	-029	79.55	3.132	1.68	0.066	72.80	2.866
2 x 32	-030	-030	-030	-030	82.09	3.232	1.68	0.066	75.34	2.966
2 x 33	-031	-031	-031	-031	84.63	3.332	1.68	0.066	77.88	3.066
2 x 34	-032	-032	-032	-032	87.17	3.432	1.68	0.066	80.42	3.166
2 x 35	-033	-033	-033	-033	89.71	3.532	1.68	0.066	82.96	3.266
2 x 36	-034	-034	-034	-034	92.25	3.632	1.68	0.066	85.50	3.366

Ordering data shown is for our standard product offering. For special sizes or high-volume orders, contact your authorized Berg Electronics representative.

# Shrouded Headers

2.54 x 2.54 mm (0.100 x 0.100 in.)  
Centerlines

## Right-Angle 4-Wall Header for Flat Cable Receptacle BergCon® System



A183206-0796

### Features

- 2-Row: 10 through 72 total positions.
- Drawn (not stamped) 0.64 mm (0.025 in.) square wire presents four surfaces of equal quality.
- Four-wall shielding protects pins in unmated condition and prevents misalignment.
- Polarizing slot prevents mismatching of receptacle.

### Options

- Polarization: part can be ordered with pin(s) deleted.

- Available in GXT™ (palladium-nickel alloy with gold flash) plating.


### Mating Data


Mates with Berg Electronics mini-latch housing with PV receptacle and shroud; see pages 13-12, 13-14, and 13-16

### Specifications

- MIL-G-45205
- MIL-P-55110
- QQ-W-343
- MIL-STD-105

### Approvals and Certifications

 File no. E66906

 File no. LR46923

### Technical Data

#### Materials

- House material . . . . . Glass-filled thermoplastic (UL 94 V-0)
  - ▶ Color . . . . . Black
  - ▶ Applicable soldering processes. . . . . Wave, Vapor-phase
- Pin . . . . . Phosphor-bronze

#### Plating

- Underplate . . . . . 1.27 µm (50 µin.) min nickel
- Finish . . . . . 0.38 µm (15 µin.) min gold or 0.76 µm (30 µin.) min gold or 0.38 µm (15 µin.) min GXT™ or 0.76 µm (30 µin.) min GXT™

#### Electrical Performance

- Insulation resistance . . . . . 5000 MΩ min
- Withstanding voltage . . . . . 1000 V ac rms, 60 Hz at sea level
- Current rating . . . . . 3 amp continuous

#### Mechanical Performance

- Contact retention . . . . . >44.48 N (10 lbf)

#### Operating Environment

- Temperature range . . . . . -65°C to +105°C

#### Packaging

- Trays

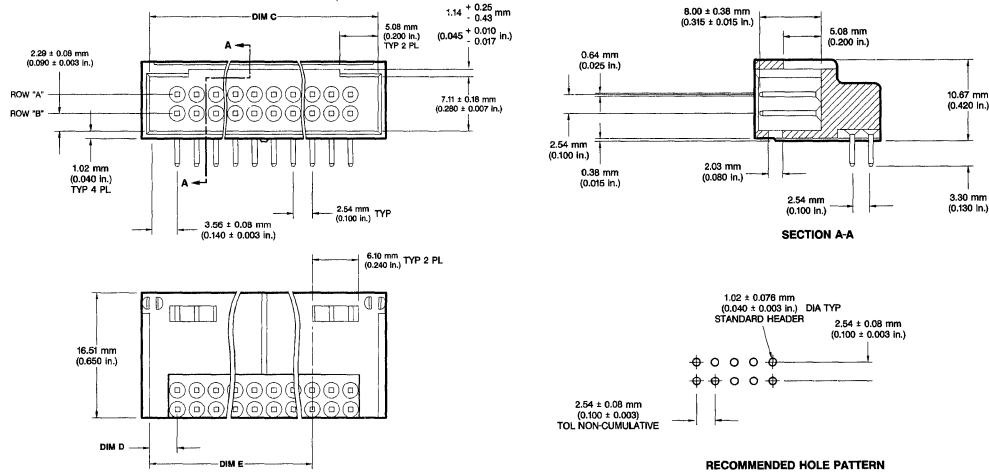
### Customer Support Materials

Description	Order No.
Customer Product Drawings . . . . .	By Part Number
Application Drawings . . . . .	N/A
Product Substitutions . . . . .	Contact Technical Support

Description	Order No.
Product Samples . . . . .	Upon Request
Test Data . . . . .	Upon Request

## Description

### Right-Angle 4-Wall Header for Flat Cable Receptacle



1193990-0797

## Ordering Data

□ □ □ □ □ - X X X

Base number specifies plating

Dash number specifies total number of positions

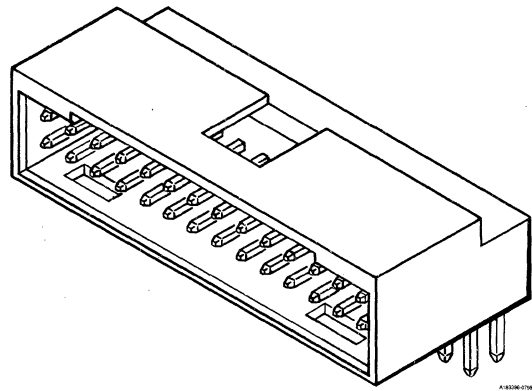
Number of Positions	Base No. 68420	Base No. 68645	Base No. 68646	Base No. 68647	Dimensions					
	0.38 μm (15 μin.) gold	0.76 μm (30 μin.) gold	0.38 μm (15 μin.) GXT™	0.76 μm (30 μin.) GXT™	C		D		E	
					mm	in.	mm	in.	mm	in.
2 x 5	-003	-003	-003	-003	17.78	0.700	6.35	0.250	--	--
2 x 6	-004	-004	-004	-004	20.32	0.800	6.35	0.250	--	--
2 x 7	-005	-005	-005	-005	22.86	0.900	8.89	0.350	--	--
2 x 8	-006	-006	-006	-006	25.40	1.000	8.89	0.350	--	--
2 x 9	-007	-007	-007	-007	27.94	1.100	11.43	0.450	--	--
2 x 10	-008	-008	-008	-008	30.48	1.200	3.81	0.150	21.59	0.850
2 x 11	-009	-009	-009	-009	33.02	1.300	3.81	0.150	24.13	0.950
2 x 12	-010	-010	-010	-010	35.56	1.400	3.81	0.150	26.67	1.050
2 x 13	-011	-011	-011	-011	38.10	1.500	3.81	0.150	29.21	1.150
2 x 14	-012	-012	-012	-012	40.64	1.600	3.81	0.150	31.75	1.250
2 x 15	-013	-013	-013	-013	43.18	1.700	3.81	0.150	34.29	1.350
2 x 16	-014	-014	-014	-014	45.72	1.800	3.81	0.150	36.83	1.450
2 x 17	-015	-015	-015	-015	48.26	1.900	3.81	0.150	39.37	1.550
2 x 18	-016	-016	-016	-016	50.80	2.000	3.81	0.150	41.91	1.650
2 x 19	-017	-017	-017	-017	53.34	2.100	3.81	0.150	44.45	1.750
2 x 20	-018	-018	-018	-018	55.88	2.200	3.81	0.150	46.99	1.850
2 x 21	-019	-019	-019	-019	58.42	2.300	3.81	0.150	49.53	1.950
2 x 22	-020	-020	-020	-020	60.96	2.400	3.81	0.150	52.07	2.050
2 x 23	-021	-021	-021	-021	63.50	2.500	3.81	0.150	54.61	2.150
2 x 24	-022	-022	-022	-022	66.04	2.600	3.81	0.150	57.15	2.250
2 x 25	-023	-023	-023	-023	68.58	2.700	3.81	0.150	59.69	2.350
2 x 26	-024	-024	-024	-024	71.12	2.800	3.81	0.150	62.23	2.450
2 x 27	-025	-025	-025	-025	73.66	2.900	3.81	0.150	64.77	2.550
2 x 28	-026	-026	-026	-026	76.20	3.000	3.81	0.150	67.31	2.650
2 x 29	-027	-027	-027	-027	78.74	3.100	3.81	0.150	69.85	2.750
2 x 30	-028	-028	-028	-028	81.28	3.200	3.81	0.150	72.39	2.850
2 x 31	-029	-029	-029	-029	83.82	3.300	3.81	0.150	74.93	2.950
2 x 32	-030	-030	-030	-030	86.36	3.400	3.81	0.150	77.47	3.050
2 x 33	-031	-031	-031	-031	88.90	3.500	3.81	0.150	80.01	3.150
2 x 34	-032	-032	-032	-032	91.44	3.600	3.81	0.150	82.55	3.250
2 x 35	-033	-033	-033	-033	93.98	3.700	3.81	0.150	85.09	3.350
2 x 36	-034	-034	-034	-034	96.52	3.800	3.81	0.150	87.63	3.450

Ordering data shown is for our standard product offering. For special sizes or high-volume orders, contact your authorized Berg Electronics representative.

# Shrouded Headers

2.54 x 2.54 mm (0.100 x 0.100 in.)  
Centerlines

## Right-Angle 4-Wall Header for Round Wire Receptacle BergCon® System



### Features

- 2-Row: 6 through 72 total positions.
- Drawn (not stamped) 0.64 mm (0.025 in.) square wire presents four surfaces of equal quality.
- Four-wall shielding protects pins in unmated condition and prevents misalignment.
- Polarizing slot prevents mismatching of receptacle.
- Requires minimum space on printed wiring board, allowing dense packaging designs.

### Options

- Polarization: part can be ordered with pin(s) deleted.

- Available in GXT™ (palladium-nickel alloy with gold flash) plating.


### Mating Data


Mates with Berg Electronics mini-latch housing with PV receptacle and shroud; see pages 13-12, 13-14, and 13-16.

### Specifications

- MIL-G-45205
- MIL-P-55110
- QQ-W-343
- MIL-STD-105

### Approvals and Certifications

 File no. E66906

 File no. LR46923

### Technical Data

#### Materials

- Housing material ..... Glass-filled thermoplastic (UL 94 V-0)
  - ▶ Color ..... Black
  - ▶ Applicable soldering processes..... Wave, Vapor-phase
- Pin ..... Phosphor-bronze

#### Plating

- Underplate ..... 1.27 µm (50 µin.) min nickel
- Finish ..... 0.38 µm (15 µin.) min gold or 0.76 µm (30 µin.) min gold or 0.38 µm (15 µin.) min GXT™ or 0.76 µm (30 µin.) min GXT™

#### Electrical Performance

- Insulation resistance ..... 5000 MΩ min
- Withstanding voltage ..... 1000 V ac rms, 60 Hz at sea level
- Current rating ..... 3 amp continuous

#### Mechanical Performance

- Contact retention..... >44.48 N (10 lbf)

#### Operating Environment

- Temperature range ..... -65°C to 105°C

#### Packaging

- Trays

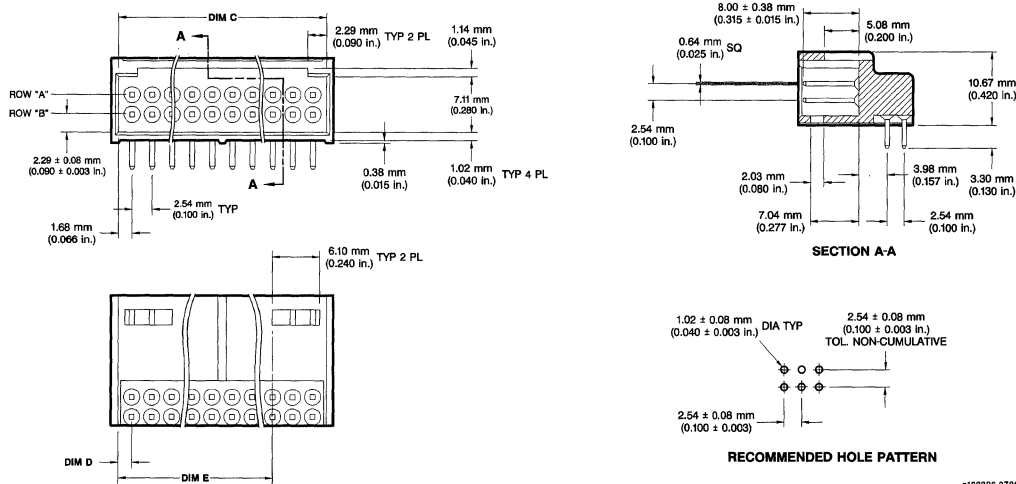
### Customer Support Materials

Description	Order No.
Customer Product Drawings.....	By Part Number
Application Drawings .....	N/A
Product Substitutions .....	Contact Technical Support

Description	Order No.
Product Samples.....	Upon Request
Test Data .....	Upon Request

### Description

### Right-Angle 4-Wall Header for Round Wire Receptacle



4183396-0799

### Ordering Data

□ □ □ □ - X X X

Base number specifies plating

Dash number specifies total number of positions

Number of Positions	Base No. 68667	Base No. 68668	Base No. 68669	Base No. 68670	Dimensions					
	0.38 μm (15 μin.) gold	0.76 μm (30 μin.) gold	0.38 μm (15 μin.) GXT™	0.76 μm (30 μin.) GXT™	C		D		E	
					mm	in.	mm	in.	mm	in.
2 x 3	-001	-001	-001	-001	8.43	0.332	1.68	0.066	--	--
2 x 4	-002	-002	-002	-002	10.97	0.432	1.68	0.066	--	--
2 x 5	-003	-003	-003	-003	13.52	0.532	4.22	0.166	--	--
2 x 6	-004	-004	-004	-004	16.05	0.632	4.22	0.166	--	--
2 x 7	-005	-005	-005	-005	18.59	0.732	6.76	0.266	--	--
2 x 8	-006	-006	-006	-006	21.13	0.832	6.76	0.266	--	--
2 x 9	-007	-007	-007	-007	23.67	0.932	9.30	0.366	--	--
2 x 10	-008	-008	-008	-008	26.21	1.032	1.68	0.066	19.46	0.766
2 x 11	-009	-009	-009	-009	28.75	1.132	1.68	0.066	22.00	0.866
2 x 12	-010	-010	-010	-010	31.29	1.232	1.68	0.066	24.54	0.966
2 x 13	-011	-011	-011	-011	33.83	1.332	1.68	0.066	27.08	1.066
2 x 14	-012	-012	-012	-012	36.37	1.432	1.68	0.066	29.62	1.166
2 x 15	-013	-013	-013	-013	38.91	1.532	1.68	0.066	32.16	1.266
2 x 16	-014	-014	-014	-014	41.45	1.632	1.68	0.066	34.70	1.366
2 x 17	-015	-015	-015	-015	43.99	1.732	1.68	0.066	37.24	1.466
2 x 18	-016	-016	-016	-016	46.53	1.832	1.68	0.066	39.78	1.566
2 x 19	-017	-017	-017	-017	49.07	1.932	1.68	0.066	42.32	1.666
2 x 20	-018	-018	-018	-018	51.61	2.032	1.68	0.066	44.86	1.766
2 x 21	-019	-019	-019	-019	54.15	2.132	1.68	0.066	47.40	1.866
2 x 22	-020	-020	-020	-020	56.69	2.232	1.68	0.066	49.94	1.966
2 x 23	-021	-021	-021	-021	59.23	2.332	1.68	0.066	52.48	2.066
2 x 24	-022	-022	-022	-022	61.77	2.432	1.68	0.066	55.02	2.166
2 x 25	-023	-023	-023	-023	64.31	2.532	1.68	0.066	57.56	2.266
2 x 26	-024	-024	-024	-024	66.85	2.632	1.68	0.066	60.10	2.366
2 x 27	-025	-025	-025	-025	69.39	2.732	1.68	0.066	62.64	2.466
2 x 28	-026	-026	-026	-026	71.93	2.832	1.68	0.066	65.18	2.566
2 x 29	-027	-027	-027	-027	74.47	2.932	1.68	0.066	67.72	2.666
2 x 30	-028	-028	-028	-028	77.01	3.032	1.68	0.066	70.26	2.766
2 x 31	-029	-029	-029	-029	79.55	3.132	1.68	0.066	72.80	2.866
2 x 32	-030	-030	-030	-030	82.09	3.232	1.68	0.066	75.34	2.966
2 x 33	-031	-031	-031	-031	84.63	3.332	1.68	0.066	77.88	3.066
2 x 34	-032	-032	-032	-032	87.17	3.432	1.68	0.066	80.42	3.166
2 x 35	-033	-033	-033	-033	89.71	3.532	1.68	0.066	82.96	3.266
2 x 36	-034	-034	-034	-034	92.25	3.632	1.68	0.066	85.50	3.366

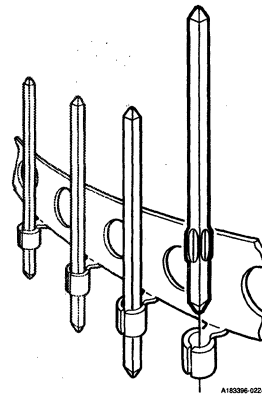
Ordering data shown is for our standard product offering. For special sizes or high-volume orders, contact your authorized Berg Electronics representative.



# Pins

2.54 mm (0.100 in.) Centerline

## BergPin® Solder-to-Board Terminal



### Features

- Made from drawn square wire with a maximum corner radius of 0.05 mm (0.002 in.) for wire wrapping.
- Hole diameter is 0.81 mm (0.032 in.).
- A wide range of application machines is available.
- Available in a variety of platings and pin lengths.
- GXT™ (palladium-nickel alloy with gold flash), a Berg Electronics gold equivalent plating, ensures high cycle life and excellent solderability.
- Packaged in reels or bags of loose pieces.


### Mating Data


Mates with all receptacles requiring a 0.64 mm (0.025 in.) square pin.

### Specifications

- MIL-G-45204
- MIL-P-81728
- MIL-STD-275
- QQ-B-750
- MIL-P-55110
- MIL-P-45209
- MIL-STD-1130

### Approvals and Certifications

 File no. E66906

 File no. LR46923

### Application Equipment

Description	Page
▪ BP-155 Semi-automatic pantograph insertion machine	13-119
▪ BP-161C Semi-automatic insertion machine	13-119
▪ BP-191B Computer-controlled insertion machine	13-120

### Technical Data

#### Materials

- Contact. . . . . Drawn wire 0.64 mm (0.025 in.) square, 3/4-hard phosphor-bronze

#### Dimensions

- Corner radius . . . . . 0.05 mm (0.002 in.) max
- PCB thickness . . . . . 1.58 mm (0.062 in.) to 3.18 mm (0.125 in.)
- PCB hole diameter (finished)
  - ▶ 1.59 mm (0.062 in.) thick PCB . . . . . 0.81 ± 0.05 mm (0.032 ± 0.002 in.)
  - ▶ 2.38 mm (0.093 in.) thick PCB . . . . . 0.86 ± 0.05 mm (0.034 ± 0.002 in.)
  - ▶ 3.18 mm (0.125 in.) thick PCB . . . . . 0.86 ± 0.05 mm (0.034 ± 0.002 in.)

#### Mechanical Performance

- Contact retention force. . . . . 8.9–89 N (2–20 lbf) (before soldering, staked in G-10 glass epoxy PWB)

#### Electrical Performance

- Insulation resistance. . . . . 5000 MΩ min

- Contact resistance. . . . . 15 mΩ max
- Withstanding voltage . . . . . 1000 V ac rms
- Current rating
  - ▶ Mated with Mini PV™ . . . . . 3 amp dc continuous
  - ▶ Mated with Maxi PV . . . . . 5 amp dc continuous

#### Plating

- Finish . . . . . 0.38 μm (15 μin.) gold over 1.27 μm (50 μin.) nickel or 0.76 μm (30 μin.) gold over 1.27 μm (50 μin.) nickel or 1.27 μm (50 μin.) gold over 1.27 μm (50 μin.) nickel or 0.76 μm (30 μin.) GXT over 1.27 μm (50 μin.) nickel or 3.81 μm (150 μin.) tin-lead (93/7)

#### Operating Environment

- Temperature range . . . . . -40°C to +125°C

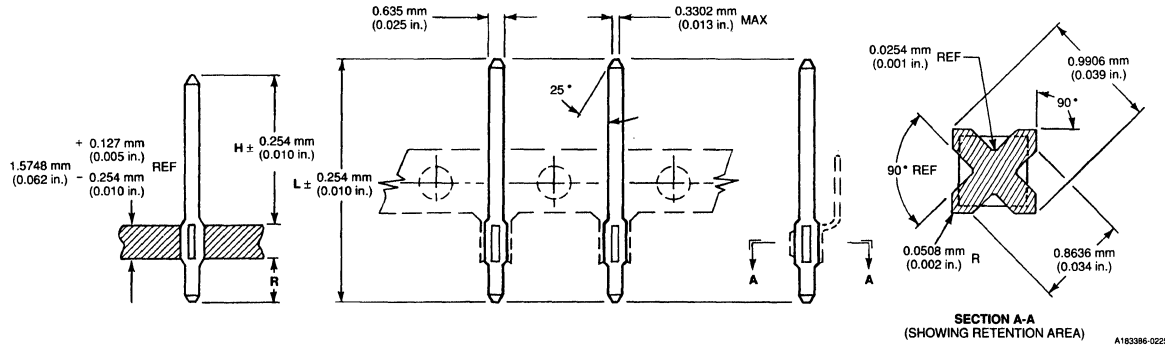
#### Packaging

- Reels
- Antistatic bags (loose piece)

### Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawings. . . . .	By Part No.	Product Samples. . . . .	Upon Request
Product Specifications. . . . .	BUS-12-064		

### Description



### Ordering Data

□ □ □ □ □ - X X X

Base number specifies plating and packaging options.

Dash number specifies pin length.

Base Number						
Package	Gold			GXT™ 0.76 μm (30 μin.)	Tin-Lead 3.81 μm (150 μin.)	
	0.38 μm (15 μin.)	0.76 μm (30 μin.)	1.27 μm (50 μin.)			
Reel	75409	75401	75403	75405	75404	
Loose piece	76159	76151	76153	76155	76154	
Dash Number						
	Dimensions					
	H*		R		L	
	mm	in.	mm	in.	mm	in.
-001	5.97	0.235	1.14	0.045	8.76	0.345
-041	5.97	0.235	2.03	0.080	9.65	0.380
-059	5.97	0.235	3.30	0.130	10.92	0.430
-002	6.86	0.270	1.14	0.045	9.65	0.380
-028	7.87	0.310	1.14	0.045	10.41	0.410
-050	8.13	0.320	8.05	0.320	7.78	0.710
-040	8.13	0.320	10.03	0.395	19.81	0.780
-003	8.89	0.350	1.14	0.045	11.68	0.460
-015	8.89	0.350	6.22	0.245	16.76	0.660
-022	8.89	0.350	9.02	0.355	19.56	0.770
-004	10.29	0.405	1.14	0.045	13.08	0.515
-016	10.29	0.405	6.22	0.245	18.16	0.715
-023	10.29	0.405	9.02	0.355	20.96	0.825
-046	11.05	0.435	13.59	0.535	26.29	1.035
-006	11.18	0.440	1.14	0.045	13.97	0.550
-007	11.94	0.470	1.14	0.045	14.73	0.580
-045	12.80	0.504	1.42	0.056	15.88	0.625
-008	13.21	0.520	1.14	0.045	16.00	0.630
-009	14.61	0.575	1.14	0.045	17.40	0.685
-010	14.99	0.590	1.14	0.045	17.78	0.700
-038	15.24	0.600	8.38	0.330	25.27	0.995
-011	16.26	0.640	1.14	0.045	19.05	0.750
-012	16.76	0.660	1.14	0.045	19.56	0.770
-013	19.05	0.750	1.14	0.045	21.84	0.860
-042	22.23	0.875	1.14	0.045	25.02	0.985

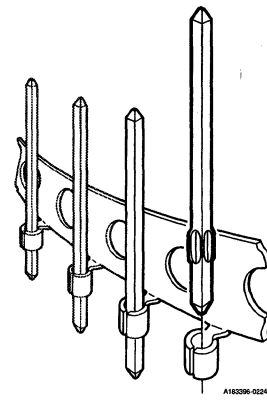
\*Dimension H decreases by 0.38 mm (0.015 in.) for 2.39 mm (0.93 in.) PCBs and by 0.76 mm (0.030 in.) for 3.18 mm (0.125 in.) PCBs.

Ordering data shown is for our standard product offering. For special sizes or high-volume orders, contact your authorized Berg Electronics representative.

# Pins

2.54 mm (0.100 in.) Centerline

## Large Star BergPin® Solder-to-Board Terminal



### Features

- Made from drawn square wire with a maximum corner radius of 0.05 mm (0.002 in.) for wire wrapping.
- Hole diameter is 0.86 mm (0.034 in.).
- A wide range of application machines is available.
- Available in a variety of platings and pin lengths.
- GXT™ (palladium-nickel alloy with gold flash), a Berg Electronics gold equivalent plating, ensures high cycle life and excellent solderability.
- Packaged in reels or bags of loose pieces.


### Mating Data


Mates with all receptacles requiring a 0.64 mm (0.025 in.) square pin.

### Specifications

- MIL-G-45204
- MIL-P-81728
- MIL-STD-275
- QQ-B-750
- MIL-P-55110
- MIL-P-45209
- MIL-STD-1130

### Approvals and Certifications

 File no. E66906

 File no. LR46923

### Application Equipment

Description	Page
▪ BP-155 Semi-automatic pantograph insertion machine . . . . .	13-119
▪ BP-161C Semi-automatic insertion machine . . . . .	13-119
▪ BP-191B Computer-controlled insertion machine . . . . .	13-120

### Technical Data

#### Materials

- Contact. . . . . Drawn wire 0.64 mm (0.025 in.) square 3/4-hard phosphor-bronze

#### Dimensions

- Corner radius . . . . . 0.05 mm (0.002 in.) max
- PCB thickness . . . . . 1.58 mm (0.062 in.) to 3.18 mm (0.125 in.)
- PCB hole diameter (finished)
  - ▶ 1.59 mm (0.062 in.) thick PCB . . . . . 0.86 ±0.05 mm (0.034 ±0.002 in.)
  - ▶ 2.38 mm (0.093 in.) thick PCB . . . . . 0.91 ±0.05 mm (0.036 ±0.002 in.)
  - ▶ 3.18 mm (0.125 in.) thick PCB . . . . . 0.91 ±0.05 mm (0.036 ±0.002 in.)

#### Mechanical Performance

- Contact retention force. . . . . 8.9--89 N (2--20 lbf) (before soldering, staked in G-10 glass epoxy PWB)

#### Electrical Performance

- Insulation resistance. . . . . 5000 MΩ min

- Contact resistance. . . . . 15 mΩ max
- Withstanding voltage . . . . . 1000 V ac rms
- Current rating
  - ▶ Mated with Mini PV™ . . . . . 3 amp dc continuous
  - ▶ Mated with Maxi PV . . . . . 5 amp dc continuous

#### Plating

- Finish . . . . . 0.38 μm (15 μin.) gold over 1.27 μm (50 μin.) nickel or 0.76 μm (30 μin.) gold over 1.27 μm (50 μin.) nickel or 1.27 μm (50 μin.) gold over 1.27 μm (50 μin.) nickel or 0.76 μm (30 μin.) GXT over 1.27 μm (50 μin.) nickel or 3.81 μm (150 μin.) tin-lead (93/7)

#### Operating Environment

- Temperature range . . . . . -40°C to +125°C

#### Packaging

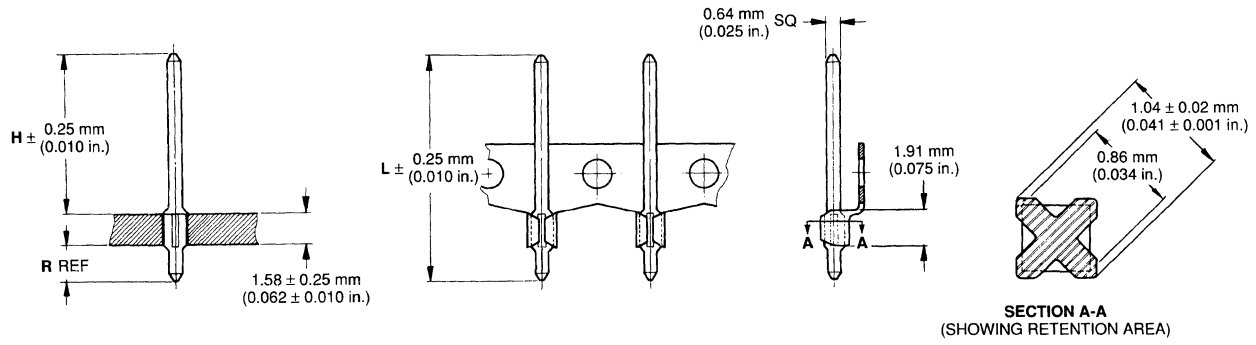
- Reels
- Antistatic bags (loose piece)

### Customer Support Materials

Description	Order No.
Customer Product Drawings. . . . .	By Part No.
Product Specifications. . . . .	BUS-12-064

Description	Order No.
Product Samples. . . . .	Upon Request

### Description



A183396-0226

### Ordering Data

□ □ □ □ - X X X

Base number specifies plating and packaging options.

Dash number specifies pin length.

Package	Base Number				
	Gold over Nickel			GXT™ over Nickel	Tin-Lead
	0.38 μm (15 μin.)	0.76 μm (30 μin.)	1.27 μm (50 μin.)	0.76 μm (30 μin.)	3.81 μm (150 μin.)
Reel	75489	75481	75483	75485	75484
Loose piece	76209*	76201*	76203*	76205	76204*

	Dash Number					
	Dimensions					
	H**		R		L	
	mm	in.	mm	in.	mm	in.
-023	5.97	0.235	1.14	0.045	8.76	0.345
-001	7.19	0.283	1.14	0.045	9.91	0.390
-003	7.37	0.290	1.98	0.078	10.92	0.430
-002	7.95	0.313	1.14	0.045	10.67	0.420
-006	9.47	0.373	1.14	0.045	12.19	0.480
-033	10.24	0.403	1.14	0.045	12.95	0.510
-009	10.41	0.410	1.14	0.045	13.13	0.517
-037	11.51	0.453	1.14	0.045	14.22	0.560
-024	14.73	0.580	1.14	0.045	17.52	0.690
-016	19.30	0.760	1.14	0.045	22.10	0.810

\*Indicates CSA certification only.

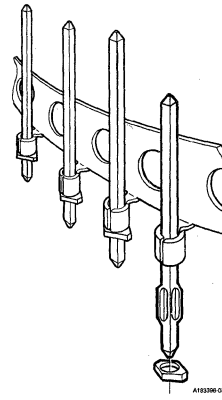
\*\*Dimension H decreases by 0.38 mm (0.015 in.) for 2.39 mm (0.93 in.) PCBs and by 0.76 mm (0.030 in.) for 3.18 mm (0.125 in.) PCBs.

Ordering data shown is for our standard product offering. For special sizes or high-volume orders, contact your authorized Berg Electronics representative.

# Pins

2.54 mm (0.100 in.) Centerline

## Solder-Washer BergPin® Solder-to-Board Terminal



### Features

- Reduces production costs by eliminating wave- and hand-soldering processes.
- Reflowed by hot oil, vapor-phase, or infrared method.
- Made from drawn square wire with a maximum corner radius of 0.05 mm (0.002 in.) for wire wrapping.
- Hole diameter is 0.81 mm (0.032 in.).
- A wide range of application machines is available.
- Available in a variety of platings and pin lengths.
- GXT™ (palladium-nickel alloy with gold flash), a Berg Electronics gold equivalent plating, ensures high cycle life and excellent solderability.


### Mating Data


Mates with all receptacles requiring a 0.64 mm (0.025 in.) square pin.

### Specifications

- ASTM-B-159
- MIL-G-45204
- MIL-P-81728
- QQ-N-290
- QQ-S-571

### Approvals and Certifications

 File no. E66906

 File no. LR46923

### Application Equipment

#### Description

#### Page

- BP-155 Semi-automatic pantograph insertion machine . . . . . 13-119
- BP-191B Computer-controlled insertion machine . . . . . 13-120

### Technical Data

#### Materials

- Contact
  - ▶ BergPin . . . . . Drawn wire 0.64 mm (0.025 in.) square, 3/4-hard phosphor-bronze
  - ▶ Washer (fluxless) . . . . . Tin-lead (60/40)

#### Dimensions

- Corner radius . . . . . 0.05 mm (0.002 in.) max
- PCB thickness . . . . . 1.58 mm (0.062 in.) to 3.18 mm (0.125 in.)
- PCB hole diameter (finished)
  - ▶ 1.59 mm (0.062 in.) thick PCB . . . . . 0.81 ±0.05 mm (0.032 ±0.002 in.)
  - ▶ 2.38 mm (0.093 in.) thick PCB . . . . . 0.86 ±0.05 mm (0.034 ±0.002 in.)
  - ▶ 3.18 mm (0.125 in.) thick PCB . . . . . 0.86 ±0.05 mm (0.034 ±0.002 in.)

#### Mechanical Performance

- Contact retention force. . . . . 8.9--89 N (2--20 lbf) (before soldering, staked in G-10 glass epoxy PWB)

#### Electrical Performance

- Insulation resistance . . . . . 5000 MΩ min
- Contact resistance . . . . . 15 mΩ max
- Withstanding voltage . . . . . 1000 V ac rms
- Current rating
  - ▶ Mated with Mini PV™ . . . . . 3 amp dc continuous
  - ▶ Mated with Maxi PV™ . . . . . 5 amp dc continuous

#### Plating

- Finish . . . . . 0.38 μm (15 μin.) gold over 1.27 μm (50 μin.) nickel or 0.76 μm (30 μin.) gold over 1.27 μm (50 μin.) nickel or 1.27 μm (50 μin.) gold over 1.27 μm (50 μin.) nickel or 0.76 μm (30 μin.) GXT over 1.27 μm (50 μin.) nickel or 3.81 μm (150 μin.) tin-lead (93/7)

#### Operating Environment

- Temperature range . . . . . -40°C to +125°C

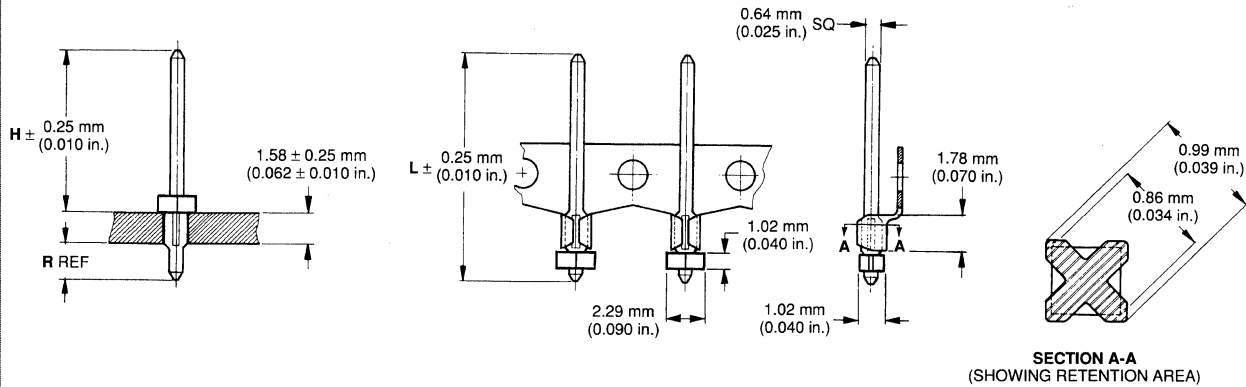
#### Packaging

- Reels

### Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawings . . . . .	By Part No.	Product Samples . . . . .	Upon Request
Application Specification . . . . .	BUS-20-045		

### Description



A183396-0228

### Ordering Data

□ □ □ □ - X Y Y

Base number \_\_\_\_\_ X specifies plating; YY specifies pin length.

Base Number		Gold over Nickel		GXT™ over Nickel		Tin-Lead	
		0.38 μm (15 μin.)	0.76 μm (30 μin.)	1.27 μm (50 μin.)	0.76 μm (30 μin.)	3.81 μm (150 μin.)	
		76241-9XX	76241-1XX	76241-3XX	76241-5XX	76241-4XX	
Dash Number							
	Dimensions						
	H*		R		L		
	mm	in.	mm	in.	mm	in.	
X01	5.97	0.235	1.73	0.068	9.27	0.365	
X41	5.97	0.235	2.11	0.083	9.65	0.380	
X02	6.86	0.270	1.73	0.068	10.16	0.400	
X28	7.87	0.310	1.73	0.068	11.18	0.440	
X50	8.08	0.318	8.05	0.320	17.78	0.700	
X40	8.13	0.320	10.11	0.398	19.81	0.780	
X03	8.89	0.350	1.73	0.068	12.19	0.480	
X15	8.89	0.350	6.30	0.248	16.76	0.660	
X22	8.89	0.350	9.09	0.358	19.56	0.770	
X04	10.29	0.405	1.73	0.068	13.59	0.535	
X16	10.29	0.405	6.30	0.248	18.16	0.715	
X23	10.29	0.405	9.09	0.358	20.96	0.825	
X46	11.05	0.435	13.67	0.538	26.29	1.035	
X06	11.18	0.440	1.73	0.068	14.48	0.570	
X07	11.94	0.470	1.73	0.068	15.24	0.600	
X45	12.80	0.504	1.60	0.063	15.98	0.629	
X08	13.21	0.520	1.73	0.068	16.51	0.650	
X10	14.99	0.590	1.73	0.068	18.29	0.720	
X38	15.24	0.600	8.46	0.333	25.27	0.995	
X11	16.26	0.640	1.73	0.068	19.56	0.770	
X12	16.76	0.660	1.73	0.068	20.07	0.790	
X13	19.05	0.750	1.73	0.068	22.35	0.880	

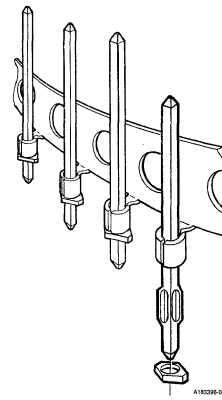
\*Dimension H decreases by 0.38 mm (0.015 in.) for 2.39 mm (0.93 in.) PCBs and by 0.76 mm (0.030 in.) for 3.18 mm (0.125 in.) PCBs.

Ordering data shown is for our standard product offering. For special sizes or high-volume orders, contact your authorized Berg Electronics representative.

# Pins

2.54 mm (0.100 in.) Centerline

## Large Star Solder-Washer BergPin® Solder-to-Board Terminal



### Features

- Reduces production costs by eliminating wave- and hand-soldering processes.
- Reflowed by hot oil, vapor-phase, or infrared method.
- Made from drawn square wire with a maximum corner radius of 0.05 mm (0.002 in.) for wire wrapping.
- Hole size is 0.86 mm (0.034 in.) diameter.
- A wide range of application machines is available.
- Available in a variety of platings and pin lengths.
- GXT™ (palladium-nickel alloy with gold flash), a Berg Electronics gold equivalent plating, ensures high cycle life and excellent solderability.


### Mating Data


Mates with all receptacles requiring a 0.64 mm (0.025 in.) square pin.

### Specifications

- ASTM-B-159
- MIL-G-45204
- MIL-P-81728
- QQ-N-290
- QQ-S-571

### Approvals and Certifications

 File no. E66906

 File no. LR46923

### Application Equipment

#### Description

#### Page

- BP-155 Semi-automatic pantograph insertion machine . . . . . 13-119
- BP-161C Semi-automatic insertion machine . . . . . 13-119
- BP-191B Computer-controlled insertion machine . . . . . 13-120

### Technical Data

#### Materials

- Contact
  - ▶ BergPin . . . . . Drawn wire 0.64 mm (0.025 in.) square, 3/4-hard phosphor-bronze
  - ▶ Washer (fluxless) . . . . . Tin-lead (60/40)

#### Dimensions

- Corner radius . . . . . 0.05 mm (0.002 in.) max
- PCB thickness . . . . . 1.58 mm (0.062 in.) to 3.18 mm (0.125 in.)
- PCB hole diameter (finished)
  - ▶ 1.59 mm (0.062 in.) thick PCB . . . . . 0.86 ± 0.05 mm (0.034 ± 0.002 in.)
  - ▶ 2.38 mm (0.093 in.) thick PCB . . . . . 0.91 ± 0.05 mm (0.036 ± 0.002 in.)
  - ▶ 3.18 mm (0.125 in.) thick PCB . . . . . 0.91 ± 0.05 mm (0.036 ± 0.002 in.)

#### Mechanical Performance

- Contact retention force . . . . . 8.9–89 N (2–20 lbf) (before soldering, staked in G-10 glass epoxy PWB)

#### Electrical Performance

- Insulation resistance . . . . . 5000 MΩ min
- Contact resistance . . . . . 15 mΩ max
- Withstanding voltage . . . . . 1000 V ac rms
- Current rating
  - ▶ Mated with Mini PV™ . . . . . 3 amp dc continuous
  - ▶ Mated with Maxi PV . . . . . 5 amp dc continuous

#### Plating

- Finish . . . . . 0.38 μm (15 μin.) gold over 1.27 μm (50 μin.) nickel or 0.76 μm (30 μin.) gold over 1.27 μm (50 μin.) nickel or 1.27 μm (50 μin.) gold over 1.27 μm (50 μin.) nickel or 0.76 μm (30 μin.) GXT over 1.27 μm (50 μin.) nickel or 3.81 μm (150 μin.) tin-lead (93/7)

#### Operating Environment

- Temperature range . . . . . -40°C to +125°C

#### Packaging

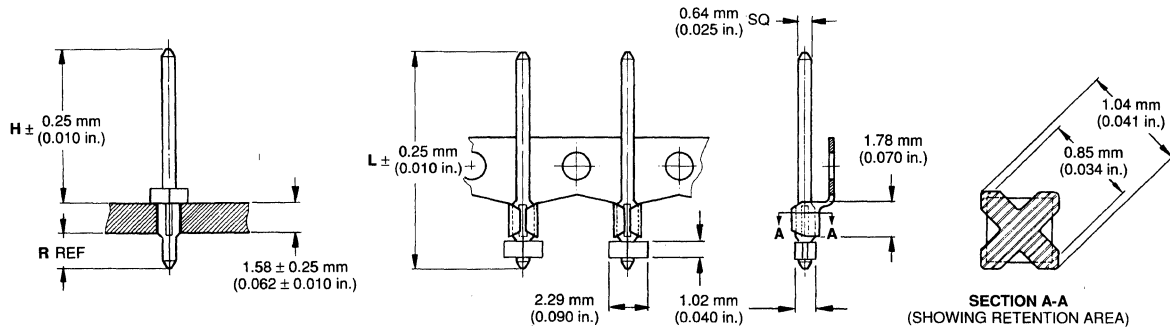
- Reels

### Customer Support Materials

Description	Order No.
Customer Product Drawings . . . . .	By Part No.
Product Specifications . . . . .	BUS-20-045

Description	Order No.
Product Samples . . . . .	Upon Request

### Description



A183396-0230

### Ordering Data

□ □ □ □ - X Y Y

Base number

X specifies plating;  
YY specifies pin length.

Base Number						
Gold over Nickel			GXT™ over Nickel		Tin-Lead	
0.38 μm (15 μin.)	0.76 μm (30 μin.)	1.27 μm (50 μin.)	0.76 μm (30 μin.)		3.81 μm (150 μin.)	
76494-9XX	76494-1XX	76494-3XX	76494-5XX		76494-4XX	
Dash Number						
	Dimensions					
	H*		R		L	
	mm	in.	mm	in.	mm	in.
X23	5.97	0.235	1.60	0.063	9.14	0.360
X01	7.19	0.283	1.60	0.063	10.36	0.408
X03	7.37	0.290	1.98	0.078	10.92	0.430
X02	7.95	0.313	1.60	0.063	11.13	0.438
X04	8.13	0.320	1.60	0.063	11.30	0.445
X05	8.13	0.320	1.98	0.078	11.68	0.460
X08	8.13	0.320	3.25	0.128	12.95	0.510
X10	8.13	0.320	4.01	0.158	13.72	0.540
X06	9.47	0.373	1.60	0.063	12.65	0.498
X07	9.65	0.380	1.60	0.063	12.83	0.505
X09	10.41	0.410	1.60	0.063	13.59	0.535
X11	11.00	0.433	1.60	0.063	14.17	0.558
X16	19.38	0.763	1.65	0.065	22.61	0.890

\*Dimension H decreases by 0.38 mm (0.015 in.) for 2.39 mm (0.93 in.) PCBs and by 0.76 mm (0.030 in.) for 3.18 mm (0.125 in.) PCBs.

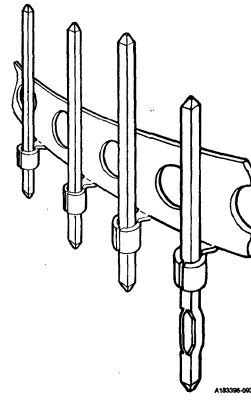
Ordering data shown is for our standard product offering. For special sizes or high-volume orders, contact your authorized Berg Electronics Representative.



# Pins

2.54 mm (0.100 in.) Centerline

## TriPin™ Solder-to-Board Terminal



### Features

- Made from drawn square wire with a maximum corner radius of 0.05 mm (0.002 in.) for wire wrapping.
- Hole diameter is 0.99 mm (0.039 in.)
- A wide range of application machines is available.
- Available in a variety of platings and pin lengths.
- GXT™ (palladium-nickel alloy with gold flash), a Berg Electronics gold equivalent plating, ensures high cycle life and excellent solderability.
- Packaged in reels or bags of loose pieces.


### Mating Data


Mates with all receptacles requiring a 0.64 mm (0.025 in.) square pin.

### Specifications

- MIL-G-45204
- MIL-P-55110
- MIL-P-81728
- MIL-P-45209
- MIL-STD-275
- QQ-B-750

### Approvals and Certifications

 File no. E66906

 File no. LR46923

### Application Equipment

#### Description

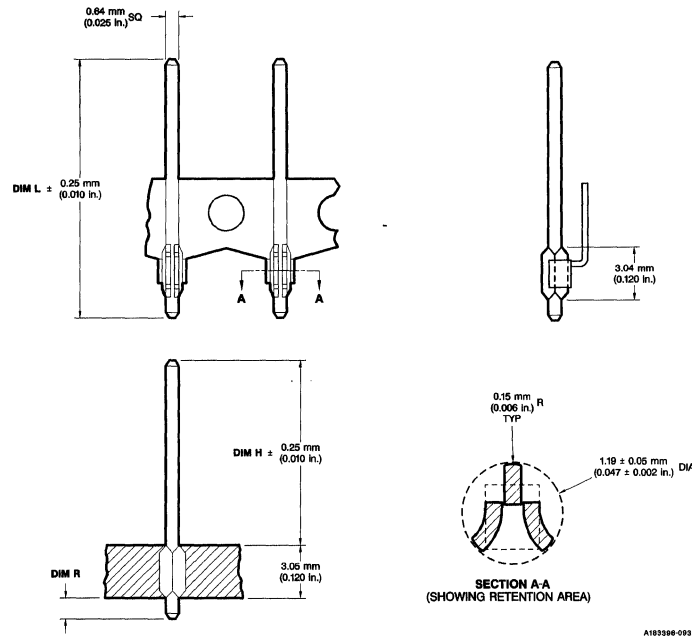
#### Page

- TP-159 Semi-automatic pantograph insertion machine . . . . . 13-119
- TP-162C Semi-automatic insertion machine . . . . . 13-119
- BP-191B Computer-controlled insertion machine . . . . . 13-120

<b>Technical Data</b>	
<p><b>Materials</b></p> <ul style="list-style-type: none"> <li>▪ Contact . . . . . Drawn wire 0.64 mm (0.025 in.) square, 3/4-hard phosphor-bronze</li> </ul> <p><b>Dimensions</b></p> <ul style="list-style-type: none"> <li>▪ Corner radius . . . . . 0.05 mm (0.002 in.) max</li> <li>▪ PCB thickness . . . . . 3.18 mm (0.125 in.)</li> <li>▪ PCB hole diameter (finished) . . . . . 0.99 ±0.05 mm (0.039 ±0.002 in.)</li> </ul> <p><b>Mechanical Performance</b></p> <ul style="list-style-type: none"> <li>▪ Contact retention force . . . . . 53.80 N (12.0 lbf) avg (before soldering, staked in G-10 glass epoxy PWB)</li> </ul> <p><b>Electrical Performance</b></p> <ul style="list-style-type: none"> <li>▪ Insulation resistance . . . . . 5000 MΩ min</li> <li>▪ Contact resistance . . . . . 15 mΩ max</li> <li>▪ Withstanding voltage . . . . . 1000 V ac rms</li> </ul>	<ul style="list-style-type: none"> <li>▪ Current rating                             <ul style="list-style-type: none"> <li>▶ Mated with Mini PV™ . . . . . 3 amp dc continuous</li> <li>▶ Mated with Maxi PV™ . . . . . 5 amp dc continuous</li> </ul> </li> </ul> <p><b>Plating</b></p> <ul style="list-style-type: none"> <li>▪ Finish . . . . . 0.38 μm (15 μin.) gold over 1.27 μm (50 μin.) nickel or 0.76 μm (30 μin.) gold over 1.27 μm (50 μin.) nickel or 1.27 μm (50 μin.) gold over 1.27 μm (50 μin.) nickel or 0.76 μm (30 μin.) GXT over 1.27 μm (50 μin.) nickel or 3.81 μm (150 μin.) tin-lead (93/7)</li> </ul> <p><b>Operating Environment</b></p> <ul style="list-style-type: none"> <li>▪ Temperature range . . . . . -55°C to +125°C</li> </ul> <p><b>Packaging</b></p> <ul style="list-style-type: none"> <li>▪ Reels</li> <li>▪ Antistatic bags (loose piece)</li> </ul>

<b>Customer Support Materials</b>			
<b>Description</b>	<b>Order No.</b>	<b>Description</b>	<b>Order No.</b>
Customer Product Drawings . . . . .	By Part No.	Product Samples . . . . .	Upon Request
Product Specifications . . . . .	BUS-12-069		

### Description



### Ordering Data

□ □ □ □ - X X X

Base number specifies plating and packaging options.

Dash number specifies pin length.

Package	Base Number			GXT™		Tin-Lead 3.81 µm (150 µin.)
	0.38 µm (15 µin.)	Gold 0.76 µm (30 µin.)	1.27 µm (50 µin.)	0.38 µm (15 µin.)	0.76 µm (30 µin.)	
Reel	75499	75491	75493	75496	75495	75494
Loose piece	76199	76191	76193	76196	76195	76194

	Dash Number					
	Dimensions					
	H*		R*		L	
	mm	in.	mm	in.	mm	in.
-009	5.21	0.205	1.27	0.050	9.53	0.375
-020	5.59	0.220	1.40	0.055	10.03	0.395
-017	5.59	0.220	2.03	0.080	10.67	0.420
-004	6.60	0.260	1.27	0.050	10.92	0.430
-005	7.11	0.280	8.38	0.330	18.54	0.730
-014	8.00	0.315	1.27	0.050	12.32	0.485
-013	8.13	0.320	5.46	0.215	16.76	0.660
-015	8.76	0.345	7.87	0.310	19.69	0.775
-022	9.14	0.360	10.80	0.425	22.99	0.905
-007	9.40	0.370	1.27	0.050	13.72	0.540
-010	9.91	0.390	1.27	0.050	14.22	0.560
-019	10.54	0.415	1.02	0.040	14.61	0.575
-021	10.80	0.425	1.40	0.055	15.24	0.600
-018	10.80	0.425	2.03	0.080	15.88	0.625
-016	10.80	0.425	7.87	0.310	21.72	0.855
-002	12.44	0.490	1.27	0.050	16.76	0.660
-011	13.84	0.545	1.27	0.050	18.16	0.715
-001	15.24	0.600	1.27	0.050	19.56	0.770
-003	15.24	0.600	8.38	0.330	26.67	1.050
-012	15.88	0.610	1.27	0.050	19.81	0.780
-008	17.53	0.690	1.02	0.040	21.59	0.850
-006	18.54	0.730	1.27	0.050	22.86	0.900

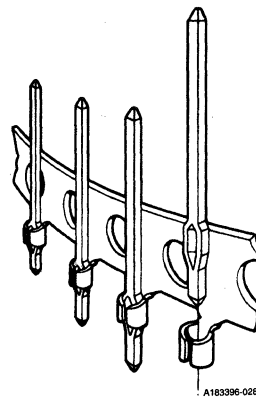
\*H and R dimensions calculated with pins applied to 3.05 mm (0.120 in.) thick PCB.

Ordering data shown is for our standard product offering. For special sizes or high-volume orders, contact your authorized Berg Electronics representative.

# Pins

2.54 mm (0.100 in.) Centerline

## Compliant Press-Fit Pin Terminal



### Features

- Compliant press-fit section has unique "bow tie" design.
- No soldering required.
- Large hole tolerance of 1.02 0.076 mm (0.040 0.003 in.).
- Lower PCB manufacturing cost than solder-to-board pins.
- Low insertion force.
- Minimum push-out force of 44 N (10 lbf) is maintained through 2 replacements.
- Gas-tight connection.
- No damage to plated-through hole.
- Fully automatic insertion.
- GXT™ (palladium-nickel alloy with gold flash), a Berg Electronics gold equivalent plating, ensures high cycle life and excellent solderability.
- Berg Electronics is an approved vendor listed on the Qualified Products List.

### Mating Data

Mates with all receptacles requiring a 0.64 mm (0.25 in.) square pin.

### Specifications

- MIL-C-28859/3
- MIL-C-28859/4
- MIL-G-45204
- MIL-P-55110
- MIL-P-81728
- MIL-STD-275
- QQ-B-750

### Approvals and Certifications



File no. E66906



File no. LR46923

### Application Equipment

Description	Page
TP-159 Semi-automatic pantograph compliant pin insertion machine . . . . .	13-119
TP-162C Semi-automatic pantograph compliant pin insertion machine . . . . .	13-119
BP-191B Computer-controlled compliant pin insertion machine . . . . .	13-120

### Technical Data

#### Materials

- Contact pin . . . . . Drawn wire 0.64 mm (0.025 in.) square, 3/4-hard phosphor-bronze

#### Mechanical Performance

- Insertion force
  - ▶ Smallest hole diameter (0.94 mm/0.037 in.) . . . . . 176 N (40 lbf) max
- Retention force
  - ▶ Largest hole diameter (1.09 mm/0.043 in.) . . . . . 44 N (10 lbf) min
- Pin replaceability . . . . . 2 times (new pins, same hole) maintains 44 N (10 lbf) min retention force

#### PCB Requirements

- PCB thickness . . . . . 2.36 mm (0.093 in.) to 3.17 mm (0.125 in.) recommended (thicker PCBs acceptable)
- PCB hole size
  - ▶ Drilled . . . . . 1.15 ± 0.025 mm (0.0453 ± 0.001 in.)
  - ▶ Finished . . . . . 1.02 ± 0.076 mm (0.040 ± 0.003 in.)
- PCB hole finish . . . . . 0.025 mm (0.001 in.) min to 0.072 mm (0.003 in.) max copper or 0.0072 mm (0.0003 in.) min to 0.0178 mm (0.0007 in.) max tin-lead

#### Plating

- Finish . . . . . 0.38 μm (15 μin.) gold over 1.27 μm (50 μin.) nickel or 0.76 μm (30 μin.) gold over 1.27 μm (50 μin.) nickel or 1.27 μm (50 μin.) gold over 1.27 μm (50 μin.) nickel or 0.76 μm (30 μin.) GXT over 1.27 μm (50 μin.) nickel or 3.81 μm (150 μin.) tin-lead (93/7)

#### Electrical Performance

- Insulation resistance . . . . . 5000 MΩ min
- Contact resistance . . . . . 15 mΩ max
- Withstanding voltage . . . . . 1000 V ac rms
- Current rating
  - ▶ Mated with Mini PV™ . . . . . 3 amp dc continuous
  - ▶ Mated with Maxi PV . . . . . 5 amp dc continuous

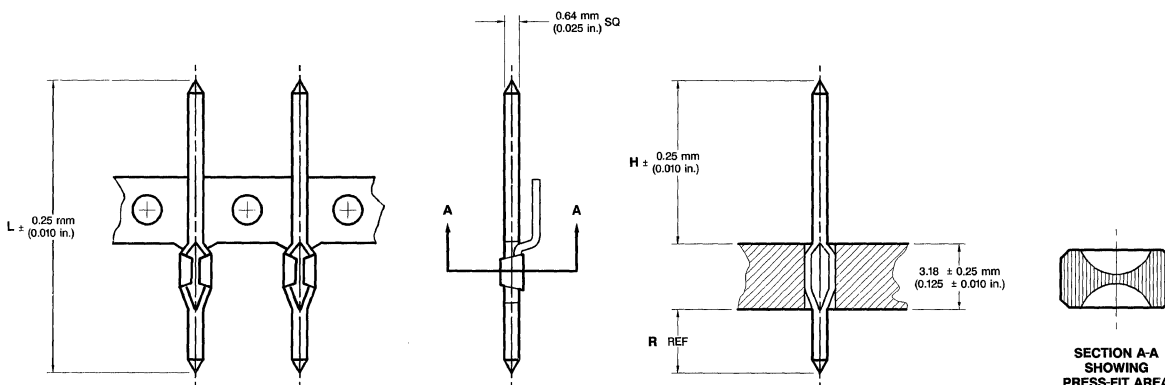
#### Operating Environment

- Temperature range . . . . . -40°C to +125° C

#### Packaging

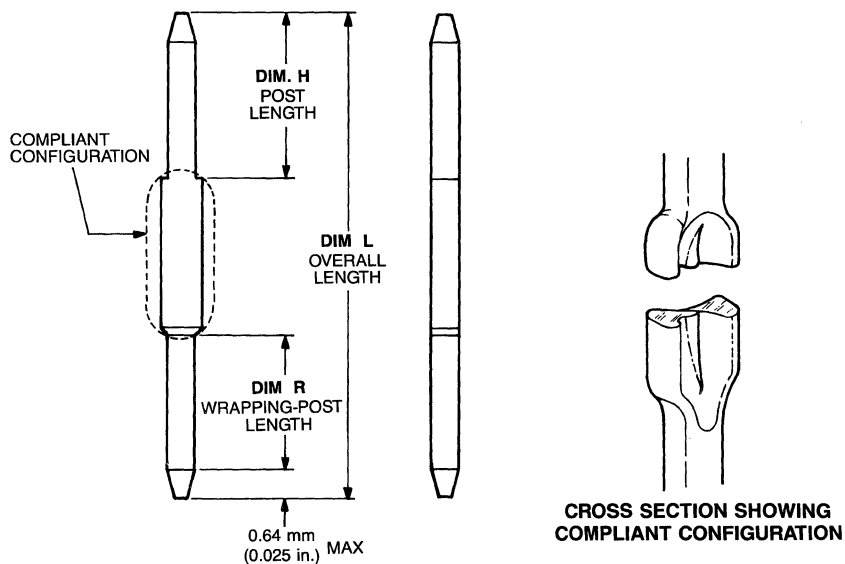
- Reels
- Antistatic bags (loose piece)

### Description Standard Pin



A183396-0288

### Military QPL Pin



A183396-0289

### Ordering Data

□ □ □ □ □ - X Y Y

Base number and first digit of dash number specify plating and packaging style.

YY specifies dimensions.

#### Base Number

Package	Gold over Nickel		
	0.38 $\mu\text{m}$ (15 $\mu\text{in.}$ )	0.76 $\mu\text{m}$ (30 $\mu\text{in.}$ )	1.27 $\mu\text{m}$ (50 $\mu\text{in.}$ )
Reel	76230-9XX	76230-1XX	76230-3XX
Loose piece	76828-9XX	76828-1XX	76828-3XX
Package	GXT™ over Nickel		Tin-Lead
	0.38 $\mu\text{m}$ (15 $\mu\text{in.}$ )	0.76 $\mu\text{m}$ (30 $\mu\text{in.}$ )	3.81 $\mu\text{m}$ (150 $\mu\text{in.}$ )
Reel	76230-6XX	76230-5XX	76230-4XX
Loose piece	76828-6XX	76828-5XX	76828-4XX

Pins  
2.54 mm (0.100 in.)

### Ordering Data (Cont'd)

	Dash Number					
	Dimensions					
	H*		R*		L	
	mm	in.	mm	in.	mm	in.
X40	5.72	0.225	4.57	0.180	13.34	0.525
X02	5.84	0.230	1.14	0.045	10.03	0.395
X49	5.84	0.230	9.27	0.365	18.16	0.715
X04	8.13	0.320	1.14	0.045	12.32	0.485
X05	8.13	0.320	5.46	0.215	16.64	0.655
X48	8.13	0.320	14.22	0.560	25.40	1.000
X07	8.76	0.345	1.14	0.045	12.95	0.510
X08	8.76	0.345	5.84	0.230	17.65	0.695
X09	8.76	0.345	8.00	0.315	19.81	0.780
X10	8.76	0.345	8.76	0.345	20.57	0.810
X13	10.67	0.420	1.14	0.045	14.86	0.585
X50	10.67	0.420	9.22	0.363	22.86	0.900
X58	10.67	0.420	11.68	0.460	25.32	0.997
X42	11.30	0.445	9.91	0.390	24.26	0.955
X36	11.43	0.450	8.64	0.340	23.11	0.910
X59	11.56	0.455	1.14	0.045	15.75	0.620
X16	12.70	0.500	1.40	0.055	17.15	0.675
X56	13.21	0.520	1.14	0.045	17.40	0.685
X19	13.84	0.545	1.27	0.050	18.16	0.715
X37	14.61	0.575	1.14	0.045	18.80	0.740
X22	15.24	0.600	1.27	0.050	19.56	0.770
X23	16.13	0.635	1.14	0.045	20.32	0.800
X24	16.13	0.635	5.84	0.230	25.02	0.985
X25	16.13	0.635	8.00	0.315	27.18	1.070
X26	16.13	0.635	8.76	0.345	27.94	1.100
X27	16.13	0.635	9.91	0.390	29.08	1.145
X28	16.13	0.635	16.13	0.635	35.31	1.390
301**	8.08	0.318	0.00	0.000	12.52	0.493
304**	8.08	0.318	0.89	0.350	21.41	0.843
306**	8.08	0.318	15.88	0.625	28.40	1.118
307**	8.08	0.318	19.05	0.750	31.57	1.243
323**	1.02	0.040	6.35	0.250	11.68	0.460
325**	1.02	0.040	12.70	0.500	18.03	0.710
328**	1.02	0.040	4.45	0.175	9.27	0.365
331**	1.02	0.040	12.70	0.500	17.32	0.682

\*H and R dimensions are calculated with pins applied to 3.18 mm (0.125 in.) thick PCB.

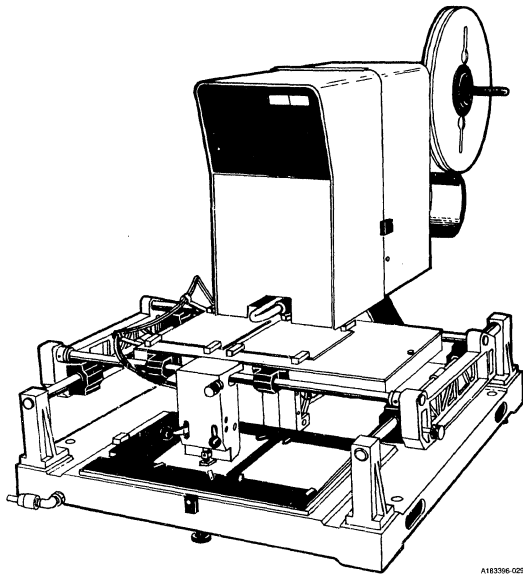
\*\*Military dash numbers are available only for 77015 and 77017 base numbers.

Ordering data shown is for our standard product offering. For special sizes or high-volume orders, contact your authorized Berg Electronics representative.

### Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawings.....	By Part No.	Product Samples.....	Upon Request
Product Specifications.....	BUS-12-033		

# Application Equipment for BergPin® Terminals



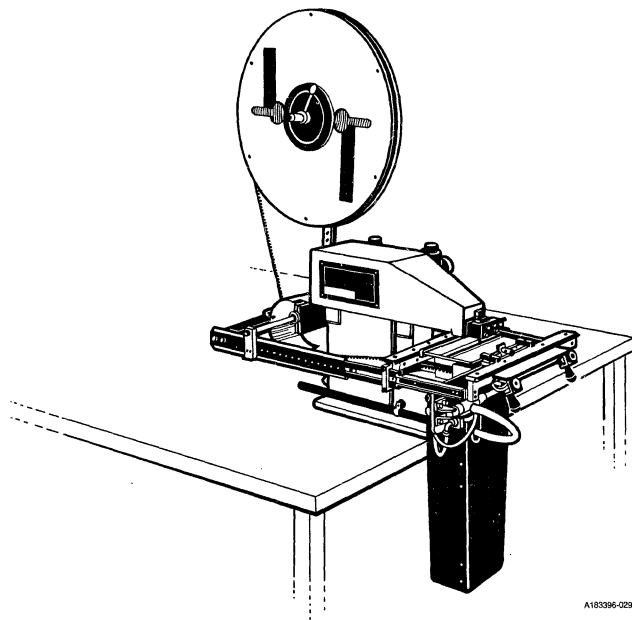
## **BP-155 BergPin Semi-Automatic Pantograph Insertion Machine**

## **TP-159 Semi-Automatic Pantograph Insertion Machine for TriPin™ and Compliant Press-Fit Pin**

---

### **Features**

- Stakes on a 2.54 mm (0.100 in.) grid.
- Bench model.
- Simple to operate.
- Ideal for straight-line insertion of terminals into PCB.
- Quick board exchange.
- Pneumatically operated.



## **BP-161C BergPin Semi-Automatic Insertion Machine\***

## **TP-162C Semi-Automatic Insertion Machine for TriPin™ and Compliant Press-Fit Pin**

---

### **Features**

- Stakes on a 2.54 mm (0.100 in.) grid.
- Bench model.
- Simple to operate.
- Suited for production-line staking of PCBs with a limited number of varying pin configurations.
- Quick board exchange.
- Pneumatically operated.

\*Not applicable to solder-washer BergPin terminals.

Application Equipment for BergPin® Terminals  
2.54 mm (0.100 in.)

## BP-191B Computer-Controlled Insertion Machine for BergPin® TriPin™, and Compliant Press-Fit Pin

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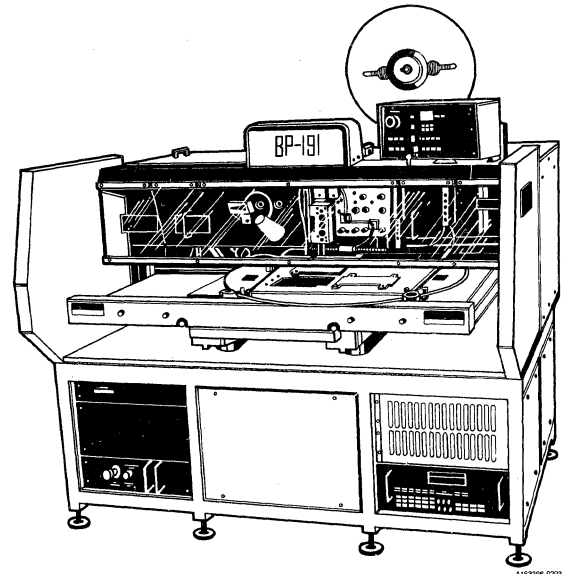
### Features

- Stakes on a 2.54 mm (0.100 in.) grid.
- Ideal for high-volume production requirements.
- Pneumatically operated.
- Universal high-speed single 90° indexing rotary table with 64K computer.
- Can be linked with other Universal-based equipment and controlled by one computer.
- Includes template for one PCB type.
- Random and matrix programming.
- Video display with keyboard (INFOTON).
- Flexible disc memory.
- Easy to program and operate.

---

### Options

- High-speed printer.
- Automated board handling.
- Additional templates.



<b>Technical Data</b>			
	<b>BP-155 TP-159</b>	<b>BP-161C TP-162C</b>	<b>BP-191B</b>
Application rate* (insertions/hour)	3500	2000	9000
Air consumption	214 L/min. (7.6 scfm)	110 L/min. (3.9 scfm)	396 L/min. (14 scfm)
Air pressure	552 kPa (80 psi)	552 kPa (80 psi)	552 kPa (80 psi)
Electrical requirements	115 V ac, 60 Hz 3 amp	115 V ac, 60 Hz 600 mA	115 V ac, 60 Hz 15 amp
Weight	60 kg (350 lb)	42 kg (92 lb)	907 kg (2000 lb)
Dimensions (h x w x d)	84 x 79 x 157 cm (33 x 31 x 62 in.)	124 x 53 x 107 cm (104 x 21 x 42 in.)	173 x 221 x 173 cm (68 x 87 x 68 in.)
Maximum staking area (l x w)	419 x 305 mm (16.5 x 12 in.)	356 x 292 mm (14 x 11.5 in.)	458 x 458 mm (18 x 18 in.)
Maximum PCB dimensions (l x w)	508 x 317 mm (20 x 12.12 in.)	610 x 305 mm (24 x 12 in.)	559 x 559 mm (22 x 22 in.)
Recommended floor/table space (w x d)	Table mounted 102 x 102 cm (40 x 40 in.)	Table mounted 91 x 61 cm (36 x 24 in.)	3.6 x 4.9 m (12 x 16 ft.)
*Application rates given are approximate. Actual rates achieved depend on operator dexterity and PCB pattern.			

<b>Ordering Data</b>	
<b>Machines (for strip-form terminals)</b>	<b>Part Number</b>
BP-155 BergPin® Semi-automatic pantograph insertion machine	131624-501
TP-159 TriPin™ compliant press-fit pin semi-automatic pantograph insertion machine	131624-502
BP-161C BergPin semi-automatic insertion machine	104130-502
TP-162C TriPin and compliant press-fit pin semi-automatic insertion machine	104130-503
BP-191B Computer-controlled insertion machine for BergPin, TriPin and compliant press-fit pin	145439-501
Computer-controlled application systems are custom configured to meet your needs. Contact your authorized Berg Electronics representative to review your requirements.	

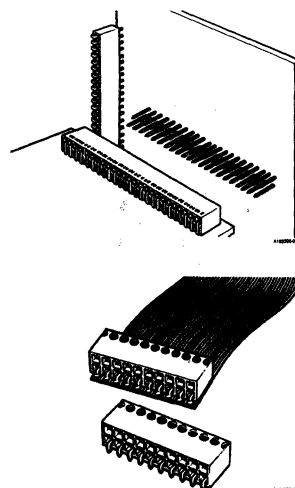


# PCB Mounted Receptacle Assemblies

## Horizontal, Through-Mount

2.54 x 2.54 mm (0.100 x 0.100 in.) Centerlines

### PV™ Through-Mount Horizontal Receptacles BergCon® System



#### Features

- Designed for perpendicular board-to-board connections.
- Highly reliable dual-metal PV™ contact provides beryllium-copper spring.
- Molded housings feature beveled lead-in ramps at receptacle openings to prevent pin stubbing.
- Surface-mount compatible (SMC) connectors withstand high-temperature reflow soldering processes.
- Single-row connectors available in 3 to 52 positions; double-row connectors available in 6 to 130 positions.
- Optional 1.27 mm (0.050 in.) solder tails on double-row connectors eliminate lead trimming on flex circuit assemblies.

#### Options

- Double-row connectors are available with insulating pin-stops at the rear of bottom-row contact openings, recommended when mating pin lengths exceed 8.76 mm (0.345 in.) with 1.65 mm (0.065 in.) connector setback or 9.65 mm (0.380 in.) with 2.54 mm (0.100 in.) setback from the edge of the PCB.
- Contact your authorized Berg Electronics representative for nonstandard contact finishes.
- Retentive, fixed-leg, double row (Part Number 95646) version available.

#### Mating Data


Mates with 0.64 mm (0.025 in.) square or round pins. Recommended pin


entry is 5.21 mm (0.205 in.) minimum to 7.24 mm (0.285 in.) maximum. Longer pins may be used when insulating pin stops are specified.

#### Berg Electronics Products Page

- BergStik® II headers..... 13-50
- BergPin® terminals 13-106 to 13-116

#### Approvals and Certifications

 File no. E66906

 File no. LR46923

#### Technical Data

##### Materials

- Single-row
  - ▶ Housing ..... Diallyl phthalate (DAP), UL 94 V-0
  - ▶ Color ..... Green
  - ▶ Temperature range ..... -65°C to +170°C
  - ▶ Applicable soldering processes ..... IR, vapor-phase, wave
- Double-row
  - ▶ Housing ..... Glass-filled PEI (UL94V-0) or Glass-filled PPS (UL94 V-0)
  - ▶ Color ..... Black
  - ▶ Temperature range ..... -65°C to +125°C
  - ▶ Applicable soldering processes ..... IR, vapor-phase, wave
- Contact
  - ▶ Spring ..... Beryllium-copper
  - ▶ Body ..... Brass

##### Plating

- Underplate ..... 1.27 µm (50 µin.) min nickel
- Finish
  - ▶ Body
    - Contact area ..... 0.76 µm (30 µin.) min gold
    - Solder area ..... Gold flash or Tin-lead
  - ▶ Spring ..... Gold flash

##### Electrical Performance

- Insulation resistance ..... 5000 MΩ min
- Withstanding voltage ..... 1250 V rms
- Current rating
  - ▶ Single contact ..... 3.0 amp max
  - ▶ Per contact, fully energized connector ..... 2.0 amp max
- Contact resistance
  - ▶ Initial ..... 10 mΩ max
  - ▶ After environmental test ..... 15 mΩ max
- Capacitance ..... 2.0 pF max

##### Mechanical Performance

- Insertion force per contact
  - ▶ Less than 100 positions ..... 1.26 N (128 gf) avg.
  - ▶ Larger sizes ..... 1.12 N (114 gf) avg.
- Withdrawal force per contact
  - ▶ Less than 100 positions ..... 0.4 N (40 gf) min
  - ▶ Larger sizes ..... 0.3 N (30 gf) min
- Durability (mating cycles) ..... 200

##### Packaging

- Antistatic tubes

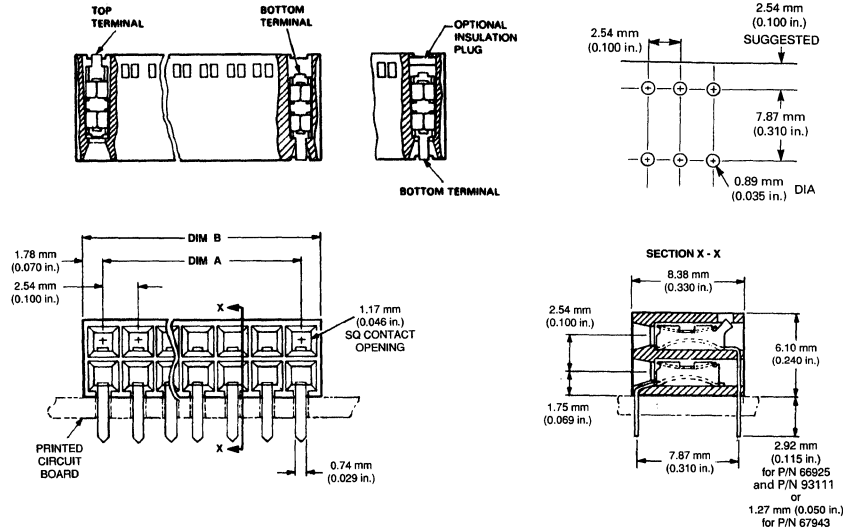
#### Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawings.....	By Base No.	Product Samples.....	By Part No.
Product Specifications.....	BUS-12-009		

## Description

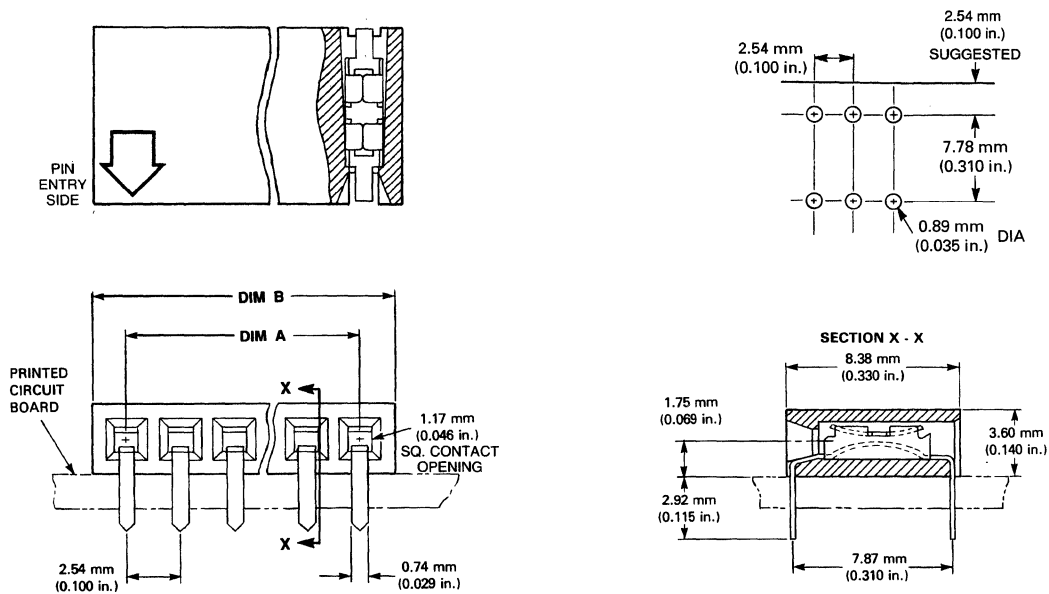
### Double-Row

Part Numbers 66925, 67943 and 93111



## Single-Row (DAP)

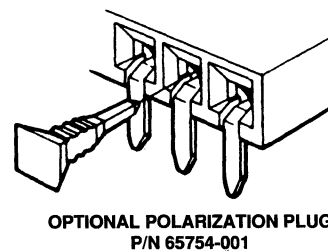
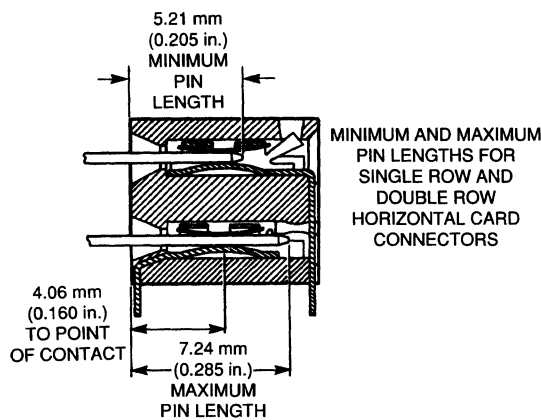
### Part Number 67208



A183396-0871

## Polarization Plug

### Part Number 65754



A183396-0873

**PCB Mounted Receptacle Assemblies**  
**2.54 x 2.54 mm (0.100 x 0.100 in.)**

**Ordering Data**

□ □ □ □ - X Y Y

Base number specifies connector configuration and contact finish.

X specifies insulating pin-stop option on double-row connectors  
 (0 without pin-stops; 5 with pin-stops).  
 YY specifies number of positions per row.

Base Number					
Base Number	Number of Rows	Contact Area Finish	Soldertail Length	Solder Area Finish	Housing Material
66925	2	0.76 μm (30 μin.) gold	2.92 mm (0.115 in.)	Tin-Lead	PEI
67943	2	0.76 μm (30 μin.) gold	1.27 mm (0.050 in.)	Gold Flash	PEI
67208	1	0.76 μm (30 μin.) gold	2.92 mm (0.115 in.)	Gold Flash	DAP
93111	2	0.76 μm (30 μin.) gold	2.92 mm (0.115 in.)	Tin-Lead	PPS

Dash Number							
Positions per Row	Dash Number	Dimensions					
		A		B			
		mm	in.	66925* 67943* 93111***		67208**	
		mm	in.	mm	in.	mm	in.
3	-X03	5.08	0.200	8.13	0.320	8.64	0.340
4	-X04	7.62	0.300	10.67	0.420	11.18	0.440
5	-X05	10.16	0.400	13.21	0.520	13.72	0.540
6	-X06	12.70	0.500	15.75	0.620	16.26	0.640
7	-X07	15.24	0.600	18.29	0.720	18.80	0.740
8	-X08	17.78	0.700	20.83	0.820	21.34	0.840
9	-X09	20.32	0.800	23.37	0.920	23.88	0.940
10	-X10	22.86	0.900	25.91	1.020	26.42	1.040
11	-X11	25.40	1.000	28.45	1.120	28.96	1.140
12	-X12	27.94	1.100	30.99	1.220	31.50	1.240
13	-X13	30.48	1.200	33.53	1.320	34.04	1.340
14	-X14	33.02	1.300	36.07	1.420	36.58	1.440
15	-X15	35.56	1.400	38.61	1.520	39.12	1.540
16	-X16	38.10	1.500	41.15	1.620	41.66	1.640
17	-X17	40.64	1.600	43.69	1.720	44.20	1.740
18	-X18	43.18	1.700	46.23	1.820	46.74	1.840
19	-X19	45.72	1.800	48.77	1.920	49.28	1.940
20	-X20	48.26	1.900	51.31	2.020	51.82	2.040
21	-X21	50.80	2.000	53.85	2.120	54.36	2.140
22	-X22	53.34	2.100	56.39	2.220	56.90	2.240
23	-X23	55.88	2.200	58.93	2.320	59.44	2.340
24	-X24	58.42	2.300	61.47	2.420	61.98	2.440
25	-X25	60.96	2.400	64.01	2.520	64.52	2.540
26	-X26	63.50	2.500	66.55	2.620	67.06	2.640
27	-X27	66.04	2.600	69.09	2.720	69.60	2.740
28	-X28	68.58	2.700	71.63	2.820	72.14	2.840
29	-X29	71.12	2.800	74.17	2.920	74.68	2.940
30	-X30	73.66	2.900	76.71	3.020	77.22	3.040
31	-X31	76.20	3.000	79.25	3.120	79.76	3.140
32	-X32	78.74	3.100	81.79	3.220	82.30	3.240

\*Insulating pin-stops are available on double-row connectors. Order Part Number 66925-5YY or 67943-5YY or 93111-5YY to designate a connector with pin-stops installed behind the bottom row of contacts.

\*\*Single-row connectors available in 3--52 positions only.

\*\*\*93111-XY not available in 2 x 3 or 2 x 4 versions.

### Ordering Data (cont'd)

Positions per Row	Dash Number	Dimensions					
		A		B			
				66925* 67943* 93111*		67208**	
		mm	in.	mm	in.	mm	in.
33	-X33	81.28	3.200	84.33	3.320	84.84	3.340
34	-X34	83.82	3.300	86.87	3.420	87.38	3.440
35	-X35	86.36	3.400	89.41	3.520	89.92	3.540
36	-X36	88.90	3.500	91.95	3.620	92.46	3.640
37	-X37	91.44	3.600	94.49	3.720	95.00	3.740
38	-X38	93.98	3.700	97.03	3.820	97.54	3.840
39	-X39	96.52	3.800	99.57	3.920	100.08	3.940
40	-X40	99.06	3.900	102.11	4.020	102.62	4.040
41	-X41	101.60	4.000	104.65	4.120	105.16	4.140
42	-X42	104.14	4.100	107.19	4.220	107.70	4.240
43	-X43	106.68	4.200	109.73	4.320	110.24	4.340
44	-X44	109.22	4.300	112.27	4.420	112.78	4.440
45	-X45	111.76	4.400	114.81	4.520	115.32	4.540
46	-X46	114.30	4.500	117.35	4.620	117.86	4.640
47	-X47	116.84	4.600	119.89	4.720	120.40	4.740
48	-X48	119.38	4.700	122.43	4.820	122.94	4.840
49	-X49	121.92	4.800	124.97	4.920	125.48	4.940
50	-X50	124.46	4.900	127.51	5.020	128.02	5.040
51	-X51	127.00	5.000	130.05	5.120	130.56	5.140
52	-X52	129.54	5.100	132.59	5.220	133.10	5.240
53	-X53	132.08	5.200	135.13	5.320	---	---
54	-X54	134.62	5.300	137.67	5.420	---	---
55	-X55	137.16	5.400	140.21	5.520	---	---
56	-X56	139.70	5.500	142.75	5.620	---	---
57	-X57	142.24	5.600	145.29	5.720	---	---
58	-X58	144.78	5.700	147.83	5.820	---	---
59	-X59	147.32	5.800	150.37	5.920	---	---
60	-X60	149.86	5.900	152.91	6.020	---	---
61	-X61	152.40	6.000	155.45	6.120	---	---
62	-X62	154.94	6.100	157.99	6.220	---	---
63	-X63	157.48	6.200	160.53	6.320	---	---
64	-X64	160.02	6.300	163.07	6.420	---	---
65	-X65	162.56	6.400	165.61	6.520	---	---

\*Insulating pin-stops are available on double-row connectors. Order Part Number 66925-5YY or 67943-5YY or 93111-5YY to designate a connector with pin-stops installed behind the bottom row of contacts.

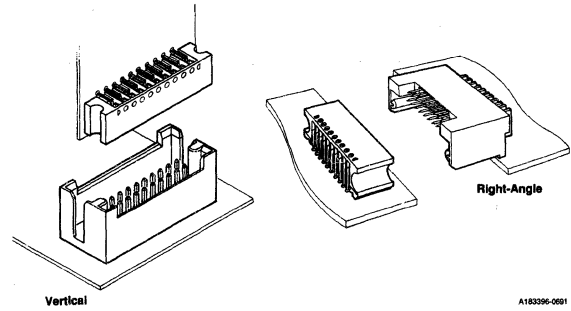
\*\*Single-row connectors available in 3--52 positions only.

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

# PCB Mounted Receptacle Assemblies Radius-End Horizontal, Through-Mount

2.54 x 2.54 mm (0.100 x 0.100 in.)  
Centerlines

## PV™ Through-Mount, Radius-End Horizontal Receptacles BergCon® System



### Features

- Two-piece PCB connectors designed for perpendicular board-to-board connections.
- Mates with vertical and right-angle guide pin headers.
- Radius ends and header guide posts assure proper connector alignment before electrical contacts are engaged.
- Highly reliable dual-metal PV™ contact provides beryllium-copper spring.
- Molded housings feature beveled lead-in ramps at receptacle openings to prevent pin stubbing.
- Surface-mount compatible (SMC) connectors withstand

high-temperature reflow soldering processes.

- Standoffs allow easy cleaning.
- Available in 10 to 130 positions.

### Options

- Connectors are also available with insulating pin-stops at the rear of bottom-row contact openings, recommended when mating pin lengths exceed 8.76 mm (0.345 in.) with 1.65 mm (0.065 in.) connector setback or 9.65 mm (0.380 in.) with 2.54 mm (0.100 in.) setback from the edge of the PCB.
- Contact your authorized Berg Electronics representative for nonstandard contact finishes.


### Mating Data


Mates with vertical and right-angle guide pin headers.

#### Berg Electronics Products Page

- Vertical guide pin headers . . . . . 13-86
- Right-angle guide pin headers . . 13-84

### Approvals and Certifications

 File no. E66906

 File no. LR46923

### Technical Data

#### Materials

- Housing . . . . . Glass-filled PEI (UL94V-0) or Glass-filled PPS (UL94 V-0)
  - ▶ Color . . . . . Black
  - ▶ Temperature range . . . . . -65°C to +125°C
  - ▶ Applicable soldering processes . . . . . IR, vapor-phase, wave
- Contact
  - ▶ Spring . . . . . Beryllium-copper
  - ▶ Body . . . . . Brass

#### Plating

- Underplate . . . . . 1.27 µm (50 µin.) min nickel
- Finish
  - ▶ Body
    - Contact area . . . . . 0.76 µm (30 µin.) min gold
    - Solder area . . . . . Tin-lead
  - ▶ Spring . . . . . Gold flash

#### Electrical Performance

- Insulation resistance . . . . . 5000 MΩ min
- Withstanding voltage . . . . . 1250 V rms

- Current rating
  - ▶ Single contact . . . . . 3.0 amp max
  - ▶ Per contact, fully energized connector . . . . . 2.0 amp max
- Contact resistance
  - ▶ Initial . . . . . 10 mΩ max
  - ▶ After environmental test . . . . . 15 mΩ max
- Capacitance . . . . . 2.0 pF max

#### Mechanical Performance

- Insertion force per contact
  - ▶ Less than 100 positions . . . . . 1.26 N (128 gf) avg.
  - ▶ Larger sizes . . . . . 1.12 N (114 gf) avg.
- Withdrawal force per contact
  - ▶ Less than 100 positions . . . . . 0.4 N (40 gf) min
  - ▶ Larger sizes . . . . . 0.3 N (30 gf) min
- Durability (mating cycles) . . . . . 200

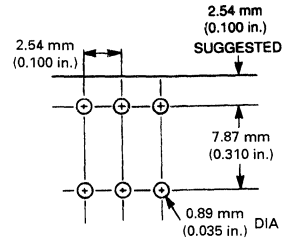
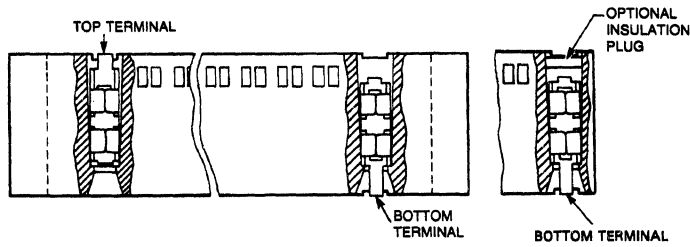
#### Packaging

- Antistatic tubes

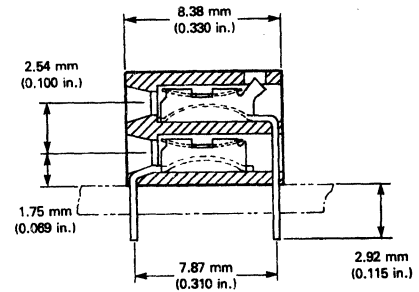
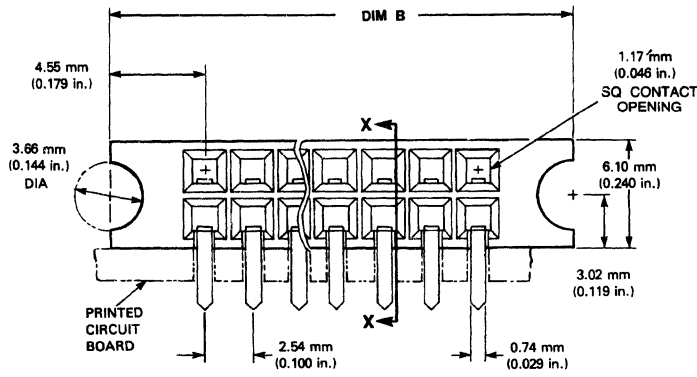
### Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawings . . . . .	By Base No.	Product Samples . . . . .	By Part No.
Product Specifications . . . . .	BUS-12-009		

**Description**  
**Radius-End**  
**Part Numbers 66527 and 93112**



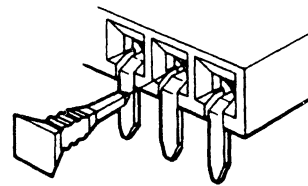
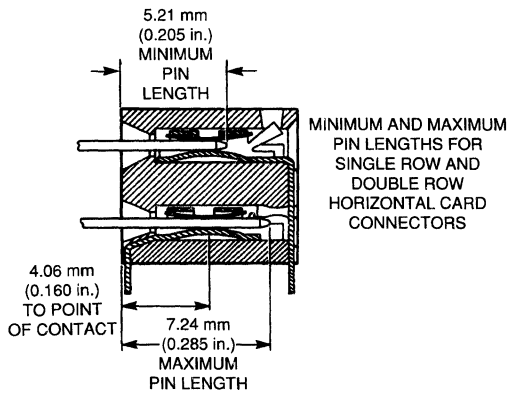
RECOMMENDED HOLE PATTERN



SECTION X - X

A183396-0692

**Polarization Plug**  
**Part Number 65754**



OPTIONAL POLARIZATION PLUG  
65754-001

A183396-0710

**PCB Mounted Receptacle Assemblies**  
**2.54 x 2.54 mm (0.100 x 0.100 in.)**

**Ordering Data**

**Part Numbers 66527 (PEI) and 93112 (PPS) -- Radius-end**

□ □ □ □ □ - X Y Y

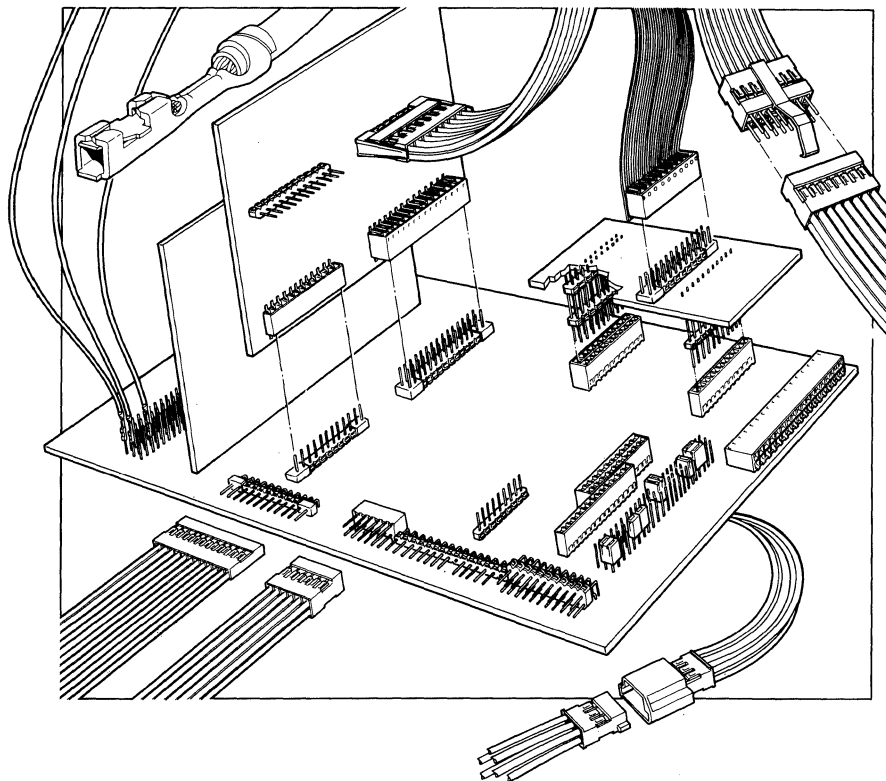
Base number specifies connector configuration and contact finish.

X specifies insulating pin-stop option on double-row connectors (0 = without pin-stops; 5 = with pin-stops).  
 YY specifies number of positions per row.

Number of Positions	Dash Number	Dimension B		Number of Positions	Dash Number	Dimension B	
		mm	in.			mm	in.
2 x 5	-005	19.25	0.758	2 x 36	-036	97.99	3.858
2 x 6	-006	21.79	0.858	2 x 37	-037	100.53	3.958
2 x 7	-007	24.33	0.958	2 x 38	-038	103.07	4.058
2 x 8	-008	26.87	1.058	2 x 39	-039	105.61	4.158
2 x 9	-009	29.41	1.158	2 x 40	-040	108.15	4.258
2 x 10	-010	31.95	1.258	2 x 41	-041	110.69	4.358
2 x 11	-011	34.49	1.358	2 x 42	-042	113.23	4.458
2 x 12	-012	37.03	1.458	2 x 43	-043	115.77	4.558
2 x 13	-013	39.57	1.558	2 x 44	-044	118.31	4.658
2 x 14	-014	42.11	1.658	2 x 45	-045	120.85	4.758
2 x 15	-015	44.65	1.758	2 x 46	-046	123.39	4.858
2 x 16	-016	47.19	1.858	2 x 47	-047	125.93	4.958
2 x 17	-017	49.73	1.958	2 x 48	-048	128.47	5.058
2 x 18	-018	52.27	2.058	2 x 49	-049	131.01	5.158
2 x 19	-019	54.81	2.158	2 x 50	-050	133.55	5.258
2 x 20	-020	57.35	2.258	2 x 51	-051	136.09	5.358
2 x 21	-021	59.89	2.358	2 x 52	-052	138.63	5.458
2 x 22	-022	62.43	2.458	2 x 53	-053	141.17	5.558
2 x 23	-023	64.97	2.558	2 x 54	-054	143.71	5.658
2 x 24	-024	67.51	2.658	2 x 55	-055	146.25	5.758
2 x 25	-025	70.05	2.758	2 x 56	-056	148.79	5.858
2 x 26	-026	72.59	2.858	2 x 57	-057	151.33	5.958
2 x 27	-027	75.13	2.958	2 x 58	-058	153.87	6.058
2 x 28	-028	77.67	3.058	2 x 59	-059	156.41	6.158
2 x 29	-029	80.21	3.158	2 x 60	-060	158.95	6.258
2 x 30	-030	82.75	3.258	2 x 61	-061	161.49	6.358
2 x 31	-031	85.29	3.358	2 x 62	-062	164.03	6.458
2 x 32	-032	87.83	3.458	2 x 63	-063	166.57	6.558
2 x 33	-033	90.37	3.558	2 x 64	-064	169.11	6.658
2 x 34	-034	92.91	3.658	2 x 65	-065	171.65	6.758
2 x 35	-035	95.45	3.758				

\*Insulating pin-stops are available on double-row connectors. Order Part Number 66527-5XX or 93112-5XX to designate a connector with pin-stops installed behind the bottom row of contacts.

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.



A183396-0316

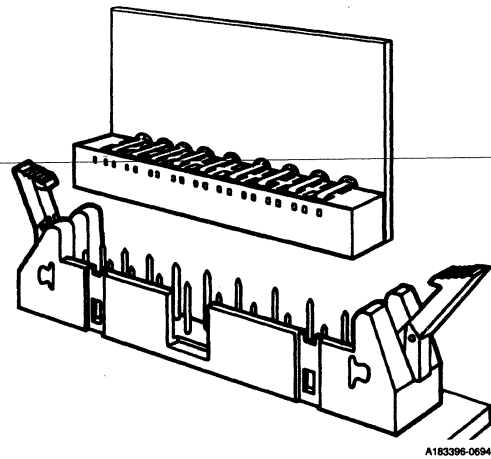


# PCB Mounted Receptacle Assemblies

## Quick-Eject Horizontal, Through-Mount

2.54 x 2.54 mm (0.100 x 0.100 in.)  
Centerlines

### PV™ Through-Mount Quick-Eject Horizontal Receptacles BergCon® System



#### Features

- Designed to mate with three-wall latch-and-eject vertical headers (Berg Electronics Part No. 66207).
- Header latches engage heavy end-walls to provide positive retention.
- Ejectors assist with disconnecting.
- Solid end-walls ensure correct alignment of header and receptacle assemblies.
- Highly reliable dual-metal PV™ contact provides beryllium-copper spring.
- Molded housings feature beveled lead-in ramps at receptacle openings to prevent pin stubbing.


#### Mating Data


Mates with three-wall latch-and-eject vertical headers containing 0.64 mm (0.025 in.) square or round pins. For proper engagement, the width of the PCB must not exceed the length of the receptacle assembly.

#### Berg Electronics Products Page

- Quickie™ three-wall latch-and-eject vertical header . . . . . 23-26

#### Approvals and Certifications

 File no. E66906

 File no. LR46923

#### Technical Data

##### Materials

- Housing . . . . . Glass-filled phenolic, UL 94 V-0
  - ▶ Color . . . . . Black
  - ▶ Temperature range . . . . . -65°C to +130°C
  - ▶ Applicable soldering processes . . . . . Wave
- Contact
  - ▶ Spring . . . . . Beryllium-copper
  - ▶ Body . . . . . Brass

##### Plating

- Underplate . . . . . 1.27 µm (50 µin.) min nickel
- Finish
  - ▶ Body
    - Contact area . . . . . 0.76 µm (30 µin.) min gold
    - Solder area . . . . . Gold flash
  - ▶ Spring . . . . . Gold flash

##### Electrical Performance

- Insulation resistance . . . . . 5000 MΩ min
- Withstanding voltage . . . . . 1250 V rms
- Current rating
  - ▶ Single contact . . . . . 3.0 amp max
  - ▶ Per contact, fully energized connector . . . . . 2.0 amp max
- Contact resistance
  - ▶ Initial . . . . . 10 mΩ max
  - ▶ After environmental test . . . . . 15 mΩ max
- Capacitance . . . . . 2.0 pF max

##### Mechanical Performance

- Insertion force per contact . . . . . 1.26 N (128 gf) avg.
- Withdrawal force per contact . . . . . 0.4 N (40 gf) min
- Durability (mating cycles) . . . . . 200

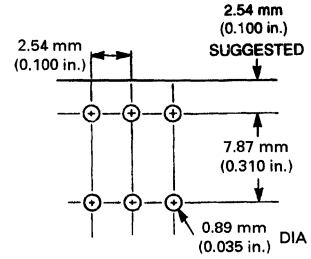
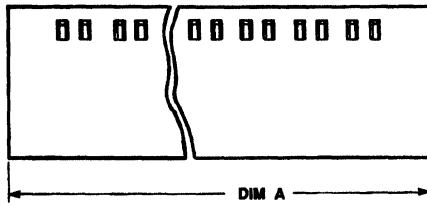
##### Packaging

- Antistatic tubes

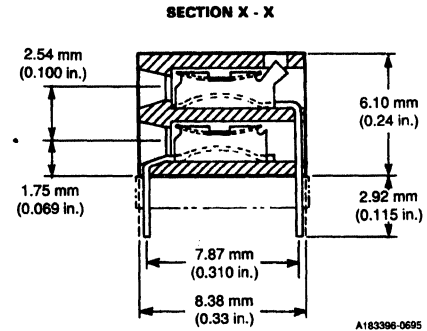
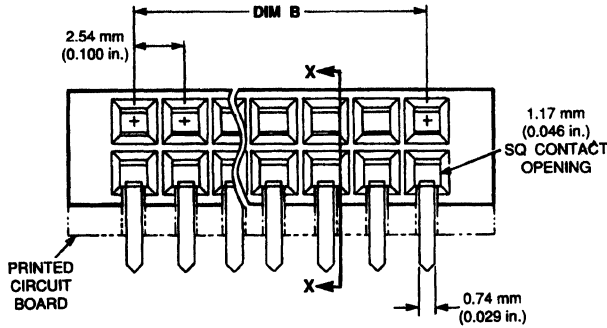
#### Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawings . . . . .	By Base No.	Product Samples . . . . .	By Part No.
Product Specifications . . . . .	BUS-12-009		

**Description**  
**Part Number 67212**

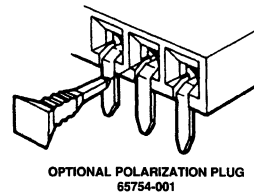
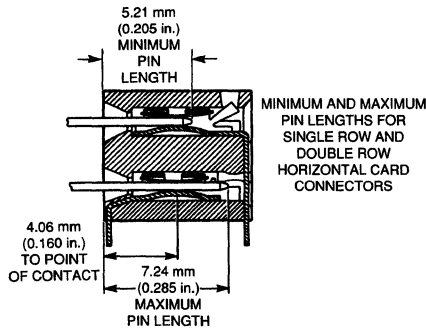


RECOMMENDED HOLE PATTERN



A183396-0695

**Polarization Plug**  
**Part Number 65754**



A183396-0710

**Ordering Data**  
**Part Number 67212**

□ □ □ □ □ - X X X

Base number specifies connector configuration and contact finish.

Dash number specifies number of positions.

Number of Positions	Dash Number	Dimensions			
		A		B	
		mm	in.	mm	in.
2 x 5	-004	17.15	0.675	10.16	0.400
2 x 7	-005	22.23	0.875	15.24	0.600
2 x 8	-006	24.77	0.975	17.78	0.700
2 x 10	-001	29.85	1.175	22.86	0.900
2 x 13	-007	37.47	1.475	30.48	1.200
2 x 17	-008	47.63	1.875	40.64	1.600
2 x 20	-002	55.25	2.175	48.26	1.900
2 x 25	-003	67.95	2.675	60.96	2.400
2 x 30	-009	80.65	3.175	73.66	2.900

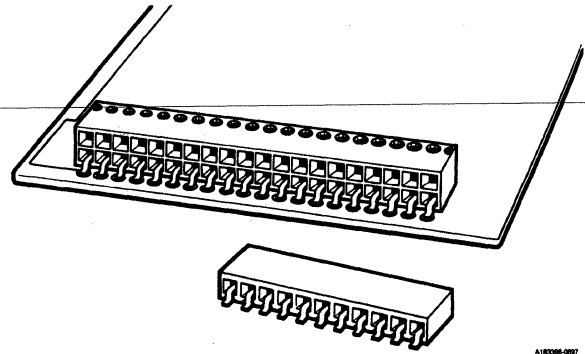
Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

# PCB Mounted Receptacle Assemblies

## Horizontal, Surface-Mount

2.54 x 2.54 mm (0.100 x 0.100 in.)  
Centerlines

### PV™ Surface-Mount Horizontal Receptacles BergCon® System



#### Features

- Highly reliable dual-metal PV™ contact provides beryllium-copper spring.
- Molded housings feature beveled lead-in ramps at receptacle openings to prevent pin stubbing.
- Surface-mount (SMT) connectors withstand high-temperature reflow soldering processes.
- Single-row connectors available in 3 to 25 positions; double-row connectors available in 6 to 50 positions.
- Floating contacts for ease of pad alignment.

#### Options

- Double-row connectors are available with insulating pin-stops at the rear of

bottom-row contact openings, recommended when mating pin lengths exceed 8.76 mm (0.345 in.) with 1.65 mm (0.065 in.) connector setback or 9.65 mm (0.380 in.) with 2.54 mm (0.100 in.) setback from the edge of the PCB.

- Contact your authorized Berg Electronics representative for nonstandard contact finishes.

#### Mating Data


Mates with 0.64 mm (0.025 in.) square or round pins. Recommended pin entry is 5.21 mm (0.205 in.) minimum to 7.24 mm (0.285 in.) maximum. Longer pins may be used when insulating pin stops are specified.


#### Berg Electronics Products

Page

- BergStik® II headers . . . . . 13-50
- BergPin® terminals 13-106 to 13-116

#### Approvals and Certifications

 File no. E66906

 File no. LR46923

#### Technical Data

##### Materials

- Single-row
  - ▶ Housing . . . . . Diallyl phthalate (DAP), UL 94 V-0
  - ▶ Color . . . . . Black (P/N 95071) or Green (P/N 67898)
  - ▶ Temperature range . . . . . -65°C to +170°C
  - ▶ Applicable soldering processes . . . . . IR, vapor-phase
- Double-row
  - ▶ Housing . . . . . Glass-filled PEI (UL 94 V-0) or Glass-filled DAP (UL 94 V-0)
  - ▶ Color . . . . . Black
  - ▶ Temperature range . . . . . -65°C to +125°C
  - ▶ Applicable soldering processes . . . . . IR, vapor-phase
- Contact
  - ▶ Spring . . . . . Beryllium-copper
  - ▶ Body . . . . . Brass

##### Plating

- Underplate . . . . . 1.27 µm (50 µin.) min nickel
- Finish
  - ▶ Body
    - Contact area . . . . . 0.76 µm (30 µin.) min gold
    - Solder area . . . . . Tin-lead
  - ▶ Spring . . . . . Gold flash

##### Electrical Performance

- Insulation resistance . . . . . 5000 MΩ min
- Withstanding voltage . . . . . 1250 V rms
- Current rating
  - ▶ Single contact . . . . . 3.0 amp max
  - ▶ Per contact, fully energized connector . . . . . 2.0 amp max
- Contact resistance
  - ▶ Initial . . . . . 10 mΩ max
  - ▶ After environmental test . . . . . 15 mΩ max
- Capacitance . . . . . 2.0 pF max

##### Mechanical Performance

- Insertion force per contact . . . . . 1.26 N (128 gf) avg.
- Withdrawal force per contact . . . . . 0.4 N (40 gf) min
- Durability (mating cycles) . . . . . 200

##### Packaging

- Antistatic tubes

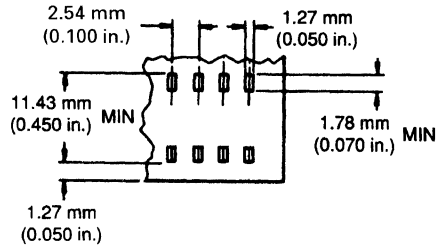
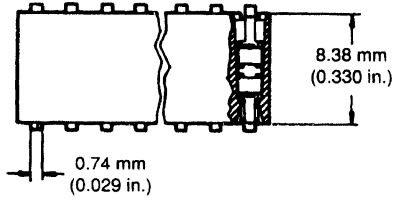
#### Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawings . . . . .	By Base No.	Product Samples . . . . .	By Part No.
Product Specifications . . . . .	BUS-12-009		

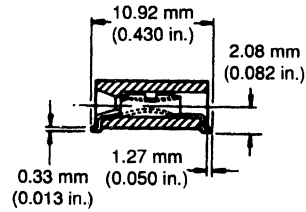
### Description

#### Single-Row

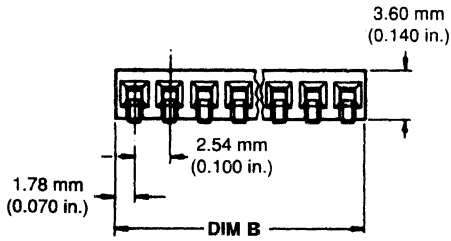
Part Numbers 67898 and 95071



#### RECOMMENDED PCB PAD DESIGN

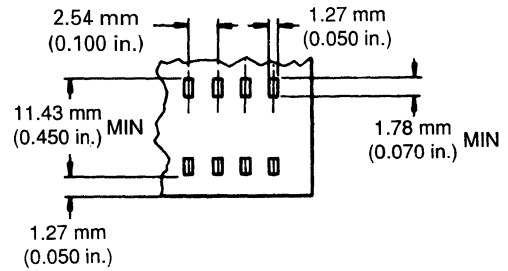
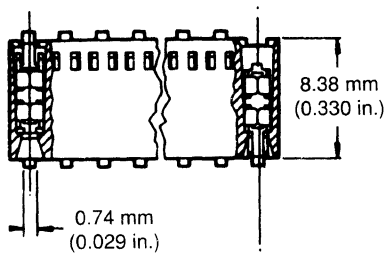


A183396-0698

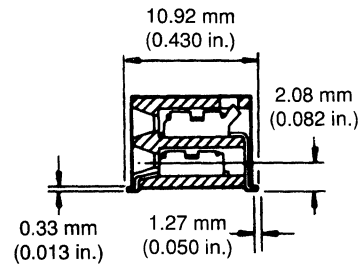


### Double-Row

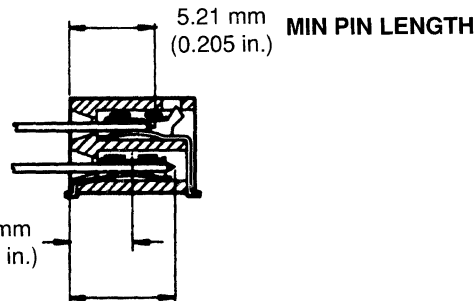
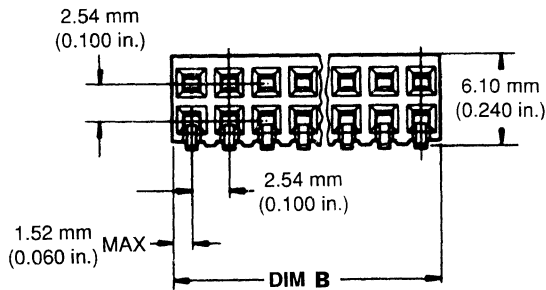
Part Numbers 67848 and 95073



#### RECOMMENDED PCB PAD DESIGN



A183396-0850



TO CENTER OF CONTACT 4.06 mm (0.160 in.)

7.24 mm (0.285 in.) MAX PIN LENGTH

A183396-0851

**PCB Mounted Receptacle Assemblies**  
**2.54 x 2.54 mm (0.100 x 0.100 in.)**

**Ordering Data**

□ □ □ □ - X X X

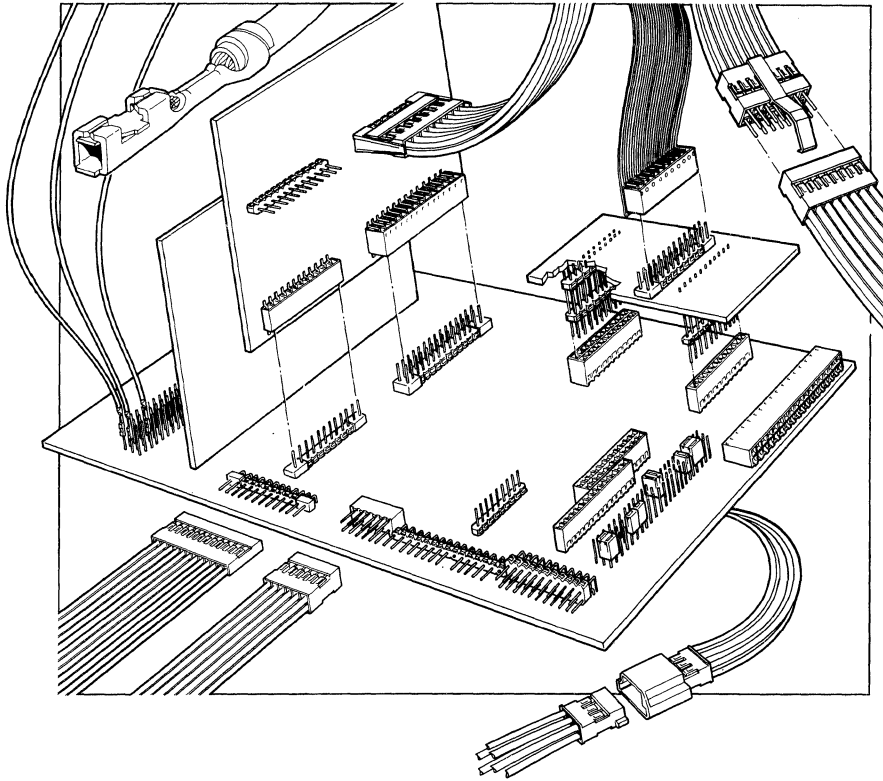
Base number specifies connector configuration and contact finish.

Dash number specifies number of positions per row.

Single-Row Part Numbers 67898 and 95071				Double-Row Part Numbers 67848 and 95073			
Number of Positions	Dash Number	Dimension B		Number of Positions	Dash Number	Dimension B	
		mm	in.			mm	in.
3*	-003	8.64	0.340	2 x 3*	-003	5.10	0.200
4*	-004	11.18	0.440	2 x 4*	-004	10.67	0.420
5	-005	13.72	0.540	2 x 5	-005	13.21	0.520
6	-006	16.26	0.640	2 x 6	-006	15.75	0.620
7	-007	18.80	0.740	2 x 7	-007	18.29	0.720
8	-008	21.34	0.840	2 x 8	-008	20.83	0.820
9	-009	23.88	0.940	2 x 9	-009	23.37	0.920
10	-010	26.42	1.040	2 x 10	-010	25.91	1.020
11	-011	28.96	1.140	2 x 11	-011	28.45	1.120
12	-012	31.50	1.240	2 x 12	-012	30.99	1.220
13	-013	34.04	1.340	2 x 13	-013	33.53	1.320
14	-014	36.58	1.440	2 x 14	-014	36.07	1.420
15	-015	39.12	1.540	2 x 15	-015	38.61	1.520
16	-016	41.66	1.640	2 x 16	-016	41.15	1.620
17	-017	44.20	1.740	2 x 17	-017	43.69	1.720
18	-018	46.74	1.840	2 x 18	-018	46.23	1.820
19	-019	49.28	1.940	2 x 19	-019	48.77	1.920
20	-020	51.82	2.040	2 x 20	-020	51.31	2.020
21	-021	54.36	2.140	2 x 21	-021	53.85	2.120
22	-022	56.90	2.240	2 x 22	-022	56.39	2.220
23	-023	59.44	2.340	2 x 23	-023	58.93	2.320
24	-024	61.98	2.440	2 x 24	-024	61.47	2.420
25	-025	64.58	2.540	2 x 25	-025	64.01	2.520

\* 1 x 3, 1 x 4, 2 x 3, and 2 x 4 sizes are only available with gold flash in the solder area for base part numbers 67898, 95071 and 67848. Base part number 95073 has tin-lead plating in the solder area of all parts.

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.



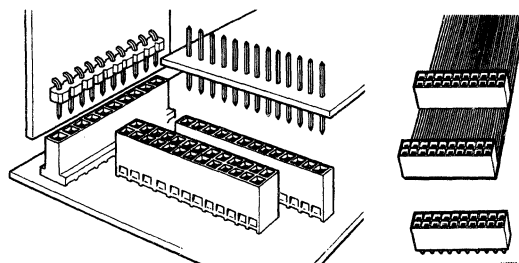
A183396-0316

# PCB Mounted Receptacle Assemblies

## Vertical, Through-Mount

2.54 x 2.54 mm (0.100 x 0.100 in.)  
Centerlines

### PV™ Vertical Through-Mount Receptacles BergCon® System



#### Features

- Designed for parallel board-to-board stacking.
- 8.51 mm (0.335 in.) profile above the PCB.
- Highly reliable dual-metal PV™ contact provides beryllium-copper spring member.
- Duplex gold and tin-lead plated contacts.
- Molded housings feature beveled lead-in ramps at receptacle openings to prevent pin stubbing.
- Standoffs for easy cleaning.
- Assemblies can be stacked end to end on 2.54 mm (0.100 in.) centerlines.
- Selected assemblies can be stacked side by side on 2.54 mm (0.100 in.) centerlines.
- Wide base on single-row connectors provides added stability.

- Optional 1.27 mm (0.050 in.) solder tails on selected double-row connectors eliminate lead trimming on flex circuit assemblies.

#### Options

- Contact your authorized Berg Electronics representative for nonstandard contact finishes.

#### Mating Data


Mates with 0.64 mm (0.025 in.) square or round pins. Recommended pin lengths: 4.83 mm (0.190 in.) minimum to 7.62 mm (0.300 in.) maximum. Selection of the appropriate mating connector provides board-to-board distances from 8.51 mm (0.335 in.) to 30.48 mm (1.200 in.).


#### Berg Electronics Products

#### Page

- BergStik® II headers . . . . . 13-50
- Vertical stacking headers . . . . . 13-94
- Straight four-wall headers . . . . . 13-96 and 13-100
- Right-angle four-wall headers . . . . . 13-102 and 13-104
- BergPin® terminals . . . . . 13-106 to 13-116

#### Approvals and Certifications

 File no. E66906

 File no. LR46923

#### Technical Data

##### Materials

- Housing . . . . . Glass-filled thermoplastic polyester, UL 94 V-0
  - ▶ Color
    - P/N 76308 and P/N 76314 . . . . . Blue
    - All other part numbers . . . . . Black
  - ▶ Temperature range . . . . . -65°C to +125°C
  - ▶ Applicable soldering processes . . . . . Wave
- Contact
  - ▶ Spring . . . . . Beryllium-copper
  - ▶ Body . . . . . Brass

##### Plating

- Underplate . . . . . 1.27 µm (50 µin.) min nickel
- Finish
  - ▶ Body
    - Contact area . . . . . 0.76 µm (30 µin.) min gold
    - Solder area . . . . . 2.54 µm (100 µin.) min tin-lead or gold flash (see Ordering Data)
  - ▶ Spring . . . . . Gold flash

##### Electrical Performance

- Insulation resistance . . . . . 5000 MΩ min
- Withstanding voltage . . . . . 1250 V rms
- Current rating
  - ▶ Single contact . . . . . 3.0 amp max
  - ▶ Per contact, fully energized connector . . . . . 2.0 amp max
- Contact resistance
  - ▶ Initial . . . . . 10 mΩ max
  - ▶ After environmental test . . . . . 15 mΩ max
- Capacitance . . . . . 2.0 pF max

##### Mechanical Performance

- Insertion force per contact . . . . . 1.26 N (128 gf) avg.
- Withdrawal force per contact . . . . . 0.4 N (40 gf) min
- Durability (mating cycles) . . . . . 200

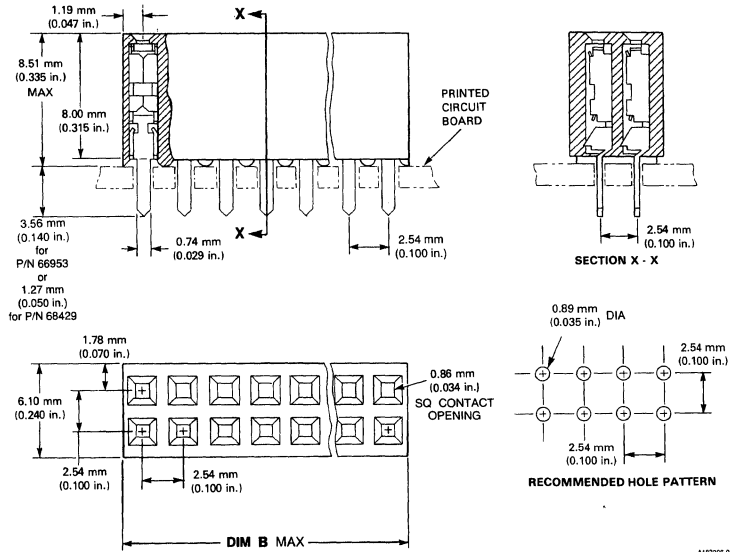
##### Packaging

- Antistatic tubes

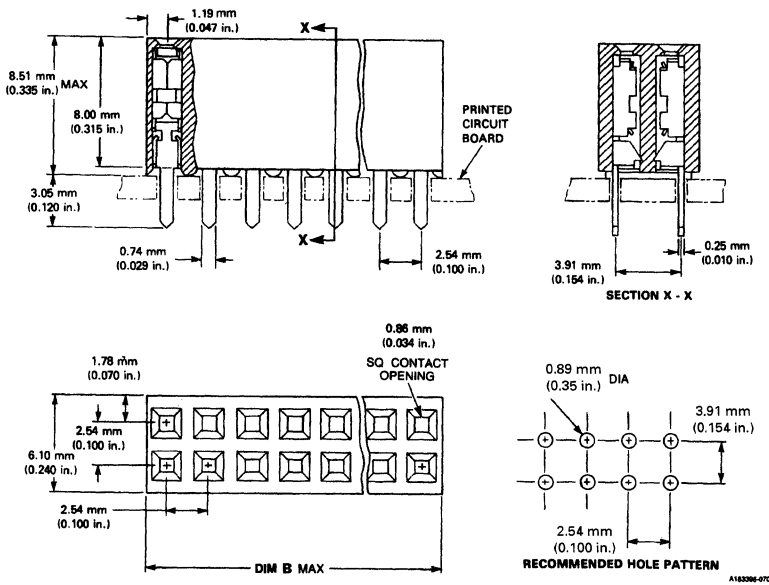
#### Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawings . . . . .	By Part No.	Product Samples . . . . .	By Part No.
Product Specifications . . . . .	BUS-12-009		

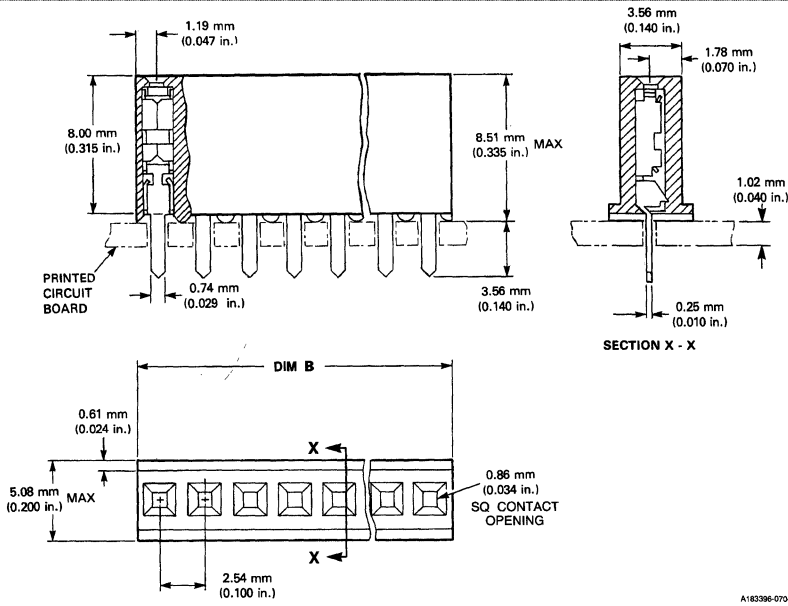
**Description**  
**Double-Row**  
**Part Numbers**  
**66953 and 68429**



**Double-Row**  
**Part Number 66956**

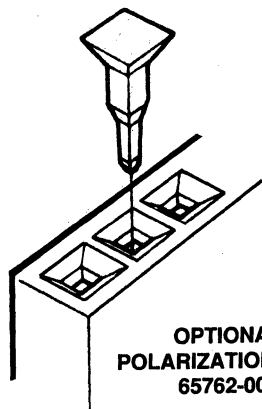


**Single-Row**  
**Part Number 66951**

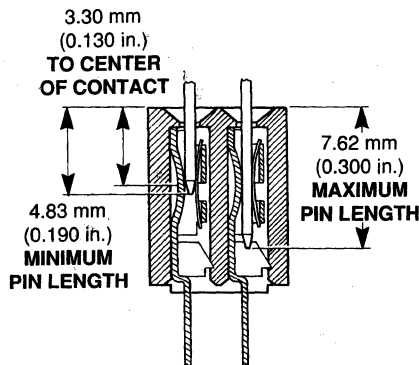




**Description**  
**Polarization Plug**  
**Part Number 65762**



OPTIONAL  
POLARIZATION PLUG  
65762-001



MINIMUM & MAXIMUM PIN LENGTHS  
FOR SINGLE ROW AND DOUBLE ROW  
VERTICAL CARD CONNECTORS

A183386-0705

**Ordering Data**

□ □ □ □ □ - X Y Y

Base number and X specify connector configuration and contact finish. YY specifies number of positions per row.

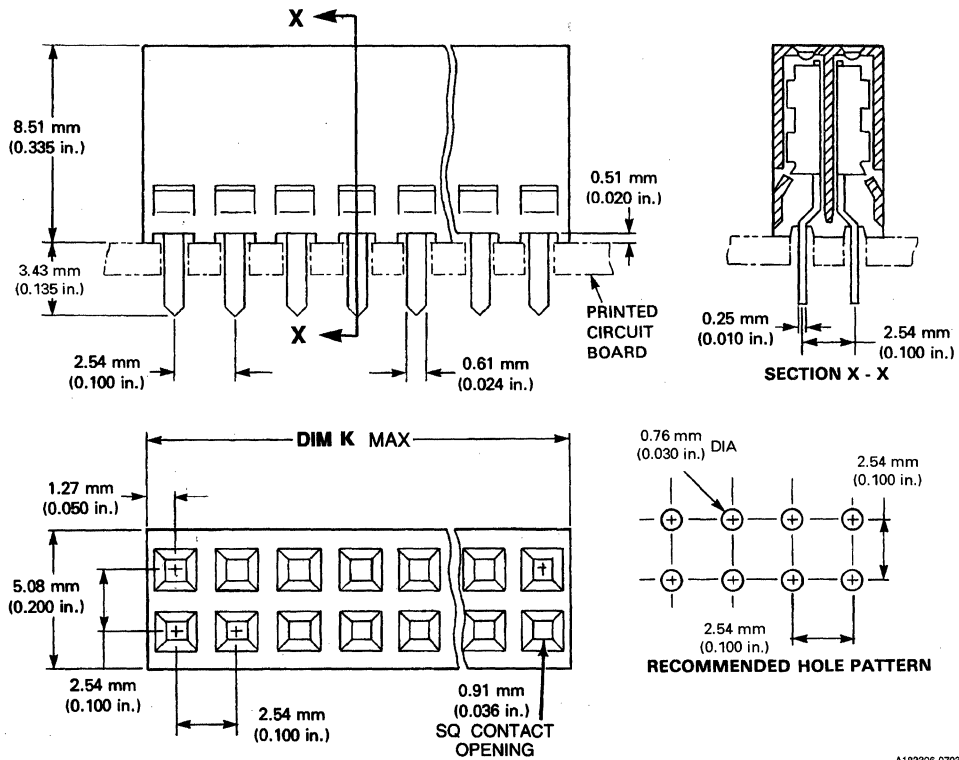
Base Number					
Base Number	Number of Rows	Contact Area Finish	Soldertail Length	Soldertail Finish	Side Stackable
66953	2	0.76 μm (30 μin.) gold	3.56 mm (0.140 in.)	Tin-lead	No
68429	2	0.76 μm (30 μin.) gold	1.27 mm (0.050 in.)	Tin-lead	No
66956	2	0.76 μm (30 μin.) gold	3.05 mm (0.120 in.)	Tin-lead	No
66951	1	0.76 μm (30 μin.) gold	3.56 mm (0.140 in.)	Tin-lead	No

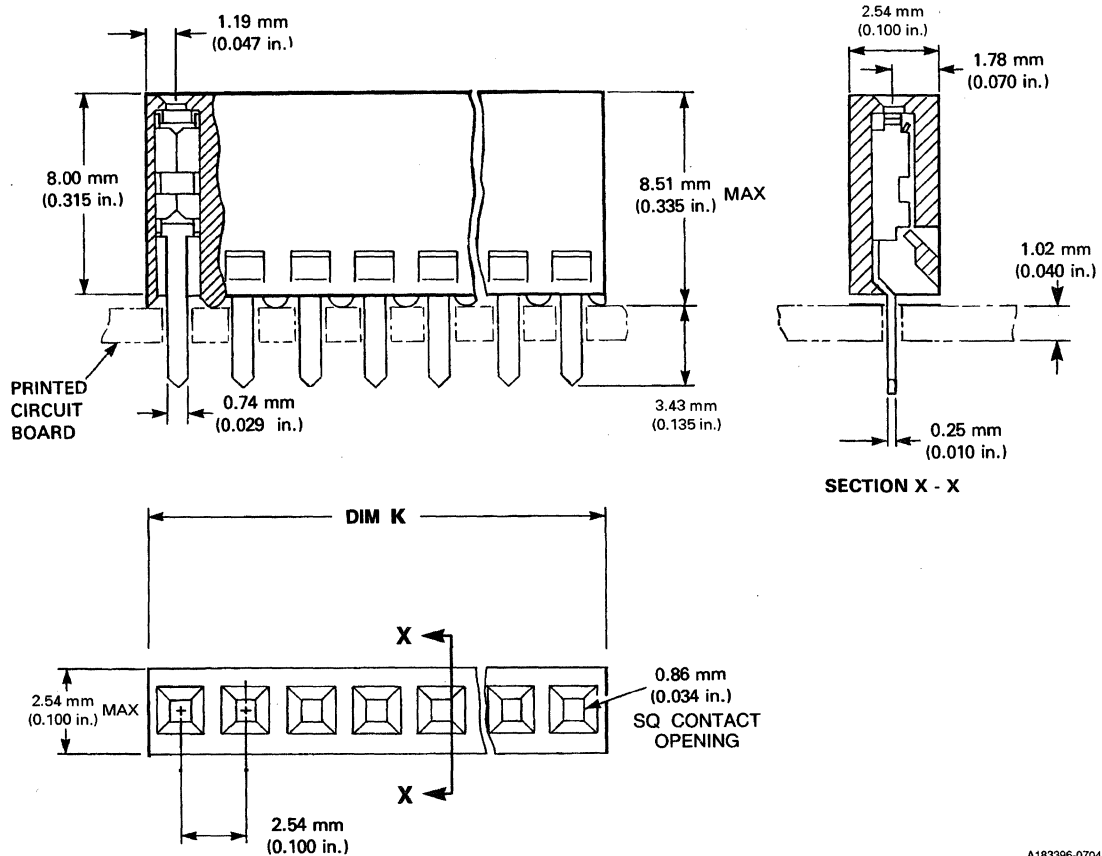
Dash Number							
Number of Positions	Dash Number	Dimension B		Number of Positions	Dash Number	Dimension B	
		mm	in.			mm	in.
2	-002	5.08	0.200	20	-020	50.80	2.000
3	-003	7.62	0.300	21	-021	53.34	2.100
4	-004	10.16	0.400	22	-022	55.88	2.200
5	-005	12.70	0.500	23	-023	58.42	2.300
6	-006	15.24	0.600	24	-024	60.96	2.400
7	-007	17.78	0.700	25	-025	63.50	2.500
8	-008	20.32	0.800	26	-026	66.04	2.600
9	-009	22.86	0.900	27	-027	68.58	2.700
10	-010	25.40	1.000	28	-028	71.12	2.800
11	-011	27.94	1.100	29	-029	73.66	2.900
12	-012	30.48	1.200	30	-030	76.20	3.000
13	-013	33.02	1.300	31	-031	78.74	3.100
14	-014	35.56	1.400	32	-032	81.28	3.200
15	-015	38.10	1.500	33	-033	83.82	3.300
16	-016	40.64	1.600	34	-034	86.36	3.400
17	-017	43.18	1.700	35	-035	88.90	3.500
18	-018	45.72	1.800	36	-036	91.44	3.600
19	-019	48.26	1.900				

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

**Description**  
**Double-Row**  
**Part Number 76314**



**Single-Row**  
**Part Number 76308**



**PCB Mounted Receptacle Assemblies**  
**2.54 x 2.54 mm (0.100 x 0.100 in.)**

**Ordering Data**

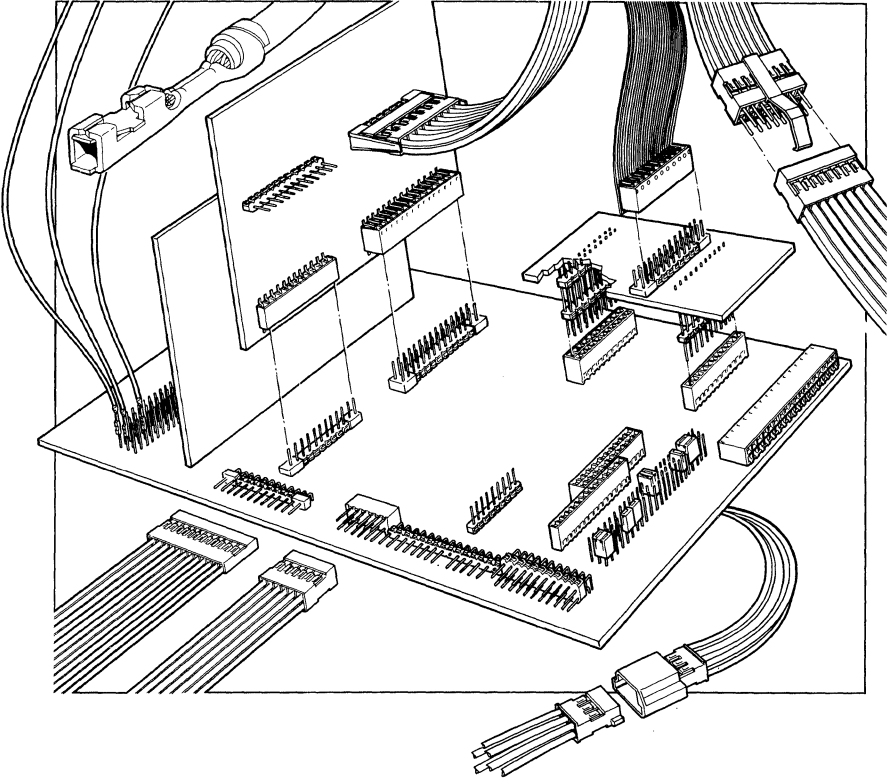
□ □ □ □ - X Y Y

Base number and X specify connector configuration and contact finish. YY specifies number of positions per row.

Base Number						
Base Number	Number of Rows	Contact Area Finish	Soldertail Length	Soldertail Finish	Side Stackable	End-to-End Stackable
76314	2	0.76 μm (30 μin.) gold	3.43 mm (0.135 in.)	Gold flash	Yes	Yes
76308	1	0.76 μm (30 μin.) gold	3.43 mm (0.135 in.)	Gold flash	Yes	Yes

Dash Number							
Positions per Row	Dash Number	Dimension K		Positions per Row	Dash Number	Dimension K	
		mm	in.			mm	in.
2	-102	5.08	0.200	27	-127	68.58	2.700
3	-103	7.62	0.300	28	-128	71.12	2.800
4	-104	10.16	0.400	29	-129	73.66	2.900
5	-105	12.70	0.500	30	-130	76.20	3.000
6	-106	15.24	0.600	31	-131	78.74	3.100
7	-107	17.78	0.700	32	-132	81.28	3.200
8	-108	20.32	0.800	33	-133	83.82	3.300
9	-109	22.86	0.900	34	-134	86.36	3.400
10	-110	25.40	1.000	35	-135	88.90	3.500
11	-111	27.94	1.100	36	-136	91.44	3.600
12	-112	30.48	1.200	37	-137	93.98	3.700
13	-113	33.02	1.300	38	-138	96.52	3.800
14	-114	35.56	1.400	39	-139	99.06	3.900
15	-115	38.10	1.500	40	-140	101.60	4.000
16	-116	40.64	1.600	41	-141	104.14	4.100
17	-117	43.18	1.700	42	-142	106.68	4.200
18	-118	45.72	1.800	43	-143	109.22	4.300
19	-119	48.26	1.900	44	-144	111.76	4.400
20	-120	50.80	2.000	45	-145	114.30	4.500
21	-121	53.34	2.100	46	-146	116.84	4.600
22	-122	55.88	2.200	47	-147	119.38	4.700
23	-123	58.42	2.300	48	-148	121.92	4.800
24	-124	60.96	2.400	49	-149	124.46	4.900
25	-125	63.50	2.500	50	-150	127.00	5.000
26	-126	66.04	2.600				

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.



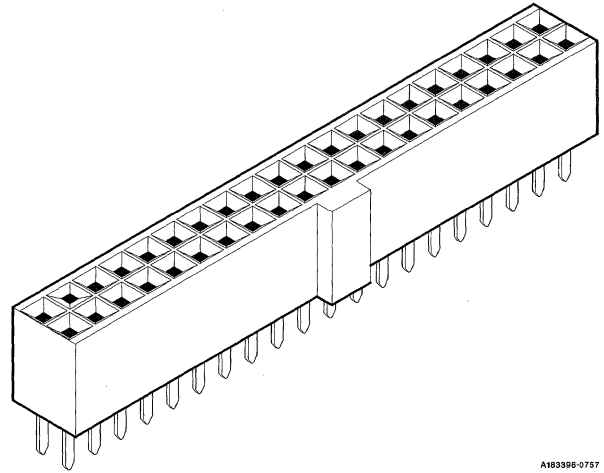
A183396-0316

# PCB Mounted Receptacle Assemblies

## Vertical, with Center-Key Polarization

2.54 x 2.54 mm (0.100 x 0.100 in.)  
Centerlines

**PV™ Vertical Through-Mount  
Receptacles  
with  
Center Key Polarization  
BergCon® System**



A183398-0757

### Features


- Center key prevents mismatching when used with four-wall slimline IDC headers.
- 8.51 mm (0.335 in.) profile above the PCB.
- Highly reliable dual-metal PV™ contact provides beryllium-copper spring.
- Duplex gold and tin-lead plated contacts.
- Molded housings feature beveled lead-in ramps at receptacle openings to prevent pin stubbing.
- Standoffs for easy cleaning.


- Optional 1.27 mm (0.050 in.) solder tails on selected double-row connectors eliminate lead trimming on flex circuit assemblies.

### Mating Data

Mates with 0.64 mm (0.025 in.) square or round pins. Receptacle center key is accommodated by pin headers with center-key polarization slots.

### Approvals and Certifications

 File no. E66906

 File no. LR46923

### Technical Data

#### Materials

- Housing ..... Glass-filled thermoplastic polyester, UL 94 V-0
  - ▶ Color ..... Black
  - ▶ Temperature range ..... -65°C to +125°C
  - ▶ Applicable soldering processes ..... Wave
- Contact
  - ▶ Spring ..... Beryllium-copper
  - ▶ Body ..... Brass

#### Plating

- Underplate ..... 1.27 µm (50 µin.) min nickel
- Finish
  - ▶ Body
    - Contact area ..... 0.76 µm (30 µin.) min gold
    - Solder area ..... 2.54 µm (100 µin.) min tin-lead
  - ▶ Spring ..... Gold flash

#### Electrical Performance

- Insulation resistance ..... 5000 MΩ min
- Withstanding voltage ..... 1250 V rms
- Current rating
  - ▶ Single contact ..... 3.0 amp max
  - ▶ Per contact, fully energized connector ..... 2.0 amp max
- Contact resistance
  - ▶ Initial ..... 10 mΩ max
  - ▶ After environmental test ..... 15 mΩ max
- Capacitance ..... 2.0 pF max

#### Mechanical Performance

- Insertion force per contact ..... 1.26 N (128 gf) avg.
- Withdrawal force per contact ..... 0.4 N (40 gf) min
- Durability (mating cycles) ..... 200

#### Packaging

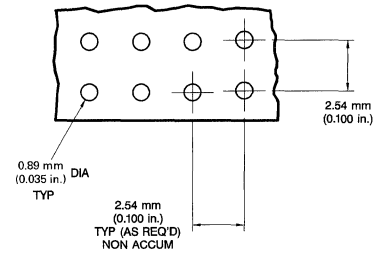
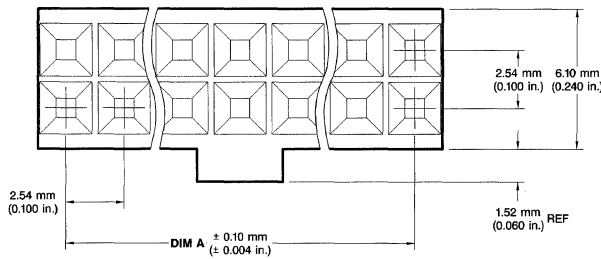
- Antistatic tubes

### Customer Support Materials

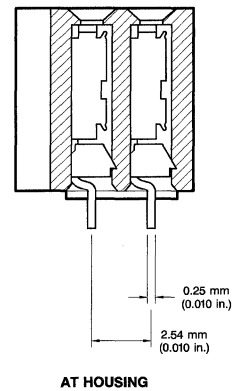
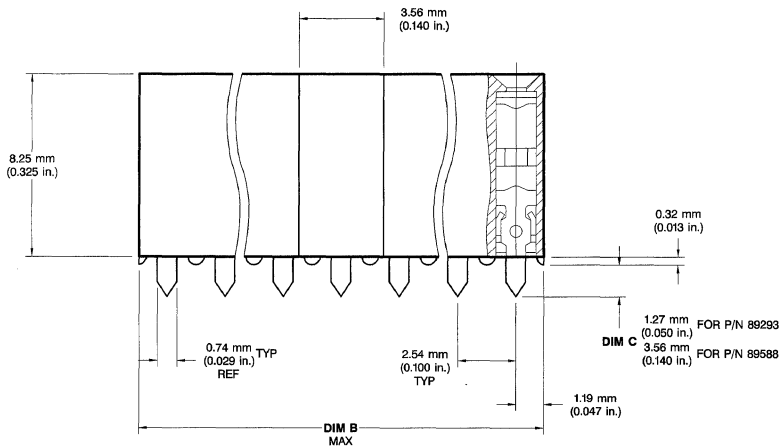
Description	Order No.
Customer Product Drawings .....	By Base No.
Product Specifications .....	BUS-12-009

Description	Order No.
Product Samples .....	By Part No.

### Description



RECOMMENDED HOLE PATTERN



AT HOUSING

a183396-0709

### Ordering Data

□ □ □ □ □ - X X X

Base number specifies dimension C (solder tail length).

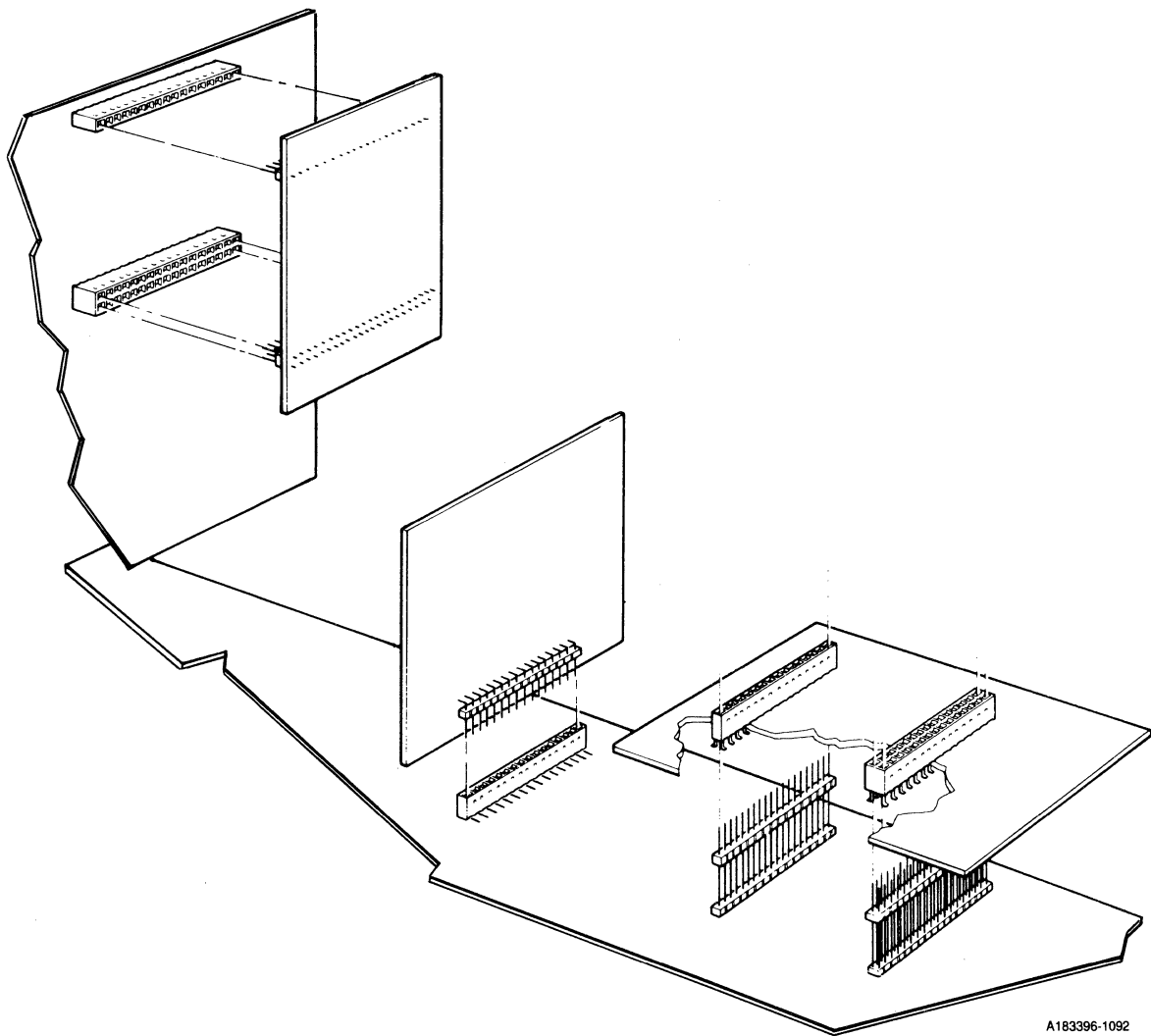
Dash number specifies number of positions per row.

Part Number	Number of Positions	Dimensions					
		A		B		C	
		mm	in.	mm	in.	mm	in.
89293-017	2 x 17	40.64	1.600	43.18	1.700	1.27	0.050
89293-020	2 x 20	48.26	1.900	50.80	2.000	1.27	0.050
89293-025	2 x 25	60.96	2.400	63.50	2.500	1.27	0.050
89588-017	2 x 17	40.64	1.600	43.18	1.700	3.56	0.140
89588-020	2 x 20	48.26	1.900	50.80	2.000	3.56	0.140
89588-025	2 x 25	60.96	2.400	63.50	2.500	3.56	0.140

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

# DUBOX™ Connectors

2.54 mm (0.100 in.)



A183396-1092

**2.54 mm (0.100 in.) Centerline  
Products****PCB Mounted Receptacle  
Assemblies**

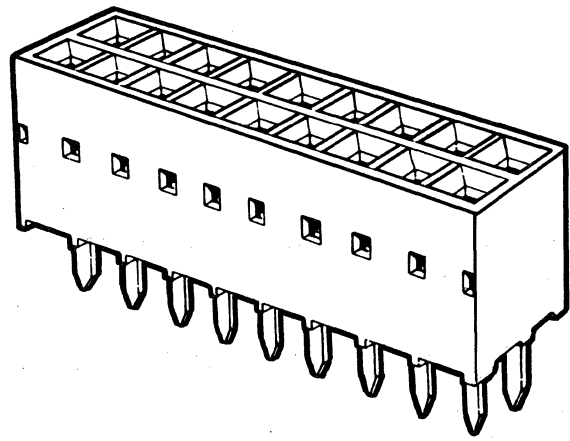
Double Row, Vertical Through-Mount Card Connector . . . . .	14-2
Double Row, Vertical Surface-Mount Card Connector . . . . .	14-6
Single Row, Vertical Through-Mount Card Connector . . . . .	14-10
Single Row, Vertical Surface-Mount Card Connector . . . . .	14-14



# PCB-Mounted Receptacle Assemblies Low-Profile, Vertical, Through-Mount, Double Row

2.54 mm (0.100 in.) Centerline

## DUBOX™ System Vertical Card Connectors



A183396-0852

### Features

- Low profile [(7.0 mm (0.276 in.))] allows closer stacking of parallel circuit boards.
- Dual cantilever beam contact design.
- Molded housings feature beveled "lead-in" ramps at receptacle openings to prevent pin stubbing.
- Duplex gold and tin-lead plating.
- 4 through 100 positions for double-row assemblies.
- Top-entry and dual-entry assemblies are available.
- Upgraded dual-entry assemblies provide reliable solder joints while eliminating special tooling, masking, and secondary operations.
- Top-entry assemblies can be stacked side-by-side on 2.54 mm (0.100 in.) centerlines.

- Standoffs for easy cleaning.

### Options


- Surface mount compatible (SMC) connectors tolerate the high temperatures of reflow soldering.
- Low-insertion-force, interference-fit hold downs stabilize the connector until it is soldered in place.
- Available 1.27 mm (0.050 in.) solder tails eliminate lead trimming on flex circuit assemblies.
- For non-standard contact finishes, contact your authorized Berg Electronics representative.


minimum to 6.10 mm (0.240 in.) maximum. Mating length for bottom entry depends on PC board thickness.

### Berg Electronics Products Page

- BergStik® headers . . . . . 13-50
- Vertical stacking headers . . . . . 13-94
- Straight 4-wall headers . . . . . 13-100
- Right-angle 4-wall headers . . . 13-104
- BergPin® terminals 13-106 to 13-116

### Approvals and Certifications

 File no. E66906

 File no. LR46923

### Mating Data

Mates with 0.64 mm (0.025 in.) square pins. Recommended mating lengths for top entry: 3.81 mm (0.150 in.)

### Technical Data

#### Materials

- Housing material . . . . . Glass-filled polyphenylene sulfide (PPS) or Glass-filled thermoplastic polyester (UL 94 V-0)
  - ▶ Color . . . . . Black, except for 71991, which is blue
  - ▶ Applicable soldering processes. . . . . IR reflow, vapor-phase reflow, wave
- Contact body material . . . . . Phosphor-bronze

#### Plating

- Underplate . . . . . 1.27 µm (50 µin.) min nickel
- Finish
  - ▶ Contact area . . . . . 0.76 µm (30 µin.) min gold
  - ▶ Solder area . . . . . 2.54 µm (100 µin.) min tin-lead

#### Electrical Performance

- Insulation resistance. . . . . 1000 MΩ min

- Withstanding voltage . . . . . 1000 V ac rms, 60 Hz
- Current rating . . . . . 3 amp dc (max) per individual contact; 2 amp dc (max) per contact for fully energized connector
- Contact resistance . . . . . 15 mΩ max initial 20 mΩ max after environmental test
- Capacitance . . . . . 1.5 pf max

#### Mechanical Performance

- Insertion force . . . . . 1.31 N (145 gf) avg. per contact
- Withdrawal force . . . . . 0.29 N (30 gf) min per contact
- Durability (mating cycles) . . . . . 200

#### Operating Environment

- Temperature range . . . . . -65°C to +125°C

#### Packaging

- Antistatic tubes

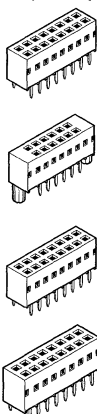
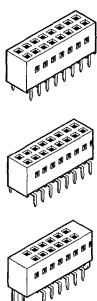
### Customer Support Materials

Description	Order No.
Customer Product Drawings. . . . .	By Base Number
Product Specifications. . . . .	BUS-12-055
Product Samples . . . . .	By Part Number

Description	Order No.
Application Drawings	
▪ Riveting Tool Bars for Dual-entry Connectors . . . . .	TA-553
▪ Crimping and Hole Patterns for Dual-entry Connectors . . . . .	TA-554



**PCB-Mounted Receptacle Assemblies**  
**2.54 mm (0.100 in.)**

<b>Selection Guide</b>											
		Contact area finish 0.76 µm (30 µin.) gold	Applicable Soldering Processes		Solder Tail Length			Hold Downs			
			Wave	SMT Reflow	2.92 mm (0.115 in.)	3.00 mm (0.118 in.)	1.27 mm (0.050 in.)				
	68683-3YY	Y	Y		Y						
	68683-6YY	Y	Y	Y	Y						
	79948-3YY	Y	Y		Y	Y				Y	
	79948-6YY	Y	Y	Y	Y	Y				Y	
	68775-3YY	Y	Y						Y		
	68776-3YY	Y	Y						Y		
	68682-3YY	Y	Y					Y			
	68682-6YY	Y	Y	Y	Y			Y			
	71991-3YY	Y	Y			Y					
	93696-3YY	Y	Y	Y	Y			Y			Y

<b>Ordering Data</b>											
First five digits specify configuration					Last two digits specify number of positions per row (02 through 50).						
□ □ □ □ □ - X Y Y					Plating: See selection guide above.						
Number of Positions	Dash Number (YY)	Dimensions									
		A						B		C	
		Part Numbers 68682, 68683 68775, 68776		Part Numbers 79948, 93696		Part Number 71991					
		mm	in.	mm	in.	mm	in.	mm	in.	mm	in.
2 x 2	X02	5.51	0.217	10.59	0.417	5.00	0.197	2.54	0.100	7.62	0.300
2 x 3	X03	8.05	0.317	13.13	0.517	7.54	0.297	5.08	0.200	10.16	0.400
2 x 4	X04	10.59	0.417	15.67	0.617	10.08	0.397	7.62	0.300	12.70	0.500
2 x 5	X05	13.13	0.517	18.21	0.717	12.62	0.497	10.16	0.400	15.24	0.600
2 x 6	X06	15.67	0.617	20.75	0.817	15.16	0.597	12.70	0.500	17.78	0.700
2 x 7	X07	18.21	0.717	23.29	0.917	17.70	0.697	15.24	0.600	20.32	0.800
2 x 8	X08	20.75	0.817	25.83	1.017	20.24	0.797	17.78	0.700	22.86	0.900
2 x 9	X09	23.29	0.917	28.37	1.117	22.78	0.897	20.32	0.800	25.40	1.000
2 x 10	X10	25.83	1.017	30.91	1.217	25.32	0.997	22.86	0.900	27.94	1.100

### Ordering Data (cont'd)

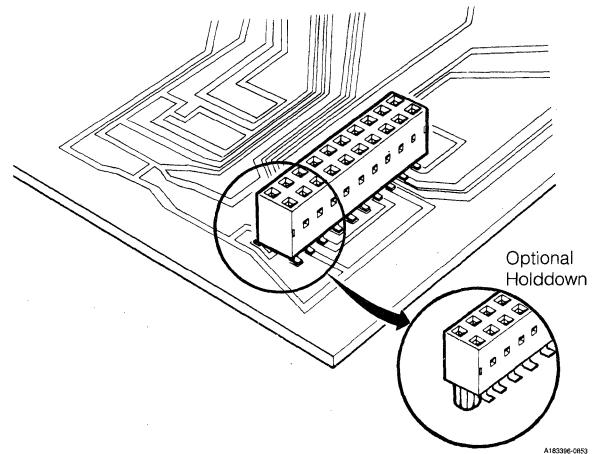
Number of Positions	Dash Number (YY)	Dimensions									
		A						B		C	
		Part Numbers 68682, 68683 68775, 68776		Part Numbers 79948, 93696		Part Number 71991		mm	in.	mm	in.
		mm	in.	mm	in.	mm	in.				
2 x 11	X11	28.37	1.117	33.45	1.317	27.86	1.097	25.40	1.000	30.48	1.200
2 x 12	X12	30.91	1.217	35.99	1.417	30.40	1.197	27.94	1.100	33.02	1.300
2 x 13	X13	33.45	1.317	38.53	1.517	32.94	1.297	30.48	1.200	35.56	1.400
2 x 14	X14	35.99	1.417	41.07	1.617	35.48	1.397	33.02	1.300	38.10	1.500
2 x 15	X15	38.53	1.517	43.61	1.717	38.02	1.497	35.56	1.400	40.64	1.600
2 x 16	X16	41.07	1.617	46.15	1.817	40.56	1.597	38.10	1.500	43.18	1.700
2 x 17	X17	43.61	1.717	48.69	1.917	43.10	1.697	40.64	1.600	45.72	1.800
2 x 18	X18	46.15	1.817	51.23	2.017	45.64	1.797	43.18	1.700	48.26	1.900
2 x 19	X19	48.69	1.917	53.77	2.117	48.18	1.897	45.72	1.800	50.80	2.000
2 x 20	X20	51.23	2.017	56.31	2.217	50.72	1.997	48.26	1.900	53.34	2.100
2 x 21	X21	53.77	2.117	58.85	2.317	53.26	2.097	50.80	2.000	55.88	2.200
2 x 22	X22	56.31	2.217	61.39	2.417	55.80	2.197	53.34	2.100	58.42	2.300
2 x 23	X23	58.85	2.317	63.93	2.517	58.34	2.297	55.88	2.200	60.96	2.400
2 x 24	X24	61.39	2.417	66.47	2.617	60.88	2.397	58.42	2.300	63.50	2.500
2 x 25	X25	63.93	2.517	69.01	2.717	63.42	2.497	60.96	2.400	66.04	2.600
2 x 26	X26	66.47	2.617	71.55	2.817	65.96	2.597	63.50	2.500	68.58	2.700
2 x 27	X27	69.01	2.717	74.09	2.917	68.50	2.697	66.04	2.600	71.12	2.800
2 x 28	X28	71.55	2.817	76.63	3.017	71.04	2.797	68.58	2.700	73.66	2.900
2 x 29	X29	74.09	2.917	79.17	3.117	73.58	2.897	71.12	2.800	76.20	3.000
2 x 30	X30	76.63	3.017	81.71	3.217	76.12	2.997	73.66	2.900	78.74	3.100
2 x 31	X31	79.17	3.117	84.25	3.317	78.66	3.097	76.20	3.000	81.28	3.200
2 x 32	X32	81.71	3.217	86.79	3.417	81.20	3.197	78.74	3.100	83.82	3.300
2 x 33	X33	84.25	3.317	89.33	3.517	83.74	3.297	81.28	3.200	86.36	3.400
2 x 34	X34	86.79	3.417	91.87	3.617	86.28	3.397	83.82	3.300	88.90	3.500
2 x 35	X35	89.33	3.517	94.41	3.717	88.82	3.497	86.36	3.400	91.44	3.600
2 x 36	X36	91.87	3.617	96.95	3.817	91.36	3.597	88.90	3.500	93.98	3.700
2 x 37	X37	94.41	3.717	99.49	3.917	93.90	3.697	91.44	3.600	96.52	3.800
2 x 38	X38	96.95	3.817	102.03	4.017	96.44	3.797	93.98	3.700	99.06	3.900
2 x 39	X39	99.49	3.917	104.57	4.117	98.98	3.897	96.52	3.800	101.60	4.000
2 x 40	X40	102.03	4.017	107.11	4.217	101.52	3.997	99.06	3.900	104.14	4.100
2 x 41	X41	104.57	4.117	109.65	4.317	104.06	4.097	101.60	4.000	106.68	4.200
2 x 42	X42	107.11	4.217	112.19	4.417	106.60	4.197	104.14	4.100	109.22	4.300
2 x 43	X43	109.65	4.317	114.73	4.517	109.14	4.297	106.68	4.200	111.76	4.400
2 x 44	X44	112.19	4.417	117.27	4.617	111.68	4.397	109.22	4.300	114.30	4.500
2 x 45	X45	114.73	4.517	119.81	4.717	114.22	4.497	111.76	4.400	116.84	4.600
2 x 46	X46	117.27	4.617	122.35	4.817	116.76	4.597	114.30	4.500	119.38	4.700
2 x 47	X47	119.81	4.717	124.89	4.917	119.30	4.697	116.84	4.600	121.92	4.800
2 x 48	X48	122.35	4.817	127.43	5.017	121.84	4.797	119.38	4.700	124.46	4.900
2 x 49	X49	124.89	4.917	129.97	5.117	124.38	4.897	121.92	4.800	127.00	5.000
2 x 50	X50	127.43	5.017	132.51	5.217	126.92	4.997	124.46	4.900	129.54	5.100

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

# PCB-Mounted Receptacle Assemblies Vertical, Surface-Mount, Double-Row

2.54 mm (0.100 in.) Centerline

## DUBOX™ System Vertical Card Connectors



### Features

- Low profile [(7.87 mm (0.310 in.)) allows closer stacking of parallel circuit boards.
- Dual cantilever beam contact design.
- Duplex gold and tin-lead plating.
- Gull-wing solder tails are coplanar within  $\pm 0.05$  mm (0.002 in.).
- "Floating" solder tails self-center on circuit pads.
- 4 through 100 positions for single-row assemblies.
- Surface mount-compatible (SMC) materials tolerate high temperatures of reflow soldering.
- Suitable for top-entry and dual-entry applications.
- Molded housings feature beveled "lead-in" ramps at receptacle openings to prevent pin stubbing.

### Options

- Low-insertion-force, interference-fit hold downs stabilize the connector until it is soldered in place.
- For non-standard contact finishes, contact your Berg Electronics representative.

### Mating Data

Mates with 0.64 mm (0.025 in.) square pins. Recommended mating lengths for top entry: 3.81 mm (0.150 in.) minimum to 6.10 mm (0.240 in.) maximum. Mating length for bottom entry depends on PC board thickness.

### Berg Electronics Products

### Page

- BergStik® headers . . . . . 13-50
- Vertical stacking headers . . . . . 13-94
- Straight 4-wall headers . . . . . 13-100
- Right-angle 4-wall headers . . . 13-104
- BergPin® terminals 13-106 to 13-116

### Approvals and Certifications



File no. E66906



File no. LR46923

### Technical Data

#### Materials

- Housing material . . . . . Glass-filled polyphenylene sulfide (UL 94 V-0)
  - ▶ Color . . . . . Black
  - ▶ Applicable soldering processes. . . . . IR reflow, vapor-phase reflow
- Contact body material . . . . . Phosphor-bronze

#### Plating

- Underplate . . . . . 1.27  $\mu$ m (50  $\mu$ in.) min nickel
- Finish
  - ▶ Contact area . . . . . 0.76  $\mu$ m (30  $\mu$ in.) min gold
  - ▶ Solder area . . . . . 4.08  $\mu$ m (200  $\mu$ in.) min tin-lead

#### Electrical Performance

- Insulation resistance . . . . . 1000 M $\Omega$  min
- Withstanding voltage . . . . . 1000 V ac rms, 60 Hz

- Current rating . . . . . 3 amp dc (max) per individual contact; 2 amp dc (max) per contact for fully energized connector
- Contact resistance . . . . . 15 m $\Omega$  max initial  
20 m $\Omega$  max after environmental test
- Capacitance . . . . . 1.5 pf max

#### Mechanical Performance

- Insertion force . . . . . 1.31 N (145 gf) avg. per contact
- Withdrawal force . . . . . 0.29 N (30 gf) min per contact
- Durability (mating cycles) . . . . . 200

#### Operating Environment

- Temperature range . . . . . -65°C to +125°C

#### Packaging

- Antistatic tubes

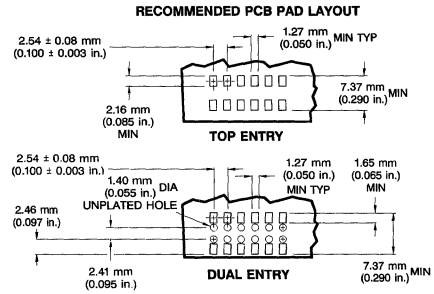
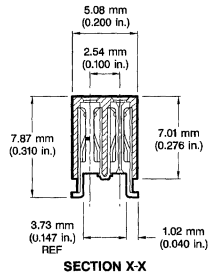
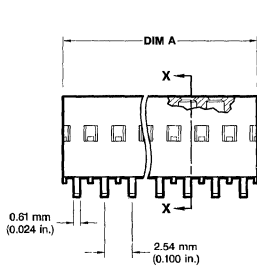
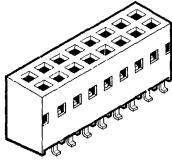
### Customer Support Materials

Description	Order No.
Customer Product Drawings . . . . .	By Base Number
Product Specifications . . . . .	BUS-12-055

Description	Order No.
Product Samples . . . . .	By Part Number

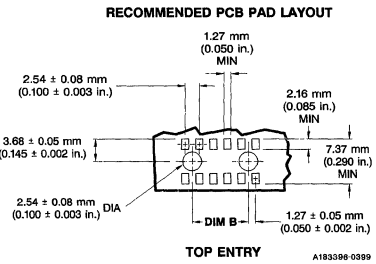
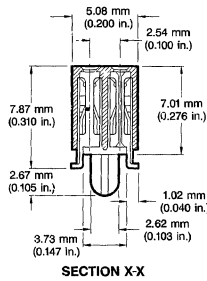
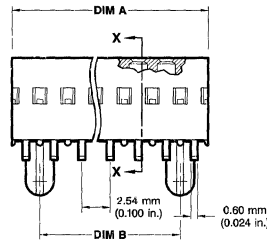
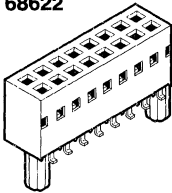
### Description

#### Double Row (Dual-Entry) 68046



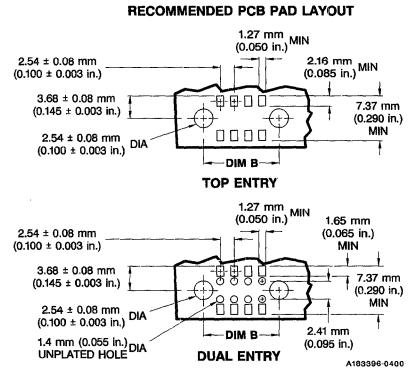
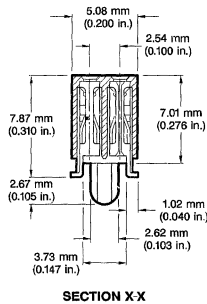
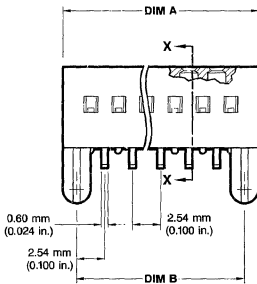
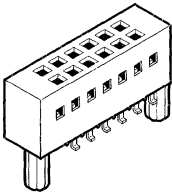
A183396-0398

#### Double Row With Holddowns (Top Entry Only) 68622



A183396-0399

#### Double Row With Holddowns (Dual-Entry) 69154



A183396-0400

### Ordering Data

First five digits specify connector configuration

□ □ □ □ □ - 6 Y Y

Last two digits specify number of positions per row.

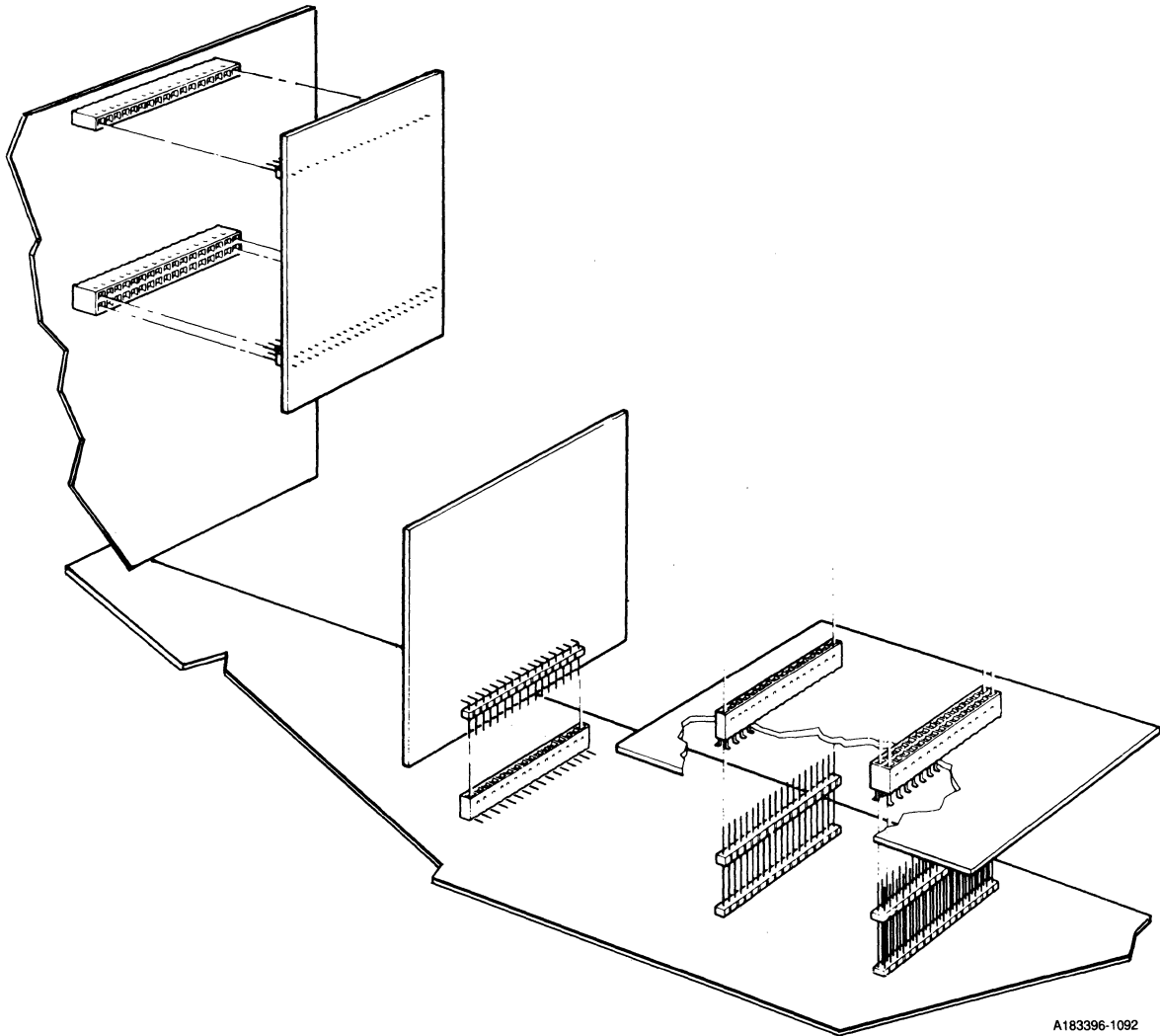
Number of Positions	Dash Numbers 68046-6YY 68622-6YY 69154-6YY	Dimensions							
		A				B			
		68622 and 68046		69154		68622		69154	
		mm	in.	mm	in.	mm	in.	mm	in.
2 x 2	-602	5.51*	0.217*	10.59	0.417	---	---	7.62	0.300
2 x 3	-603	8.05*	0.317*	13.13	0.517	---	---	10.16	0.400
2 x 4	-604	10.59	0.417	15.67	0.617	5.08	0.200	12.70	0.500
2 x 5	-605	13.13	0.517	18.21	0.717	7.62	0.300	15.24	0.600
2 x 6	-606	15.67	0.617	20.75	0.817	10.16	0.400	17.78	0.700
2 x 7	-607	18.21	0.717	23.29	0.917	12.70	0.500	20.32	0.800
2 x 8	-608	20.75	0.817	25.83	1.017	15.24	0.600	22.86	0.900
2 x 9	-609	23.29	0.917	28.37	1.117	17.78	0.700	25.40	1.000
2 x 10	-610	25.83	1.017	30.91	1.217	20.32	0.800	27.94	1.100
2 x 11	-611	28.37	1.117	33.45	1.317	22.86	0.900	30.48	1.200
2 x 12	-612	30.91	1.217	35.99	1.417	25.40	1.000	33.02	1.300
2 x 13	-613	33.45	1.317	38.53	1.517	27.94	1.100	35.56	1.400
2 x 14	-614	35.99	1.417	41.07	1.617	30.48	1.200	38.10	1.500
2 x 15	-615	38.53	1.517	43.61	1.717	33.02	1.300	40.64	1.600
2 x 16	-616	41.07	1.617	46.15	1.817	35.56	1.400	43.18	1.700

\*These dimensions apply only to part number 68046. Part Number 68622 is not available in these sizes.

**PCB-Mounted Receptacle Assemblies**  
**2.54 mm (0.100 in.)**

<b>Ordering Data (con't)</b>										
<b>Number of Positions</b>	<b>Dash Numbers 68046-6YY 68622-6YY 69154-6YY</b>	<b>Dimensions</b>								
		<b>A</b>				<b>B</b>				
		<b>68622 and 68046</b>		<b>69154</b>		<b>68622</b>		<b>69154</b>		
		<b>mm</b>	<b>in.</b>	<b>mm</b>	<b>in.</b>	<b>mm</b>	<b>in.</b>	<b>mm</b>	<b>in.</b>	<b>mm</b>
2 x 17	-617	43.61	1.717	48.69	1.917	38.10	1.500	45.72	1.800	
2 x 18	-618	46.15	1.817	51.23	2.017	40.64	1.600	48.26	1.900	
2 x 19	-619	48.69	1.917	53.77	2.117	43.18	1.700	50.80	2.000	
2 x 20	-620	51.23	2.017	56.31	2.217	45.72	1.800	53.34	2.100	
2 x 21	-621	53.77	2.117	58.85	2.317	48.26	1.900	55.08	2.200	
2 x 22	-622	56.31	2.217	61.39	2.417	50.80	2.000	58.42	2.300	
2 x 23	-623	58.85	2.317	63.93	2.517	53.34	2.100	60.96	2.400	
2 x 24	-624	61.39	2.417	66.47	2.617	55.88	2.200	63.50	2.500	
2 x 25	-625	63.93	2.517	69.01	2.717	58.42	2.300	66.04	2.600	
2 x 26	-626	66.47	2.617	71.55	2.817	60.96	2.400	68.58	2.700	
2 x 27	-627	69.01	2.717	74.09	2.917	63.50	2.500	71.12	2.800	
2 x 28	-628	71.55	2.817	76.63	3.017	66.04	2.600	73.66	2.900	
2 x 29	-629	74.09	2.917	79.17	3.117	68.58	2.700	76.20	3.000	
2 x 30	-630	76.63	3.017	81.17	3.217	71.12	2.800	78.74	3.100	
2 x 31	-631	79.17	3.117	84.25	3.317	73.66	2.900	81.28	3.200	
2 x 32	-632	81.17	3.217	86.79	3.417	76.20	3.000	83.82	3.300	
2 x 33	-633	84.25	3.317	89.33	3.517	78.74	3.100	86.36	3.400	
2 x 34	-634	86.79	3.417	91.87	3.617	81.28	3.200	88.90	3.500	
2 x 35	-635	89.33	3.517	94.41	3.717	83.82	3.300	91.44	3.600	
2 x 36	-636	91.87	3.617	96.95	3.817	86.36	3.400	93.98	3.700	
2 x 37	-637	94.41	3.717	99.49	3.917	88.90	3.500	96.52	3.800	
2 x 38	-638	96.95	3.817	102.03	4.017	91.44	3.600	99.06	3.900	
2 x 39	-639	99.49	3.917	104.57	4.117	93.98	3.700	101.60	4.000	
2 x 40	-640	102.03	4.017	107.11	4.217	96.52	3.800	104.14	4.100	
2 x 41	-641	104.57	4.117	109.65	4.317	99.06	3.900	106.68	4.200	
2 x 42	-642	107.11	4.217	112.19	4.417	101.60	4.000	109.22	4.300	
2 x 43	-643	109.65	4.317	114.73	4.517	104.14	4.100	111.76	4.400	
2 x 44	-644	112.19	4.417	117.27	4.617	106.68	4.200	114.30	4.500	
2 x 45	-645	114.73	4.517	119.81	4.717	109.22	4.300	116.84	4.600	
2 x 46	-646	117.27	4.617	122.35	4.817	111.76	4.400	119.38	4.700	
2 x 47	-647	119.81	4.717	124.89	4.917	114.30	4.500	121.92	4.800	
2 x 48	-648	122.35	4.817	127.43	5.017	116.84	4.600	124.46	4.900	
2 x 49	-649	124.89	4.917	129.97	5.117	119.38	4.700	127.00	5.000	
2 x 50	-650	127.43	5.017	132.51	5.217	121.92	4.800	129.54	5.100	

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.



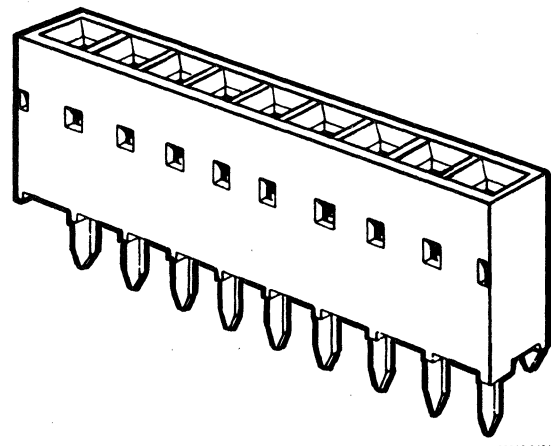
A183396-1092



# PCB-Mounted Receptacle Assemblies Low-Profile, Vertical, Through-Mount, Single-Row

2.54 mm (0.100 in.) Centerline

## DUBOX™ System Vertical Card Connectors



A183396-0401

### Features

- Low profile [(7.0 mm (0.276 in.))] allows closer stacking of parallel circuit boards.
- Dual cantilever beam contact design.
- Molded housings feature beveled "lead-in" ramps at receptacle openings to prevent pin stubbing.
- Duplex gold and tin-lead plating.
- 2 through 50 positions for single-row assemblies.
- Top-entry and dual-entry assemblies are available.
- Upgraded dual-entry assemblies provide reliable solder joints while eliminating special tooling, masking, and secondary operations.
- Top-entry assemblies can be stacked side-by-side on 2.54 mm (0.100 in.) centerlines.

- Standoffs for easy cleaning.

### Options


- Surface mount compatible (SMC) connectors tolerate the high temperature of reflow soldering.
- Low-insertion-force, interference-fit hold downs stabilize the connector until it is soldered in place.
- For non-standard contact finishes, contact your authorized Berg Electronics representative.


### Berg Electronics Products

### Page

- BergStik® headers . . . . . 13-50
- Straight 4-wall headers . . . . . 13-100
- Right-angle 4-wall headers . . . 13-104
- BergPin® terminals 13-106 to 13-116

### Approvals and Certifications

 File no. E66906

 File no. LR46923

### Mating Data

Mates with 0.64 mm (0.025 in.) square pins. Recommended mating lengths for top entry: 3.81 mm (0.150 in.) minimum to 6.10 mm (0.240 in.) maximum. Mating length for bottom entry depends on PC board thickness.

### Technical Data

#### Materials

- Housing material . . . . . Glass-filled polyphenylene sulfide (PPS) or Glass-filled thermoplastic polyester (UL 94 V-O)
  - ▶ Color . . . . . Black, except for 71920 which is blue
  - ▶ Applicable soldering processes. . . . . IR reflow, vapor-phase reflow, wave
- Contact body material . . . . . Phosphor-bronze

#### Plating

- Underplate . . . . . 1.27 μm (50 μin.) min nickel
- Finish
  - ▶ Contact area . . . . . 0.76 μm (30 μin.) min gold
  - ▶ Solder area . . . . . 2.54 μm (100 μin.) min tin-lead

#### Electrical Performance

- Insulation resistance. . . . . 1000 MΩ min

- Withstanding voltage . . . . . 1000 V ac rms, 60 Hz
- Current rating . . . . . 3 amp dc (max) per individual contact; 2 amp dc (max) per contact for fully energized connector
- Contact resistance . . . . . 15 mΩ max initial; 20 mΩ max after environmental test
- Capacitance. . . . . 1.5 pf max

#### Mechanical Performance

- Insertion force. . . . . 1.31 N (145 gf) avg. per contact
- Withdrawal force . . . . . 0.27 N (30 gf) min per contact
- Durability (mating cycles) . . . . . 200

#### Operating Environment

- Temperature Range . . . . . -65°C to +125°C

#### Packaging

- Antistatic tubes





### Customer Support Materials

Description	Order No.
Customer Product Drawings. . . . .	By Part Number
Product Specifications . . . . .	BUS-12-055
Product Samples . . . . .	By Part Number

Description	Order No.
Application Drawings	
▪ Riveting Tool Bars for Dual-entry Connectors . . . . .	TA-553
▪ Crimping and Hole Patterns for Dual-entry Connectors . . . . .	TA-554

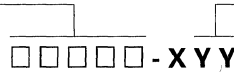


**PCB-Mounted Receptacle Assemblies**  
**2.54 mm (0.100 in.)**

<b>Selection Guide</b>							
	Contact area finish 0.76 $\mu\text{m}$ (30 $\mu\text{in.}$ ) gold	Applicable Soldering Processes		Solder Tail Length			Hold downs
		Wave	Reflow	2.92 mm (0.115 in.)	3.00 mm (0.118 in.)	2.85 mm (0.112 in.)	
<b>Top-entry</b>							
	68685-3XX 68685-6XX	Y Y	Y Y	Y Y			
	90099-3XX 90099-6XX	Y Y	Y Y	Y Y			Y Y
<b>Dual-entry</b>							
	71920-3XX	Y	Y			Y	
	68684-3XX	Y	Y		Y		

## Ordering Data

First five digits specify configuration



Last two digits of dash number specify number of positions per row (02 through 50).

3 = Solder area pre-plated  
6 = Solder area post-plated

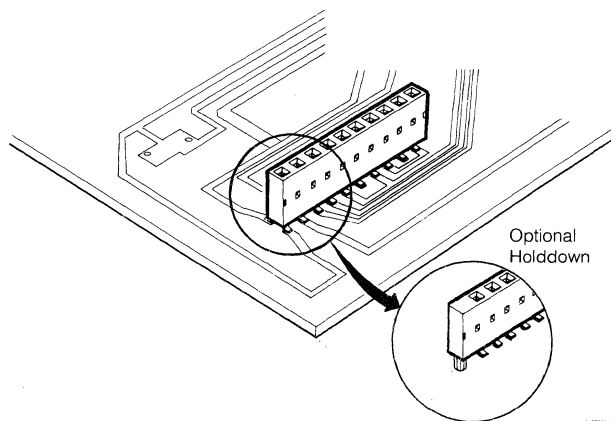
Number of Positions	Part Numbers 68685 90099 68684 71920 (YY)	Dimensions									
		A						B		C	
		Part Numbers 68685, 68684		Part Number 90099		Part Number 71920					
		mm	in.	mm	in.	mm	in.	mm	in.	mm	in.
1 x 2	X02	5.51	0.217	10.59	0.417	--	--	2.54	0.100	7.62	0.300
1 x 3	X03	8.05	0.317	13.13	0.517	7.54	0.297	5.08	0.200	10.16	0.400
1 x 4	X04	10.59	0.417	15.67	0.617	10.08	0.397	7.62	0.300	12.70	0.500
1 x 5	X05	13.13	0.517	18.21	0.717	12.62	0.497	10.16	0.400	15.24	0.600
1 x 6	X06	15.67	0.617	20.75	0.817	15.16	0.597	12.70	0.500	17.78	0.700
1 x 7	X07	18.21	0.717	23.29	0.917	17.70	0.697	15.24	0.600	20.32	0.800
1 x 8	X08	20.75	0.817	25.83	1.017	20.24	0.797	17.78	0.700	22.86	0.900
1 x 9	X09	23.29	0.917	28.37	1.117	22.78	0.897	20.32	0.800	25.40	1.000
1 x 10	X10	25.83	1.017	30.91	1.217	25.32	0.997	22.86	0.900	27.94	1.100
1 x 11	X11	28.37	1.117	33.45	1.317	27.86	1.097	25.40	1.000	30.48	1.200
1 x 12	X12	30.91	1.217	35.99	1.417	30.40	1.197	27.94	1.100	33.02	1.300
1 x 13	X13	33.45	1.317	38.53	1.517	32.94	1.297	30.48	1.200	35.56	1.400
1 x 14	X14	35.99	1.417	41.07	1.617	35.48	1.397	33.02	1.300	38.10	1.500
1 x 15	X15	38.53	1.517	43.61	1.717	38.02	1.497	35.56	1.400	40.64	1.600
1 x 16	X16	41.07	1.617	46.15	1.817	40.56	1.597	38.10	1.500	43.18	1.700
1 x 17	X17	43.61	1.717	48.69	1.917	43.10	1.697	40.64	1.600	45.72	1.800
1 x 18	X18	46.15	1.817	51.23	2.017	45.64	1.797	43.18	1.700	48.26	1.900
1 x 19	X19	48.69	1.917	53.77	2.117	48.18	1.897	45.72	1.800	50.80	2.000
1 x 20	X20	51.23	2.017	56.31	2.217	50.72	1.997	48.26	1.900	53.34	2.100
1 x 21	X21	53.77	2.117	58.85	2.317	53.26	2.097	50.80	2.000	55.88	2.200
1 x 22	X22	56.31	2.217	61.39	2.417	55.80	2.197	53.34	2.100	58.42	2.300
1 x 23	X23	58.85	2.317	63.93	2.517	58.34	2.297	55.88	2.200	60.96	2.400
1 x 24	X24	61.39	2.417	66.47	2.617	60.88	2.397	58.42	2.300	63.50	2.500
1 x 25	X25	63.93	2.517	69.01	2.717	63.42	2.497	60.96	2.400	66.04	2.600
1 x 26	X26	66.47	2.617	71.55	2.817	65.96	2.597	63.50	2.500	68.58	2.700
1 x 27	X27	69.01	2.717	74.09	2.917	68.50	2.697	66.04	2.600	71.12	2.800
1 x 28	X28	71.55	2.817	76.63	3.017	71.04	2.797	68.58	2.700	73.66	2.900
1 x 29	X29	74.09	2.917	79.17	3.117	73.58	2.897	71.12	2.800	76.20	3.000
1 x 30	X30	76.63	3.017	81.71	3.217	76.12	2.997	73.66	2.900	78.74	3.100
1 x 31	X31	79.17	3.117	84.25	3.317	78.66	3.097	76.20	3.000	81.28	3.200
1 x 32	X32	81.71	3.217	86.79	3.417	--	--	78.74	3.100	83.82	3.300
1 x 33	X33	84.25	3.317	89.33	3.517	--	--	81.28	3.200	86.36	3.400
1 x 34	X34	86.79	3.417	91.87	3.617	--	--	83.82	3.300	88.90	3.500
1 x 35	X35	89.33	3.517	94.41	3.717	--	--	86.36	3.400	91.44	3.600
1 x 36	X36	91.87	3.617	96.95	3.817	--	--	88.90	3.500	93.98	3.700
1 x 37	X37	94.41	3.717	99.49	3.917	--	--	91.44	3.600	96.52	3.800
1 x 38	X38	96.95	3.817	102.03	4.017	--	--	93.98	3.700	99.06	3.900
1 x 39	X39	99.49	3.917	104.57	4.117	--	--	96.52	3.800	101.60	4.000
1 x 40	X40	102.03	4.017	107.11	4.217	--	--	99.06	3.900	104.14	4.100
1 x 41	X41	104.57	4.117	109.65	4.317	--	--	101.60	4.000	106.68	4.200
1 x 42	X42	107.11	4.217	112.19	4.417	--	--	104.14	4.100	109.22	4.300
1 x 43	X43	109.65	4.317	114.73	4.517	--	--	106.68	4.200	111.76	4.400
1 x 44	X44	112.19	4.417	117.27	4.617	--	--	109.22	4.300	114.30	4.500
1 x 45	X45	114.73	4.517	119.81	4.717	--	--	111.76	4.400	116.84	4.600
1 x 46	X46	117.27	4.617	122.35	4.817	--	--	114.30	4.500	119.38	4.700
1 x 47	X47	119.81	4.717	124.89	4.917	--	--	116.84	4.600	121.92	4.800
1 x 48	X48	122.35	4.817	127.43	5.017	--	--	119.38	4.700	124.46	4.900
1 x 49	X49	124.89	4.917	129.97	5.117	--	--	121.92	4.800	127.00	5.000
1 x 50	X50	127.43	5.017	132.51	5.217	--	--	124.46	4.900	129.54	5.100

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

# PCB-Mounted Receptacle Assemblies Vertical, Surface-Mount, Single Row

2.54 mm (0.100 in.) Centerline

## DUBOX™ System Vertical Card Connectors



AI10280-04/07

### Features

- Low profile [(7.87 mm (0.310 in.))] allows closer stacking of parallel circuit boards.
- Dual cantilever beam contact design.
- Duplex gold and tin-lead plating.
- Gull-wing solder tails are coplanar within  $\pm 0.05$  mm (0.002 in.).
- "Floating" solder tails self-center on circuit pads.
- 2 through 25 positions for single-row assemblies.
- Surface mount-compatible (SMC) materials tolerate high temperatures of reflow soldering.
- Suitable for top-entry and dual-entry applications.
- Molded housings feature beveled "lead-in" ramps at receptacle openings to prevent pin stubbing.

### Options

- Low-insertion-force, interference-fit hold downs stabilize the connector until it is soldered in place.
- For non-standard contact finishes, contact your authorized Berg Electronics representative.

### Mating Data


Mates with 0.64 mm (0.025 in.) square pins. Recommended mating lengths for top entry: 3.81 mm (0.150 in.) minimum to 6.10 mm (0.240 in.) maximum. Mating length for bottom entry depends on PC board thickness.


### Berg Electronics Products

### Page

- BergStik® headers . . . . . 13-50
- Straight 4-wall headers . . . . . 13-100
- Right-angle 4-wall headers . . . 13-104
- BergPin® terminals 13-106 to 13-116

### Approvals and Certifications

 File no. E66906

 File no. LR46923

### Technical Data

#### Materials

- Housing material . . . . . Glass-filled polyphenylene sulfide (UL 94 V-0)
  - ▶ Color . . . . . Black
  - ▶ Applicable soldering processes. . . . . IR reflow, vapor-phase reflow
- Contact body material . . . . . Phosphor-bronze

#### Plating

- Underplate . . . . . 1.27  $\mu$ m (50  $\mu$ in.) min nickel
- Finish
  - ▶ Contact area . . . . . 0.76  $\mu$ m (30  $\mu$ in.) min gold
  - ▶ Solder area . . . . . 4.08  $\mu$ m (200  $\mu$ in.) min tin-lead

#### Electrical Performance

- Insulation resistance. . . . . 1000 M $\Omega$  min
- Withstanding voltage . . . . . 1000 V ac rms, 60 Hz

- Current rating . . . . . 3 amp dc (max) per individual contact; 2 amp dc (max) per contact for fully energized connector
- Contact resistance . . . . . 15 m $\Omega$  max initial; 20 m $\Omega$  max after environmental test
- Capacitance . . . . . 1.5 pf max

#### Mechanical Performance

- Insertion force . . . . . 1.31 N (145 gf) avg. per contact
- Withdrawal force . . . . . 0.29 N (30 gf) min per contact
- Durability (mating cycles) . . . . . 200

#### Operating Environment

- Temperature Range . . . . . -65°C to +125°C

#### Packaging

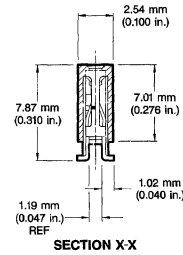
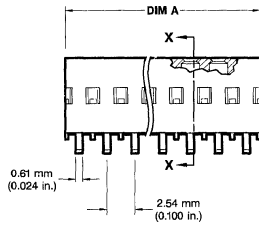
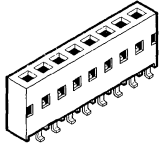
- Antistatic tubes

### Customer Support Materials

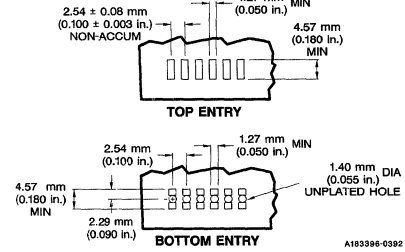
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Customer Product Drawings. . . . .	By Part Number	Product Samples. . . . .	By Part Number
Product Specifications. . . . .	BUS-12-055		

## Description

### Single Row 68402

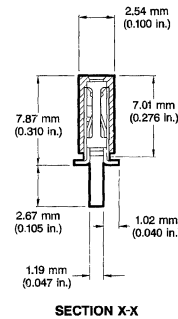
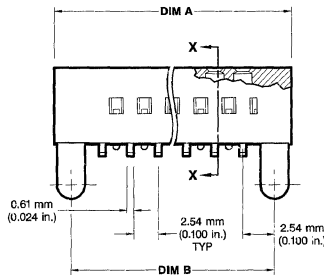
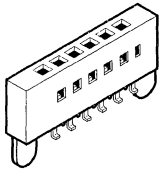


#### RECOMMENDED PCB PAD LAYOUT

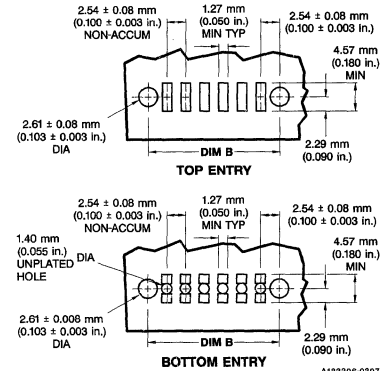


A18398-0392

### Single Row With Holddowns 68617



#### RECOMMENDED PCB PAD LAYOUT



A18398-0397

## Ordering Data

First five digits specify connector configuration

□ □ □ □ □ - 6 Y Y

Last two digits specify number of positions (02 through 25).

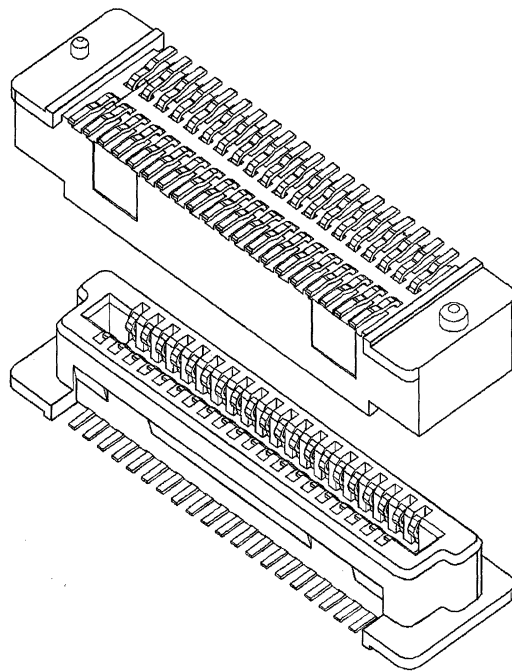
Number of Positions	Dash Numbers 68402-6YY 68617-6YY (YY)	Dimensions					
		A				B	
		Part Number 68402		Part Number 68617		Part Number 68617	
		mm	in.	mm	in.	mm	in.
2	-602	5.51	0.217	10.59	0.417	7.62	0.300
3	-603	8.05	0.317	13.13	0.517	10.16	0.400
4	-604	10.59	0.417	15.67	0.617	12.70	0.500
5	-605	13.13	0.517	18.21	0.717	15.24	0.600
6	-606	15.67	0.617	20.75	0.817	17.78	0.700
7	-607	18.21	0.717	23.29	0.917	20.32	0.800
8	-608	20.75	0.817	25.93	1.017	22.86	0.900
9	-609	23.29	0.917	28.37	1.117	25.40	1.000
10	-610	25.83	1.017	30.91	1.217	27.94	1.100
11	-611	28.37	1.117	33.45	1.317	30.48	1.200
12	-612	30.91	1.217	35.99	1.417	33.02	1.300
13	-613	33.45	1.317	38.53	1.517	35.56	1.400
14	-614	35.99	1.417	41.07	1.617	38.10	1.500
15	-615	38.53	1.517	43.61	1.717	40.64	1.600
16	-616	41.07	1.617	46.15	1.817	43.18	1.700
17	-617	43.61	1.717	48.69	1.917	45.72	1.800
18	-618	46.15	1.817	51.23	2.017	48.26	1.900
19	-619	48.69	1.917	53.77	2.117	50.80	2.000
20	-620	51.23	2.017	56.31	2.217	53.34	2.100
21	-621	53.77	2.117	58.85	2.317	55.08	2.200
22	-622	56.31	2.217	61.39	2.417	58.42	2.300
23	-623	58.85	2.317	63.93	2.517	60.96	2.400
24	-624	61.39	2.417	66.47	2.617	63.50	2.500
25	-625	63.93	2.517	69.01	2.717	66.04	2.600

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

# BergStak™ Connectors

BergStak™ 0.8 mm (0.031 in.) pitch, surface-mount connectors are designed for parallel board-stacking applications that demand compact, high-pin-count interconnects. Vertical plug and receptacle connectors can be selected to provide 5.0 mm (0.197 in.) to 16.0 mm (0.630 in.) mated heights in 1.0 mm (0.039 in.) increments. The nine available circuit sizes span 40 through 200 contact positions in increments of 20 positions. These reliable, fine-pitch connectors enable electronic equipment manufacturers to reduce the size and weight of cellular telephones, notebook computers, and other handheld communications or computing devices. The larger circuit sizes and wider board- to-board spacing options are also suitable for increasingly-powerful computing products (such as desktops, workstations, and servers) where higher signal counts and thermal management issues are critical.

BergStak™ connectors can be supplied in tubes or in embossed carrier tape for automated placement. An optional cover provides ample area for pick-up with a vacuum nozzle without increasing space requirements for the connector.



## 0.80 mm (0.31 in.) Centerline Products

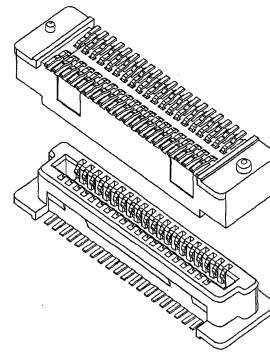
BergStak™ Receptacles.....	15-4
BergStak™ Headers.....	15-6



# BergStak™ Series Receptacles and Headers

0.80 mm (0.031 in.) Pitch

## High Density Surface Mount Multiple Height Stacking Connector System



### Features

- Dual rows of contacts on 0.80 mm (0.031 in.) pitch provide a contact density of 25 lines/cm (63 lines/in.).
- Part sizes span 40 to 200 contact positions, in increments of 20 positions.
- Connector combinations for 5.0 mm (0.197 in.) to 16.0 mm (0.630 in.) mated height, in increments of 1.0 mm (0.039 in.), accommodate designs that require wider board spacings to provide clearance for larger components or increase air flow for cooling.
- Blade-on-beam contact design prevents contact damage from "peeling" during connector engagement or separation.

- Gold finish in the contact areas provides reliable electrical performance.
- Tin-lead over nickel plating in the solder areas and 0.1 mm (0.004 in.) lead coplanarity produce excellent surface-mount solder joints.
- Connector polarization and ample lead-in angles produce easy, repeatable mating.
- Non-protrusive orientation posts assist proper placement of polarized connectors.
- Liquid crystal polymer (LCP) insulators withstand reflow soldering temperatures.
- Packaging tubes protect connectors from damage during handling.

### Options

- Tape-and-reel packaging can be provided to support automated connector placement.
- The optional pickup cap provides a flat surface for pickup with standard vacuum nozzles without increasing the space required for the connector.
- Headers and receptacles can be provided without orientation posts.

### Approvals and Certifications

- UL and CSA pending

### Technical Data

#### Materials

- Housing ..... Glass-filled LCP (UL 94 V-0)
- Contact ..... Copper alloy
- Plating
  - ▶ Underplate ..... 1.27 μm (50 μin.) nickel
  - ▶ Finish
    - Contact area ..... 0.2 μm (8 μin.) gold
    - Solder area ..... 1.5 μm (59 μin.) tin-lead

#### Mechanical Performance

- Durability ..... 100 cycles
- ▶ Mating force ..... 90 gr./contact max.
- ▶ Unmating force ..... 10 gr./contact min.

- Temperature range ..... -40°C to +85°C

#### Electrical Performance

- Insulation resistance ..... 500 MΩ min. initial  
100 MΩ min. after test
- Current rating ..... 0.5 amp
- Contact resistance ..... 30 mΩ max. initial  
50 mΩ max. after test
- Voltage rating ..... 100 V ac

#### Packaging

- Tape and reel (with or without pickup caps)
- Tubes (with or without pickup caps)

### Customer Support Materials

Description	Order No.
Customer Product Drawings	
▶ Receptacle .....	61082
▶ Header .....	61083
Product Samples .....	By Part No.

Description	Order No.
Product Bulletin .....	950547-001
Product Specifications .....	110-327

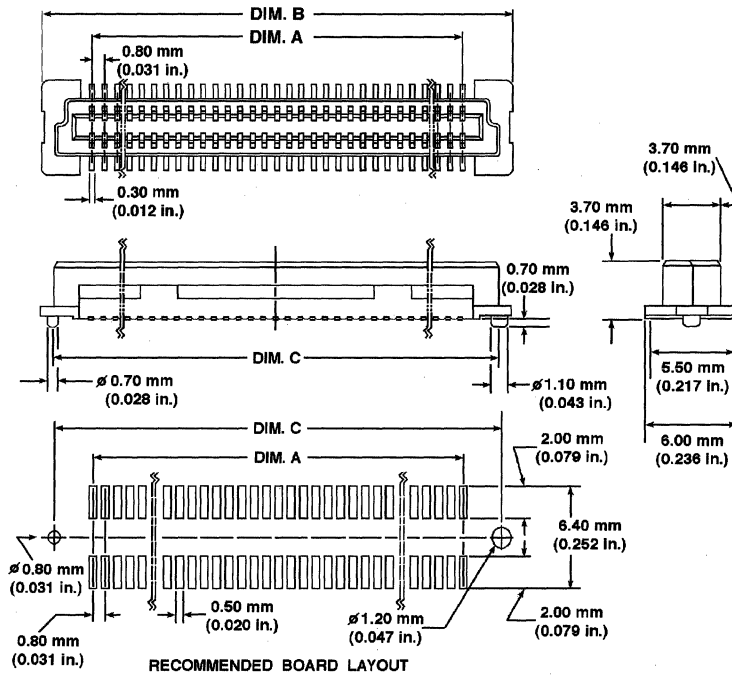
# Mated Height Combinations

		HEADERS			
		61083-XX1ABC	61083-XX2ABC	61083-XX3ABC	61083-XX4ABC
RECEPTACLES	61082-XX1ABC	<p>3.70 mm (0.146 in.)</p> <p>4.70 mm (0.185 in.)</p>	<p>3.70 mm (0.146 in.)</p> <p>5.00 mm (0.197 in.)</p>	<p>3.70 mm (0.146 in.)</p> <p>6.00 mm (0.236 in.)</p>	<p>3.70 mm (0.146 in.)</p> <p>7.00 mm (0.276 in.)</p>
	61082-XX2ABC	<p>7.70 mm (0.303 in.)</p> <p>4.70 mm (0.185 in.)</p>	<p>7.70 mm (0.303 in.)</p> <p>5.00 mm (0.197 in.)</p>	<p>7.70 mm (0.303 in.)</p> <p>6.00 mm (0.236 in.)</p>	<p>7.70 mm (0.303 in.)</p> <p>7.00 mm (0.276 in.)</p>
	61082-XX3ABC	<p>11.70 mm (0.461 in.)</p> <p>4.70 mm (0.185 in.)</p>	<p>11.70 mm (0.461 in.)</p> <p>5.00 mm (0.197 in.)</p>	<p>11.70 mm (0.461 in.)</p> <p>6.00 mm (0.236 in.)</p>	<p>11.70 mm (0.461 in.)</p> <p>7.00 mm (0.276 in.)</p>

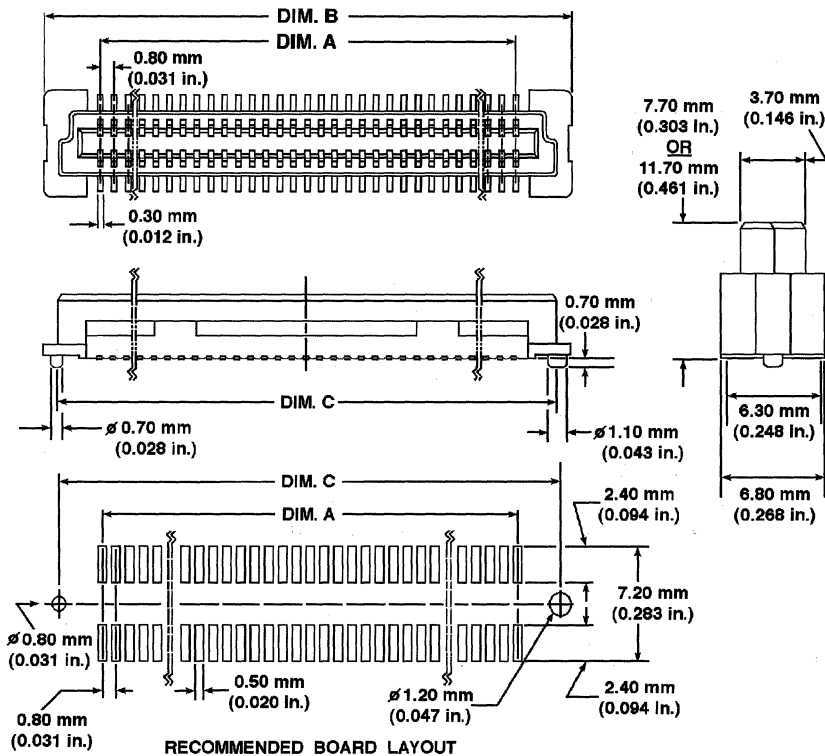
Note: The reference part numbers shown above designate the header and receptacle heights required to produce the indicated mated height. Refer to pages 15-5 and 15-7 for complete part number ordering information.

# BergStak™ 0.80 mm (0.031 in.) Receptacles

## 3.70 mm (0.146 in.) Height Receptacles



## 7.70 mm (0.303 in.) and 11.70 mm (0.461 in.) Height Receptacles



## Ordering Data Surface-Mount Receptacles

61082-XXYABC

### Number of Positions:

04 = 40 positions (2x20)  
 06 = 60 positions (2x30)  
 08 = 80 positions (2x40)  
 10 = 100 positions (2x50)  
 12 = 120 positions (2x60)  
 14 = 140 positions (2x70)  
 16 = 160 positions (2x80)  
 18 = 180 positions (2x90)  
 20 = 200 positions (2x100)

### Height of the Receptacle:

1 = 3.70 mm (0.146 in.)  
 2 = 7.70 mm (0.303 in.)  
 3 = 11.70 mm (0.461 in.)

### Packaging:

0 = Tube without vacuum pickup cap  
 1 = Tape and Reel without vacuum pickup cap  
 2 = Tape and Reel with vacuum pickup cap  
 9 = Tube with vacuum pickup cap

### Polarized Peg:

0 = With polarization peg,  
 2 = Without polarization peg

### Plating:

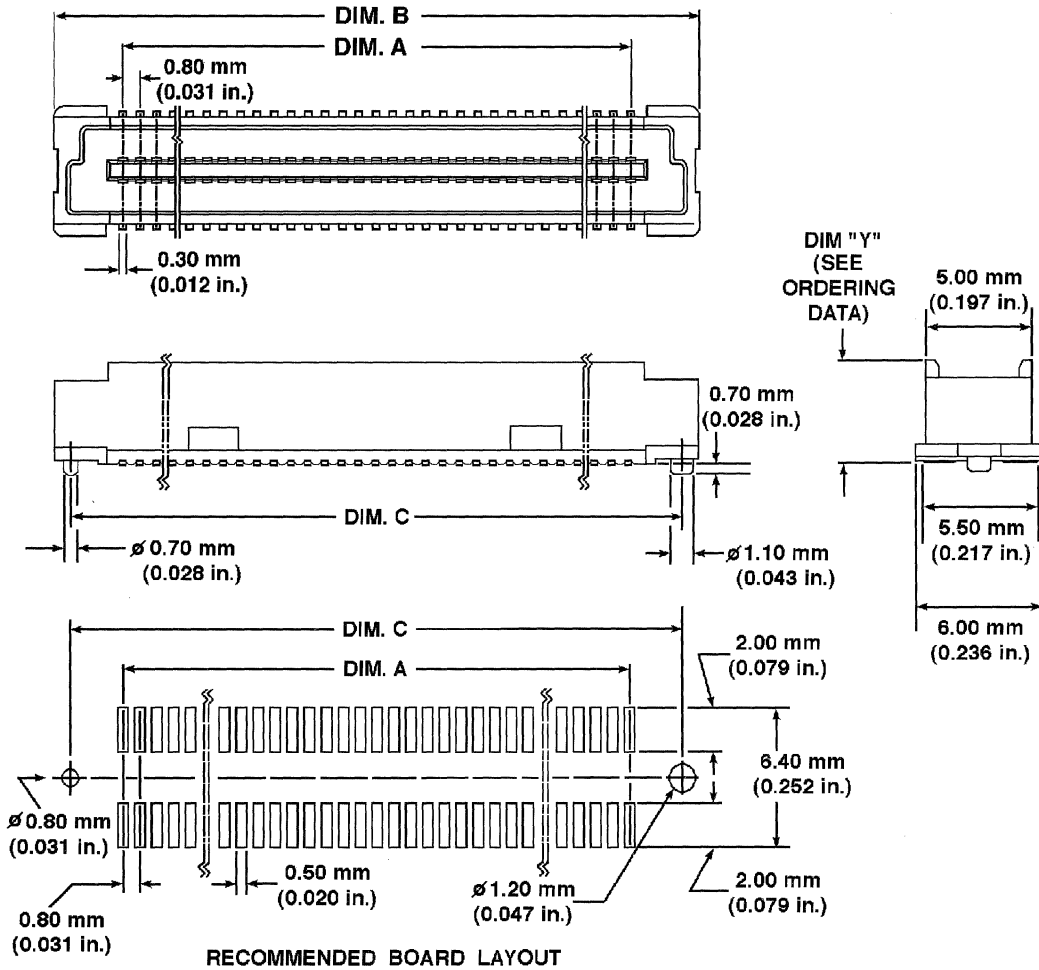
0 = Au 0.20  $\mu\text{m}$  (8  $\mu\text{in.}$ ) min.

### How to Order:

Example: 61082-121000 is a BergStak™ receptacle assembly having 120 positions, 3.70 mm (0.146 in.) height, tube packaging, with polarization peg and gold plating.

Product Number	Number of Positions	Dimension					
		A		B		C	
		mm	in.	mm	in.	mm	in.
61082-04YABC	2x20	15.20	0.598	21.80	0.858	20.20	0.795
61082-06YABC	2x30	23.20	0.913	29.80	1.173	28.20	1.110
61082-08YABC	2x40	31.20	1.228	37.80	1.488	36.20	1.425
61082-10YABC	2x50	39.20	1.543	45.80	1.803	44.20	1.740
61082-12YABC	2x60	47.20	1.858	53.80	2.118	52.20	2.055
61082-14YABC	2x70	55.20	2.173	61.80	2.433	60.20	2.370
61082-16YABC	2x80	63.20	2.488	69.80	2.748	68.20	2.685
61082-18YABC	2x90	71.20	2.803	77.80	3.063	76.20	3.000
61082-20YABC	2x100	79.20	3.118	85.80	3.378	84.20	3.315

# BergStak™ 0.80 mm (0.031 in.) Headers



## Ordering Data Surface-Mount Headers

6 1 0 8 3 - X X Y A B C

### Number of Positions:

04 = 40 positions (2x20)  
 06 = 60 positions (2x30)  
 08 = 80 positions (2x40)  
 10 = 100 positions (2x50)  
 12 = 120 positions (2x60)  
 14 = 140 positions (2x70)  
 16 = 160 positions (2x80)  
 18 = 180 positions (2x90)  
 20 = 200 positions (2x100)

### Height of the Header:

1 = 4.70 mm (0.185 in.)  
 2 = 5.70 mm (0.224 in.)  
 3 = 6.70 mm (0.264 in.)  
 4 = 7.70 mm (0.303 in.)

### Packaging:

0 = Tube without vacuum pickup cap  
 1 = Tape and Reel without vacuum pickup cap  
 2 = Tape and Reel with vacuum pickup cap  
 9 = Tube with vacuum pickup cap

### Polarized Peg:

0 = With polarization peg,  
 2 = Without polarization peg

### Plating:

0 = Au 0.20  $\mu\text{m}$  (8  $\mu\text{in.}$ ) min.

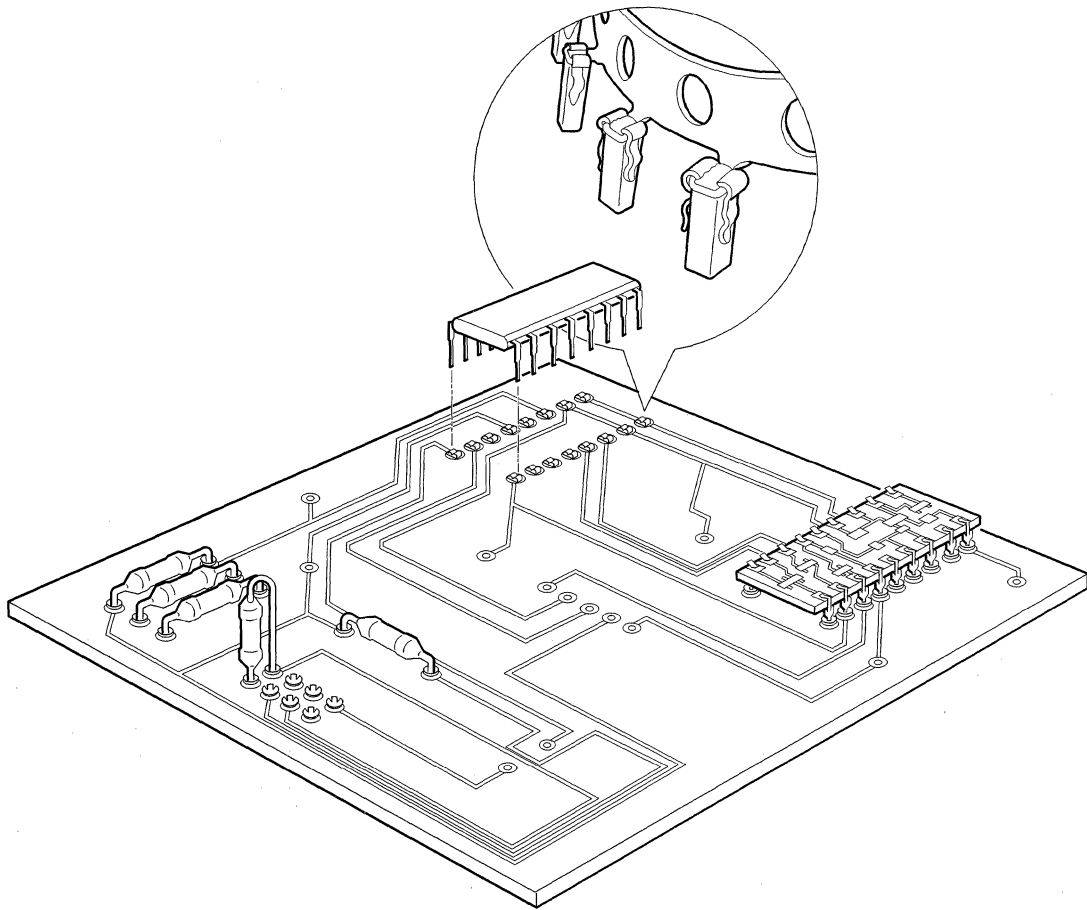
### How to Order:

Example: 61083-123000 is a BergStak™ header assembly having 120 positions, 6.70 mm (0.264 in.) height, tube packaging, with polarization peg and gold plating.

Product Number	Number of Positions	Dimension					
		A		B		C	
		mm	in.	mm	in.	mm	in.
61083-04YABC	2x20	15.20	0.598	21.80	0.858	20.20	0.795
61083-06YABC	2x30	23.20	0.913	29.80	1.173	28.20	1.110
61083-08YABC	2x40	31.20	1.228	37.80	1.488	36.20	1.425
61083-10YABC	2x50	39.20	1.543	45.80	1.803	44.20	1.740
61083-12YABC	2x60	47.20	1.858	53.80	2.118	52.20	2.055
61083-14YABC	2x70	55.20	2.173	61.80	2.433	60.20	2.370
61083-16YABC	2x80	63.20	2.488	69.80	2.748	68.20	2.685
61083-18YABC	2x90	71.20	2.803	77.80	3.063	76.20	3.000
61083-20YABC	2x100	79.20	3.118	85.80	3.378	84.20	3.315

# Minisert™

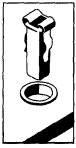
2.54 x 2.54 mm (0.100 x 0.100 in.)  
5.08 x 5.08 mm (0.200 x 0.200 in.)



A183398-0320

2.54 x 2.54 mm (0.100 x 0.100 in.)  
5.08 x 5.08 mm (0.200 x 0.200 in.)

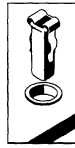
## 2.54 x 2.54 mm (0.100 x 0.100 in.) Centerline Products



### Discrete PCB Sockets and Solder Aids

Minisert™ Miniature Receptacles..... 16-2

## 5.08 x 5.08 mm (0.200 x 0.200 in.) Centerline Products



### Discrete PCB Sockets and Solder Aids

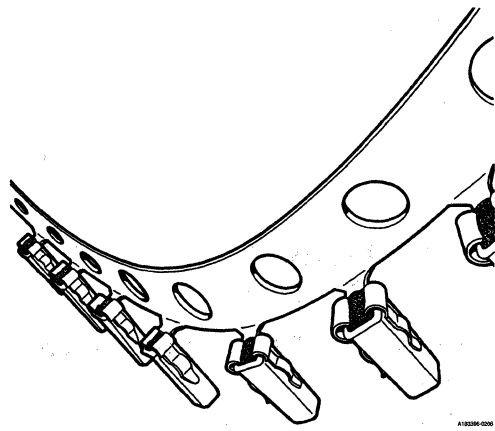
Minisert™ Miniature Receptacles..... 16-2



# Discrete PCB Sockets and Solder Aids

2.54 x 2.54 mm (0.100 x 0.100 in.)  
 5.08 x 5.08 mm (0.200 x 0.200 in.)  
 Centerlines

## Minisert™ Miniature Receptacles



### Features

- Minisert facilitates PCB mounting of ICs, resistors, capacitors, diodes, miniature lamps, and other discrete components.
- Low-profile miniature receptacle is designed for dense packaging.
- Unique cup and spring design ensures positive retention in the board prior to direct contact-to-board soldering.
- Fits a wide range of hole sizes, from 1.27 mm (0.050 in.) to 1.47 mm (0.058 in.).
- Accepts a wide range of round and flat leads.
- Elastomeric seal at entrance prevents contamination before and after insertion of the component lead.
- Maintains high contact force during repeated mating cycles.
- Double-Bump Minisert permits automatic lead trimming of components and can be inserted into PCBs at two different heights.

- Available in loose pieces, on Kapton® polyimide film, or on a metal carrier strip, ready for high-speed, automatic insertion.

### Mating Data

- Mates with the following leads:
- 0.30–0.56 mm (0.012–0.022 in.) diameter round leads
  - 0.20–0.38 mm (0.008–0.015 in.) x 0.38–0.64 mm (0.015–0.025 in.) flat leads
  - 0.38 mm (0.015 in.) square leads

### Specifications

- MIL-C-21768 (Copper alloy)
- QQ-C-533 (Beryllium alloy)
- QQ-N-290 (Nickel plating)
- MIL-G-45204B (Gold plating)
- MIL-STD-202, method 101, cond. B (Corrosion)
- MIL-STD-202, method 106 (Moisture resistance)

- MIL-STD-202, method 107, cond. B (Thermal shock)
- MIL-STD-202, method 108, cond. B (Ambient temperature life)
- MIL-STD-202, method 307 (Contact resistance)
- MIL-STD-1344, method 3002.1 (Low signal contact resistance)

### Application Equipment

Berg Electronics Products	Page
▪ MS-100A manually operated press . . . . .	16-6
▪ MS-105B semi-automatic application machine . . . . .	16-6
▪ MS-110B automatic computer-controlled application machine . . . . .	16-7
▪ MS-195A computer-controlled application machine . . . . .	16-7
▪ Minisert hand tool kit . . . . .	16-8

### Technical Data

#### Materials

- Receptacle
  - ▶ Cup . . . . . Copper alloy
  - ▶ Spring . . . . . Beryllium-copper

#### Dimensions

- Spacing
  - ▶ Standard Minisert on reel . . . . . 5.08 mm (0.200 in.)
  - ▶ Standard Minisert on Kapton tape . . . . . 2.54 mm (0.100 in.)
  - ▶ Double-Bump Minisert on reel . . . . . 5.08 mm (0.200 in.)

#### Mechanical Performance

- Insertion force\*
  - ▶ 0.41 mm (0.016 in.) round leads . . . . . 4.50 N (459 gf) max
  - ▶ 0.25 x 0.64 mm (0.010 x 0.025 in.) flat leads . . . . . 4.50 N (459 gf) max
  - ▶ 0.38 mm (0.015 in.) square leads . . . . . 4.50 N (459 gf) max

\*The insertion force experienced by a lead with a non-uniform lead-tip may differ significantly from the value stated; pre-piercing of the elastomeric seal will reduce the insertion force to accommodate low-strength (soft) component leads.

- Withdrawal force
  - ▶ Round leads . . . . . 0.30 N (31 gf) min
  - ▶ Flat leads . . . . . 0.50 N (51 gf) min

- Retention force, unsoldered . . . . . 1.50 N (153 gf) min when inserted into a 1.47 mm (0.058 in.) diameter hole
- Durability (mating cycles) . . . . . 25

#### Plating

- Cup exterior . . . . . 0.76 µm (30 µin.) min tin-lead (60/40, electrodeposited)
- Spring contact area
  - ▶ Underplate . . . . . 1.02 µm (40 µin.) nickel
  - ▶ Finish . . . . . 0.76 µm (30 µin.) gold

#### Electrical Performance

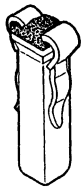
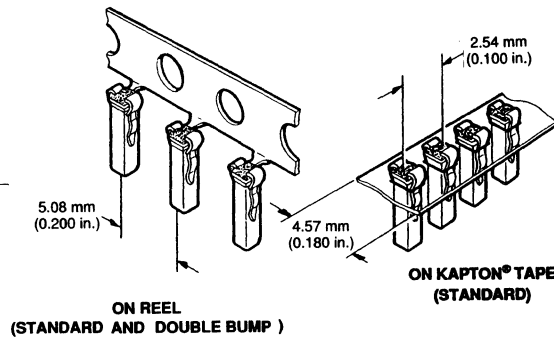
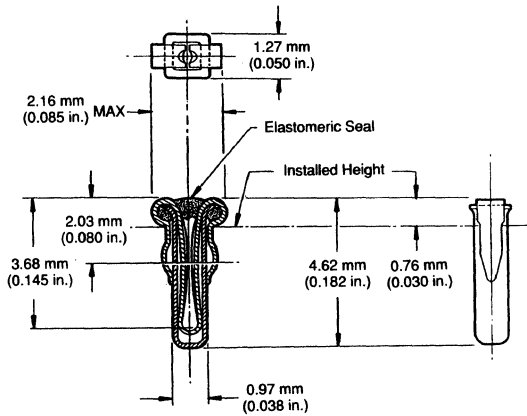
- Current rating . . . . . 2.5 amp max dc
- Contact resistance . . . . . 2.0 MΩ max
- Low-level circuit resistance . . . . . 2.0 MΩ max (1 mA at 20 mV)

#### Packaging

- Standard
  - ▶ Kapton tape
  - ▶ Reels
  - ▶ Bags
- Double-Bump
  - ▶ Reels

## Description

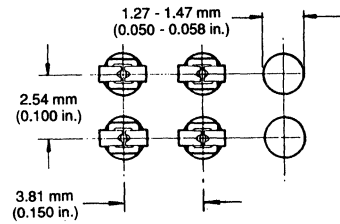
### Minisert™ Miniature Receptacles



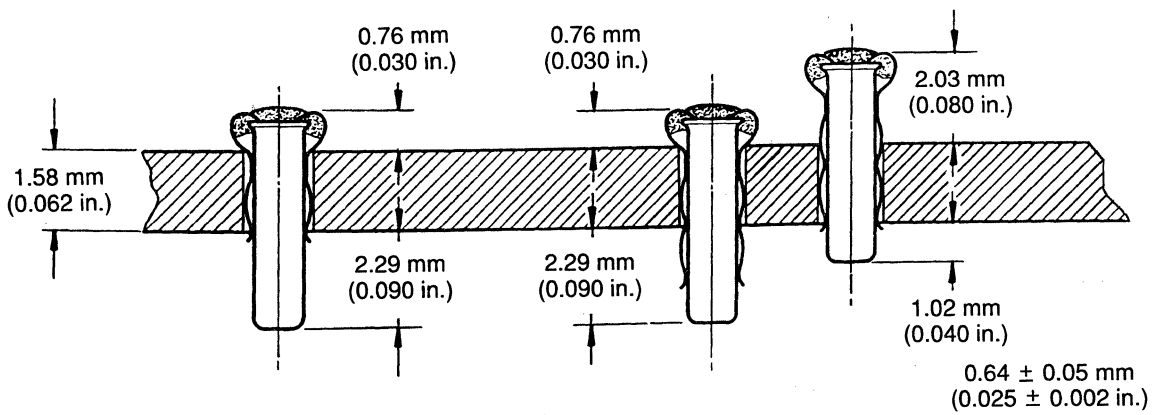
**STANDARD MINISERT**



**DOUBLE-BUMP MINISERT**

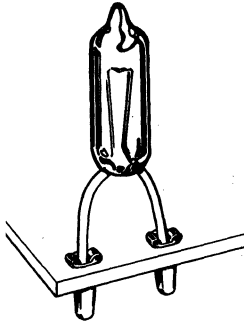


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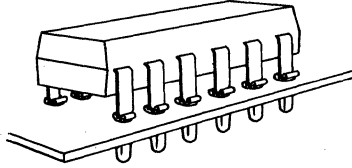


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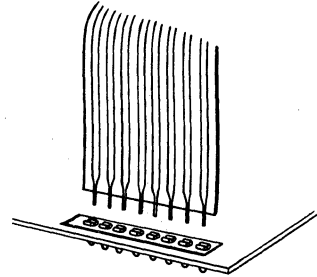
### Typical Mating Applications



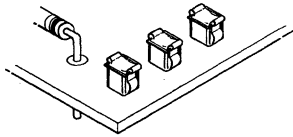
ACCEPTS DISCRETE  
 ROUND, SQUARE,  
 OR IC LEADS



ACCEPTS IC LEADS FOR  
 LOW-PROFILE DENSE  
 PACKAGING



FOR TERMINATING  
 FLAT CABLE  
 PCB JUMPERS



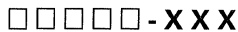
DOUBLE-BUMP MINISERT™  
 PERMITS AUTOMATIC  
 LEAD TRIMMING

A183396-0274

### Ordering Data

Base number specifies configuration  
 (Standard, Double-Bump) and  
 packaging.

Dash number specifies quantity.



Minisert™ Configuration	Packaging Style	Quantity	Part Number
Standard	Kapton® Tape	25,000	75540-001
Standard	Kapton® Tape	5,000	75540-002
Standard	Reels	25,000	75060-012
Standard	Reels	5,000	75060-013
Standard	Bags	1,000	75315-001
Double-Bump	Reels	25,000	76693-001
Double-Bump	Reels	5,000	76693-002

### Customer Support Materials

Description

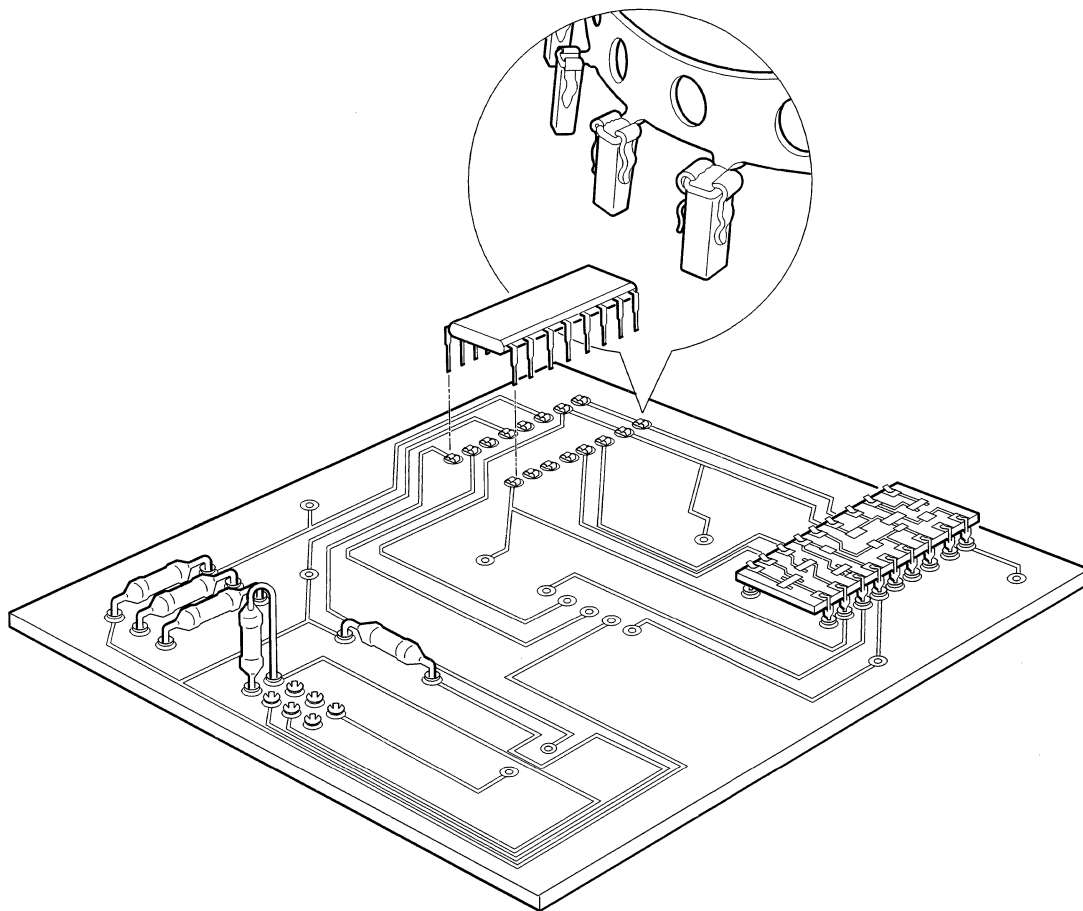
Order No.

Description

Order No.

Customer Product Drawings..... By Part No.  
 Product Specifications..... BUS-12-006

Product Samples..... Upon Request



A183396-0320

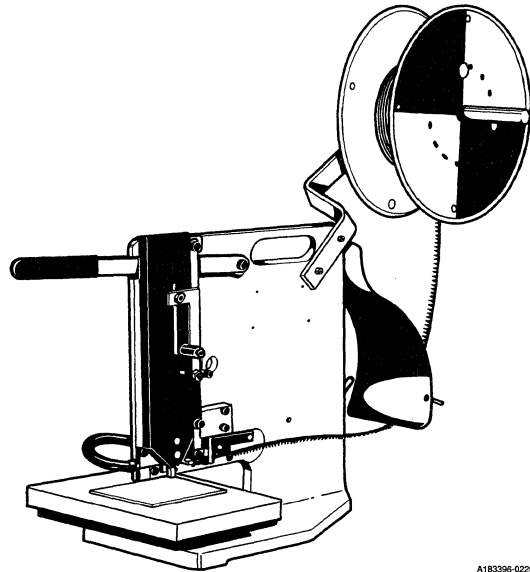
# Application Equipment for Minisert™ Connectors

## MS-100A Manually Operated Press

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### Features

- For all strip-form Minisert sockets.
- Ideal for low-volume production requirements.
- Lightweight and portable.
- Low operating force.



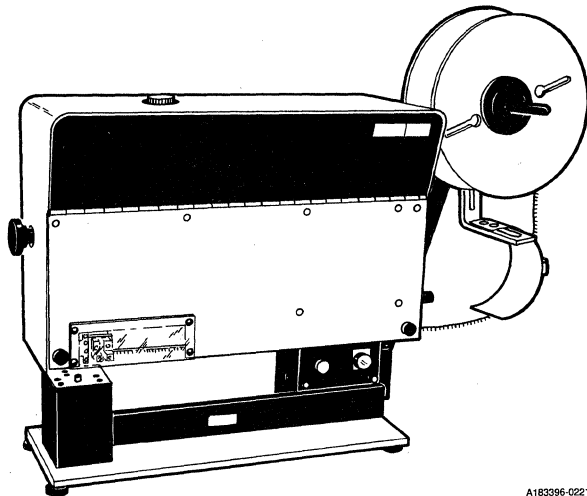
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## MS-105B Semi-Automatic Application Machine

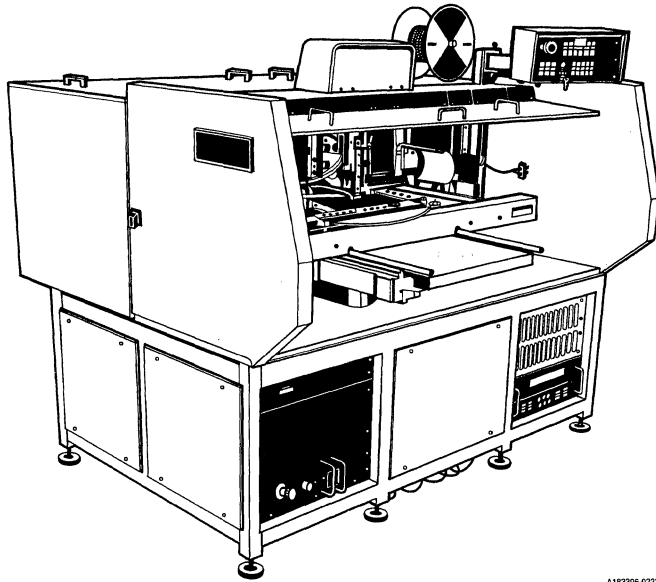
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### Features

- For all strip-form Minisert sockets.
- Ideal for medium-volume production requirements.
- Bench model.
- Pneumatically operated.
- Simple to operate.



A183396-0221

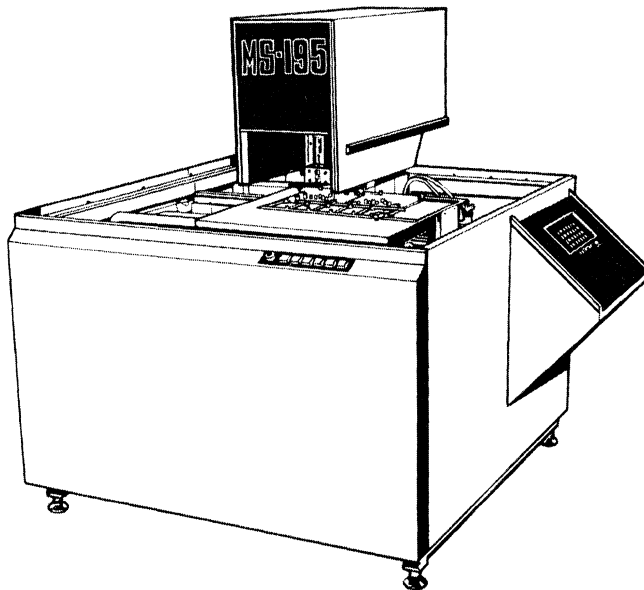


A18396-0222

## MS-110B Automatic Computer-Controlled Application Machine

### Features

- For all strip-form Minisert sockets.
- Ideal for high-volume production requirements.
- Pneumatically operated.
- Universal positioning system with 90° indexing rotary table.
- Available with or without 64K computer.
- Can be linked with other Universal-based equipment and controlled by one computer.
- Random and matrix programming.
- Easy to program and operate.
- Wide variety of options available.



A18396-0613

## MS-195A Computer-Controlled Application Machine

### Features

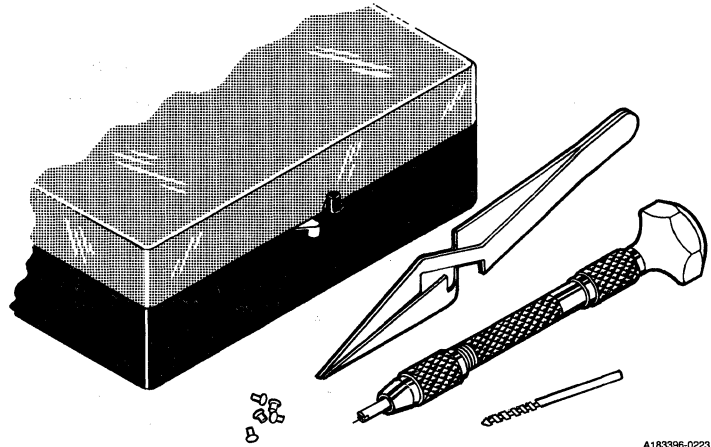
- For all strip-form Minisert sockets.
- Ideal for high-volume production requirements.
- Pneumatically operated.
- Independent controller with 12 K memory.
- Self-sufficient operating system that can be used with a disk drive or computer for downloading or offloading programs through an RS-232 interface port.
- Nesting and random programming capabilities.
- Includes mini-cassette program storage device.
- Easy to program and operate.
- Stakes one large, high-density PCB or a group of smaller PCBs.

## Minisert Hand Tool Kit

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### Features

- Used primarily for breadboard and prototype applications.
- Each kit consists of a terminal holding/insertion punch, tweezers, a drill for enlarging PCB hole size, and a supply of loose-piece sockets.



A183396-0223

### Technical Data

	MS-100A	MS-105B	MS-110B	MS-195A
Application rate* (insertions/hour)	800	3600	8000	6000
Air consumption	N/A	23 L/min. (0.8 scfm)	108 L/min. (3.8 scfm)	226 L/min. (8 scfm)
Air pressure	N/A	552 kPa (80 psi)	552 kPa (80 psi)	552 kPa (80 psi)
Electrical requirements	N/A	115 V ac, 60 Hz 3 amp	115 V ac, 60 Hz 15 amp	115 V ac, 60 Hz 15 amp
Weight	6.8 kg (15 lb)	29 kg (64 lb)	680 kg (1500 lb)	680 kg (1500 lb)
Dimensions (h x w x d)	53 x 23 x 64 cm (21 x 9 x 25 in.)	69 x 91 x 33 cm (27 x 36 x 13 in.)	175 x 180 x 157 cm (69 x 71 x 62 in.)	152 x 165 x 164 cm (60 x 65 x 65 in.)
Max PCB dimensions (l x w)	610 x 241 mm (24 x 9.5 in.)	356 x 610 mm (14 x 24 in.)	559 x 559 mm (22 x 22 in.)	431 x 317 mm (17 x 12.5 in.)
Max staking area (l x w)	610 x 120 mm (24 x 4.75 in.)	343 x 597 mm (13.5 x 23.5 in.)	458 x 458 mm (18 x 18 in.)	419 x 305 mm (16.5 x 12 in.)

\*Application rates given are approximate. Actual rates achieved depend on PCB pattern and operator dexterity.

### Ordering Data

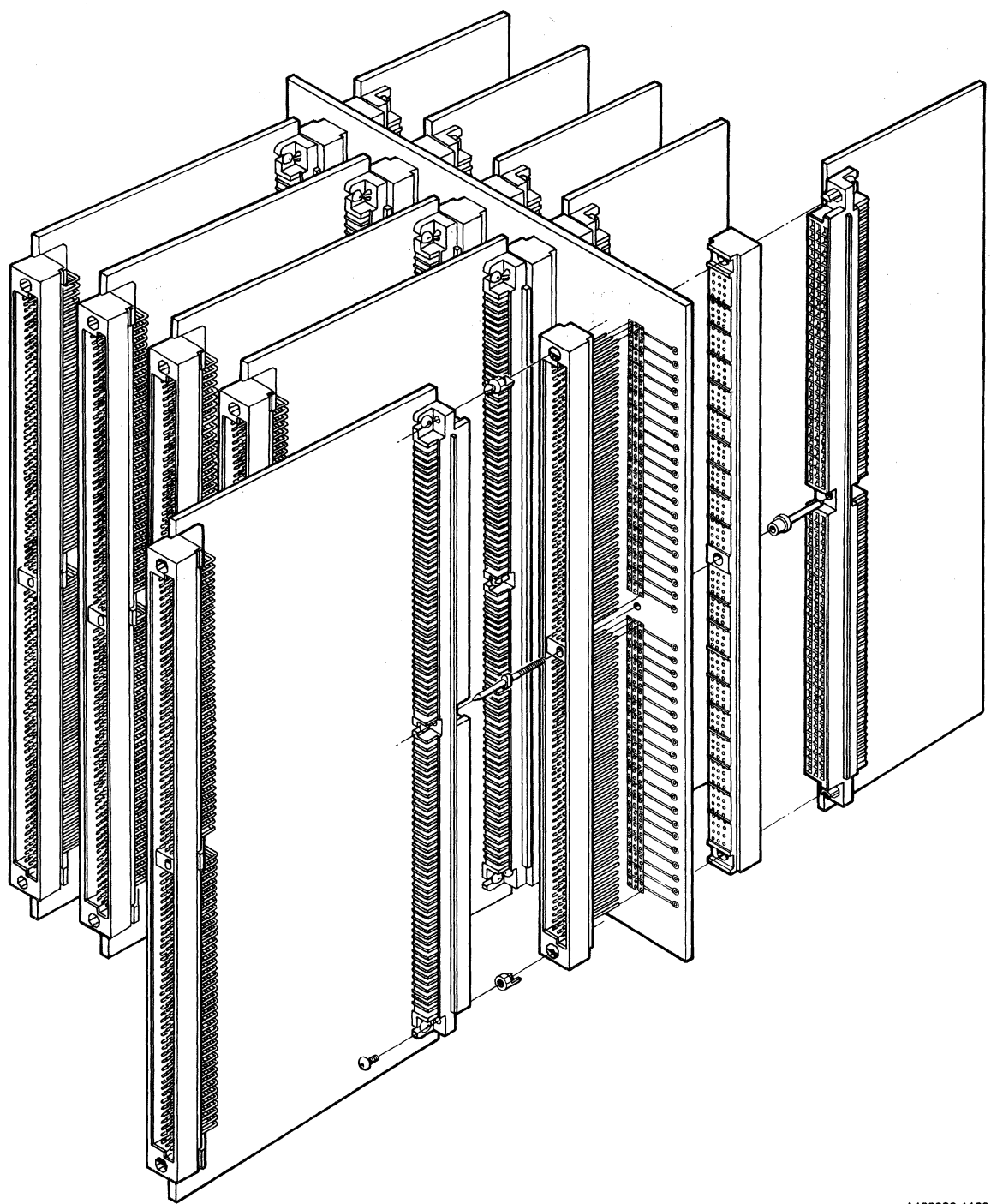
Machines (for strip-form terminals)	Part Number
MS-100A Manually Operated Press	117955-001
MS-105B Semi-Automatic Machine	131525-001
MS-110B Computer-Controlled Machine	145327-501
MS-195A Computer Controlled Machine*	145415-501
Minisert Hand Tool Kit (for loose-piece terminals)	103865-001

\*For information on optional equipment, contact your authorized Berg Electronics representative.

Computer-controlled application systems are custom configured to meet your needs. Contact your authorized Berg Electronics representative to review your requirements.

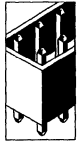


# High Pin Count (HPC™) Connectors



A183396-1103

## 2.54 mm (0.100 in.) Centerline Products



### Shrouded Headers

PCB Mounted Headers and Shrouds ..... 17-2



### PCB Mounted Receptacle Assemblies

PCB Mounted Receptacle Assemblies ..... 17-18



### Compliant Press-Fit Pin Headers

PCB Mounted Headers and Shrouds ..... 17-2



### Hybrid Connectors

Hybrid Headers with Power Ports ..... 17-34  
Hybrid Receptacles with Power Ports ..... 17-42



### Shrouds

PCB Mounted Headers and Shrouds ..... 17-2

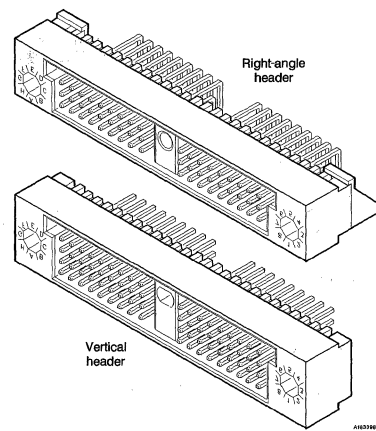
### Hardware and Accessory Equipment..... 17-50

# PCB Mounted Headers and Shrouds

## High Pin Count (HPC™)

2.54 mm (0.100 in.) Centerlines

### 3- and 4-Row Vertical and Right-Angle Headers Self-Retaining and Slip-On Shrouds 0, 1, and 2 Guide Pins



#### Features

- 3-Row: 30 through 450 positions.
- 4-Row: 40 through 600 positions.
- Polyphenylene sulfide (PPS) housing for IR and vapor-phase soldering.
- Plated with gold or Berg's exclusive GXT™ (palladium-nickel alloy with gold flash).
- Made with 0.64 mm (0.025 in.) drawn-wire pins.
- 3- and 4-row shrouds for all header sizes.
- All mounting brackets are pre-assembled.
- Hardware for mounting, power and static discharge, guidance, and keying.
- Radiused pin tip for lower insertion force.


#### Options


- Solder-tail or press-fit pins.
- Three mating pin lengths for first-make--last-break applications.
- Selective loading of pins.
- Various tail lengths.

#### Mating Data

Berg Electronics Products	Page
▪ HPC™ Right-Angle Receptacles .....	17-18

#### Approvals and Certifications

 File no. E66906

 File no. LR46923

#### Application Equipment

Berg Electronics Products	Page
▪ HPC™ Header Installation Kit .....	17-51

#### Technical Data

##### Materials

- Housing ..... Glass-filled PPS (UL-94 V-0)
  - Color ..... Black
- Pin ..... Phosphor-bronze, 3/4 hard per ASTM B-159

##### Electrical Performance

- Insulation resistance.....  $\geq 1000 \text{ M}\Omega$  after environmental test conditions
- Withstanding voltage .....  $\geq 1000 \text{ V ac rms}$ , 60 Hz at sea level
- Current rating
  - All contacts powered ..... 1.0 amp continuous per contact
  - One contact powered ..... 3.0 amp continuous per contact

- Contact resistance .....  $< 20 \text{ m}\Omega$  (mated system) after environmental conditions

##### Mechanical Performance

- Normal force ..... 0.54 N (60 gf) typical; 0.49 N (50 gf) min, 200 kpsi Hertz stress

##### Environmental Properties

- Temperature range .....  $-65^\circ\text{C}$  to  $+125^\circ\text{C}$

##### Packaging

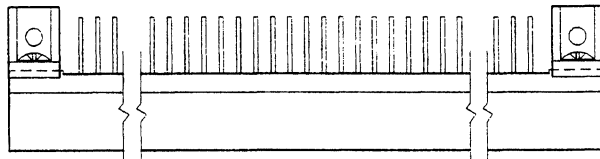
- Antistatic tubes

#### Customer Support Materials

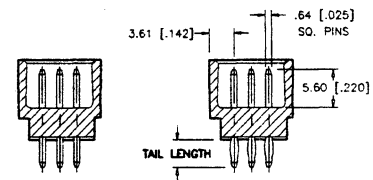
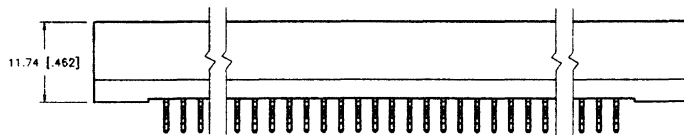
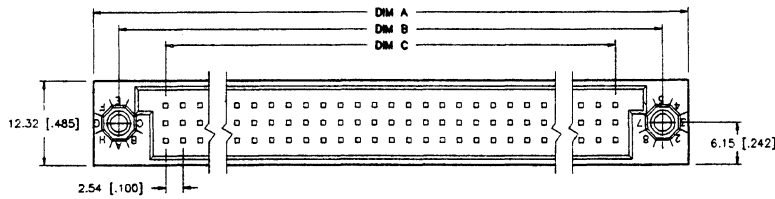
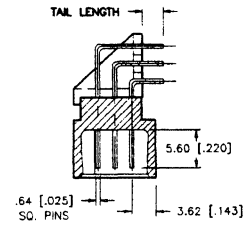
Description	Order No.	Description	Order No.
Customer Product Drawings.....	By Part No.	Product Samples.....	Upon Request
Product Specifications.....	BUS-12-090		

### Description

3-Row Vertical and Right-Angle Headers  
Compliant Press-Fit or Solder-Tail Pins  
No Guide Hole



R/A STYLE, SOLDER TAIL PINS ONLY



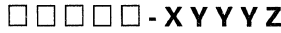
SOLDER TAIL PINS      PRESS FIT PINS

**Shrouded Headers**  
**2.54 mm (0.100 in.)**

**Ordering Data**

Base number specifies connector style

Number of positions (see table)



**Plating Options**

Replace X in dash number with:  
 1 - 1.27 μm (50 μin) Ni under 0.76 μm (30 μin) gold  
 3 - 1.27 μm (50 μin) Ni under 1.27 μm (50 μin) gold  
 5 - 1.27 μm (50 μin) Ni under 0.76 μm (30 μin) GXT™  
 A - 1.27 μm (50 μin) Ni under all; with .76 μm (30 μin) Au on contact area, and SnPb on PCB interface. Au flash all other areas.\*

B - 1.27 μm (50 μin) Ni under all; with .76 μm (30 μin) GXT™ on contact area, and SnPb on PCB interface. Au flash all other areas.\*

C - 1.27 μm (50 μin) Ni under all; with 0.76 μm (30 μin.) Au on contact area, and SnPb on PCB interface. 0.76 μm (30 μin) Au on tail side contact area. Au flash all other areas.

Note, Available on C & D Tail Lengths only

D - 1.27 μm (50 μin) Ni under all; with .76 μm (30 μin) GXT™ on contact area, and SnPb on PCB interface. .76 μm (30 μin) GXT™ on tail side contact area, Au flash all other areas.

Note, Available on C & D Tail Lengths only.

\*Available on A & G Tail Lengths only

**Tail Length**

Replace Z in dash number with:

S - 2.54 mm (0.100in)

J - 3.05 mm (0.120in)

A - 4.50 mm (0.177in)

H - 4.57 mm (0.180in)

G - 3.05 mm (0.250in)

C - 13.54 mm (0.533in)

D - 18.63 mm (0.733in)

Base Number Option Menu			
Base Number	Style	Platings Available	Tail Length
50006 (1)	Press Fit Pins, Vertical	1, 3, 5	A, G, C, D
50765 (1)	Press Fit Pins, Vertical, Duplex Plating	A, B, C, D	A, G, C, D
50012 (2)	Solder Tail Pins, Vertical	1, 3, 5	J, A, G, C, D
50773 (2)	Solder Tail Pins, Vertical, Duplex Plating	A, B	J, A
50119	Solder Tail Pins, Right Angle	1, 3, 5	H, J
50779	Solder Tail Pins, Right Angle, Duplex Plating	A	S
50428	Shroud, Pinless Header, Self-Retaining	X	X
50434	Shroud, Pinless Header, Slip On	X	X

(1) Request Select Load Worksheet, 50807 for FMLB options.

(2) Request Select Load Worksheet, 50810 for FMLB options.

Dash Number		Dimensions					
Number of Positions	Dash Number (YYYYZ)	A		B		C	
		mm	in.	mm	in.	mm	in.
30	X030Z	44.45	1.750	36.83	1.450	22.86	0.900
33	X033Z	46.99	1.850	39.37	1.550	25.40	1.000
36	X036Z	49.53	1.950	41.91	1.650	27.94	1.100
39	X039Z	52.07	2.050	44.45	1.750	30.48	1.200
42	X042Z	54.61	2.150	46.99	1.850	33.02	1.300
45	X045Z	57.15	2.250	49.53	1.950	35.56	1.400
48	X048Z	59.69	2.350	52.07	2.050	38.10	1.500
51	X051Z	62.23	2.450	54.61	2.150	40.64	1.600
54	X054Z	64.77	2.550	57.15	2.250	43.18	1.700
57	X057Z	67.31	2.650	59.69	2.350	45.72	1.800
60	X060Z	69.85	2.750	62.23	2.450	48.26	1.900
63	X063Z	72.39	2.850	64.77	2.550	50.8	2.000
66	X066Z	74.93	2.950	67.31	2.650	53.34	2.100

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

### Ordering Data (cont'd)

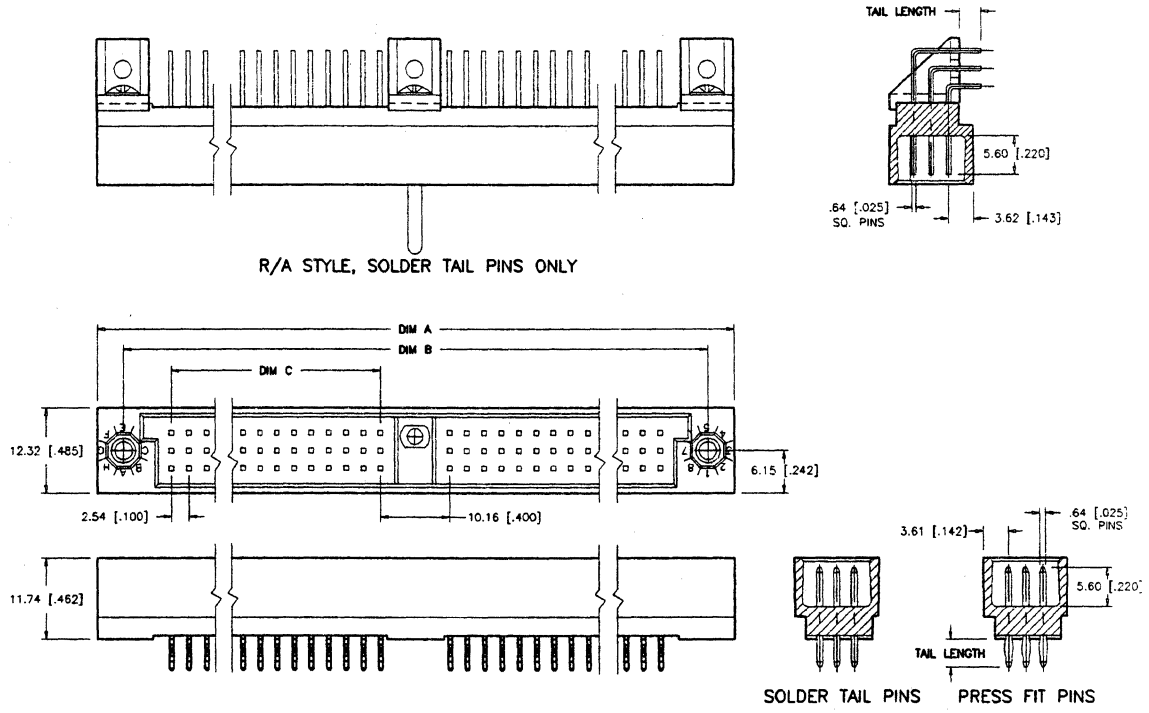
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Number of Positions	Dash Number (YYYYZ)	Dimensions					
		A		B		C	
		mm	in.	mm	in.	mm	in.
69	X069Z	77.47	3.050	69.85	2.750	55.88	2.200
72	X072Z	80.01	3.150	72.39	2.850	58.42	2.300
75	X075Z	82.55	3.250	74.93	2.950	60.96	2.400
78	X078Z	85.09	3.350	77.47	3.050	63.50	2.500
81	X081Z	87.63	3.450	80.01	3.150	66.04	2.600
84	X084Z	90.17	3.550	82.55	3.250	68.58	2.700
87	X087Z	92.71	3.650	85.09	3.350	71.12	2.800
90	X090Z	95.25	3.750	87.63	3.450	73.66	2.900
93	X093Z	97.79	3.850	90.17	3.550	76.20	3.000
96	X096Z	100.33	3.950	92.71	3.650	78.74	3.100
99	X099Z	102.87	4.050	95.25	3.750	81.28	3.200
102	X102Z	105.41	4.150	97.79	3.850	83.82	3.300
105	X105Z	107.95	4.250	100.33	3.950	86.36	3.400
108	X108Z	110.49	4.350	102.87	4.050	88.90	3.500
111	X111Z	113.03	4.450	105.41	4.150	91.44	3.600
114	X114Z	115.57	4.550	107.95	4.250	93.98	3.700
117	X117Z	118.11	4.650	110.49	4.350	96.52	3.800
120	X120Z	120.65	4.750	113.03	4.450	99.06	3.900
123	X123Z	123.19	4.850	115.57	4.550	101.60	4.000
126	X126Z	125.73	4.950	118.11	4.650	104.14	4.100
129	X129Z	128.27	5.050	120.65	4.750	106.68	4.200
132	X132Z	130.81	5.150	123.19	4.850	109.22	4.300
135	X135Z	133.35	5.250	125.73	4.950	111.76	4.400
138	X138Z	135.89	5.350	128.27	5.050	114.30	4.500
141	X141Z	138.43	5.450	130.81	5.150	116.84	4.600
144	X144Z	140.97	5.550	133.35	5.250	119.38	4.700
147	X147Z	143.51	5.650	135.89	5.350	121.92	4.800
150	X150Z	146.05	5.750	138.43	5.450	124.46	4.900
153	X153Z	148.59	5.850	140.97	5.550	127.00	5.000
156	X156Z	151.13	5.950	143.51	5.650	129.54	5.100
159	X159Z	153.67	6.050	146.05	5.750	132.08	5.200
162	X162Z	156.21	6.150	148.59	5.850	134.62	5.300
165	X165Z	158.75	6.250	151.13	5.950	137.16	5.400
168	X168Z	161.29	6.350	153.67	6.050	139.70	5.500
171	X171Z	163.83	6.450	156.21	6.150	142.24	5.600
174	X174Z	166.37	6.550	158.75	6.250	144.78	5.700
177	X177Z	168.91	6.650	161.29	6.350	147.32	5.800
180	X180Z	171.45	6.750	163.83	6.450	149.86	5.900
183	X183Z	173.99	6.850	166.37	6.550	152.40	6.000
186	X186Z	176.53	6.950	168.91	6.650	154.94	6.100
189	X189Z	179.07	7.050	171.45	6.750	157.48	6.200
192	X192Z	181.61	7.150	173.99	6.850	160.02	6.300
195	X195Z	184.15	7.250	176.53	6.950	162.56	6.400
198	X198Z	186.69	7.350	179.07	7.050	165.10	6.500
201	X201Z	189.23	7.450	181.61	7.150	167.64	6.600
204	X204Z	191.77	7.550	184.15	7.250	170.18	6.700
207	X207Z	194.31	7.650	186.69	7.350	172.72	6.800
210	X210Z	196.85	7.750	189.23	7.450	175.26	6.900
213	X213Z	199.39	7.850	191.77	7.550	177.80	7.000
216	X216Z	201.93	7.950	194.31	7.650	180.34	7.100
219	X219Z	204.47	8.050	196.85	7.750	182.88	7.200
222	X222Z	207.01	8.150	199.39	7.850	185.42	7.300
225	X225Z	209.55	8.250	201.93	7.950	187.96	7.400
228	X228Z	212.09	8.350	204.47	8.050	190.50	7.500
231	X231Z	214.63	8.450	207.01	8.150	193.04	7.600
234	X234Z	217.17	8.550	209.55	8.250	195.58	7.700
237	X237Z	219.71	8.650	212.09	8.350	198.12	7.800
240	X240Z	222.25	8.750	214.63	8.450	200.66	7.900

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

Shrouded Headers  
2.54 mm (0.100 in.)

**Description**  
**3-Row Vertical and Right-Angle Headers**  
**Compliant Press-Fit or Solder-Tail Pins**  
**1 Guide Hole**



## Ordering Data

Base number specifies connector style

Number of positions (see table)

□□□□□ - X Y Y Y Z

### Plating Options

Replace X in dash number with:  
 1 - 1.27  $\mu\text{m}$  (50  $\mu\text{in}$ ) Ni under 0.76  $\mu\text{m}$  (30  $\mu\text{in}$ ) gold  
 3 - 1.27  $\mu\text{m}$  (50  $\mu\text{in}$ ) Ni under 1.27  $\mu\text{m}$  (50  $\mu\text{in}$ ) gold  
 5 - 1.27  $\mu\text{m}$  (50  $\mu\text{in}$ ) Ni under 0.76  $\mu\text{m}$  (30  $\mu\text{in}$ ) GXT™  
 A - 1.27  $\mu\text{m}$  (50  $\mu\text{in}$ ) Ni under all; with .76  $\mu\text{m}$  (30  $\mu\text{in}$ ) Au on contact area, and SnPb on PCB interface. Au flash all other areas.\*

B - 1.27  $\mu\text{m}$  (50  $\mu\text{in}$ ) Ni under all; with .76  $\mu\text{m}$  (30  $\mu\text{in}$ ) GXT™ on contact area, and SnPb on PCB interface. Au flash all other areas.\*

C - 1.27  $\mu\text{m}$  (50  $\mu\text{in}$ ) Ni under all; with 0.76  $\mu\text{m}$  (30  $\mu\text{in}$ ) Au on contact area, and SnPb on PCB interface. 0.76  $\mu\text{m}$  (30  $\mu\text{in}$ ) Au on tail side contact area. Au flash all other areas.

Note, Available on C & D Tail Lengths only

D - 1.27  $\mu\text{m}$  (50  $\mu\text{in}$ ) Ni under all; with .76  $\mu\text{m}$  (30  $\mu\text{in}$ ) GXT™ on contact area, and SnPb on PCB interface. .76  $\mu\text{m}$  (30  $\mu\text{in}$ ) GXT™ on tail side contact area, Au flash all other areas.

Note, Available on C & D Tail Lengths only.

\*Available on A & G Tail Lengths only

### Tail Length

Replace Z in dash number with:

S - 2.54 mm (0.100in)  
 J - 3.05 mm (0.120in)  
 A - 4.50 mm (0.177in)  
 H - 4.57 mm (0.180in)  
 G - 3.05 mm (0.250in)  
 C - 13.54 mm (0.533in)  
 D - 18.63 mm (0.733in)

### Base Number Option Menu

Base Number	Style	Platings Available	Tail Length
50007 (1)	Press Fit Pins, Vertical	1, 3, 5	A, G, C, D
50766 (1)	Press Fit Pins, Vertical, Duplex Plating	A, B, C, D	A, G, C, D
50013 (2)	Solder Tail Pins, Vertical	1, 3, 5	J, A, G, C, D
50774 (2)	Solder Tail Pins, Vertical, Duplex Plating	A, B	J, A
50120	Solder Tail Pins, Right Angle	1, 3, 5	H, J
50780	Solder Tail Pins, Right Angle, Duplex Plating	A	S
50429	Shroud, Pinless Header, Self-Retaining	X	X
50435	Shroud, Pinless Header, Slip On	X	X

(1) Request Select Load Worksheet, 50808 for FMLB options.

(2) Request Select Load Worksheet, 50811 for FMLB options.

### Dash Number

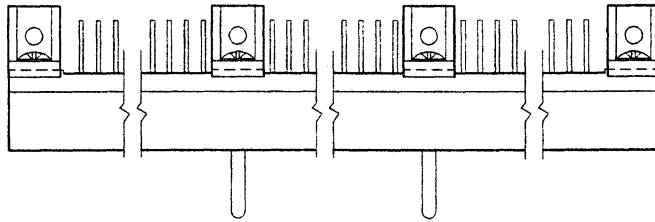
Number of Positions	Dash Number (XYYYYZ)	Dimensions					
		A		B		C	
		mm	in.	mm	in.	mm	in.
240	X240Z	229.87	9.050	222.25	8.750	99.06	3.900
246	X246Z	234.95	9.250	227.33	8.950	101.60	4.000
252	X252Z	240.03	9.450	232.41	9.150	104.14	4.100
258	X258Z	245.11	9.650	237.49	9.350	106.68	4.200
264	X264Z	250.19	9.850	242.57	9.550	109.22	4.300
270	X270Z	255.27	10.050	247.65	9.750	111.76	4.400
276	X276Z	260.35	10.250	252.73	9.950	114.30	4.500
282	X282Z	265.43	10.450	257.81	10.150	116.84	4.600
288	X288Z	270.51	10.650	262.89	10.350	119.38	4.700
294	X294Z	275.59	10.850	267.97	10.550	121.92	4.800
300	X300Z	280.67	11.050	273.05	10.750	124.46	4.900
306	X306Z	285.75	11.250	278.13	10.950	127.00	5.000
312	X312Z	290.83	11.450	283.21	11.150	129.54	5.100
318	X318Z	295.91	11.650	288.29	11.350	132.08	5.200
324	X324Z	300.99	11.850	293.37	11.550	134.62	5.300
330	X330Z	306.07	12.050	298.45	11.750	137.16	5.400
336	X336Z	311.15	12.250	303.53	11.950	139.70	5.500
342	X342Z	316.23	12.450	308.61	12.150	142.24	5.600
348	X348Z	321.31	12.650	313.69	12.350	144.78	5.700
354	X354Z	326.39	12.850	318.77	12.550	147.32	5.800
360	X360Z	331.47	13.050	323.85	12.750	149.86	5.900

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

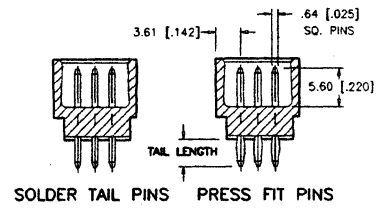
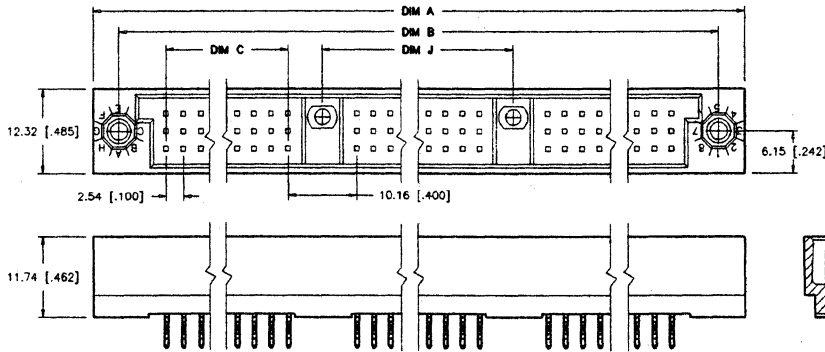
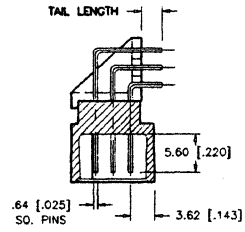


Shrouded Headers  
2.54 mm (0.100 in.)

**Description**  
**3-Row Vertical and Right-Angle Headers**  
**Compliant Press-Fit or Solder-Tail Pins**  
**2 Guide Holes**



R/A STYLE, SOLDER TAIL PINS ONLY



SOLDER TAIL PINS PRESS FIT PINS

## Ordering Data

Base number specifies connector style

Number of positions (see table)

□ □ □ □ □ - X Y Y Y Z

### Plating Options

Replace X in dash number with:  
 1 - 1.27  $\mu$ m (50  $\mu$ in) Ni under 0.76  $\mu$ m (30  $\mu$ in) gold  
 3 - 1.27  $\mu$ m (50  $\mu$ in) Ni under 1.27  $\mu$ m (50  $\mu$ in) gold  
 5 - 1.27  $\mu$ m (50  $\mu$ in) Ni under 0.76  $\mu$ m (30  $\mu$ in) GXT™  
 A - 1.27  $\mu$ m (50  $\mu$ in) Ni under all; with .76  $\mu$ m (30  $\mu$ in) Au on contact area, and SnPb on PCB interface. Au flash all other areas.\*

B - 1.27  $\mu$ m (50  $\mu$ in) Ni under all; with .76  $\mu$ m (30  $\mu$ in) GXT™ on contact area, and SnPb on PCB interface. Au flash all other areas.\*

C - 1.27  $\mu$ m (50  $\mu$ in) Ni under all; with 0.76  $\mu$ m (30  $\mu$ in.) Au on contact area, and SnPb on PCB interface. 0.76  $\mu$ m (30  $\mu$ in) Au on tail side contact area. Au flash all other areas.

Note, Available on C & D Tail Lengths only

D - 1.27  $\mu$ m (50  $\mu$ in) Ni under all; with .76  $\mu$ m (30  $\mu$ in) GXT™ on contact area, and SnPb on PCB interface. .76  $\mu$ m (30  $\mu$ in) GXT™ on tail side contact area, Au flash all other areas.

Note, Available on C & D Tail Lengths only.

\*Available on A & G Tail Lengths only

### Tail Length

Replace Z in dash number with:  
 S - 2.54 mm (0.100in)  
 J - 3.05 mm (0.120in)  
 A - 4.50 mm (0.177in)  
 H - 4.57 mm (0.180in)  
 G - 3.05 mm (0.250in)  
 C - 13.54 mm (0.533in)  
 D - 18.63 mm (0.733in)

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### Base Number Option Menu

Base Number	Style	Platings Available	Tail Length
50008 (1)	Press Fit Pins, Vertical	1, 3, 5	A, G, C, D
50767 (1)	Press Fit Pins, Vertical, Duplex Plating	A, B, C, D	A, G, C, D
50014 (2)	Solder Tail Pins, Vertical	1, 3, 5	J, A, G, C, D
50775 (2)	Solder Tail Pins, Vertical, Duplex Plating	A, B	J, A
50121	Solder Tail Pins, Right Angle	1, 3, 5	H, J
50781	Solder Tail Pins, Right Angle, Duplex Plating	A	S
50430	Shroud, Pinless Header, Self-Retaining	X	X
50436	Shroud, Pinless Header, Slip On	X	X

(1) Request Select Load Worksheet, 50809 for FMLB options.

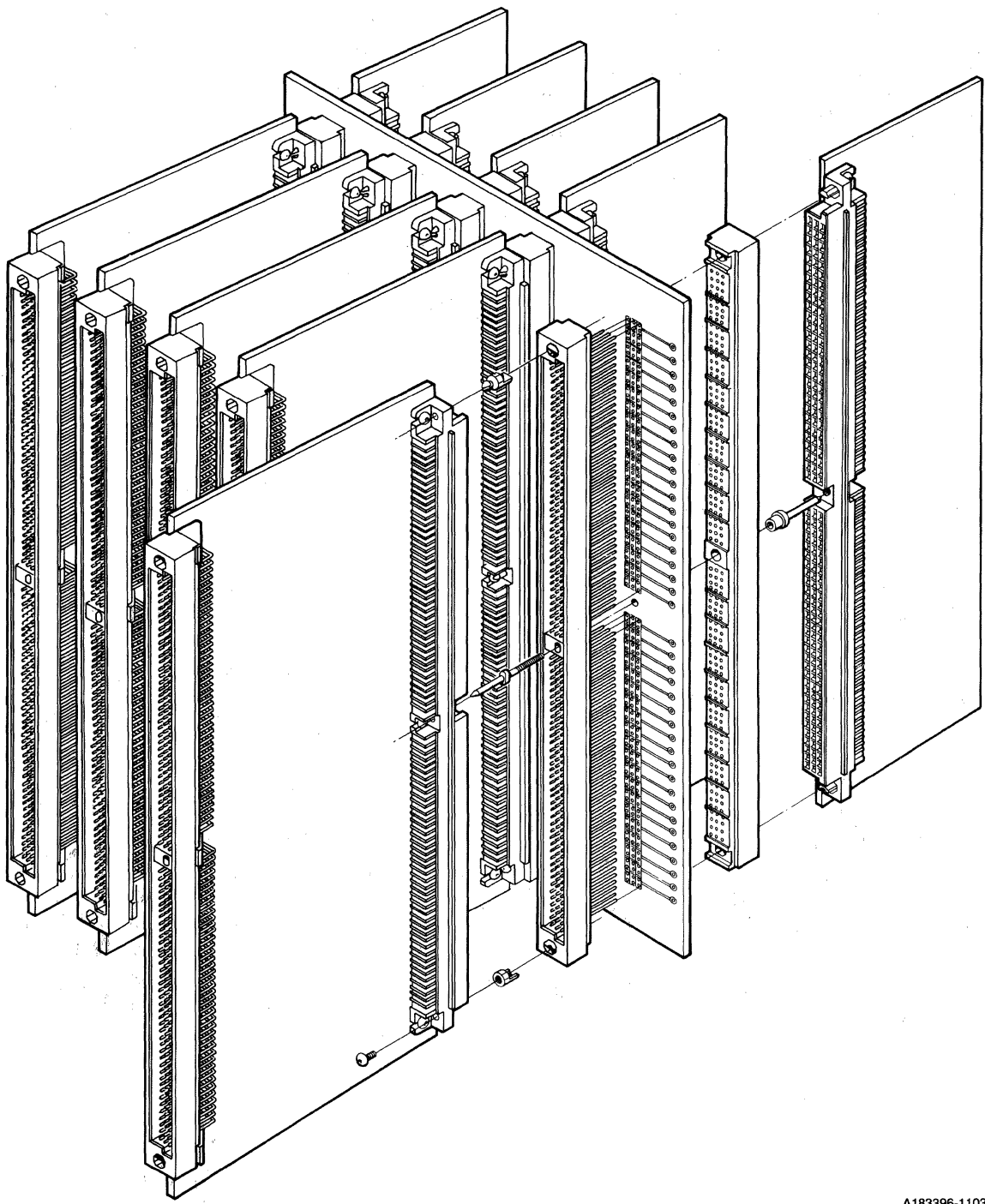
(2) Request Select Load Worksheet, 50812 for FMLB options.

### Dash Number

Number of Positions	Dash Number (XYYYYZ)	Dimensions							
		A		B		C		J	
		mm	in.	mm	in.	mm	in.	mm	in.
360	X360Z	339.09	13.350	331.47	13.050	99.06	3.900	109.22	4.300
369	X369Z	346.71	13.650	339.09	13.350	101.60	4.000	111.76	4.400
378	X378Z	354.33	13.950	346.71	13.650	104.14	4.100	114.30	4.500
387	X387Z	361.95	14.250	354.33	13.950	106.68	4.200	116.84	4.600
396	X396Z	369.57	14.550	361.95	14.250	109.22	4.300	119.38	4.700
405	X405Z	377.19	14.850	369.57	14.550	111.76	4.400	121.92	4.800
414	X414Z	384.81	15.150	377.19	14.850	114.30	4.500	124.46	4.900
423	X423Z	392.43	15.450	384.81	15.150	116.84	4.600	127.00	5.000
432	X432Z	400.05	15.750	392.43	15.450	119.38	4.700	129.54	5.100
441	X441Z	407.67	16.050	400.05	15.750	121.92	4.800	132.08	5.200
450	X450Z	415.29	16.350	407.67	16.050	124.46	4.900	134.62	5.300

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

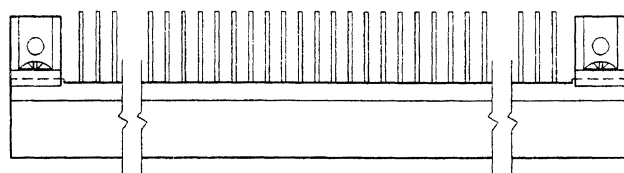
# High Pin Count (HPC™) Connectors



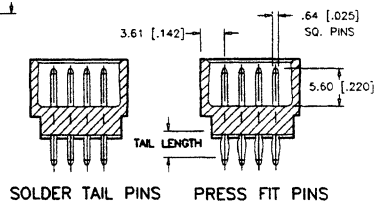
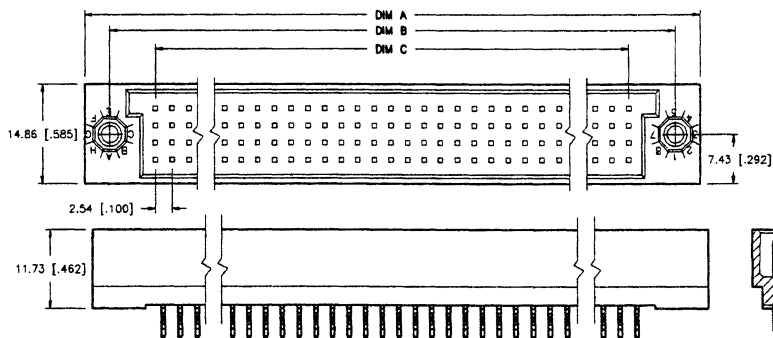
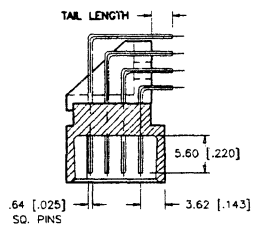
A183396-1103

### Description

4-Row Vertical and Right-Angle Headers  
Compliant Press-Fit or Solder-Tail Pins  
No Guide Hole



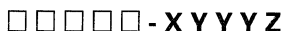
R/A STYLE, SOLDER TAIL PINS ONLY



**Shrouded Headers**  
2.54 mm (0.100 in.)

**Ordering Data**

Base number specifies connector style \_\_\_\_\_ Number of positions (see table)



**Plating Options**

Replace X in dash number with:  
 1 - 1.27 μm (50 μin) Ni under 0.76 μm (30 μin) gold  
 3 - 1.27 μm (50 μin) Ni under 1.27 μm (50 μin) gold  
 5 - 1.27 μm (50 μin) Ni under 0.76 μm (30 μin) GXT™  
 A - 1.27 μm (50 μin) Ni under all; with .76 μm (30 μin) Au on contact area, and SnPb on PCB interface. Au flash all other areas.\*

B - 1.27 μm (50 μin) Ni under all; with .76 μm (30 μin) GXT™ on contact area, and SnPb on PCB interface. Au flash all other areas.\*  
 C - 1.27 μm (50 μin) Ni under all; with 0.76 μm (30 μin.) Au on contact area, and SnPb on PCB interface. 0.76 μm (30 μin) Au on tail side contact area. Au flash all other areas.

D - 1.27 μm (50 μin) Ni under all; with .76 μm (30 μin) GXT™ on contact area, and SnPb on PCB interface. .76 μm (30 μin) GXT™ on tail side contact area, Au flash all other areas.

**Tail Length**

Replace Z in dash number with:  
 S - 2.54 mm (0.100in)  
 J - 3.05 mm (0.120in)  
 A - 4.50 mm (0.177in)  
 H - 4.57 mm (0.180in)  
 G - 3.05 mm (0.250in)  
 C - 13.54 mm (0.533in)  
 D - 18.63 mm (0.733in)

Note, Available on C & D Tail Lengths only.

\*Available on A & G Tail Lengths only

Note, Available on C & D Tail Lengths only

**Base Number Option Menu**

Base Number	Style	Platings Available	Tail Length
50009 (1)	Press Fit Pins, Vertical	1, 3, 5	A, G, C, D
50760 (1)	Press Fit Pins, Vertical, Duplex Plating	A, B, C, D	A, G, C, D
50015 (2)	Solder Tail Pins, Vertical	1, 3, 5	J, A, G, C, D
50776 (2)	Solder Tail Pins, Vertical, Duplex Plating	A, B	J, A
50122	Solder Tail Pins, Right Angle	1, 3, 5	H, J
50782	Solder Tail Pins, Right Angle, Duplex Plating	A	S
50431	Shroud, Pinless Header, Self-Retaining	X	X
50437	Shroud, Pinless Header, Slip On	X	X

(1) Request Select Load Worksheet, 50807 for FMLB options.

(2) Request Select Load Worksheet, 50810 for FMLB options.

**Dash Number**

Number of Positions	Dash Number (YYYYZ)	Dimensions					
		A		B		C	
		mm	in.	mm	in.	mm	in.
40	X040Z	44.45	1.750	36.83	1.450	22.86	0.900
44	X044Z	46.99	1.850	39.37	1.550	25.40	1.000
48	X048Z	49.53	1.950	41.91	1.650	27.94	1.100
52	X052Z	52.07	2.050	44.45	1.750	30.48	1.200
56	X056Z	54.61	2.150	46.99	1.850	33.02	1.300
60	X060Z	57.15	2.250	49.53	1.950	35.56	1.400
64	X064Z	59.69	2.350	52.07	2.050	38.10	1.500
68	X068Z	62.23	2.450	54.61	2.150	40.64	1.600
72	X072Z	64.77	2.550	57.15	2.250	43.18	1.700
76	X076Z	67.31	2.650	59.69	2.350	45.72	1.800
80	X080Z	69.85	2.750	62.23	2.450	48.26	1.900
84	X084Z	72.39	2.850	64.77	2.550	50.80	2.000
88	X088Z	74.93	2.950	67.31	2.650	53.34	2.100
92	X092Z	77.47	3.050	69.85	2.750	55.88	2.200
96	X096Z	80.01	3.150	72.39	2.850	58.42	2.300
100	X100Z	82.55	3.250	74.93	2.950	60.96	2.400

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

**Ordering Data (cont'd)**

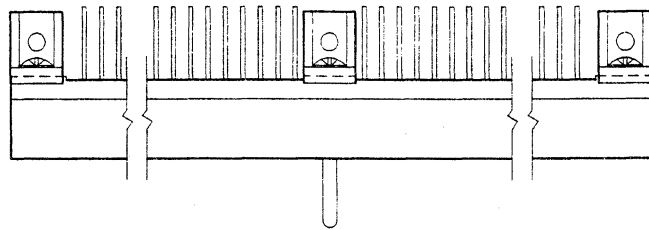
17

Number of Positions	Dash Number (YYYYZ)	Dimensions					
		A		B		C	
		mm	in.	mm	in.	mm	in.
104	X104Z	85.09	3.350	77.47	3.050	63.50	2.500
108	X108Z	87.63	3.450	80.01	3.150	66.04	2.600
112	X112Z	90.17	3.550	82.55	3.250	68.58	2.700
116	X116Z	92.71	3.650	85.09	3.350	71.12	2.800
120	X120Z	95.25	3.750	87.63	3.450	73.66	2.900
124	X124Z	97.79	3.850	90.17	3.550	76.20	3.000
128	X128Z	100.33	3.950	92.71	3.650	78.74	3.100
132	X132Z	102.87	4.050	95.25	3.750	81.28	3.200
136	X136Z	105.41	4.150	97.79	3.850	83.82	3.300
140	X140Z	107.95	4.250	100.33	3.950	86.36	3.400
144	X144Z	110.49	4.350	102.87	4.050	88.90	3.500
148	X148Z	113.03	4.450	105.41	4.150	91.44	3.600
152	X152Z	115.57	4.550	107.95	4.250	93.98	3.700
156	X156Z	118.11	4.650	110.49	4.350	96.52	3.800
160	X160Z	120.65	4.750	113.03	4.450	99.06	3.900
164	X164Z	123.19	4.850	115.57	4.550	101.60	4.000
168	X168Z	125.73	4.950	118.11	4.650	104.14	4.100
172	X172Z	128.27	5.050	120.65	4.750	106.68	4.200
176	X176Z	130.81	5.150	123.19	4.850	109.22	4.300
180	X180Z	133.35	5.250	125.73	4.950	111.76	4.400
184	X184Z	135.89	5.350	128.27	5.050	114.30	4.500
188	X188Z	138.43	5.450	130.81	5.150	116.84	4.600
192	X192Z	140.97	5.550	133.35	5.250	119.38	4.700
196	X196Z	143.51	5.650	135.89	5.350	121.92	4.800
200	X200Z	146.05	5.750	138.43	5.450	124.46	4.900
204	X204Z	148.59	5.850	140.97	5.550	127.00	5.000
208	X208Z	151.13	5.950	143.51	5.650	129.54	5.100
212	X212Z	153.67	6.050	146.05	5.750	132.08	5.200
216	X216Z	156.21	6.150	148.59	5.850	134.62	5.300
220	X220Z	158.75	6.250	151.13	5.950	137.16	5.400
224	X224Z	161.29	6.350	153.67	6.050	139.70	5.500
228	X228Z	163.83	6.450	156.21	6.150	142.24	5.600
232	X232Z	166.37	6.550	158.75	6.250	144.78	5.700
236	X236Z	168.91	6.650	161.29	6.350	147.32	5.800
240	X240Z	171.45	6.750	163.83	6.450	149.86	5.900
244	X244Z	173.99	6.850	166.37	6.550	152.40	6.000
248	X248Z	176.53	6.950	168.91	6.650	154.94	6.100
252	X252Z	179.07	7.050	171.45	6.750	157.48	6.200
256	X256Z	181.61	7.150	173.99	6.850	160.02	6.300
260	X260Z	184.15	7.250	176.53	6.950	162.56	6.400
264	X264Z	186.69	7.350	179.07	7.050	165.10	6.500
268	X268Z	189.23	7.450	181.61	7.150	167.64	6.600
272	X272Z	191.77	7.550	184.15	7.250	170.18	6.700
276	X276Z	194.31	7.650	186.69	7.350	172.72	6.800
280	X280Z	196.85	7.750	189.23	7.450	175.26	6.900
284	X284Z	199.39	7.850	191.77	7.550	177.80	7.000
288	X288Z	201.93	7.950	194.31	7.650	180.34	7.100
292	X292Z	204.47	8.050	196.85	7.750	182.88	7.200
296	X296Z	207.01	8.150	199.39	7.850	185.42	7.300
300	X300Z	209.55	8.250	201.93	7.950	187.96	7.400
304	X304Z	212.09	8.350	204.47	8.050	190.50	7.500
308	X308Z	214.63	8.450	207.01	8.150	193.04	7.600
312	X312Z	217.17	8.550	209.55	8.250	195.58	7.700
316	X316Z	219.71	8.650	212.09	8.350	198.12	7.800
320	X320Z	222.25	8.750	214.63	8.450	200.66	7.900

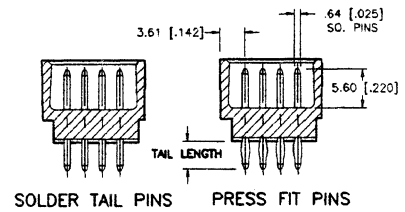
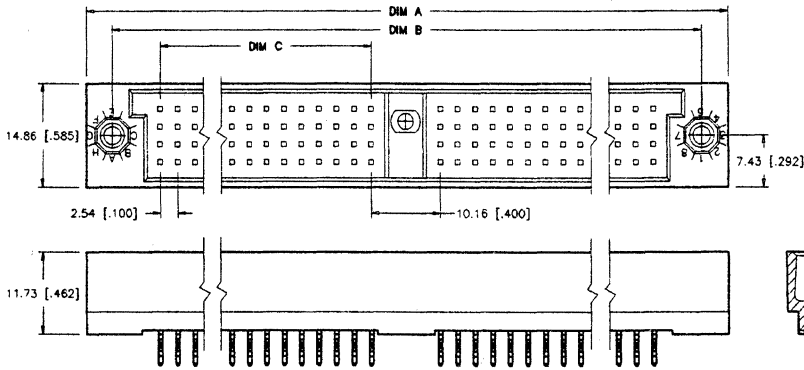
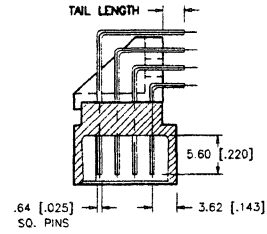
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**Shrouded Headers**  
2.54 mm (0.100 in.)

**Description**  
4-Row Vertical and Right-Angle Headers  
Compliant Press-Fit or Solder-Tail Pins  
1 Guide Hole



R/A STYLE, SOLDER TAIL PINS ONLY



SOLDER TAIL PINS PRESS FIT PINS

## Ordering Data

Base number specifies connector style

Number of positions (see table)

□ □ □ □ □ - X Y Y Y Z

### Plating Options

Replace X in dash number with:

- 1 - 1.27  $\mu\text{m}$  (50  $\mu\text{in}$ ) Ni under 0.76  $\mu\text{m}$  (30  $\mu\text{in}$ ) gold
- 3 - 1.27  $\mu\text{m}$  (50  $\mu\text{in}$ ) Ni under 1.27  $\mu\text{m}$  (50  $\mu\text{in}$ ) gold
- 5 - 1.27  $\mu\text{m}$  (50  $\mu\text{in}$ ) Ni under 0.76  $\mu\text{m}$  (30  $\mu\text{in}$ ) GXT™
- A - 1.27  $\mu\text{m}$  (50  $\mu\text{in}$ ) Ni under all; with .76  $\mu\text{m}$  (30  $\mu\text{in}$ ) Au on contact area, and SnPb on PCB interface. Au flash all other areas.\*

B - 1.27  $\mu\text{m}$  (50  $\mu\text{in}$ ) Ni under all; with .76  $\mu\text{m}$  (30  $\mu\text{in}$ ) GXT™ on contact area, and SnPb on PCB interface. Au flash all other areas.\*

C - 1.27  $\mu\text{m}$  (50  $\mu\text{in}$ ) Ni under all; with 0.76  $\mu\text{m}$  (30  $\mu\text{in}$ ) Au on contact area, and SnPb on PCB interface. 0.76  $\mu\text{m}$  (30  $\mu\text{in}$ ) Au on tail side contact area. Au flash all other areas.

Note, Available on C & D Tail Lengths only

D - 1.27  $\mu\text{m}$  (50  $\mu\text{in}$ ) Ni under all; with .76  $\mu\text{m}$  (30  $\mu\text{in}$ ) GXT™ on contact area, and SnPb on PCB interface. .76  $\mu\text{m}$  (30  $\mu\text{in}$ ) GXT™ on tail side contact area, Au flash all other areas.

Note, Available on C & D Tail Lengths only.

\*Available on A & G Tail Lengths only

### Tail Length

Replace Z in dash number with:

- S - 2.54 mm (0.100in)
- J - 3.05 mm (0.120in)
- A - 4.50 mm (0.177in)
- H - 4.57 mm (0.180in)
- G - 3.05 mm (0.250in)
- C - 13.54 mm (0.533in)
- D - 18.63 mm (0.733in)

### Base Number Option Menu

Base Number	Style	Platings Available	Tail Length
50010 (1)	Press Fit Pins, Vertical	1, 3, 5	A, G, C, D
50763 (1)	Press Fit Pins, Vertical, Duplex Plating	A, B, C, D	A, G, C, D
50016 (2)	Solder Tail Pins, Vertical	1, 3, 5	J, A, G, C, D
50777 (2)	Solder Tail Pins, Vertical, Duplex Plating	A, B	J, A
50123	Solder Tail Pins, Right Angle	1, 3, 5	H, J
50783	Solder Tail Pins, Right Angle, Duplex Plating	A	S
50432	Shroud, Pinless Header, Self-Retaining	X	X
50438	Shroud, Pinless Header, Slip On	X	X

(1) Request Select Load Worksheet, 50808 for FMLB options.

(2) Request Select Load Worksheet, 50811 for FMLB options.

### Dash Number

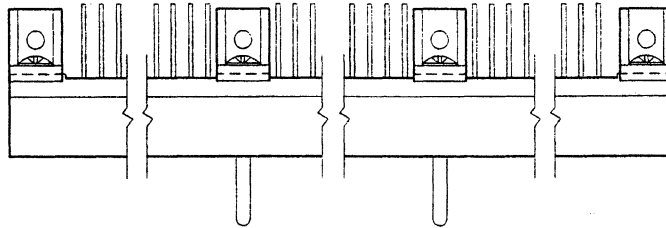
Number of Positions	Dash Number (XYYYYZ)	Dimensions					
		A		B		C	
		mm	in.	mm	in.	mm	in.
320	X320Z	229.87	9.050	222.25	8.750	99.06	3.900
328	X328Z	234.95	9.250	227.33	8.950	101.60	4.000
336	X336Z	240.03	9.450	232.41	9.150	104.14	4.100
344	X344Z	245.11	9.650	237.49	9.350	106.68	4.200
352	X352Z	250.19	9.850	242.57	9.550	109.22	4.300
360	X360Z	255.27	10.050	247.65	9.750	111.76	4.400
368	X368Z	260.35	10.250	252.73	9.950	114.30	4.500
376	X376Z	265.43	10.450	257.81	10.150	116.84	4.600
384	X384Z	270.51	10.650	262.89	10.350	119.38	4.700
392	X392Z	275.59	10.850	267.97	10.550	121.92	4.800
400	X400Z	280.67	11.050	273.05	10.750	124.46	4.900
408	X408Z	285.75	11.250	278.13	10.950	127.00	5.000
416	X416Z	290.83	11.450	283.21	11.150	129.54	5.100
424	X424Z	295.91	11.650	288.29	11.350	132.08	5.200
432	X432Z	300.99	11.850	293.37	11.550	134.62	5.300
440	X440Z	306.07	12.050	298.45	11.750	137.16	5.400
448	X448Z	311.15	12.250	303.53	11.950	139.70	5.500
456	X456Z	316.23	12.450	308.61	12.150	142.24	5.600
464	X464Z	321.31	12.650	313.69	12.350	144.78	5.700
472	X472Z	326.39	12.850	318.77	12.550	147.32	5.800
480	X480Z	331.47	13.050	323.85	12.750	149.86	5.900

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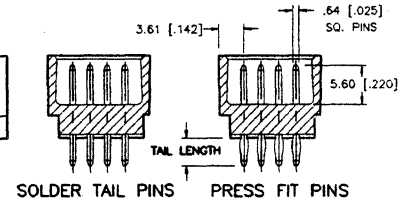
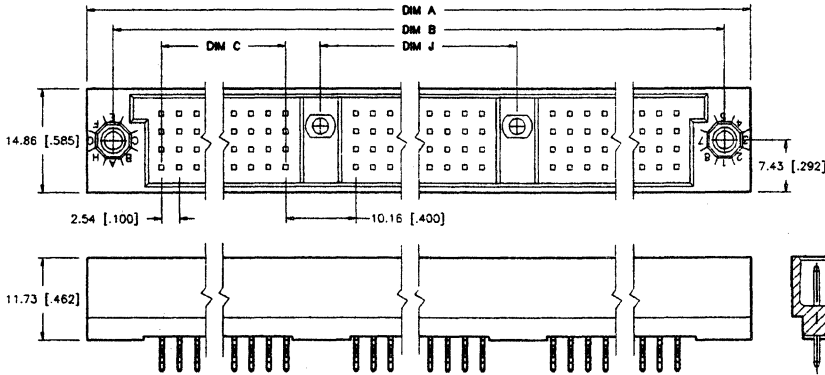
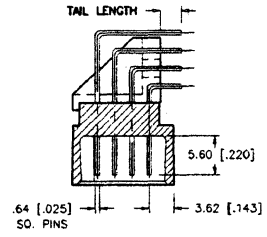


**Shrouded Headers**  
**2.54 mm (0.100 in.)**

**Description**  
**4-Row Vertical and Right-Angle Headers**  
**Compliant Press-Fit or Solder-Tail Pins**  
**2 Guide Holes**



R/A STYLE, SOLDER TAIL PINS ONLY



## Ordering Data

Base number specifies connector style

Number of positions (see table)

□ □ □ □ □ - X Y Y Y Z

### Plating Options

Replace X in dash number with:

- 1 - 1.27 μm (50 μin) Ni under 0.76 μm (30 μin) gold
- 3 - 1.27 μm (50 μin) Ni under 1.27 μm (50 μin) gold
- 5 - 1.27 μm (50 μin) Ni under 0.76 μm (30 μin) GXT™
- A - 1.27 μm (50 μin) Ni under all; with .76 μm (30 μin) Au on contact area, and SnPb on PCB interface. Au flash all other areas.\*

B - 1.27 μm (50 μin) Ni under all; with .76 μm (30 μin) GXT™ on contact area, and SnPb on PCB interface. Au flash all other areas.\*

C - 1.27 μm (50 μin) Ni under all; with 0.76 μm (30 μin.) Au on contact area, and SnPb on PCB interface. 0.76 μm (30 μin) Au on tail side contact area. Au flash all other areas.

Note, Available on C & D Tail Lengths only

D - 1.27 μm (50 μin) Ni under all; with .76 μm (30 μin) GXT™ on contact area, and SnPb on PCB interface. .76 μm (30 μin) GXT™ on tail side contact area, Au flash all other areas.

Note, Available on C & D Tail Lengths only.

\*Available on A & G Tail Lengths only

### Tail Length

Replace Z in dash number with:

- S - 2.54 mm (0.100in)
- J - 3.05 mm (0.120in)
- A - 4.50 mm (0.177in)
- H - 4.57 mm (0.180in)
- G - 3.05 mm (0.250in)
- C - 13.54 mm (0.533in)
- D - 18.63 mm (0.733in)

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### Base Number Option Menu

Base Number	Style	Platings Available	Tail Length
50011 (1)	Press Fit Pins, Vertical	1, 3, 5	A, G, C, D
50764 (1)	Press Fit Pins, Vertical, Duplex Plating	A, B, C, D	A, G, C, D
50017 (2)	Solder Tail Pins, Vertical	1, 3, 5	J, A, G, C, D
50778 (2)	Solder Tail Pins, Vertical, Duplex Plating	A, B	J, A
50124	Solder Tail Pins, Right Angle	1, 3, 5	H, J
50784	Solder Tail Pins, Right Angle, Duplex Plating	A	S
50550	Shroud, Pinless Header, Self-Retaining	X	X
50439	Shroud, Pinless Header, Slip On	X	X

(1) Request Select Load Worksheet, 50809 for FMLB options.

(2) Request Select Load Worksheet, 50812 for FMLB options.

### Dash Number

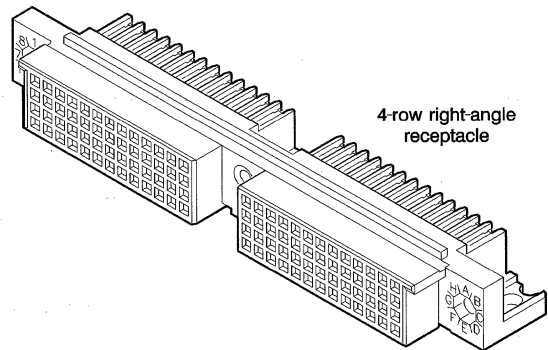
Number of Positions	Dash Number (XYYYYZ)	Dimensions							
		A		B		C		J	
		mm	in.	mm	in.	mm	in.	mm	in.
480	X480Z	339.09	13.350	331.47	13.050	99.06	3.900	109.22	4.300
492	X492Z	346.71	13.650	339.09	13.350	101.60	4.000	111.76	4.400
504	X504Z	354.33	13.950	346.71	13.650	104.14	4.100	114.30	4.500
516	X516Z	361.95	14.250	354.33	13.950	106.68	4.200	116.84	4.600
528	X528Z	369.57	14.550	361.95	14.250	109.22	4.300	119.38	4.700
540	X540Z	377.19	14.850	369.57	14.550	111.76	4.400	121.92	4.800
552	X552Z	384.81	15.150	377.19	14.850	114.30	4.500	124.46	4.900
564	X564Z	392.43	15.450	384.81	15.150	116.84	4.600	127.00	5.000
576	X576Z	400.05	15.750	392.43	15.450	119.38	4.700	129.54	5.100
588	X588Z	407.67	16.050	400.05	15.750	121.92	4.800	132.08	5.200
600	X600Z	415.29	16.350	407.67	16.050	124.46	4.900	134.62	5.300

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

# PCB Mounted Receptacle Assemblies High Pin Count (HPC™)

2.54 mm (0.100 in.) Centerlines

**3- and 4-Row Right-Angle  
Receptacles  
0, 1, and 2 Guide Pins**



A221438-0533R

## Features

- 3-Row: 30 through 450 positions.
- 4-Row: 40 through 600 positions.
- Unique dual-beam Hertz Dot contact provides 200 kpsi Hertz stress for reliable contact.
- Polyphenylene sulfide (PPS) housing for IR and vapor-phase soldering.
- Full PPS housing lead-in protects contact during mating.
- Plated with gold or Berg's exclusive GXT™ (palladium-nickel alloy with gold flash).
- Hardware for mounting, power and static discharge, guidance, and keying.

## Options

- Variety of tail lengths.
- Selective loading of contacts.
- Solder tail or solderless (Pressfit) tail available.

## Mating Data


Mates with 0.64 mm (0.025 in.) square pins from 4.57 mm (0.180 in.) to 6.60 mm (0.260 in.) long.


## Berg Electronics Products

- HPC™ Vertical Headers . . . . . 17-2
- HPC™ Right-Angle Headers . . . . . 17-2

## Page

## Approvals and Certifications

 File no. E66906

 File no. LR46923

## Technical Data

### Materials

- Housing . . . . . Glass-filled PPS (UL-94 V-0)
  - ▶ Color . . . . . Black
- Contact body . . . . . Beryllium-copper alloy per ASTM B-174

### Electrical Performance

- Insulation resistance . . . . .  $\geq 1000$  M $\Omega$  after environmental test conditions
- Withstanding voltage . . . . .  $\geq 1000$  V ac rms, 60 Hz at sea level
- Current rating
  - ▶ All contacts powered . . . . . 1.0 amp continuous per contact
  - ▶ One contact powered . . . . . 3.0 amp continuous per contact

- Contact resistance . . . . .  $< 20$  m $\Omega$  (mated system) after environmental conditions

### Mechanical Performance

- Normal force . . . . . 0.54 N (60 gf) typical; 0.49 N (50 gf) min, 200 kpsi Hertz stress

### Environmental Properties

- Temperature range . . . . . -65°C to +125°C

### Packaging

- Antistatic tubes

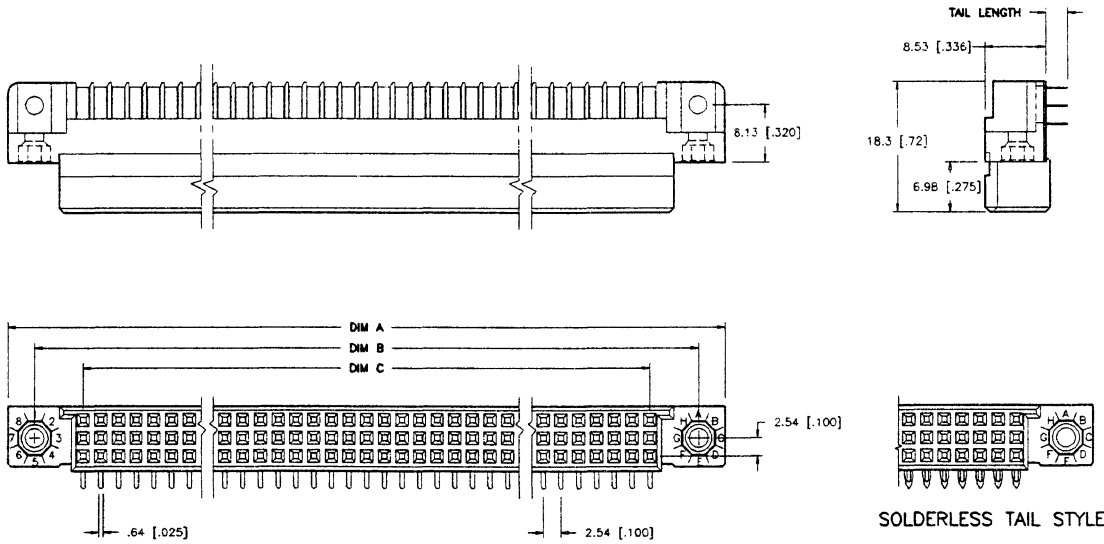
## Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawings . . . . .	By Part No.	Product Specifications . . . . .	BUS-12-111
Product Specifications . . . . .	BUS-12-090	Product Samples . . . . .	Upon Request

### Description

#### 3-Row Right-Angle Receptacles

#### No Guide Hole

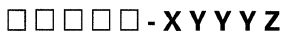


STANDARD HOUSINGS SHOWN, SEE PAGE 17-49 FOR STANDARD vs. GENERIC COMPARISON

**PCB Mounted Receptacle Assemblies**  
**2.54 mm (0.100in.)**

**Ordering Data**

Base number specifies connector style \_\_\_\_\_ Number of positions (see table)



**Plating Options**

Replace X in dash number with:

- 1 - 1.27  $\mu\text{m}$  (50  $\mu\text{in}$ ) Ni under all; with .76  $\mu\text{m}$  (30  $\mu\text{in}$ ) Au on contact area, and SnPb on PCB interface. Au flash all other areas.
- 5 - 1.27  $\mu\text{m}$  (50  $\mu\text{in}$ ) Ni under all; with .76  $\mu\text{m}$  (30  $\mu\text{in}$ ) GXT™ on contact area, and SnPb on PCB interface. Au flash all other areas.

**Tail Length**

Replace Z in dash number with:

- E - 3.18 mm (0.125in)
- F - 3.68 mm (0.145in)
- H - 4.57 mm (0.180in)

**Base Number Option Menu**

Base Number	Style	Platings Available	Tail Length
50294	Standard Housing, Solder Tail	1, 5	E, F, H
50579	Generic Housing, Solder Tail	1, 5	E, F, H
50645	Standard Housing, Solderless Tail (Press Fit) Installation Tooling Required, see Page 17-54	1	E, F

**Dash Number**

Number of Positions	Dash Number (YYYYZ)	Dimensions					
		A		B		C	
		mm	in.	mm	in.	mm	in.
30	X030Z	44.45	1.750	36.83	1.450	22.86	0.900
33	X033Z	46.99	1.850	39.37	1.550	25.40	1.000
36	X036Z	49.53	1.950	41.91	1.650	27.94	1.100
39	X039Z	52.07	2.050	44.45	1.750	30.48	1.200
42	X042Z	54.61	2.150	46.99	1.850	33.02	1.300
45	X045Z	57.15	2.250	49.53	1.950	35.56	1.400
48	X048Z	59.69	2.350	52.07	2.050	38.10	1.500
51	X051Z	62.23	2.450	54.61	2.150	40.64	1.600
54	X054Z	64.77	2.550	57.15	2.250	43.18	1.700
57	X057Z	67.31	2.650	59.69	2.350	45.72	1.800
60	X060Z	69.85	2.750	62.23	2.450	48.26	1.900
63	X063Z	72.39	2.850	64.77	2.550	50.80	2.000
66	X066Z	74.93	2.950	67.31	2.650	53.34	2.100
69	X069Z	77.47	3.050	69.85	2.750	55.88	2.200
72	X072Z	80.01	3.150	72.39	2.850	58.42	2.300
75	X075Z	82.55	3.250	74.93	2.950	60.96	2.400
78	X078Z	85.09	3.350	77.47	3.050	63.50	2.500
81	X081Z	87.63	3.450	80.01	3.150	66.04	2.600
84	X084Z	90.17	3.550	82.55	3.250	68.58	2.700
87	X087Z	92.71	3.650	85.09	3.350	71.12	2.800

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

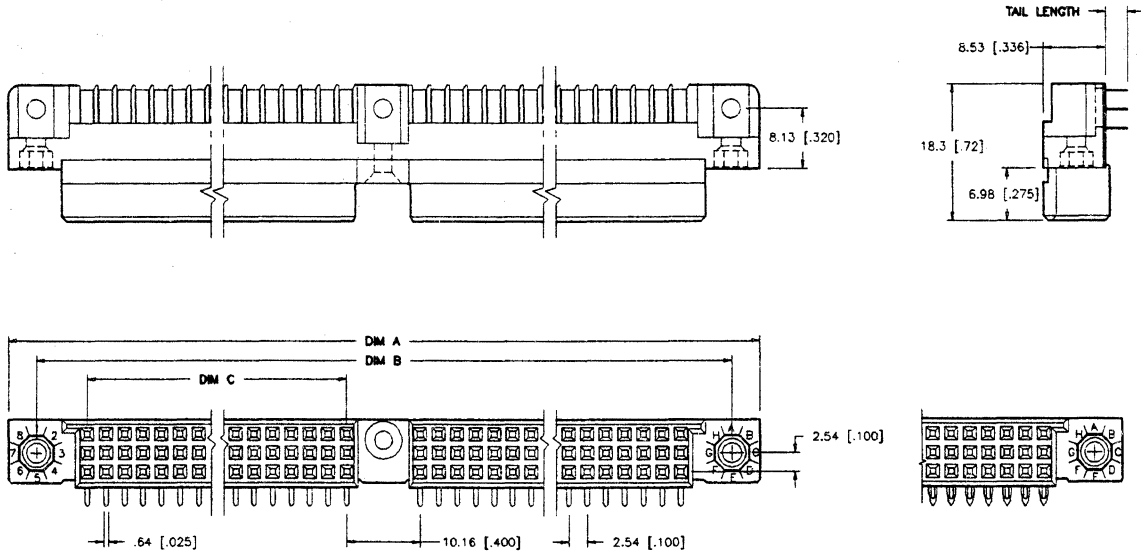
### Ordering Data (cont'd)

17

Number of Positions	Dash Number (YYYYZ)	Dimensions					
		A		B		C	
		mm	in.	mm, in.	mm	in.	
90	X090Z	95.25	3.750	87.63	3.450	73.66	2.900
93	X093Z	97.79	3.850	90.17	3.550	76.20	3.000
96	X096Z	100.33	3.950	92.71	3.650	78.74	3.100
99	X099Z	102.87	4.050	95.25	3.750	81.28	3.200
102	X102Z	105.41	4.150	97.79	3.850	83.82	3.300
105	X105Z	107.95	4.250	100.33	3.950	86.36	3.400
108	X108Z	110.49	4.350	102.87	4.050	88.90	3.500
111	X111Z	113.03	4.450	105.41	4.150	91.44	3.600
114	X114Z	115.57	4.550	107.95	4.250	93.98	3.700
117	X117Z	118.11	4.650	110.49	4.350	96.52	3.800
120	X120Z	120.65	4.750	113.03	4.450	99.06	3.900
123	X123Z	123.19	4.850	115.57	4.550	101.60	4.000
126	X126Z	125.73	4.950	118.11	4.650	104.14	4.100
129	X129Z	128.27	5.050	120.65	4.750	106.68	4.200
132	X132Z	130.81	5.150	123.19	4.850	109.22	4.300
135	X135Z	133.35	5.250	125.73	4.950	111.76	4.400
138	X138Z	135.89	5.350	128.27	5.050	114.30	4.500
141	X141Z	138.43	5.450	130.81	5.150	116.84	4.600
144	X144Z	140.97	5.550	133.35	5.250	119.38	4.700
147	X147Z	143.51	5.650	135.89	5.350	121.92	4.800
150	X150Z	146.05	5.750	138.43	5.450	124.46	4.900
153	X153Z	148.59	5.850	140.97	5.550	127.00	5.000
156	X156Z	151.13	5.950	143.51	5.650	129.54	5.100
159	X159Z	153.67	6.050	146.05	5.750	132.08	5.200
162	X162Z	156.21	6.150	148.59	5.850	134.62	5.300
165	X165Z	158.75	6.250	151.13	5.950	137.16	5.400
168	X168Z	161.29	6.350	153.67	6.050	139.70	5.500
171	X171Z	163.83	6.450	156.21	6.150	142.24	5.600
174	X174Z	166.37	6.550	158.75	6.250	144.78	5.700
177	X177Z	168.91	6.650	161.29	6.350	147.32	5.800
180	X180Z	171.45	6.750	163.83	6.450	149.86	5.900
183	X183Z	173.99	6.850	166.37	6.550	152.40	6.000
186	X186Z	176.53	6.950	168.91	6.650	154.94	6.100
189	X189Z	179.07	7.050	171.45	6.750	157.48	6.200
192	X192Z	181.61	7.150	173.99	6.850	160.02	6.300
195	X195Z	184.15	7.250	176.53	6.950	162.56	6.400
198	X198Z	186.69	7.350	179.07	7.050	165.10	6.500
201	X201Z	189.23	7.450	181.61	7.150	167.64	6.600
204	X204Z	191.77	7.550	184.15	7.250	170.18	6.700
207	X207Z	194.31	7.650	186.69	7.350	172.72	6.800
210	X210Z	196.85	7.750	189.23	7.450	175.26	6.900
213	X213Z	199.39	7.850	191.77	7.550	177.80	7.000
216	X216Z	201.93	7.950	194.31	7.650	180.34	7.100
219	X219Z	204.47	8.050	196.85	7.750	182.88	7.200
222	X222Z	207.01	8.150	199.39	7.850	185.42	7.300
225	X225Z	209.55	8.250	201.93	7.950	187.96	7.400
228	X228Z	212.09	8.350	204.47	8.050	190.50	7.500
231	X231Z	214.63	8.450	207.01	8.150	193.04	7.600
234	X234Z	217.17	8.550	209.55	8.250	195.58	7.700
237	X237Z	219.71	8.650	212.09	8.350	198.12	7.800
240	X240Z	222.25	8.750	214.63	8.450	200.66	7.900

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

**Description**  
**3-Row Right-Angle Receptacles**  
**1 Guide Hole**



SOLDERLESS TAIL STYLE

STANDARD HOUSINGS SHOWN, SEE PAGE 17-49 FOR STANDARD vs. GENERIC COMPARISON

## Ordering Data

Base number specifies connector style

Number of positions (see table)

□ □ □ □ □ - X Y Y Y Z

### Plating Options

Replace X in

dash number with:

- 1 - 1.27 μm (50 μin) Ni under all; with .76 μm (30 μin) Au on contact area, and SnPb on PCB interface. Au flash all other areas.
- 5 - 1.27 μm (50 μin) Ni under all; with .76 μm (30 μin) GXT™ on contact area, and SnPb on PCB interface. Au flash all other areas.

### Tail Length

Replace Z in dash number with:

- E - 3.18 mm (0.125in)
- F - 3.68 mm (0.145in)
- H - 4.57 mm (0.180in)

17

### Base Number Option Menu

Base Number	Style	Platings Available	Tail Length
50825	Standard Housing, Solder Tail	1, 5	E, F, H
50829	Generic Housing, Solder Tail	1, 5	E, F, H
50646	Standard Housing, Solderless Tail (Press Fit) Installation Tooling Required, see Page 17-54	1	E, F

### Dash Number

Number of Positions	Dash Number (XYYYYZ)	Dimensions					
		A		B		C	
		mm	in.	mm	in.	mm	in.
240	X240Z	229.87	9.050	222.25	8.750	99.06	3.900
246	X246Z	234.95	9.250	227.33	8.950	101.60	4.000
252	X252Z	240.03	9.450	232.41	9.150	104.14	4.100
258	X258Z	245.11	9.650	237.49	9.350	106.68	4.200
264	X264Z	250.19	9.850	242.57	9.550	109.22	4.300
270	X270Z	255.27	10.050	247.65	9.750	111.76	4.400
276	X276Z	260.35	10.250	252.73	9.950	114.30	4.500
282	X282Z	265.43	10.450	257.81	10.150	116.84	4.600
288	X288Z	270.51	10.650	262.89	10.350	119.38	4.700
294	X294Z	275.59	10.850	267.97	10.550	121.92	4.800
300	X300Z	280.67	11.050	273.05	10.750	124.46	4.900
306	X306Z	285.75	11.250	278.13	10.950	127.00	5.000
312	X312Z	290.83	11.450	283.21	11.150	129.54	5.100
318	X318Z	295.91	11.650	288.29	11.350	132.08	5.200
324	X324Z	300.99	11.850	293.37	11.550	134.62	5.300
330	X330Z	306.07	12.050	298.45	11.750	137.16	5.400
336	X336Z	311.15	12.250	303.53	11.950	139.70	5.500
342	X342Z	316.23	12.450	308.61	12.150	142.24	5.600
348	X348Z	321.31	12.650	313.69	12.350	144.78	5.700
354	X354Z	326.39	12.850	318.77	12.550	147.32	5.800
360	X360Z	331.47	13.050	323.85	12.750	149.86	5.900

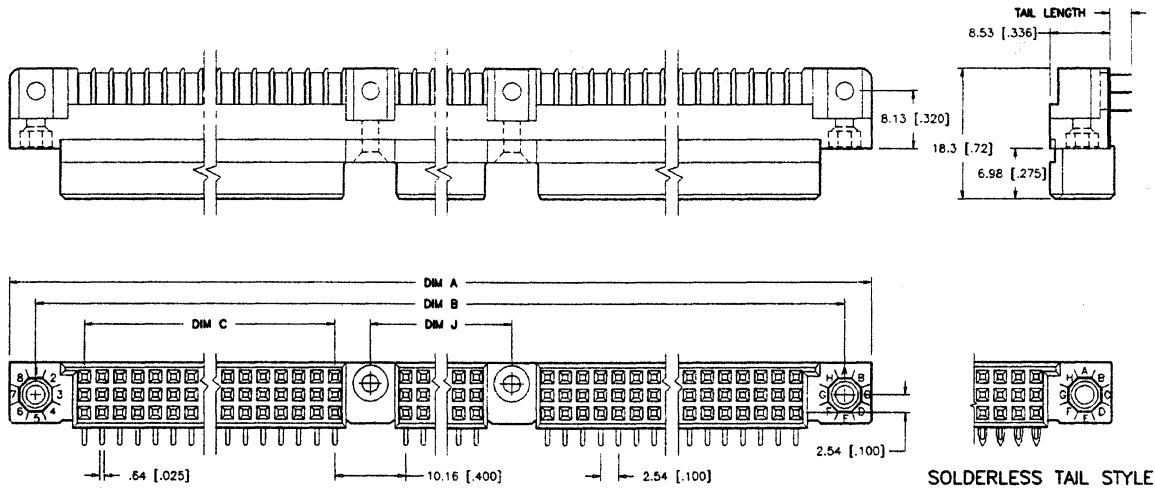
Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.



### Description

## 3-Row Right-Angle Receptacles

### 2 Guide Holes



STANDARD HOUSINGS SHOWN, SEE PAGE 17-49 FOR STANDARD vs. GENERIC COMPARISON

## Ordering Data

Base number specifies connector style

Number of positions (see table)

□ □ □ □ □ - X Y Y Y Z

### Plating Options

Replace X in

dash number with:

1 - 1.27 μm (50 μin) Ni under all; with .76 μm (30 μin) Au on contact area, and SnPb on PCB interface. Au flash all other areas.

5 - 1.27 μm (50 μin) Ni under all; with .76 μm (30 μin) GXT™ on contact area, and SnPb on PCB interface. Au flash all other areas.

### Tail Length

Replace Z in dash number with:

E - 3.18 mm (0.125in)

F - 3.68 mm (0.145in)

H - 4.57 mm (0.180in)

17

### Base Number Option Menu

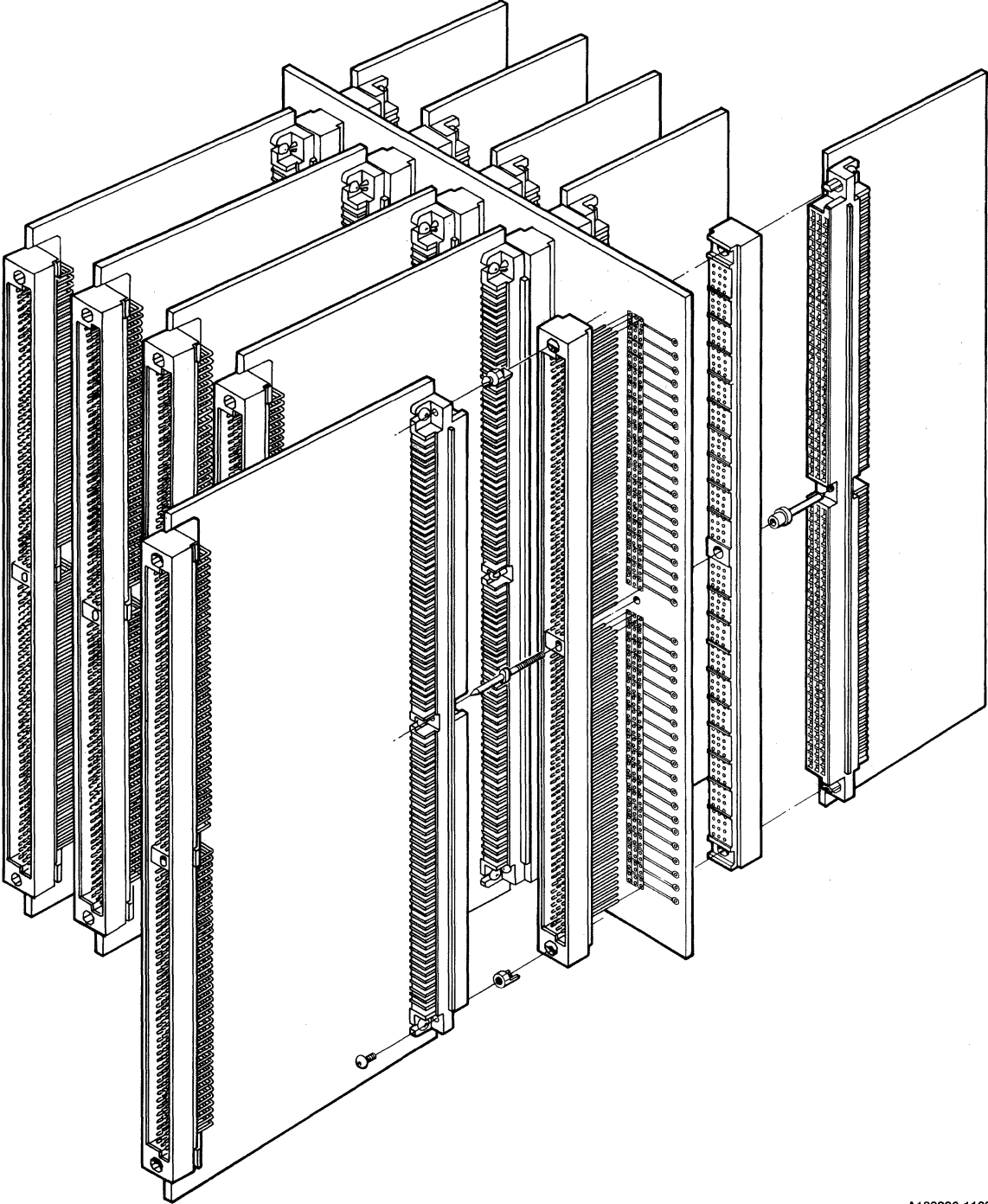
Base Number	Style	Platings Available	Tail Length
50826	Standard Housing, Solder Tail	1, 5	E, F, H
50830	Generic Housing, Solder Tail	1, 5	E, F, H
50647	Standard Housing, Solderless Tail (Press Fit) Installation Tooling Required, see Page 17-54	1	E, F

### Dash Number

Number of Positions	Dash Number (YYYYZ)	Dimensions							
		A		B		C		J	
		mm	in.	mm	in.	mm	in.	mm	in.
360	X360Z	339.09	13.350	331.47	13.050	99.06	3.900	109.22	4.300
369	X369Z	346.71	13.650	339.09	13.350	101.60	4.000	111.76	4.400
378	X378Z	354.33	13.950	346.71	13.650	104.14	4.100	114.30	4.500
387	X387Z	361.95	14.250	354.33	13.950	106.68	4.200	116.84	4.600
396	X396Z	369.57	14.550	361.95	14.250	109.22	4.300	119.38	4.700
405	X405Z	377.19	14.850	369.57	14.550	111.76	4.400	121.92	4.800
414	X414Z	384.81	15.150	377.19	14.850	114.30	4.500	124.46	4.900
423	X423Z	392.43	15.450	384.81	15.150	116.84	4.600	127.00	5.000
432	X432Z	400.05	15.750	392.43	15.450	119.38	4.700	129.54	5.100
441	X441Z	407.67	16.050	400.05	15.750	121.92	4.800	132.08	5.200
450	X450Z	415.29	16.350	407.67	16.050	124.46	4.900	134.62	5.300

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

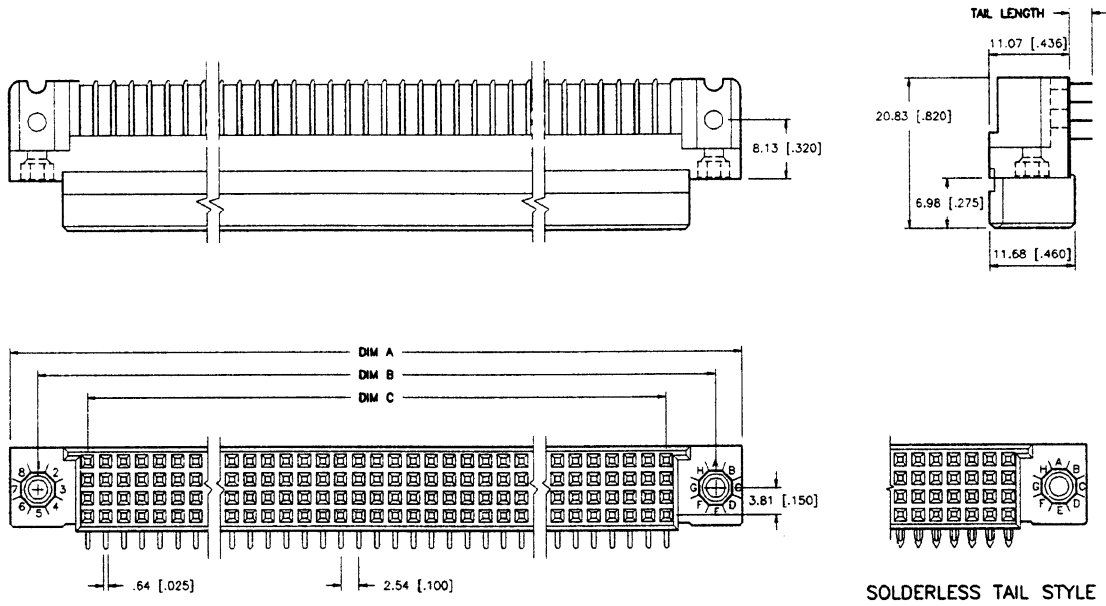
# High Pin Count (HPC™) Connectors



A183396-1103

### Description

#### 4-Row Right-Angle Receptacles No Guide Hole



STANDARD HOUSINGS SHOWN, SEE PAGE 17-49 FOR STANDARD vs. GENERIC COMPARISON

**PCB Mounted Receptacle Assemblies**  
**2.54 mm (0.100in.)**

## Ordering Data

Base number specifies connector style

Number of positions (see table)

□ □ □ □ □ - X Y Y Y Z

### Plating Options

Replace X in dash number with:

- 1 - 1.27 µm (50 µin) Ni under all; with .76 µm (30 µin) Au on contact area, and SnPb on PCB interface. Au flash all other areas.
- 5 - 1.27 µm (50 µin) Ni under all; with .76 µm (30 µin) GXT™ on contact area, and SnPb on PCB interface. Au flash all other areas.

### Tail Length

Replace Z in dash number with:

- E - 3.18 mm (0.125in)
- F - 3.68 mm (0.145in)
- H - 4.57 mm (0.180in)

### Base Number Option Menu

Base Number	Style	Platings Available	Tail Length
50295	Standard Housing, Solder Tail	1, 5	E, F, H
50576	Generic Housing, Solder Tail	1, 5	E, F, H
50642	Standard Housing, Solderless Tail (Press Fit) Installation Tooling Required, see Page 17-53	1	E, F

### Dash Number

Number of Positions	Dash Number (YYYYZ)	Dimensions					
		A		B		C	
		mm	in.	mm	in.	mm	in.
40	X040Z	44.45	1.750	36.83	1.450	22.86	0.900
44	X044Z	46.99	1.850	39.37	1.550	25.40	1.000
48	X048Z	49.53	1.950	41.91	1.650	27.94	1.100
52	X052Z	52.07	2.050	44.45	1.750	30.48	1.200
56	X056Z	54.61	2.150	46.99	1.850	33.02	1.300
60	X060Z	57.15	2.250	49.53	1.950	35.56	1.400
64	X064Z	59.69	2.350	52.07	2.050	38.10	1.500
68	X068Z	62.23	2.450	54.61	2.150	40.64	1.600
72	X072Z	64.77	2.550	57.15	2.250	43.18	1.700
76	X076Z	67.31	2.650	59.69	2.350	45.72	1.800
80	X080Z	69.85	2.750	62.23	2.450	48.26	1.900
84	X084Z	72.39	2.850	64.77	2.550	50.80	2.000
88	X088Z	74.93	2.950	67.31	2.650	53.34	2.100
92	X092Z	77.47	3.050	69.85	2.750	55.88	2.200
96	X096Z	80.01	3.150	72.39	2.850	58.42	2.300
100	X100Z	82.55	3.250	74.93	2.950	60.96	2.400
104	X104Z	85.09	3.350	77.47	3.050	63.50	2.500
108	X108Z	87.63	3.450	80.01	3.150	66.04	2.600
112	X112Z	90.17	3.550	82.55	0.250	68.58	2.700
116	X116Z	92.71	3.650	85.09	3.350	71.12	2.800

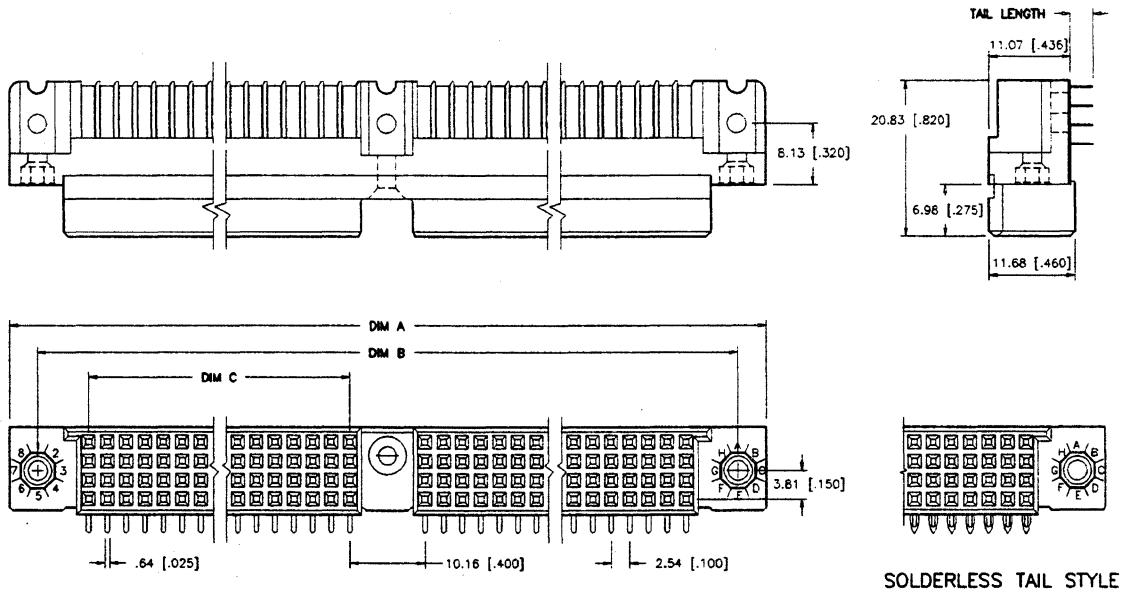
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### Ordering Data (cont'd)

Number of Positions	Dash Number (XXXXZ)	Dimensions					
		A		B		C	
		mm	in.	mm	in.	mm	in.
120	X120Z	95.25	3.750	87.63	3.450	73.66	2.900
124	X124Z	97.79	3.850	90.17	3.550	76.20	3.000
128	X128Z	100.33	3.950	92.71	3.650	78.74	3.100
132	X132Z	102.87	4.050	95.25	3.750	81.28	3.200
136	X136Z	105.41	4.150	97.79	3.850	83.82	3.300
140	X140Z	107.95	4.250	100.33	3.950	86.36	3.400
144	X144Z	110.49	4.350	102.87	4.050	88.90	3.500
148	X148Z	113.03	4.450	105.41	4.150	91.44	3.600
152	X152Z	115.57	4.550	107.95	4.250	93.98	3.700
156	X156Z	118.11	4.650	110.49	4.350	96.52	3.800
160	X160Z	120.65	4.750	113.03	4.450	99.06	3.900
164	X164Z	123.19	4.850	115.57	4.550	101.60	4.000
168	X168Z	125.73	4.950	118.11	4.650	104.14	4.100
172	X172Z	128.27	5.050	120.65	4.750	106.68	4.200
176	X176Z	130.81	5.150	123.19	4.850	109.22	4.300
180	X180Z	133.35	5.250	125.73	4.950	111.76	4.400
184	X184Z	135.89	5.350	128.27	5.050	114.30	4.500
188	X188Z	138.43	5.450	130.81	5.150	116.84	4.600
192	X192Z	140.97	5.550	133.35	5.250	119.38	4.700
196	X196Z	143.51	5.650	135.89	5.350	121.92	4.800
200	X200Z	146.05	5.750	138.43	5.450	124.46	4.900
204	X204Z	148.59	5.850	140.97	5.550	127.00	5.000
208	X208Z	151.13	5.950	143.51	5.650	129.54	5.100
212	X212Z	153.67	6.050	146.05	5.750	132.08	5.200
216	X216Z	156.21	6.150	148.59	5.850	134.62	5.300
220	X220Z	158.75	6.250	151.13	5.950	137.16	5.400
224	X224Z	161.29	6.350	153.67	6.050	139.70	5.500
228	X228Z	163.83	6.450	156.21	6.150	142.24	5.600
232	X232Z	166.37	6.550	158.75	6.250	144.78	5.700
236	X236Z	168.91	6.650	161.29	6.350	147.32	5.800
240	X240Z	171.45	6.750	163.83	6.450	149.86	5.900
244	X244Z	173.99	6.850	166.37	6.550	152.40	6.000
248	X248Z	176.53	6.950	168.91	6.650	154.94	6.100
252	X252Z	179.07	7.050	171.45	6.750	157.48	6.200
256	X256Z	181.61	7.150	173.99	6.850	160.02	6.300
260	X260Z	184.15	7.250	176.53	6.950	162.56	6.400
264	X264Z	186.69	7.350	179.07	7.050	165.10	6.500
268	X268Z	189.23	7.450	181.61	7.150	167.64	6.600
272	X272Z	191.77	7.550	184.15	7.250	170.18	6.700
276	X276Z	194.31	7.650	186.69	7.350	172.72	6.800
280	X280Z	196.85	7.750	189.23	7.450	175.26	6.900
284	X284Z	199.39	7.850	191.77	7.550	177.80	7.000
288	X288Z	201.93	7.950	194.31	7.650	180.34	7.100
292	X292Z	204.47	8.050	196.85	7.750	182.88	7.200
296	X296Z	207.01	8.150	199.39	7.850	185.42	7.300
300	X300Z	209.55	8.250	201.93	7.950	187.96	7.400
304	X304Z	212.09	8.350	204.47	8.050	190.50	7.500
308	X308Z	214.63	8.450	207.01	8.150	193.04	7.600
312	X312Z	217.17	8.550	209.55	8.250	195.58	7.700
316	X316Z	219.71	8.650	212.09	8.350	198.12	7.800
320	X320Z	222.25	8.750	214.63	8.450	200.66	7.900

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

**Description**  
**4-Row Right-Angle Receptacles**  
**1 Guide Hole**



STANDARD HOUSINGS SHOWN, SEE PAGE 17-49 FOR STANDARD vs. GENERIC COMPARISON

## Ordering Data

Base number specifies connector style

Number of positions (see table)

□ □ □ □ □ - X Y Y Y Z

### Plating Options

Replace X in dash number with:

- 1 - 1.27 µm (50 µin) Ni under all; with .76 µm (30 µin) Au on contact area, and SnPb on PCB interface. Au flash all other areas.
- 5 - 1.27 µm (50 µin) Ni under all; with .76 µm (30 µin) GXT™ on contact area, and SnPb on PCB interface. Au flash all other areas.

### Tail Length

Replace Z in dash number with:

- E - 3.18 mm (0.125in)
- F - 3.68 mm (0.145in)
- H - 4.57 mm (0.180in)

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### Base Number Option Menu

Base Number	Style	Platings Available	Tail Length
50748	Standard Housing, Solder Tail	1, 5	E, F, H
50827	Generic Housing, Solder Tail	1, 5	E, F, H
50643	Standard Housing, Solderless Tail (Press Fit) Installation Tooling Required, see Page 17-53	1	E, F

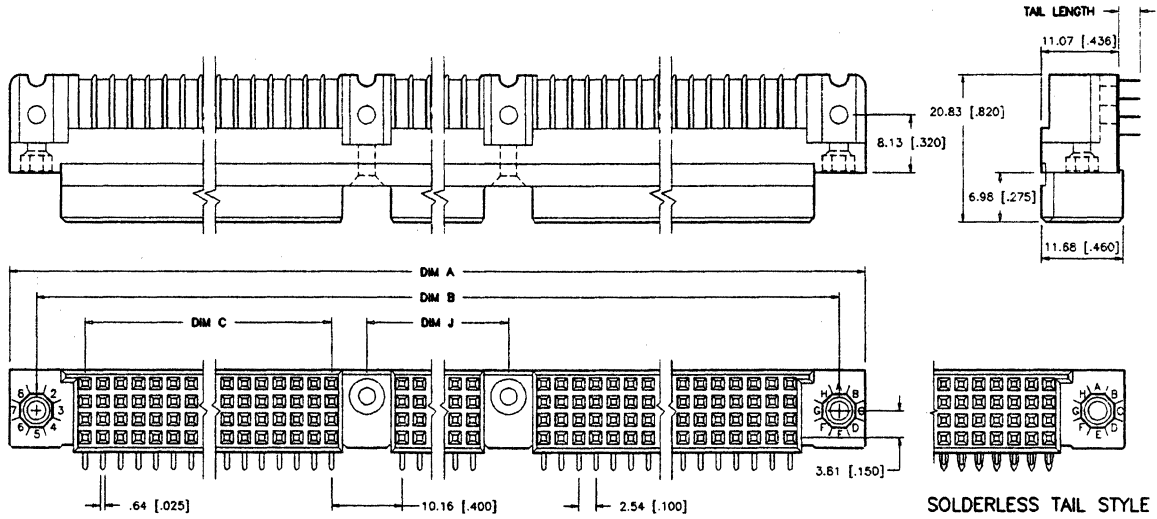
### Dash Number

Number of Positions	Dash Number (XYYYZ)	Dimensions					
		A		B		C	
		mm	in.	mm	in.	mm	in.
320	X320Z	229.87	9.050	222.25	8.750	99.06	3.900
328	X328Z	234.95	9.250	227.33	8.950	101.60	4.000
336	X336Z	240.03	9.450	232.41	9.150	104.14	4.100
344	X344Z	245.11	9.650	237.49	9.350	106.68	4.200
352	X352Z	250.19	9.850	242.57	9.550	109.22	4.300
360	X360Z	255.27	10.050	247.65	9.750	111.76	4.400
368	X368Z	260.35	10.250	252.73	9.950	114.30	4.500
376	X376Z	265.43	10.450	257.81	10.150	116.84	4.600
384	X384Z	270.51	10.650	262.89	10.350	119.38	4.700
392	X392Z	275.59	10.850	267.97	10.550	121.92	4.800
400	X400Z	280.67	11.050	273.05	10.750	124.46	4.900
408	X408Z	285.75	11.250	278.13	10.950	127.00	5.000
416	X416Z	290.83	11.450	283.21	11.150	129.54	5.100
424	X424Z	295.91	11.650	288.29	11.350	132.08	5.200
432	X432Z	300.99	11.850	293.37	11.550	134.62	5.300
440	X440Z	306.07	12.050	298.45	11.750	137.16	5.400
448	X448Z	311.15	12.250	303.53	11.950	139.70	5.500
456	X456Z	316.23	12.450	308.61	12.150	142.24	5.600
464	X464Z	321.31	12.650	313.69	12.350	144.78	5.700
472	X472Z	326.39	12.850	318.77	12.550	147.32	5.800
480	X480Z	331.47	13.050	323.85	12.750	149.86	5.900

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.



**Description**  
**4-Row Right-Angle Receptacles**  
**2 Guide Holes**



STANDARD HOUSINGS SHOWN, SEE PAGE 17-49 FOR STANDARD vs. GENERIC COMPARISON

## Ordering Data

Base number specifies connector style

Number of positions (see table)

□ □ □ □ □ - X Y Y Y Z

### Plating Options

Replace X in

dash number with:

1 - 1.27 μm (50 μin) Ni under all; with .76 μm (30 μin) Au on contact area, and SnPb on PCB interface. Au flash all other areas.

5 - 1.27 μm (50 μin) Ni under all; with .76 μm (30 μin) GXT™ on contact area, and SnPb on PCB interface. Au flash all other areas.

### Tail Length

Replace Z in dash number with:

E - 3.18 mm (0.125in)

F - 3.68 mm (0.145in)

H - 4.57 mm (0.180in)

### Base Number Option Menu

Base Number	Style	Platings Available	Tail Length
50749	Standard Housing, Solder Tail	1, 5	E, F, H
50828	Generic Housing, Solder Tail	1, 5	E, F, H
50644	Standard Housing, Solderless Tail (Press Fit) Installation Tooling Required, see Page 17-53	1	E, F

### Dash Number

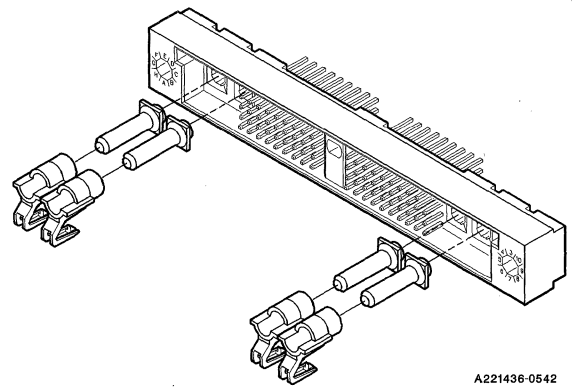
Number of Positions	Dash Number (XYYYYZ)	Dimensions							
		A		B		C		J	
		mm	in.	mm	in.	mm	in.	mm	in.
480	X480Z	339.09	13.350	331.47	13.050	99.06	3.900	109.22	4.300
492	X492Z	346.71	13.650	339.09	13.350	101.60	4.000	111.76	4.400
504	X504Z	354.33	13.950	346.71	13.650	104.14	4.100	114.30	4.500
516	X516Z	361.95	14.250	354.33	13.950	106.68	4.200	116.84	4.600
528	X528Z	369.57	14.550	361.95	14.250	109.22	4.300	119.38	4.700
540	X540Z	377.19	14.850	369.57	14.550	111.76	4.400	121.92	4.800
552	X552Z	384.81	15.150	377.19	14.850	114.30	4.500	124.46	4.900
564	X564Z	392.43	15.450	384.81	15.150	116.84	4.600	127.00	5.000
576	X576Z	400.05	15.750	392.43	15.450	119.38	4.700	129.54	5.100
588	X588Z	407.67	16.050	400.05	15.750	121.92	4.800	132.08	5.200
600	X600Z	415.29	16.350	407.67	16.050	124.46	4.900	134.62	5.300

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

# Hybrid Headers High Pin Count (HPC™)

2.54 mm (0.100 in.) Centerlines

**4-Row Vertical**  
**0, 1, and 2 Guide Pins**  
**2, 4, 6, and 8 Power Ports**



A221436-0542

## Features

- 30 amp power contact rating.
- Polyphenylene sulfide (PPS) housing for IR and vapor-phase soldering.
- Made with 0.64 mm (0.025 in.) drawn-wire pins.


## Options


- Solder-tail or press-fit pins.
- Three mating pin lengths for first-make--last-break signal applications.
- Two mating pin lengths for first-make--last-break power applications.
- Selective loading of pins.
- Various tail lengths.

## Mating Data

<b>Berg Electronics Products</b>	<b>Page</b>
▪ HPC™ Hybrid Receptacles . . . .	17-42

## Approvals and Certifications

 File no. E66906

 File no. LR46923

## Hardware

<b>Berg Electronics Products</b>	<b>Page</b>
▪ Hardware and Accessory Equipment for Hybrid HPC™ Connectors . . . . .	17-50

## Application Equipment

<b>Berg Electronics Products</b>	<b>Page</b>
▪ HPC™ Header Installation Kit . .	17-51

## Technical Data

### Materials

- Housing . . . . . Glass-filled PPS (UL-94 V-0)
  - Color . . . . . Black
- Pin . . . . . Phosphor-bronze, 3/4 hard per ASTM B-159

### Electrical Performance

- Insulation resistance. . . . .  $\geq 1000$  M $\Omega$  after environmental test conditions
- Withstanding voltage . . . . .  $\geq 1000$  V ac rms, 60 Hz at sea level
- Current rating
  - Per signal contact
    - All contacts powered. . . . . 1.0 amp continuous
    - One contact powered . . . . . 3.0 amp continuous
  - Per power contact. . . . . 30 amp

- Contact resistance . . . . .  $< 20$  m $\Omega$  (mated system) after environmental conditions

### Mechanical Performance

- Normal force . . . . . 0.54 N (60 gf) typical; 0.49 N (50 gf) min, 200 kpsi Hertz stress

### Environmental Properties

- Temperature range . . . . . -65°C to +125°C

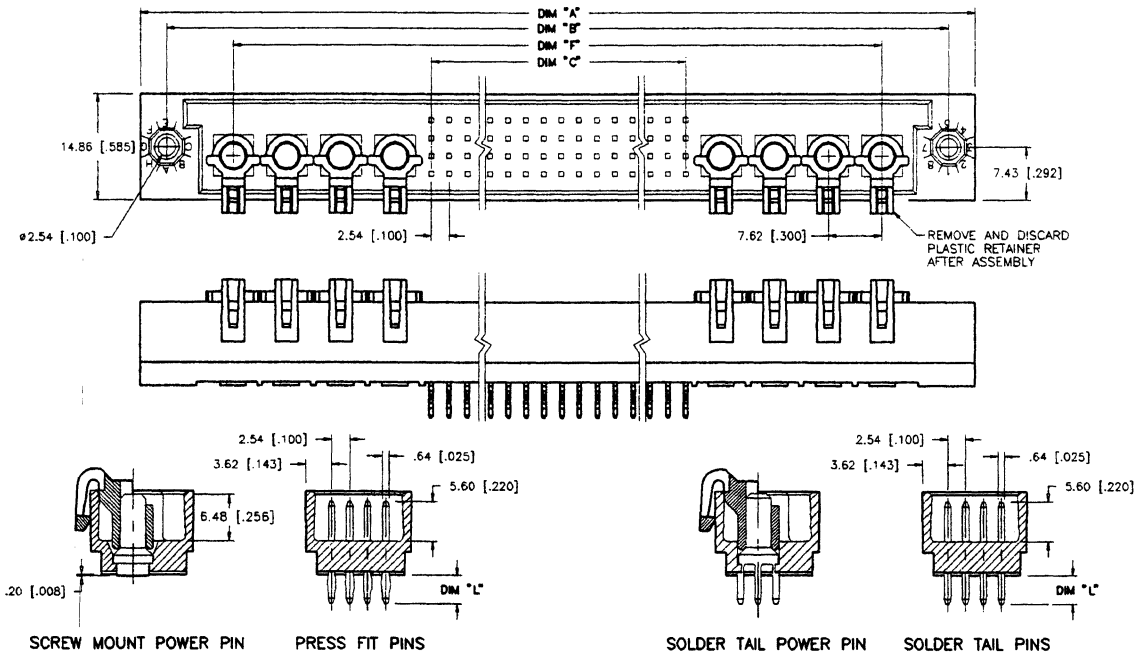
### Packaging

- Antistatic tubes

## Customer Support Materials

<b>Description</b>	<b>Order No.</b>	<b>Description</b>	<b>Order No.</b>
Customer Product Drawings. . . . .	By Part No.	Product Samples. . . . .	Upon Request
Product Specifications. . . . .	BUS-12-090		

**Description**  
**4-Row Hybrid Headers**  
**No Guide Holes**  
**8, 6, 4 & 2 Ports**



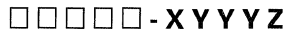
8 PORTS SHOWN, SEE TABLE FOR 6, 4, OR 2 PORT VERSIONS

**Hybrid Headers**  
**2.54 mm (0.100in.)**

**Ordering Data**

Base number specifies connector style

Number of positions (see table)



**Plating Options**

Replace X in dash number with:  
**A** - 1.27 μm (50 μin) Ni under all; with .76 μm (30 μin) Au on contact area, and SnPb on PCB interface. Au flash all other areas.

**C** - 1.27 μm (50 μin) Ni under all; with 0.76 μm (30 μin.) Au on contact area, and SnPb on PCB interface. 0.76 μm (30 μin) Au on tail side contact area. Au flash all other areas.

Note, Available on C & D Tail Lengths only

All Screw Mount (SM) Power Pins are:  
 1.27 μm (50 μin) Ni under all; with 0.76 μm (30 μin) Au overall

All Solder Tail (ST) Power Pins are:  
 1.27 μm (50 μin) Ni under all; with 0.76 μm (30 μin) Au on contact area, and SnPb on PCB interface.

**Tail Length**

Replace Z in dash number with:  
**J** - 3.05 mm (0.120in)  
**A** - 4.50 mm (0.177in)  
**G** - 3.05 mm (0.250in)  
**C** - 13.54 mm (0.533in)  
**D** - 18.63 mm (0.733in)

**Base Number Option Menu**

Base Number	Style	Platings Available	Tail Length
50515	8 Port, SM Pwr, Press Fit Pins	A, C	A, G, C, D
50539	8 Port, ST Pwr, Solder Tail Pins	A	J, A
50514	6 Port, SM Pwr, Press Fit Pins	A, C	A, G, C, D
50538	6 Port, ST Pwr, Solder Tail Pins	A	J, A
50513	4 Port, SM Pwr, Press Fit Pins	A, C	A, G, C, D
50537	4 Port, St Pwr, Solder Tail Pins	A	J, A
50512	2 Port, SM Pwr, Press Fit Pins	A, C	A, G, C, D
50536	2 Port, ST Pwr, Solder Tail Pins	A	J, A

**NOTE 1:** Dimensions listed are for 8 POWER PORTS

- For 6 POWER PORTS deduct 0.600 in.
- For 4 POWER PORTS deduct 1.200 in.
- For 2 POWER PORTS deduct 1.800 in.

**Dash Number**

Number of Positions	Dash Number (XYYYYZ)	Dimensions							
		A (Note 1)		B (Note 1)		C		F (Note 1)	
		mm	in.	mm	in.	mm	in.	mm	in.
40	X040Z	105.41	4.150	97.79	3.850	22.86	0.900	78.74	3.100
44	X044Z	107.95	4.250	100.33	3.950	25.40	1.000	81.28	3.200
48	X048Z	110.49	4.350	102.87	4.050	27.94	1.100	83.82	3.300
52	X052Z	113.03	4.450	105.41	4.150	30.48	1.200	86.36	3.400
56	X056Z	115.57	4.550	107.95	4.250	33.02	1.300	88.90	3.500
60	X060Z	118.11	4.650	110.49	4.350	35.56	1.400	91.44	3.600
64	X064Z	120.65	4.750	113.03	4.450	38.10	1.500	93.98	3.700
68	X068Z	123.19	4.850	115.57	4.550	40.64	1.600	96.52	3.800
72	X072Z	125.73	4.950	118.11	4.650	43.18	1.700	99.06	3.900
76	X076Z	128.27	5.050	120.65	4.750	45.72	1.800	101.60	4.000
80	X080Z	130.81	5.150	123.19	4.850	48.26	1.900	104.14	4.100
84	X084Z	133.35	5.250	125.73	4.950	50.80	2.000	106.68	4.200

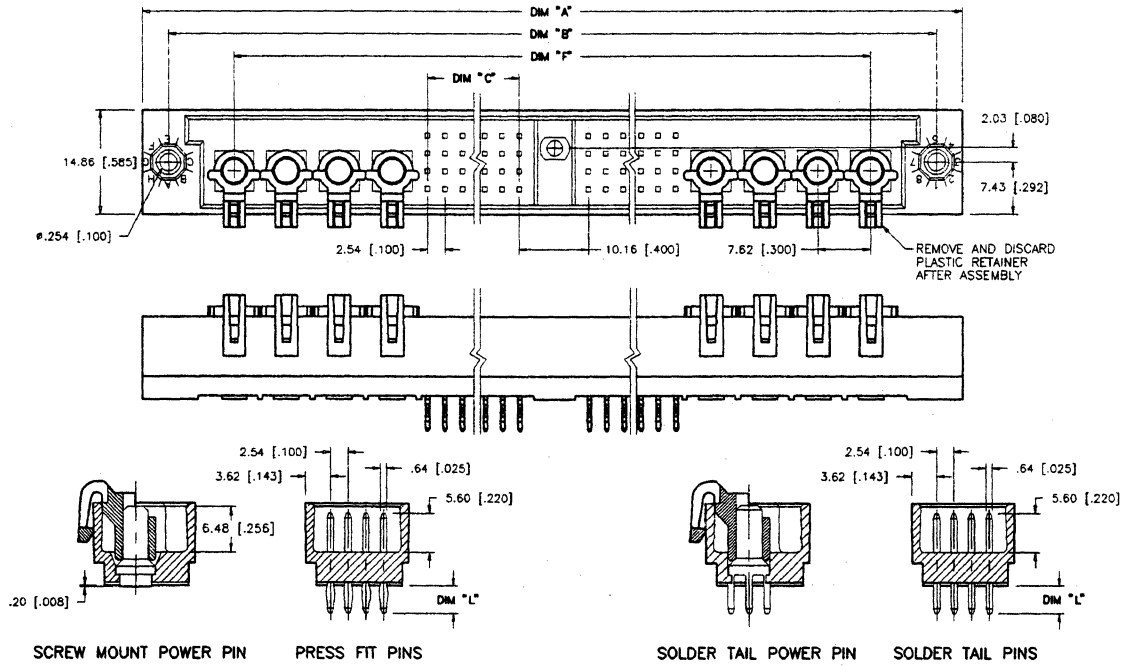
Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

**Ordering Data (cont'd)**

Number of Positions	Dash Number (XYYYYZ)	Dimensions							
		A (Note 1)		B (Note 1)		C		F (Note 1)	
		mm	in.	mm	in.	mm	in.	mm	in.
88	X088Z	135.89	5.350	128.27	5.050	53.34	2.100	109.22	4.300
92	X092Z	138.43	5.450	130.81	5.150	55.88	2.200	111.76	4.400
96	X096Z	140.97	5.550	133.35	5.250	58.42	2.300	114.30	4.500
100	X100Z	143.51	5.650	135.89	5.350	60.96	2.400	116.84	4.600
104	X104Z	146.05	5.750	138.43	5.450	63.50	2.500	119.38	4.700
108	X108Z	148.59	5.850	140.97	5.550	66.04	2.600	121.92	4.800
112	X112Z	151.13	5.950	143.51	5.650	68.58	2.700	124.46	4.900
116	X116Z	153.67	6.050	146.05	5.750	71.12	2.800	127.00	5.000
120	X120Z	156.21	6.150	148.59	5.850	73.66	2.900	129.54	5.100
124	X124Z	158.75	6.250	151.13	5.950	76.20	3.000	132.08	5.200
128	X128Z	161.29	6.350	153.67	6.050	78.74	3.100	134.62	5.300
132	X132Z	163.83	6.450	156.21	6.150	81.28	3.200	137.16	5.400
136	X136Z	166.37	6.550	158.75	6.250	83.82	3.300	139.70	5.500
140	X140Z	168.91	6.650	161.29	6.350	86.36	3.400	142.24	5.600
144	X144Z	171.45	6.750	163.83	6.450	88.90	3.500	144.78	5.700
148	X148Z	173.99	6.850	166.37	6.550	91.44	3.600	147.32	5.800
152	X152Z	176.53	6.950	168.91	6.650	93.98	3.700	149.86	5.900
156	X156Z	179.07	7.050	171.45	6.750	96.52	3.800	152.40	6.000
160	X160Z	181.61	7.150	173.99	6.850	99.06	3.900	154.94	6.100
164	X164Z	184.15	7.250	176.53	6.950	101.60	4.000	157.48	6.200
168	X168Z	186.69	7.350	179.07	7.050	104.14	4.100	160.02	6.300
172	X172Z	189.23	7.450	181.61	7.150	106.68	4.200	162.56	6.400
176	X176Z	191.77	7.550	184.15	7.250	109.22	4.300	165.10	6.500
180	X180Z	194.31	7.650	186.69	7.350	111.76	4.400	167.64	6.600
184	X184Z	196.85	7.750	189.23	7.450	114.30	4.500	170.18	6.700
188	X188Z	199.39	7.850	191.77	7.550	116.84	4.600	172.72	6.800
192	X192Z	201.93	7.950	194.31	7.650	119.38	4.700	175.26	6.900
196	X196Z	204.47	8.050	196.85	7.750	121.92	4.800	177.80	7.000
200	X200Z	207.01	8.150	199.39	7.850	124.46	4.900	180.34	7.100
204	X204Z	209.55	8.250	201.93	7.950	127.00	5.000	182.88	7.200
208	X208Z	212.09	8.350	204.47	8.050	129.54	5.100	185.42	7.300
212	X212Z	214.63	8.450	207.01	8.150	132.08	5.200	187.96	7.400
216	X216Z	217.17	8.550	209.55	8.250	134.62	5.300	190.50	7.500
220	X220Z	219.71	8.650	212.09	8.350	137.16	5.400	193.04	7.600
224	X224Z	222.25	8.750	214.63	8.450	139.70	5.500	195.58	7.700
228	X228Z	224.79	8.850	217.17	8.550	142.24	5.600	198.12	7.800
232	X232Z	227.33	8.950	219.71	8.650	144.78	5.700	200.66	7.900
236	X236Z	229.87	9.050	222.25	8.750	147.32	5.800	203.20	8.000
240	X240Z	232.41	9.150	224.79	8.850	149.86	5.900	205.74	8.100
244	X244Z	234.95	9.250	227.33	8.950	152.40	6.000	208.28	8.200
248	X248Z	237.49	9.350	229.87	9.050	154.94	6.100	210.82	8.300
252	X252Z	240.03	9.450	232.41	9.150	157.48	6.200	213.36	8.400
256	X256Z	242.57	9.550	234.95	9.250	160.02	6.300	215.90	8.500
260	X260Z	245.11	9.650	237.49	9.350	162.56	6.400	218.44	8.600
264	X264Z	247.65	9.750	240.03	9.450	165.10	6.500	220.98	8.700
268	X268Z	250.19	9.850	242.57	9.550	167.64	6.600	223.52	8.800
272	X272Z	252.73	9.950	245.11	9.650	170.18	6.700	226.06	8.900
276	X276Z	255.27	10.050	247.65	9.750	172.72	6.800	228.60	9.000
280	X280Z	257.81	10.150	250.19	9.850	175.26	6.900	231.14	9.100
284	X284Z	260.35	10.250	252.73	9.950	177.80	7.000	233.68	9.200
288	X288Z	262.89	10.350	255.27	10.050	180.34	7.100	236.22	9.300
292	X292Z	265.43	10.450	257.81	10.150	182.88	7.200	238.76	9.400
296	X296Z	267.97	10.550	260.35	10.250	185.42	7.300	241.30	9.500
300	X300Z	270.51	10.650	262.89	10.350	187.96	7.400	243.84	9.600
304	X304Z	273.05	10.750	265.43	10.450	190.50	7.500	246.38	9.700
308	X308Z	275.59	10.850	267.97	10.550	193.04	7.600	248.92	9.800
312	X312Z	278.13	10.950	270.51	10.650	195.58	7.700	251.46	9.900
316	X316Z	280.67	11.050	273.05	10.750	198.12	7.800	254.00	10.000
320	X320Z	283.21	11.150	275.59	10.850	200.66	7.900	256.54	10.100

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

**Description**  
**4-Row Hybrid Headers**  
**1 Guide Hole**  
**8, 6, 4 & 2 Ports**



8 PORTS SHOWN, SEE TABLE FOR 6, 4, OR 2 PORT VERSIONS

## Ordering Data

Base number specifies connector style \_\_\_\_\_ Number of positions (see table)

□ □ □ □ - X Y Y Y Z

### Plating Options

Replace X in dash number with:

A - 1.27  $\mu\text{m}$  (50  $\mu\text{in}$ ) Ni under all; with .76  $\mu\text{m}$  (30  $\mu\text{in}$ ) Au on contact area, and SnPb on PCB interface. Au flash all other areas.

C - 1.27  $\mu\text{m}$  (50  $\mu\text{in}$ ) Ni under all; with 0.76  $\mu\text{m}$  (30  $\mu\text{in}$ .) Au on contact area, and SnPb on PCB interface. 0.76  $\mu\text{m}$  (30  $\mu\text{in}$ ) Au on tail side contact area. Au flash all other areas.

Note, Available on C & D Tail Lengths only

All Screw Mount (SM) Power Pins are:

1.27  $\mu\text{m}$  (50  $\mu\text{in}$ ) Ni under all; with 0.76  $\mu\text{m}$  (30  $\mu\text{in}$ ) Au overall

All Solder Tail (ST) Power Pins are:

1.27  $\mu\text{m}$  (50  $\mu\text{in}$ ) Ni under all; with 0.76  $\mu\text{m}$  (30  $\mu\text{in}$ ) Au on contact area, and SnPb on PCB interface.

### Tail Length

Replace Z in dash number with:

J - 3.05 mm (0.120in)

A - 4.50 mm (0.177in)

G - 3.05 mm (0.250in)

C - 13.54 mm (0.533in)

D - 18.63 mm (0.733in)

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### Base Number Option Menu

Base Number	Style	Platings Available	Tail Length
50519	8 Port, SM Pwr, Press Fit Pins	A, C	A, G, C, D
50543	8 Port, ST Pwr, Solder Tail Pins	A	J, A
50518	6 Port, SM Pwr, Press Fit Pins	A, C	A, G, C, D
50542	6 Port, ST Pwr, Solder Tail Pins	A	J, A
50517	4 Port, SM Pwr, Press Fit Pins	A, C	A, G, C, D
50541	4 Port, St Pwr, Solder Tail Pins	A	J, A
50516	2 Port, SM Pwr, Press Fit Pins	A, C	A, G, C, D
50540	2 Port, ST Pwr, Solder Tail Pins	A	J, A

**NOTE 1:** Dimensions listed are for 8 POWER PORTS

- For 6 POWER PORTS deduct 0.600 in.

- For 4 POWER PORTS deduct 1.200 in.

- For 2 POWER PORTS deduct 1.800 in.

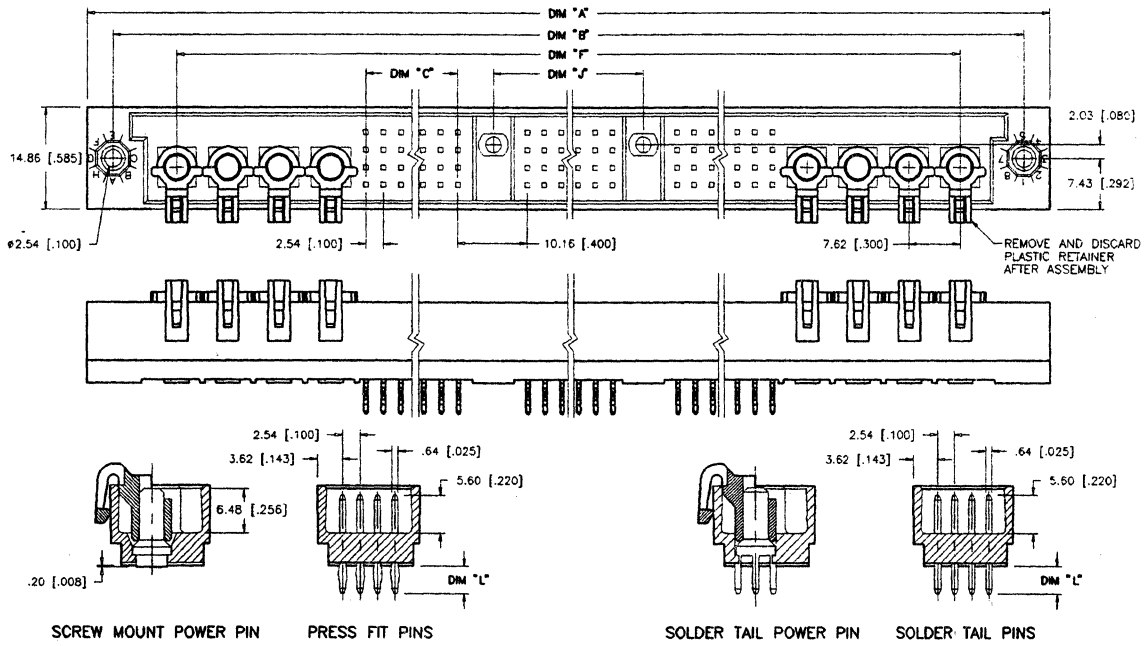
### Dash Number

Number of Positions	Dash Number (XYYYYZ)	Dimensions							
		A (Note 1)		B (Note 1)		C		F (Note 1)	
		mm	in.	mm	in.	mm	in.	mm	in.
320	X320Z	290.83	11.450	283.21	11.150	99.06	3.900	264.16	10.400
328	X328Z	295.91	11.650	288.29	11.350	101.60	4.000	269.24	10.600
336	X336Z	300.99	11.850	293.37	11.550	104.14	4.100	274.32	10.800
344	X344Z	306.07	12.050	298.45	11.750	106.68	4.200	279.40	11.000
352	X352Z	311.15	12.250	303.53	11.950	109.22	4.300	284.48	11.200
360	X360Z	316.23	12.450	308.61	12.150	111.76	4.400	289.56	11.400
368	X368Z	321.31	12.650	313.69	12.350	114.30	4.500	294.64	11.600
376	X376Z	326.39	12.850	318.77	12.550	116.84	4.600	299.72	11.800
384	X384Z	331.47	13.050	323.85	12.750	119.38	4.700	304.80	12.000
392	X392Z	336.55	13.250	328.93	12.950	121.92	4.800	309.88	12.200
400	X400Z	341.63	13.450	334.01	13.150	124.46	4.900	314.96	12.400
408	X408Z	346.71	13.650	339.09	13.350	127.00	5.000	320.04	12.600
416	X416Z	351.79	13.850	344.17	13.550	129.54	5.100	325.12	12.800
424	X424Z	356.87	14.050	349.25	13.750	132.08	5.200	330.20	13.000
432	X432Z	361.95	14.250	354.33	13.950	134.62	5.300	335.28	13.200
440	X440Z	367.03	14.450	359.41	14.150	137.16	5.400	340.36	13.400
448	X448Z	372.11	14.650	364.49	14.350	139.70	5.500	345.44	13.600
456	X456Z	377.19	14.850	369.57	14.550	142.24	5.600	350.52	13.800
464	X464Z	382.27	15.050	374.65	14.750	144.78	5.700	355.60	14.000
472	X472Z	387.35	15.250	379.73	14.950	147.32	5.800	360.68	14.200
480	X480Z	392.43	15.450	384.81	15.150	149.86	5.900	365.76	14.400

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.



**Description**  
**4-Row Hybrid Headers**  
**2 Guide Holes**  
**8, 6, 4 & 2 Ports**



8 PORTS SHOWN, SEE TABLE FOR 6, 4, OR 2 PORT VERSIONS

## Ordering Data

Base number specifies connector style

Number of positions (see table)

□ □ □ □ □ - X Y Y Y Z

### Plating Options

Replace X in

dash number with:

A - 1.27  $\mu\text{m}$  (50  $\mu\text{in}$ .) Ni under all; with .76  $\mu\text{m}$  (30  $\mu\text{in}$ .) Au on contact area, and SnPb on PCB interface. Au flash all other areas.

C - 1.27  $\mu\text{m}$  (50  $\mu\text{in}$ .) Ni under all; with 0.76  $\mu\text{m}$  (30  $\mu\text{in}$ .) Au on contact area, and SnPb on PCB interface. 0.76  $\mu\text{m}$  (30  $\mu\text{in}$ .) Au on tail side contact area. Au flash all other areas.

Note, Available on C & D Tail Lengths only

All Screw Mount (SM) Power Pins are:  
1.27  $\mu\text{m}$  (50  $\mu\text{in}$ .) Ni under all; with 0.76  $\mu\text{m}$  (30  $\mu\text{in}$ .) Au overall

All Solder Tail (ST) Power Pins are:  
1.27  $\mu\text{m}$  (50  $\mu\text{in}$ .) Ni under all; with 0.76  $\mu\text{m}$  (30  $\mu\text{in}$ .) Au on contact area, and SnPb on PCB interface.

### Tail Length

Replace Z in dash number with:

J - 3.05 mm (0.120in)

A - 4.50 mm (0.177in)

G - 3.05 mm (0.250in)

C - 13.54 mm (0.533in)

D - 18.63 mm (0.733in)

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### Base Number Option Menu

Base Number	Style	Platings Available	Tail Length
50523	8 Port, SM Pwr, Press Fit Pins	A, C	A, G, C, D
50547	8 Port, ST Pwr, Solder Tail Pins	A	J, A
50522	6 Port, SM Pwr, Press Fit Pins	A, C	A, G, C, D
50546	6 Port, ST Pwr, Solder Tail Pins	A	J, A
50521	4 Port, SM Pwr, Press Fit Pins	A, C	A, G, C, D
50545	4 Port, St Pwr, Solder Tail Pins	A	J, A
50520	2 Port, SM Pwr, Press Fit Pins	A, C	A, G, C, D
50544	2 Port, ST Pwr, Solder Tail Pins	A	J, A

#### NOTE 1: Dimensions listed are for 8 POWER PORTS

- For 6 POWER PORTS deduct 0.600 in.
- For 4 POWER PORTS deduct 1.200 in.
- For 2 POWER PORTS deduct 1.800 in.

### Dash Number

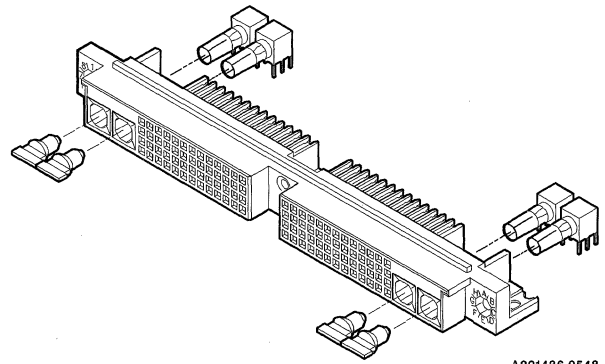
No. of Pos.	Dash Number (XYYYYZ)	Dimensions									
		A (Note 1)		B (Note 1)		C		F (Note 1)		J	
		mm	in.	mm	in.	mm	in.	mm	in.	mm	in.
480	X480Z	400.05	15.750	392.43	15.450	99.06	3.900	373.38	14.700	109.22	4.300
492	X492Z	407.67	16.050	400.05	15.750	101.60	4.000	381.00	15.000	111.76	4.400
504	X504Z	415.29	16.350	407.67	16.050	104.14	4.100	388.62	15.300	114.30	4.500

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

# Hybrid Receptacles High Pin Count (HPC™)

2.54 mm (0.100 in.) Centerlines

**4-Row Right-Angle**  
**0, 1, and 2 Guide Pins**  
**2, 4, 6, and 8 Power Ports**



A221436-0548

## Features

- 30 amp power contact rating.
- Polyphenylene sulfide (PPS) housing for IR and vapor-phase soldering.
- Unique dual-beam Hertz Dot contact provides 200 kpsi Hertz stress for reliable contact.
- Full PPS housing lead-in protects contact during mating.



## Options

- Variety of tail lengths.
- Selective loading of contacts.

## Mating Data

Berg Electronics Products	Page
▪ HPC™ Hybrid Headers . . . . .	17-34

## Approvals and Certifications

-  File no. E66906
-  File no. LR46923

## Hardware

- Hardware and Accessory Equipment for Hybrid HPC™ Connectors . . 17-50

## Technical Data

### Materials

- Housing . . . . . Glass-filled PPS (UL-94 V-0)
  - ▶ Color . . . . . Black
- Contact body material . . . . . Beryllium-copper alloy per ASTM B-174

### Electrical Performance

- Insulation resistance . . . . .  $\geq 1000 \text{ M}\Omega$  after environmental test conditions
- Withstanding voltage . . . . .  $\geq 1000 \text{ V ac rms}$ , 60 Hz at sea level
- Current rating
  - ▶ Per signal contact
    - All contacts powered . . . . . 1.0 amp continuous
    - One contact powered . . . . . 3.0 amp continuous
  - ▶ Per power contact . . . . . 30 amp

- Contact resistance . . . . .  $< 20 \text{ m}\Omega$  (mated system) after environmental conditions

### Mechanical Performance

- Normal force . . . . . 0.54 N (60 gf) typical; 0.49 N (50 gf) min, 200 kpsi Hertz stress

### Environmental Properties

- Temperature range . . . . .  $-65^\circ\text{C}$  to  $+125^\circ\text{C}$

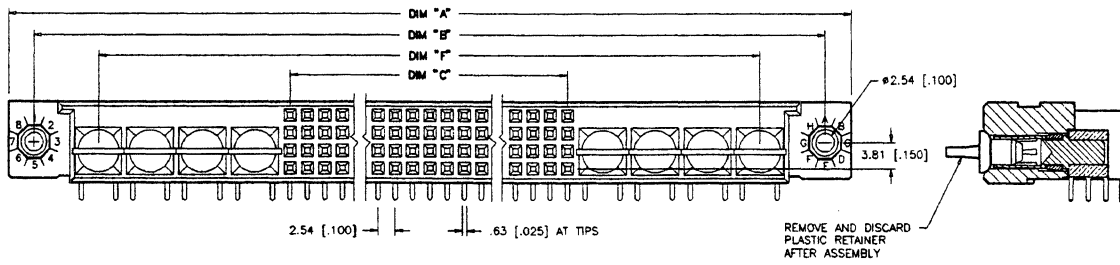
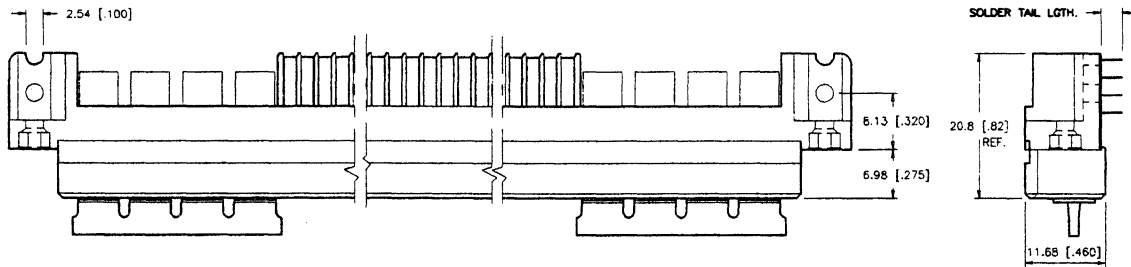
### Packaging

- Antistatic tubes

## Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawings . . . . .	By Part No.	Product Samples . . . . .	Upon Request
Product Specifications . . . . .	BUS-12-090		

**Description**  
**4-Row Hybrid Receptacles**  
**No Guide Holes**  
**8, 6, 4 & 2 Ports**



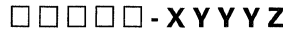
8 PORTS SHOWN, SEE TABLE FOR 6, 4, OR 2 PORT VERSIONS

**Hybrid Receptacles**  
**2.54 mm (0.100 in.)**

**Ordering Data**

Base number specifies connector style

Number of positions (see table)



**Plating Options**

Replace X in dash number with:

1 - 1.27  $\mu$ m (50  $\mu$ in) Ni under all; with .76  $\mu$ m (30  $\mu$ in) Au on contact area, and SnPb on PCB interface. Au flash all other areas.

All Power Sockets are: 1.27  $\mu$ m (50  $\mu$ in) Ni under all; with 0.76  $\mu$ m (30  $\mu$ in) Au on contact area, and SN on PCB interface.

**Tail Length**

Replace Z in dash number with:

F - 3.68 mm (0.145in)

**Base Number Option Menu**

Base Number	Style	Platings Available	Tail Length
50566	8 Port, Solder Tail	1	F
50565	6 Port, Solder Tail	1	F
50564	4 Port, Solder Tail	1	F
50563	2 Port, Solder Tail	1	F

**NOTE 1:** Dimensions listed are for 8 POWER PORTS

- For 6 POWER PORTS deduct 0.600 in.
- For 4 POWER PORTS deduct 1.200 in.
- For 2 POWER PORTS deduct 1.800 in.

**Dash Number**

Number of Positions	Dash Number (YYYYZ)	Dimensions							
		A (Note 1)		B (Note 1)		C		F (Note 1)	
		mm	in.	mm	in.	mm	in.	mm	in.
40	X040Z	105.41	4.150	97.79	3.850	22.86	0.900	78.74	3.100
44	X044Z	107.95	4.250	100.33	3.950	25.40	1.000	81.28	3.200
48	X048Z	110.49	4.350	102.87	4.050	27.94	1.100	83.82	3.300
52	X052Z	113.03	4.450	105.41	4.150	30.48	1.200	86.36	3.400
56	X056Z	115.57	4.550	107.95	4.250	33.02	1.300	88.90	3.500
60	X060Z	118.11	4.650	110.49	4.350	35.56	1.400	91.44	3.600
64	X064Z	120.65	4.750	113.03	4.450	38.10	1.500	93.98	3.700
68	X068Z	123.19	4.850	115.57	4.550	40.64	1.600	96.52	3.800
72	X072Z	125.73	4.950	118.11	4.650	43.18	1.700	99.06	3.900
76	X076Z	128.27	5.050	120.65	4.750	45.72	1.800	101.60	4.000
80	X080Z	130.81	5.150	123.19	4.850	48.26	1.900	104.14	4.100
84	X084Z	133.35	5.250	125.73	4.950	50.80	2.000	106.68	4.200
88	X088Z	135.89	5.350	128.27	5.050	53.34	2.100	109.22	4.300
92	X092Z	138.43	5.450	130.81	5.150	55.88	2.200	111.76	4.400
96	X096Z	140.97	5.550	133.35	5.250	58.42	2.300	114.30	4.500
100	X100Z	143.51	5.650	135.89	5.350	60.96	2.400	116.84	4.600
104	X104Z	146.05	5.750	138.43	5.450	63.50	2.500	119.38	4.700
108	X108Z	148.59	5.850	140.97	5.550	66.04	2.600	121.92	4.800
112	X112Z	151.13	5.950	143.51	5.650	68.58	2.700	124.46	4.900
116	X116Z	153.67	6.050	146.05	5.750	71.12	2.800	127.00	5.000
120	X120Z	156.21	6.150	148.59	5.850	73.66	2.900	129.54	5.100
124	X124Z	158.75	6.250	151.13	5.950	76.20	3.000	132.08	5.200
128	X128Z	161.29	6.350	153.67	6.050	78.74	3.100	134.62	5.300
132	X132Z	163.83	6.450	156.21	6.150	81.28	3.200	137.16	5.400
136	X136Z	166.37	6.550	158.75	6.250	83.82	3.300	139.70	5.500
140	X140Z	168.91	6.650	161.29	6.350	86.36	3.400	142.24	5.600
144	X144Z	171.45	6.750	163.83	6.450	88.90	3.500	144.78	5.700

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

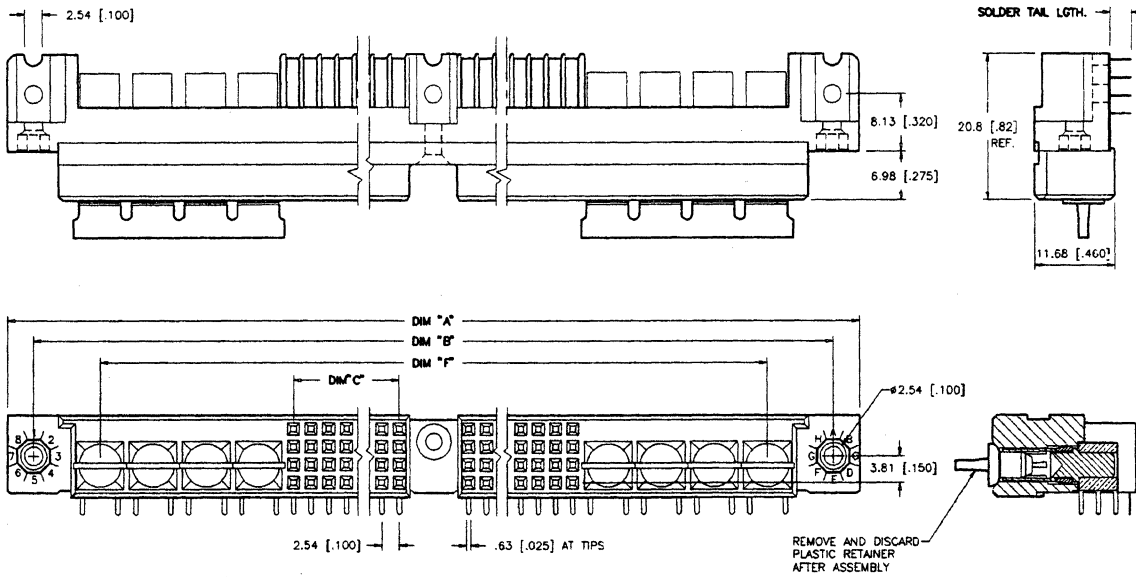
**Ordering Data (cont'd)**

Number of Positions	Dash Number (XXXXZ)	Dimensions							
		A (Note 1)		B (Note 1)		C		F (Note 1)	
		mm	in.	mm	in.	mm	in.	mm	in.
148	X148Z	173.99	6.850	166.37	6.550	91.44	3.600	147.32	5.800
152	X152Z	176.53	6.950	168.91	6.650	93.98	3.700	149.86	5.900
156	X156Z	179.07	7.050	171.45	6.750	96.52	3.800	152.40	6.000
160	X160Z	181.61	7.150	173.99	6.850	99.06	3.900	154.94	6.100
164	X164Z	184.15	7.250	176.53	6.950	101.60	4.000	157.48	6.200
168	X168Z	186.69	7.350	179.07	7.050	104.14	4.100	160.02	6.300
172	X172Z	189.23	7.450	181.61	7.150	106.68	4.200	162.56	6.400
176	X176Z	191.77	7.550	184.15	7.250	109.22	4.300	165.10	6.500
180	X180Z	194.31	7.650	186.69	7.350	111.76	4.400	167.64	6.600
184	X184Z	196.85	7.750	189.23	7.450	114.30	4.500	170.18	6.700
188	X188Z	199.39	7.850	191.77	7.550	116.84	4.600	172.72	6.800
192	X192Z	201.93	7.950	194.31	7.650	119.38	4.700	175.26	6.900
196	X196Z	204.47	8.050	196.85	7.750	121.92	4.800	177.80	7.000
200	X200Z	207.01	8.150	199.39	7.850	124.46	4.900	180.34	7.100
204	X204Z	209.55	8.250	201.93	7.950	127.00	5.000	182.88	7.200
208	X208Z	212.09	8.350	204.47	8.050	129.54	5.100	185.42	7.300
212	X212Z	214.63	8.450	207.01	8.150	132.08	5.200	187.96	7.400
216	X216Z	217.17	8.550	209.55	8.250	134.62	5.300	190.50	7.500
220	X220Z	219.71	8.650	212.09	8.350	137.16	5.400	193.04	7.600
224	X224Z	222.25	8.750	214.63	8.450	139.70	5.500	195.58	7.700
228	X228Z	224.79	8.850	217.17	8.550	142.24	5.600	198.12	7.800
232	X232Z	227.33	8.950	219.71	8.650	144.78	5.700	200.66	7.900
236	X236Z	229.87	9.050	222.25	8.750	147.32	5.800	203.20	8.000
240	X240Z	232.41	9.150	224.79	8.850	149.86	5.900	205.74	8.100
244	X244Z	234.95	9.250	227.33	8.950	152.40	6.000	208.28	8.200
248	X248Z	237.49	9.350	229.87	9.050	154.94	6.100	210.82	8.300
252	X252Z	240.03	9.450	232.41	9.150	157.48	6.200	213.36	8.400
256	X256Z	242.57	9.550	234.95	9.250	160.02	6.300	215.90	8.500
260	X260Z	245.11	9.650	237.49	9.350	162.56	6.400	218.44	8.600
264	X264Z	247.65	9.750	240.03	9.450	165.10	6.500	220.98	8.700
268	X268Z	250.19	9.850	242.57	9.550	167.64	6.600	223.52	8.800
272	X272Z	252.73	9.950	245.11	9.650	170.18	6.700	226.06	8.900
276	X276Z	255.27	10.050	247.65	9.750	172.72	6.800	228.60	9.000
280	X280Z	257.81	10.150	250.19	9.850	175.26	6.900	231.14	9.100
284	X284Z	260.35	10.250	252.73	9.950	177.80	7.000	233.68	9.200
288	X288Z	262.89	10.350	255.27	10.050	180.34	7.100	236.22	9.300
292	X292Z	265.43	10.450	257.81	10.150	182.88	7.200	238.76	9.400
296	X296Z	267.97	10.550	260.35	10.250	185.42	7.300	241.30	9.500
300	X300Z	270.51	10.650	262.89	10.350	187.96	7.400	243.84	9.600
304	X304Z	273.05	10.750	265.43	10.450	190.50	7.500	246.38	9.700
308	X308Z	275.59	10.850	267.97	10.550	193.04	7.600	248.92	9.800
312	X312Z	278.13	10.950	270.51	10.650	195.58	7.700	251.46	9.900
316	X316Z	280.67	11.050	273.05	10.750	198.12	7.800	254.00	10.000
320	X320Z	283.21	11.150	275.59	10.850	200.66	7.900	256.54	10.100

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

Hybrid Receptacles  
2.54 mm (0.100 in.)

**Description**  
**4-Row Hybrid Receptacles**  
**1 Guide Hole**  
**8, 6, 4 & 2 Ports**



8 PORTS SHOWN, SEE TABLE FOR 6, 4, OR 2 PORT VERSIONS

## Ordering Data

Base number specifies connector style

Number of positions (see table)

□ □ □ □ □ - X Y Y Y Z

### Plating Options

Replace X in dash number with:

1 - 1.27 μm (50 μin) Ni under all; with .76 μm (30 μin) Au on contact area, and SnPb on PCB interface. Au flash all other areas.

All Power Sockets are:  
1.27 μm (50 μin) Ni under all; with 0.76 μm (30 μin) Au on contact area, and SN on PCB interface.

### Tail Length

Replace Z in dash number with:

F - 3.68 mm (0.145in)

### Base Number Option Menu

Base Number	Style	Platings Available	Tail Length
50570	8 Port, Solder Tail	1	F
50569	6 Port, Solder Tail	1	F
50568	4 Port, Solder Tail	1	F
50567	2 Port, Solder Tail	1	F

### NOTE 1: Dimensions listed are for 8 POWER PORTS

- For 6 POWER PORTS deduct 0.600 in.
- For 4 POWER PORTS deduct 1.200 in.
- For 2 POWER PORTS deduct 1.800 in.

### Dash Number

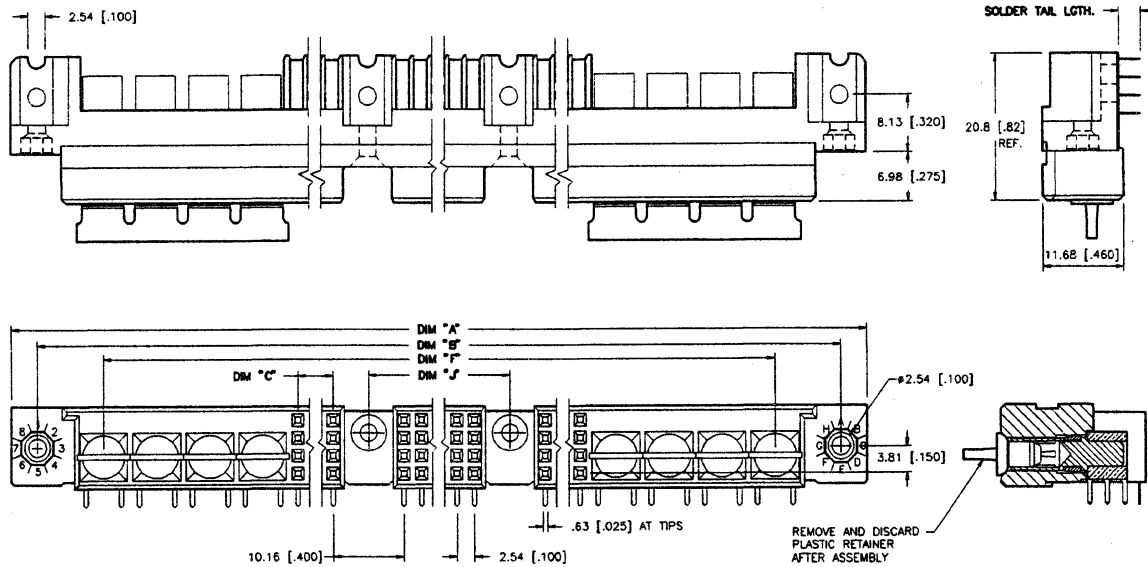
Number of Positions	Dash Number (XYYYYZ)	Dimensions							
		A		B		C		F	
		mm	in.	mm	in.	mm	in.	mm	in.
320	X320Z	290.83	11.450	283.21	11.150	99.06	3.900	264.16	10.400
328	X328Z	295.91	11.650	288.29	11.350	101.60	4.000	269.24	10.600
336	X336Z	300.99	11.850	293.37	11.550	104.14	4.100	274.32	10.800
344	X344Z	306.07	12.050	298.45	11.750	106.68	4.200	279.40	11.000
352	X352Z	311.15	12.250	303.53	11.950	109.22	4.300	284.48	11.200
360	X360Z	316.23	12.450	308.61	12.150	111.76	4.400	289.56	11.400
368	X368Z	321.31	12.650	313.69	12.350	114.30	4.500	294.64	11.600
376	X376Z	326.39	12.850	318.77	12.550	116.84	4.600	299.72	11.800
384	X384Z	331.47	13.050	323.85	12.750	119.38	4.700	304.80	12.000
392	X392Z	336.55	13.250	328.93	12.950	121.92	4.800	309.88	12.200
400	X400Z	341.63	13.450	334.01	13.150	124.46	4.900	314.96	12.400
408	X408Z	346.71	13.650	339.09	13.350	127.00	5.000	320.04	12.600
416	X416Z	351.79	13.850	344.17	13.550	129.54	5.100	325.12	12.800
424	X424Z	356.87	14.050	349.25	13.750	132.08	5.200	330.20	13.000
432	X432Z	361.95	14.250	354.33	13.950	134.62	5.300	335.28	13.200
440	X440Z	367.03	14.450	359.41	14.150	137.16	5.400	340.36	13.400
448	X448Z	372.11	14.650	364.49	14.350	139.70	5.500	345.44	13.600
456	X456Z	377.19	14.850	369.57	14.550	142.24	5.600	350.52	13.800
464	X464Z	382.27	15.050	374.65	14.750	144.78	5.700	355.60	14.000
472	X472Z	387.35	15.250	379.73	14.950	147.32	5.800	360.68	14.200
480	X480Z	392.43	15.450	384.81	15.150	149.86	5.900	365.76	14.400

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.



**Hybrid Receptacles**  
2.54 mm (0.100 in.)

**Description**  
**4-Row Hybrid Receptacles**  
**2 Guide Holes**  
**8, 6, 4 & 2 Ports**



8 PORTS SHOWN, SEE TABLE FOR 6, 4, OR 2 PORT VERSIONS

**Ordering Data**

Base number specifies connector style \_\_\_\_\_ Number of positions (see table)

□ □ □ □ - X Y Y Y Z

**Plating Options**

Replace X in dash number with:

1 - 1.27 μm (50 μin) Ni under all; with .76 μm (30 μin) Au on contact area, and SnPb on PCB interface. Au flash all other areas.

All Power Sockets are:  
1.27 μm (50 μin) Ni under all; with 0.76 μm (30 μin) Au on contact area, and SN on PCB interface.

**Tail Length**

Replace Z in dash number with:

F - 3.68 mm (0.145in)

**Base Number Option Menu**

Base Number	Style	Platings Available	Tail Length
50574	8 Port, Solder Tail	1	F
50573	6 Port, Solder Tail	1	F
50572	4 Port, Solder Tail	1	F
50571	2 Port, Solder Tail	1	F

**NOTE 1:** Dimensions listed are for 8 POWER PORTS

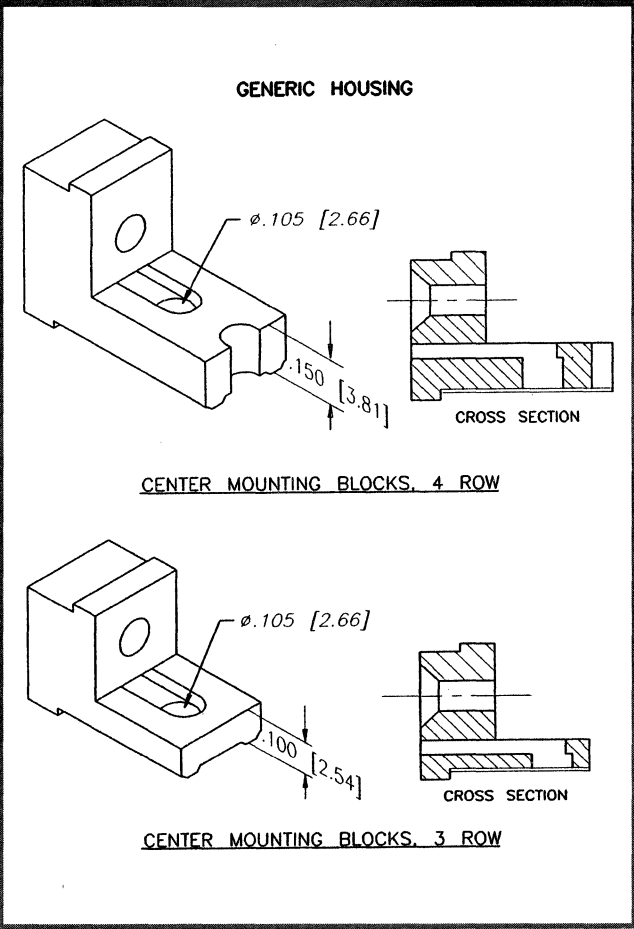
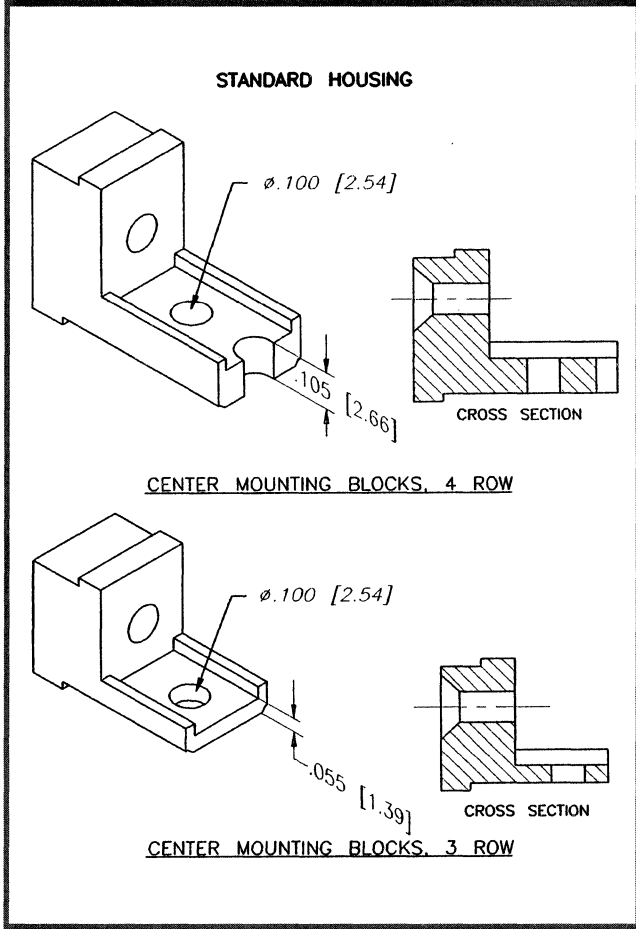
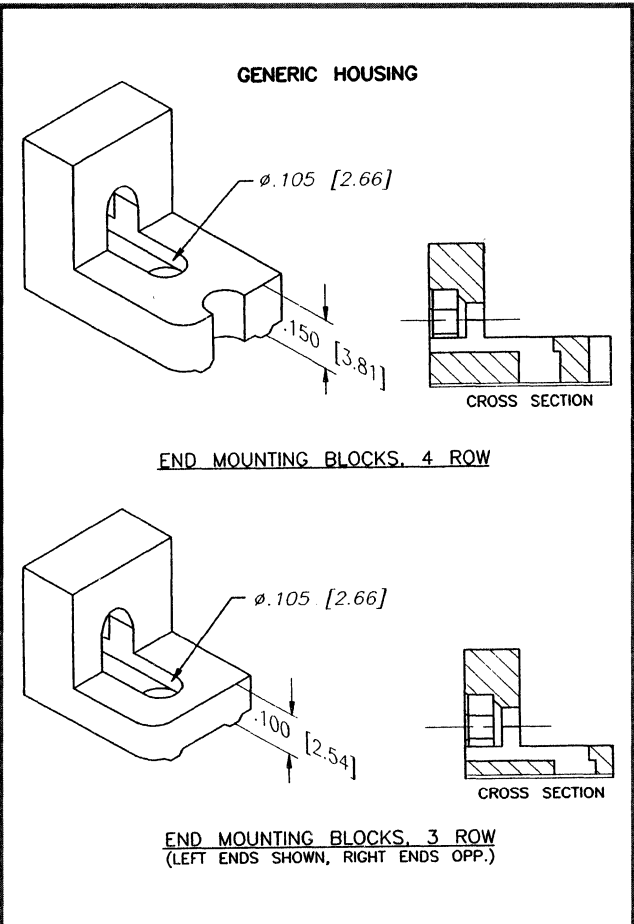
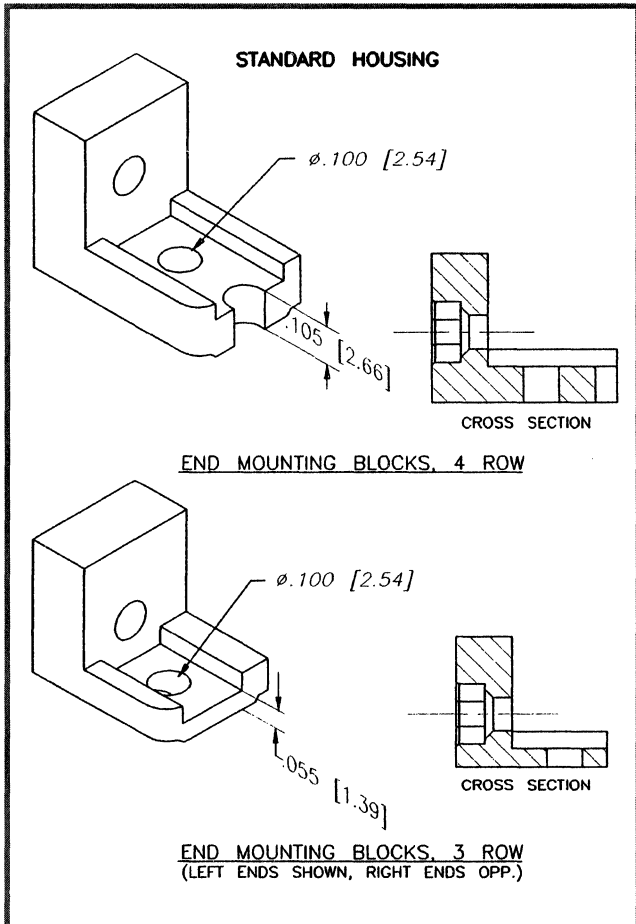
- For 6 POWER PORTS deduct 0.600 in.
- For 4 POWER PORTS deduct 1.200 in.
- For 2 POWER PORTS deduct 1.800 in.

**Dash Number**

No. of Pos.	Dash Number (XYYYYZ)	Dimensions									
		A (Note 1)		B (Note 1)		C		F (Note 1)		J	
		mm	in.	mm	in.	mm	in.	mm	in.	mm	in.
480	X480Z	400.05	15.750	392.43	15.450	99.06	3.900	373.38	14.700	109.22	4.300
492	X492Z	407.67	16.050	400.05	15.750	101.60	4.000	381.00	15.000	111.76	4.400
504	X504Z	415.29	16.350	407.67	16.050	104.14	4.100	388.62	15.300	114.30	4.500

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

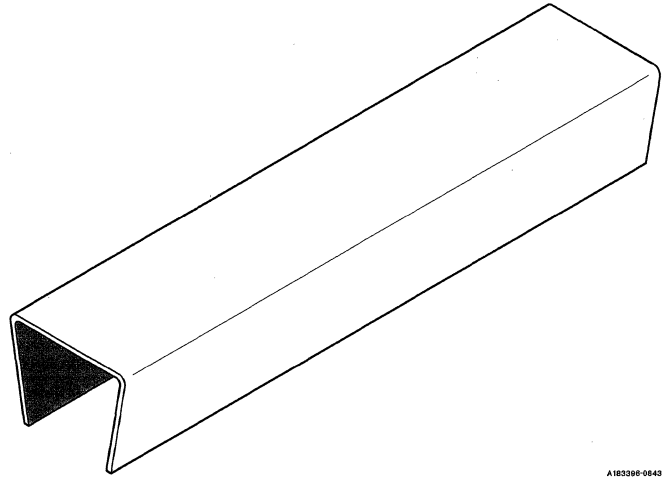
# HPC™ Receptacle Mounting Block Styles



## Dust Cover

### Features

- Provides protection from damage and contamination for headers during shipment and storage.
- Available in widths for 3-row and 4-row connectors.



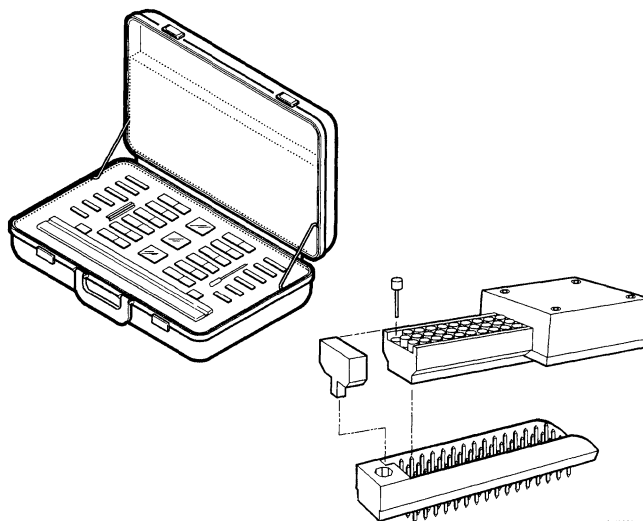
A183200-0043

<b>Ordering Data</b>			
<b>Dust Cover</b>			
Part Number (3-row)	Part Number (4-row)	Length	
		mm	in.
90363-010	90364-010	25.4	1.0
90363-015	90364-015	38.1	1.5
90363-020	90364-020	50.8	2.0
90363-025	90364-025	63.5	2.5
90363-030	90364-030	76.2	3.0
90363-035	90364-035	88.9	3.5
90363-040	90364-040	101.6	4.0
90363-045	90364-045	114.3	4.5
90363-050	90364-050	127.0	5.0
90363-055	90364-055	139.7	5.5
90363-060	90364-060	152.4	6.0
90363-065	90364-065	165.1	6.5
90363-070	90364-070	177.8	7.0
90363-075	90364-075	190.5	7.5
90363-080	90364-080	203.2	8.0
90363-085	90364-085	215.9	8.5
90363-090	90364-090	228.6	9.0
90363-095	90364-095	241.3	9.5
90363-100	90364-100	254.0	10.0
90363-105	90364-105	266.7	10.5
90363-110	90364-110	279.4	11.0
90363-115	90364-115	292.1	11.5
90363-120	90364-120	304.8	12.0
90363-125	90364-125	317.5	12.5
90363-130	90364-130	330.2	13.0
90363-135	90364-135	342.9	13.5
90363-140	90364-140	355.6	14.0
90363-145	90364-145	368.3	14.5
90363-150	90364-150	381.0	15.0
90363-155	90364-155	393.7	15.5
90363-160	90364-160	406.4	16.0

## Installation Kit for Vertical Compliant Press-Fit Headers

The HPC™ vertical header installation kits are designed to be used with most commercial application presses for installing HPC™ vertical press-fit headers into a backpanel or printed wiring board. The kits can be used with either 3- or 4-row header configurations and will accommodate all header sizes and any combination of standard pin lengths.

The press-fit header installation kits employ a modular tooling concept using individual tooling modules in various sizes, combined in series to match the pin field requirements of the header. Three types of kits are available and are listed below. In addition, individual tooling for standard press-fit headers is available and is listed on the following page.



A183296-0028

### Ordering Data

Part Number	Description
155320-001	3- and 4-row header installation kit

**Ordering Data**  
**Individual Tooling for Standard Vertical**  
**Compliant Press-Fit Headers**

Positions per Row	Tooling Part Number		Positions per Row	Tooling Part Number	
	3-Row	4-Row		3-Row	4-Row
10	160233-010	160234-010	62	160233-062	160234-062
11	160233-011	160234-011	63	160233-063	160234-063
12	160233-012	160234-012	64	160233-064	160234-064
13	160233-013	160234-013	65	160233-065	160234-065
14	160233-014	160234-014	66	160233-066	160234-066
15	160233-015	160234-015	67	160233-067	160234-067
16	160233-016	160234-016	68	160233-068	160234-068
17	160233-017	160234-017	69	160233-069	160234-069
18	160233-018	160234-018	70	160233-070	160234-070
19	160233-019	160234-019	71	160233-071	160234-071
20	160233-020	160234-020	72	160233-072	160234-072
21	160233-021	160234-021	73	160233-073	160234-073
22	160233-022	160234-022	74	160233-074	160234-074
23	160233-023	160234-023	75	160233-075	160234-075
24	160233-024	160234-024	76	160233-076	160234-076
25	160233-025	160234-025	77	160233-077	160234-077
26	160233-026	160234-026	78	160233-078	160234-078
27	160233-027	160234-027	79	160233-079	160234-079
28	160233-028	160234-028	80	160233-080	160234-080
29	160233-029	160234-029	81	160233-081	160234-081
30	160233-030	160234-030	82	160233-082	160234-082
31	160233-031	160234-031	84	160233-084	160234-084
32	160233-032	160234-032	86	160233-086	160234-086
33	160233-033	160234-033	88	160233-088	160234-088
34	160233-034	160234-034	90	160233-090	160234-090
35	160233-035	160234-035	92	160233-092	160234-092
36	160233-036	160234-036	94	160233-094	160234-094
37	160233-037	160234-037	96	160233-096	160234-096
38	160233-038	160234-038	98	160233-098	160234-098
39	160233-039	160234-039	100	160233-100	160234-100
40	160233-040	160234-040	102	160233-102	160234-102
41	160233-041	160234-041	104	160233-104	160234-104
42	160233-042	160234-042	106	160233-106	160234-106
43	160233-043	160234-043	108	160233-108	160234-108
44	160233-044	160234-044	110	160233-110	160234-110
45	160233-045	160234-045	112	160233-112	160234-112
46	160233-046	160234-046	114	160233-114	160234-114
47	160233-047	160234-047	116	160233-116	160234-116
48	160233-048	160234-048	118	160233-118	160234-118
49	160233-049	160234-049	120	160233-120	160234-120
50	160233-050	160234-050	122	160233-122	160234-122
51	160233-051	160234-051	123	160233-123	160234-123
52	160233-052	160234-052	126	160233-126	160234-126
53	160233-053	160234-053	129	160233-129	160234-129
54	160233-054	160234-054	132	160233-132	160234-132
55	160233-055	160234-055	135	160233-135	160234-135
56	160233-056	160234-056	138	160233-138	160234-138
57	160233-057	160234-057	141	160233-141	160234-141
58	160233-058	160234-058	144	160233-144	160234-144
59	160233-059	160234-059	147	160233-147	160234-147
60	160233-060	160234-060	150	160233-150	160234-150
61	160233-061	160234-061			

## Ordering Data Individual Tooling for R/A Solderless Receptacles

NOTE A - One base tooling set P/N 162454-004 is required for interchangeable Installation Tooling Sets, and Removal Tools. This one Base Tooling Set will accommodate all varieties of 3 and 4 row tools.

NOTE B - One press block puller P/N 166368-001 is required for removal of any connector, and one Connector Clamp Assembly P/N 162489-001 may be helpful for large connectors.

### 4 Row Connectors

Connector Description	Product Part Number	Installation Tooling Set Part Number	Removal Tooling Part Number
4 Row No Guide Hole	50642-X024X	166459-006	166481-006
	50642-X028X	166459-007	166481-007
	50642-X032X	166459-008	166481-008
	Note 1	Note 2	Note 2
	50642-X312X	166459-078	166481-078
	50642-X316X	166459-079	166481-079
	50642-X320X	166459-080	166481-080
4 Row 1 Guide Hole	50643-X080X	166460-020	166482-020
	50643-X088X	166460-022	166482-022
	50643-X096X	166460-024	166482-024
	Note 3	Note 4	Note 4
	50643-X472X	166460-118	166482-118
	50643-X480X	166460-120	166482-120
	50643-X488X	166460-122	166482-122
4 Row 2 Guide Hole	50644-X120X	166461-030	166483-030
	50644-X132X	166461-033	166483-033
	50644-X144X	166461-036	166483-036
	Note 5	Note 6	Note 6
	50644-X576X	166461-144	166483-144
	50644-X588X	166461-147	166483-147
	50644-X600X	166461-150	166483-150

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**Notes:**

1. Part numbers increment by units of four (4).
2. Part numbers increment by units of one (1).
3. Part numbers increment by units of eight (8).
4. Part numbers increment by units of two (2).
5. Part numbers increment by units of twelve (12).
6. Part numbers increment by units of three (3).

**Hybrid Receptacles**  
**2.54 mm (0.100 in.)**

**Ordering Data**  
**Individual Tooling for**  
**R/A Solderless Receptacles**

NOTE A - One base tooling set P/N 162454-004 is required for interchangeable Installation Tooling Sets, and Removal Tools. This one Base Tooling Set will accommodate all varieties of 3 and 4 row tools.

NOTE B - One press block puller P/N 166368-001 is required for removal of any connector, and one Connector Clamp Assembly P/N 162489-001 may be helpful for large connectors.

<b>3 Row Connectors</b>			
<b>Connector Description</b>	<b>Product Part Number</b>	<b>Installation Tooling Set Part Number</b>	<b>Removal Tooling Part Number</b>
3 Row No Guide Holes	50645-X018X	166456-006	166478-006
	50645-X021X	166456-007	166478-007
	50645-X024X	166456-008	166478-008
	Note 1	Note 2	Note 2
	50645-X234X	166456-078	166478-078
	50645-X237X	166456-079	166478-079
	50645-X240X	166456-080	166478-080
3 Row 1 Guide Hole	50646-X060X	166457-020	166479-020
	50646-X066X	166457-022	166479-022
	50646-X072X	166457-024	166479-024
	Note 3	Note 4	Note 4
	50646-X354X	166457-118	166479-118
	50646-X360X	166457-120	166479-120
	50646-X366X	166457-122	166479-122
3 Row 2 Guide Holes	50647-X090X	166458-030	166480-030
	50647-X099X	166458-033	166480-033
	50647-X108X	166458-036	166480-036
	Note 5	Note 6	Note 6
	50647-X432X	166458-144	166480-144
	50647-X441X	166458-147	166480-147
	50647-X450X	166458-150	166480-150

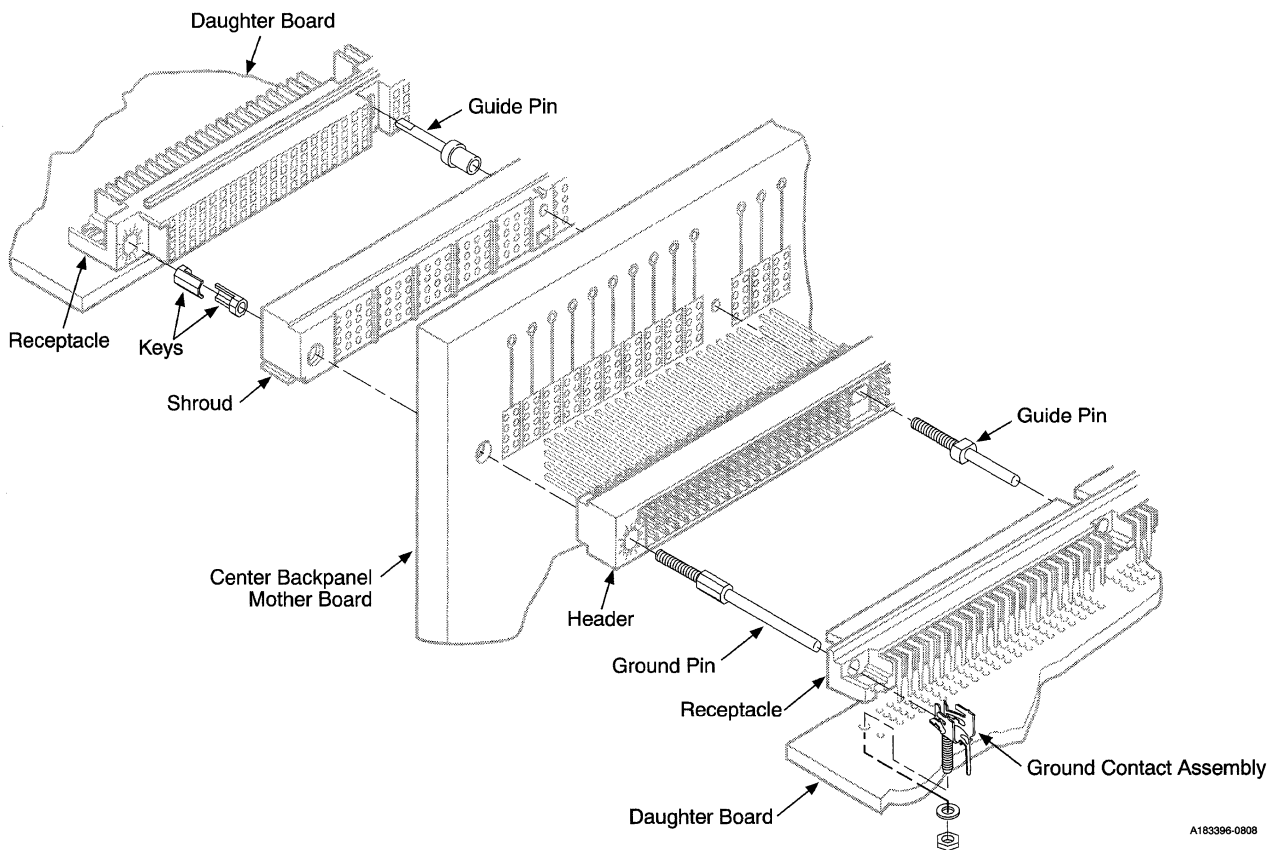
**Notes:**

1. Part numbers increment by units of three (3).
2. Part numbers increment by units of one (1).
3. Part numbers increment by units of six (6).
4. Part numbers increment by units of two (2).
5. Part numbers increment by units of nine (9).

## Keying, Guidance, Power, Static Discharge, and Mounting Hardware

### Features

- Mounting screws, washers, and nuts in a variety of sizes.
- Stainless steel and plastic keys for up to 64 keying combinations.
- Stainless steel guide pins in several lengths.
- Nickel-plated guide pins and contacts to discharge static electricity.
- Gold-plated guide pins and contacts to handle power needs.
- Design capabilities for customized hardware.



A183396-0908

Material		Packaging		Technical Data	
▪ Mounting	Stainless steel	▪ Mounting	Bag of 1000	▪ Guide pin	12 amp per contact
▪ Keying	Stainless steel or plastic	▪ Keying	Bag of 100	▪ Power port	12 amp per contact
▪ Guidance	Stainless steel	▪ Guidance	Bag of 100		
▪ Power		▪ Power	Bag of 100		
▶ Pin	Gold over nickel-plated brass	▪ Static Discharge	Bag of 100		
▶ Contact	Gold over nickel-plated beryllium-copper alloy				
▪ Static Discharge					
▶ Pin	Nickel-plated brass				
▶ Contact	Nickel-plated beryllium-copper alloy				



## Description

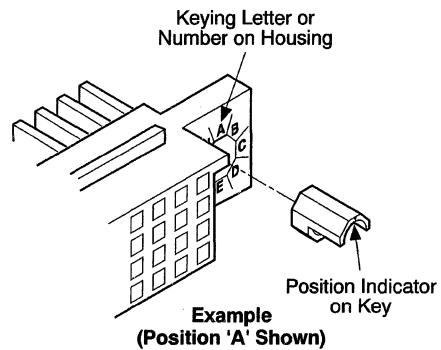
### Keying Hardware and Applications

#### Use of Keys

The HPC™ Keying System allows for up to 64 keying combinations; 8 combinations when keyed at one end, 64 when used at both ends.

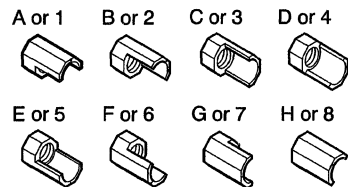
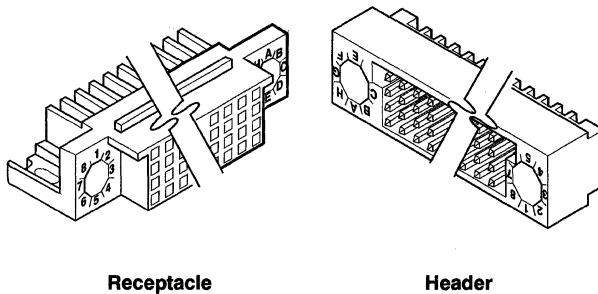
Each key is stamped with a position indicator for orienting the key to the housing. (See example.)

Headers and receptacles are letter coded on one end and number coded on the other. Note that the letters and numbers on headers are upside down to simplify key orientation at assembly.

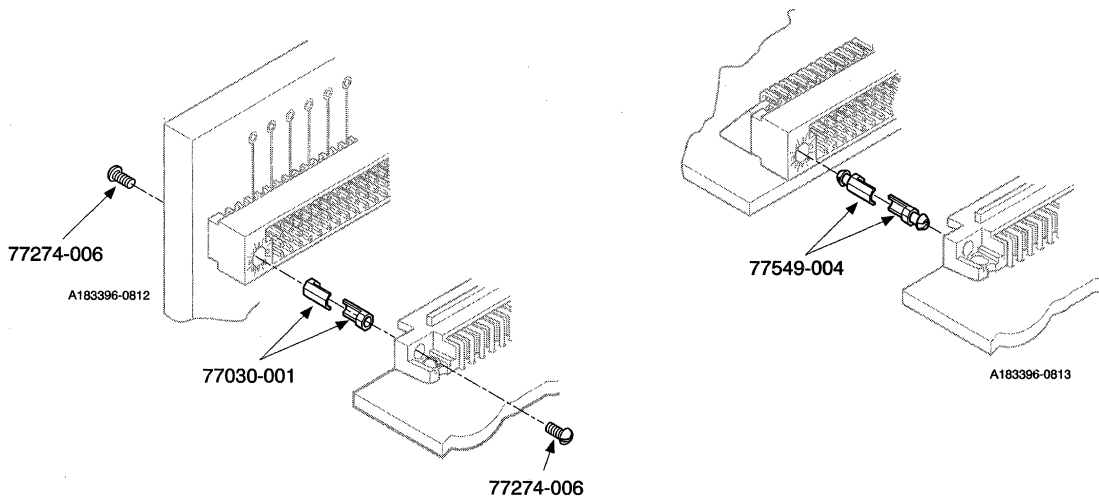


Align position indicated on key with appropriate letter or number on housing.

Use same letter or number on both header and receptacle to ensure proper mating of keys.



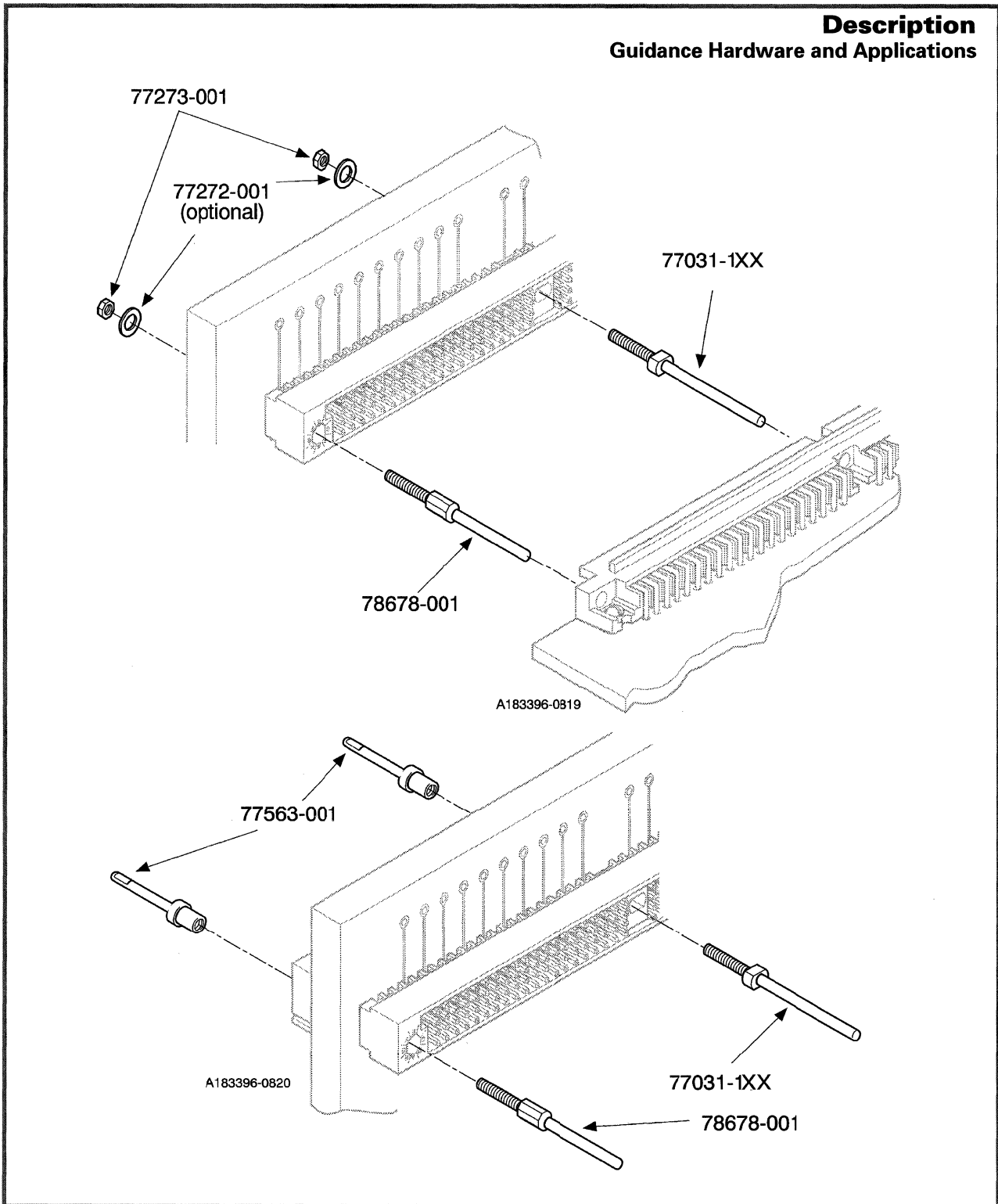
A183396-0811



## Ordering Data

Part Number	Description
77030-001	Orientation Key, Stainless Steel, 7.87 mm (0.310in.) long
77549-004	Orientation Key, Plastic, 7.87 mm (0.310 in.) long
77274-006	Screw, Stainless Steel, Slotted Rnd. Hd., 4.80 mm (0.190 in.) long

**Description**  
Guidance Hardware and Applications

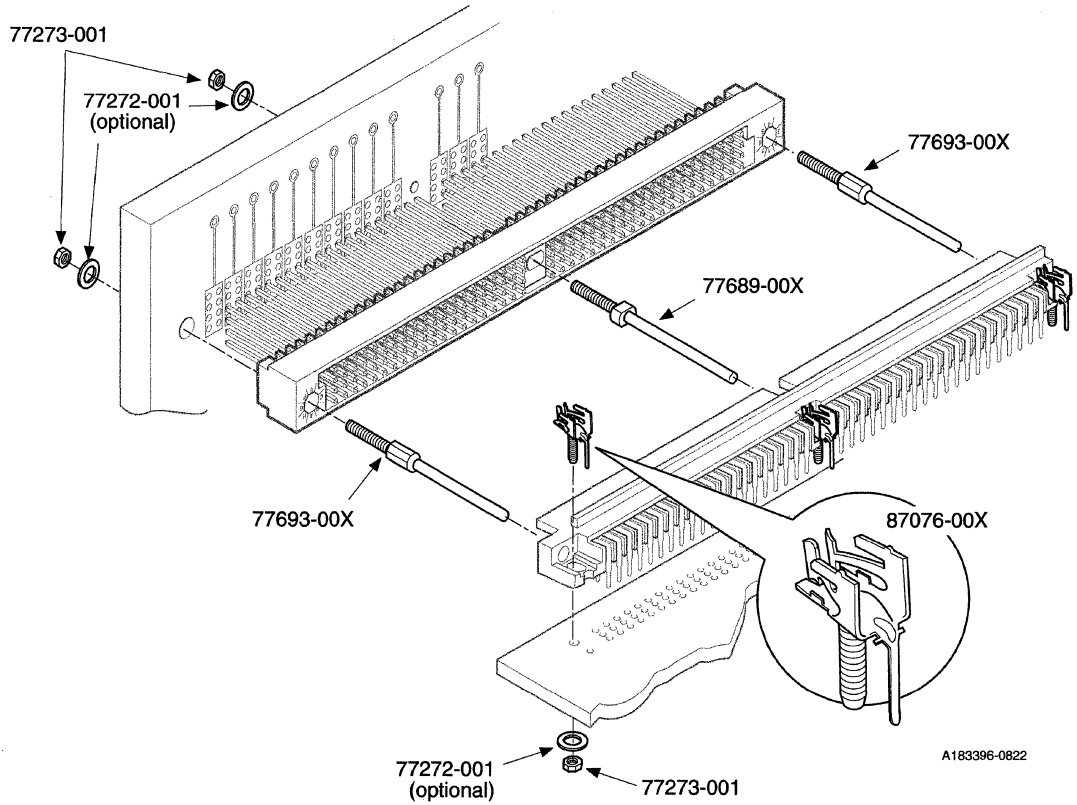
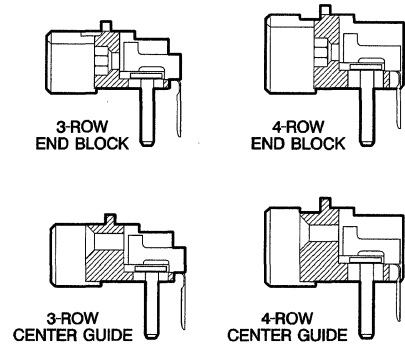


**Ordering Data**

Part Number	Description
77031-102	Inboard Guide Pin, Stainless Steel, For Backpanels up to 0.120 in. Thick
77031-103	Inboard Guide Pin, Stainless Steel, For Backpanels up to 0.240 in. Thick
77031-106	Inboard Guide Pin, Stainless Steel, For Backpanels up to 0.180 in. Thick
78678-001	Outboard Guide Pin, Stainless Steel, For Backpanels up to 0.240 in. Thick
77563-001	Guide Pin, Stainless Steel, Internal Thread, Shroud Mount
77272-001	Flat Washer, Stainless Steel
77273-001	Hex Nut, Stainless Steel

## Description

### Static Discharge Hardware and Applications

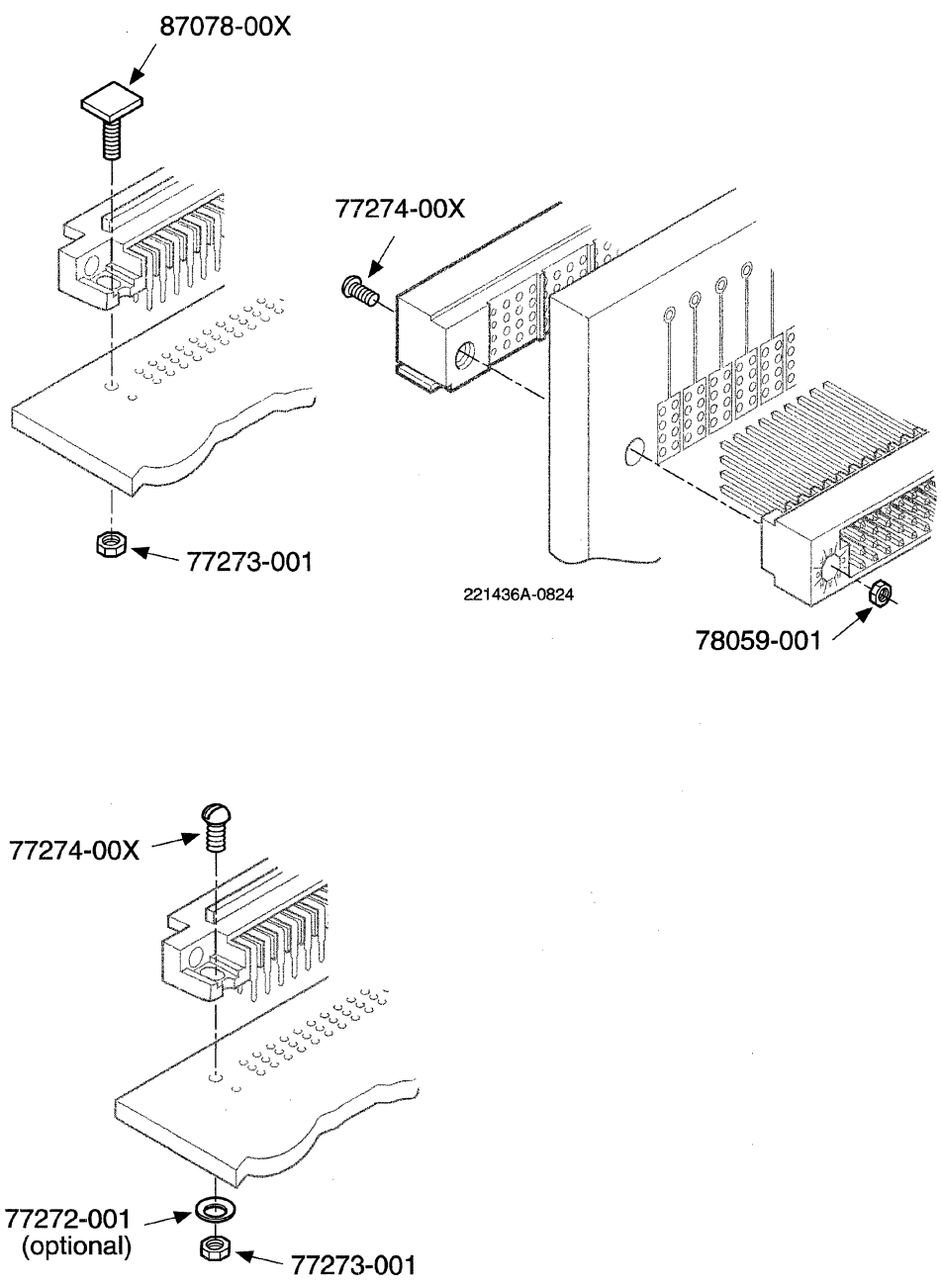


A183396-0822

## Ordering Data

Part Number	Description
77272-001	Flat Washer, Stainless Steel
77273-001	Hex Nut, Stainless Steel
<b>For Power Applications</b>	
Unless Otherwise Specified, Power Pins and Contacts are plated: 30 µin Au over 50 µin Ni	
77689-009	Inboard Guide Pin, Brass Pin, For Backpanels up to 0.220 in. Thick
77693-001	Outboard Guide Pin, Brass Pin, For Backpanels up to 0.240 in. Thick
87076-005	Contact Assembly, Bright Tin on Stud, 3 Row Connector Applications
87076-015	Contact Assembly, Bright Tin on Stud, 4 Row Connector Applications
<b>For Static Discharge Applications</b>	
Unless Otherwise Specified, Power Pins and Contacts are plated: 50 µin Ni	
77689-004	Inboard Guide Pin, For Backpanels up to 0.220 in. Thick
77693-002	Outboard Guide Pin, Brass Pin, For Backpanels up to 0.240 in. Thick
87076-006	Contact Assembly, Bright Tin on Stud, 3 Row Connector Applications
87076-014	Contact Assembly, Bright Tin on Stud, 4 Row Connector Applications

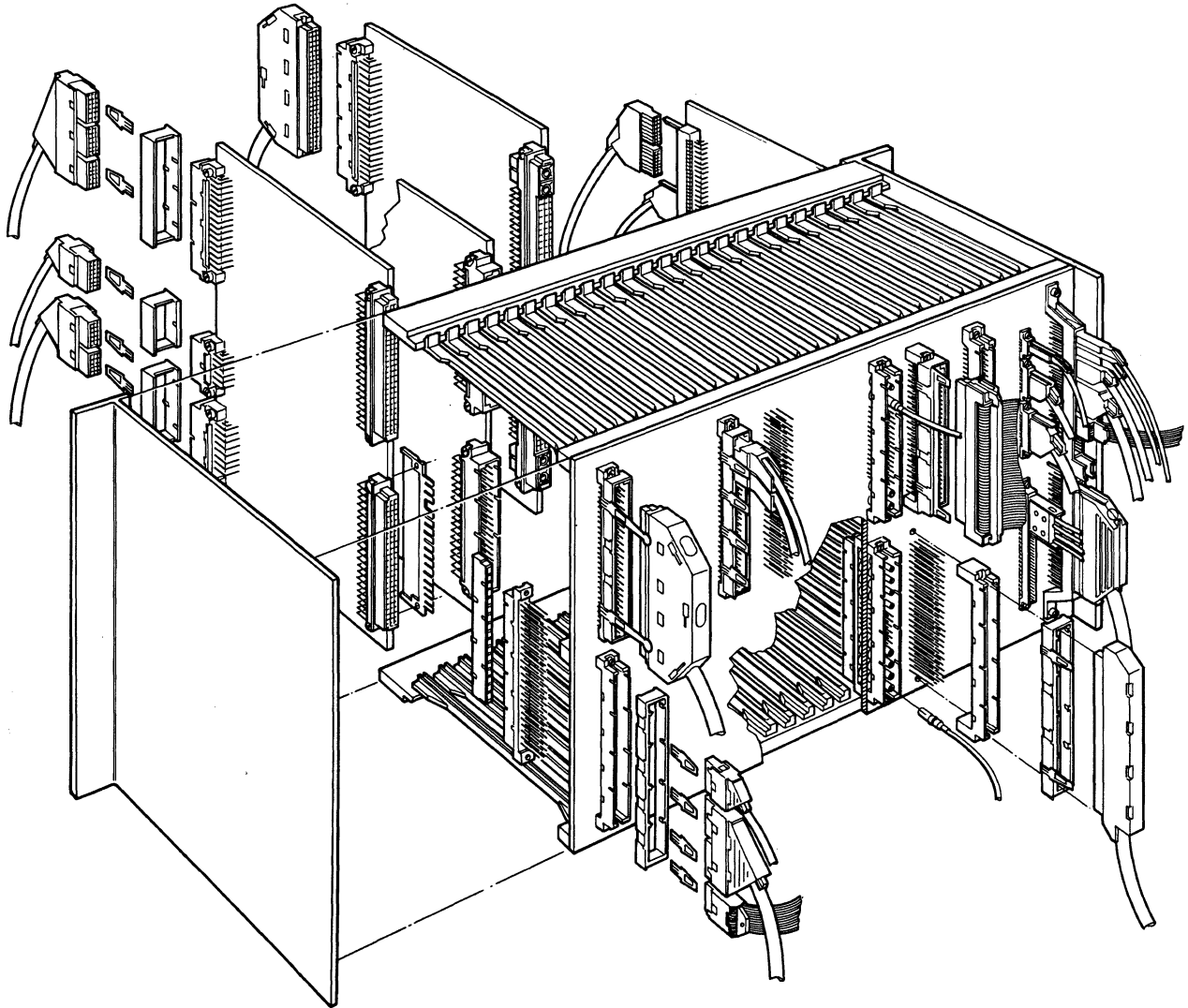
**Description**  
**Static Discharge Hardware and Applications**



**Ordering Data**

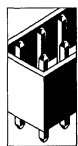
Part Number	Description
77274-008	Screw, Stainless Steel, For Backpanels up to 0.250 in. Thick
77274-001	Screw, Stainless Steel, for PCB's up to 0.093 in Thick, 3 Row Connector
77274-002	Screw, Stainless Steel, for PCB's up to 0.093 in Thick, 4 Row Connector
87078-003	End Hold Down, 3 Row Connector Application
87078-007	End Hold Down, 4 Row Connector Application
77272-001	Flat Washer, Stainless Steel
77273-001	Hex Nut, Stainless Steel
78059-001	Octagonal Nut, Stainless Steel

**DIN**  
2.54 mm (0.100 in.)



A183396-0318

**2.54 mm (0.100 in.) Centerline Products**



**Shrouded Headers**

3-row Vertical (Type R) . . . . . 18-2  
 3-row Right-Angle (Type C) . . . . . 18-4  
 3-row Half DIN Right-Angle (Type C) . . . . . 18-6  
 3-row Right-Angle (Type C) . . . . . 18-8  
 Board-to-Board Coding System . . . . . 18-10



**Compliant Press-Fit Pin Headers**

3-row Vertical . . . . . 18-12  
 Vertical Hybrid (Type M) . . . . . 18-28  
 3-row Right-Angle Reversed DIN (Type M) . . . . . 18-30  
 3-row Standard DIN Vertical (Type M) . . . . . 18-32



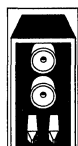
**Shrouds**

Shroud (Type R) . . . . . 18-14



**PCB Mounted Receptacle Assemblies**

3-row Press-Fit Vertical (Type C) . . . . . 18-16  
 3-row Solder-to-Board Vertical (Type C) . . . . . 18-18  
 3-row Half DIN Solder-to-board Vertical (Type C) . . . . . 18-20  
 3-row Solder-to-Board Right-Angle . . . . . 18-22



**Hybrid Connectors**

Vertical Header (Type M) . . . . . 18-28  
 Right-Angle Receptacle (Type M) . . . . . 18-30  
 Standard DIN Vertical Receptacle (Type M) . . . . . 18-32  
 Standard DIN Right-Angle Header (Type M) . . . . . 18-34  
 Shroud (Type M) . . . . . 18-36  
 Coax Inserts . . . . . 18-38  
 Power Inserts . . . . . 18-42



**Round Conductor, Round Cable Discrete Crimp-to-Wire Connectors**

3-row Polarizing and Latching System . . . . . 18-48

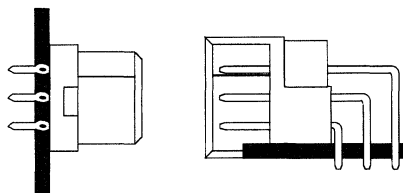


**Round Conductor, Flat Cable, IDC Connector**

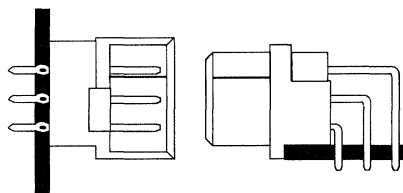
64-Position . . . . . 18-50

**DIN Interconnect Options**

DIN-41612 . . . . Type "C"  
 (Referred to as Standard DIN)



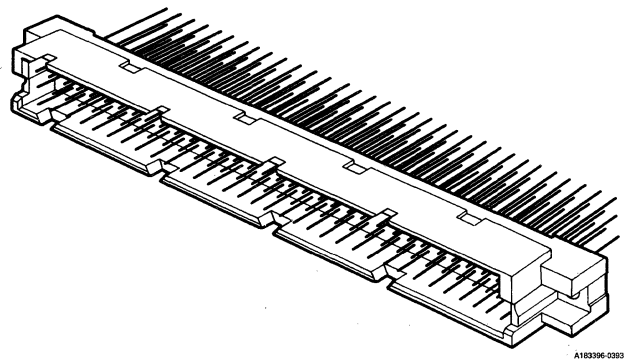
DIN-41612 . . . . Type "R"  
 (Referred to as Inverse or Reverse DIN)



# Shrouded Headers

2.54 mm (0.100 in.) Centerlines

**3-Row DIN (Type "R")  
Solder-to-Board  
Vertical Header**



## Features

- Electrical and mechanical properties according to DIN 41612-series R, IEC 603-2, IEC 603-10, HE 11, HE 12 and BT D2580D.
- Wire wrap and rear plug-up versions.

## Options

- Pins selectively gold or duplex plated.
- 19 mm tail length also available.
- Selective pin loading.
- Coding, latching and polarizing systems.
- First make-last break (FMLB).
- Available with preloaded M2.5 nuts.

## Mating Data

Mates to 2.54 x 2.54 mm (0.100 x 0.100 in.) DIN receptacles.


### Berg Electronics Products


	Page
▪ DIN right-angle receptacles .....	18-22
▪ DIN vertical receptacles .....	18-16 & 18-18
▪ DIN polarizing and latching system .....	18-48
▪ DIN flat cable connectors .....	18-50

## Specifications

- DIN 41612
- IEC 512
- IEC 603-2 & IEC 603-10
- HE 11 & HE 12
- BT D2580D

## Approvals and Certifications

 File no. E66906

 File no. LR46923

## Technical Data

### Materials

- Housing ..... 30% glass-filled thermoplastic polyester (UL 94 V-0)
  - ▶ Color ..... Gray
- Pin ..... Phosphor-bronze

### Plating

- Finish ..... see "Ordering Data"

### Electrical Performance

- Insulation Resistance .....  $1 \times 10^6$  M $\Omega$  initially;  $10^4$  M $\Omega$  after environmental test
- Withstanding voltage ..... 1000 V rms (sea level)

- Current rating ..... 3 amp max

### Mechanical Performance

- Durability (mating cycles) ..... According to DIN 41640

### Operating Environment

- Temperature range ..... -55°C to +125°C

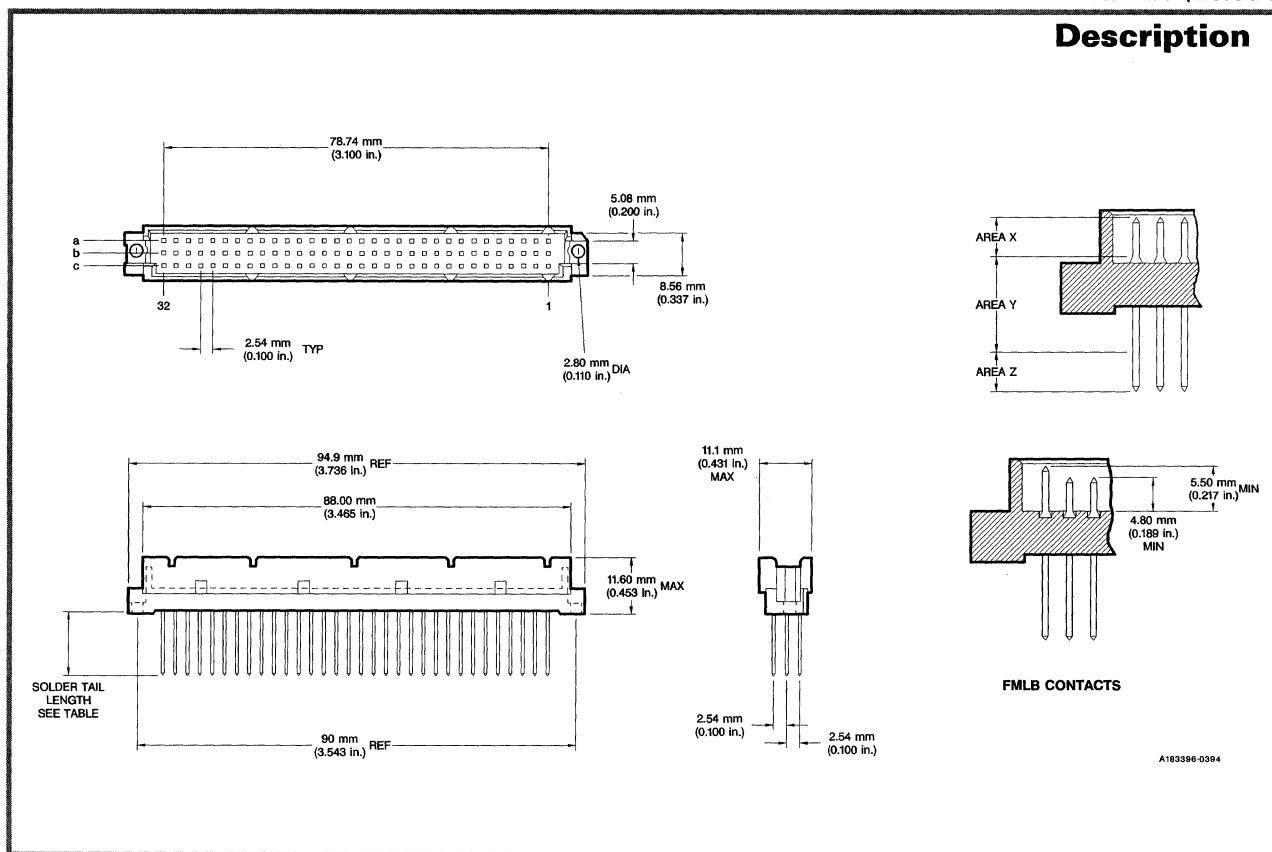
### Packaging

- Trays

## Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawings .....	By Part Number	Product Substitutions .....	Upon Request
Product Samples .....	Upon Request		

### Description



18

Base number.

□ □ □ □ - X Y Y

Dash number specifies finish (X), plating, pin length, and loading.

### Ordering Data

X: Code for finish

Area	-1YY	-2YY	-4YY	-5YY	-7YY	-8YY
X	0.4 μm (16 μin.) gold over nickel	0.8 μm (30 μin.) gold over nickel	0.4 μm (16 μin.) gold over nickel	0.8 μm (30 μin.) gold over nickel	0.4 μm (16 μin.) gold over nickel	0.8 μm (30 μin.) gold over nickel
Y	gold flash over nickel	gold flash over nickel	tin-lead	tin-lead	gold flash over nickel	gold flash over nickel
Z	gold flash over nickel	gold flash over nickel	tin-lead	tin-lead	0.4 μm (16 μin.) gold over nickel	0.8 μm (30 μin.) gold over nickel

Number of Positions	Rows	Part Number	Solder Tail Length		Dimension S		Specifications	Finish Replace X in dash number	
			mm	in.	mm	in.			
32*	a, c	70071-X21	13	0.512	0.73	0.029	HE 11	1, 2, 4, 5, 7, 8	
48*	a, b, c	70071-X22							
64	a, c	70071-X25							
96	a, b, c	70071-X20							
32*	a, c	70070-X21	13	0.512	0.3	0.012			DIN 41612 Series R
48*	a, b, c	70070-X22							
64	a, c	70070-X25							
96	a, b, c	70070-X20							
32*	a, c	70071-X11	4.8	0.189	0.73	0.029	HE 11	1, 2, 4, 5, 7, 8	
48*	a, b, c	70071-X12							
64	a, c	70071-X15							
96	a, b, c	70071-X10							
32*	a, c	70070-X11	4.8	0.189	0.3	0.012			DIN 41612 Series R
48*	a, b, c	70070-X12							
64	a, c	70070-X15							
96	a, b, c	70070-X10							

\*The even positions are loaded for spacing 5.08 mm (0.200 in.).

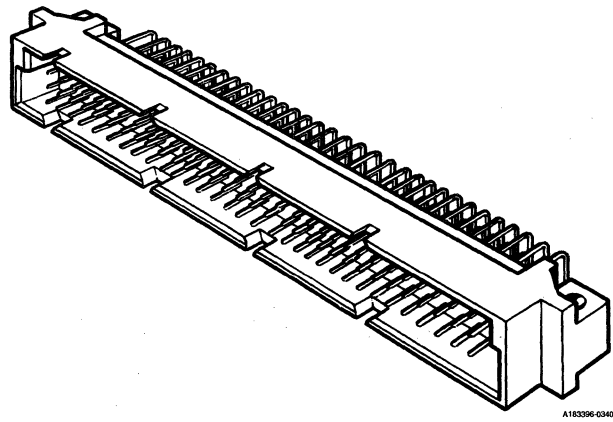
Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.



# Shrouded Headers

2.54 mm (0.100 in.) Centerlines

## 3-Row DIN (Type C) Solder-to-Board Right-Angle Header



### Features

- For VME bus, Multibus II and Nubus users.
- Electrical and mechanical properties according to DIN 41612-series C, IEC 603-2, HE 12 and BT D2580D.
- Available in 3 x 7, 3 x 15, 3 x 23, and 3 x 32 sizes.
- Tin-lead solder tails

### Options

- Pins selectively gold plated.
- Coding and latching for cable connectors.
- First make last break (FMLB).
- Preloaded fixing clips.

### Mating Data

Mates to 2.54 x 2.54 mm (0.100 x 0.100 in.) DIN receptacles.


#### Berg Electronics Products


	Page
▪ DIN right-angle receptacles .....	18-22
▪ DIN vertical receptacles .....	18-16 & 18-18
▪ Cable connector polarizing and latching system .....	18-48
▪ DIN flat cable connector .....	18-50

### Specifications

- DIN 41612
- IEC 512
- IEC 603-2
- HE 12
- BT D2580D

### Approvals and Certifications

 File no. E66906

 File no. LR46923

### Technical Data

#### Materials

- Housing ..... Glass-filled thermoplastic polyester (UL 94 V-0)
  - ▶ Color ..... Gray
- Pin ..... Phosphor-bronze

#### Plating

- Finish ..... see "Ordering Data"

#### Electrical Performance

- Insulation Resistance .....  $1 \times 10^6$  M $\Omega$  initially;  $10^4$  M $\Omega$  after environmental test

- Withstanding voltage ..... 1000 Vrms (sea level)
- Current rating ..... 3 amp max

#### Mechanical Performance

- Durability (mating cycles) ..... According to DIN 41640

#### Operating Environment

- Temperature range ..... -55°C to +125°C

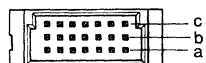
#### Packaging

- Trays

### Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawings.....	By Part Number	Product Substitutions.....	Upon Request
Product Samples .....	Upon Request		

**Description**



POSITION 3 x 7



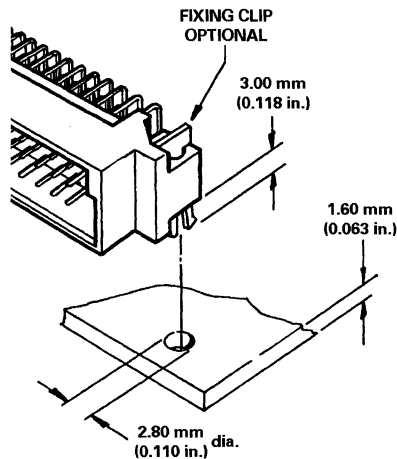
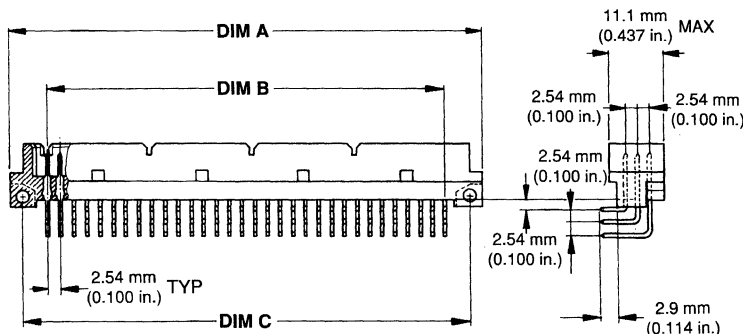
POSITION 3 x 15



POSITION 3 x 23



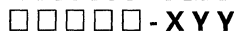
POSITION 3 x 32



A183396-0341

**Ordering Data**

Last digit of base number specifies number of positions.



Dash number specifies plating and loading.

Finish: Replace X in dash number with:

- 1 -- Contact area: 0.40 μm (16 μin.) gold over nickel, solder tail: tin-lead
- 2 -- Contact area: 0.8 μm (30 μin.) gold over nickel, solder tail: tin-lead
- 3 -- Contact area: 2 μm (80 μin.) gold over nickel, solder tail: tin-lead

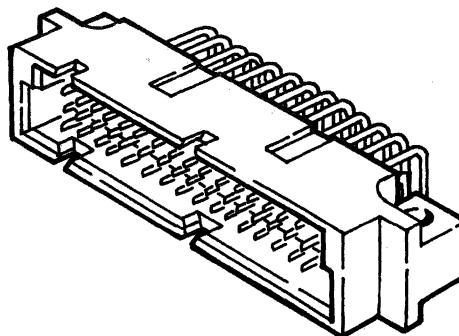
Positions	Rows	Base Number	Dash Number	Dimensions					
				A (max)		B		C	
				mm	in.	mm	in.	mm	in.
2 x 7	a, c	70075	-X05	30.50	1.201	15.24	0.600	25.40	1.000
3 x 7	a, b, c	70075	-X00	30.50	1.201	15.24	0.600	25.40	1.000
2 x 15	a, c	70074	-X05	50.82	2.001	35.56	1.400	45.72	1.800
3 x 15	a, b, c	70074	-X00	50.82	2.001	35.56	1.400	45.72	1.800
2 x 23	a, c	70073	-X05	71.14	2.801	55.88	2.200	66.04	2.600
3 x 23	a, b, c	70073	-X00	71.14	2.801	55.88	2.200	66.04	2.600
2 x 32	a, c	70072	-X05	94.00	3.701	78.74	3.100	88.90	3.500
3 x 32	a, b, c	70072	-X00	94.00	3.701	78.74	3.100	88.90	3.500

Note 1. For connectors with optional fixing clip please add -01 to the basic part number (Example: 70072-205-01)

# Shrouded Headers

2.54 mm (0.100 in.) Centerlines

**3-Row Half DIN (Type C)  
Solder-to-Board  
Right-Angle Header**



## Features

- Electrical and mechanical properties according to DIN 41612-series C, IEC 603-2, HE 12, and BT D2580D.
- Tin-lead solder tails.

## Options

- Pins selectively gold plated.
- Polarizing and latching.


## Mating Data


- Mates to 2.54 x 2.54 mm (0.100 x 0.100 in.) Half DIN receptacles.
- Recommended hole diameter 1.00 mm (0.039 in.)

## Berg Electronics Products

- | Berg Electronics Products           | Page  |
|-------------------------------------|-------|
| ▪ DIN right-angle receptacles ..... | 18-24 |
| ▪ DIN vertical receptacles .....    | 18-20 |
| ▪                                   |       |

## Approvals and Certifications

 File no. E66906

 File no. LR46923

## Specifications

- DIN 41612
- IEC 603-2
- HE 12
- BT D2580D

## Technical Data

### Materials

- Housing ..... Glass-filled thermoplastic polyester (UL 94 V-0)
  - ▶ Color ..... Gray
- Pin ..... Copper alloy

### Plating

- Finish ..... see "Ordering Data"

### Electrical Performance

- Insulation Resistance .....  $1 \times 10^6$  M $\Omega$  initially;  $10^4$  M $\Omega$  after environmental test
- Withstanding voltage ..... 1000 Vrms (sea level)

- Current rating ..... 1.5 amp at 20°C

### Operating Environment

- Temperature range ..... -55°C to +125°C

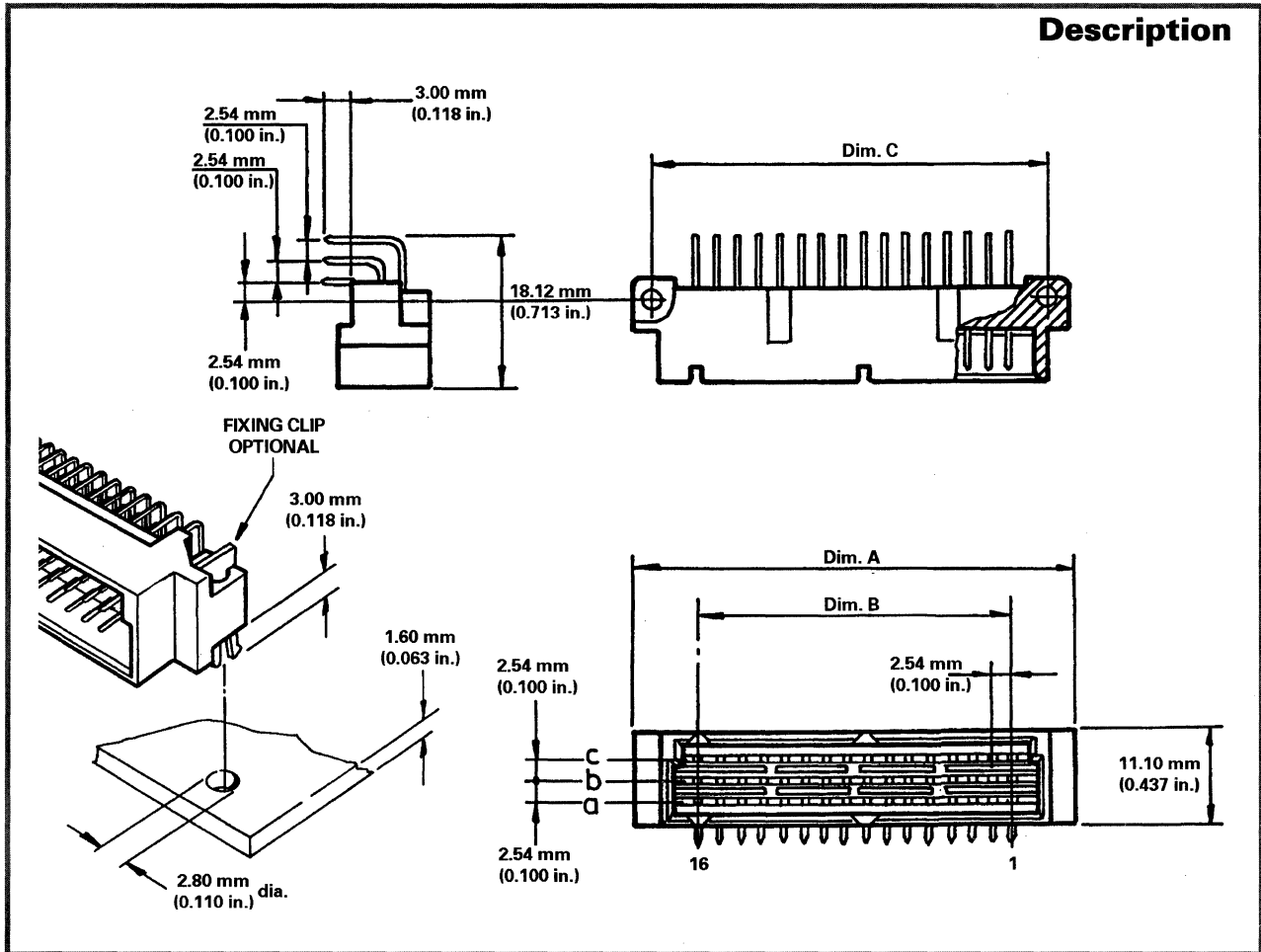
### Packaging

- Trays

## Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawings.....	By Part Number	Product Substitutions.....	Upon Request
Product Samples .....	Upon Request		

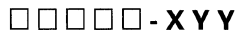
### Description



18

### Ordering Data

Last digit of base number specifies number of positions.



Dash number specifies plating and loading.

Finish: Replace X in dash number with:  
 3 -- Contact area: 0.40  $\mu\text{m}$  (16  $\mu\text{in.}$ ) gold over nickel, solder tail: tin-lead  
 2 -- Contact area: 0.80  $\mu\text{m}$  (30  $\mu\text{in.}$ ) gold over nickel, solder tail: tin-lead

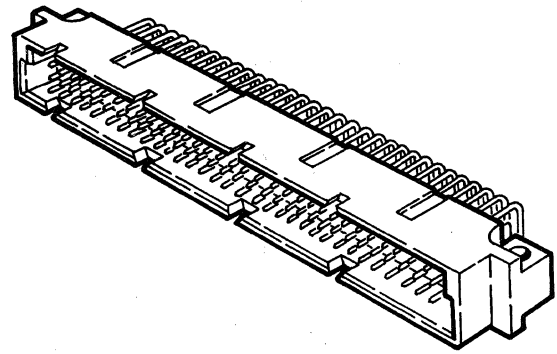
Positions	Rows	Loading Pattern	Base Number	Dash Number	Dimensions					
					A (max)		B		C	
					mm	in.	mm	in.	mm	in.
3 x 16	a, c	even positions	92375	-X01	53.80	2.118	38.10	1.500	48.26	1.900
3 x 16	a, b, c	even positions	92375	-X02	53.80	2.118	38.10	1.500	48.26	1.900
3 x 16	a, c	all positions	92375	-X03	53.80	2.118	38.10	1.500	48.26	1.900
3 x 16	a, b, c	all positions	92375	-X04	53.80	2.118	38.10	1.500	48.26	1.900

Note 1. For connectors with optional fixing clip please add -01 to the basic part number (Example: 92375-401-01)

# Shrouded Headers

2.54 mm (0.100 in.) Centerlines

**3-Row DIN (Type C)  
Solder-to-Board  
Right-Angle Header**



## Features

- For VME bus, Multibus II and Nubus users.
- Electrical and mechanical properties according to DIN 41612-series C, IEC 603-2, HE 12, and BT D2580D.
- Tin-lead solder tails.

## Options

- Pins selectively gold plated.

## Mating Data


- Mates to 2.54 x 2.54 mm (0.100 x 0.100 in.) DIN receptacles.
- Recommended hole diameter 1.00 mm (0.039 in.)


## Berg Electronics Products

- DIN right-angle receptacles ..... 18-23
- DIN vertical receptacles ..... 18-16 & 18-18
- Cable connector polarizing and latching system ..... 18-48
- DIN flat cable connector ..... 18-50

## Page

## Approvals and Certifications

 File no. E66906

 File no. LR46923

## Specifications

- DIN 41612
- IEC 603-2
- HE 12
- BT D2580D

## Technical Data

### Materials

- Housing ..... Glass-filled thermoplastic polyester (UL 94 V-0)
  - ▶ Color ..... Gray
- Pin ..... Copper alloy

### Plating

- Finish ..... see "Ordering Data"

### Electrical Performance

- Insulation Resistance .....  $1 \times 10^6$  M $\Omega$  initially;  $10^4$  M $\Omega$  after environmental test
- Withstanding voltage ..... 1000 Vrms (sea level)

- Current rating ..... 1.5 amp at 20°C

### Operating Environment

- Temperature range ..... -55°C to +125°C

### Packaging

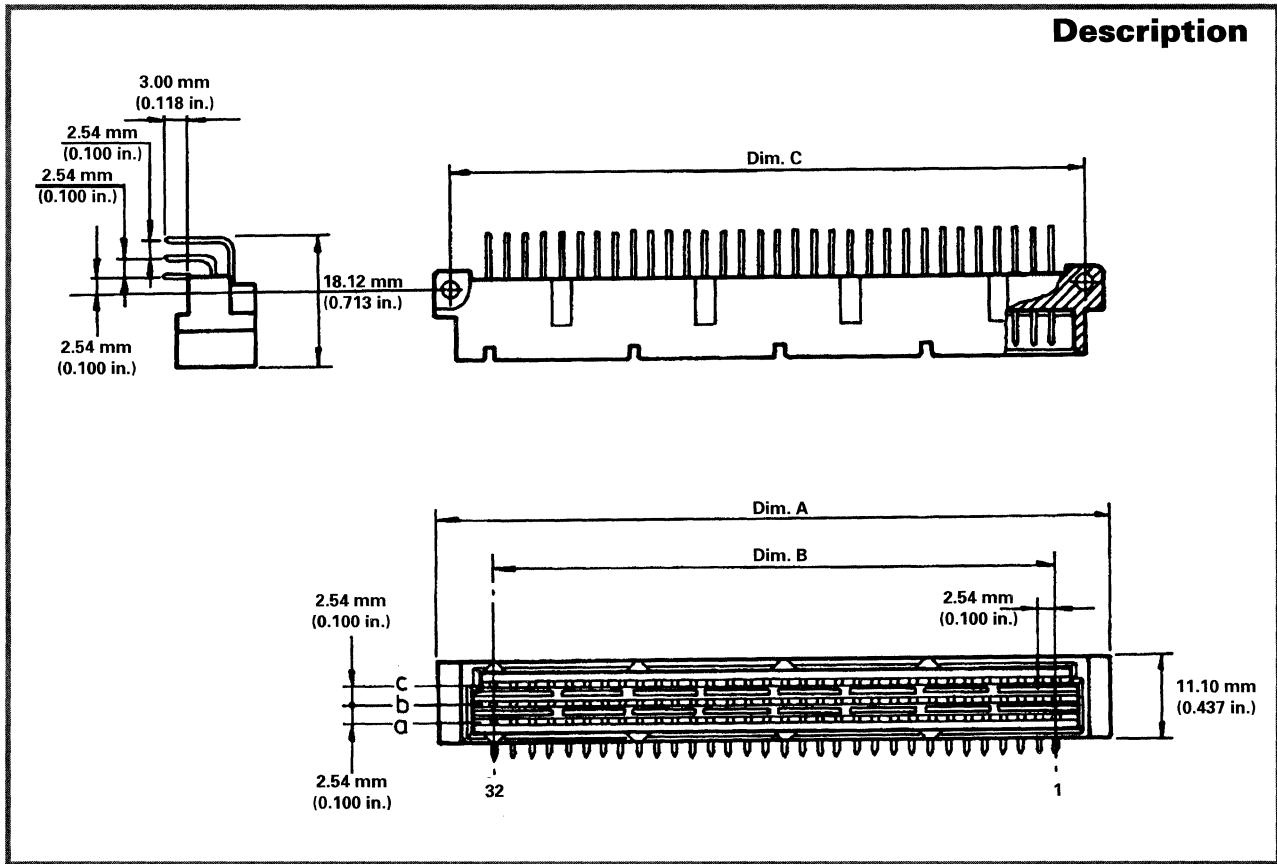
- Trays

## Customer Support Materials

Description	Order No.
Customer Product Drawings .....	By Part Number
Product Samples .....	Upon Request

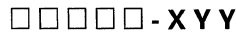
Description	Order No.
Product Substitutions .....	Upon Request

**Description**



**Ordering Data**

Last digit of base number specifies number of positions.



Dash number specifies plating and loading.

Finish: Replace X in dash number with:

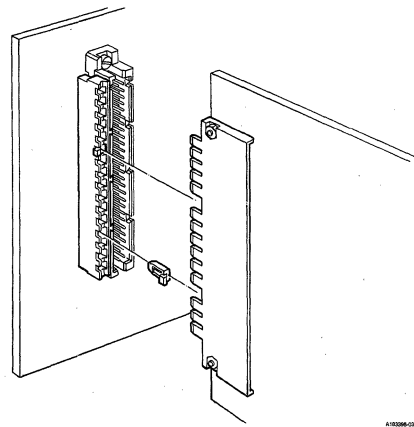
- 3 -- Contact area: 0.40 μm (16 μin.) gold over nickel, solder tail: tin-lead
- 2 -- Contact area: 0.80 μm (30 μin.) gold over nickel, solder tail: tin-lead

Positions	Rows	Loading Pattern	Base Number	Dash Number	Dimensions					
					A (max)		B		C	
					mm	in.	mm	in.	mm	in.
3 x 32	a, c	even positions	92324	-X01	94.00	3.701	78.74	3.100	88.90	3.500
3 x 32	a, b, c	even positions	92324	-X02	94.00	3.701	78.74	3.100	88.90	3.500
3 x 32	a, c	all positions	92324	-X03	94.00	3.701	78.74	3.100	88.90	3.500
3 x 32	a, b, c	all positions	92324	-X04	94.00	3.701	78.74	3.100	88.90	3.500

# Shrouded Headers

2.54 mm (0.100 in.) Centerlines

## DIN Board-to-Board Coding System



### Features

- Provides up to 12,000 coding possibilities for daughter boards.
- Male coding part mounting holes according to DIN 41612.
- Easy mounting.
- Female coding part snaps onto 3-row DIN (Type R) vertical headers and shrouds.

### Used With

- DIN 41612 series R vertical headers and shrouds.

#### Berg Electronics Products Page

- DIN vertical headers ... 18-2 & 18-12
- DIN shroud..... 18-14

### Specifications

- DIN 41612

### Technical Data

#### Materials

- Housing
  - ▶ Female coding part..... glass-filled polycarbonate (UL 94 V-1)
  - ▶ Male coding part..... 30% glass-filled thermoplastic polyester (UL 94 V-0)
  - ▶ Polarization key..... modified polyphenylene oxide (UL 94 V-1)
  - ▶ Color
    - Female and male coding parts ..... gray
    - Polarization key ..... red

#### Operating Environment

- Temperature range
  - ▶ Female coding part and polarization key ..... -40°C to +105°C
  - ▶ Male coding part..... -55°C to +105°C

#### Packaging

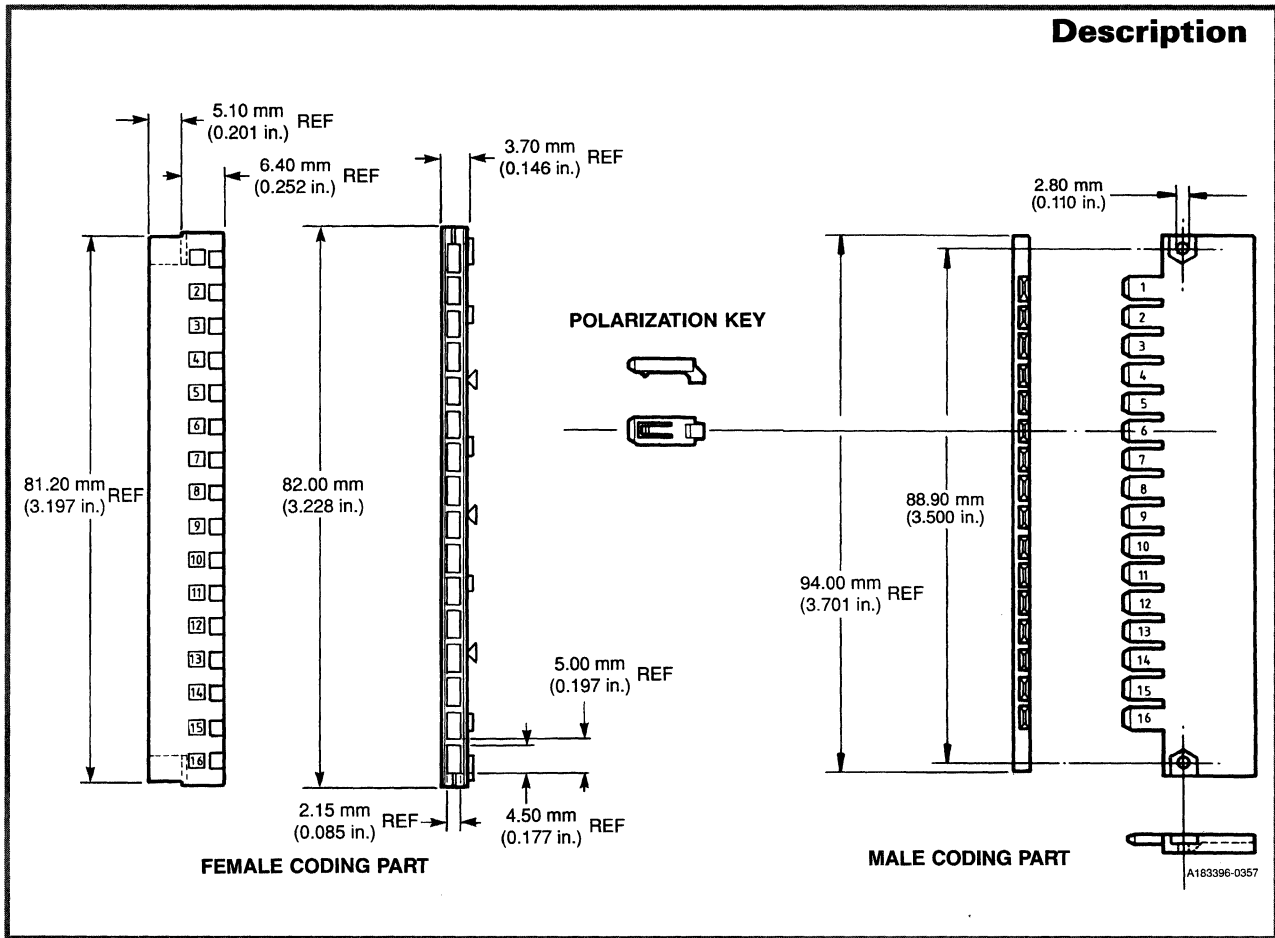
- Bags

### Customer Support Materials

<b>Description</b>	<b>Order No.</b>
Customer Product Drawings.....	By Part Number

<b>Description</b>	<b>Order No.</b>
Product Samples.....	Upon Request

**Description**



18

**Ordering Data**

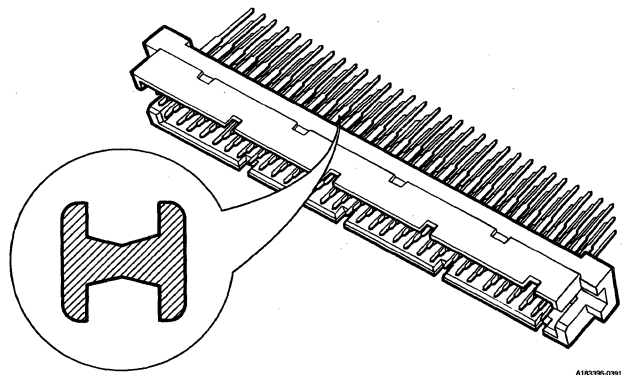
Description	Part Number
Female coding part	68305-001
Male coding part	65197-001
Polarization key	65198-001



# Compliant Press-Fit Pin Headers

2.54 mm (0.100 in.) Press-Fit Centerlines

## 3-Row DIN Press-Fit Vertical Header



### Features

- Electrical and mechanical properties according to DIN 41611, DIN 41612-Series R, IEC 603-2, HE 12 and BT D2580D.
- Rear plug-up version.
- Reliable H-shaped compliant press-fit section provides optimum pin stability and a gastight connection in the four contact areas.
- Large hole tolerance: 0.94 mm -- 1.09 mm (0.037--0.043 inch).
- Individual pins are replaceable up to 5 times.

### Options

- Selective loading.
- 17.00 mm and 19.00 mm tail lengths also available.
- Triplex platings.
- Coding.
- First make-last break (FMLB).

### Mating Data


Mates to 2.54 x 2.54 mm (0.100 x 0.100 inch) DIN Receptacles


Berg Electronics Products	Page
▪ DIN right-angle receptacles .....	18-22
▪ DIN vertical receptacles .....	18-16 & 18-18
▪ Cable connector polarizing and latching system .....	18-48
▪ DIN flat cable connector .....	18-50

### Specifications

- DIN 41611
- DIN 41612
- IEC 603-2
- HE 12
- BT D2580D

### Approvals and Certifications

 File no. E66906

 File no. LR46923

### Application Equipment

Description	Page
▪ HT-301 Extraction tool .....	18-55
▪ HT-302 Insertion tool .....	18-55
▪ PMC-100 Airpress (3 tons) .....	18-53
▪ PEC-102 Semi-automatic bench press .....	18-54

### Technical Data

#### Materials

- Housing material ..... Glass-filled thermoplastic polyester (UL 94 V-0)
  - ▶ Color ..... Gray
- Pin ..... Phosphor-bronze

#### Plating

- Finish ..... see "Ordering Data"

#### Electrical Performance

- Current rating ..... 2 amp max
- Withstanding voltage ..... 1000 V rms (sea level)

#### Mechanical Performance

- Insertion force ..... 200 N (20 kgf) max per position
- Retention force ..... 55 N (5.5 kgf) min initially - 35 N (3.5 kgf) per position after environmental tests
- Durability (Mating cycles) ..... According to DIN 41640

#### Operating Environment

- Temperature Range ..... -55°C to +125°C

#### Packaging

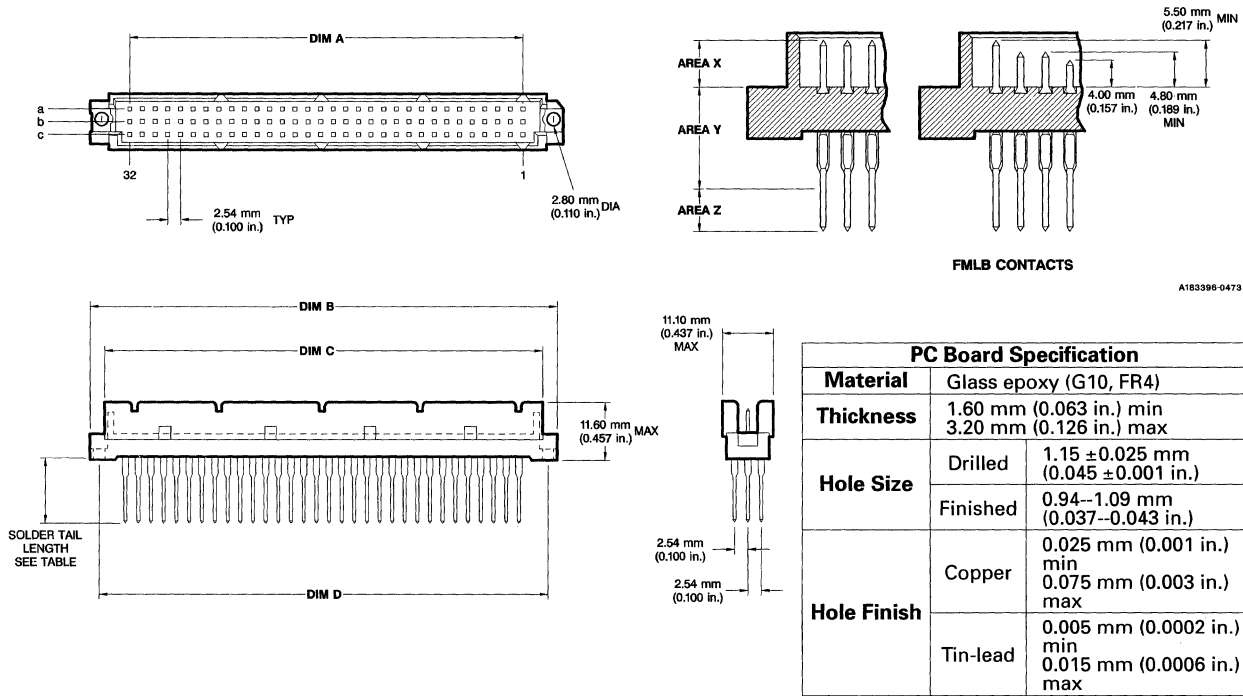
- Trays

### Customer Support Materials

Description	Order No.
Customer Product Drawings.....	By Part Number
Application Drawings .....	TA 561, 562-A, 562-B
Product Samples .....	Upon Request

Description	Order No.
Test Data .....	Lab Reports Nos. 1178 and 1179
Product Substitutions.....	Upon Request

## Description



PC Board Specification	
<b>Material</b>	Glass epoxy (G10, FR4)
<b>Thickness</b>	1.60 mm (0.063 in.) min 3.20 mm (0.126 in.) max
<b>Hole Size</b>	Drilled 1.15 ±0.025 mm (0.045 ±0.001 in.)
	Finished 0.94–1.09 mm (0.037–0.043 in.)
<b>Hole Finish</b>	Copper 0.025 mm (0.001 in.) min 0.075 mm (0.003 in.) max
	Tin-lead 0.005 mm (0.0002 in.) min 0.015 mm (0.0006 in.) max

Last digit of base number specifies solder tail length.

□ □ □ □ □ - X Y Y

Dash number specifies finish (X), plating, solder tail length, and loading.

## Ordering Data

X: Code for finish							
Area	-2YY	-4YY	-8YY	-9YY			
X	0.8 μm (30 μin.) gold over nickel	0.4 μm (15 μin.) gold over nickel	0.8 μm (30 μin.) gold over nickel	0.4 μm (15 μin.) gold over nickel			
Y	gold flash over nickel	gold flash over nickel	nickel	nickel			
Z	0.8 μm (30 μin.) gold over nickel	0.4 μm (15 μin.) gold over nickel	4.0 μm (160 μin.) tin-lead over nickel	4.0 μm (160 μin.) tin-lead over nickel			
Part Number	Number of Positions	Part Number	Number of Positions	Rows Loaded	Tail Length		Finish Replace X in dash number
					mm	in.	
68301-X02	32	71656-X11	16	a, c	6	0.236	2, 4, 8, 9
68301-X04	64	71656-X15	32	a, c			
68301-X06	96	71656-X10	48	a, b, c			
68302-X02	32	71656-X51	16	a, c	13	0.512	2, 4, 8, 9
68302-X04	64	71656-X55	32	a, c			
68302-X06	96	71656-X50	48	a, b, c			
68303-X02	32	71656-X61	16	a, c	20	0.787	2, 4, 8, 9
68303-X04	64	71656-X65	32	a, c			
68303-X06	96	71656-X60	48	a, b, c			
Dimensions							
Part Number	A	B (max)	C (max)	D			
6830X	78.74 mm (3.100 in.)	95.00 mm (3.740 in.)	88.00 mm (3.465 in.)	90.00 mm (3.543 in.)			
71656 (Half DIN)	38.10 mm (1.500 in.)	---	---	49.36 mm (1.943 in.)			

### Notes

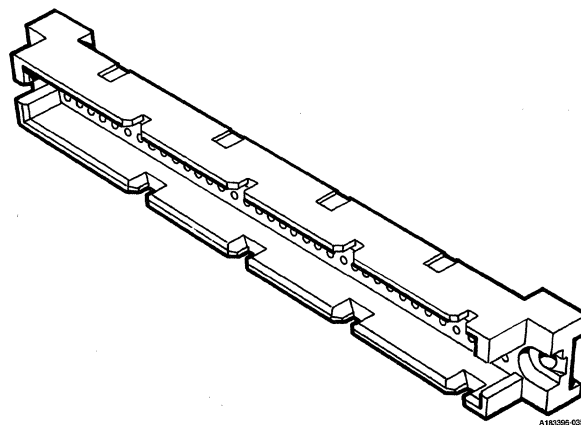
- The even positions are loaded for spacing 5.08 mm (0.200 in.).
- For special versions such as selective loading and advanced earth contacts, contact your local Berg Electronics sales office.
- See for "Board-to-Board Coding System," page 18-10 and for "Polarizing and Latching System," page 18-48.
- For handtool and application machine information, see page 18-55, 18-53, & 18-54.

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

# Shrouds

2.54 mm (0.100 in.) Centerlines

## DIN Shroud (Type R)



A183395 6/03

### Features

- Design according to DIN 41612.
- Used in combination with press-fit pins and for rear plug-up on 3-row DIN connectors.
- Wide lead-in for easy mating.
- Separate frames for coding, polarizing and latching.

### Options

- Stand-off height to adjust for board thickness.
- Coding, polarizing and latching systems.

### Mating Data

Mates to 0.64 mm (0.025 inch) square pin.

#### Berg Electronics Products

#### Page

- DIN vertical receptacles . . . . . 18-16 & 18-18
- DIN right-angle receptacles . . . 18-22
- DIN vertical headers . . . 18-2 & 18-12
- DIN polarizing and latching system . . . . . 18-48
- DIN flat cable connector . . . . . 18-50

### Specifications

- DIN 41612

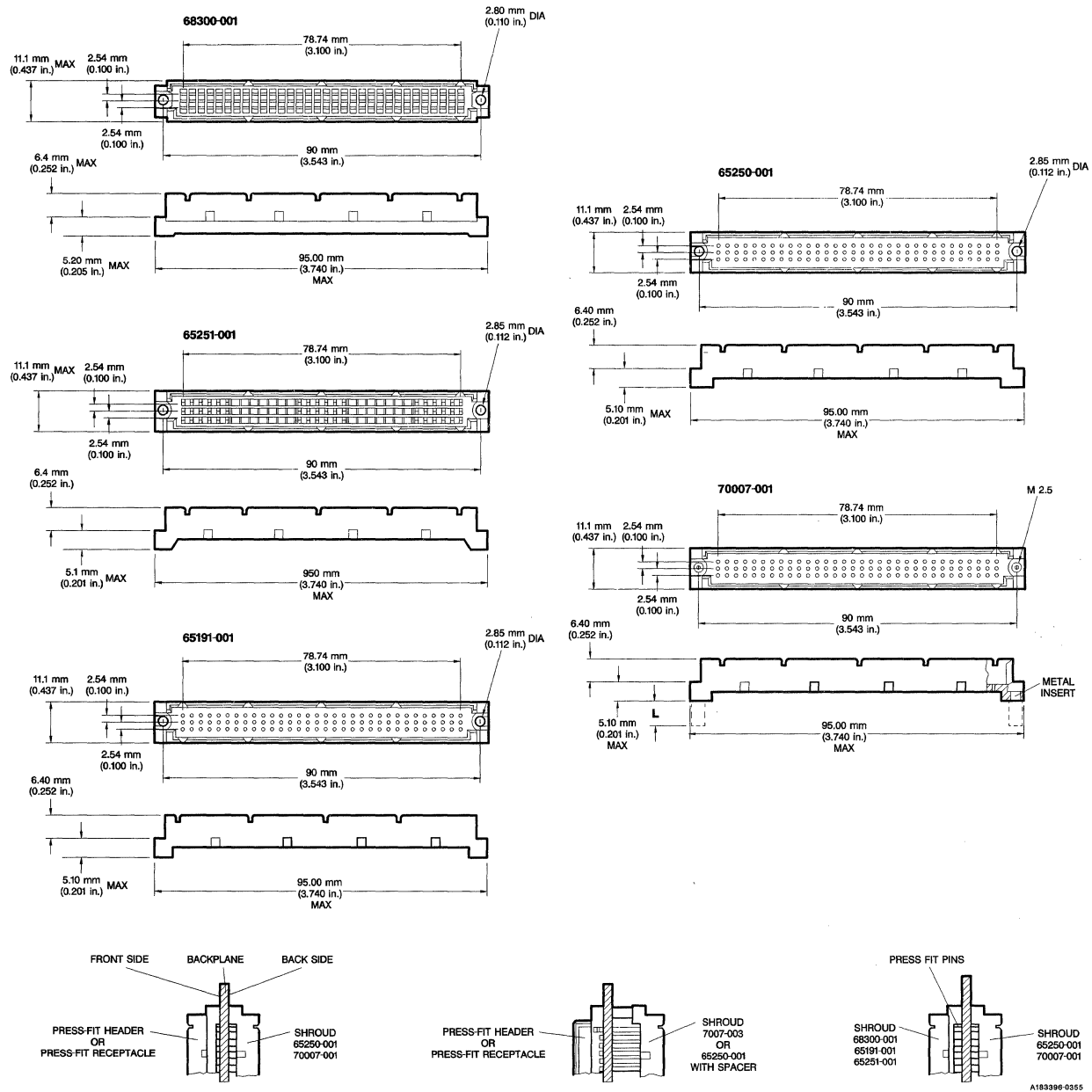
### Technical Data

<p><b>Materials</b></p> <ul style="list-style-type: none"> <li>▪ Housing . . . . . Glass-filled thermoplastic polyester (UL 94 V-0) 65251-001: Polycarbonate (UL-94 V-1)</li> <li>    ▶ Color . . . . . Gray</li> </ul> <p><b>Electrical Performance</b></p> <ul style="list-style-type: none"> <li>▪ Insulation resistance . . . . . <math>1 \times 10^6</math> M<math>\Omega</math> initially; 10<sup>4</sup> M<math>\Omega</math> after environmental test</li> <li>▪ Withstanding voltage . . . . . 1000 V rms (sea level)</li> </ul>	<p><b>Operating Environment</b></p> <ul style="list-style-type: none"> <li>▪ Temperature range . . . . . -55°C to +125°C</li> <li>▪ Polarization . . . . . Configuration of plastic parts</li> </ul> <p><b>Packaging</b></p> <ul style="list-style-type: none"> <li>▪ Bags</li> </ul>
---	---

### Customer Support Materials

<b>Description</b>	<b>Order No.</b>	<b>Description</b>	<b>Order No.</b>
Customer Product Drawings . . . . .	By Part Number	Product Substitutions . . . . .	Upon Request
Product Samples . . . . .	Upon Request		

## Description



18

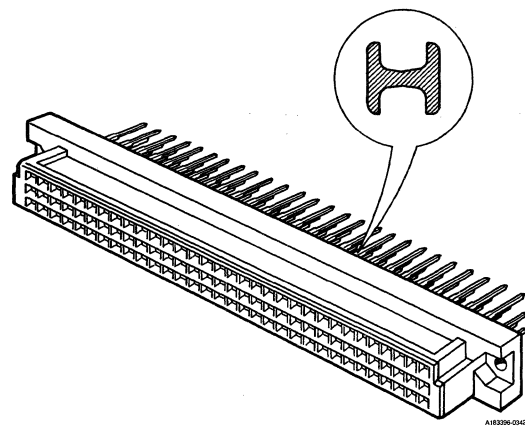
## Ordering Data

Description	Part Number	Dimension L		Features
		mm	in.	
Frontside	68300-001	---	---	---
	65191-001	---	---	---
	65251-001	---	---	Self-latching
Backside	65250-001	---	---	---
	70007-001	0.20	0.008	Metal inserts
	70007-003	6.85	0.270	Metal inserts

# PCB Mounted Receptacle Assemblies

2.54 mm (0.100 in.) Centerlines

## 3-Row DIN (Type C) Press-Fit Vertical Receptacle



### Features

- For VME bus, Multibus II or Nubus users.
- According to DIN 41611, DIN 41612-series C, IEC 603-2, HE 12, and BT D2580D.
- Reliable H-shaped compliant section provides optimum pin stability and a gastight connection in the four contact areas.
- Single beam, long wipe contact.
- Flexible application process with low investment. Insertion into the board by pressing the connector with flat rock tooling.
- Large hole tolerances (0.94 mm to 1.09 mm).

### Options

- Selective loading.
- Triplex platings.
- Repairable.

### Mating Data

Mates to 0.64 mm (0.025 inch) square pin from 4.0 mm (0.158 inch) minimum to 5.5 mm (0.217 inch) maximum long.

#### Berg Electronics Products Page

- DIN vertical headers . . . 18-2 & 18-12
- DIN right-angle headers . 18-4 & 18-8
- DIN vertical receptacles (rear plug-up) . . . . . 18-16 & 18-18
- DIN right-angle receptacles (rear plug-up) . . . . . 18-23
- DIN shrouds (rear plug-up) . . . 18-14



### Specifications

- DIN 41611
- DIN 41612
- IEC 512
- IEC 603-2
- HE 12
- BT D2580D

### Application Equipment

Description	Page
▪ PMC-100 Air Press (3 tons) . . . . .	18-53
▪ PEC-102 Semiautomatic Bench Press . . . . .	18-54

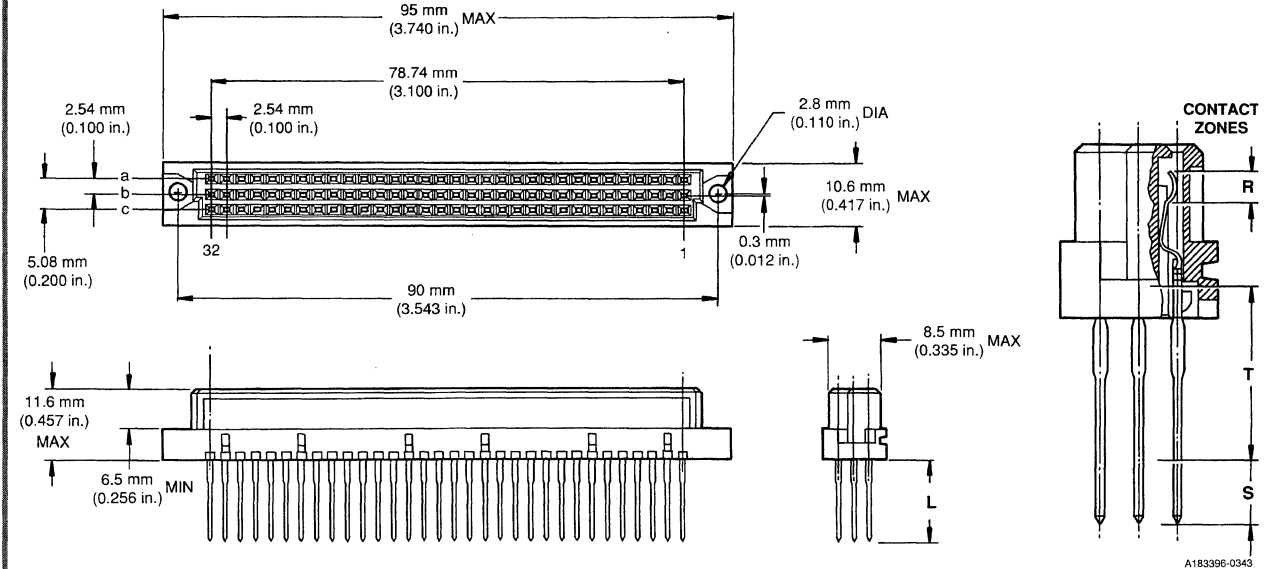
### Approvals and Certifications

-  File no. E66906
-  File no. LR46923

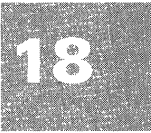
<b>Technical Data</b>	
<p><b>Materials</b></p> <ul style="list-style-type: none"> <li>▪ Housing . . . . . Glass-filled thermoplastic polyester (UL 94 V-0)                             <ul style="list-style-type: none"> <li>▸ Color . . . . . Gray</li> </ul> </li> <li>▪ Contact body . . . . . Phosphor-bronze</li> </ul> <p><b>Electrical Performance</b></p> <ul style="list-style-type: none"> <li>▪ Insulation resistance . . . . . <math>1 \times 10^6</math> M<math>\Omega</math> initially, <math>1 \times 10^4</math> M<math>\Omega</math> after environmental tests</li> <li>▪ Withstanding voltage . . . . . 1000 V rms (sea level)</li> <li>▪ Current rating . . . . . 2 amp max</li> </ul> <p><b>Mechanical Performance</b></p> <ul style="list-style-type: none"> <li>▪ Insertion force . . . . . 0.94 N (94 gf) max per individual contact</li> </ul>	<ul style="list-style-type: none"> <li>▪ Withdrawal force . . . . . 0.20 N (20 gf) min per individual contact</li> <li>▪ Durability (mating cycles) . . . . . According to DIN 41640</li> </ul> <p><b>Press-fit Section</b></p> <ul style="list-style-type: none"> <li>▪ Insertion force . . . . . 200 N (20 kgf) max per position</li> <li>▪ Withdrawal force . . . . . 55 N (5.5 kgf) min per position initially, 35 N (3.5 kgf) after environmental tests</li> </ul> <p><b>Operating Environment</b></p> <ul style="list-style-type: none"> <li>▪ Temperature range . . . . . -55°C to +125°C</li> </ul> <p><b>Packaging</b></p> <ul style="list-style-type: none"> <li>▪ Trays</li> </ul>

<b>Customer Support Materials</b>			
Description	Order No.	Description	Order No.
Customer Product Drawings . . . . .	Upon Request	Test Data . . . . .	Lab Report No. 1345
Product Samples . . . . .	Upon Request	Product Substitutions . . . . .	Upon Request

### Description



PC Board Specification		
Material	Glass epoxy (G10, FR4)	
Thickness	1.60 mm (0.063 in.) min 3.20 mm (0.126 in.) max	
Hole Size	Drilled	1.15 ± 0.025 mm (0.045 ± 0.001 in.)
	Finished	0.94--1.09 mm (0.037--0.043 in.)
Hole Finish	Copper	0.025 mm (0.001 in.) min 0.075 mm (0.003 in.) max
	Tin-lead	0.005 mm (0.0002 in.) min 0.015 mm (0.0006 in.) max



### Ordering Data Base Number 70042

Base number specifies finish, mounting style and height above pc board

□ □ □ □ □ - X Y Z

Dash number specifies finish (X), solder tail length (Y), and loading (Z).

#### X: Code for finish

X	Contact Zone R	Contact Zone S	Contact Zone T
1*	0.5 µm (20 µin.) gold min	0.5 µm (20 µin.) gold	gold flash
2*	1 µm (40 µin.) gold min	1 µm (40 µin.) gold	gold flash
4	0.5 µm (20 µin.) gold min	1 µm (40 µin.) min tin-lead	1 µm (40 µin.) min tin-lead
5	1 µm (40 µin.) gold min	1 µm (40 µin.) min tin-lead	1 µm (40 µin.) min tin-lead

#### Y: Code for solder tail length (Dim L)

Y	mm	in.
1	5.00	0.197
2	13.00	0.512

Number of positions	Z	Rows loaded	Loading pattern
32	-XY1	a, c	even positions
48	-XY2	a, b, c	even positions
64	-XY5	a, c	all positions
64	-XY7	b, c	all positions
96	-XY0	a, b, c	all positions

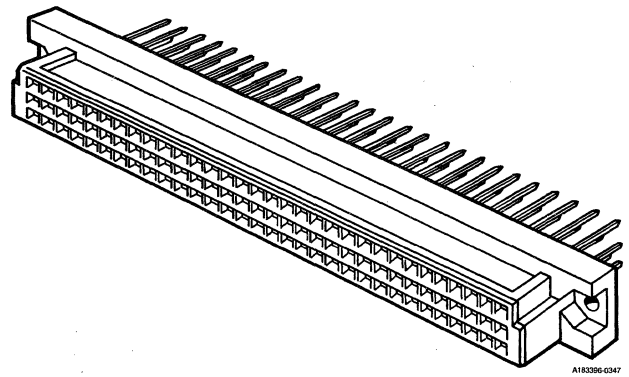
\*Finishes 1 and 2 only available for pin length 13 mm (0.512 in.).

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

# PCB Mounted Receptacle Assemblies

2.54 mm (0.100 in.) Centerlines

**3-Row DIN (Type C)  
Solder-to-Board  
Vertical Receptacle**



## Features

- For VME bus, Multibus II or Nubus users.
- According to DIN 41612-series C, IEC 603-2, HE 12, and BT D2580D.
- Dual beam, early entry contact.

## Options

- 17.00 mm tail length also available.
- Selective loading.
- Triplex platings.

## Mating Data



Mates to 0.64 mm (0.025 inch) square pin from 4.0 mm (0.158 inch) minimum to 5.5 mm (0.217 inch) maximum long.

Berg Electronics Products	Page
▪ DIN vertical headers.....	18-2 & 18-12
▪ DIN right-angle headers.....	18-4 & 18-8
▪ DIN vertical receptacles (rear plug-up).....	18-16 & 18-18
▪ DIN right-angle receptacles (rear plug-up).....	18-23
▪ DIN shrouds (rear plug-up)....	18-14

## Specifications

- DIN 41612
- IEC 603-2
- HE 12
- BT D2580D

## Approvals and Certifications

-  File no. E66906
-  File no. LR46923

## Technical Data

### Materials

- Housing..... Glass-filled thermoplastic polyester (UL 94 V-0)
  - Color..... Gray
- Body..... Phosphor bronze

### Electrical Performance

- Insulation resistance.....  $1 \times 10^6$  M $\Omega$  initially,  $1 \times 10^4$  M $\Omega$  after environmental tests
- Withstanding voltage..... 1000 V rms (sea level)
- Current rating..... 2 amp max

### Mechanical Performance

- Insertion force..... 0.94 N (94 gf) max per individual contact
- Withdrawal force..... 0.20 N (20 gf) min per individual contact

### Operating Environment

- Temperature Range..... -55°C to +125°C

### Packaging

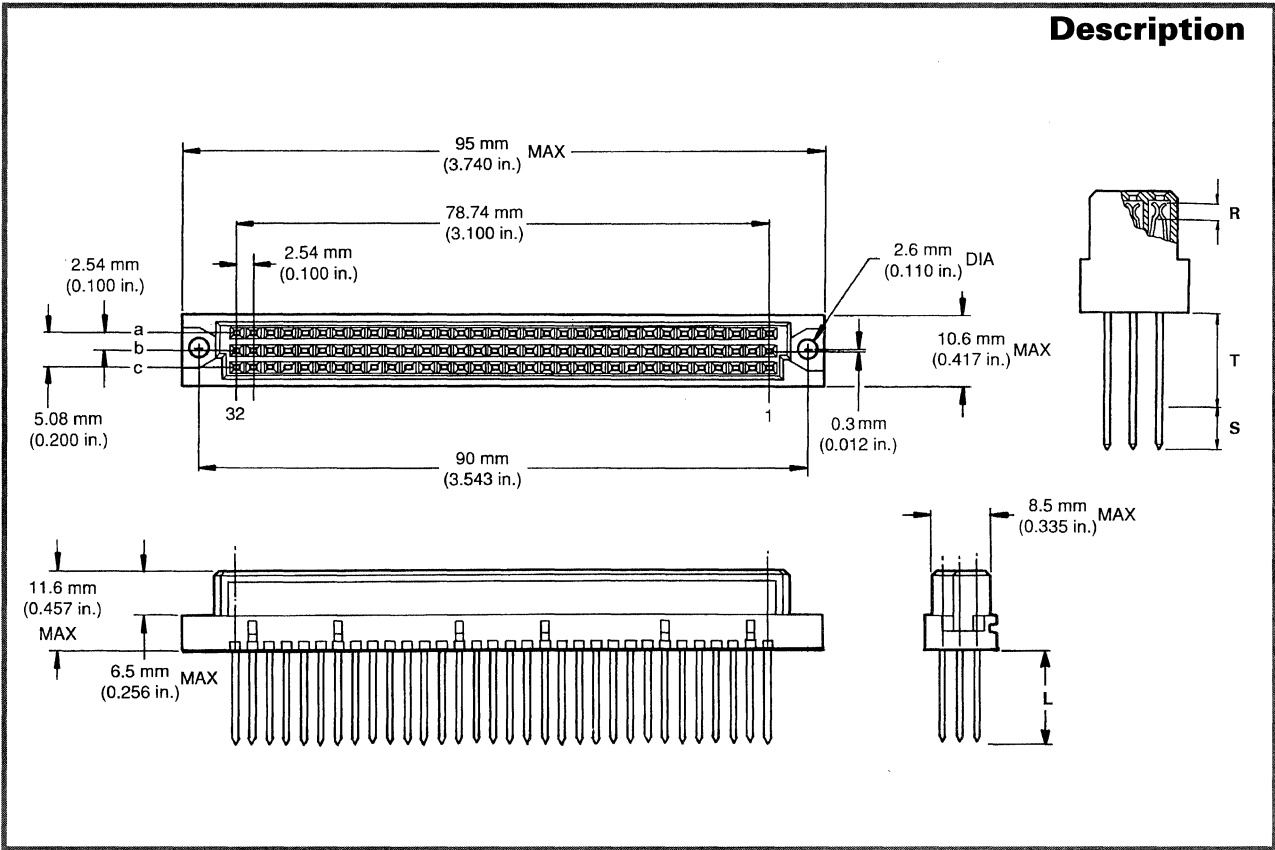
- Trays

## Customer Support Materials

Description	Order No.
Customer Product Drawings.....	Upon Request
Product Samples.....	Upon Request

Description	Order No.
Product Substitutions.....	Upon Request

### Description



18

### Ordering Data Base Number 92325

Base number specifies finish, mounting style and height above pc board

Dash number specifies finish (X), solder tail length (Y), and loading (Z).

□ □ □ □ □ - X Y Z

#### X: Code for finish

X	Contact Zone R	Contact Zone S	Contact Zone T
7	0.2 μm (8 μin.) gold min	0.2 μm (8 μin.) gold	gold flash
6	0.8 μm (30 μin.) gold min	0.8 μm (30 μin.) gold	gold flash
2	0.8 μm (30 μin.) gold min	1 μm (40 μin.) min tin-lead	1 μm (40 μin.) min tin-lead
3	0.2 μm (8 μin.) gold min	1 μm (40 μin.) min tin-lead	1 μm (40 μin.) min tin-lead

#### Y: Code for solder tail length (Dim L)

Y	mm	in.
1	2.50	0.098
2	4.00	0.157
3	13.00	0.512

Number of positions	Z	Rows loaded	Loading pattern
32	XY1	a, c	even positions
48	XY2	a, b, c	even positions
64	XY3	a, c	all positions
96	XY4	a, b, c	all positions

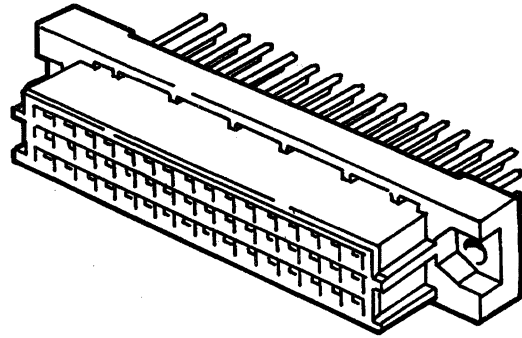
Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.



# PCB Mounted Receptacle Assemblies

2.54 mm (0.100 in.) Centerlines

**3-Row Half DIN (Type C)  
Solder-to-Board  
Vertical Receptacle**



## Features

- According to DIN 41612-series C, IEC 603-2, HE 12 and BT D2580D.
- Dual beam, early entry contact.

## Options

- 17.00 mm tail length also available.
- Selective loading.
- Triplex platings.

## Mating Data

Recommended hole diameter 1.00 mm (0.039 in.).

## Berg Electronics Products


▪ Half DIN vertical headers.....	18-12
▪ Half DIN right-angle headers.....	18-6


## Specifications

- DIN 41612
- IEC 603-2
- HE 12
- BT D2580D

## Page

## Approvals and Certifications

 File no. E66906

 File no. LR46923

## Technical Data

### Materials

- Housing ..... Glass-filled thermoplastic polyester (UL 94 V-0)
  - ▶ Color ..... Gray
- Body..... Phosphor bronze

### Electrical Performance

- Insulation resistance.....  $1 \times 10^6$  M $\Omega$  initially,  $1 \times 10^4$  M $\Omega$  after environmental tests
- Withstanding voltage..... 1000 V rms (sea level)
- Current rating ..... 1.5 amp at 20°C

### Mechanical Performance

- Insertion force..... 0.94 N (94 gf) max per individual contact
- Withdrawal force ..... 0.15 N (15 gf) min per individual contact

### Operating Environment

- Temperature Range ..... -55°C to +125°C

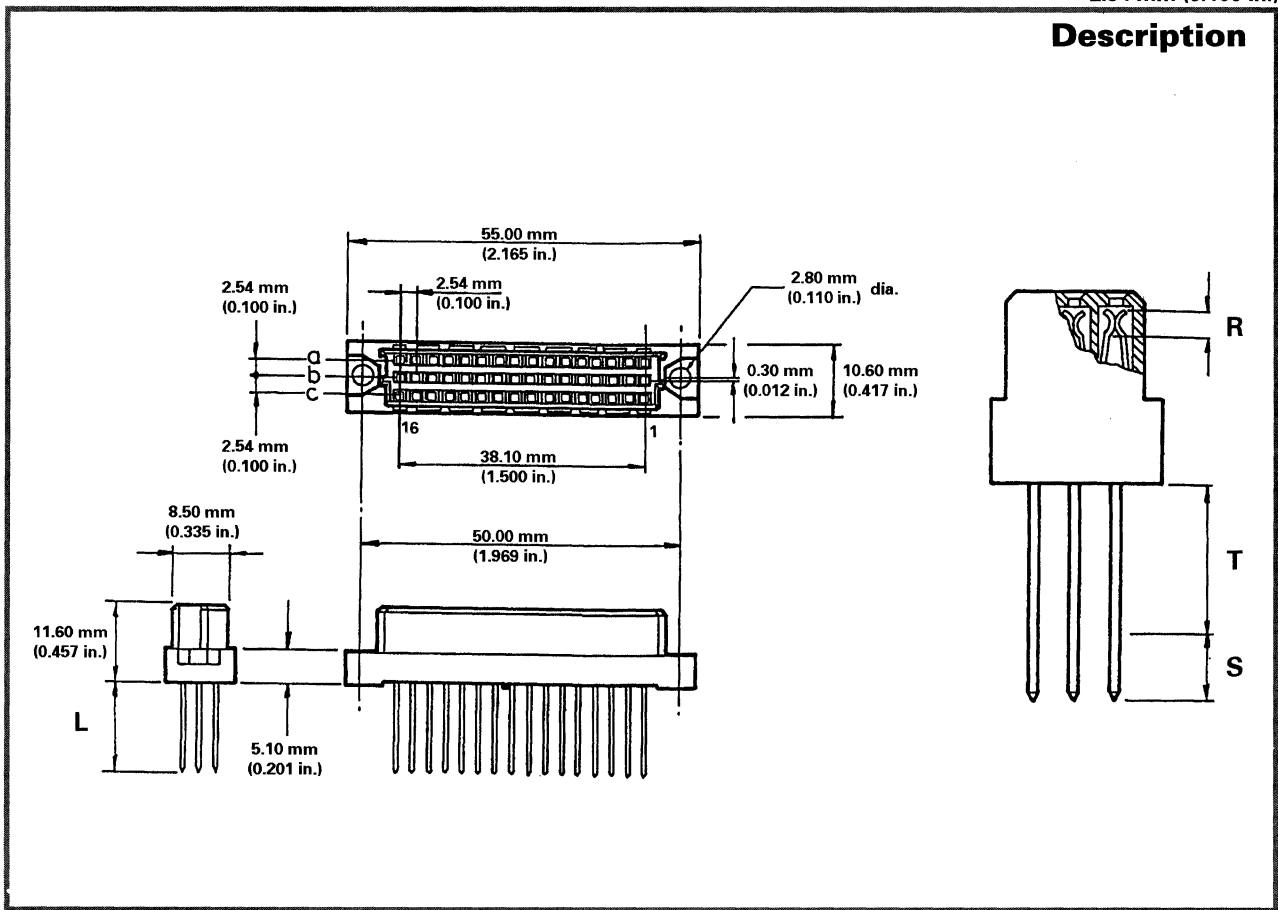
### Packaging

- Trays

## Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawings.....	Upon Request	Product Substitutions.....	Upon Request
Product Samples .....	Upon Request		

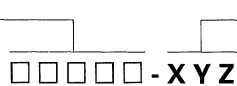
**Description**



18

**Ordering Data**  
Base Number 92376

Base number specifies mounting style and height above pc board



Dash number specifies finish (X), solder tail length (Y), and loading (Z).

**X: Code for finish**

X	Contact Zone R	Contact Zone S	Contact Zone T
7*	0.2 µm (8 µin.) gold min	0.2 µm (8 µin.) gold	gold flash
6*	0.8 µm (30 µin.) gold min	0.8 µm (30 µin.) gold	gold flash
2	0.8 µm (30 µin.) gold min	1 µm (40 µin.) min tin-lead	1 µm (40 µin.) min tin-lead
3	0.2 µm (8 µin.) gold min	1 µm (40 µin.) min tin-lead	1 µm (40 µin.) min tin-lead

**Y: Code for solder tail length (Dim L)**

Y	mm	in.
1	2.50	0.098
2	4.00	0.157
3	13.00	0.512

Number of positions	Z	Rows loaded	Loading pattern
3 x 16	XY1	a, c	even positions
3 x 16	XY2	a, b, c	even positions
3 x 16	XY3	a, c	all positions
3 x 16	XY4	a, b, c	all positions

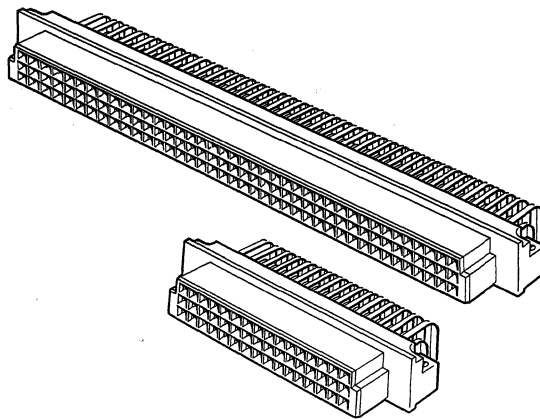
\*Finishes 7 and 6 only available for pin lengths 13 mm (0.512 in.) and 17 mm (0.669 in.).

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

# PCB Mounted Receptacle Assemblies

2.54 mm (0.100 in.) Centerlines

**3-Row DIN (Type R)  
Solder-to-Board  
Right-Angle Receptacle**



A183206-0348

## Features

- According to DIN 41612-series R, IEC 603-2, IEC 603-10, HE 11 and HE 12.
- Dual beam, early entry, long wipe contact.
- Low insertion force.
- Tin-lead solder tails.

## Options

- Selective loading according to customer specification.
- Coding system.
- Selective plating.

## Mating Data

Mates to 0.64 mm (0.025 inch) square pin from 4.0 mm (0.158 inch) minimum to 5.5 mm (0.217 inch) maximum long.


### Berg Electronics Products Page


- DIN vertical headers . . . 18-2 & 18-12
- DIN right-angle headers . . . 18-4 18-8
- Half DIN vertical headers . . . . . 18-12
- Half DIN right-angle headers . . . 18-6

## Specifications

- DIN 41612
- IEC 603-2 and IEC 603-10
- HE 11 and HE 12

## Approvals and Certifications

 File no. E66906

 File no. LR46923

## Technical Data

### Materials

- Housing . . . . . Glass-filled thermoplastic polyester (UL 94 V-0)
  - ▶ Color . . . . . Gray
- Contact body . . . . . Phosphor-bronze

### Electrical Performance

- Insulation resistance . . . . .  $1 \times 10^6$  M $\Omega$  initially,  $1 \times 10^4$  M $\Omega$  after environmental tests
- Withstanding voltage . . . . . 1000 V rms (sea level)
- Current rating . . . . . 2 amp max

### Mechanical Performance

- Insertion force . . . . . 0.94 N (94 gf) max per individual contact
- Withdrawal force . . . . . 0.20 N (20 gf) min per individual contact
- Durability (mating cycles) . . . . . According to DIN 41640

### Operating Environment

- Temperature range . . . . . -55°C to +125°C

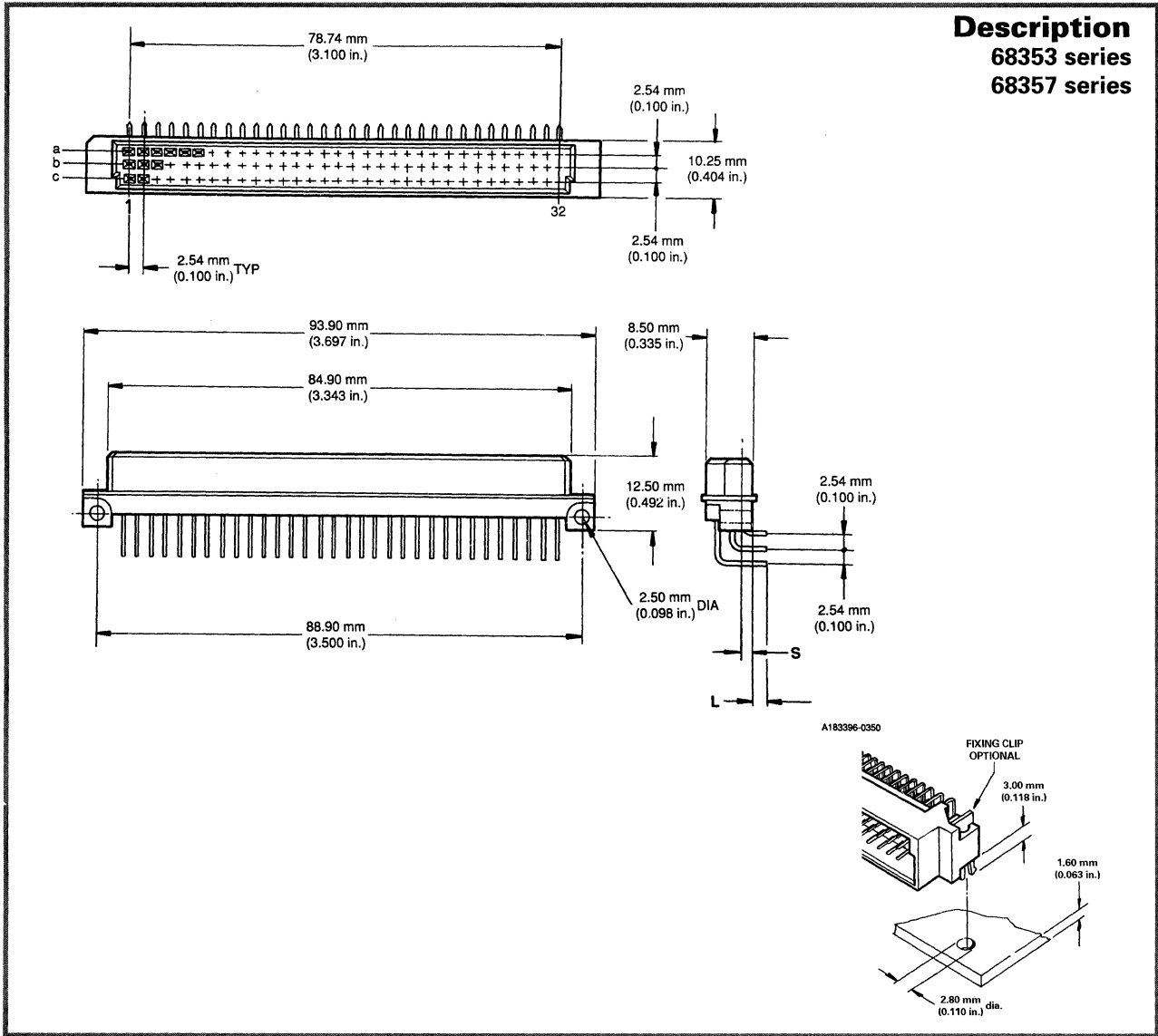
### Packaging

- Trays

## Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawings . . . . .	Upon Request	Product Substitutions . . . . .	Upon Request
Product Samples . . . . .	Upon Request		

**Description**  
**68353 series**  
**68357 series**



**Ordering Data**

Base number specifies finish, mounting style and height above pc board  - **XXX** Dash number specifies plating and number of positions

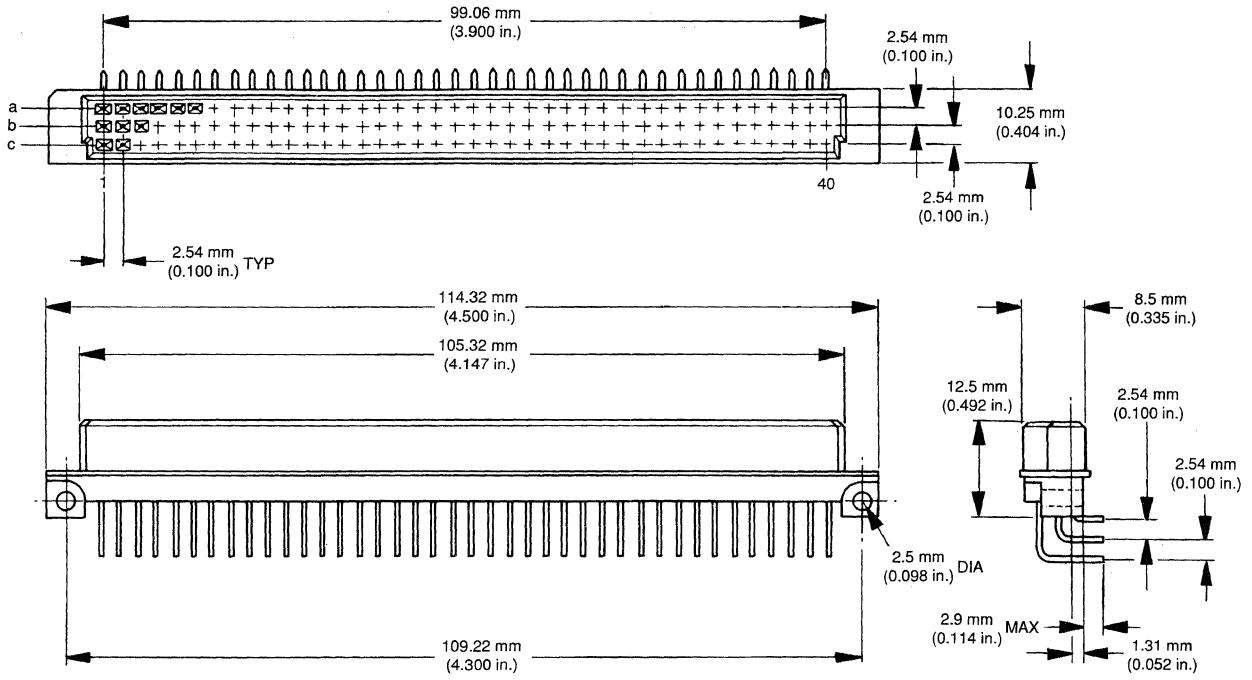
Number of positions	Rows loaded	Finish Contact area Gold over nickel (min)	Solder tail	Base No. 68353 Dash numbers (DIN 41612)	Dimensions				Base No. 68357 Dash numbers (HE 11)	Dimensions			
					S		L (max)			S		L (max)	
					mm	in.	mm	in.		mm	in.	mm	in.
32*	a, c	0.5 µm (20 µin.)	Tin-lead	-232	1.31	0.052	3.00	0.118	-065	1.74	0.069	3.30	0.130
		1.0 µm (40 µin.)		-432									
48*	a, b, c	0.5 µm (20 µin.)	Tin-lead	-248	1.31	0.052	3.00	0.118	N/A	1.74	0.069	3.30	0.130
		1.0 µm (40 µin.)		-448									
64	a, c	0.5 µm (20 µin.)	Tin-lead	-264	1.31	0.052	3.00	0.118	-039	1.74	0.069	3.30	0.130
		1.0 µm (40 µin.)		-464									
96	a, b, c	0.5 µm (20 µin.)	Tin-lead	-296	1.31	0.052	3.00	0.118	-033	1.74	0.069	3.30	0.130
		1.0 µm (40 µin.)		-496									

Note: For connectors with optional fixing clip please add -01 to the basic part number.  
Example: 68353-232-01

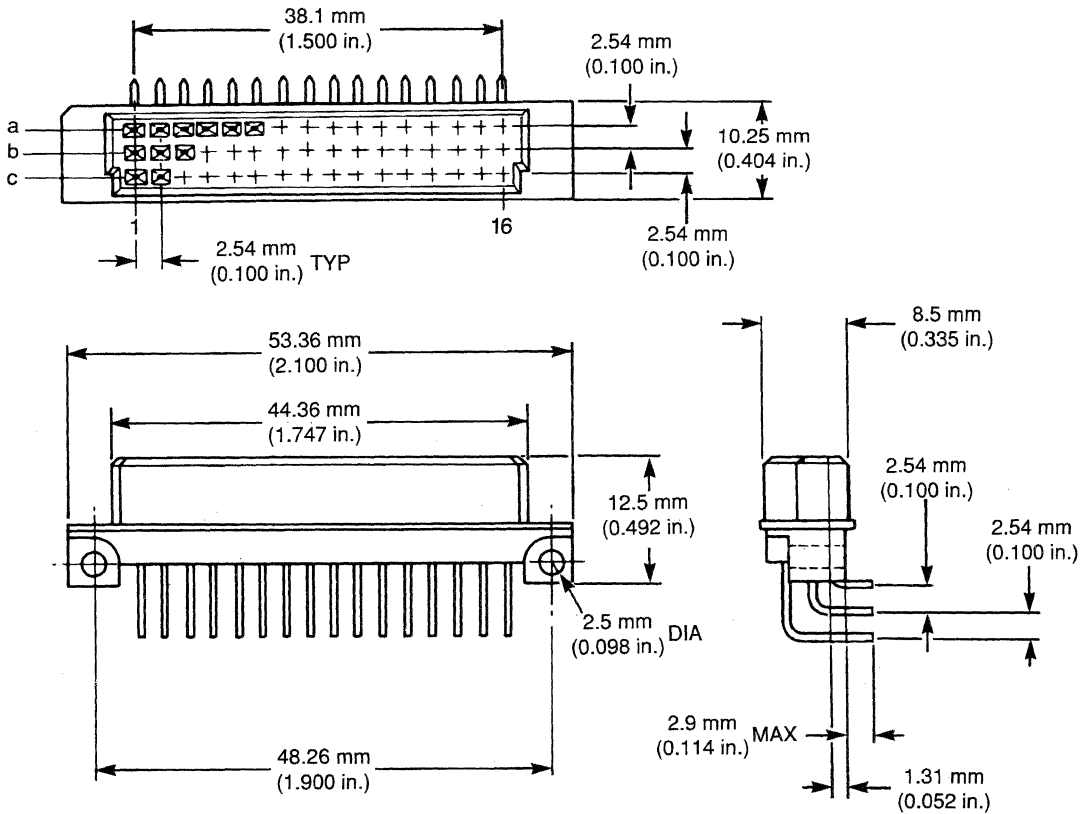
Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

**PCB Mounted Receptacle Assemblies**  
**2.54 mm (0.100 in.)**

**Description**  
**P/N 70004-001**

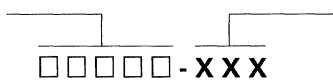


**P/N 70004-002**



**Ordering Data**  
**Base Number 70004**

Base number specifies finish, mounting style and height above pc board



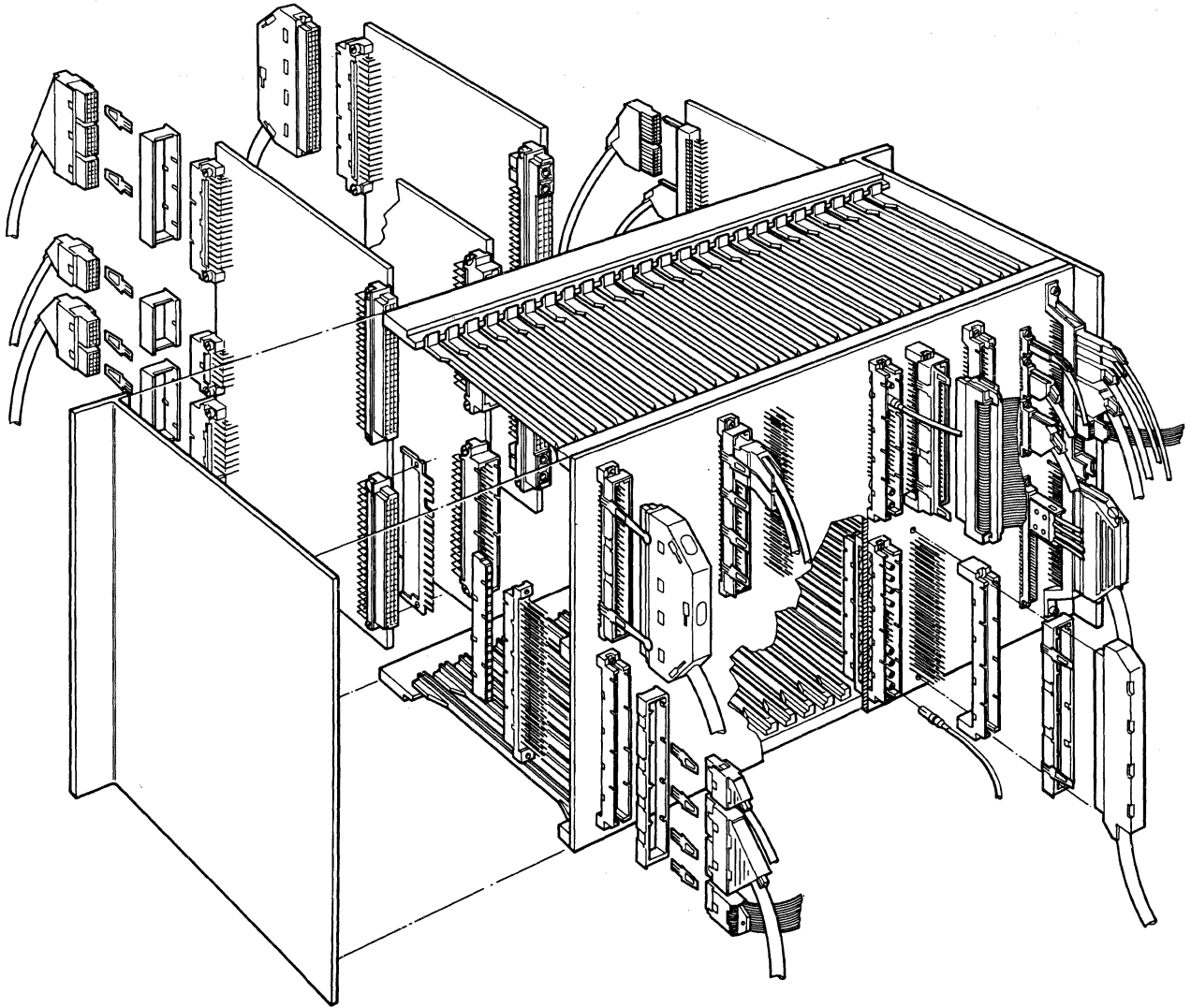
Dash number specifies number of positions

Number of Positions	Loading Pattern	Dash Number	Finish
48	all positions	-002	Contact area 0.8 μm (30 μin.) gold over nickel
120	all positions	-001	Solder tail tin-lead

Note: For connectors with optional fixing clip please add -01 to the basic part number.  
Example: 70004-002-01

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

# DIN



A183396-0318

Berg Electronics' DIN product line includes a complete hybrid system comprised of headers, receptacles, shrouds, power inserts, and coaxial inserts.

Hybrid headers, receptacles, and shrouds are polarized, meet DIN 41612 series M (standard and reversed), and are engineered for easy mating requiring low insertion force. They are manufactured from durable glass-filled polyester.

Power inserts include plug-to-plug short and long couplers, right-angle solder-to-board receptacles, straight crimp-to-cable plugs and receptacles, and straight solder-to-cable plugs and receptacles. Solder and crimp type versions are manufactured from high-quality beryllium copper.

Coax inserts available are receptacle-to-receptacle short and long couplers, right-angle solder-to-board plugs and receptacles, and straight crimp-to-cable plugs and receptacles. They feature a very low reflection coefficient and are available in 50 or 75 ohm.

All hybrid products meet DIN 41626 specifications. Individual products also meet other specifications. Consult each product description for a complete listing.

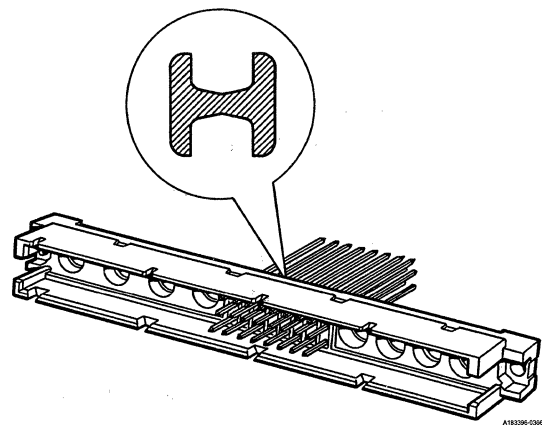
The illustration on the opposite page demonstrates some possible connections using power and coax inserts as well as hybrid headers and receptacles. Product descriptions and ordering information for all components of the DIN Hybrid System can be found on the following pages.



# Hybrid Connectors Compliant Press-Fit Pin Headers

2.54 mm (0.100 in.) Centerlines

**3 Row DIN (Type M)  
Press-Fit  
Vertical Hybrid Headers**



## Features

- Electrical and mechanical properties according to DIN 41611-41612 series M (reversed), BT D2580D, IEC 603-2 and HE 12.
- Uses coaxial, power, and fiber optic inserts according to DIN 41626.
- Rear plug-up version available.
- Reliable H-shape compliant section provides pin stability and a gastight connection in the four contact areas.
- Large hole tolerance (0.94 - 1.09 mm).
- Individual pins of mounted connector can be replaced 5 times.
- Flexible application process with low investment.

## Options

- Selective loading possible.
- Three tail lengths.
- Triplex plating.
- First make - last break.
- Coding.

## Mating Data

Mates to 2.54 x 2.54 mm (0.100 x 0.100 in.) DIN hybrid receptacles and hybrid inserts according to DIN 41626.


### Berg Electronics Products


	Page
▪ DIN right-angle hybrid receptacles .....	18-30
▪ DIN vertical hybrid receptacles .....	18-32
▪ DIN hybrid shrouds .....	18-36
▪ DIN coax inserts .....	18-38
▪ DIN power inserts .....	18-42
▪ DIN vertical receptacles (rear plug-up) .....	18-16 & 18-18

## Specifications

- DIN 41611
- DIN 41612 Series M (reversed)
- DIN 41626
- IEC 603-2
- BT D2580D
- HE 12

## Approvals and Certifications

 File no. E66906

 File no. LR46923

## Application Equipment

Description	Page
▪ HT-333 Extraction tool for coax and power inserts .....	18-56
▪ HT-338 Crimp tool for coax inserts .....	18-57
▪ HT-334 Crimp tool for power inserts .....	18-56

## Technical Data

### Spacing

- Pins ..... 2.54 x 2.54 mm (0.100 x 0.100 inch)
- Inserts ..... 7.62 mm (0.300 inch)

### Materials

- Housing ..... Glass-filled thermoplastic polyester (UL94 V-0)
  - ▶ Color ..... Gray
- Pin ..... Phosphor-bronze
  - ▶ Finish ..... see "Ordering Data"

### Electrical Performance

- Insulation resistance.....  $1 \times 10^6$  M $\Omega$  initially;  $1 \times 10^4$  M $\Omega$  after environmental test.

- Withstanding voltage..... 1000 V rms (sea level)
- Current rating ..... 2 amp max

### Operating Environment

- Temperature range ..... -55°C to +125°C

### Press Fit Section

- Insertion force..... 200 N (20 kgf) max per position
- Withdrawal force ..... 55 N (5.6 kgf) min per position initially, 35 N (3.6 kgf) per position after environmental tests

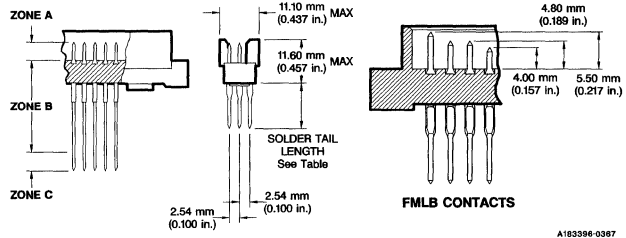
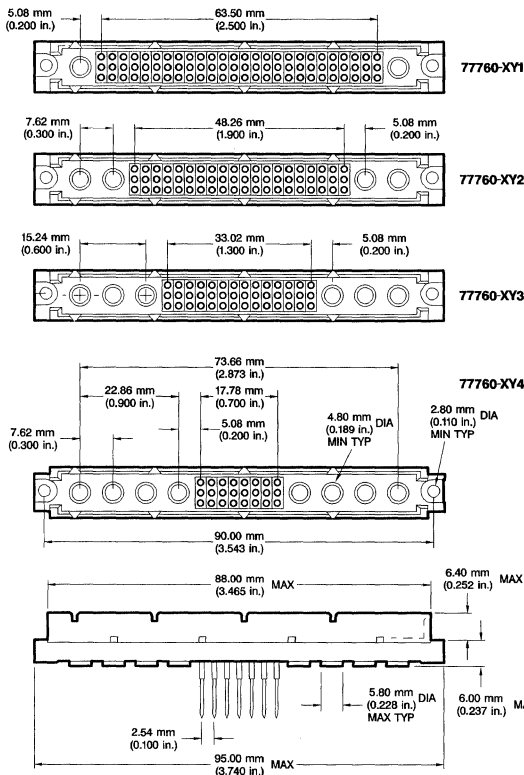
### Packaging

- Trays

## Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawings.....	By Part Number	Product Samples.....	Upon Request

## Description



A183398-0367

PC Board Specification		
Material	Glass epoxy (G10, FR4)	
Thickness	1.60 mm (0.063 in.) min 3.20 mm (0.126 in.) max	
Hole Size	Drilled	1.15 ± 0.025 mm (0.045 ± 0.001 in.)
	Finished	0.94--1.09 mm (0.037--0.043 in.)
Hole Finish	Copper	0.025 mm (0.001 in.) min 0.075 mm (0.003 in.) max
	Tin-lead	0.005 mm (0.0002 in.) min 0.015 mm (0.0006 in.) max

18

Base number specifies finish, mounting style and height above pc board



Dash number specifies finish (X), pin length, number of positions, and inserts

## Ordering Data Base Number 77760

X: Code for finish					
X	Zone A		Zone B		Zone C
2	0.8 µm (30 µin.) gold		gold flash		0.8 µm (30 µin.) gold
8	0.8 µm (30 µin.) gold		1 µm (40 µin.) min tin-lead		4 µm (160 µin.) min tin-lead
Number of positions	Dash number	Hybrid Inserts	Solder Tail Length		Available Finish (See X table above)
			mm	in.	
78	-X11	2 x 1	6	0.236	2, 8
	-X21		13	0.512	
	-X31		20	0.787	
60	-X12	2 x 2	6	0.236	2, 8
	-X22		13	0.512	
	-X32		20	0.787	
42	-X13	2 x 3	6	0.236	2, 8
	-X23		13	0.512	
	-X33		20	0.787	
24	-X14	2 x 4	6	0.236	2, 8
	-X24		13	0.512	
	-X34		20	0.787	

### Notes

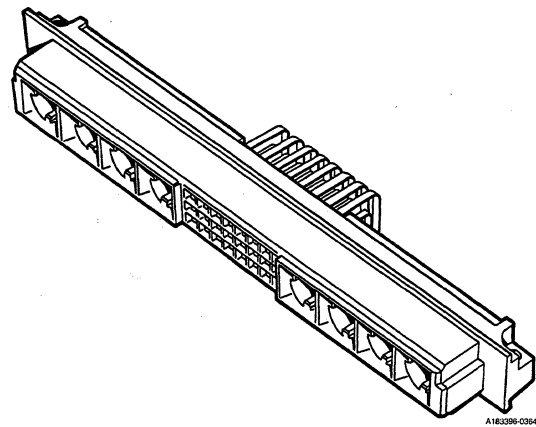
- For special versions, such as with selective loading pattern or advanced earth contact(s), contact your local Berg Electronics sales office.
- For optional coding (part number 68305-001), see page 18-11.
- For handtool and application machine information see pages 18-56 & 18-57.

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

# Hybrid Connectors

2.54 mm (0.100 in.) Centerlines

## 3 Row Reversed DIN (Type M) Solder-to-Board Right-Angle Hybrid Receptacle



### Features

- Electrical and mechanical properties according to DIN 41612 series M (reversed), HE 12, IEC 603-2 and BT D2580D.
- Dual-beam, early entry, long wipe contacts.
- Uses coax and fiber optic power inserts according to DIN 41626.
- Low insertion force.
- Polarized.
- Duplex plating.

### Options

- Selective loading.
- Coding.
- DIN class 1 and BT D2580D platings are available.

### Mating Data

Mates to 2.54 x 2.54 mm (0.100 x 0.100 in.) hybrid headers and hybrid inserts according to DIN 41626


#### Berg Electronics Products


- |                                     |             |
|-------------------------------------|-------------|
|                                     | <b>Page</b> |
| ▪ DIN vertical hybrid headers . . . | 18-28       |
| ▪ DIN coax inserts . . . . .        | 18-38       |
| ▪ DIN power inserts . . . . .       | 18-42       |
| ▪ DIN right-angle hybrid headers    | 18-34       |

### Specifications

- DIN 41612 Series M (reversed)
- DIN 41626
- IEC 603-2
- HE 12
- BT D2580D

### Approvals and Certifications

 File no. E66906

 File no. LR46923

### Application Equipment

Description	Page
▪ HT-333 extraction tool for coax and power inserts . . . . .	18-56
▪ HT-338 crimp tool for coax inserts . . . . .	18-57
▪ HT-334 crimp tool for power inserts . . . . .	18-56

### Technical Data

**Spacing**

- Pins . . . . . 2.54 x 2.54 mm (0.100 x 0.100 in.)
- Inserts . . . . . 7.62 mm (0.300 in.)

**Materials**

- Housing . . . . . Glass-filled thermoplastic polyester (UL94 V-0)
  - Color . . . . . Contact block: Gray
- Contact body . . . . . Phosphor-bronze
  - Finish . . . . . See Ordering Data

**Electrical Performance**

- Insulation resistance . . . . .  $1 \times 10^6$  M $\Omega$  initially;  $1 \times 10^4$  M $\Omega$  after environmental test.
- Withstanding voltage . . . . . 1000 V rms (sea level)

**Mechanical Performance**

- Contact resistance . . . . . 15 m $\Omega$  max
- Current rating . . . . . 2 amp max
- Insertion force . . . . . 0.94 N (94 gf) max per individual contact
- Withdrawal force . . . . . 0.20 N (20 gf) min per individual contact
- Durability (mating cycles) . . . . . According to DIN 41460

**Operating Environment**

- Temperature range . . . . . -55°C to +125°C

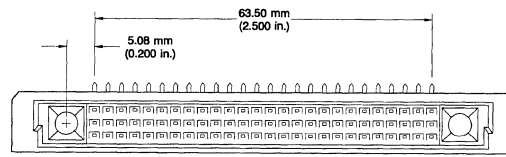
**Packaging**

- Trays

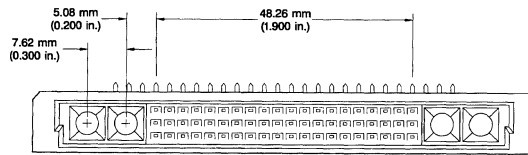
### Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawings . . . . .	By Part Number	Product Samples . . . . .	Upon Request

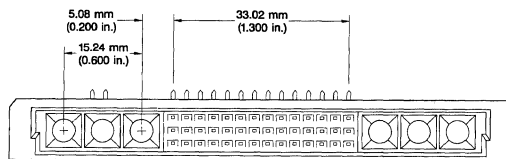
## Description



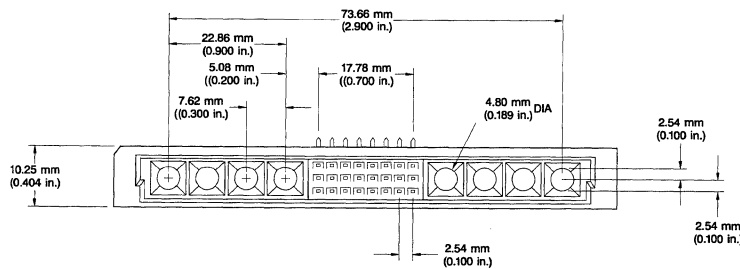
77758-X01



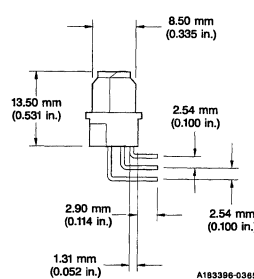
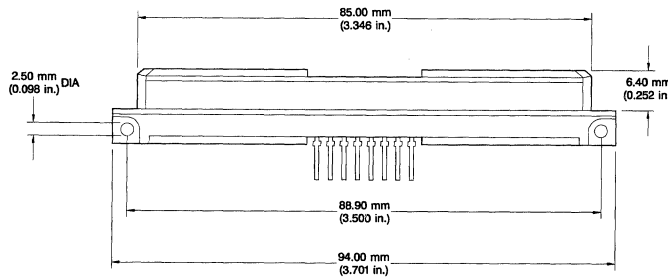
77758-X02



77758-X03



77758-X04



A183396-0385

Base number specifies finish, mounting style and height above pc board

□ □ □ □ - X Y Y

Dash number specifies plating and loading

### Ordering Data Base Number 77758

**X: Code for finish**

4 = contact area: 1 μm (40 μin.) gold over nickel remainder: tin-lead

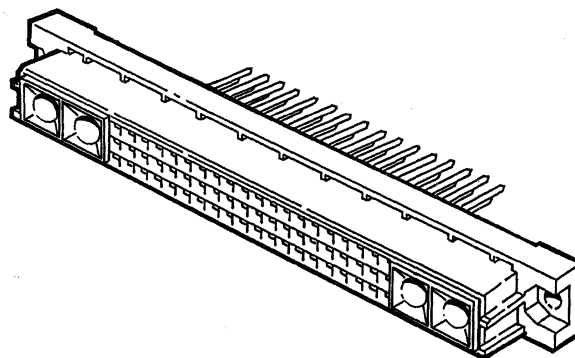
Contact Positions	Base Number	YY	Hybrid Inserts
78	77758	-X01	2 x 1
60	77758	-X02	2 x 2
42	77758	-X03	2 x 3
24	77758	-X04	2 x 4

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

# Hybrid Connectors

2.54 mm (0.100 in.) Centerlines

**3 Row Standard DIN (Type M)  
Solder-to-Board  
Vertical Hybrid Receptacle**



## Features

- Electrical and mechanical properties according to DIN 41612 series M (standard), HE 12, IEC 603-2 and BT D2580D.
- Use of coax, power and fiber optic inserts according to DIN 41612.
- Early entry dual beam contact.

## Options

- Selective loading.
- Duplex or triplex plating.

## Mating Data


Mates to 2.54 x 2.54 mm (0.100 x 0.100 in.) DIN hybrid headers and hybrid inserts according to DIN 41626.


## Berg Electronic Products

- DIN right-angle hybrid headers ..... 18-34
- DIN vertical hybrid headers ... 18-28
- DIN hybrid shrouds ..... 18-36
- DIN coax inserts ..... 18-38
- DIN power inserts ..... 18-42
- DIN right-angle receptacles (rear plug-up) ..... 18-23

## Page

## Approvals and Certifications

 File no. E66906

 File no. LR46923

## Specifications

- DIN 41612 Series M (standard)
- DIN 41626
- IEC 603-2
- HE 12
- BT D2580D

## Technical Data

### Spacing

- Pins ..... 2.54 x 2.54 mm (0.100 x 0.100 in.)
- Inserts ..... 7.62 mm (0.300 in.)

### Materials

- Housing ..... Glass-filled thermoplastic polyester (UL94 V-0)
  - Color ..... Contact block: Gray
- Contact body ..... Phosphor-bronze
  - Finish ..... See Ordering Data

### Electrical Performance

- Insulation resistance .....  $1 \times 10^6$  M $\Omega$  initially;  $1 \times 10^4$  M $\Omega$  after environmental test.
- Withstanding voltage ..... 1000 V rms (sea level)

- Current rating ..... 1.5 amp at 20°C

### Mechanical Performance

- Insertion force ..... 0.94 N (94 gf) max per individual contact
- Withdrawal force ..... 0.15 N (15 gf) min per individual contact

### Operating Environment

- Temperature range ..... -55°C to +125°C

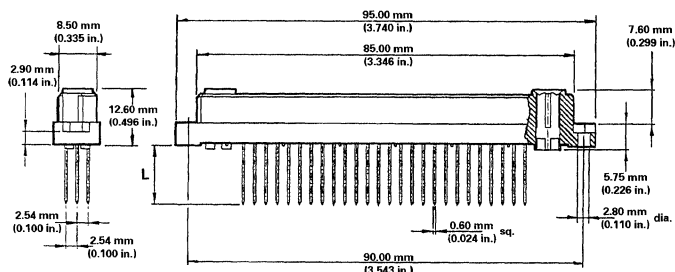
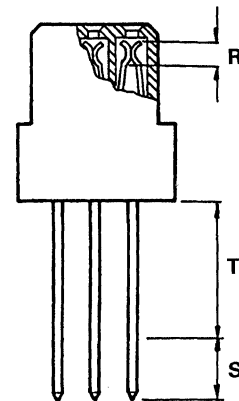
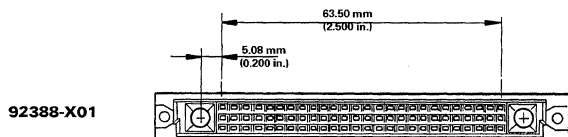
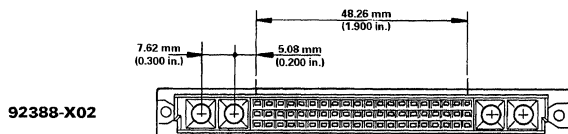
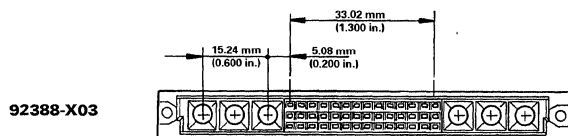
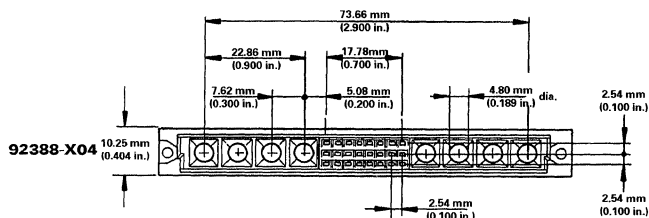
### Packaging

- Trays

## Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawings	By Part Number	Product Samples	Upon Request

### Description



18

### Ordering Data Base Number 92388

Base number specifies mounting style and height above pc board

□ □ □ □ - X Y Z

Dash number specifies finish (X), solder tail length (Y), and loading (Z).

#### X: Code for finish

X	Contact Zone R	Contact Zone S	Contact Zone T
7*	0.2 μm (8 μin.) gold min	0.2 μm (8 μin.) gold	gold flash
6*	0.8 μm (30 μin.) gold min	0.8 μm (30 μin.) gold	gold flash
2	0.8 μm (30 μin.) gold min	1 μm (40 μin.) min tin-lead	1 μm (40 μin.) min tin-lead
3	0.2 μm (8 μin.) gold min	1 μm (40 μin.) min tin-lead	1 μm (40 μin.) min tin-lead

#### Y: Code for solder tail length (Dim L)

Y	mm	in.
1	2.80	0.110
2	4.00	0.157
3	13.00	0.512
4	17.00	0.669

Contact Positions	Base Number	Z	Hybrid Inserts
78	92388	-XY1	2 x 1
60	92388	-XY2	2 x 2
42	92388	-XY3	2 x 3
24	92388	-XY4	2 x 4

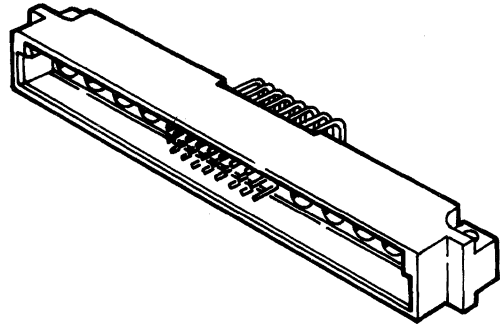
\*Finishes 7 and 6 only available for pin lengths 13 mm (0.512 in.) and 17 mm (0.669 in.).

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

# Hybrid Connectors

2.54 mm (0.100 in.) Centerlines

**3 Row Standard DIN (Type M)  
Solder-to-Board  
Right-Angle Hybrid Header**



## Features

- Electrical and mechanical properties according to DIN 41612 series M (standard), HE 12, IEC 603-2 and BT D2580D.
- Use of coax, power and fiber optic inserts according to DIN 41612.
- Tin-lead solder tails.

## Options

- Selective loading.
- DIN class 2 or class 3 platings available.

## Mating Data


Mates to 2.54 x 2.54 mm (0.100 x 0.100 in.) DIN hybrid receptacles and hybrid inserts according to DIN 41626.


<b>Berg Electronic Products</b>	<b>Page</b>
▪ DIN Vertical hybrid receptacles	18-32
▪ DIN right-angle hybrid receptacles	18-30
▪ DIN coax inserts	18-38
▪ DIN power inserts	18-42

## Specifications

- DIN 41612 Series M (standard)
- DIN 41626
- IEC 603-2
- HE 12
- BT D2580D

## Approvals and Certifications

 File no. E66906

 File no. LR46923

## Technical Data

### Spacing

- Pins ..... 2.54 x 2.54 mm (0.100 x 0.100 in.)
- Inserts ..... 7.62 mm (0.300 in.)

### Materials

- Housing ..... Glass-filled thermoplastic polyester (UL94 V-0)
  - ▶ Color ..... Contact block: Gray
- Contact body ..... Copper alloy
  - ▶ Finish ..... See Ordering Data

### Electrical Performance

- Insulation resistance .....  $1 \times 10^6$  M $\Omega$  initially;  $1 \times 10^4$  M $\Omega$  after environmental test.

- Withstanding voltage ..... 1000 V rms (sea level)
- Current rating ..... 1.5 amp at 20°C

### Operating Environment

- Temperature range ..... -55°C to +125°C

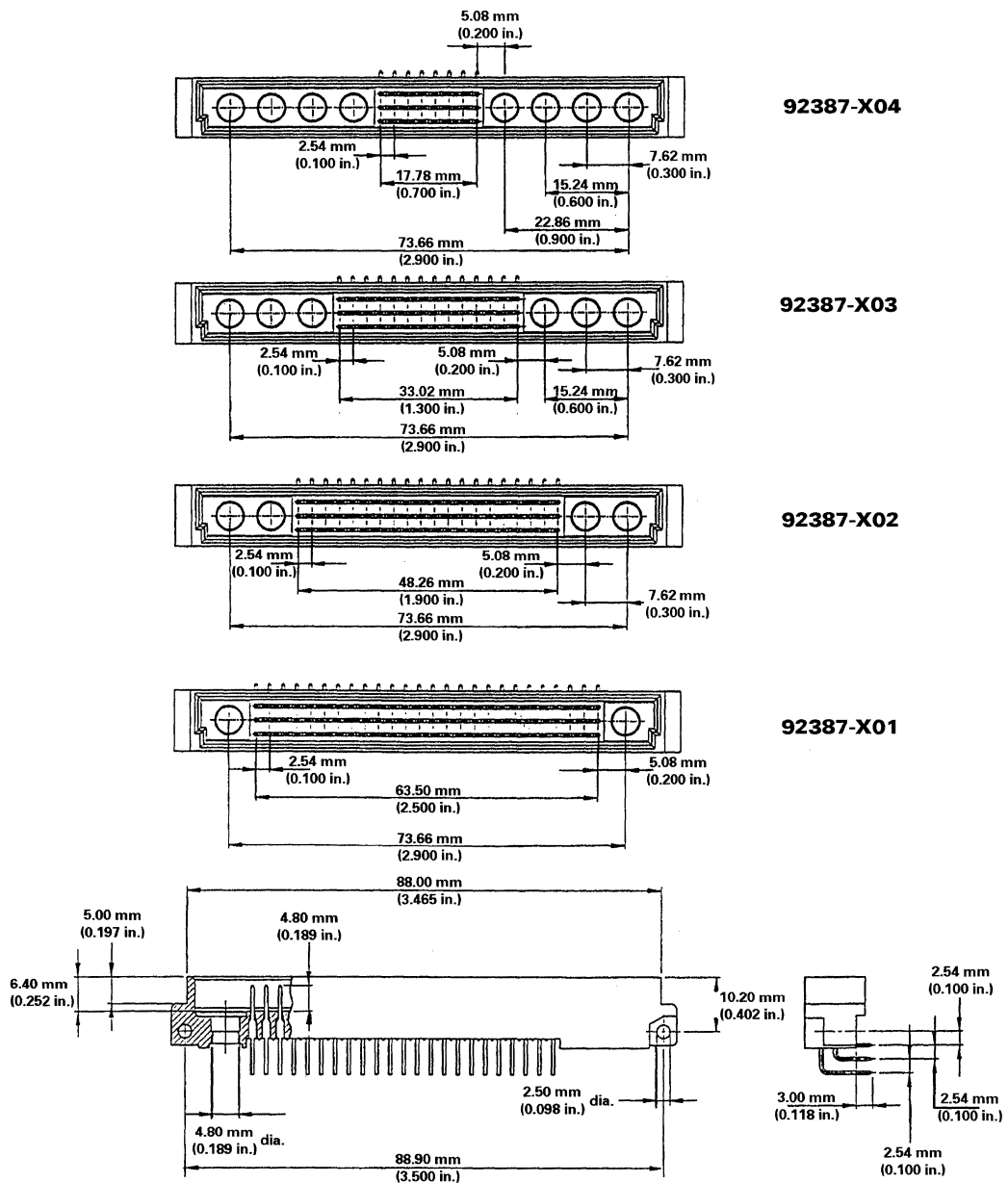
### Packaging

- Trays

## Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawings	By Part Number	Product Samples	Upon Request

## Description



## Ordering Data

Base Number 92387

Base number specifies mounting style and height above pc board



Dash number specifies plating and loading

### X: Code for finish

- 3 = contact area: 0.2 μm (8 μin.) gold over nickel remainder: tin-lead
- 2 = contact area: 0.8 μm (30 μin.) gold over nickel remainder: tin-lead

Contact Positions	Base Number	YY	Hybrid Inserts
78	92387	-X01	2 x 1
60	92387	-X02	2 x 2
42	92387	-X03	2 x 3
24	92387	-X04	2 x 4

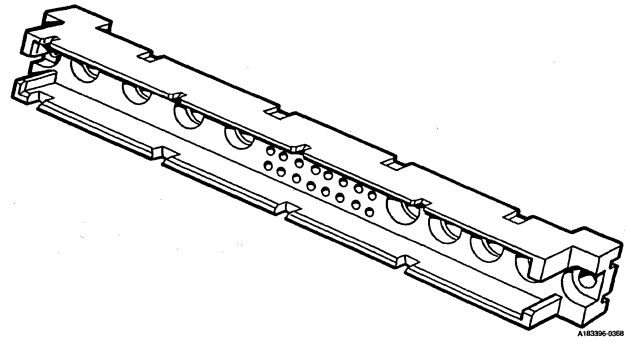
Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.



# Hybrid Connectors

2.54 mm (0.100 in.) Centerlines

## 3-Row Reversed DIN (Type M) Hybrid Shroud



### Features

- Designed according to DIN 41612.
- Use with hybrid DIN vertical headers.
- Wide lead-in for easy mating.

### Options

- Coding.

### Mating Data

Mates to 0.64 mm (0.025 in.) square pins and hybrid inserts according to DIN 41626

### Specifications

- DIN 41612 Series M (reversed)
- DIN 41616
- IEC 603-2

Berg Electronics Products	Page
▪ DIN vertical hybrid headers.....	18-28
▪ DIN right-angle hybrid receptacles.....	18-30
▪ DIN coax inserts.....	18-38
▪ DIN power inserts.....	18-42

### Technical Data

#### Spacing

- Pins ..... 2.54 x 2.54 mm (0.100 x 0.100 in.)
- Inserts ..... 7.62 mm (0.300 in.)

#### Materials

- Housing..... Polycarbonate (UL 94 V-0)
  - Color ..... Gray

#### Electrical Performance

- Insulation resistance.....  $1 \times 10^6 \text{ M}\Omega$  initially;  $10^4 \text{ M}\Omega$  after environmental test
- Withstanding voltage..... 1000 V rms (sea level)

#### Operating Environment

- Temperature range..... -55°C to +125°C

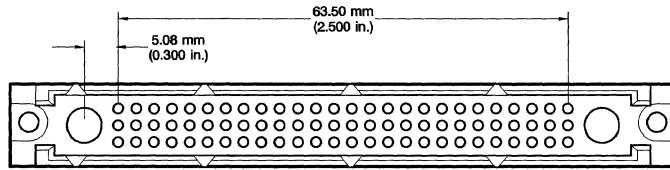
#### Packaging

- Bags

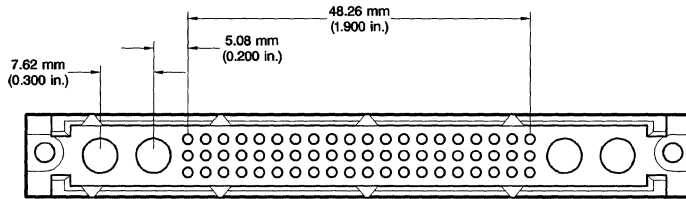
### Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawings.....	By Part Number	Product Samples.....	Upon Request

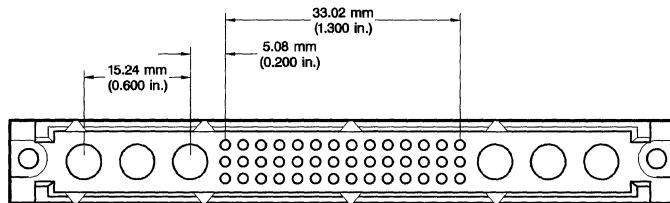
**Description**



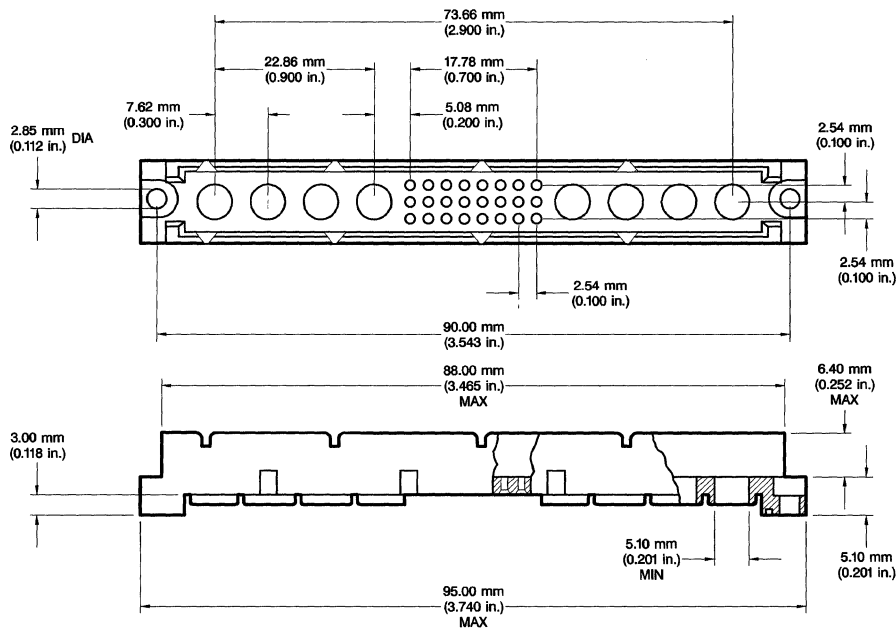
70033-005



70033-006



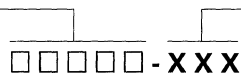
70033-007



70033-008

A183396-0369

Base number specifies finish, mounting style and height above pc board



Dash number specifies number of positions.

**Ordering Data**  
Base Number 70033

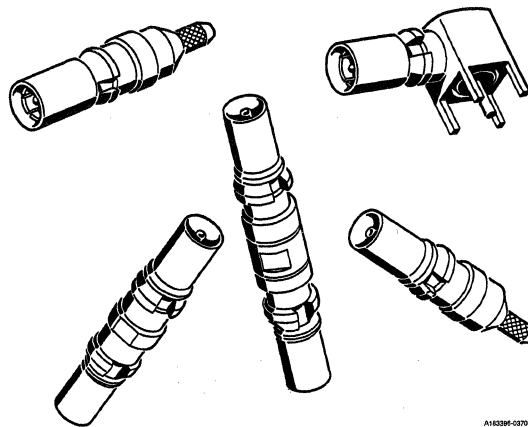
Pin Positions	Hybrid Inserts	Dash Number
78	2 x 1	-005
60	2 x 2	-006
42	2 x 3	-007
24	2 x 4	-008

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

# Hybrid Connectors

2.54 mm (0.100 in.) Centerlines

## DIN Coax Inserts



A182086-0270

### Features

- Inserts according to DIN 41626.
- Use with DIN 41612 Series M (standard and reversed) Hybrid Connectors.
- Very low reflection coefficient.
- Inserts according to DIN 41626.
- Quality tested according to MIL-STD-202 and BS 9525 F 0011.

### Options

- 50 or 75 ohm characteristic impedance.
- Various styles and mounting options.

### Specifications

- DIN 41612 series M (standard and reversed).
- DIN 41626
- MIL-STD-202
- BS 9525 F 0011

### Application Equipment

Description	Page
▪ HT-333 Extraction tool . . . . .	18-56
▪ HT-338 Coax crimp tool . . . . .	18-57

### Technical Data

#### Material

- Shell . . . . . Copper zinc 39 Pb2
- Spring . . . . . Beryllium copper
- Insulator . . . . . PTFE Teflon
- Finish . . . . . Selective gold over nickel
- Crimp sleeve . . . . . Copper
- Clip . . . . . Beryllium copper

#### Electrical

- Characteristic Impedance . . . . . 50 Ω or 75 Ω
- Working frequency max . . . . . 30 GHz
- Optimum . . . . . 0--10 GHz

- Reflection coefficient . . . . . max 0.05 up to 1 GHz  
max 0.07 up to 4 GHz  
max 0.1 up to 10 GHz
- Peak voltage . . . . . 750 V<sup>eff</sup>
- Operating voltage . . . . . 250 V<sup>eff</sup>
- Insulation resistance . . . . . 1 x 10<sup>6</sup> MΩ

#### Operating Environment

- Temperature range . . . . . -65°C to +165°C

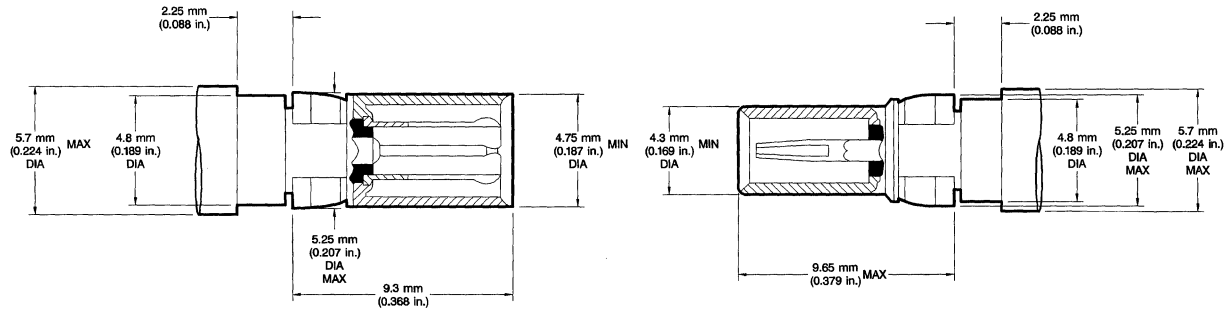
#### Packaging

- Bags

### Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawings . . . . .	By Part Number	Product Samples . . . . .	Upon Request

### Description Hybrid Connectors



CO-AX PLUG INSERT FOR  
HYBRID DIN RECEPTACLE CONNECTOR

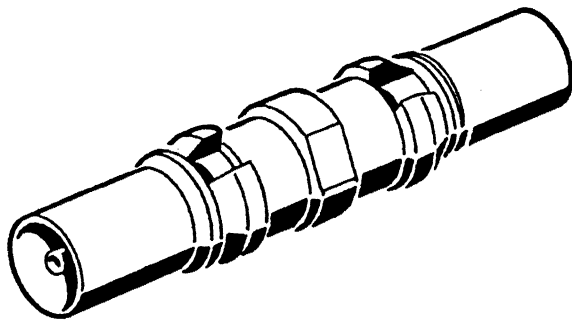
CO-AX RECEPTACLE INSERT FOR  
HYBRID DIN PRESS-FIT HEADER

A183398-0371

18

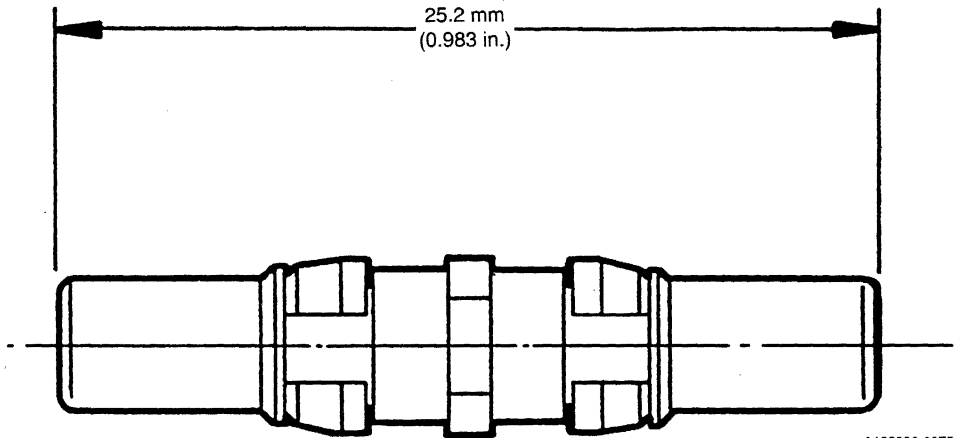
### Description Short Receptacle/Receptacle Coax Coupler

### Ordering Data



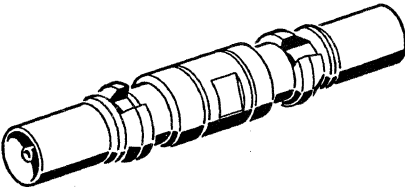
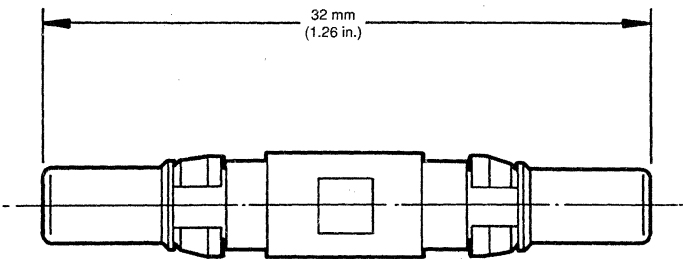
Part Number	Impedance (ohms)
77427-104	50
71634-104	75

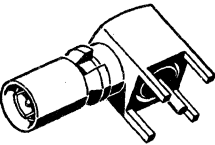
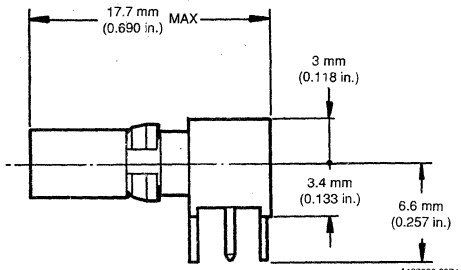
To be used with DIN press-fit header 77760-XXX  
Pin length: 13 mm (0.512 in.)

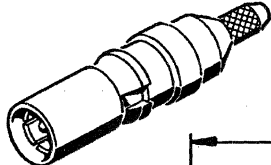
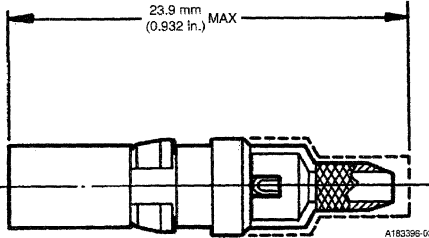


A183396-0375

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

Ordering Data	Description						
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Part Number</th> <th>Impedance (ohms)</th> </tr> </thead> <tbody> <tr> <td>77427-105</td> <td>50</td> </tr> <tr> <td>71634-105</td> <td>75</td> </tr> </tbody> </table> <p>To be used with DIN male Press-fit connector 77760-XXX Pin length: 20 mm (0.787 in.)</p>	Part Number	Impedance (ohms)	77427-105	50	71634-105	75	<p><b>Long Receptacle/Receptacle coax coupler</b></p>   <p style="text-align: right; font-size: small;">A183396-0376</p>
Part Number	Impedance (ohms)						
77427-105	50						
71634-105	75						
Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.							

Ordering Data	Description								
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2">Coax plug insert right-angle solder-to-board</th> </tr> <tr> <th>Part Number</th> <th>Impedance (ohms)</th> </tr> </thead> <tbody> <tr> <td>77427-103</td> <td>50</td> </tr> <tr> <td>71634-103</td> <td>75</td> </tr> </tbody> </table>	Coax plug insert right-angle solder-to-board		Part Number	Impedance (ohms)	77427-103	50	71634-103	75	<p><b>Coax plug insert right angle solder-to-board</b></p>   <p style="text-align: right; font-size: small;">A183396-0374</p>
Coax plug insert right-angle solder-to-board									
Part Number	Impedance (ohms)								
77427-103	50								
71634-103	75								
Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.									

Ordering Data	Description																																										
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2">Cable Type</th> <th colspan="2">Cable O.D.</th> <th rowspan="2">Part Number 50 ohm impedance</th> <th rowspan="2">Part Number 75 ohm impedance</th> </tr> <tr> <th>mm</th> <th>in.</th> </tr> </thead> <tbody> <tr> <td>RG316/U*</td> <td>3.10</td> <td>0.122</td> <td>77427-131</td> <td>71634-131</td> </tr> <tr> <td>RG188A/U</td> <td>2.80</td> <td>0.110</td> <td>77427-121</td> <td>71634-121</td> </tr> <tr> <td>RG174A/U</td> <td>2.60</td> <td>0.102</td> <td>77427-121</td> <td>71634-121</td> </tr> <tr> <td>RG316/U</td> <td>2.60</td> <td>0.102</td> <td>77427-121</td> <td>71634-121</td> </tr> <tr> <td>RG178B/U</td> <td>2.00</td> <td>0.079</td> <td>77427-111</td> <td>71634-111</td> </tr> <tr> <td>RG196A/U</td> <td>2.00</td> <td>0.079</td> <td>77427-111</td> <td>71634-111</td> </tr> <tr> <td>RG179</td> <td></td> <td></td> <td>---</td> <td>71634-121</td> </tr> </tbody> </table>	Cable Type	Cable O.D.		Part Number 50 ohm impedance	Part Number 75 ohm impedance	mm	in.	RG316/U*	3.10	0.122	77427-131	71634-131	RG188A/U	2.80	0.110	77427-121	71634-121	RG174A/U	2.60	0.102	77427-121	71634-121	RG316/U	2.60	0.102	77427-121	71634-121	RG178B/U	2.00	0.079	77427-111	71634-111	RG196A/U	2.00	0.079	77427-111	71634-111	RG179			---	71634-121	<p><b>Coax plug insert straight crimp-to-cable</b></p>   <p style="text-align: right; font-size: small;">A183396-0372</p>
Cable Type		Cable O.D.				Part Number 50 ohm impedance	Part Number 75 ohm impedance																																				
	mm	in.																																									
RG316/U*	3.10	0.122	77427-131	71634-131																																							
RG188A/U	2.80	0.110	77427-121	71634-121																																							
RG174A/U	2.60	0.102	77427-121	71634-121																																							
RG316/U	2.60	0.102	77427-121	71634-121																																							
RG178B/U	2.00	0.079	77427-111	71634-111																																							
RG196A/U	2.00	0.079	77427-111	71634-111																																							
RG179			---	71634-121																																							
Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.																																											

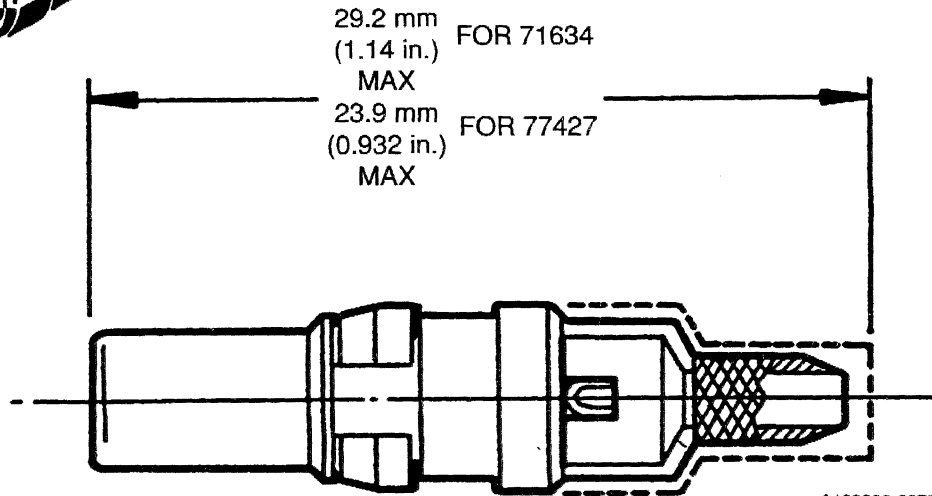
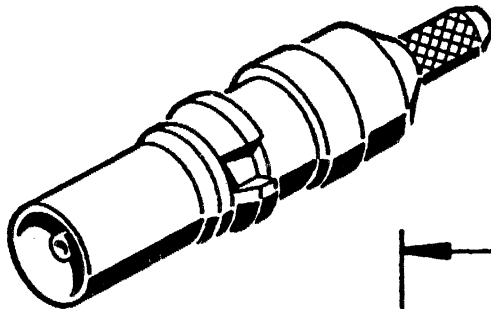
\*Double braid shield

### Description

Coax receptacle insert straight crimp-to-cable

### Ordering Data

Cable Type	Cable O.D.		Part Number 50 ohm impedance	Part Number 75 ohm impedance
	mm	in.		
L910/9-/19	3.10	0.122	77427-132	71634-132
RG188A/U	2.80	0.110	77427-122	71634-122
RG174A/U	2.60	0.102	77427-122	71634-122
RG316/U	2.60	0.102	77427-122	71634-122
RG178B/U	2.00	0.079	77427-112	71634-112
RG196A/U	2.00	0.079	77427-112	71634-112
RG187A/U			77427-122	71634-122
RG179B/U			77427-122	71634-122



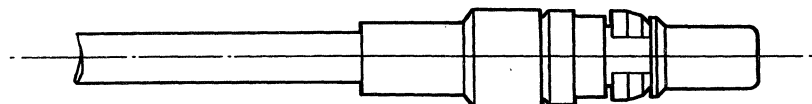
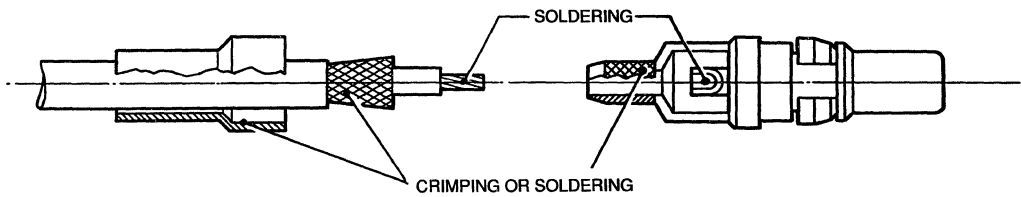
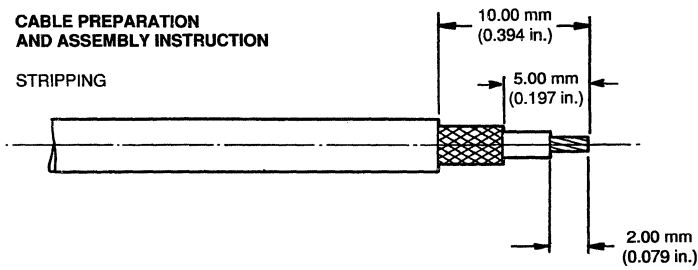
A183396-0373

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

### Description

#### CABLE PREPARATION AND ASSEMBLY INSTRUCTION

#### STRIPPING

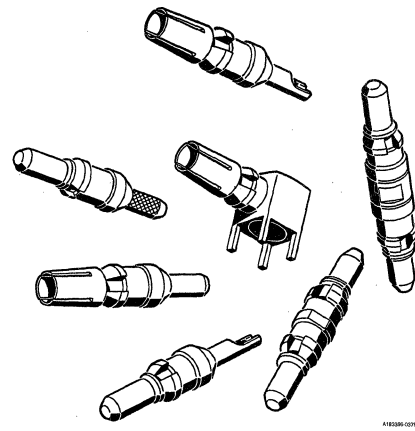


A183396-0378

# Hybrid Connectors

2.54 mm (0.100 in.) Centerlines

## DIN Power Inserts



### Features

- Use with DIN 41612 Series M (standard and reversed) connectors.
- Solder and crimp type versions are manufactured from high-quality beryllium copper.
- Inserts according to DIN 41626.
- Quality tested according to MIL-STD-202 and BS 9525 F 0011.

### Options

- 10 to 40 amp ratings.
- Various styles and mounting options.

### Specifications

- DIN 41612 series M
- DIN 41626
- MIL-STD-202
- BS 9525 F 0011

### Application Equipment

#### Description

- HT-333 Extraction tool ..... 18-56
- HT-334 Power crimp tool ..... 18-56

#### Page

### Technical Data

#### Materials

- Clip ..... Beryllium copper, treated
- Contact socket ..... Beryllium copper, treated
- Contact pin ..... Copper zinc 39 Pb2
  - Contact finish ..... Selective 1.3 µm (50 µin.) min gold over nickel

#### Operating Environment

- Temperature range ..... -55°C to +125°C

#### Packaging

- Bags

#### Electrical Performance

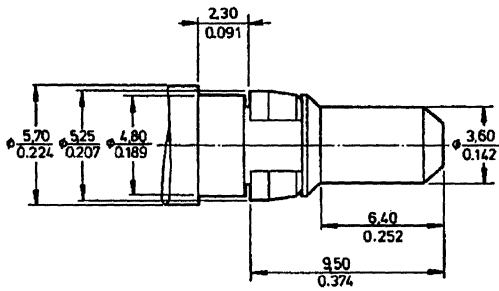
- Current rating ..... 10–40 amp max
- Resistance ..... 1 mΩ max

### Customer Support Materials

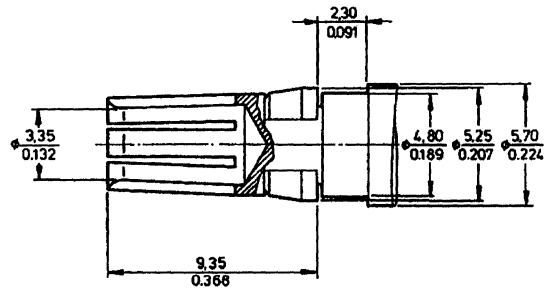
Description	Order No.
Customer Product Drawings.....	By Part Number

Description	Order No.
Product Samples.....	Upon Request

**Description**  
Hybrid Connectors



**Plug**

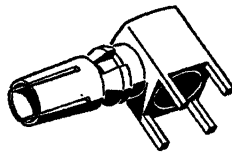


**Receptacle**

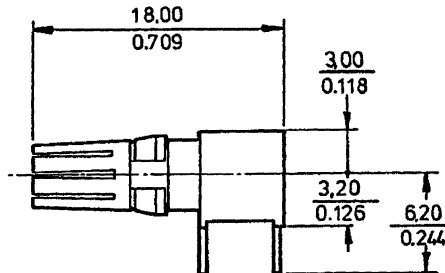
**Description**

Power receptacle insert  
right angle solder-to-board

**Ordering Data**

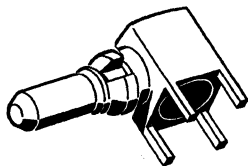


Part Number	Current Rating
77428-103	40 amp

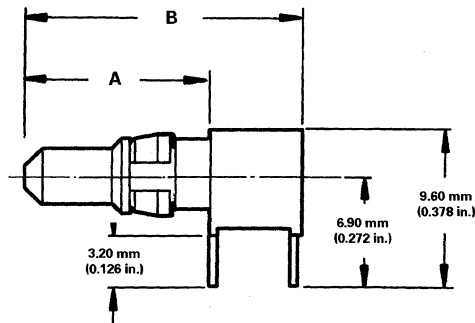


**Power plug insert**

right angle solder-to-board



Part Number	Dimension				Current Rating
	A		B		
	mm	in.	mm	in.	
91315-103	11.45	0.451	17.45	0.687	40 amp
91315-104	12.45	0.490	18.50	0.728	40 amp



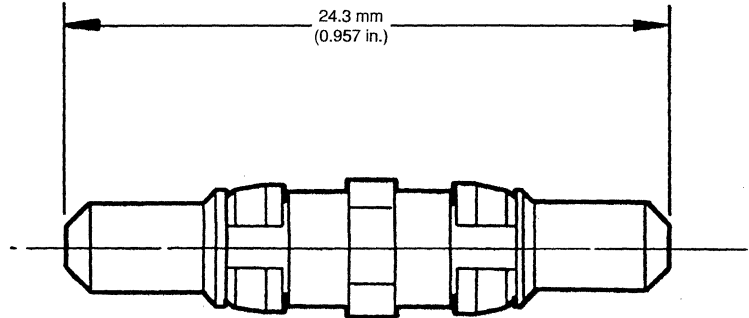
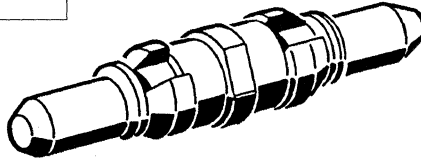


### Ordering Data

Part Number	Current Rating
77428-106	40 amp
To be used with DIN press-fit header 77760-XXX Pin length 13 mm (0.512 inch)	

### Description

Short plug/plug power coupler



A183396-0386

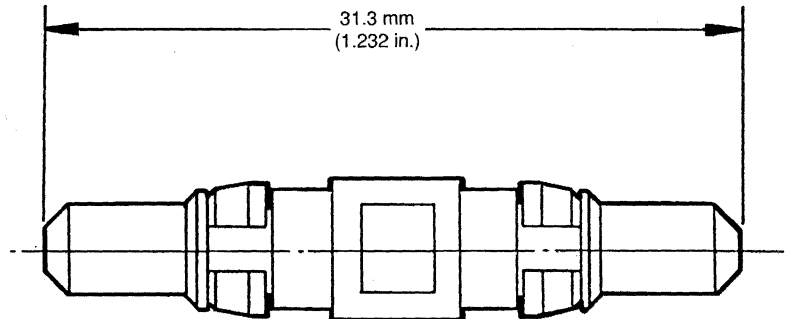
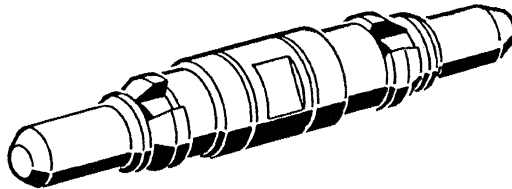
Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

### Ordering Data

Part Number	Current Rating
77428-107	40 amp
To be used with DIN press-fit header 77760-XXX Pin length 20 mm (0.787 inch)	

### Description

Long plug/plug power coupler



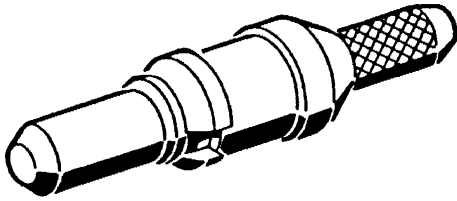
A183396-0387

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

**Description**

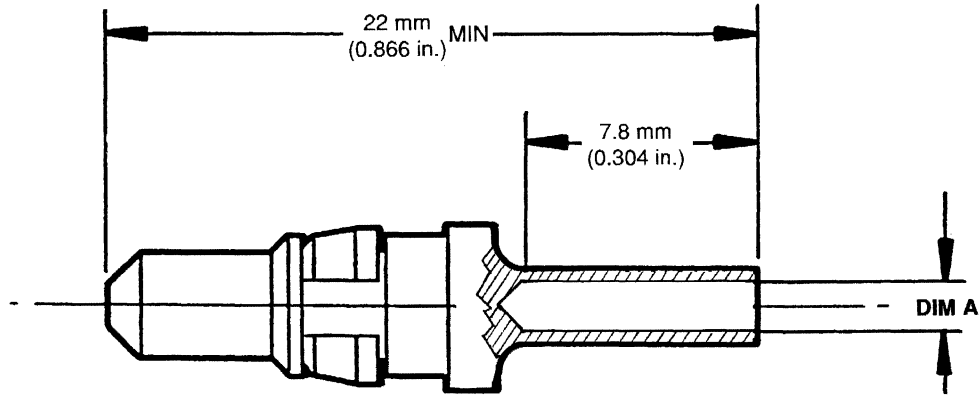
Power plug insert straight crimp-to-cable

**Ordering Data**



Current Rating	Dimension A*		Part Number
	mm	in.	
40 amp	4.80	0.189	77428-141
30 amp	3.50	0.138	77428-131
20 amp	2.80	0.110	77428-121
10 amp	1.70	0.070	77428-111

\*Max cable diameter



Power cable max strip length 7.8 mm (0.304 in.)

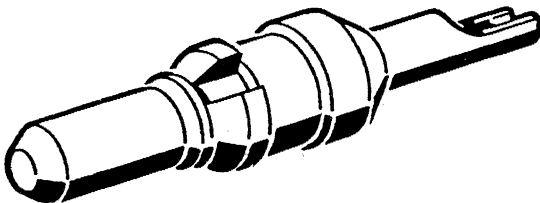
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Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

**Description**

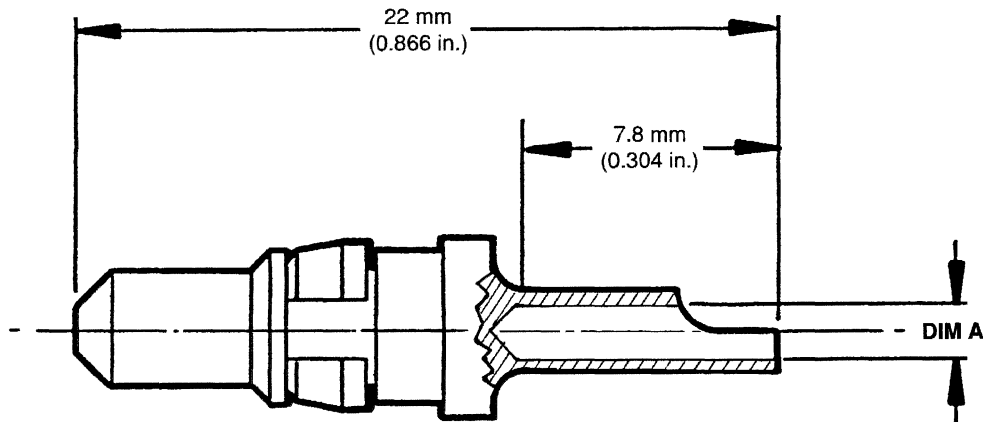
Power plug insert straight solder-to-cable

**Ordering Data**



Current Rating	Dimension A*		Part Number
	mm	in.	
40 amp	4.80	0.189	77428-142
30 amp	3.50	0.138	77428-132
20 amp	2.80	0.110	77428-122
10 amp	1.70	0.070	77428-112

\*Max cable diameter



Power cable max strip length 7.8 mm (0.304 in.)

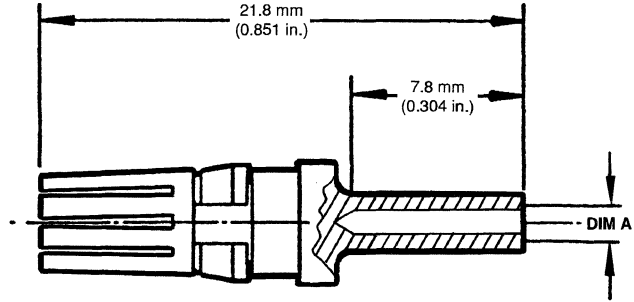
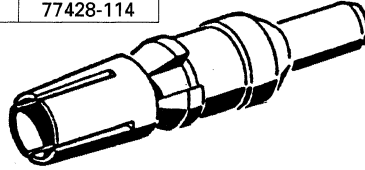
A183396-0385

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

**Ordering Data**

Current Rating	Dimension A*		Part
	mm	in.	
40 amp	4.80	0.189	77428-144
30 amp	3.50	0.138	77428-134
20 amp	2.80	0.110	77428-124
10 amp	1.70	0.070	77428-114

\*Max cable diameter



A183396-0382

Power cable max strip length 7.8 mm (0.304 in.)

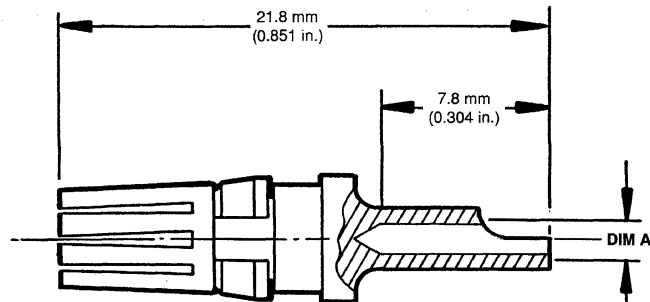
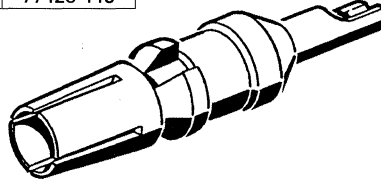
**Description**

Power receptacle insert straight crimp-to-cable

**Ordering Data**

Current Rating	Dimension A*		Part Number
	mm	in.	
40 amp	4.80	0.189	77428-145
30 amp	3.50	0.138	77428-135
20 amp	2.80	0.110	77428-125
10 amp	1.70	0.070	77428-115

\*Max cable diameter



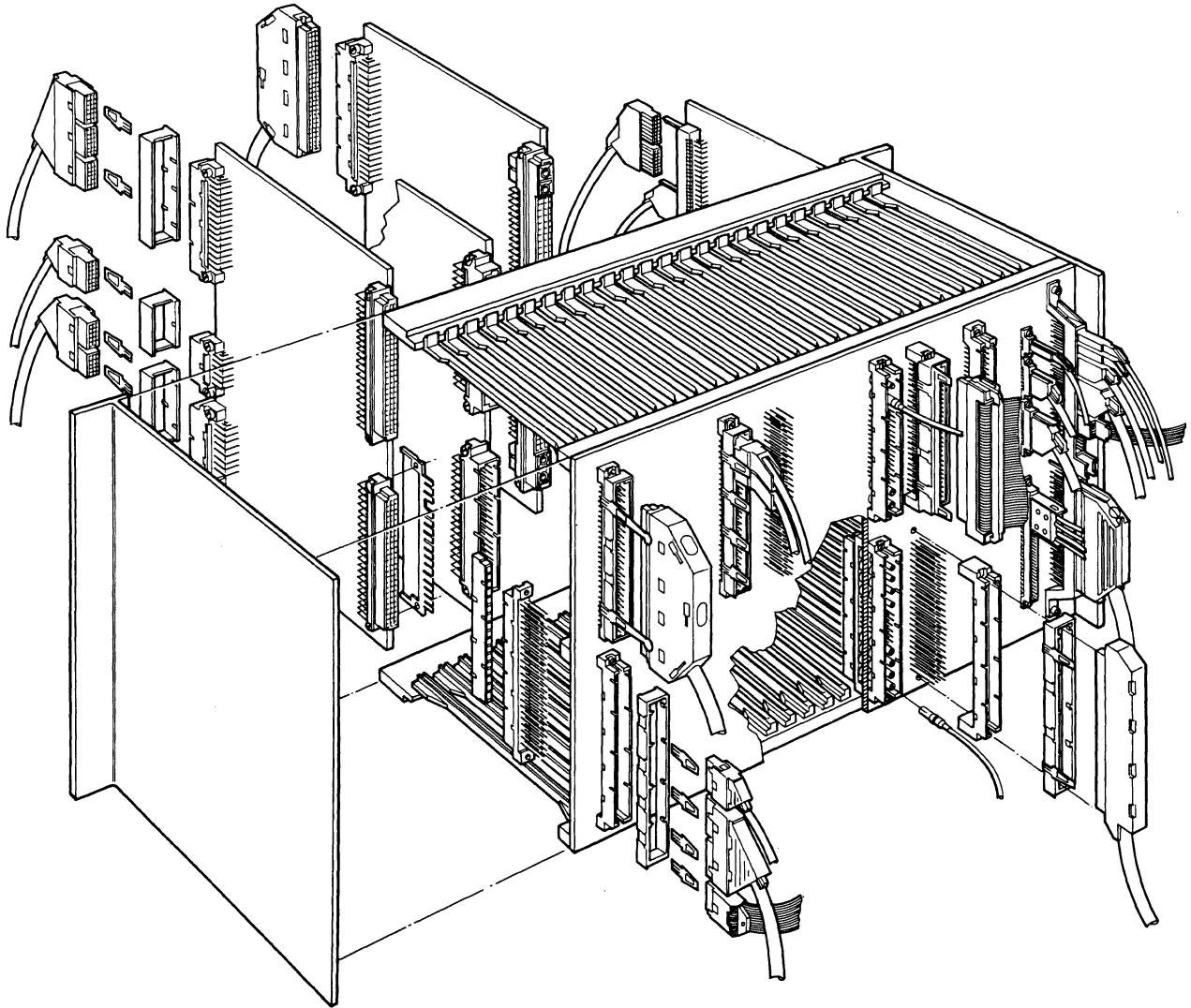
A183396-0383

Power cable max strip length 7.8 mm (0.304 in.)

**Description**

Power receptacle insert straight solder-to-cable

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

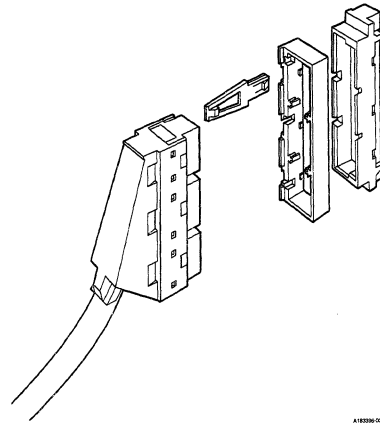


A183396-0318

# Round Conductor, Round Cable Discrete Crimp-to-Wire Connectors

2.54 mm (0.100 in.) Centerlines

**3 Row DIN  
Polarizing and Latching System**



## Features

- Latching/polarizing frames snap on to Berg Electronics DIN shrouds, vertical headers, and right angle headers.
- Compatible with Berg Electronics' DIN round and flat cable connectors.

## Options

- Extended latch for accessibility.

## Technical Data

### Locking frame

- Material ..... Modified polyphenylene oxide (UL94 V-1)
- Color ..... Black
- Operating Temperature ..... -40°C to +125°C

### Latch

- Material ..... Glass-filled thermoplastic polyester (UL 94 V-0)

- Color ..... Gray
- Operating Temperature ..... -55°C to +125°C
- Polarization ..... Configuration of plastic parts

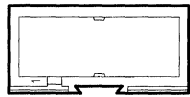
### Packaging

- Bags

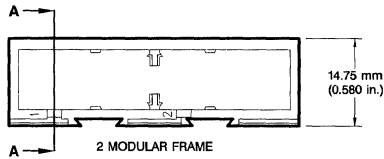
## Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawings.....	By Part Number	Application Drawings.....	TA 312, 313
Product Samples .....	Upon Request		

**Description**



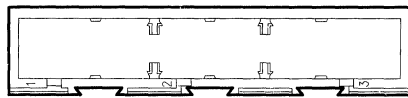
1 MODULAR FRAME



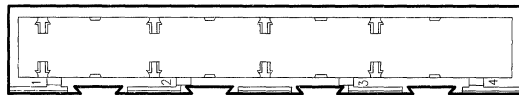
2 MODULAR FRAME



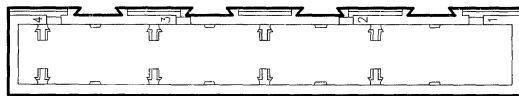
SECTION A-A



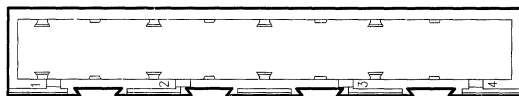
3 MODULAR FRAME



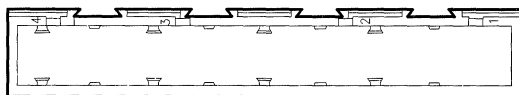
4 MODULAR FRAME



4 MODULAR FRAME (REVERSED)



3 X 32 POSITION MODULAR FRAME



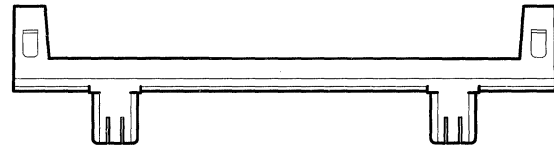
3 X 32 POSITION REVERSED FRAME



EXTENDED LATCH



MODULAR LATCH



LATCH FOR 64 POSITION FLAT CABLE CONNECTOR

A183396-0870

18

**Ordering Data**

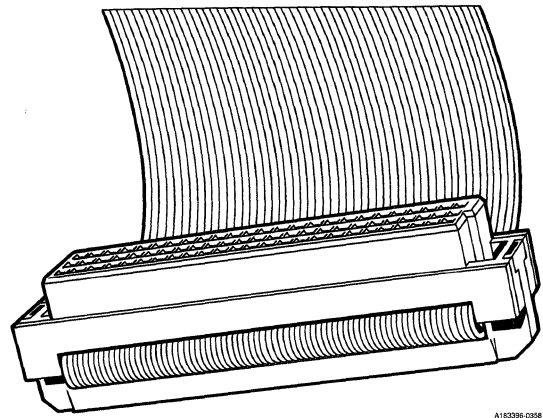
Description	Part numbers
1 module latching frame	65184-001
2 modules latching frame	65185-001
3 modules latching frame	65186-001
4 modules latching frame	65183-001
Reversed 4 modules latching frame	68347-001
3 x 32 pos. latching frame	65188-001
Reversed 3 x 32 pos. latching frame	77429-001
Modular latch	65182-001
Extended latch	66998-001
Latch for 2 x 32 pos. flat cable connector	65187-001

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

# Round Conductor, Flat Cable IDC Connector

2.54 mm (0.100 in.) Centerlines

DIN 64-Position Cable Connector



A15396-0208

## Features

- Meets electrical and mechanical requirements of DIN 41612 and BT D2580D.
- Terminates standard 1.27 mm (0.050 in.) pitch, 64 position flat cable.
- Dual-beam, early entry, long wipe contacts.
- AWG 28 stranded or 30 solid.
- Suitable for "daisy chain" applications.

## Options

- Plug in type with strain relief or rack mount type.
- Latching.
- Duplex plating.

## Mating Data

Mates to 0.64 mm (0.025 inch) square pin from 4.0 mm (0.158 inch) minimum to 5.5 mm (0.217 inch) maximum long.

### Berg Electronics Products Page

- DIN vertical headers . . . 18-2 & 18-12
- DIN right-angle header . . . . . 18-4

## Specifications

- DIN 41612
- BT D2580D

## Application Equipment

### Description Page

- HT-306 Hand tool . . . . . 18-55
- QP-106 Air press . . . . . 18-52

## Technical Data

### Materials

- Contact block, cover and strain relief . . . . . Glass-filled thermoplastic polyester (UL 94 V-0)
  - ▶ Color . . . . . Contact block: Gray  
Cover and strain relief: Black
- Contact material . . . . . Phosphor-bronze

### Electrical Performance

- Insulation resistance . . . . .  $1 \times 10^5$  M $\Omega$  min
- Withstanding voltage . . . . . 1000 V rms (sea level)
- Current rating . . . . . 2 amp max
- Contact resistance . . . . . 15 M $\Omega$  max

### Operating Environment

- Temperature range . . . . . -55°C to +125°C
- Polarization . . . . . Configuration of plastic parts

### Mechanical Performance

- Finish . . . . . See Ordering Data
- Insertion force . . . . . 0.94 N (94 gf) max
- Withdrawal force . . . . . 0.20 N (20 gf) min
- Cable Specification . . . Flat ribbon cable AWG 28 stranded or AWG 30 solid

### Packaging

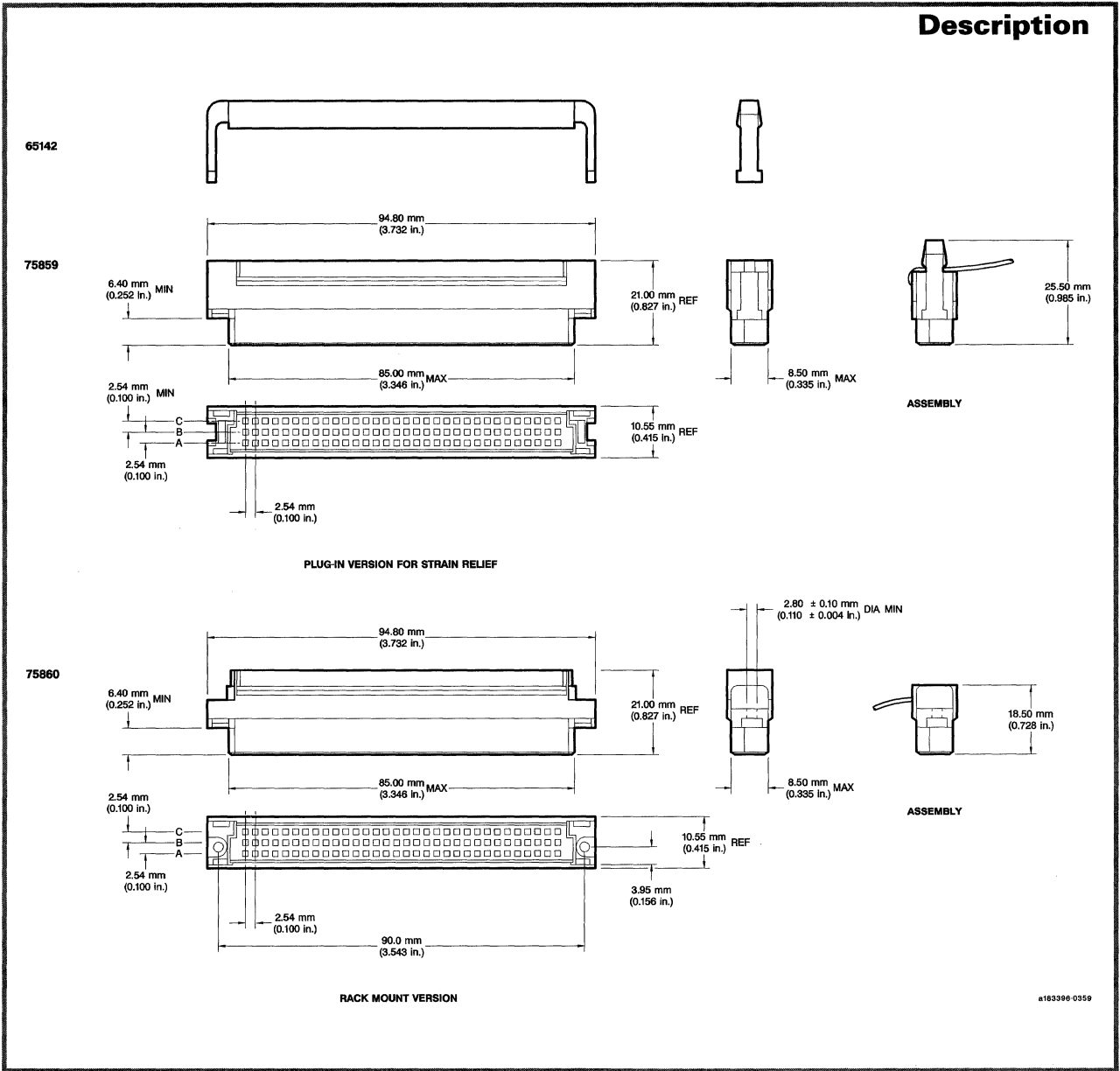
- Trays
- Strain relief
  - ▶ Bags

## Customer Support Materials

Description	Order No.
Customer Product Drawings . . . . .	By Part Number
Product Samples . . . . .	Upon Request

Description	Order No.
Product Substitutions . . . . .	Upon Request

**Description**



18

**Ordering Data**

Base number specifies  
plug-in or rack mount.

Dash number specifies  
finish (X) and loading (YY).

□ □ □ □ □ - X Y Y

**X: Code for finish**

X	Contact Area	Piercing Section
1	1µm (40 µin.) gold over nickel	nickel
2	0.5 µm (20 µin.) gold over nickel	nickel
Description	YY: Code for loading	Row to Row Spacing
Plug-in version without strain relief	75859-X01 (rows a + c)	2.54 mm x 5.08 mm (0.100 x 0.200 in.)
	75859-X02 (rows a + b)	2.54 mm x 2.54 mm (0.100 x 0.100 in.)
Rack mount version	75860-X01 (rows a + c)	2.54 mm x 5.08 mm (0.100 x 0.200 in.)
	75860-X02 (rows a + b)	2.54 mm x 2.54 mm (0.100 x 0.100 in.)

**Description**

**Part Number**

Strain relief

65142-001

**Notes**

1. For "Polarizing and latching system" see page 18-48.
2. For hand tool and application machine information, see pages 18-55 & 18-52.

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

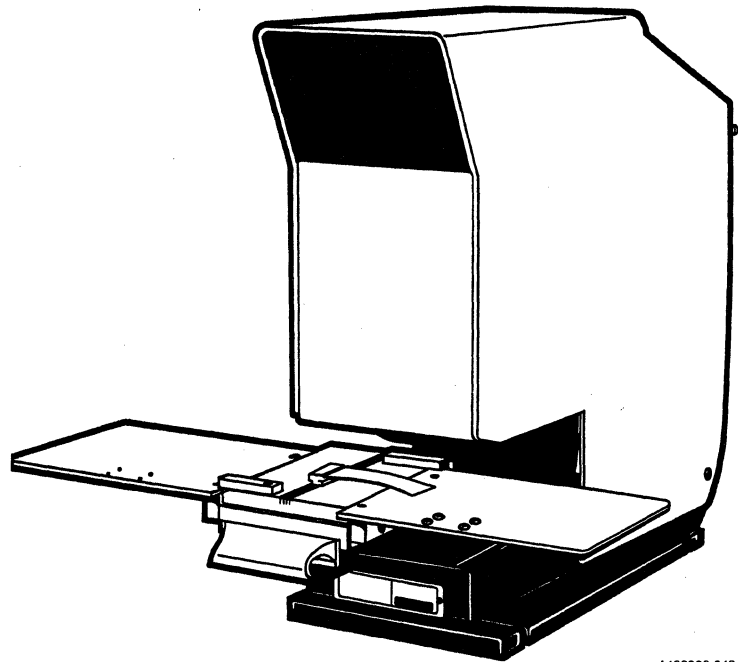


# Application Equipment for DIN Connectors

## Air Press

### Features

- For flat cable connectors 2 x 32 positions.
- Accurately positions connectors during piercing.
- Cable positioning table.
- Suitable for daisy chain applications.



A183396-0424

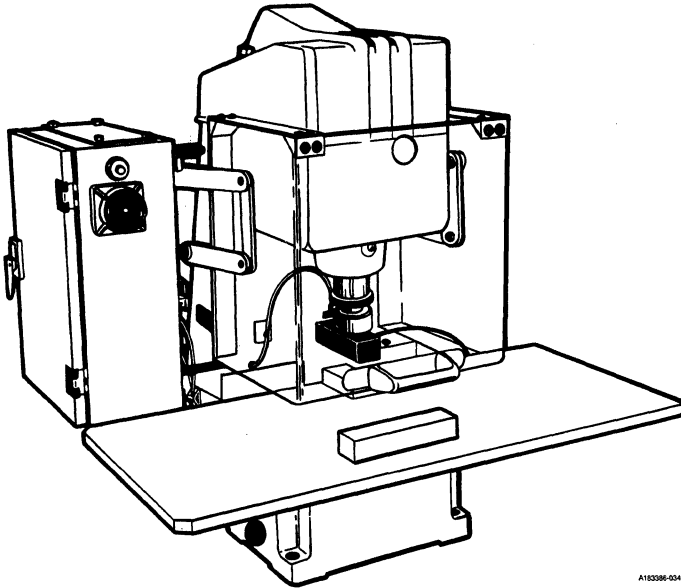
### Technical Data

Application rate/hour (depending on operator dexterity)	360
Air consumption/min	4.5 NI (6 SCFM)
Air pressure	5--6 Bar (80 psig)
Weight	31 kg (45 lbs.)
Dimensions (h x w x d)	445 x 178 x 406 mm (18 x 18 x 23 in.)
Working height above table	114 mm (4.5 in.)

### Ordering Data

Machine	Order Number	Product Size
QP-106 Air Press	117545-01	2.54 mm (0.100 in.) centerline products

## Air Press (3 Tons)



A183386-0345

### Features

- Versatile mass inserter for DIN Press-fit headers.
- Equipped with sensor to compensate variances in PCB thickness.
- Easy positioning through press block design (loose part).
- Press block, PCB support and support plate are separately available, facilitating application on any press.
- Safe and simple operation.
- Pneumatically operated.
- Low maintenance cost.

18

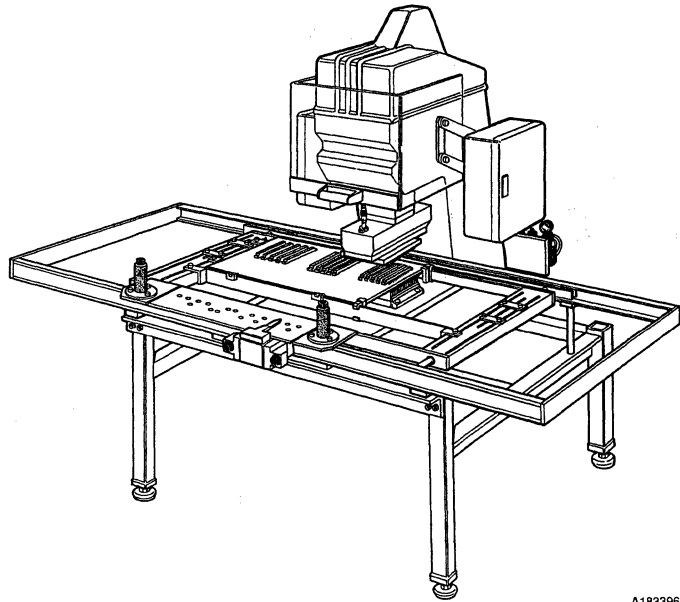
<b>Technical Data</b>	
Application rate/hour (depending on operator dexterity)	250 connectors
Air pressure	6--7 Bar (80 psig)
Air consumption/min	25 NI (35 SCFM)
Electrical requirements	110 V, 60 Hz
Staking area (X x Y)	600 x 280 mm (23.5 x 11 in.)
PC board dimensions (l x w)	unlimited x 300 mm (12 in.)
Weight	70 kg (154 lbs)
Dimensions (h x w x d)	700 x 700 x 860 mm (28 x 28 x 34 in)
Working height above table	225 mm (9 in.)

<b>Ordering Data</b>		
Description	Order Number	Product Size
PMC-100 Air Press (3 tons)	233000-01	2.54 mm (0.100 in.) centerline products
PC board support	233002-01	---
Press-fit headers	68301	---
	68302	
	68303	
Pressblock	233218-01	3 x 7 pos.
	233007-01	3 x 32 pos.
	193426-01	3 x 32 pos.
Press-fit receptacles	70042	---

## Semi-automatic Bench Press

### Features

- Versatile mass inserter for DIN Press-fit headers and receptacles.
- For connectors up to 3 x 32 positions.
- Sliding table.
- Pantograph for row positioning on PCB.
- Press-block magnetically clamped on ram of press.
- Up to 5 connectors can be pressed into the PCB simultaneously.



A183396-0346

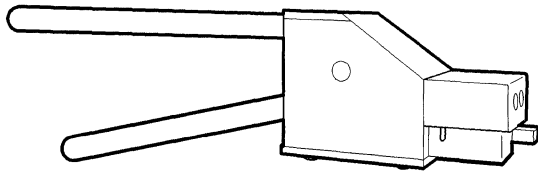
### Technical Data

Application rate/hour (depending on operator dexterity)	600 strokes (3000 connectors)
Air pressure	6--7 Bar (80 psig)
Air consumption/min	40 NI (55 SCFM)
Electrical requirements	110 V, 60 Hz
PC board dimensions (l x w)	100 x 500 to 500 x 600 mm (4 x 19.5 to 19.5 x 23.5 in.)
Weight	300 kg (660 lbs.)
Dimensions (h x w x d)	1600 x 1650 x 1200 (63 x 65 x 47 in.)
Recommended working area	2.0 x 2.0 m (7 x 7 ft)
Working height above floor	820 mm (32.3 in.)

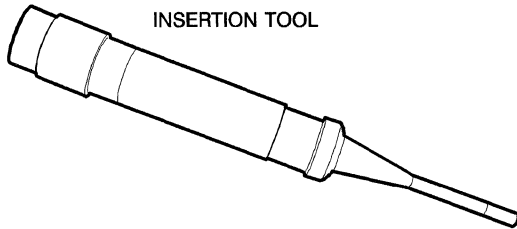
### Ordering Data

Machine	Order Number	Product Size
PEC-102 Semiautomatic Press (3 tons)	PEC-102	2.54 mm (0.100 in.) centerline products
Press Block part numbers available upon request.		

EXTRACTION TOOL



INSERTION TOOL



A228876-0428

## Extraction and Insertion Tools

### Features

- Inserts and removes DIN Press-fit headers.
- Lightweight.
- For field repair and prototype work.
- Simple and reliable.

18

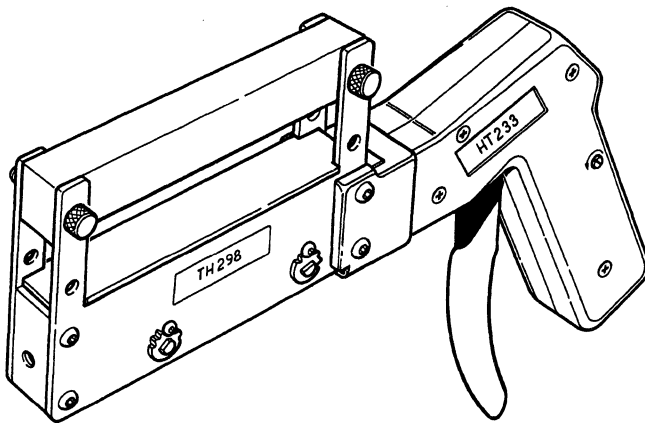
### Ordering Data

Machine	Order Number	Product Size
Extraction Tool	HT-301	2.54 mm (0.100 in.) centerline products
Insertion Tool	HT-302	2.54 mm (0.100 in.) centerline products

## Hand Tool HT-306

### Features

- For field repair and prototype work.
- For round cable connectors 2 x 32, 3 x 3, 3 x 7, and 3 x 32 positions.



### Ordering Data HT-306

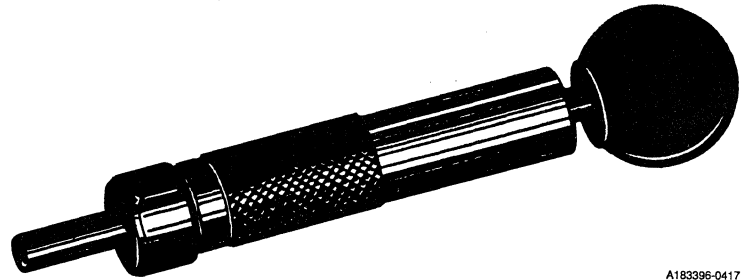
HT-306 consists of: Pistol grip - HT-233, Tooling head - TH-298, Table clamp 194166 and Tool box 192571

Type Positions	Tooling sets for:				
	Locating	Cutting-Piercing	Insertion	Piercing	Cutting
<b>Round cable</b>					
3 x 3	191883-1	191800-1			
3 x 7	191883-1	191800-1			
2 x 32	191883-1		191802-1	191803-1	192617-1
3 x 32	191883-1		192639-1	192710-1	192638-1
<b>Flat Cable</b>					
2 x 7	191883-1	191800-1			HT-209A
2 x 32	191883-1			191804-1	HT-209A

## Extraction Tool for Coax and Power Inserts

### Features

- Simple and reliable.
- Multifunctional tool.
- Low operating force.
- Lightweight.



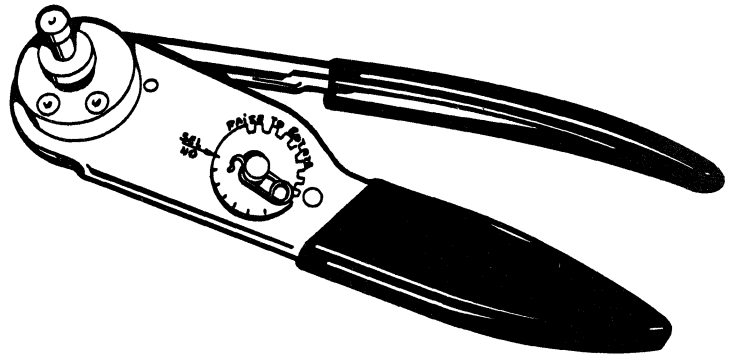
A183396-0417

Ordering Data		
Machine	Order Number	Product Size
Extraction Tool for Coax and Power Inserts	HT-333	2.54 mm (0.100 in.) centerline products

## Crimp Tool for Power Inserts

### Features

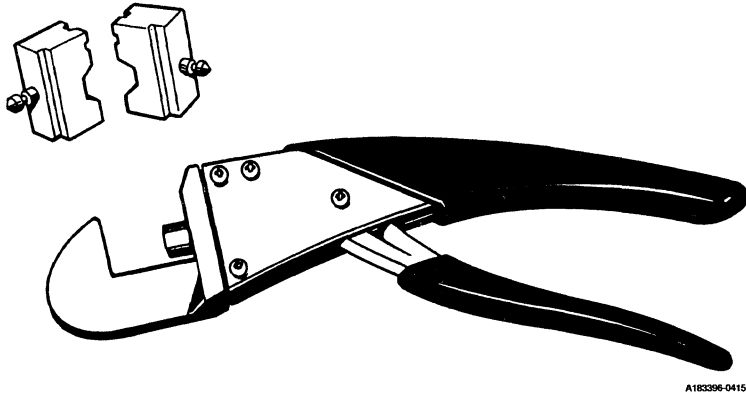
- Simple and reliable.
- Low operating force.
- Lightweight.



A183396-0416

Ordering Data		
Machine	Order Number	Product Size
Crimp Tool for Power Inserts	HT-334	2.54 mm (0.100 in.) centerline products

## Crimp Tool for Coax Inserts



A183396-0415

### Features

- Simple and reliable.
- Low operating force.
- Lightweight.

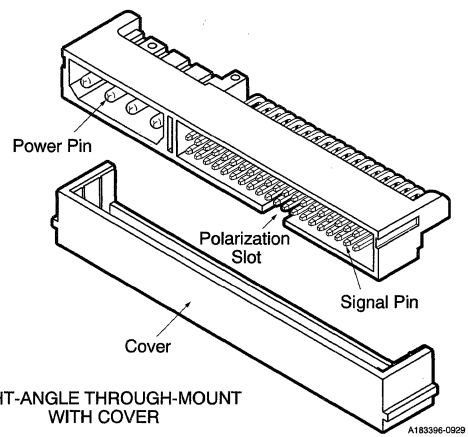
<b>Technical Data</b>	
Description	Part number
Crimp-insert for cable shielding, diameter:	
2.0 mm (0.079 in.)	193457-01
2.6--2.8 mm (0.102--0.110 in.)	193458-01
3.1 mm (0.122 in.)	193459-01

<b>Ordering Data</b>		
Machine	Order Number	Product Size
Crimp Tool for Coax Inserts	HT-338	2.54 mm (0.100 in.) centerline products

# Disk Driver Headers Hybrid Connectors

2.54 x 2.54 mm (0.100 x 0.100 in.)  
Centerlines Signal  
5.08 mm (0.200 in.) Centerline Power

## Combination Two-in-One Header



### Features

- Signal pins: 2.54 x 2.54 mm (0.100 x 0.100 in.) centerline, double row---39 or 50 positions.
- Power pins: 5.08 mm (0.200 in.) centerline, single row---4 positions.
- Available in straddle-mount, surface-mount and right-angle through-mount configurations.
- High-temperature plastic PPS housing for straddle-mount configuration is suitable for IR and vapor-phase soldering processes.
- Combines both signal and power connectors in one.
- Improved density over using two discrete connectors.

- Low-profile design minimizes board-to-board spacing.
- Polarization slot ensures proper connector-to-connector engagement.
- Solder-to-board hold-down pins provide connector-to-board retention and added connector strain relief in right-angle configuration.
- Passive latching system in power connector holds mating receptacle in place.
- Duplex-plated signal pins.
- Position One indicator.

### Options

- PPS cover protects right-angle housing and pins during wave soldering.

### Mating Data

- 4 position power connector on 5.08 mm (0.200 in.) centers.
- 50 or 40 position signal receptacles on 2.54 x 2.54 mm (0.100 x 0.100 in.) centers.

### Berg Electronics Product Page

- Quickie™ Receptacles:
- 71600-140 (40 position) . . . . . 23-5
- 71600-150 (50 position) . . . . . 23-5
- 71602-140 (40 position) . . . . . 23-5
- 71602-150 (50 position) . . . . . 23-5

### Technical Data

#### Materials

- Housing material
  - ▶ Straddle-mount . . . . . Glass-filled PPS (UL 94V-0)
  - ▶ Right-angle . . . . . 30% Glass-filled PBT (UL 94V-0)
  - ▶ Color
    - PBT . . . . . Black
    - PPS . . . . . Brown
  - ▶ Applicable soldering processes
    - Right-angle . . . . . wave
    - Straddle-mount . . . . . vapor-phase, IR
    - Surface-mount . . . . . vapor-phase, IR
- Contact material
  - ▶ Signal pin . . . . . Brass
  - ▶ Power pin . . . . . Brass
  - ▶ PCB hold-down pins (right-angle only) . . . . . Copper alloy

#### Mechanical Performance

- Contact retention force
  - ▶ Signal pin . . . . . 1.5 kg min
  - ▶ Power pin . . . . . 2.0 kg min

#### Environmental Properties

- Temperature range . . . . . 0°C to +85°C

#### Plating

- Signal terminal
  - ▶ Contact . . . . . 0.2 μm (8 μin.) min gold over 1.27 μm (50 μin.) min nickel
  - ▶ Solder tail . . . . . 1.27 μm (50 μin.) min tin-lead over 1.27 μm (50 μin.) min nickel
- Power terminal . . . . . 1.0 μm (40 μin.) min tin-lead over 0.8 μm (30 μin.) min copper
- PCB hold-down pin . . . . . 1.27 μm (50 μin.) min tin-lead over 0.8 μm (30 μin.) min copper

#### Electrical Performance

- Insulation resistance . . . . . 10<sup>4</sup> MΩ min
- Withstanding voltage . . . . . 1000 V ac
- Current rating
  - ▶ Signal pin . . . . . 1 amp continuous
  - ▶ Power pin . . . . . 5 amp continuous

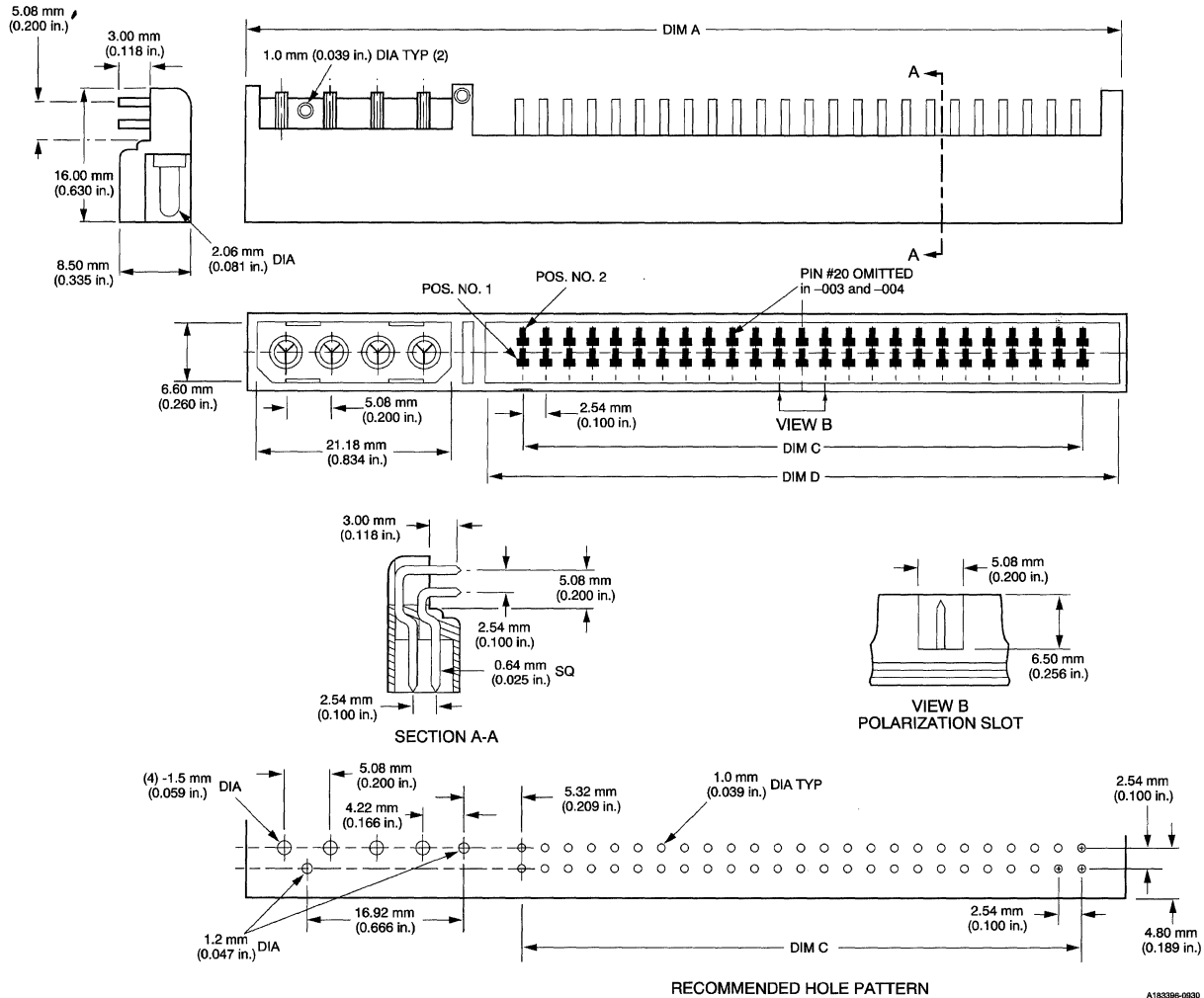
#### Packaging

- Tubes

### Customer Support Materials

Description	Order No.	Description	Order no.
Customer Product Drawings . . . . .	By Part No.	Product Specifications	
Product Samples . . . . .	Upon Request	▶ Right-angle . . . . .	110-207
		▶ Straddle-mount PPS . . . . .	110-242

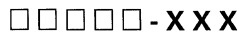
**Description**  
**Right-Angle Through-Mount**  
**Part No. 87711**



**Ordering Data**  
**Right-Angle Through-Mount**  
**Part No. 87711**

Base number specifies style and mounting configuration.

Dash number specifies number of signal positions, with and without cover.



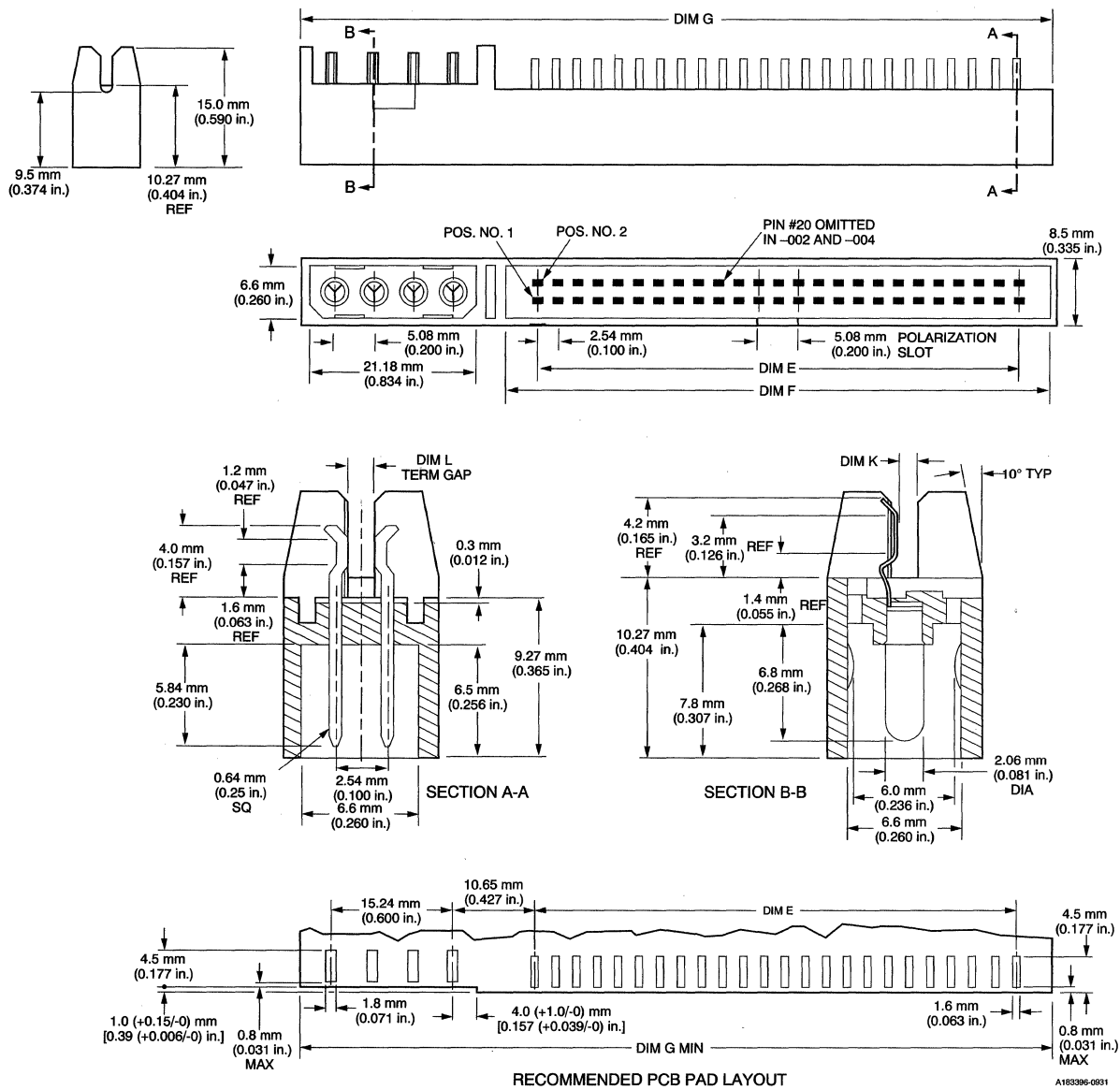
Number of Positions		Dash Number		Dimensions					
Signal	Power	With Cover	Without Cover	A		C		D	
				mm	in.	mm	in.	mm	in.
50	4	-001	-002	95.17	3.750	60.96	2.400	69.09	2.720
39*	4	-003	-004	82.47	3.250	48.26	1.900	56.39	2.220

\*Without position number 20 pin.

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.



**Description**  
**Straddle-Mount with PPS Housing for IR Processing**  
**Part No. 89331**



**Ordering Data**  
**Straddle-Mount with PPS Housing for IR Processing**  
**Part No. 89331**

Base number specifies style and mounting configuration. Dash number specifies number of signal positions and recommended PCB thickness.

□ □ □ □ - X X X

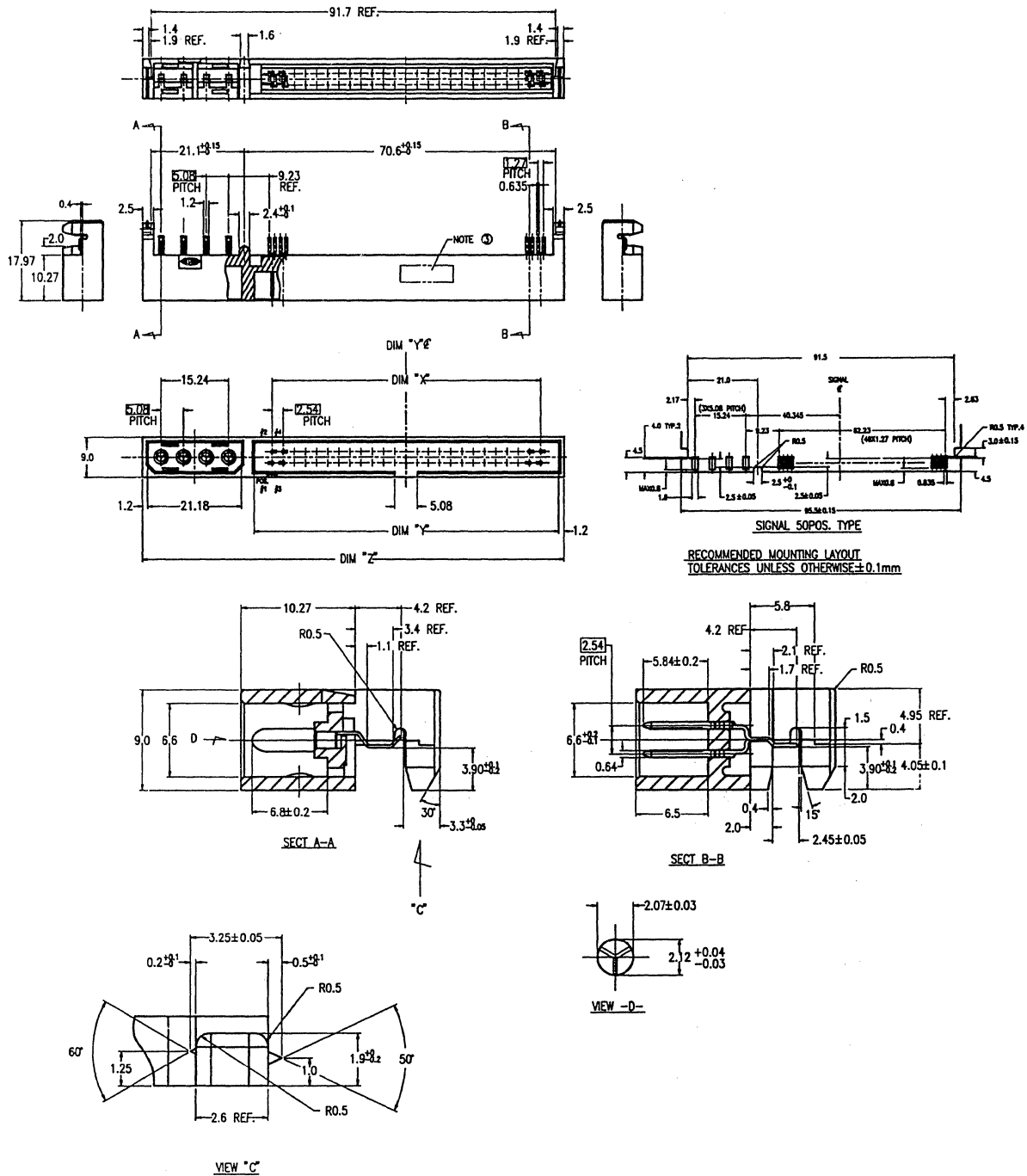
Number of Positions		Dash Number By PCB Thickness		Dimensions									
				E		F		G		K		L	
Signal	Power	1.6 mm (0.063 in.)	1.2 mm (0.047 in.)	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.
50	4	-001	--	60.96	2.400	69.09	2.720	96.30	3.790	1.40	0.055	1.55	0.061
39*	4	-002	--	48.26	1.900	56.39	2.220	83.60	3.290	1.40	0.055	1.55	0.061
50	4	--	-003	60.96	2.400	69.09	2.720	96.30	3.790	0.90	0.035	1.15	0.045
39*	4	--	-004	48.26	1.900	56.39	2.220	83.60	3.290	0.90	0.035	1.15	0.045

\*Without position number 20 pin.

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

**Description**

**Surface Mount with PPS Housing for IR Processing  
 Part No. 90910-001**



**Ordering Data**

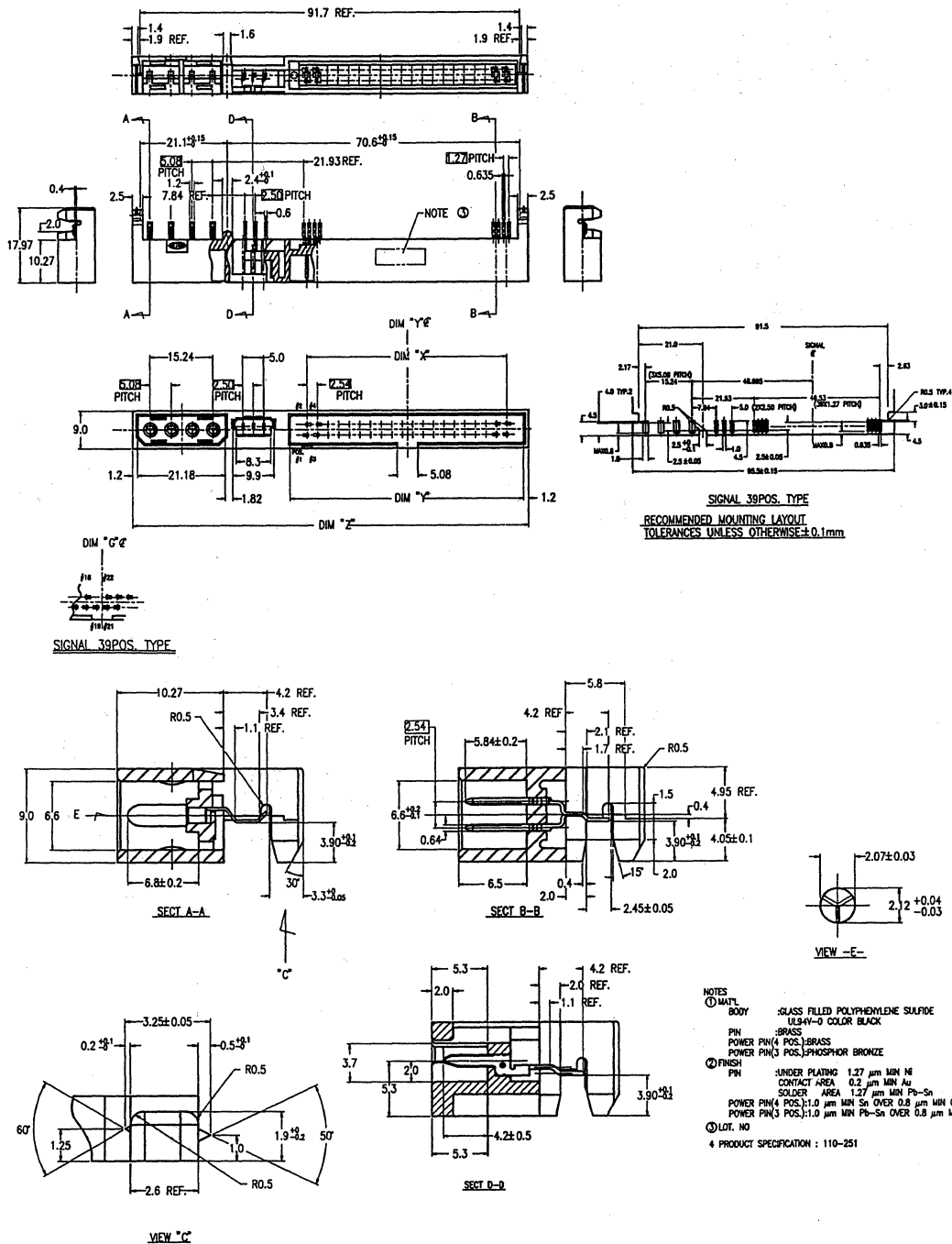
**Surface-Mount with PPS Housing for IR Processing  
 Part No. 90910-001**

Product Number	Dimension						Position		P.C.B. Thickness	
	X		Y		Z		Signal	Power	mm	in.
	mm	in.	mm	in.	mm	in.				
90910-001	60.96	2.4	69.09	2.72	95.50	3.76	50	4	1.20	0.047

\*Without position number 20 pin.

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

**Description**  
 Surface-Mount with PPS Housing for IR Processing  
 Part No. 90913

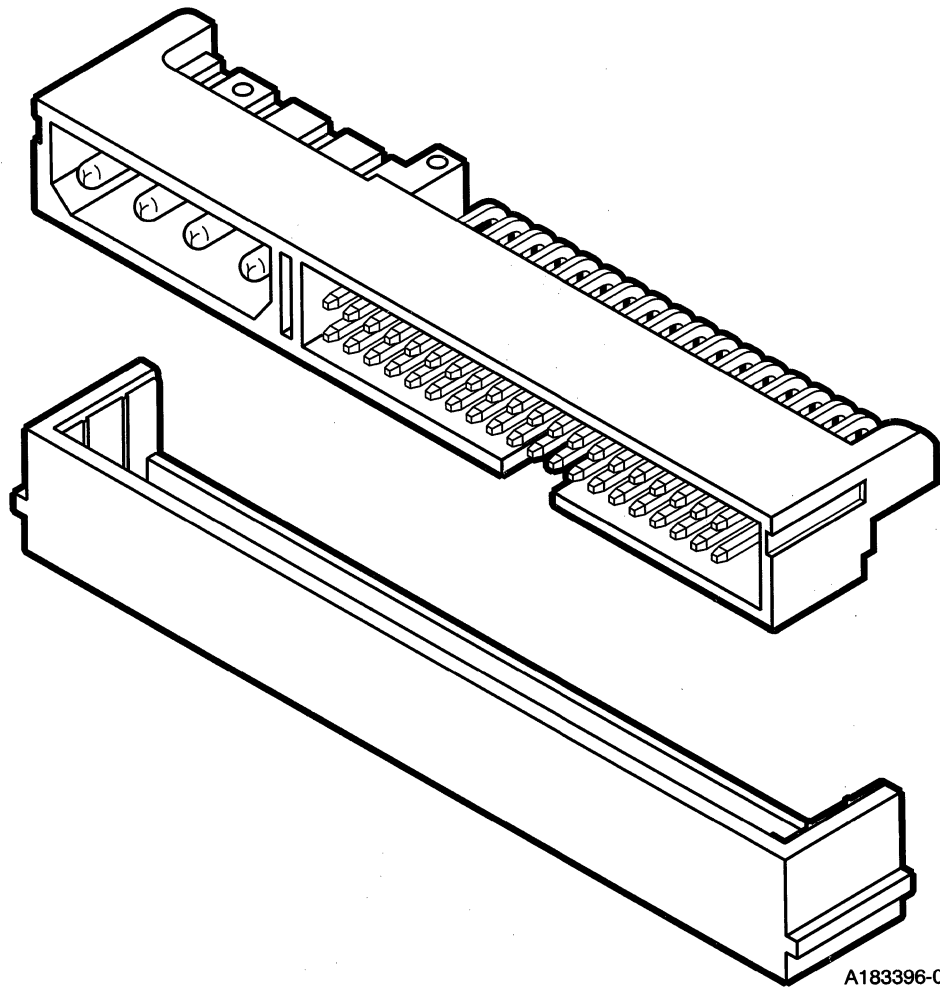


**Ordering Data**  
 Surface-Mount with PPS Housing for IR Processing  
 Part No. 90913

Product Number	Dimension						Position		P.C.B. Thickness	
	X		Y		Z		Signal	Power	mm	in.
	mm	in.	mm	in.	mm	in.				
90913-001	48.26	1.9	56.39	2.22	95.50	3.76	39*	4 + 3	1.20	0.047

\*Without position number 20 pin.

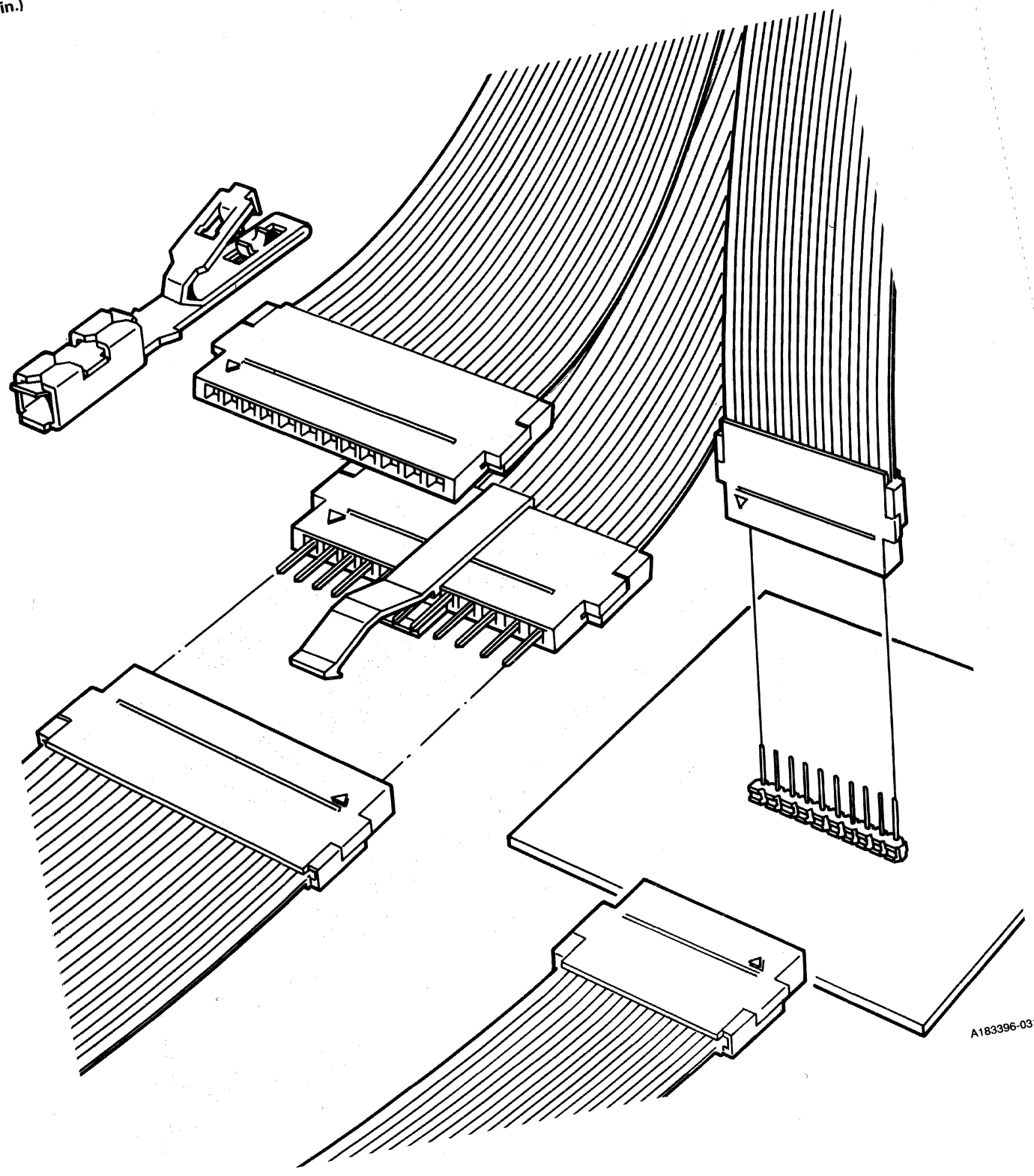
Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.



A183396-0929

# Clincher™

2.54 mm (0.100 in.)



A183396-0319

**2.54 mm (0.100 in.) Centerline  
Products**



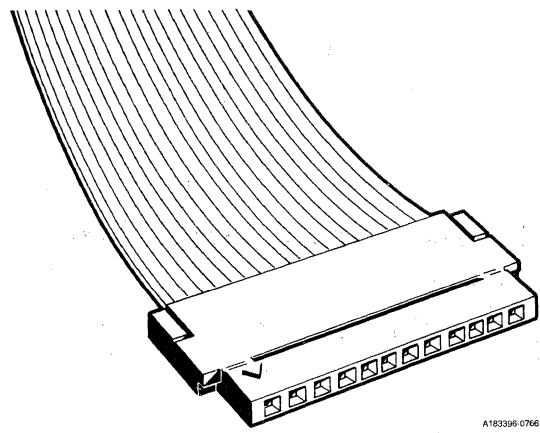
**Flexible Circuitry Connectors**

Receptacle .....	20-2
Pin .....	20-6
Solder Tab .....	20-8
Latching Receptacle .....	20-11
Latching Header .....	20-12
Application Equipment .....	20-13

# Flexible Circuitry Connectors

2.54 mm (0.100 in.) Centerline

## Clincher™ Receptacle



A183396-0766

### Features

- 1-row: 2 through 34 positions.
- Simultaneously terminates flat conductor flat cable or flexible circuitry without cable stripping at a rate of four connectors per minute.
- Dual-metal PV™ contacts ensure excellent electrical and mechanical performance.
- The clinching portion of the contact forms a gas-tight crimp to prevent contamination of the contact.
- Connector is available for use with thin-film conductive ink circuits whose total combined thickness of conductor and insulation does not exceed 0.15 mm (0.006 in.).

### Options

- Custom cable assemblies available upon request.
- Latching with mini-latch housing with pin and Clincher pin connector available.
- Optional polarizing plug available.

### Mating Data

Mates with 0.64 mm (0.025 in.) square or round pins on 2.54 mm (0.100 in.) centers.


#### Berg Electronics Products Page


- Clincher pin connector . . . . . 20-6
- Mini-latch housing with pin . . . . . 13-10, 13-16 & 13-18
- Single-row BergStiks . . . . . 13-50

### Specifications

- MIL-G-45204
- MIL-STD-105
- QQ-N-290
- QQ-C-533

### Approvals and Certifications

 File no. E66906

 File no. LR46923

### Application Equipment

Description	Page
▪ Semi-automatic bench press PV-219E . . . . .	20-13
▪ Hand tool HT-270 . . . . .	20-13

### Accessories

Latch series 78242-XXX for flying connection of pin or receptacle Clincher™ connector to pin or receptacle Mini-Latch housing. Polarizing plug 65762-001.

## Technical Data

### Materials

- Housing material . . . . . Polypropylene (UL 94 V-0)
  - ▶ Color . . . . . Blue
- Contact body material . . . . . Cupro-nickel
- Contact spring material . . . . . Beryllium-copper

### Plating

- Underplate . . . . . 1.27 μm (50 μin.) min nickel
- Finish
  - ▶ Body . . . . . 0.76 μm (30 μin.) gold or 2.50 μm (100 μin.) min tin-lead
  - ▶ Spring . . . . . 0.50 μm (20 μin.) gold or 0.25 μm (10 μin.) min tin-lead

### Electrical Performance

- Insulation resistance . . . . . 5000 MΩ min
- Contact resistance . . . . . 15 mΩ max
- Withstanding voltage . . . . . >500 V ac rms (sea level)
- Current rating . . . . . 2 amp continuous

### Mechanical Performance

- Insertion force per contact . . . . . Gold and tin-lead finish: 3 N (300 gf) max
- Normal force per contact . . . . . 1.5 N (150 gf)
- Withdrawal force per contact
  - ▶ Gold finish . . . . . 0.25 N (25 gf) per contact min
  - ▶ Tin-lead finish . . . . . 0.30 N (30 gf) per contact min

- Contact retention force . . . . . 10 lbs per inch of cable width
- Durability (mating cycles) . . . . . 100

### Operating Environment

- Temperature range . . . . . -65°C to +105°C
- Operating temperature . . . . . 85°C
- Relative humidity . . . . . 90%

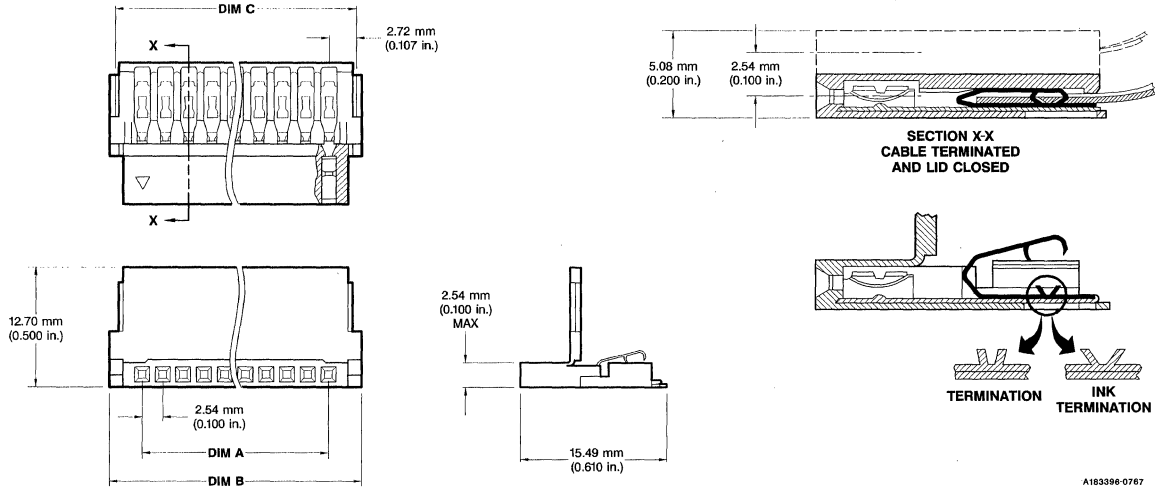
### Cable Specification

- Specification . . . . . IPC Standard, FC-220 B cables type A or B, tolerance class IV
- Thickness . . . . . 0.33 mm (0.013 in.) max (including insulation)
- Insulation material . . . . . MYLAR® Polyester or KAPTON® Polyimide
- Conductor thickness . . . . . 0.076 ± 0.013 mm (0.003 ± 0.0005 in.) 305 gr/m<sup>2</sup>
- Conductor width . . . . . 1.57 ± 0.07 mm (0.062 ± 0.0003 in.)
- Further cable specifications . . . . . See technical drawings TA 264, TA 371
- Application data . . . . . See technical drawing TA 372

### Packaging

- Antistatic trays

## Description Clincher™ Receptacle, Series 65801



A183398-0787

## Ordering Data

Base number.                - 0 X X      Dash number specifies number of positions and plating.

               - 0 X X

Number of Positions	Base Number 65801		Dimensions					
	Dash Numbers		A		B		C	
	Gold	Tin-lead	mm	in.	mm	in.	mm	in.
1 x 2	-063	-002	2.54	0.100	9.91	0.390	8.00	0.315
1 x 3	-062	-003	5.08	0.200	12.45	0.490	10.54	0.415
1 x 4	-033	-004	7.62	0.300	14.99	0.590	13.08	0.515
1 x 5	-034	-005	10.16	0.400	17.53	0.690	15.62	0.615
1 x 6	-035	-006	12.70	0.500	20.07	0.790	18.16	0.715
1 x 7	-036	-007	15.24	0.600	22.61	0.890	20.70	0.815
1 x 8	-037	-008	17.78	0.700	25.15	0.990	23.24	0.915
1 x 9	-038	-009	20.32	0.800	27.69	1.090	25.78	1.015
1 x 10	-039	-010	22.86	0.900	30.23	1.190	28.32	1.115
1 x 11	-040	-011	25.40	1.000	32.77	1.290	30.86	1.215
1 x 12	-041	-012	27.94	1.100	35.31	1.390	33.40	1.315
1 x 13	-042	-013	30.48	1.200	37.85	1.490	35.94	1.415
1 x 14	-043	-014	33.02	1.300	40.39	1.590	38.48	1.515
1 x 15	-044	-015	35.56	1.400	42.93	1.690	41.02	1.615
1 x 16	-045	-016	38.10	1.500	45.47	1.790	43.56	1.715
1 x 17	-046	-017	40.64	1.600	48.01	1.890	46.10	1.815
1 x 18	-047	-018	43.18	1.700	50.55	1.990	48.64	1.915
1 x 19	-048	-019	45.72	1.800	53.09	2.090	51.18	2.015
1 x 20	-049	-020	48.26	1.900	55.63	2.190	53.72	2.115
1 x 21	-050	-021	50.80	2.000	58.17	2.290	56.26	2.215
1 x 22	-051	-022	53.34	2.100	60.71	2.390	58.80	2.315
1 x 23	-052	-023	55.88	2.200	63.25	2.490	61.34	2.415
1 x 24	-053	-024	58.42	2.300	65.79	2.590	63.88	2.515
1 x 25	-054	-025	60.96	2.400	68.33	2.690	66.42	2.615

To order parts for conductive ink circuits or circuits less than 0.15 mm (0.006 in.) total thickness, dash number is changed from "0" to "1."

Example: 65801-039 would be changed to 65801-139.

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.



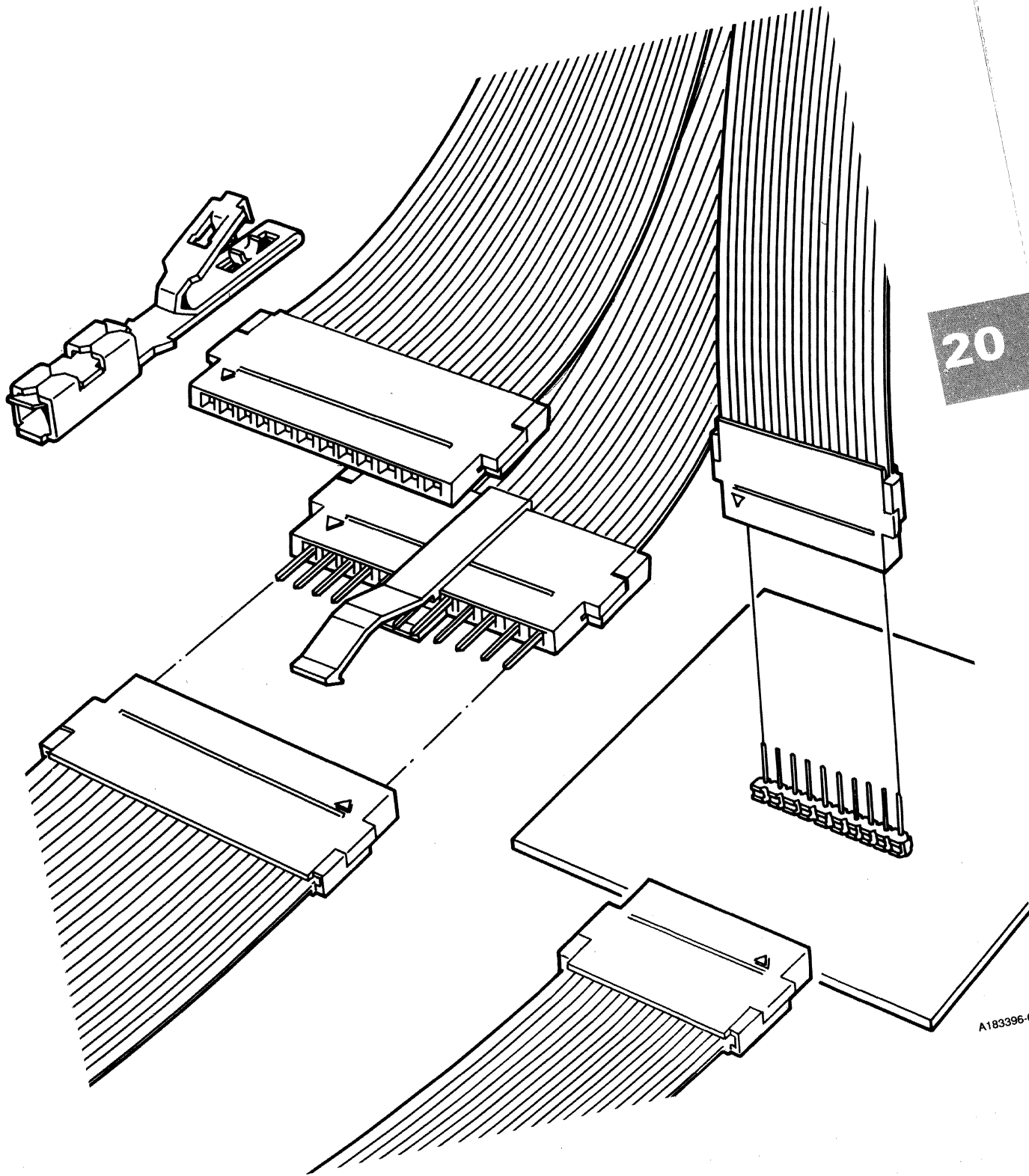
**Flexible Circuitry Connectors**  
**2.54 mm (0.100 in.)**

<b>Ordering Data (cont'd)</b>								
Number of Positions	Base Number 65801		Dimensions					
	Dash Numbers		A		B		C	
	Gold	Tin-lead	mm	in.	mm	in.	mm	in.
1 x 26	-055	-026	63.50	2.500	70.87	2.790	68.96	2.715
1 x 27	-056	-027	66.04	2.600	73.41	2.890	71.50	2.815
1 x 28	-057	-028	68.58	2.700	75.95	2.990	74.04	2.915
1 x 29	-058	-029	71.12	2.800	78.49	3.090	76.58	3.015
1 x 30	-059	-030	73.66	2.900	81.03	3.190	79.12	3.115
1 x 31	-060	-031	76.20	3.000	83.57	3.290	81.66	3.215
1 x 32	-061	-032	78.74	3.100	86.11	3.390	84.20	3.315
1 x 34	-066	---	83.82	3.300	91.19	3.590	89.28	3.515

To order parts for conductive ink circuits or circuits less than 0.15 mm (0.006 in.) total thickness, dash number is changed from "0" to "1."  
 Example: 65801-039 would be changed to 65801-139.

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

<b>Customer Support Materials</b>			
Description	Order No.	Description	Order No.
Customer Product Drawings.....	By Part No.	Product Sample.....	Upon Request
Product Specifications.....	BUS-12-021, BUS-12-022	Test Data.....	See Product Specifications
Application Drawings.....	TA-264, TA-371, TA-372	Product Substitution.....	Duflex™



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A183396-0319

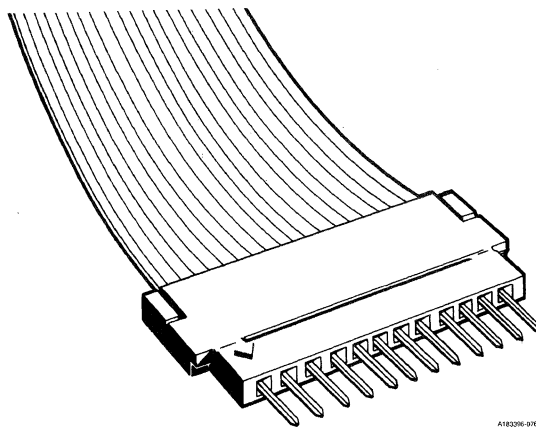
Clincher™

200-237-2374

# Flexible Circuitry Connectors

2.54 mm (0.100 in.) Centerline

## Clincher™ Pin



A18206-918

### Features

- 1-row: 2 through 32 positions.
- Simultaneously terminates flat conductor flat cable or flexible circuitry without cable stripping at a rate of four connectors per minute.
- Contacts are supplied in housing to reduce applied cost and to protect them before and after termination.
- The clinching portion of the contact forms a gas-tight crimp to prevent contamination of the contact.
- The Clincher pin uses the same application machines as the Clincher receptacle, therefore reducing the need for extra in-house equipment.

### Options

- Custom cable assemblies available upon request.
- Available with latching for Clincher receptacle and mini-latch housing.

### Mating Data

Accommodates any receptacle that mates with 0.64 mm (0.025 in.) square or round pins on 2.54 mm (0.100 in.) centers.


#### Berg Electronics Products


	Page
▪ Clincher receptacle	20-2
▪ Mini-latch housing with mini-PV™ receptacle	13-4, 13-16, 13-18
▪ PV™ vertical through-mount card connector	13-136

### Specifications

- MIL-STD-105
- MIL-G-45204
- QQ-N-290
- QQ-C-533

### Approvals and Certifications

 File no. E66906

 File no. LR46923

### Application Equipment

Description	Page
▪ Semi-automatic bench press PV-219E	20-13
▪ Hand tool HT-270	20-13

### Accessories

Latch series 78242-XXX for flying connection of pin or receptacle Clincher™ connector to pin or receptacle Mini-Latch housing.

### Technical Data

#### Materials

- Housing material ..... Polypropylene (UL 94 V-0)
  - ▶ Color ..... Blue
- Pin ..... Cupro-nickel

#### Cable Specification

- Specification ..... IPC Standard, FC-220 B cables type A or B, tolerance class IV
- Thickness ..... 0.33 mm (0.013 in.) max (including insulation)
- Insulation material ..... MYLAR® Polyester or KAPTON® Polyimide
- Conductor thickness ..... 0.076 ± 0.013 mm (0.003 ± 0.0005 in.)  
305 gr/m<sup>2</sup>
- Conductor width ..... 1.57 ± 0.07 mm (0.062 ± 0.0003 in.)
- Further cable specifications ..... See technical drawings TA 264, TA 371
- Application data ..... See technical drawing TA 372

#### Plating

- Finish-pin ..... 0.76 μm (30 μin.) min gold or 2.50 μm (100 μin.) min tin-lead

#### Electrical Performance

- Insulation resistance ..... 5000 MΩ min
- Withstanding voltage ..... 500 V ac rms (sea level)
- Current rating ..... 2 amp continuous

#### Mechanical Performance

- Contact retention force ..... 10 lbs per inch of cable width
- Durability (mating cycles) ..... 100

#### Operating Environment

- Temperature range ..... -65°C to + 105°C
- Operating temperature ..... 85°C
- Relative humidity ..... 90%

#### Packaging

- Antistatic trays

### Customer Support Materials

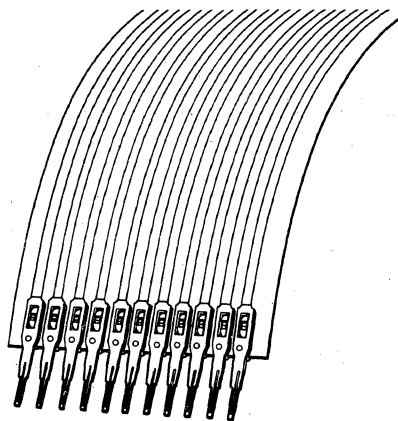
Description	Order No.	Description	Order No.
Customer Product Drawings	By Part No.	Product Sample	Upon Request
Product Specifications	BUS-12-061, BUS-12-062	Product Substitutions	Contact Technical Support
Application Drawings	TA-264, TA-371, TA-372	Test Data	See Product Specifications



# Flexible Circuitry Connectors

2.54 mm (0.100 in.) Centerline

Clincher™ Solder Tab



A10206-070

## Features

- Mass-terminated to flat, flexible circuits by individual conductors.
- Cable end requires no stripping prior to termination.
- The clinching portion of the contact forms a gas-tight crimp to prevent contamination of the contact.
- Can be soldered to a board or plugged into Berg Electronics Minisert™ socket.

## Options

- Custom cable assemblies available upon request.


## Mating Data


Mates with Berg Electronics Minisert™ socket 75060 series.

### Berg Electronics Products Page

- Minisert™ Socket series 75060 . 16-2

## Approvals and Certifications

 File no. E66906

 File no. LR46923

## Application Equipment

Description	Page
▪ Semi-automatic machine STC-100	20-13

## Technical Data

### Materials

- Applicable soldering processes . . . . . Wave, vapor-phase, IR reflow
- Contact body material . . . . . Cupro-nickel

### Plating

- Finish . . . . . 2.50 μm (100 μin.) min tin-lead

### Electrical Performance

- Current rating . . . . . 2 amp continuous

### Operating Environment

- Temperature range (pin contact only) . . . . . -65°C to +120°C

### Cable Specification

- Specification . . . . . IPC Standard, FC-220 B cables type A or B, tolerance class IV

- Thickness . . . . . 0.305 mm (0.012 in.) max (including insulation)
- Insulation material . . . . . MYLAR® Polyester or KAPTON® Polyimide
- Conductor thickness . . . . . 0.076 ± 0.013 mm (0.003 ± 0.0005 in.)  
305 gr/m<sup>2</sup>  
0.127 ± 0.013 mm (0.003 ± 0.0005 in.)  
610 gr/m<sup>2</sup>
- Conductor width . . . . . 1.57 ± 0.07 mm (0.062 ± 0.0003 in.)
- Further cable specifications . . . . . See technical drawings TA 264, TA 371, TA 372
- Application data . . . . . See technical drawing TA 406

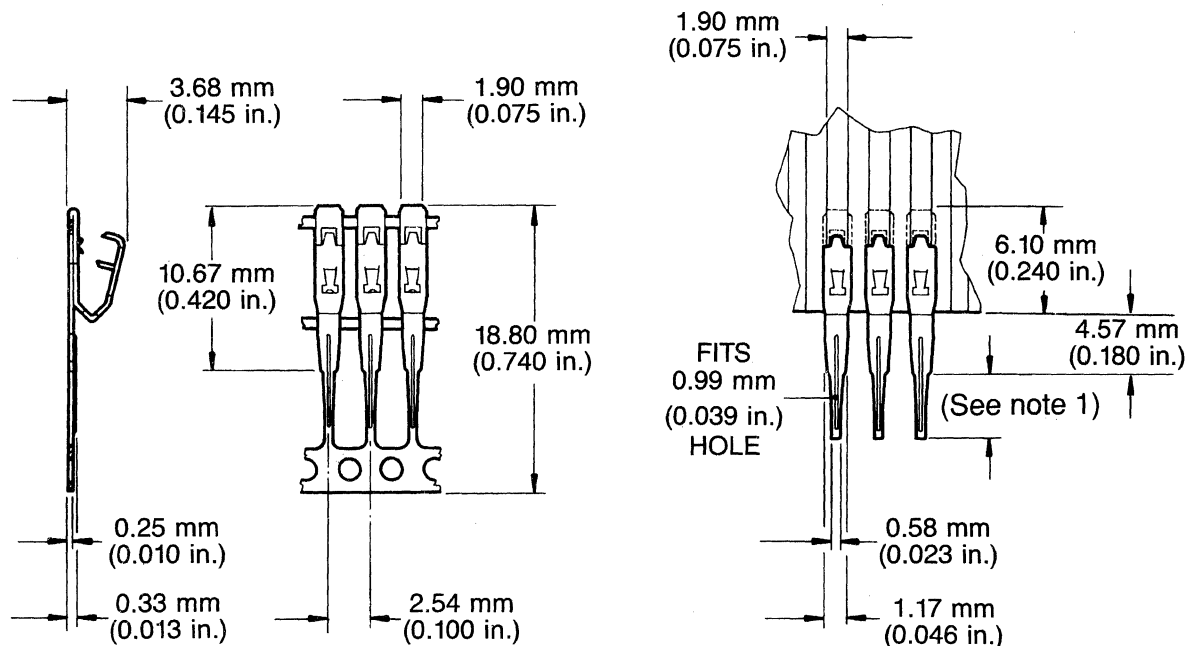
### Packaging

- Contacts on reel

## Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawings . . . . .	By Part No.	Product Sample . . . . .	Upon Request
Test Data . . . . .	Not Applicable	Product Substitution . . . . .	Contact Technical Service
Application Drawings . . . . .	TA 264, TA 371, TA 372, TA 406		

**Description**  
**Clincher™ Solder Tab**



A183996-0771

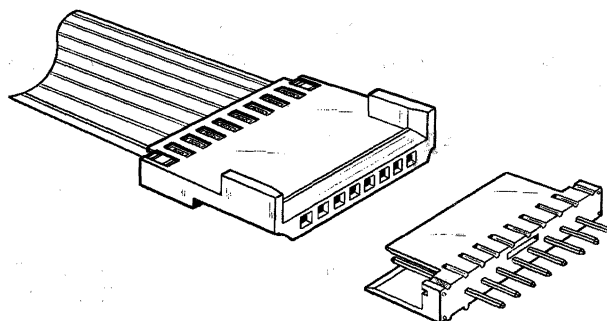
**Ordering Data**

Part Number	Description
76216-001	Contacts on reel
L dimension is determined by applicator setting, which may be set at: 2.34 mm (0.092 in.), 3.05 mm (0.120 in.), or 4.32 mm (0.170 in.).	
Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.	

# Flexible Circuitry Connectors

2.54 mm (0.100 in.) Centerline

## Clincher™ Latching Header and Receptacle



### Features

- Single row, 2 through 16 positions.
- Mass terminates without cable stripping.
- Passive latching and end polarization.
- Highly reliable PV™ receptacle.
- Header standoffs for easy PCB cleaning.
- Can be used with conductive ink circuits.
- Drawn wire (not stamped) pins.


### Options


- Vertical or right-angle headers.
- Gold or tin-lead plating.

### Specifications

- MIL-G-45204
- MIL-P-55110
- ASTM B-159
- QQ-W-343
- QQ-N-290 (receptacle)
- QQ-C-533 (receptacle)
- MIL-P-45209
- MIL-P-81728
- ASTM D-2897

### Approvals and Certifications

 File no. E66906

 File no. LR46923

### Technical Data

#### Materials

- Receptacle housing ..... Polypropylene (UL 94 V-0)
- Header housing ..... LCP (UL 94 V-0)
- Color
  - ▶ Receptacle ..... Blue
  - ▶ Header ..... Black
- Receptacle contact ..... Copper alloy
- Header pins ..... Phosphor-bronze

#### Plating

- Underplate ..... 1.27 µm (50 µin.) min nickel
- Finish
  - ▶ Receptacle body ..... 0.76 µm (30 µin.) gold or 2.50 µm (100 µin.) min tin-lead
  - ▶ Receptacle spring ..... 0.08 µm (3 µin.) gold or 0.25 µm (10 µin.) min tin-lead
  - ▶ Header pin ..... 0.76 µm (30 µin.) gold or 3.81 µm (150 µin.) tin-lead

#### Electrical Performance

- Insulation resistance ..... 5000 MΩ
- Contact resistance (receptacle) ..... 15 mΩ max
- Withstanding voltage
  - ▶ Receptacle ..... >1000 V ac rms
  - ▶ Header ..... 1,000 VAC
- Current rating (receptacle) ..... 2.0 amp

#### Mechanical Performance

- Insertion force per contact ..... 3 N (300 gf) max
- Normal force per contact ..... 1.5 N (150 gf)

- Contact retention force
  - ▶ Receptacle ..... 10 lbs per inch of cable width
  - ▶ Header (pin to housing) ..... 8.88 N (2 lbf)
- Durability
  - ▶ Receptacle ..... 100 cycles
  - ▶ Header ..... 1,000 cycles (gold plated)

#### Operating Environment

- Temperature range
  - ▶ Receptacle ..... -65°C to +105°C
  - ▶ Header ..... -55°C to +130°C

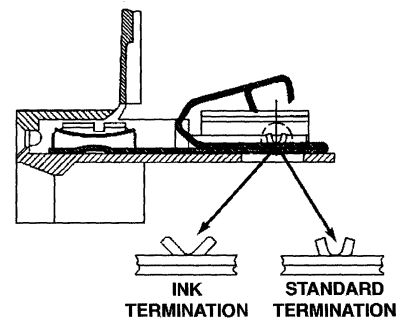
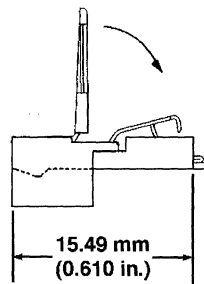
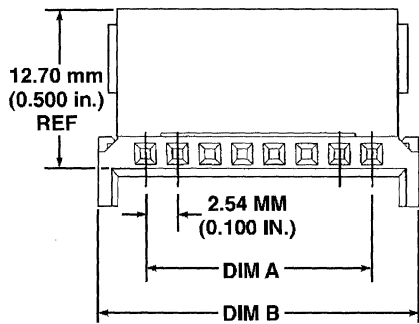
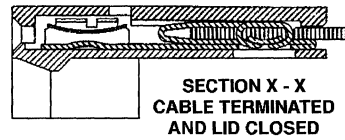
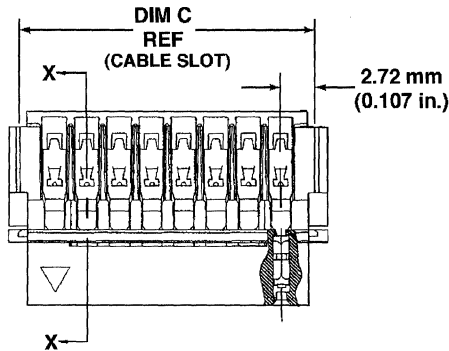
#### Cable Specification

- Specification ..... IPC Standard, FC-220 B cables type A or B, tolerance class IV
- Thickness ..... 0.33 mm (0.013 in.) max (including insulation)
- Insulation material ..... MYLAR® Polyester or KAPTON® Polyimide
- Conductor thickness ..... 0.076 ± 0.013 mm (0.003 ± 0.0005 in.) 305 gr/m<sup>2</sup>
- Conductor width ..... 1.57 ± 0.07 mm (0.062 ± 0.0003 in.)
- Further cable specifications ..... See technical drawings TA 264, TA 371
- Application data ..... See technical drawing TA 372

#### Packaging

- Receptacles ..... Trays in boxes
- Headers ..... Bags

## Description Clincher™ Latching Receptacle



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## Ordering Data

Base number. \_\_\_\_\_ Specifies number of positions.

□ □ □ □ □ - X Y Y

\_\_\_\_\_ Specifies Plating and Termination Type.

Number of Positions	Base Number 67516		Dimensions					
	Dash Numbers		A		B		C	
	Gold	Tin-lead	mm	in.	mm	in.	mm	in.
1 x 2	-202	-002	2.54	0.100	9.91	0.390	8.00	0.315
1 x 3	-203	-003	5.08	0.200	12.45	0.490	10.54	0.415
1 x 4	-204	-004	7.62	0.300	14.99	0.590	13.08	0.515
1 x 5	-205	-005	10.16	0.400	17.53	0.690	15.62	0.615
1 x 6	-206	-006	12.70	0.500	20.07	0.790	18.16	0.715
1 x 7	-207	-007	15.24	0.600	22.61	0.890	20.70	0.815
1 x 8	-208	-008	17.78	0.700	25.15	0.990	23.24	0.915
1 x 9	-209	-009	20.32	0.800	27.69	1.090	25.78	1.015
1 x 10	-210	-010	22.86	0.900	30.23	1.190	28.32	1.115
1 x 11	-211	-011	25.40	1.000	32.77	1.290	30.86	1.215
1 x 12	-212	-012	27.94	1.100	35.31	1.390	33.40	1.315
1 x 13	-213	-013	30.48	1.200	37.85	1.490	35.94	1.415
1 x 14	-214	-014	33.02	1.300	40.39	1.590	38.48	1.515
1 x 15	-215	-015	35.56	1.400	42.93	1.690	41.02	1.615
1 x 16	-216	-016	38.10	1.500	45.47	1.790	43.56	1.715

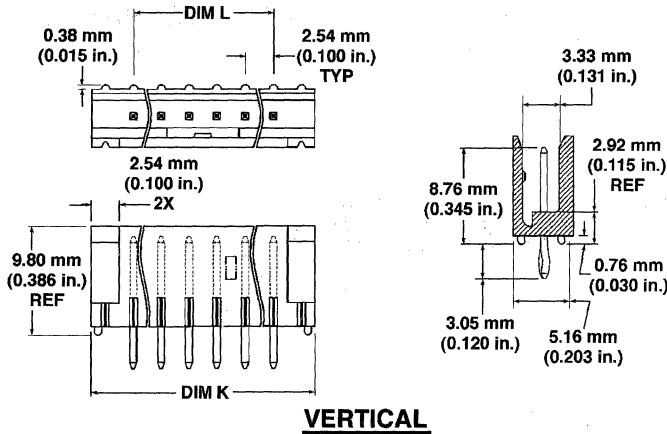
To order parts for conductive ink circuits or circuits less than 0.15 mm (0.006 in.) total thickness, dash number is changed from "0" or "2" to "5" or "7".

Example: 67516-002 would be changed to 67516-502, 67516-202 would be changed to 67516-702.

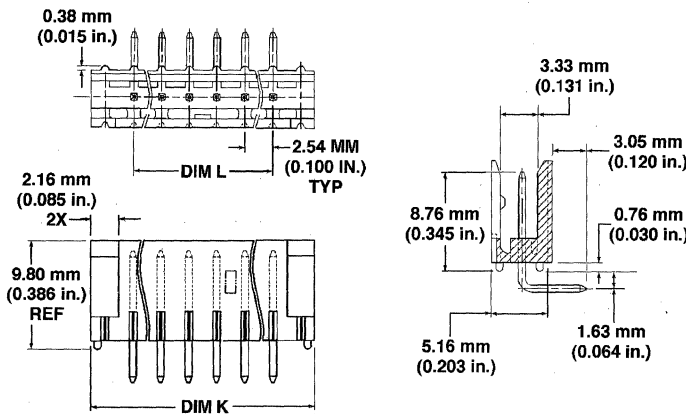
Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.



**Description**  
**Clincher™ Latching Header**



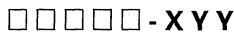
**VERTICAL**



**RIGHT ANGLE**

**Ordering Data**

Base number specifies pin length and style.



These digits specify total number of positions available for each number.

This digit specifies plating.

0.76 μm (30 μin.) gold over 1.27 μm (50 μin.) nickel

-1YY

3.81 μm (150 μin.) tin-lead

-4YY

Number of Positions	1-Row Header		Dimensions			
	Straight	Right-Angle	K		L	
	Base Number 95735	Base Number 95736	mm	in.	mm	in.
2	-X02	-X02	10.16	0.400	2.54	0.100
3	-X03	-X03	12.70	0.500	5.08	0.200
4	-X04	-X04	15.24	0.600	7.62	0.300
5	-X05	-X05	17.78	0.700	10.16	0.400
6	-X06	-X06	20.32	0.800	12.70	0.500
7	-X07	-X07	22.86	0.900	15.24	0.600
8	-X08	-X08	25.40	1.000	17.78	0.700
9	-X09	-X09	27.94	1.100	20.32	0.800
10	-X10	-X10	30.48	1.200	22.86	0.900
11	-X11	-X11	33.02	1.300	25.40	1.000
12	-X12	-X12	35.56	1.400	27.94	1.100
13	-X13	-X13	38.10	1.500	30.48	1.200
14	-X14	-X14	40.64	1.600	33.02	1.300
15	-X15	-X15	43.18	1.700	35.56	1.400
16	-X16	-X16	45.72	1.800	38.10	1.500

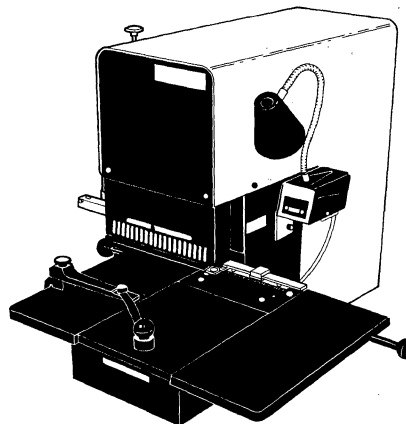
Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

# Application Equipment for Clincher™ Connectors

## PV-219E Semi-Automatic Application Machine

### Features

- For mass-terminating both pin and receptacle Clincher connectors to flat flexible circuitry or flat conductor flat cable.
- Bench model.
- Pneumatically operated.
- Tooling is adjustable for single-row housings up to 32 positions.
- Quick changeover for different housing sizes.
- Microprocessor controlled.

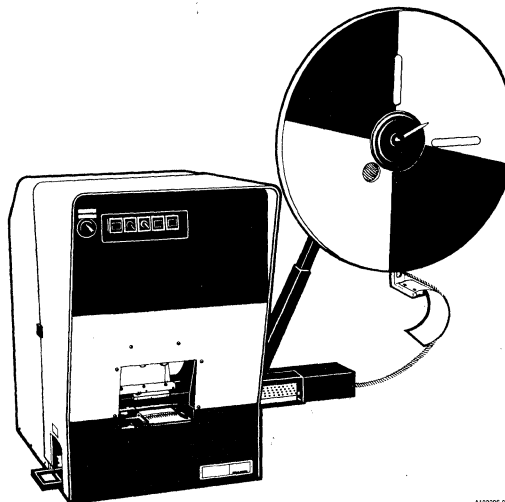


A183366-0772

## STC-100 Semi-Automatic Application Machine

### Features

- For mass-terminating Clincher solder tab terminals to flat flexible circuitry.
- Bench model.
- Electrical/pneumatic operation.
- Tooling is adjustable for flexible circuitry conductors up to 34 positions.
- Automatically feeds a pre-selected number of terminals into position.
- Adjustable for cutting solder tabs to required length.

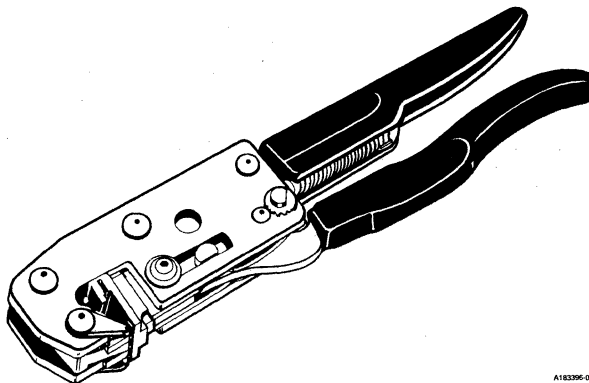


A183366-0773

## HT-270 Hand Tool

### Features

- For terminating pin or receptacle Clincher connectors to flat flexible circuitry or flat conductor flat cable.
- Terminates 2, 3, or 4 positions at one time.
- Ratchet handle assures complete crimp cycle.
- Lightweight and rugged.
- Simple to operate.



A183366-0774

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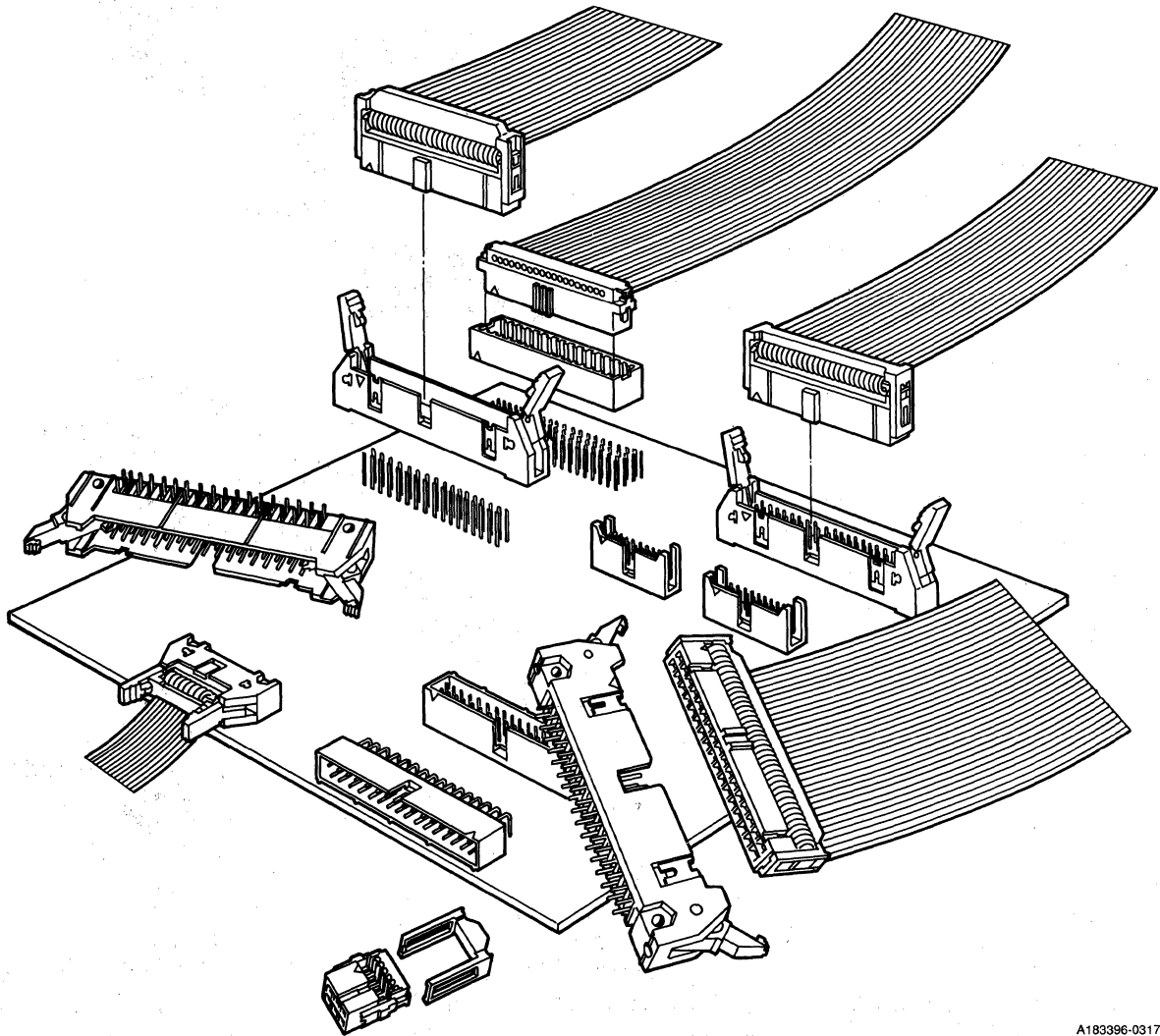
<b>Technical Data</b>		
	<b>PV-219E</b>	<b>STC-100</b>
Application Rate (termination time)	15 seconds*	10 seconds*
Air Consumption	1.3 L/min (0.05 scfm)	3.68 L/min (0.13 scfm)
Air Pressure	552 kPa (80 psi)	552 kPa (80 psi)
Electrical Requirements	115 V ac, 60 Hz (300 mA)	115 V ac, 60 Hz (15 mA)
Weight	68 kg (150 lb)	190 kg (420 lb)
Dimensions (H x W x D)	51 x 58 x 71 cm (20 x 23 x 28 in.)	91 x 77 x 92 cm (36 x 30.5 x 36.5 in.)

\*Application rates given are approximate. Actual rates achieved depend upon operator.

<b>Ordering Data</b>	
<b>Machines and Hand Tools</b>	<b>Identification Number</b>
PV-219E Application Machine	166652-001
STC-100 Application Machine	140635-001
HT-270 Hand Tool	HT-270

# Quickie™

- 1.00 mm (0.039 in.)
- 1.27 x 0.08 mm (0.050 ± 0.003 in.)
- 2.54 mm (0.100 in.)
- 2.54 x 2.54 mm (0.100 x 0.100 in.)
- 2.54 x 5.08 mm (0.100 x 0.200 in.)
- 2.54 x 7.62 mm (0.100 x 0.300 in.)



A183396-0317

1.00 mm (0.039 in.)  
1.27 x 0.08 mm (0.050 ± 0.003 in.)  
2.54 mm (0.100 in.)  
2.54 x 2.54 mm (0.100 x 0.100 in.)

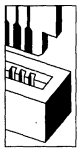
## 1.27 ± 0.08 mm (0.050 ± 0.003 in.) Centerline Products



### Round Conductor, Flat Cable IDC Connectors

Quickie™ IDC Round Conductor, Flat Cable . . . . . 23-62

## 2.54 mm (0.100 in.) Centerline Products



### Edge Card Connectors

Quickie™ III IDC Edge Card Connector . . . . . 23-52



### Round Conductor, Flat Cable IDC Connectors

Quickie™ IDC 4-Row PCB Connector  
(staggered centerline) . . . . . 23-56

## 2.54 x 2.54 mm (0.100 x 0.100 in.) Centerline Products



### Shrouded Headers

Quickie™ III IDC Straight and Right-Angle Latch and Eject Headers . . . . .	23-16
Quickie™ IDC Straight 4-Wall Latch and Eject Header . . . . .	23-18
Quickie™ IDC Straight 3-Wall Latch and Eject Header . . . . .	23-26
Quickie™ IDC Straight 4-Wall Slimline Header . . . . .	23-30
Quickie™ IDC Straight 4-Wall Slimline Header End Windows . . . . .	23-28
Quickie™ IDC Straight 4-Wall Slimline Header End Windows Duplex Plating . . . . .	23-32
Quickie™ IDC Straight 3-Wall Slimline Header . . . . .	23-34
Quickie™ IDC Right-Angle 4-Wall Latch and Eject Header . . . . .	23-36
Quickie™ IDC 4-Row Right-Angle Latch and Eject Header . . . . .	23-38
Quickie™ IDC Right-Angle 3-Wall Latch and Eject Header . . . . .	23-40
Quickie™ IDC Right-Angle 4-Wall Slimline Header . . . . .	23-42
Quickie™ IDC Right-Angle 4-Wall Slimline Header End Windows . . . . .	23-44
Quickie™ IDC Right-Angle 4-Wall Slimline Header End Windows Duplex Plating . . . . .	23-46
Quickie™ IDC Right-Angle 3-Wall Slimline Header . . . . .	23-48



### Compliant Press-Fit Pin Headers

Quickie™ IDC Compliant Pin Headers Latch and Eject and Slimline Versions . . . . .	23-22
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### Shrouds

Quickie™ IDC Backplane Shroud . . . . .	23-10
Quickie™ IDC Pinless Header Straight 4-Wall Latch and Eject Shroud . . . . .	23-20

# Quickie™

2.54 x 2.54 mm (0.100 x 0.100 in.)  
2.54 x 5.08 mm (0.100 x 0.200 in.)  
2.54 x 7.62 mm (0.100 x 0.300 in.)

## 2.54 x 2.54 mm (0.100 x 0.100 in.) Centerline Products



### Round Conductor, Flat Cable IDC Connectors

Quickie™ III IDC Receptacles.....	23-4
Quickie™ II IDC Receptacles .....	23-6
Quickie™ IDC Backplane Receptacles .....	23-8
Quickie™ IDC 2-Row PCB Connector .....	23-54

## 2.54 x 7.62 mm (0.100 x 0.300 in.) Centerline Products



### Round Conductor, Flat Cable IDC Connectors

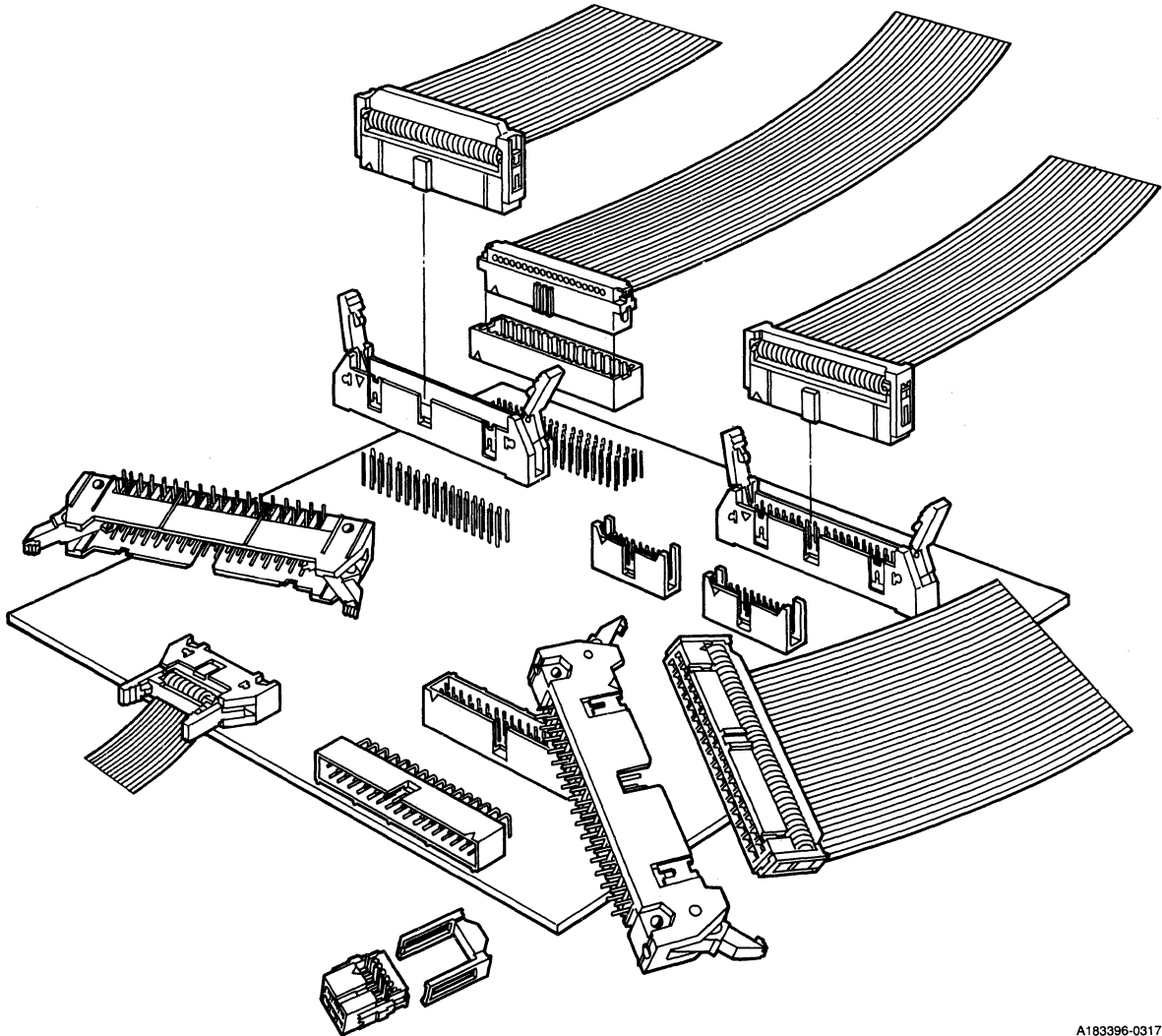
Quickie™ IDC I.C. Receptacle .....	23-12
Quickie™ IDC DiP Connector .....	23-60

## 2.54 x 5.08 mm (0.100 x 0.200 in.) Centerline Products



### Round Conductor, Flat Cable IDC Connectors

Quickie™ IDC I.C. Receptacle .....	23-12
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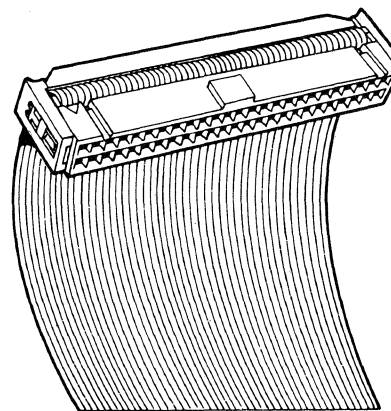
23

A183396-0317

# Round Conductor, Flat Cable IDC Connectors

2.54 x 2.54 mm (0.100 x 0.100 in.)  
Centerlines

## Quickie™ III IDC Receptacle



A18339-0173

### Features

- 2-Row: 6 through 64 total positions.
- Accepts 28 AWG (stranded) or 30 AWG (solid) cable.
- Standard plating available in 0.76 µm (30 µin.) gold and 0.76 µm (30 µin.) GXT™ (palladium-nickel alloy with gold flash).
- IDC receptacle designed according to industry standards.
- Hertz Dot concentrates the contact pressure, reducing contact resistance and increasing contact integrity.
- Pre-loaded bridge-type cover suits a wide range of cables, reduces assembly time, protects contacts, and offers precise cover-to-base alignment ensuring a reliable termination.
- Early-entry single-beam contact provides long wiping action during mating cycle.
- Comprehensive range of connector sizes.

### Options

- Dual polarization with or without center key.
- Open and closed covers available.

- Receptacles using standard and low-profile strain relief mate to headers with standard latches. Refer to header accessories page 23-50.
- Receptacles without strain relief mate to headers with low-profile latches. Refer to header accessories page 23-50.
- Receptacles with latching strain relief mate with Slimline headers with end windows.
- Polarization by means of a polarization plug (P/N 89826-001) or industry standard center key or military keys.

### Mating Data


Mates with 0.64 mm (0.025 in.) square or round pin from 4.32 mm (0.170 in.) min to 6.35 mm (0.250 in.) max. A nominal 5.84 mm (0.230 in.) length is recommended.


### Berg Electronics Products Page

- Quickie II and III Headers..... 23-16 to 23-49
- BergStik 2-Row Straight and Right-Angle Headers..... 13-54, 13-56 & 13-61
- BergPins..... 13-106 to 13-116

### Specifications

Compatible with MIL-C-83503 Approvals and Certifications

 File no. E66906

 File no. LR46923

### Application Equipment

Description	Page
▪ Hand-operated cable cutter HT-209A .....	23-65
▪ Hand tool HT-210A .....	23-65
▪ Hand-operated bench press QP-104 .....	23-64
▪ Semi-automatic bench assembly machine QP-106 .....	23-64
▪ Semi-automatic press QP-112 ..	23-64
▪ Fully-automatic assembly machine QP-113 .....	23-65

### Accessories

See receptacle accessory page 23-14 for pull tab and polarization plug data.

### Technical Data

#### Materials

- Housing material ..... Glass-filled thermoplastic polyester (UL 94 V-0)
  - ▶ Color ..... Gray
- Contact body material ..... Phosphor-bronze

#### Plating

- Underplate ..... 1.27 µm (50 µin.) min nickel
- Finish ..... 0.38 µm (15 µin.) gold or 0.76 µm (30 µin.) min gold or 0.76 µm (30 µin.) min GXT™

#### Electrical Performance

- Insulation resistance..... 5 x 10<sup>4</sup> MΩ min initial
- Resistance ..... 15 mΩ max
- Withstanding voltage..... >1000 V ac rms (sea level)

- Current rating ..... 1 amp continuous

#### Mechanical Performance

- Insertion force per contact..... For this
- Normal force per contact..... data,
- Withdrawal force per contact ..... see
- Contact retention force..... BUS-12-095
- Durability (mating cycles) ..... Specification

#### Operating Environment

- Temperature range..... -65°C to +105°C

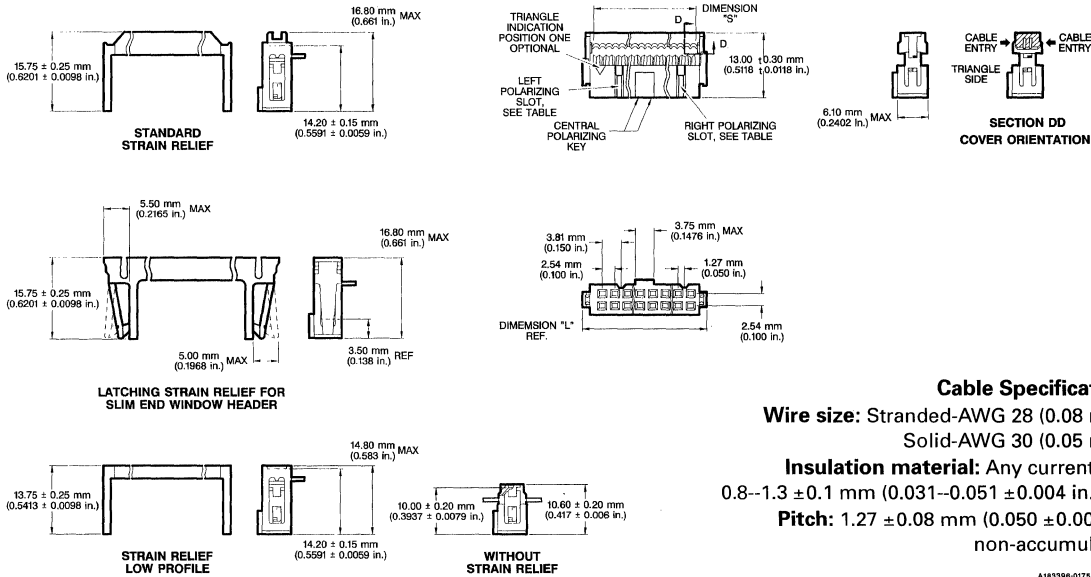
#### Packaging

- Antistatic tubes

### Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawing .....	By Part Number	Product Sample.....	Upon Request
Product Specifications.....	BUS-12-095		

## Description Quickie™ III IDC Receptacles



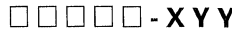
**Cable Specifications**  
**Wire size:** Stranded-AWG 28 (0.08 mm<sup>2</sup>)  
 Solid-AWG 30 (0.05 mm<sup>2</sup>)  
**Insulation material:** Any current type  
 0.8--1.3 ± 0.1 mm (0.031--0.051 ± 0.004 in.) dia.  
**Pitch:** 1.27 ± 0.08 mm (0.050 ± 0.003 in.)  
 non-accumulated

A18398-0175

## Ordering Data

Base number specifies plating type

Last two digits specify total positions for each base number



Specifies polarization and strain relief type

Number of Positions	Base Numbers								Dimensions			
	71600 (30 μin. gold) and 71601 (15 μin. gold) and 71602 (30 μin. GXT™)								S		L	
	Dash Number -- center and dual polarization*				Dash Number -- dual polarization only*				mm	in.	mm	in.
	without strain relief	with standard strain relief	with latching strain relief	with low-profile strain relief	without strain relief	with standard strain relief	with latching strain relief	with low-profile strain relief				
2 x 3**	-106	-006	-606	-206	-406	-306	-706	-506	8.25	0.325	12.08	0.476
2 x 4**	-108	-008	-608	-208	-408	-308	-708	-508	10.79	0.425	14.62	0.576
2 x 5***	-110	-010	-610	-210	-410	-310	-710	-510	13.33	0.525	17.16	0.676
2 x 7***	-114	-014	-614	-214	-414	-314	-714	-514	18.41	0.725	22.24	0.876
2 x 8	-116	-016	-616	-216	-416	-316	-716	-516	20.95	0.825	24.78	0.976
2 x 9	-118	-018	-618	-218	-418	-318	-718	-518	23.49	0.925	27.32	1.076
2 x 10	-120	-020	-620	-220	-420	-320	-720	-520	26.03	1.025	29.86	1.176
2 x 12	-124	-024	--	--	-424	-324	--	--	31.11	1.225	34.94	1.376
2 x 13	-126	-026	-626	-226	-426	-326	-726	-526	33.65	1.325	37.48	1.476
2 x 15	-130	-030	-630	-230	-430	-330	-730	-530	38.73	1.525	42.56	1.676
2 x 17	-134	-034	-634	-234	-434	-334	-734	-534	43.81	1.725	47.64	1.876
2 x 20	-140	-040	-640	-240	-440	-340	-740	-540	51.43	2.025	55.26	2.176
2 x 22	-144	-044	-644	-244	-444	-344	-744	-544	56.51	2.225	60.34	2.376
2 x 25	-150	-050	-650	-250	-450	-350	-750	-550	64.13	2.525	67.96	2.676
2 x 30	-160	-060	-660	-260	-460	-360	-760	-560	76.83	3.025	80.66	3.176
2 x 32	-164	-064	-664	-264	-464	-364	-764	-564	81.91	3.225	85.74	3.376

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

\*Polarizing keys must be installed into the Berg Electronics headers to function with dual-polarization slots.

\*\*Center key option has no dual-polarization slots. Non-center-key option includes right dual-polarization slot only.

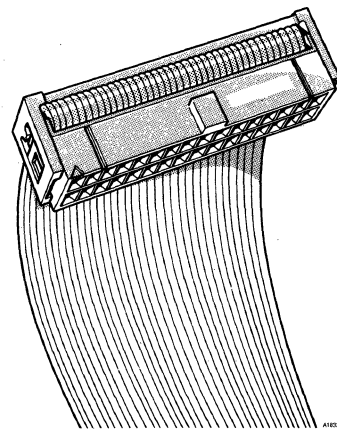
\*\*\*Center key option and non-center-key option include right dual-polarization slot only.



# Round Conductor, Flat Cable IDC Connectors

2.54 x 2.54 mm (0.100 x 0.100 in.)  
Centerlines

## Quickie™ II IDC Receptacles



### Features

- 2-row: 10 through 60 total positions.
- Accepts 26, 28 AWG (stranded) or 26, 28, 30 AWG (solid) cable.
- Standard plating available in 0.76 µm (30 µin.) gold.
- IDC receptacle designed according to industry standards.
- Pre-loaded cover reduces time and cost by eliminating assembly-to-base.
- Early-entry dual-beam contact provides long wiping action during mating cycle.
- Precise alignment of cover-to-base ensures a reliable termination.
- Cover protects contacts during handling.
- Double-scalloped cable slot assists accurate positioning of the cable over the contacts.
- Dual-entry cover enables insertion of cable from both sides.
- Sight holes in cover allow for visual and electrical inspection after assembly.

### Options

- Available in other plating styles.
- Dual polarization with or without center key.
- Closed covers available.
- Polarization by means of a polarization plug (P/N 65762-001) or industry-standard center key or military keys.

### Mating Data



Mates with 0.64 mm (0.025 in.) square or round pin from 4.32 mm (0.170 in.) min to 6.35 mm (0.250 in.) max. A nominal 5.84 mm (0.230 in.) length is recommended.

Berg Electronics Products	Page
▪ Quickie II and III Headers . . . . .	23-16 to 23-49
▪ BergStik 2-Row Vertical and Right-Angle Headers . . . . .	13-54, 13-56 & 13-61
▪ BergPins . . . . .	13-106 to 13-116

### Specifications

Compatible with MIL-C-83503

### Approvals and Certifications

-  File no. E66906
-  File no. LR46923

### Application Equipment

Description	Page
▪ Hand-operated cable cutter HT-209A . . . . .	23-65
▪ Hand tool HT-210A . . . . .	23-65
▪ Hand-operated bench press QP-104 . . . . .	23-64
▪ Semi-automatic bench assembly machine QP-106 . . . . .	23-64
▪ Semi-automatic press QP-112 . . . . .	23-64
▪ Fully-automatic assembly machine QP-113 . . . . .	23-65

### Accessories

See receptacle accessory page 23-14 for pull tab and polarization plug data.

### Technical Data

#### Materials

- Housing material . . . . . Glass-filled thermoplastic polyester (UL 94 V-0)
  - ▶ Color . . . . . Blue
- Contact body material . . . . . Phosphor-bronze

#### Plating

- Underplate . . . . . 1.27 µm (50 µin.) min nickel
- Finish . . . . . 0.76 µm (30 µin.) min gold or 0.38 µm (15 µin.) min gold

#### Electrical Performance

- Insulation resistance . . . . .  $5 \times 10^4$  MΩ min initial
- Resistance . . . . . 15 mΩ max
- Withstanding voltage . . . . . >1000 V ac rms (sea level)
- Current rating . . . . . 1 amp continuous

#### Mechanical Performance

- Insertion force per contact . . . . . For this
- Normal force per contact . . . . . data,
- Withdrawal force per contact . . . . . see
- Contact retention force . . . . . BUS-12-082
- Durability (mating cycles) . . . . . Specification

#### Operating Environment

- Temperature range . . . . . -65°C to +105°C

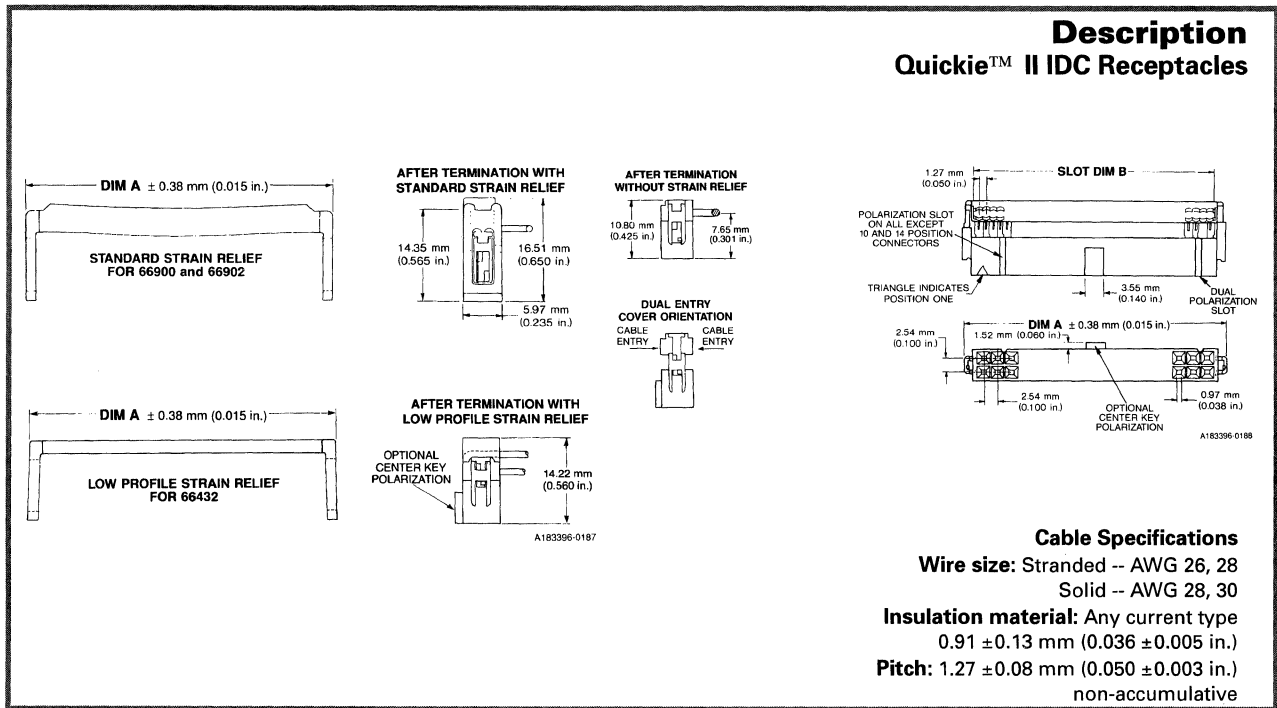
#### Packaging

- Antistatic tubes

### Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawing . . . . .	By Part Number	▪ Product Sample . . . . .	Upon Request
Product Specifications . . . . .	BUS-12-082		

## Description Quickie™ II IDC Receptacles

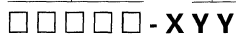


**Cable Specifications**  
**Wire size:** Stranded -- AWG 26, 28  
 Solid -- AWG 28, 30  
**Insulation material:** Any current type  
 0.91 ± 0.13 mm (0.036 ± 0.005 in.)  
**Pitch:** 1.27 ± 0.08 mm (0.050 ± 0.003 in.)  
 non-accumulative

## Ordering Data

Base number specifies plating type and strain relief type

Last two digits specify total positions for each base number



Specifies polarization and strain relief type

**Base Numbers**  
 66900 and 66432: 0.76 μm (30 μin.) gold over nickel  
 Base Number 66902: 0.38 μm (15 μin.) gold over nickel

Number of Positions	*Center and Dual Polarization			*Dual Polarization Slots			Dimensions			
	Base Numbers: 66900 and 66902		Base No. 66432	Base Numbers: 66900 and 66902		Base No. 66432	A		B	
	without strain relief	with standard strain relief	with low-profile strain relief	without strain relief	with standard strain relief	with low-profile strain relief	mm	in.	mm	in.
2 x 5**	-310	-210	-110	-110	-010	-010	17.27	0.680	13.21	0.520
2 x 7**	-314	-214	-114	-114	-014	-014	22.35	0.880	18.29	0.720
2 x 8	-316	-216	-116	-116	-016	-016	24.89	0.980	20.83	0.820
2 x 10	-320	-220	-120	-120	-020	-020	29.97	1.180	25.91	1.020
2 x 12	-324	-224	-124	-124	-024	-024	35.05	1.380	30.99	1.220
2 x 13	-326	-226	-126	-126	-026	-026	37.59	1.480	33.53	1.320
2 x 15	-330	-230	-130	-130	-030	-030	42.67	1.680	38.61	1.520
2 x 17	-334	-234	-134	-134	-034	-034	47.75	1.880	43.69	1.720
2 x 20	-340	-240	-140	-140	-040	-040	55.37	2.180	51.31	2.020
2 x 22	-344	-244	-144	-144	-044	-044	60.45	2.380	56.39	2.220
2 x 25	-350	-250	-150	-150	-050	-050	68.07	2.680	64.01	2.520
2 x 30	-360	-260	-160	-160	-060	-060	80.77	3.180	76.71	3.020

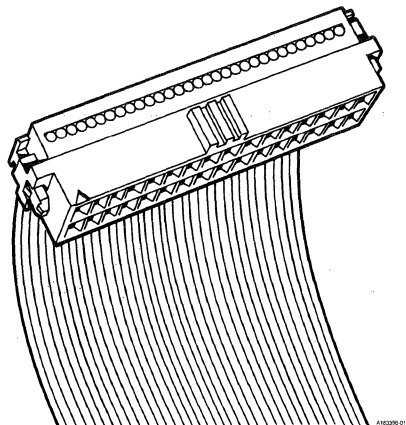
Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

\*Polarizing keys must be installed into the Berg Electronics headers to function with dual-polarization slots.  
 \*\*Center key option and non-center-key option include right dual-polarization slot only.

# Round Conductor, Flat Cable IDC Connectors

2.54 x 2.54 mm (0.100 x 0.100 in.)  
Centerlines

## Quickie™ IDC Backplane Receptacle



### Features

- 2-row: 10 through 60 total positions.
- Accepts 26, 28 AWG (stranded) or 26, 28, 30 AWG (solid) cable.
- Pre-loaded cover protects contacts, provides precise cover-to-base alignment and reduces assembly time.
- Designed to connect with a backpanel pin field.
- Combined with the backplane shroud, the backplane system allows for I/O connections on standard centerlines 2.54 x 2.54 mm (0.100 x 0.100 inch) without requiring special pin grids, additional holes, or special fasteners.
- Dual beam contact provides maximum contact integrity.
- Self-latching cover provides integral strain relief to connector/cable assembly. No additional strain relief is required.


### Options


- Available with or without the center polarization key.
- Right assembly and left assembly for easier cable entry "lead-in".
- Polarization by means of a polarization plug (P/N 65762-001) or center key.

### Mating Data

Berg Electronics Products	Page
▪ Backplane shroud .....	23-10
▪ Berg Pins .....	13-106 to 13-116

### Approvals and Certifications

 File no. E66906

 File no. LR46923

### Application Equipment

Description	Page
▪ Hand-operated cable cutter HT-209A .....	23-65
▪ Hand tool HT-210A .....	23-65
▪ Hand-operated bench press QP-104 .....	23-64
▪ Semi-automatic bench assembly machine QP-106 .....	23-64
▪ Semi-automatic press QP-112 .....	23-64

### Accessories

See receptacle accessory page 23-14 for pull tab and polarization plug data.

### Technical Data

#### Materials

- Housing material ..... Glass-filled thermoplastic polyester (UL 94 V-0)
  - ▶ Color ..... Blue
- Contact body material ..... Phosphor-bronze

#### Plating

- Underplate ..... 1.27 µm (50 µin.) min nickel
- Finish ..... 0.76 µm (30 µin.) min gold

#### Electrical Performance

- Insulation resistance .....  $5 \times 10^4$  MΩ min initial
- Resistance ..... 15 mΩ max
- Withstanding voltage ..... >1000 V ac rms (sea level)
- Current rating ..... 1 amp continuous

#### Mechanical Performance

- Insertion force per contact ..... For this
- Normal force per contact ..... data,
- Withdrawal force per contact ..... see
- Contact retention force ..... BUS-12-019
- Durability (mating cycles) ..... Specification

#### Operating Environment

- Temperature range ..... -65°C to +105°C

#### Packaging

- Antistatic tubes

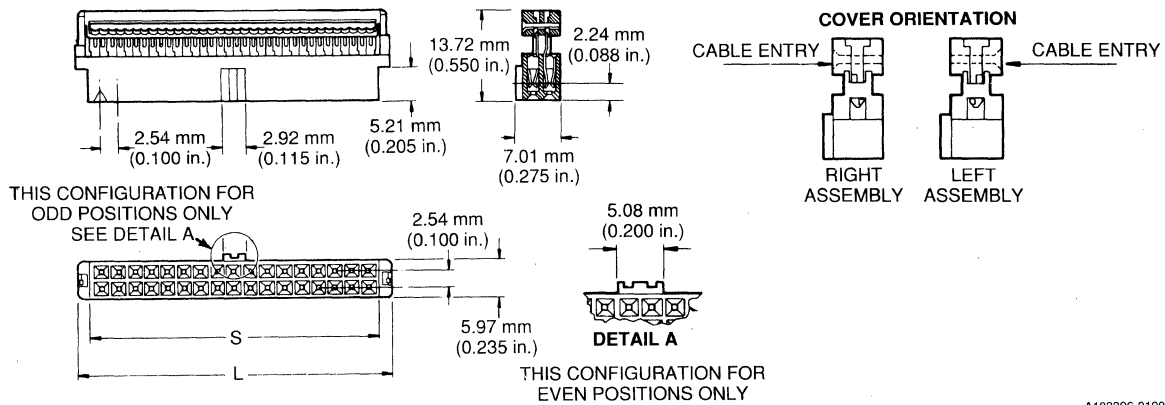
### Customer Support Materials

Description	Order No.
Customer Product Drawings .....	By Part Number
Product Specifications .....	BUS-12-019

Description	Order No.
Product Sample .....	Upon Request

## Description

### Quickie™ IDC Backplane Receptacle



A183396-0190

#### Cable Specifications

Wire size: Stranded -- AWG 26, 28

Solid -- AWG 26, 28, 30

Insulation material: Any current type  
0.91 0.13 mm (0.036 0.005 in.) diameter

Pitch: 1.27 0.08 mm (0.050 0.003 in.)  
non accumulated

## Ordering Data

Base number specifies plating type

Specifies total positions available

□ □ □ □ - X Y Y

Specifies polarization and cable entry

23

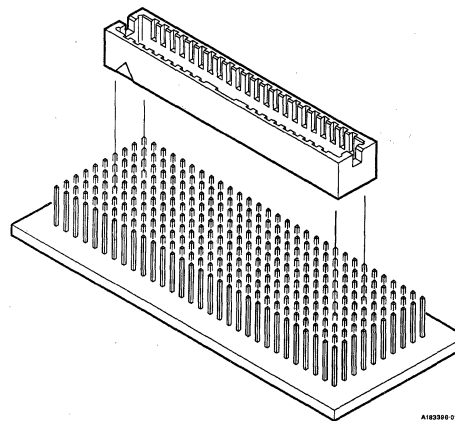
Number of Positions	Base Number 66245 0.76 μm (30 μin.) min gold				Dimensions			
	Dash Numbers				S		L	
	Without Center Polarizing Key		With Center Polarizing Key		mm	in.	mm	in.
	Right Cable Entry	Left Cable Entry	Right Cable Entry	Left Cable Entry				
2 x 5	-010	-110	-210	-310	13.21	0.520	17.27	0.680
2 x 7	-014	-114	-214	-314	18.29	0.720	22.35	0.880
2 x 8	-016	-116	-216	-316	20.83	0.820	24.89	0.980
2 x 10	-020	-120	-220	-320	25.91	1.020	29.97	1.180
2 x 12	-024	-124	-224	-324	30.99	1.220	35.05	1.380
2 x 13	-026	-126	-226	-326	33.53	1.320	37.59	1.480
2 x 15	-030	-130	-230	-330	38.61	1.520	42.67	1.680
2 x 17	-034	-134	-234	-334	43.69	1.720	47.75	1.880
2 x 20	-040	-140	-240	-340	51.31	2.020	55.37	2.180
2 x 22	-044	-144	-244	-344	56.39	2.220	60.45	2.380
2 x 25	-050	-150	-250	-350	64.01	2.520	68.07	2.680
2 x 30	-060	-160	-260	-360	76.71	3.020	80.77	3.180

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

# Round Conductor, Flat Cable IDC Connectors

2.54 x 2.54 mm (0.100 x 0.100 in.)  
Centerlines

## Quickie™ IDC Backplane Shroud



### Features

- 2-row: 10 through 60 total positions.
- Combined with the backplane receptacle connector, the backplane system allows I/O connections on standard centerlines 2.54 x 2.54 mm (0.100 x 0.100 inch) without requiring special centerlines, additional holes or special fasteners.
- Provides positive location and polarization for receptacle backplane connector.
- Polarization by means of ribbed central polarizing key in backplane receptacle connector in conjunction with groove in shroud body.
- Shroud retention achieved by alternating pairs of specially-sized holes.

### Options


- Not applicable

### Mating Data

Mates with a select discrete wiring mini-latch housing.

Berg Electronics Products	Page
▪ Quickie IDC backplane receptacle	23-8
▪ Berg Pins	13-106 to 13-116

### Approvals and Certifications

 File no. E66906

### Application Equipment

Description	Page
▪ Hand-operated bench press model QP-104	23-64

### Technical Data

#### Materials

- Housing material ..... Glass-filled thermoplastic polyester (UL 94 V-0)
  - ▶ Color ..... Blue

#### Plating

- Not applicable.

#### Electrical Performance

- Not applicable.

#### Mechanical Performance

- Not applicable.

#### Operating Environment

- Temperature range ..... -65°C to +105°C

#### Packaging

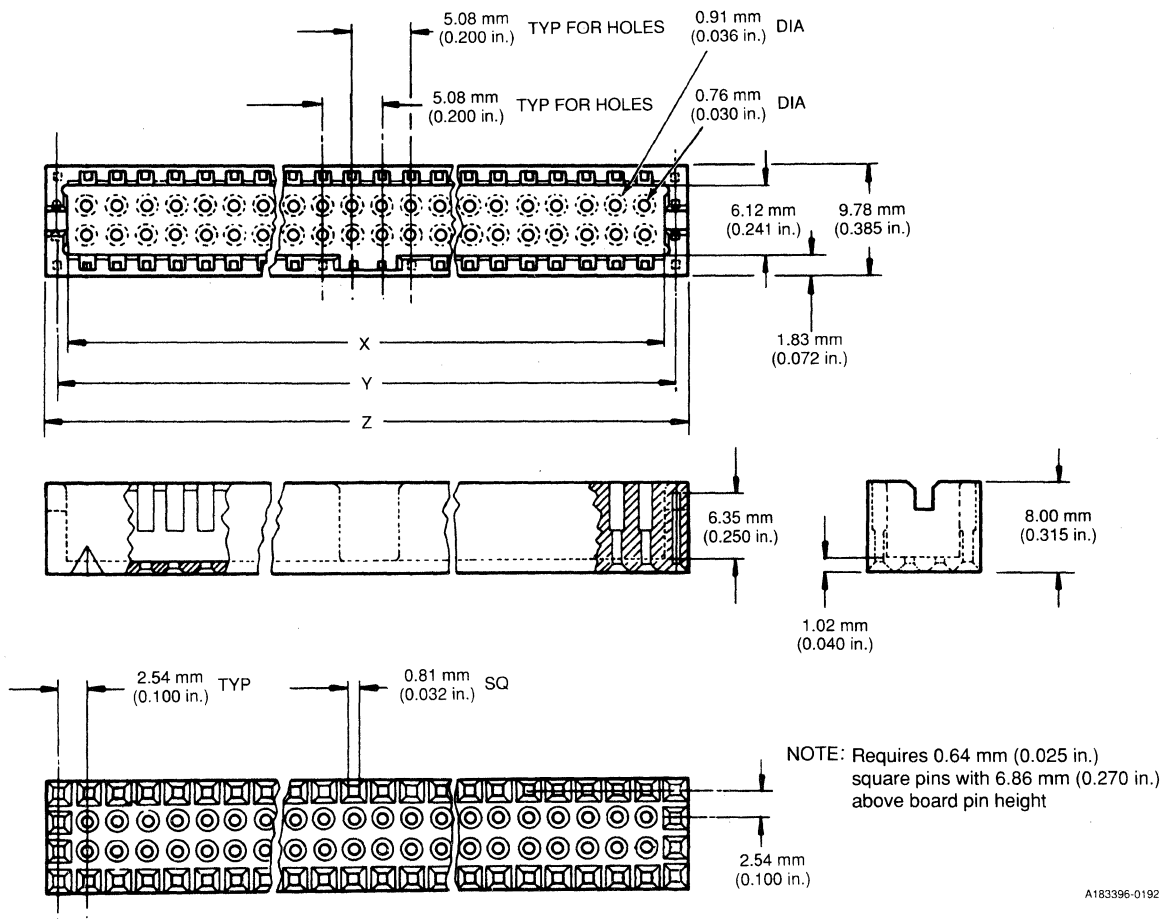
- Bags

### Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawing	By Part Number	Product Sample	Upon Request
Product Specifications	BUS-12-019		

## Description

### Quickie™ IDC Backplane Shroud



A183396-0192

## Ordering Data

### Base Number 66247

Base number  Dash number specifies number of positions

□ □ □ □ □ - 00 X

Number of Positions	Dash Number	Dimensions					
		X		Y		Z	
		mm	in.	mm	in.	mm	in.
2 x 5	-001	13.72	0.540	15.24	0.600	17.53	0.690
2 x 7	-002	18.80	0.740	20.32	0.800	22.61	0.890
2 x 8	-003	21.34	0.840	22.86	0.900	25.15	0.990
2 x 10	-004	26.42	1.040	27.94	1.100	30.23	1.190
2 x 12	-010	31.50	1.240	33.02	1.300	35.31	1.390
2 x 13	-005	34.04	1.340	35.56	1.400	37.85	1.490
2 x 15	-011	39.12	1.540	40.64	1.600	42.93	1.690
2 x 17	-006	44.20	1.740	45.72	1.800	48.01	1.890
2 x 20	-007	51.82	2.040	53.34	2.100	55.63	2.190
2 x 22	-012	56.90	2.240	58.42	2.300	60.71	2.390
2 x 25	-008	64.52	2.540	66.04	2.600	68.33	2.690
2 x 30	-009	77.22	3.040	78.74	3.100	81.03	3.190

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

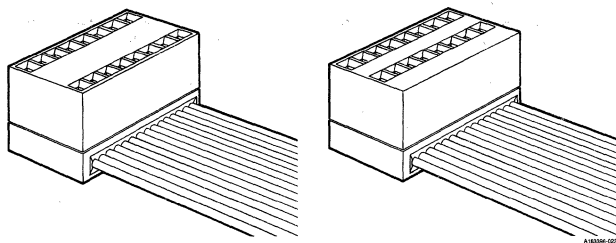
# Round Conductor, Flat Cable IDC Connectors

2.54 x 5.08 mm (0.100 x 0.200 in.)

2.54 x 7.62 mm (0.100 x 0.300 in.)

Centerlines

## Quickie™ IDC I. C. Receptacle



### Features

- 2-row: 14 or 16 total positions.
- Accepts 26, 28 AWG (stranded) or 26, 28, 30 AWG (solid) cable.
- Available in 14 and 16 positions on either 2.54 mm x 5.08 mm (0.100-in. x 0.200-in.) centerlines or 2.54 mm x 7.62 mm (0.100-in. x 0.300-in.) centerlines.

### Options

- Polarization by means of a polarization plug P/N 65762-001.

### Mating Data


Mates with 0.64 mm (0.025 in.) square or round pin from 4.32 mm (0.170 in.) min to 6.35 mm (0.250 in.) max. A nominal 5.84 mm (0.230 in.) length is recommended.


### Berg Electronics Products

### Page

- BergStik 1-Row Straight Headers ..... 13-51
- BergPins ..... 13-106 to 13-116

### Approvals and Certifications

 File no. E66906

 File no. LR46923

### Application Equipment

#### Description

#### Page

- Hand-operated cable cutter HT-209A ..... 23-65
- Hand-operated bench press QP-104 ..... 23-64
- Semi-automatic bench assembly machine QP-106 ..... 23-64

### Technical Data

#### Materials

- Housing material ..... Glass-filled thermoplastic polyester (UL 94 V-0)
  - ▶ Color ..... Blue
- Contact body material ..... Phosphor-bronze

#### Plating

- Underplate ..... 1.27 µm (50 µin.) min nickel
- Finish ..... 0.76 µm (30 µin.) min gold

#### Electrical Performance

- Insulation resistance ..... 5 x 10<sup>4</sup> MΩ min
- Resistance ..... 15 mΩ max
- Withstanding voltage ..... >1000 V ac rms (sea level)
- Current rating ..... 1 amp continuous

#### Mechanical Performance

- Insertion force per contact ..... For this
- Normal force per contact ..... data,
- Withdrawal force per contact ..... see
- Contact retention force ..... BUS-12-024
- Durability (mating cycles) ..... Specification

#### Operating Environment

- Temperature range ..... -65°C to +105°C

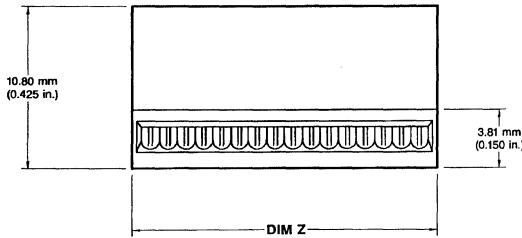
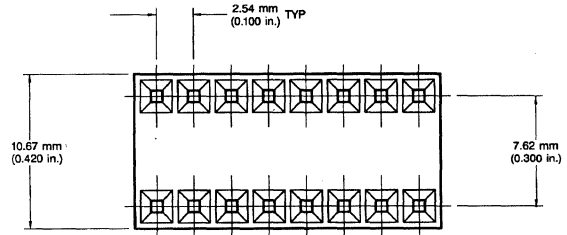
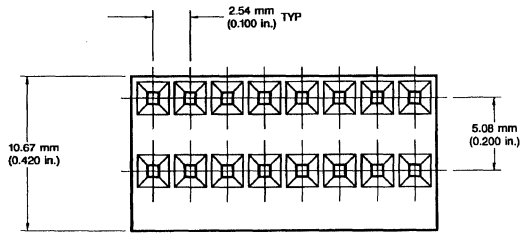
#### Packaging

- Trays

### Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawing	By Part Number	Product Samples	Upon Request
Product Specifications	BUS-12-024	Application Drawings	TA-172

**Description**  
**Quickie™ IDC I. C. Receptacle**

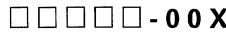


**Cable Specifications**  
**Wire size:** Stranded-AWG 26, 28  
 Solid-AWG 26, 28, 30  
**Insulation material:** any current type  
 0.91 0.13 mm (0.036 0.005 in.) diameter  
**Pitch:** 1.27 0.08 mm (0.050 0.003 in.)  
 non-accumulated

A183396 0236

**Ordering Data**  
**Base Number 65350**  
 0.76 μm (30 μin.) gold

Base number



Specifies number of positions and  
 row-to-row spacing

Number of Positions	Dash Numbers	Row-to-Row Spacing		Dimensions for Z	
		mm	in.	mm	in.
2 x 7	-007	5.08	0.200	19.05	0.750
	-005	7.62	0.300		
2 x 8	-008	5.08	0.200	21.59	0.850
	-006	7.62	0.300		

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

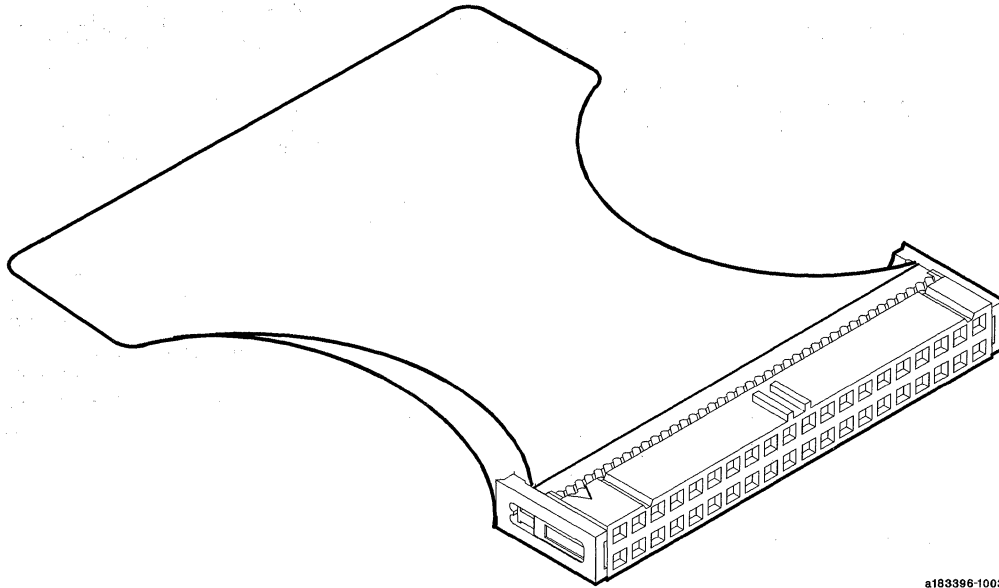


# Accessory Equipment

## Quickie™ Receptacles

### Pull Tab

Part Number 66147



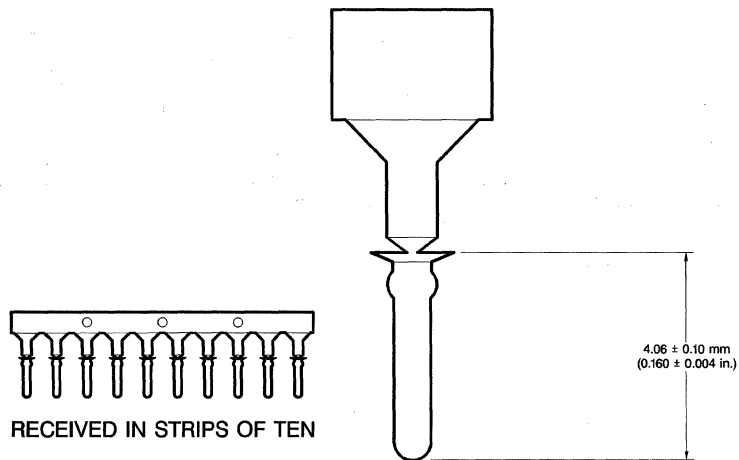
A183396-1003

### Polarization Plug

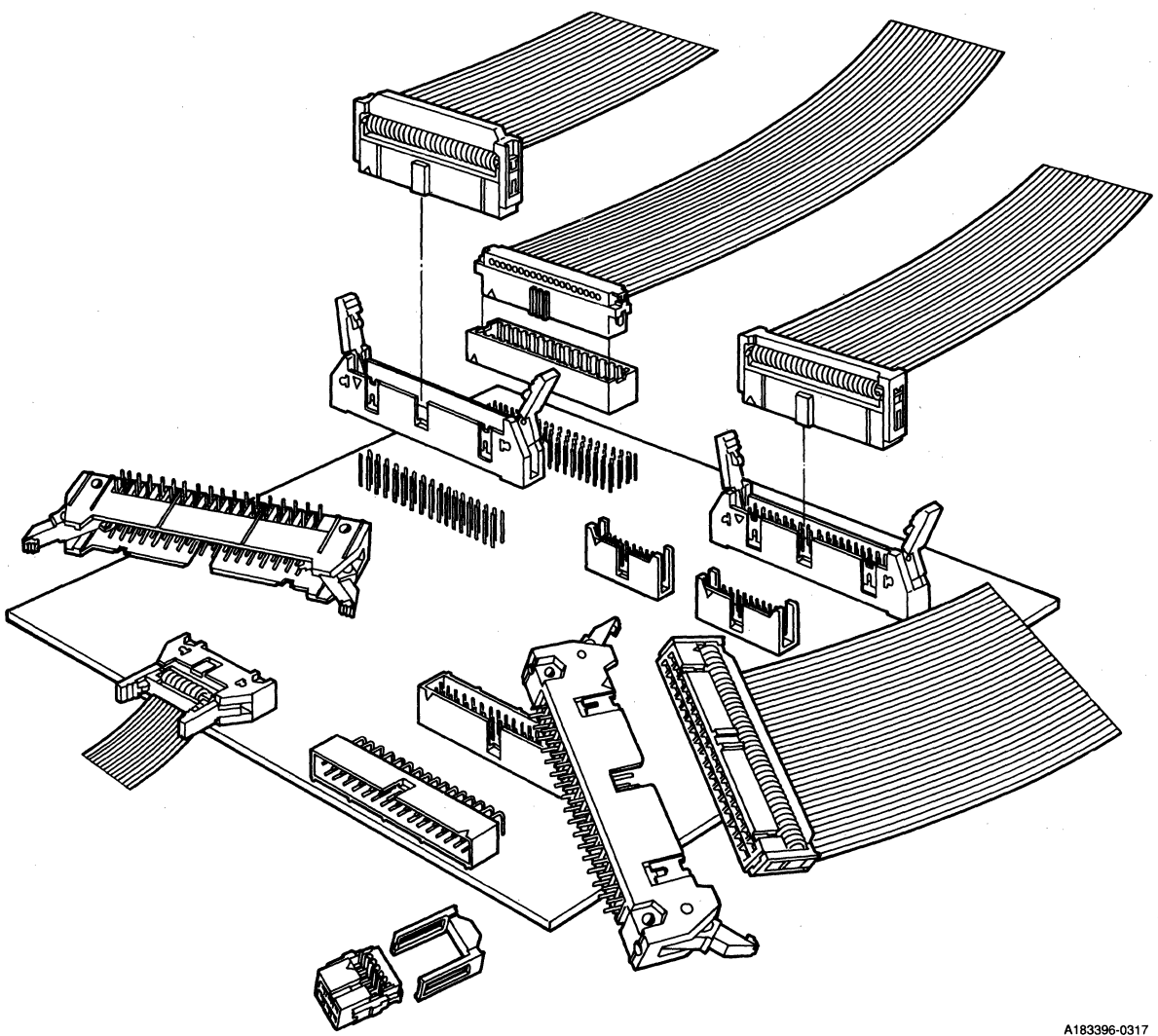
Part Number 65762-001 for Quickie™ II and Backplane

Part Number 89826-001 for Quickie™ III

### POLARIZATION PLUG FOR QUICKIE™ II AND III RECEPTACLES AND BACKPLANE



A183396-1021

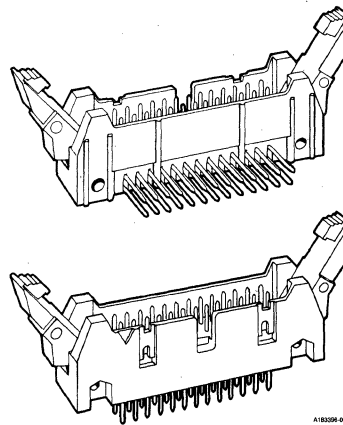


A183396-0317

# Shrouded Headers

2.54 x 2.54 mm (0.100 x 0.100 in.)  
Centerlines

## Quickie™ III IDC Straight and Right-Angle Latch and Eject Headers




### Features


- 2-row: 6 through 64 total positions.
- Applicable to pc board thickness 1.58 mm (0.062 in.).
- Headers have 0.64 mm (0.025 in.) square duplex-plated pins.
- Standard plating available in 0.76 µm (30 µin.) gold and 0.76 µm (30 µin.) GXT™ (palladium-nickel alloy with gold flash).
- Shrouding protects pins in unmated condition and prevents misalignment.
- Standoffs for cleaning purposes.

### Options

- Standard or low-profile latches for latch and eject capability.
- Other plating types.
- Longer solder tails.
- Polarization keys P/N 67020-001 - See IDC Accessories on page 23-51.
- Retentive pin feature holds header to the board during soldering process.

### Approvals and Certifications

 File no. E66906

 File no. LR46923

### Mating Data

Berg Electronics Products	Page
▪ All Quickie receptacles . . . . .	23-4 to 23-9
▪ Select discrete wiring mini-latch housings Series 65043 . . . . .	13-16
and 65846 . . . . .	13-18

### Accessories

See page 23-50 for latch and dual-polarization key data.

### Technical Data

#### Materials

- Housing material . . . . . Glass-filled polyester (UL 94 V-0)
  - ▶ Color . . . . . Gray
- Applicable soldering processes . . . . . Wave
- Pin . . . . . Phosphor-bronze

#### Plating

- Underplate . . . . . 1.27 µm (50 µin.) min nickel
- Finish
  - ▶ Contact . . . . . 0.76 µm (30 µin.) min gold or 0.76 µm (30 µin.) min GXT™
  - ▶ Solder tail . . . . . 4 µm (160 µin.) min tin-lead

#### Electrical Performance

- Insulation resistance . . . . .  $1 \times 10^5$  MΩ initial
- Withstanding voltage . . . . . >1000 V ac rms (sea level)
- Current rating . . . . . 3 amp continuous

#### Mechanical Performance

- Insertion force per contact . . . . . Dependent upon
- Normal force per contact . . . . . mating receptacle; refer
- Withdrawal force per contact . . . . . to mating receptacle
- Contact retention force . . . . . data for this
- Durability (mating cycles) . . . . . information

#### Operating Environment

- Temperature range . . . . . -65°C to +105°C

#### Packaging

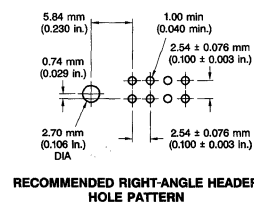
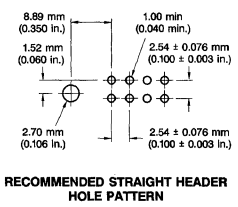
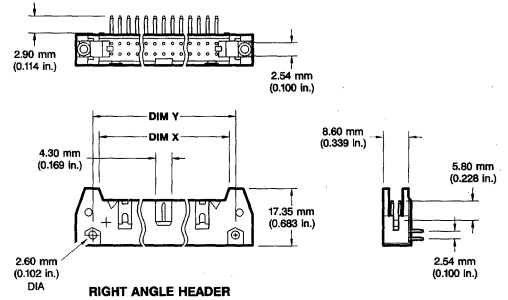
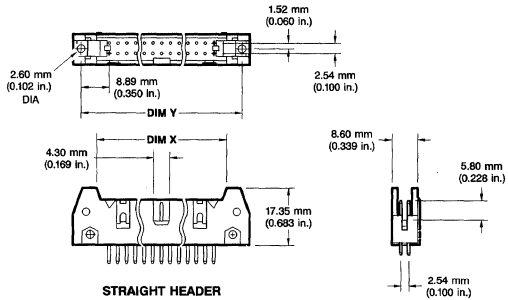
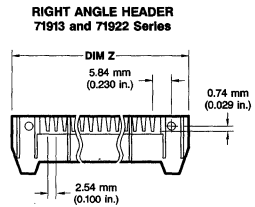
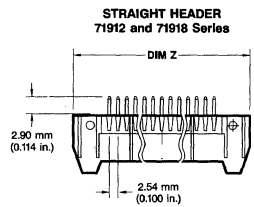
- Bags

### Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawing . . . . .	By Part Number	Product Sample . . . . .	Upon Request
Product Specifications . . . . .	BUS-12-095		

## Description

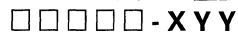
### Quickie™ III IDC Straight and Right-Angle Latch and Eject Headers



A183396-0180

## Ordering Data

Base number specifies plating type and right-angle or straight configuration



Specifies total positions available for each base number

Specifies latch type

- Base no. 71912: 0.76 μm (30 μin.) gold over nickel; straight configuration
- Base no. 71913: 0.76 μm (30 μin.) gold over nickel; right-angle configuration
- Base no. 71918: 0.76 μm (30 μin.) GXT™ over nickel; straight configuration
- Base no. 71922: 0.76 μm (30 μin.) GXT™ over nickel; right-angle configuration

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Number of Positions	Base Numbers 71912, 71913, 71918, 71922			Dimensions					
	Dash Numbers---Latches			X		Y		Z	
	none	standard	low-profile	mm	in.	mm	in.	mm	in.
2 x 3	-006	-106	-206	13.15	0.518	22.86	0.900	26.92	1.060
2 x 4	-008	-108	-208	15.69	0.618	25.40	1.000	29.46	1.160
2 x 5	-010	-110	-210	18.23	0.718	27.94	1.100	32.00	1.260
2 x 7	-014	-114	-214	23.31	0.918	33.02	1.300	37.08	1.460
2 x 8	-016	-116	-216	25.85	1.018	35.56	1.400	39.62	1.560
2 x 9	-018	-118	-218	28.39	1.118	38.10	1.500	42.16	1.660
2 x 10	-020	-120	-220	30.93	1.218	40.64	1.600	44.70	1.760
2 x 13	-026	-126	-226	38.55	1.518	48.26	1.900	52.32	2.060
2 x 17	-034	-134	-234	48.71	1.918	58.42	2.300	62.48	2.460
2 x 20	-040	-140	-240	56.33	2.218	66.04	2.600	70.10	2.760
2 x 22	-044	-144	-244	61.41	2.418	71.12	2.800	75.18	2.960
2 x 25	-050	-150	-250	69.03	2.718	78.74	3.100	82.80	3.260
2 x 30	-060	-160	-260	81.73	3.218	91.44	3.600	95.50	3.760
2 x 32	-064	-164	-264	86.81	3.418	96.52	3.800	100.58	3.960

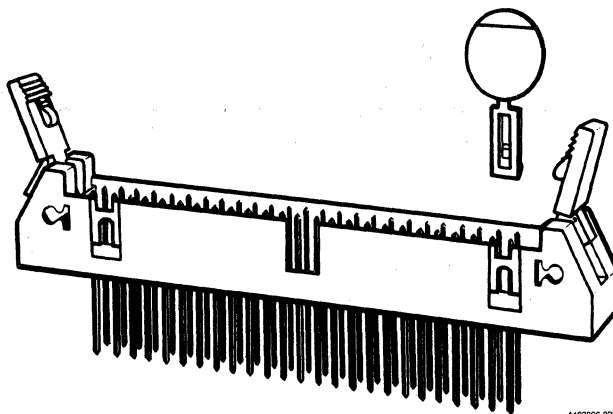
Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

For dual-polarization, order dual-polarization key P/N 67020-001.

# Shrouded Headers

2.54 x 2.54 mm (0.100 x 0.100 in.)  
Centerlines

## Quickie™ IDC Straight 4-Wall Latch and Eject Header



### Features

- 2-row: 10 through 60 total positions.
- Applicable to pc board thicknesses 1.58 mm (0.062 in.), 2.36 mm (0.093 in.), and 3.18 mm (0.125 in.).
- Fully compatible with all Quickie™ receptacle connectors.
- Molded-in pins assure positive retention in housing and prevent flux contamination.
- Standard plating available in 0.76 μm (30 μin.) gold and 0.76 μm (30 μin.) GXT™ (palladium-nickel alloy with gold flash).
- Shielding protects pins in unmated condition and prevents misalignment.
- Standoffs for cleaning purposes.
- Round pins use smaller through-holes, leaving more room to run circuitry.

### Options

- Standard or low-profile latches for latch and eject capability.
- Retentive pin feature holds the header onto the board during soldering process.
- Pins available in round or square configurations and in varying tail lengths.
- Other plating types.


### Mating Data


Berg Electronics Products	Page
▪ All Quickie receptacles .....	23-4 to 23-9
▪ Select discrete wiring mini-latch housings	
Series 65043 .....	13-16
and 65846 .....	13-18

### Specifications

Compatible with MIL-C-83503.

### Approvals and Certifications

 File no. E66906

 File no. LR46923

### Accessories

See page 23-50 for latch and dual-polarization key data.

### Technical Data

#### Materials

- Housing material ..... Glass-filled thermoplastic polyester (UL 94 V-0)
  - ▶ Color ..... Blue
  - ▶ Applicable soldering processes..... Wave
- Pin ..... Phosphor-bronze

#### Plating

- Underplate ..... 1.27 μm (50 μin.) min nickel
- Finish ..... 0.76 μm (30 μin.) min gold or 0.76 μm (30 μin.) min GXT™

#### Electrical Performance

- Insulation resistance..... 1 x 10<sup>5</sup> MΩ min
- Withstanding voltage ..... >500 V ac rms (sea level)
- Current rating ..... 3 amp continuous

#### Mechanical Performance

- Insertion force per contact ..... Dependent upon
- Normal force per contact ..... mating receptacles;
- Withdrawal force per contact ... refer to mating receptacle
- Contact retention force..... data for this
- Durability (mating cycles) ..... information

#### Operating Environment

- Temperature range ..... -65°C to +125°C
- Relative humidity ..... 90%

#### Packaging

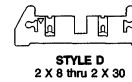
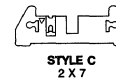
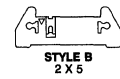
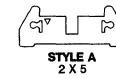
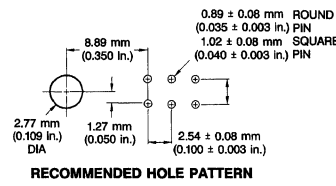
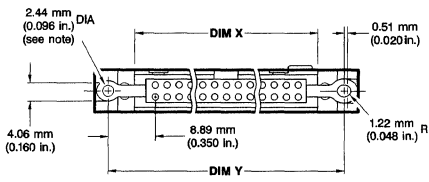
- Trays

### Customer Support Materials

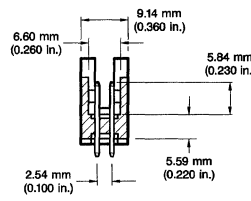
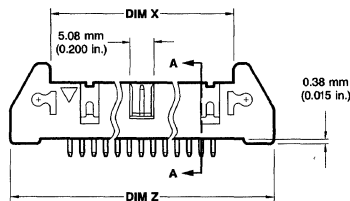
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Customer Product Drawings.....	By Part Number	Product Sample.....	Upon Request
Product Specifications.....	BUS-12-082		

## Description

### Quickie™ IDC Straight 4-Wall Latch and Eject Header



**POLARIZATION STYLES**



**NOTE:** Recommended mounting screw size is #2-56 Fillister Head  
1/4" long for 1.57 mm (0.062 in.) and 2.36 mm (0.093 in.) thick boards  
5/16" long for 3.18 mm (0.125 in.) thick boards

A183396-0238, 0239

## Ordering Data

### Base Number 65863

Base number

□ □ □ □ □ - X X X

Dash number specifies number of positions, polarization style, solder tail length, plating type, and latch type

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Number of Positions	Polarization Style (see above illustrations)	Solder Tail Length		Dash Numbers						Dimensions			
				0.76 μm (30 μin.) gold			0.76 μm (30 μin.) GXT™						
				mm		in.		Latches			Latches		
								none	standard	low profile	none	standard	low profile
2 x 5	A	2.67	0.105	-001	-049	-165	-247	-265	-283	18.29 mm (0.720 in.)	27.94 mm (1.100 in.)	33.78 mm (1.330 in.)	
		3.81	0.150	-003	-051	-167	-129	-138	-229				
2 x 7	C	2.67	0.105	-355	-359	-363	-357	-361	-365	23.37 mm (0.920 in.)	33.02 mm (1.300 in.)	38.86 mm (1.530 in.)	
		3.81	0.150	-367	-371	-375	-369	-373	-377				
2 x 8	D	2.67	0.105	-007	-055	-171	-248	-266	-284	25.91 mm (1.020 in.)	35.56 mm (1.400 in.)	41.40 mm (1.630 in.)	
		3.81	0.150	-009	-057	-173	-130	-139	-230				
2 x 10	D	2.67	0.105	-013	-061	-177	-249	-267	-285	30.99 mm (1.220 in.)	40.64 mm (1.600 in.)	46.48 mm (1.830 in.)	
		3.81	0.150	-015	-063	-179	-131	-140	-231				
2 x 12	D	2.67	0.105	-019	-067	-183	-250	-268	-286	36.07 mm (1.420 in.)	45.72 mm (1.800 in.)	51.56 mm (2.030 in.)	
		3.81	0.150	-021	-069	-185	-132	-141	-232				
2 x 13	D	2.67	0.105	-457	-458	-459	-460	-461	-462	38.61 mm (1.520 in.)	48.26 mm (1.900 in.)	54.10 mm (2.130 in.)	
		3.81	0.150	-469	-470	-471	-472	-473	-474				
2 x 15	D	2.67	0.105	-189	-189	-189	-251	-269	-287	43.69 mm (1.720 in.)	53.34 mm (2.100 in.)	59.18 mm (2.330 in.)	
		3.81	0.150	-025	-073	-191	-133	-142	-233				
2 x 17	D	2.67	0.105	-502	-503	-504	-505	-506	-507	48.77 mm (1.920 in.)	58.42 mm (2.300 in.)	64.26 mm (2.530 in.)	
		3.81	0.150	-514	-515	-516	-517	-518	-519				
2 x 20	D	2.67	0.105	-031	-079	-195	-252	-270	-288	56.39 mm (2.220 in.)	66.04 mm (2.600 in.)	71.88 mm (2.830 in.)	
		3.81	0.150	-039	-087	-203	-135	-144	-235				
2 x 22	D	2.67	0.105	-085	-085	-201	-253	-271	-289	61.47 mm (2.420 in.)	71.12 mm (2.800 in.)	76.96 mm (3.030 in.)	
		3.81	0.150	-037	-087	-203	-135	-144	-235				
2 x 25	D	2.67	0.105	-079	-079	-195	-252	-270	-288	69.09 mm (2.720 in.)	78.74 mm (3.100 in.)	84.58 mm (3.330 in.)	
		3.81	0.150	-547	-548	-549	-550	-551	-552				
2 x 30	D	2.67	0.105	-559	-559	-561	-562	-563	-564	81.79 mm (3.220 in.)	91.44 mm (3.600 in.)	97.28 mm (3.830 in.)	
		3.81	0.150	-043	-091	-207	-254	-272	-290				

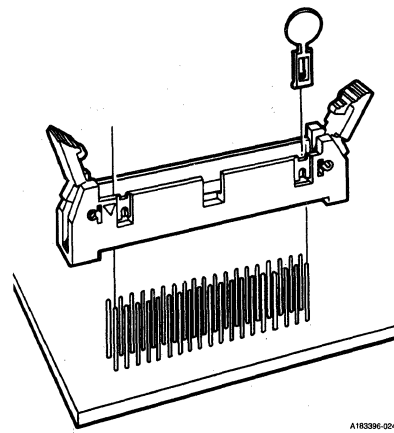
Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

For dual polarization, order dual-polarization key 66423-002.

# Shrouds

2.54 x 2.54 mm (0.100 x 0.100 in.)  
Centerlines

## Quickie™ IDC Pinless Header Straight 4-Wall Latch and Eject Shroud



### Features

- 2-row: 10 through 60 total positions.
- Acts as a protective cover for backpanel pins.
- Shroud retention achieved by 2 pairs of specially-sized holes in both ends of the connector.


### Options


- Standard or low-profile latches for latch and eject capability.
- Two standoff heights allow flexibility in determining mating pin length.

### Mating Data

Berg Electronics Products	Page
▪ All Quickie receptacles . . .	23-4 to 23-9
▪ Select discrete wiring mini-latch housings	
Series 65043 . . . . .	13-16
and 65846 . . . . .	13-18

### Approvals and Certifications

 File no. E66906

 File no. LR46923

### Application Equipment

Description	Page
▪ Hand-operated bench press model QP-104 . . . . .	23-64

### Accessories

See page 23-50 for latch and dual-polarization key data.

### Technical Data

#### Materials

- Housing material . . . . . Glass-filled thermoplastic polyester (UL 94 V-0)
  - ▶ Color . . . . . Blue

#### Operating Environment

- Temperature range . . . . . -65°C to +125°C

#### Packaging

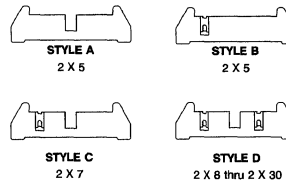
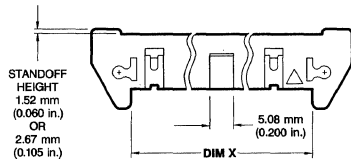
- Trays

### Customer Support Materials

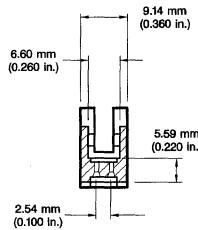
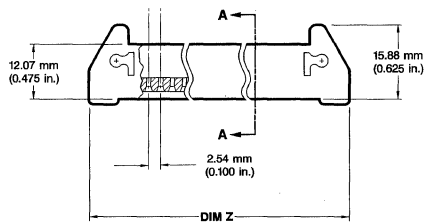
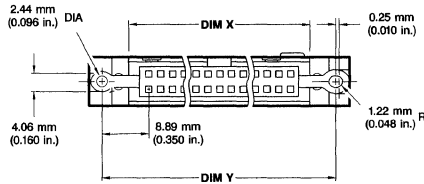
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Product Specifications . . . . .	Not Applicable		

## Description

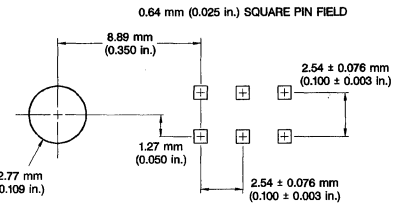
### Quickie™ IDC Pinless Header Straight 4-Wall Latch and Eject Shroud



POLARIZATION STYLES



SECTION A-A



#### RECOMMENDED PIN FIELD

Pins 0.64 mm (0.025 in.) square  
Standoff height of 1.52 mm (0.060 in.)  
requires 12.95 mm (0.510 in.) above board pin height  
Standoff height of 2.67 mm (0.105 in.)  
requires 14.10 mm (0.555 in.) above board pin height

A183396-0246

## Ordering Data

### Base Number 66373

Base number  -      - 1 X X

Dash number specifies number of positions, polarization style, latch style, and standoff height

Number of Positions	Polarization Style (see above illustrations)	Dash Number (Latches)						Dimensions					
		None		Standard		Low-profile		X		Y		Z	
		Standoff Height	Standoff Height	Standoff Height	Standoff Height	Standoff Height	Standoff Height	mm	in.	mm	in.	mm	in.
2 x 5	A	-101	-131	-110	-140	-119	-149	18.29	0.720	27.94	1.100	32.00	1.260
2 x 5	B	-128	-158	-129	-159	-130	-160	18.29	0.720	27.94	1.100	32.00	1.260
2 x 7	C	-102	-132	-111	-141	-120	-150	23.37	0.920	33.02	1.300	37.08	1.460
2 x 8	D	-103	-133	-112	-142	-121	-151	25.91	1.020	35.56	1.400	39.62	1.560
2 x 10	D	-104	-134	-113	-143	-122	-152	30.99	1.220	40.64	1.600	44.70	1.760
2 x 12	D	-167	-170	-173	-176	-179	-182	36.07	1.420	45.72	1.800	49.78	1.960
2 x 13	D	-105	-135	-114	-144	-123	-153	38.61	1.520	48.26	1.900	52.32	2.060
2 x 15	D	-168	-171	-174	-177	-180	-183	43.69	1.720	53.34	2.100	57.40	2.260
2 x 17	D	-106	-136	-115	-145	-124	-154	48.77	1.920	58.42	2.300	62.48	2.460
2 x 20	D	-107	-137	-116	-146	-125	-155	56.39	2.220	66.04	2.600	70.10	2.760
2 x 22	D	-169	-172	-175	-178	-181	-184	61.47	2.420	71.12	2.800	75.18	2.960
2 x 25	D	-108	-138	-117	-147	-126	-156	69.09	2.720	78.74	3.100	82.80	3.260
2 x 30	D	-109	-139	-118	-148	-127	-157	81.79	3.220	91.44	3.600	95.50	3.760

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

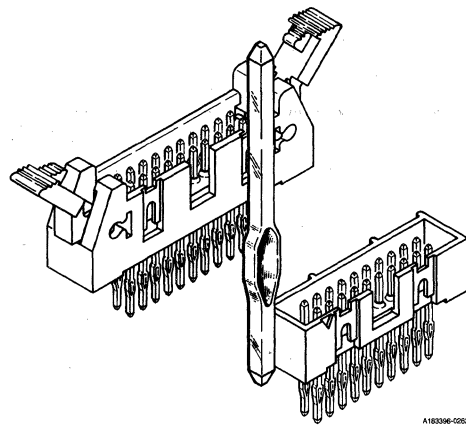
For dual polarization, order dual-polarization key P/N 66423-002.



# Compliant Press-Fit Pin Headers

2.54 x 2.54 mm (0.100 x 0.100 in.)  
Centerlines

**Quickie™ IDC Compliant Pin Headers**  
Latch and Eject and Slimline Versions



## Features

- 2-row: 10 through 60 total positions.
- Standard plating available in 0.76 µm (30 µin.) gold and 0.76 µm (30 µin.) GXT™ (palladium-nickel alloy with gold flash).
- Shrouding protects pins in unmated condition and prevents misalignment.
- Standoffs for cleaning purposes.
- Headers can be pressed into the pc board with the latches installed, eliminating hand installation of latches.
- Compliant section eliminates need to solder.
- Provides I/O connections for multilayer boards.


## Options


- Standard or low-profile latches for latch and eject capability.
- Available in varying tail lengths.

## Mating Data

Berg Electronics Products	Page
▪ All Quickie™ receptacles	23-4 to 23-9
▪ Select discrete wiring mini-latch housings	
Series 65043	13-16
and 65846	13-18

## Approvals and Certifications

 File no. E66906

 File no. LR46923

## Application Equipment

Refer to TA-556 for appropriate tooling sets.

## Accessories

See page 23-50 for latch and dual-polarization key data.

## Technical Data

### Materials

- Housing material ..... Glass-filled thermoplastic polyester (UL 94 V-0)
  - ▶ Color ..... Blue
- Pin ..... Phosphor-bronze

### Plating

- Underplate ..... 1.27 µm (50 µin.) min nickel
- Finish ..... 0.76 µm (30 µin.) min gold or 0.76 µm (30 µin.) min GXT™

### Electrical Performance

- Insulation resistance ..... 1000 MΩ min
- Withstanding voltage ..... >1000 V ac rms (sea level)
- Current rating ..... 3 amp continuous

### Mechanical Performance

- Insertion force per contact ..... Dependent upon
- Normal force per contact ..... mating receptacles;
- Withdrawal force per contact ..... refer to mating receptacle
- Contact retention force ..... data for this
- Durability (mating cycles) ..... information

### Operating Environment

- Temperature range ..... -65°C to +125°C

### Packaging

- Trays

## Customer Support Materials

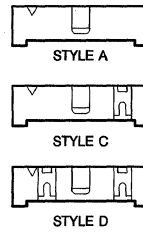
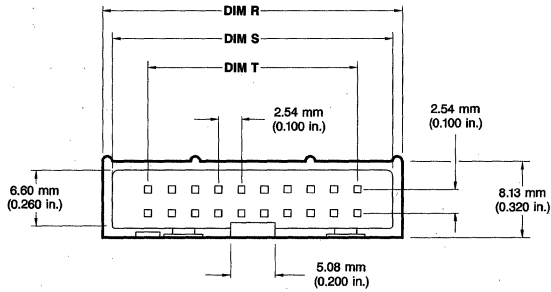
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Customer Product Drawings	By Part Number
Product Specifications	BUS-12-076

Description	Order No.
Product Sample	Upon Request
Application Drawings	TA-556

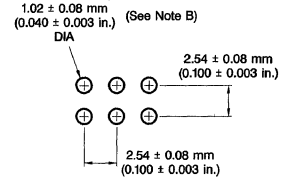


**Compliant Press-Fit Headers**  
**2.54 x 2.54 mm (0.100 x 0.100 in.)**

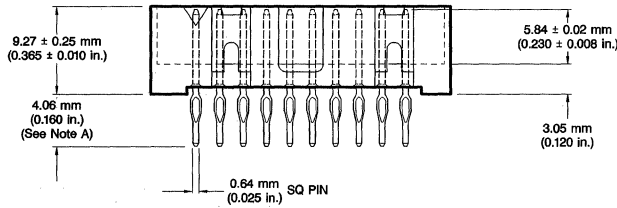
**Description**  
**Quickie™ IDC Compliant Pin Headers**  
**Latch and Eject and Slimline Versions**



**POLARIZATION STYLES**



**RECOMMENDED HOLE PATTERN**

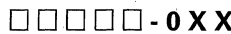


**NOTE:** Recommended plated through hole size  
 1.15 mm (0.0453 in.) diameter drilled hole  
 with 0.025 mm (0.001 in.) to 0.076 mm (0.003 in.) copper plating  
 and 0.0076 mm (0.0003 in.) to 0.018 mm (0.0007 in.) solder plating  
 to achieve specified finished hole size of 1.02 mm (0.040 in.).

A183396-0782

**Ordering Data**  
**Base Number 68712**

Base number

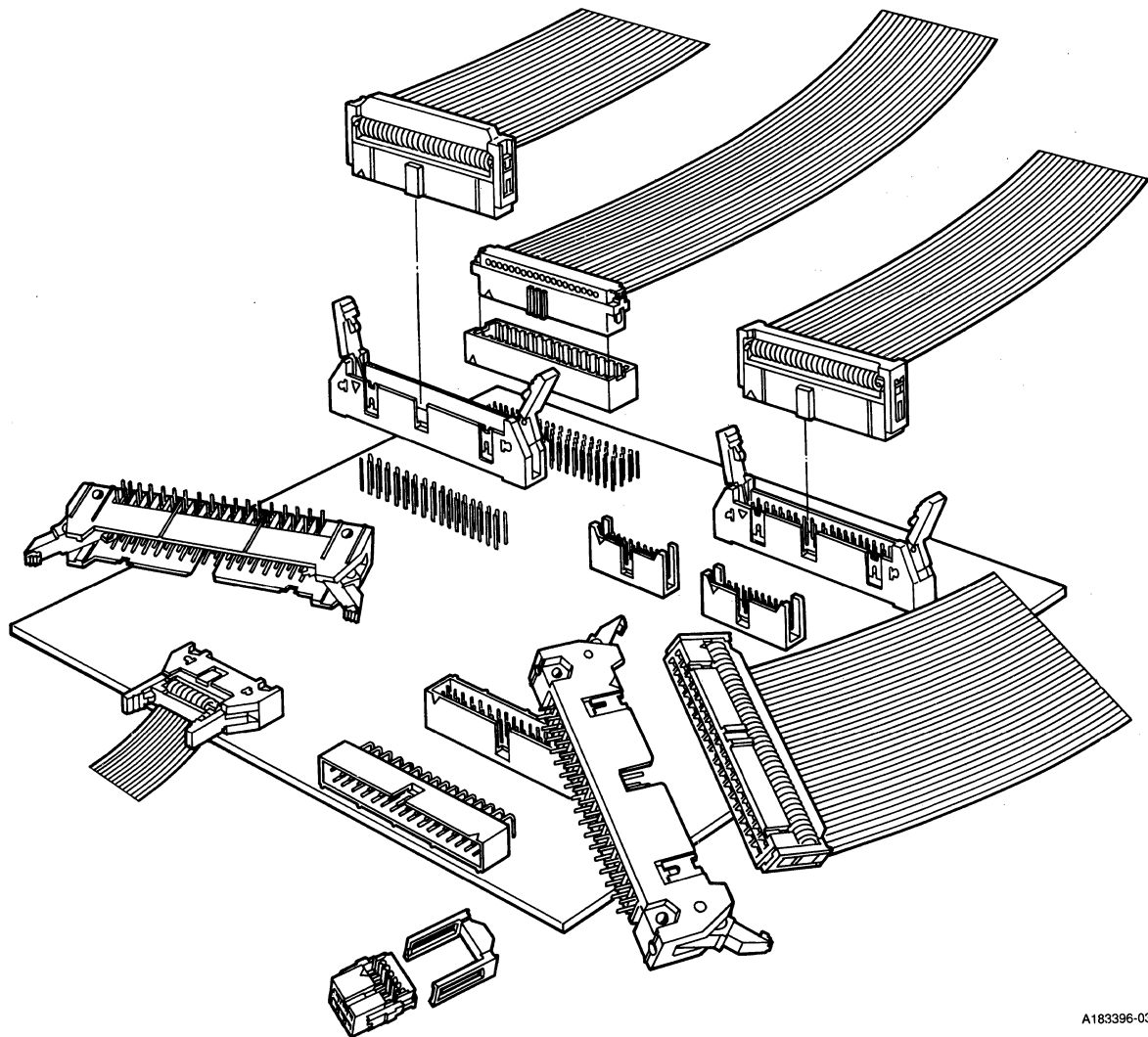


Dash number specifies number of positions, polarization style, and plating type

Number of Positions	Polarization Style (see above illustrations)	Dash Numbers		Dimensions					
		0.76 μm (30 μin.) gold	0.76 μm (30 μin.) GXT™	R		S		T	
				mm	in.	mm	in.	mm	in.
2 x 5	A	-001	-002	19.81	0.780	18.28	0.720	10.16	0.400
2 x 7	C	-007	-008	24.89	0.980	23.37	0.920	15.24	0.600
2 x 8	D	-013	-014	27.43	1.080	25.91	1.020	17.78	0.700
2 x 10	D	-019	-020	35.51	1.280	30.99	1.220	22.86	0.900
2 x 12	D	-025	-026	37.59	1.480	36.07	1.420	27.94	1.100
2 x 13	D	-031	-032	40.13	1.580	38.61	1.520	30.48	1.200
2 x 15	D	-037	-038	45.21	1.780	43.69	1.720	35.56	1.400
2 x 17	D	-043	-044	50.29	1.980	48.77	1.920	40.64	1.600
2 x 20	D	-049	-050	57.91	2.280	56.39	2.220	48.26	1.900
2 x 22	D	-055	-056	62.99	2.480	61.47	2.420	53.34	2.100
2 x 25	D	-061	-062	70.61	2.780	69.09	2.720	60.96	2.400
2 x 30	D	-067	-068	83.31	3.280	81.79	3.220	73.66	2.900

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

For dual polarization, order dual-polarization key P/N 66423-002.

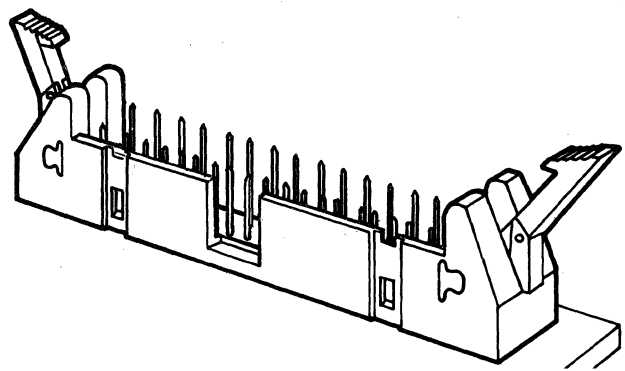


A183396-0317

# Shrouded Headers

2.54 x 2.54 mm (0.100 x 0.100 in.)  
Centerlines

## Quickie™ IDC Straight 3-Wall Latch and Eject Header



A183396-0231

### Features

- 2-row: 10 through 60 total positions.
- Applicable to pc board thickness 1.58 mm (0.062 in.).
- Fully compatible with all Quickie™ receptacle connectors.
- Molded-in phosphor-bronze pins.
- Available in choice of platings.
- Standoffs for cleaning purposes.

### Options

- Standard or low-profile latches for latch and eject capability.
- Pins available in round or square configurations and in varying lengths.


### Mating Data


Berg Electronics Products	Page
▪ BergCon® PV Card Connector Series 67212. ....	13-130
▪ All Quickie™ receptacles 23-4 to 23-9	
▪ Select discrete wiring mini-latch housings Series 65043. ....	13-16
and 65846. ....	13-18

### Specifications

Compatible with MIL-C-83503.

### Approvals and Certifications

 File no. E66906

 File no. LR46923

### Accessories

See page 23-50 for latch and dual-polarization key data.

### Technical Data

#### Materials

- Housing material ..... Glass-filled polyester (UL 94 V-0)
  - ▶ Color ..... Blue
  - ▶ Applicable soldering processes. .... Wave
- Pin ..... Phosphor-bronze

#### Plating

- Underplate ..... 1.27 µm (50 µin.) min nickel
- Finish ..... 0.76 µm (30 µin.) min gold

#### Electrical Performance

- Insulation resistance. .... 1 x 10<sup>5</sup> MΩ min
- Withstanding voltage. .... >500 V ac rms (sea level)
- Current rating ..... 3 amp continuous

#### Mechanical Performance

- Insertion force per contact ..... Dependent upon
- Normal force per contact ..... mating receptacles;
- Withdrawal force per contact ..... refer to mating receptacle
- Contact retention force. .... data for this
- Durability (mating cycles) ..... information

#### Operating Environment

- Temperature range ..... -65°C to +125°C
- Relative humidity ..... 90% min

#### Packaging

- Antistatic tubes
- Trays

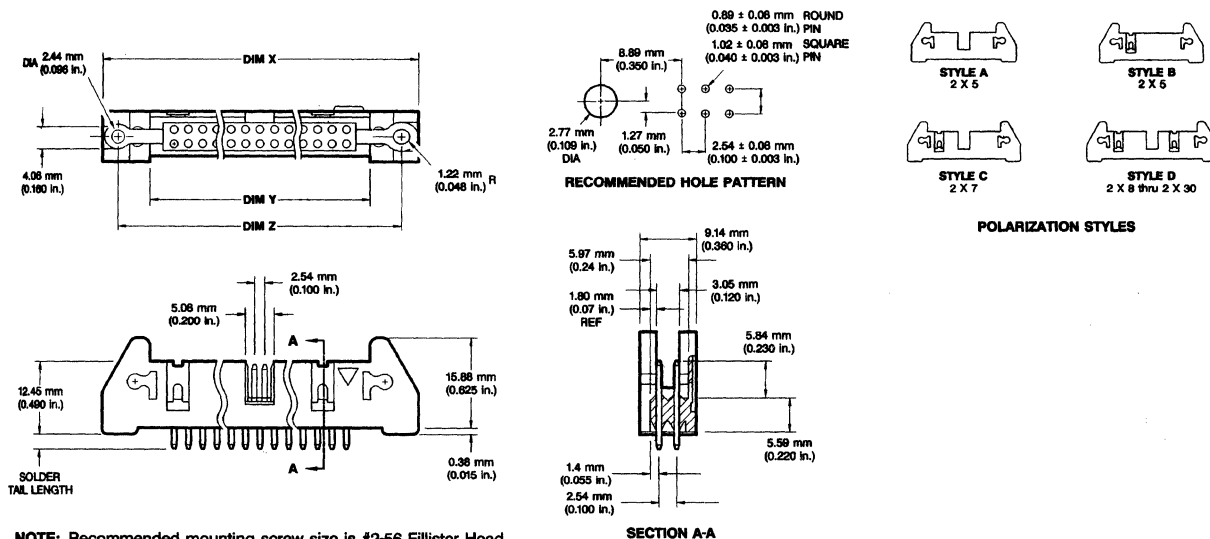
### Customer Support Materials

Description	Order No.
Customer Product Drawings. ....	By Part Number
Product Specifications. ....	BUS-12-082

Description	Order No.
Product Sample. ....	Upon Request

## Description

### Quickie™ Straight Three-Wall Latch and Eject Header

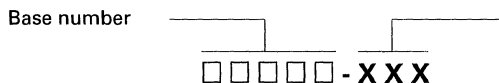


**NOTE:** Recommended mounting screw size is #2-56 Fillister Head  
1/4" long for 1.57 mm (0.062 in.) and 2.36 mm (0.093 in.) thick boards  
5/16" long for 3.18 mm (0.125 in.) thick boards

A183396-0024

## Ordering Data

### Base Number 66207



Dash number specifies polarization style, number of positions, solder tail length, plating type, and latch type

Dash numbers below have 0.76 μm (30 μin.) gold-plated pins and tail length of 2.67 mm (0.105 in.).

Number of Positions	Polarization Style (see above illustrations)	Dash Numbers---Latches			Dimensions					
		None	Standard	Low-profile	X		Y		Z	
					mm	in.	mm	in.	mm	in.
10	A	-001	-010	-019	33.86	1.330	18.29	0.720	27.94	1.100
10	B	-028	-029	-030	33.86	1.330	18.29	0.720	27.94	1.100
14	C	-002	-011	-020	39.06	1.530	23.37	0.920	33.02	1.300
16	D	-003	-012	-021	41.40	1.630	25.91	1.020	35.56	1.400
20	D	-004	-013	-022	46.48	1.830	30.99	1.220	40.64	1.600
26	D	-005	-014	-023	54.10	2.130	38.61	1.520	48.26	1.900
34	D	-006	-015	-024	64.26	2.530	48.77	1.920	58.42	2.300
40	D	-007	-016	-025	71.88	2.830	56.39	2.220	66.04	2.600
50	D	-008	-017	-026	84.58	3.330	69.09	2.720	78.74	3.100
60	D	-009	-018	-027	97.28	3.830	81.79	3.220	91.44	3.600

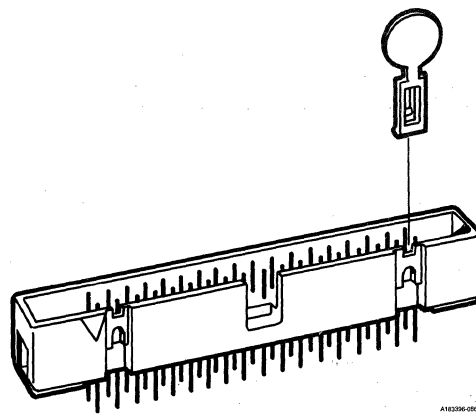
Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

For dual polarization, order dual-polarization key P/N 66423-002.

# Shrouded Headers

2.54 x 2.54 mm (0.100 x 0.100 in.)  
Centerlines

## Quickie™ IDC Straight 4-Wall Slimline Header End Windows



### Features

- 2-row: 10 through 60 total positions.
- Applicable to pc board thicknesses 1.58 mm (0.062 in.) and 3.18 mm (0.125 in.).
- Molded-in pins assure positive retention in housing and prevent flux contamination.
- Standard plating available in 0.76 µm (30 µin.) gold and 0.76 µm (30 µin.) GXT™ (palladium-nickel alloy with gold flash).
- Shrouding protects pins in unmated condition and prevents misalignment.
- Standoffs for cleaning purposes.
- Round pins use smaller through-holes, leaving more room to run circuitry.
- End windows function as a latching system when used with the Quickie™ III receptacle latching strain relief.
- Requires minimum of space on pc board allowing dense packaging.

### Options

- Retentive pin feature holds the header onto the board during soldering process.
- Pins available in round or square configurations and in varying tail lengths.
- Available in other plating types.
- High temperature, I/R compatible plastic configurations available upon request.


### Mating Data


Berg Electronics Products	Page
▪ All Quickie™ receptacles	23-4 to 23-9
▪ Select discrete wiring mini-latch housings Series 65043	13-16
and 65846	13-18

### Specifications

Compatible with MIL-C-83503.

### Approvals and Certifications

 File no. E66906

 File no. LR46923

### Accessories

See page 23-50 for dual-polarization key data.

### Technical Data

#### Materials

- Housing material ..... Glass-filled thermoplastic polyester (UL 94 V-0)
  - ▶ Color ..... Blue
  - ▶ Applicable soldering processes..... Wave
- Pin ..... Phosphor-bronze

#### Plating

- Underplate ..... 1.27 µm (30 µin.) min nickel
- Finish ..... 0.76 µm (30 µin.) min gold or 0.76 µm (30 µin.) min GXT™

#### Electrical Performance

- Insulation resistance..... 1 x 10<sup>5</sup> MΩ min
- Withstanding voltage..... >500 V ac rms (sea level)
- Current rating ..... 3 amp continuous

#### Mechanical Performance

- Insertion force per contact..... Dependent upon
- Normal force per contact..... mating receptacles;
- Withdrawal force per contact..... refer to mating receptacle
- Contact retention force..... data for this
- Durability (mating cycles)..... information

#### Operating Environment

- Temperature range..... -65°C to +125°C

#### Packaging

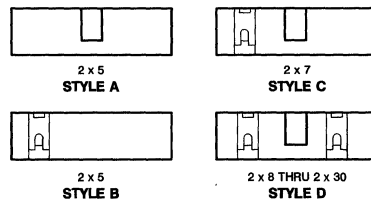
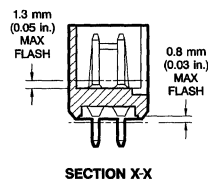
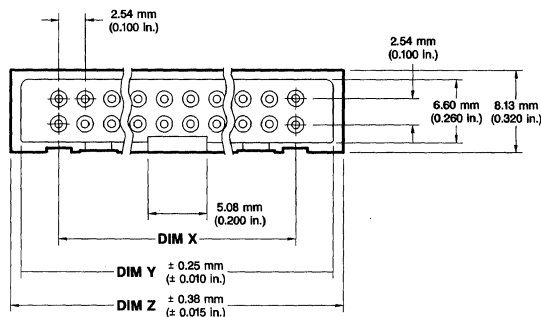
- Trays

### Customer Support Materials

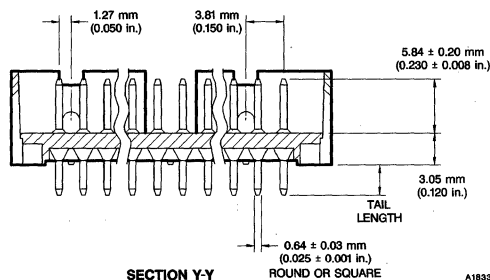
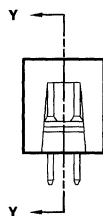
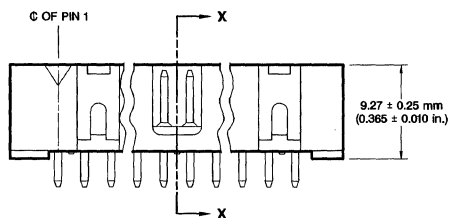
Description	Order No.	Description	Order No.
Customer Product Drawings.....	By Part Number	Product Sample.....	Upon Request
Product Specifications.....	BUS-12-082		

## Description

### Quickie™ Straight 4-Wall Slimline Header End Windows



POLARIZATION STYLES



SECTION Y-Y

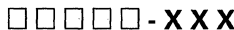
ROUND OR SQUARE

A183396-0667

## Ordering Data

### Base Number 88880

Base number



Dash number specifies number of positions, polarization style, tail length, and plating type

23

Number of Positions	Polarization Style (see above illustrations)	Solder Tail Length		Dash Numbers		Dimensions		
		mm	in.	0.76 μm (30 μin.) gold	0.76 μm (30 μin.) GXT™	X	Y	Z
2 x 5	A	2.67	0.105	-001	-066	10.16 mm (0.400 in.)	18.29 mm (0.720 in.)	19.81 mm (0.780 in.)
		3.81	0.150	-002	-049			
2 x 7	C	2.67	0.105	-037	-068	15.24 mm (0.600 in.)	23.37 mm (0.920 in.)	24.89 mm (0.980 in.)
		3.81	0.150	-038	-055			
2 x 8	D	2.67	0.105	-043	-070	17.78 mm (0.700 in.)	25.91 mm (1.020 in.)	27.43 mm (1.080 in.)
		3.81	0.150	-044	-056			
2 x 10	D	2.67	0.105	-007	-072	22.86 mm (0.900 in.)	30.99 mm (1.220 in.)	32.51 mm (1.280 in.)
		3.81	0.150	-008	-050			
2 x 12	D	2.67	0.105	-218	-219	27.94 mm (1.100 in.)	36.07 mm (1.420 in.)	37.59 mm (1.480 in.)
		3.81	0.150	-222	-223			
2 x 13	D	2.67	0.105	-013	-074	30.48 mm (1.200 in.)	38.61 mm (1.520 in.)	40.13 mm (1.580 in.)
		3.81	0.150	-014	-051			
2 x 15	D	2.67	0.105	-230	-231	35.56 mm (1.400 in.)	43.69 mm (1.720 in.)	45.21 mm (1.780 in.)
		3.81	0.150	-234	-235			
2 x 17	D	2.67	0.105	-019	-076	40.64 mm (1.600 in.)	48.77 mm (1.920 in.)	50.29 mm (1.980 in.)
		3.81	0.150	-020	-052			
2 x 20	D	2.67	0.105	-025	-078	48.26 mm (1.900 in.)	56.39 mm (2.220 in.)	57.91 mm (2.280 in.)
		3.81	0.150	-026	-053			
2 x 22	D	2.67	0.105	-242	-243	53.34 mm (2.100 in.)	61.47 mm (2.420 in.)	62.99 mm (2.480 in.)
		3.81	0.150	-246	-247			
2 x 25	D	2.67	0.105	-031	-080	60.96 mm (2.400 in.)	69.09 mm (2.720 in.)	70.61 mm (2.780 in.)
		3.81	0.150	-032	-054			
2 x 30	D	2.67	0.105	-057	-063	73.66 mm (2.900 in.)	81.79 mm (3.220 in.)	83.31 mm (3.280 in.)
		3.81	0.150	-058	-064			

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

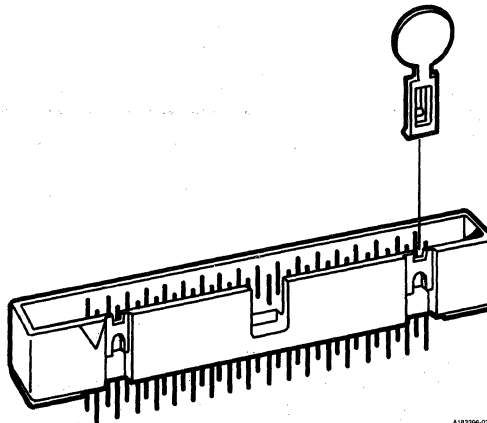
For dual polarization, order dual-polarization key P/N 66423-002.



# Shrouded Headers

2.54 x 2.54 mm (0.100 x 0.100 in.)  
Centerlines

## Quickie™ IDC Straight 4-Wall Slimline Header



A18396-0242

### Features

- 2-row: 10 through 60 total positions.
- Applicable to pc board thicknesses 1.58 mm (0.062 in.) and 3.18 mm (0.125 in.).
- Molded-in pins assure positive retention in housing and prevent flux contamination.
- Standard plating available in 0.76 µm (30 µin.) gold and 0.76 µm (30 µin.) GXT™ (palladium-nickel alloy with gold flash).
- Shrouding protects pins in unmated condition and prevents misalignment.
- Standoffs for cleaning purposes.
- Round pins use smaller through-holes, leaving more room to run circuitry.
- Requires minimum of space on pc board, allowing dense packaging.

### Options

- Retentive pin feature holds the header onto the board during soldering process.
- Pins available in round or square configurations and in varying lengths.
- Available in other plating types.
- Flexible end-latch version available.
- Header available in high-temperature plastic with solder aids (DUFLO configuration).


### Mating Data


Berg Electronics Products	Page
▪ All Quickie™ receptacles	23-4 to 23-9
▪ Select discrete wiring mini-latch housings Series 65043	13-16
and 65846	13-18

### Specifications

Compatible with MIL-C-83503.

### Approvals and Certifications

 File no. E66906

 File no. LR46923

### Accessories

See page 23-50 for dual-polarization key data.

### Technical Data

#### Materials

- Housing material ..... Glass-filled thermoplastic polyester (UL 94 V-0)
  - ▶ Color ..... Blue
  - ▶ Applicable soldering processes ..... Wave
- Pin ..... Phosphor-bronze

#### Plating

- Underplate ..... 1.27 µm (30 µin.) min nickel
- Finish ..... 0.76 µm (30 µin.) min gold or 0.76 µm (30 µin.) min GXT™

#### Electrical Performance

- Insulation resistance ..... 1 x 10<sup>5</sup> MΩ min
- Withstanding voltage ..... >500 V ac rms (sea level)
- Current rating ..... 3 amp continuous

#### Mechanical Performance

- Insertion force per contact ..... Dependent upon mating receptacles;
- Normal force per contact ..... refer to mating receptacle data for
- Withdrawal force per contact ..... this information
- Contact retention force ..... refer to mating receptacle data for
- Durability (mating cycles) ..... this information

#### Operating Environment

- Temperature range ..... -65°C to +125°C

#### Packaging

- Trays

### Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawings.....	By Part Number	Product Sample.....	Upon Request
Product Specifications.....	BUS-12-082		

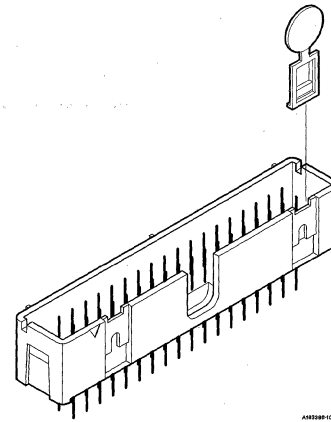


# Shrouded Headers

2.54 x 2.54 mm (0.100 x 0.100 in.)

Centerlines

**Quickie™ IDC  
Straight 4-Wall  
Slimline Header  
End Windows and  
Duplex Plating**



## Features

- 2-row: 4 through 64 total positions.
- Applicable to pc board thickness 1.58 mm (0.062 in.)
- Headers have 0.64 mm (0.025 in.) square duplex-plated pins.
- Standard plating available in 0.76 µm (30 µin.) gold.
- Shrouding protects pins in unmated condition and prevents misalignment.
- Standoffs for cleaning purposes.
- End windows function as a latching system when used with the Quickie™ III receptacle latching strain relief.
- Requires minimum of space on pc board, allowing dense packaging.

- Pins available in square configurations with varying tail lengths.
- Available in other plating types.


## Mating Data


Berg Electronics Products	Page
▪ All Quickie™ receptacles	23-4 to 23-9
▪ Select discrete wiring mini-latch housings	
Series 65043.....	13-16
and 65846.....	13-18

## Specifications

Compatible with MIL-C-83503.

## Approvals and Certifications

 File no. E66906

 File no. LR46923

## Accessories

See page 23-50 for dual-polarization key data.

## Options

### Technical Data

#### Materials

- Housing material ..... Glass-filled thermoplastic polyester (UL 94 V-0)
  - ▶ Color ..... Blue
  - ▶ Applicable soldering processes..... Wave
- Pin ..... Phosphor-bronze

#### Plating

- Underplate ..... 1.27 µm (30 µin.) min nickel
- Finish
  - ▶ Contact..... 0.76 µm (30 µin.) min gold
  - ▶ Solder tail ..... 4 µm (160 µin.) min tin-lead

#### Electrical Performance

- Insulation resistance..... 1 x 10<sup>5</sup> MΩ min
- Withstanding voltage..... >500 V ac rms (sea level)

- Current rating ..... 3 amp continuous

#### Mechanical Performance

- Insertion force per contact..... Dependent upon
- Normal force per contact..... mating receptacles;
- Withdrawal force per contact ..... refer to mating receptacle
- Contact retention force..... data for this
- Durability (mating cycles) ..... information

#### Operating Environment

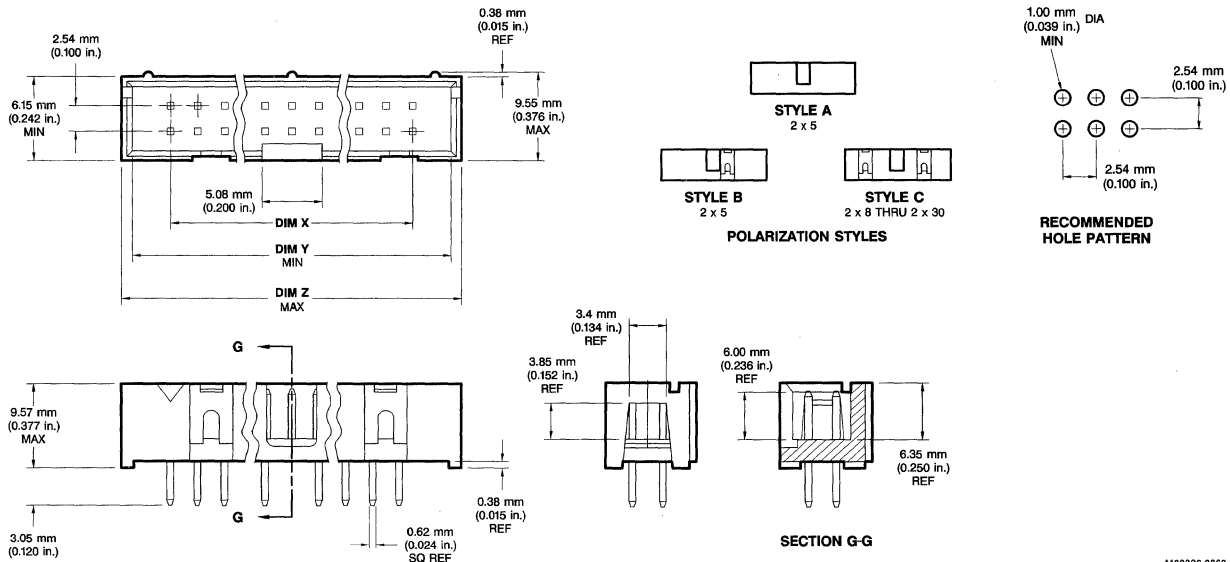
- Temperature range..... -65°C to +125°C

#### Packaging

- Trays

## Description

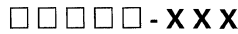
### Quickie™ Straight 4-Wall Slimline Header End Windows and Duplex Plating



## Ordering Data

### Base Number 75869

Base number  Dash number specifies number of positions, polarization style, tail length, and plating type



23

Number of Positions	Polarization Style (see above illustrations)	Dash Numbers	Dimensions					
			X		Y		Z	
			mm	in.	mm	in.	mm	in.
2 x 2	A	-130	2.54	0.100	10.18	0.401	12.42	0.489
2 x 3	A	-131	5.08	0.200	12.72	0.501	14.96	0.589
2 x 4	A	-132	7.62	0.300	15.26	0.601	17.50	0.689
2 x 5	B	-101	10.16	0.400	17.80	0.701	20.04	0.789
2 x 7	C	-102	15.24	0.600	22.88	0.901	25.12	0.989
2 x 8	C	-103	17.78	0.700	25.42	1.001	27.66	1.089
2 x 10	C	-104	22.86	0.900	30.50	1.201	32.74	1.289
2 x 13	C	-105	30.48	1.200	38.12	1.501	40.36	1.589
2 x 15	C	-133	35.56	1.400	43.20	1.701	45.44	1.789
2 x 17	C	-106	40.64	1.600	48.28	1.901	50.52	1.989
2 x 20	C	-107	48.26	1.900	55.90	2.201	58.14	2.289
2 x 25	C	-108	60.96	2.400	68.60	2.701	70.84	2.789
2 x 30	C	-109	73.66	2.900	81.30	3.201	83.54	3.289
2 x 32	C	-110	78.74	3.100	86.83	3.401	88.62	3.489

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

For dual polarization, order dual-polarization key P/N 66423-002.

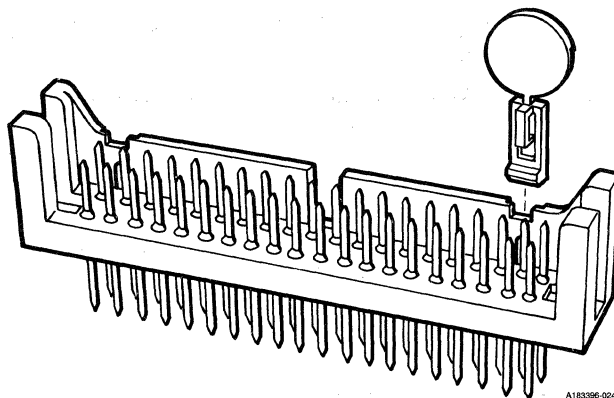
## Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawings .....	By Part Number	Product Sample .....	Upon Request
Product Specifications .....	BUS-12-082	Product Information Kit .....	By Number

# Shrouded Headers

2.54 x 2.54 mm (0.100 x 0.100 in.)  
Centerlines

## Quickie™ IDC Straight 3-Wall Slimline Header



### Features

- 2-row: 10 through 60 total positions.
- Applicable to pc board thicknesses 1.58 mm (0.062 in.) and 3.18 mm (0.125 in.).
- Fully compatible with all Quickie™ receptacle connectors.
- Molded-in pins assure positive retention in housing and prevent flux contamination.
- Standard plating available in 0.76 µm (30 µin.) gold and 0.76 µm (30 µin.) GXT™ (palladium-nickel alloy with gold flash).
- Standoffs for cleaning purposes.
- Round pins use smaller through-holes, leaving more room to run circuitry.
- Requires minimum of space on pc board, allowing dense packaging.

### Options

- Pins available in round or square configurations and in varying tail lengths.
- Available in other plating types.


### Mating Data


Berg Electronics Products	Page
▪ All Quickie receptacles . . .	23-4 to 23-9
▪ Select discrete wiring mini-latch housings Series 65043 . . . . .	13-16
and 65846 . . . . .	13-18

### Specifications

Compatible with MIL-C-83503.

### Approvals and Certifications

 File no. E66906

 File no. LR46923

### Accessories

See page 23-50 for dual-polarization key data.

### Technical Data

#### Materials

- Housing material . . . . . Glass-filled thermoplastic polyester (UL 94 V-0)
  - ▶ Color . . . . . Blue
  - ▶ Applicable soldering processes. . . . . Wave
- Pin . . . . . Phosphor-bronze

#### Plating

- Underplate . . . . . 1.27 µm (50 µin.) min nickel
- Finish . . . . . 0.76 µm (30 µin.) min gold or 0.76 µm (30 µin.) min GXT™

#### Electrical Performance

- Insulation resistance. . . . .  $1 \times 10^5$  MΩ min
- Withstanding voltage. . . . . >500 V ac rms (sea level)
- Current rating . . . . . 3 amp continuous

#### Mechanical Performance

- Insertion force per contact . . . . . Dependent upon
- Normal force per contact . . . . . mating receptacles;
- Withdrawal force per contact . . . . . refer to mating
- Contact retention force. . . . . receptacle data for
- Durability (mating cycles) . . . . . this information

#### Operating Environment

- Temperature range . . . . . -65°C to +125°C

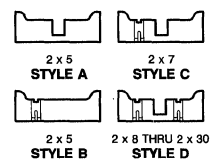
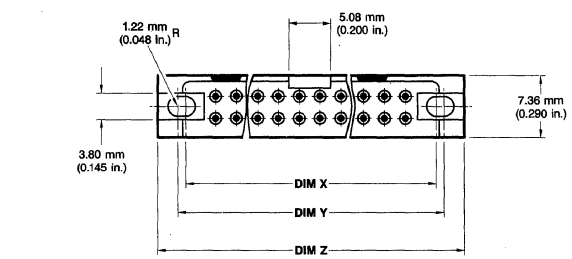
#### Packaging

- Trays

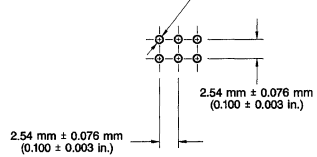
### Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawing . . . . .	By Part Number	Product Sample. . . . .	Upon Request
Product Specifications. . . . .	BUS-12-082		

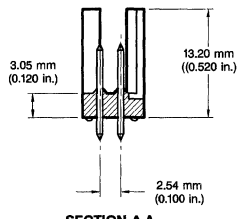
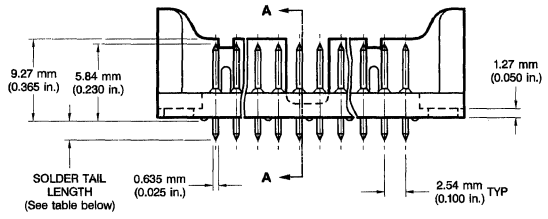
### Description Quickie™ Straight 3-Wall Slimline Header



0.89 mm ± 0.076 mm (0.035 in. ± 0.003 in.) ROUND PIN  
1.02 mm ± 0.076 mm (0.040 in. ± 0.003 in.) SQUARE PIN



RECOMMENDED HOLE PATTERN



SECTION A-A

A183398-0241

### Ordering Data Base Number 65692

Base number       -        
Dash number specifies number of positions, polarization style, plating type, and tail length

23

Number of Positions	Polarization Style (see above illustrations)	Dash Numbers				Dimensions					
		0.76 μm (30 μin.) gold		0.76 μm (30 μin.) GXT™		X		Y		Z	
		Solder Tail Lengths		Solder Tail Lengths		mm	in.	mm	in.	mm	in.
2 x 5	A	-001	-002	-066	-049	17.78	0.700	19.81	0.780	24.13	0.950
2 x 5	B	-109	-110	-118	-119	17.78	0.700	19.81	0.780	24.13	0.950
2 x 7	C	-037	-038	-068	-055	22.86	0.900	24.89	0.980	29.21	1.150
2 x 8	D	-043	-044	-070	-056	25.40	1.000	27.43	1.080	31.75	1.250
2 x 10	D	-007	-008	-072	-050	30.48	1.200	32.51	1.280	36.83	1.450
2 x 12	D	-220	-221	-223	-224	35.56	1.400	37.59	1.480	41.91	1.650
2 x 13	D	-013	-014	-074	-051	38.10	1.500	40.13	1.580	44.45	1.750
2 x 15	D	-232	-233	-235	-236	43.18	1.700	45.21	1.780	49.53	1.950
2 x 17	D	-019	-020	-076	-052	48.26	1.900	50.29	1.980	54.61	2.150
2 x 20	D	-025	-026	-078	-053	55.88	2.200	57.91	2.280	62.23	2.450
2 x 22	D	-244	-245	-247	-248	60.96	2.400	62.99	2.480	67.31	2.650
2 x 25	D	-031	-032	-080	-054	68.58	2.700	70.61	2.780	74.93	2.950
2 x 30	D	-057	-058	-063	-064	81.28	3.200	83.31	3.280	87.63	3.450

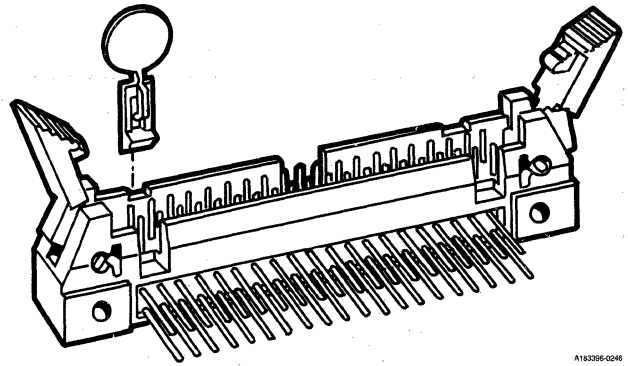
Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

For dual polarization, order dual-polarization key 66423-002.

# Shrouded Headers

2.54 x 2.54 mm (0.100 x 0.100 in.)  
Centerlines

## Quickie™ IDC Right-Angle 4-Wall Latch and Eject Header



A182096-0246

### Features

- 2-row: 10 through 60 total positions.
- Applicable to pc board thicknesses 1.58 mm (0.062 in.) and 3.18 mm (0.125 in.).
- Fully compatible with all Quickie™ receptacle connectors.
- Molded-in pins assure positive retention in housing and prevent flux contamination.
- Standard plating available in 0.76 µm (30 µin.) gold and 0.76 µm (30 µin.) GXT™ (palladium-nickel alloy with gold flash).
- Shrouding protects pins in unmated condition and prevents misalignment.
- Standoffs for cleaning purposes.

### Options

- Standard or low-profile latches for latch and eject capability.
- Retentive pin feature holds the header onto the board during soldering process.
- Pins available in round or square configurations and in varying tail lengths.
- Other plating types.


### Mating Data


Berg Electronics Products	Page
▪ All Quickie receptacles ..	23-4 to 23-9
▪ Select discrete wiring mini-latch housings	
Series 65043 .....	13-16
and 65846 .....	13-18

### Specifications

Compatible to MIL-C-83503.

### Approvals and Certifications

 File no. E66906

 File no. LR46923

### Accessories

See page 23-50 for latch and dual-polarization key data.

## Technical Data

### Materials

- Housing material ..... Glass-filled thermoplastic polyester (UL 94 V-0)
  - ▶ Color ..... Blue
  - ▶ Applicable soldering processes..... Wave
- Pin ..... Phosphor-bronze

### Plating

- Underplate ..... 1.27 µm (50 µin.) min nickel
- Finish ..... 0.76 µm (30 µin.) min gold or 0.76 µm (30 in.) min GXT™

### Electrical Performance

- Insulation resistance..... 1 x 10<sup>5</sup> MΩ min
- Withstanding voltage ..... >500 V ac rms (sea level)
- Current rating ..... 3 amp continuous

### Mechanical Performance

- Insertion force per contact ..... Dependent upon
- Normal force per contact ..... mating receptacles;
- Withdrawal force per contact ..... refer to mating receptacle
- Contact retention force..... data for this
- Durability (mating cycles) ..... information

### Operating Environment

- Temperature range ..... -65°C to +125°C
- Relative humidity ..... 90% min

### Packaging

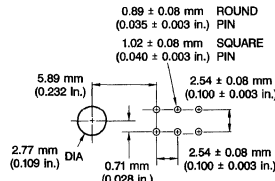
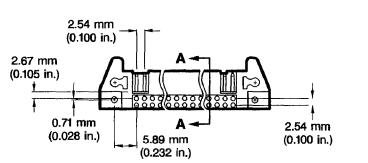
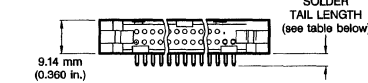
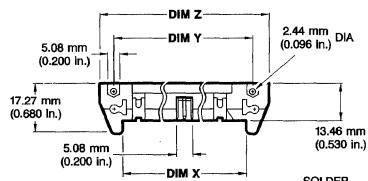
- Trays

## Customer Support Materials

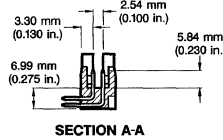
Description	Order No.	Description	Order No.
Customer Product Drawings.....	By Part Number	Product Sample.....	Upon Request
Product Specifications.....	BUS-12-082		

## Description

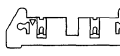
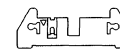
### Quickie™ Right-Angle 4-Wall Latch and Eject Header



RECOMMENDED HOLE PATTERN



SECTION A-A



POLARIZATION STYLES

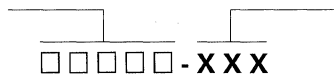
**NOTE:** Recommended mounting screw size is #2-56 Fillister Head  
1/4" long for 1.57 mm (0.062 in.) and 2.36 mm (0.093 in.) thick boards  
5/16" long for 3.18 mm (0.125 in.) thick boards

A183396-0247

## Ordering Data

### Base Number 66429

Base number



Dash number specifies number of positions, polarization style, solder tail length, plating type, and latch type

23

Number of Positions	Polarization Style (see above illustrations)	Solder Tail Length		Dash Numbers						Dimensions		
				0.76 µm (30 µin.) gold			0.76 µm (30 µin.) GXT™					
				mm	in.	none	standard	low profile	none	standard	low profile	X
2 x 5	A	2.67	0.105	-001	-049	-145	-217	-235	-253	18.29 mm (0.720 in.)	21.84 mm (0.860 in.)	32.00 mm (1.260 in.)
		3.81	0.150	-003	-051	-147	-127	-136	-208			
2 x 5	B	2.67	0.105	-362	-366	-370	-364	-368	-372	18.29 mm (0.720 in.)	21.84 mm (0.860 in.)	32.00 mm (1.260 in.)
		3.81	0.150	-374	-378	-382	-376	-380	-384			
2 x 7	C	2.67	0.105	-007	-055	-151	-218	-236	-254	23.37 mm (0.920 in.)	26.92 mm (1.060 in.)	37.08 mm (1.460 in.)
		3.81	0.150	-009	-057	-153	-128	-137	-209			
2 x 8	D	2.67	0.105	-013	-061	-157	-219	-237	-255	25.91 mm (1.020 in.)	29.46 mm (1.160 in.)	39.62 mm (1.560 in.)
		3.81	0.150	-015	-063	-159	-129	-138	-210			
2 x 10	D	2.67	0.105	-019	-067	-163	-220	-238	-256	30.99 mm (1.220 in.)	34.54 mm (1.360 in.)	44.70 mm (1.760 in.)
		3.81	0.150	-021	-069	-165	-130	-139	-211			
2 x 12	D	2.67	0.105	-462	-463	-464	-465	-466	-467	36.07 mm (1.420 in.)	39.62 mm (1.560 in.)	49.78 mm (1.960 in.)
		3.81	0.150	-474	-475	-476	-477	-478	-479			
2 x 13	D	2.67	0.105	-025	-073	-169	-221	-239	-257	38.61 mm (1.520 in.)	42.16 mm (1.660 in.)	52.32 mm (2.060 in.)
		3.81	0.150	-027	-075	-171	-131	-140	-212			
2 x 15	D	2.67	0.105	-507	-508	-509	-510	-511	-512	43.69 mm (1.720 in.)	47.24 mm (1.860 in.)	57.40 mm (2.260 in.)
		3.81	0.150	-519	-520	-521	-522	-523	-524			
2 x 17	D	2.67	0.105	-031	-079	-175	-222	-240	-258	48.77 mm (2.060 in.)	52.32 mm (2.060 in.)	62.48 mm (2.460 in.)
		3.81	0.150	-033	-081	-177	-132	-141	-213			
2 x 20	D	2.67	0.105	-037	-085	-181	-223	-241	-259	56.39 mm (2.220 in.)	59.94 mm (2.360 in.)	70.10 mm (2.760 in.)
		3.81	0.150	-039	-087	-183	-133	-142	-214			
2 x 22	D	2.67	0.105	-552	-553	-554	-555	-556	-557	61.47 mm (2.420 in.)	65.02 mm (2.560 in.)	75.18 mm (2.960 in.)
		3.81	0.150	-564	-565	-566	-567	-568	-569			
2 x 25	D	2.67	0.105	-043	-091	-187	-224	-242	-260	69.09 mm (2.720 in.)	72.64 mm (2.860 in.)	82.80 mm (3.260 in.)
		3.81	0.150	-045	-093	-189	-134	-143	-215			
2 x 30	D	2.67	0.105	-097	-103	-193	-255	-243	-261	81.79 mm (3.220 in.)	85.34 mm (3.360 in.)	95.50 mm (3.760 in.)
		3.81	0.150	-099	-105	-195	-135	-144	-216			

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

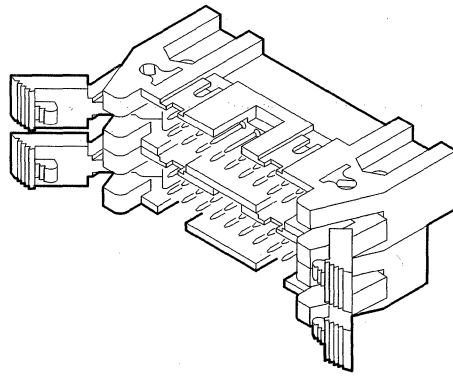
For dual polarization, order dual-polarization key 66423-002.



# Shrouded Headers

2.54 x 2.54 mm (0.100 x 0.100 in.)  
Centerlines

## Quickie™ IDC 4-Row Right-Angle Latch and Eject Header



A103200-0050

### Features

- 4-row: 20 through 120 total positions.
- Applicable to pc board thickness 1.58 mm (0.062 in.).
- Fully compatible with all Quickie™ receptacle connectors.
- Molded-in pins assure positive retention in housing and prevent flux contamination.
- Standard plating available in 0.76 µm (30 µin.) gold and 0.76 µm (30 µin.) GXT™ (palladium-nickel alloy with gold flash).
- Shrouding protects pins in unmated condition and prevents misalignment.
- Standoffs for cleaning purposes.
- Round pins use smaller through-holes, leaving more room to run circuitry.
- IDC Headers designed according to industry standards.

- Header pins are duplex-plated.
- Requires minimum of space on pc board allowing dense packaging.


### Options


- Standard or low-profile latches for latch and eject capability.
- Three header and board mounting options available (shown on next page).

### Mating Data

Berg Electronics Products	Page
▪ All Quickie receptacles . . .	23-4 to 23-9
▪ Select discrete wiring mini-latch housings	
Series 65043 . . . . .	13-16
and 65846 . . . . .	13-18

### Approvals and Certifications

 File no. E66906

 File no. LR46923

### Accessories

See page 23-50 for latch and dual-polarization key data.

### Technical Data

#### Materials

- Housing material . . . . . Glass-filled thermoplastic polyester (UL 94 V-0)
  - ▶ Color . . . . . Blue
  - ▶ Applicable soldering processes. . . . . Wave
- Pin . . . . . Phosphor-bronze

#### Plating

- Underplate . . . . . 1.27 µm (50 µin.) min nickel
- Finish
  - ▶ Contact . . . . . 0.76 µm (30 µin.) min gold (for part no. 71912) or 0.76 µm (30 µin.) min GXT™
  - ▶ Solder tail . . . . . 1.27 µm (50 µin.) min tin-lead

#### Electrical Performance

- Insulation resistance. . . . . 1 x 10<sup>5</sup> MΩ min
- Withstanding voltage . . . . . >1000 V ac rms (sea level)
- Current rating . . . . . 1 amp continuous

#### Mechanical Performance

- Insertion force per contact . . . . . Dependent upon
- Normal force per contact . . . . . mating receptacles;
- Withdrawal force per contact . . . . . refer to mating receptacle
- Contact retention force. . . . . data for this
- Durability (mating cycles) . . . . . information

#### Operating Environment

- Temperature range . . . . . -65°C to +125°C

#### Packaging

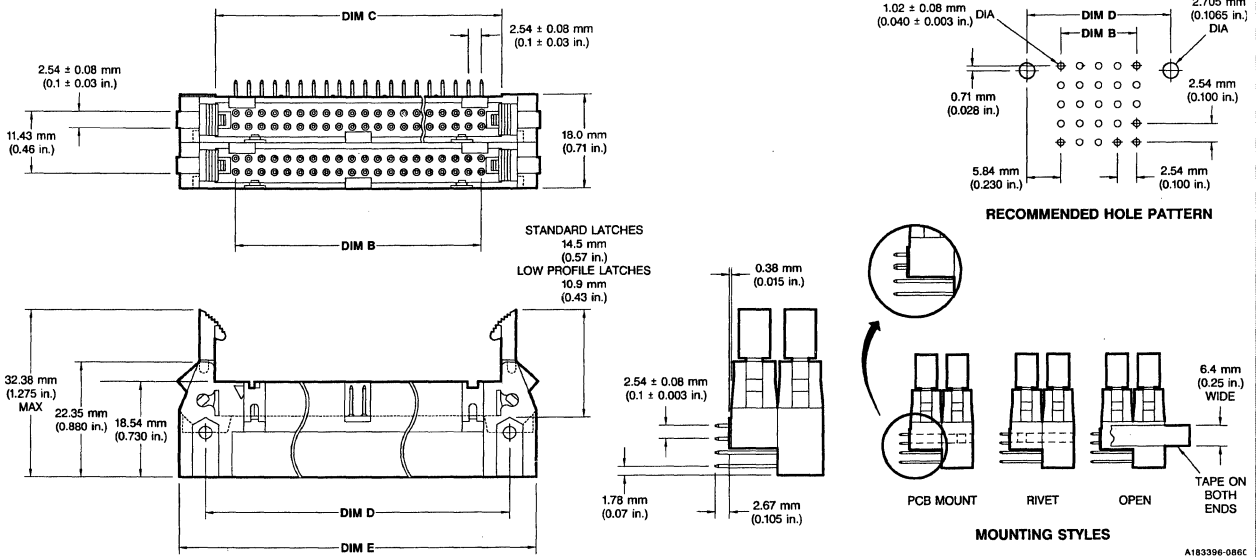
- Trays

### Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawings . . . . .	By Part Number	Product Sample . . . . .	Upon Request
Product Specifications . . . . .	BUS-12-082	▪ Product Information Kit (with sample) . . . . .	By No.

## Description

### Quickie™ II 4-Row Right-Angle Latch and Eject Header



## Ordering Data

### Base Number 87061

Base number

□ □ □ □ - X Y Y

Dash number specifies number of positions, plating type, and mounting option

23

Number of Positions	Dash Numbers						Dimensions							
	Mounting Styles						B		C		D		E	
	Open with Tape		PCB Mount		Rivet		mm	in.	mm	in.	mm	in.	mm	in.
4 x 5	-005	-105	-205	-305	-405	-505	10.16	0.400	18.29	0.720	21.84	0.860	32.00	1.260
4 x 7	-007	-107	-207	-307	-407	-507	15.24	0.600	23.37	0.920	26.92	1.060	37.08	1.460
4 x 8	-008	-108	-208	-308	-408	-508	17.78	0.700	25.91	1.020	29.46	1.160	39.62	1.560
4 x 10	-010	-110	-210	-310	-410	-510	22.86	0.900	30.99	1.220	34.54	1.360	44.70	1.760
4 x 12	-012	-112	-212	-312	-412	-512	27.94	1.100	36.07	1.420	41.91	1.560	49.78	1.960
4 x 13	-013	-113	-213	-313	-413	-513	30.48	1.200	38.61	1.520	42.16	1.660	52.32	2.060
4 x 15	-015	-115	-215	-315	-415	-515	35.56	1.400	43.69	1.720	47.24	1.860	57.40	2.260
4 x 17	-017	-117	-217	-317	-417	-517	40.64	1.600	48.77	1.920	52.32	2.060	62.48	2.460
4 x 20	-020	-120	-220	-320	-420	-520	48.26	1.900	56.38	2.220	59.94	2.360	70.10	2.760
4 x 22	-022	-122	-222	-322	-422	-522	53.34	2.100	61.47	2.420	65.02	2.560	75.18	2.960
4 x 25	-025	-125	-225	-325	-425	-525	60.96	2.400	69.09	2.720	72.64	2.860	82.80	3.260
4 x 30	-030	-130	-230	-330	-430	-530	73.66	2.900	81.79	3.220	85.34	3.360	95.50	3.760

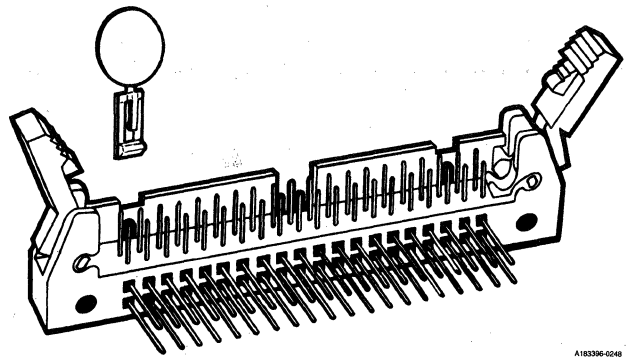
Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

For dual polarization, order dual-polarization key P/N 66423-002.

# Shrouded Headers

2.54 x 2.54 mm (0.100 x 0.100 in.)  
Centerlines

## Quickie™ IDC Right-Angle 3-Wall Latch and Eject Header



### Features

- 2-row: 10 through 60 total positions.
- Applicable to pc board thicknesses 1.58 mm (0.062 in.) and 3.18 mm (0.125 in.).
- Fully compatible with all Quickie™ receptacle connectors.
- Molded-in pins assure positive retention in housing and prevent flux contamination.
- Standard plating available in 0.76 µm (30 µin.) gold and 0.76 µm (30 µin.) GXT™ (palladium-nickel alloy with gold flash).
- Shielding protects pins in unmated condition and prevents misalignment.
- Standoffs for cleaning purposes.
- Round pins use smaller through-holes, leaving more room to run circuitry.

### Options

- Standard or low-profile latches for latch and eject capability.
- Retentive pin feature holds the header onto the board during soldering process.
- Pins available in round or square configurations and in varying tail lengths.
- Available in other plating types.


### Mating Data


Berg Electronics Products	Page
▪ All Quickie receptacles . . .	23-4 to 23-9
▪ Select discrete wiring mini-latch housings	
Series 65043 . . . . .	13-16
and 65846 . . . . .	13-18

### Specifications

Compatible with MIL-C-83503.

### Approvals and Certifications

 File no. E66906

 File no. LR46923

### Accessories

See page 23-50 for latch and dual-polarization key data.

### Technical Data

#### Materials

- Housing material . . . . . Glass-filled thermoplastic polyester (UL 94 V-0)
  - ▶ Color . . . . . Blue
  - ▶ Applicable soldering processes . . . . . Wave
- Pin . . . . . Phosphor-bronze

#### Plating

- Underplate . . . . . 1.27 µm (50 µin.) min nickel
- Finish . . . . . 0.76 µm (30 µin.) min gold or 0.76 µm (30 µin.) min GXT™

#### Electrical Performance

- Insulation resistance . . . . .  $1 \times 10^5$  MΩ min
- Withstanding voltage . . . . . >500 V ac rms (sea level)
- Current rating . . . . . 3 amp continuous

#### Mechanical Performance

- Insertion force per contact . . . . . Dependent upon
- Normal force per contact . . . . . mating receptacles;
- Withdrawal force per contact . . . . . refer to mating receptacle data for this
- Contact retention force . . . . . information
- Durability (mating cycles) . . . . . information

#### Operating Environment

- Temperature range . . . . . -65°C to +125°C
- Relative humidity . . . . . 90% min

#### Packaging

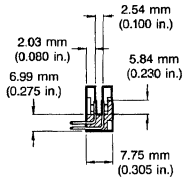
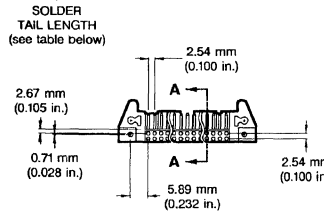
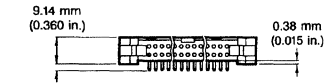
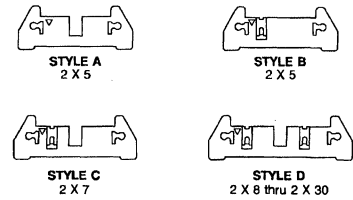
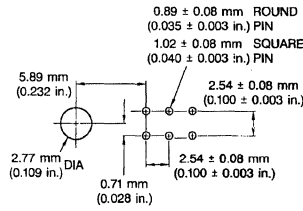
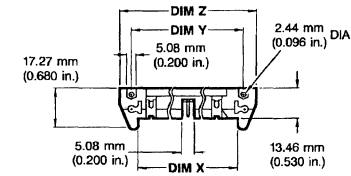
- Trays

### Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawings . . . . .	By Part Number	Product Sample . . . . .	Upon Request
Product Specifications . . . . .	BUS-12-082		

## Description

### Quickie™ Right-Angle 3-Wall Latch and Eject Header



**NOTE:** Recommended mounting screw size is #2-56 Fillister Head  
1/4" long for 1.57 mm (0.062 in.) and 2.36 mm (0.093 in.) thick boards  
5/16" long for 3.18 mm (0.125 in.) thick boards

A163396-0249

## Ordering Data

### Base Number 65823

Base number  -     -       
Dash number specifies number of positions, polarization style, solder tail length, plating type, and latch type

23

Number of Positions	Polarization Style (see above illustrations)	Solder Tail Length		Dash Numbers						Dimensions		
				0.76 μm (30 μin.) gold			0.76 μm (30 μin.) GXT™					
				Latches			Latches					
				mm	in.	none	standard	low-profile	none	standard	low-profile	X
2 x 5	A	2.67	0.105	-001	-049	-145	-217	-235	-253	18.29 mm (0.720 in.)	21.84 mm (0.860 in.)	32.00 mm (1.260 in.)
		3.81	0.150	-003	-051	-147	-127	-136	-208			
2 x 5	B	2.67	0.105	-362	-366	-370	-364	-368	-372	18.29 mm (0.720 in.)	21.84 mm (0.860 in.)	32.00 mm (1.260 in.)
		3.81	0.150	-374	-378	-382	-376	-380	-384			
2 x 7	C	2.67	0.105	-007	-055	-151	-218	-236	-254	23.37 mm (0.920 in.)	26.92 mm (1.060 in.)	37.08 mm (1.460 in.)
		3.81	0.150	-009	-057	-153	-128	-137	-209			
2 x 8	D	2.67	0.105	-013	-061	-157	-219	-237	-256	25.91 mm (1.020 in.)	29.46 mm (1.160 in.)	39.62 mm (1.560 in.)
		3.81	0.150	-015	-063	-159	-129	-138	-210			
2 x 10	D	2.67	0.105	-019	-067	-163	-220	-238	-256	30.99 mm (1.220 in.)	34.54 mm (1.360 in.)	44.70 mm (1.760 in.)
		3.81	0.150	-021	-069	-165	-130	-139	-211			
2 x 12	D	2.67	0.105	-462	-463	-464	-465	-466	-467	36.07 mm (1.420 in.)	39.62 mm (1.560 in.)	49.78 mm (1.960 in.)
		3.81	0.150	-474	-475	-476	-477	-478	-479			
2 x 13	D	2.67	0.105	-025	-073	-169	-221	-239	-257	38.61 mm (1.520 in.)	42.16 mm (1.660 in.)	52.32 mm (2.060 in.)
		3.81	0.150	-027	-075	-171	-131	-140	-212			
2 x 15	D	2.67	0.105	-507	-508	-509	-510	-511	-512	43.69 mm (1.720 in.)	47.24 mm (1.860 in.)	57.40 mm (2.260 in.)
		3.81	0.150	-519	-520	-521	-522	-523	-524			
2 x 17	D	2.67	0.105	-031	-079	-175	-222	-240	-258	48.77 mm (1.920 in.)	52.32 mm (2.060 in.)	62.48 mm (2.460 in.)
		3.81	0.150	-033	-081	-177	-132	-141	-213			
2 x 20	D	2.67	0.105	-037	-085	-181	-223	-241	-259	56.39 mm (2.220 in.)	59.94 mm (2.360 in.)	70.10 mm (2.760 in.)
		3.81	0.150	-039	-087	-183	-133	-142	-214			
2 x 22	D	2.67	0.105	-552	-553	-554	-555	-556	-557	61.47 mm (2.420 in.)	65.02 mm (2.560 in.)	75.18 mm (2.960 in.)
		3.81	0.150	-564	-565	-566	-567	-568	-569			
2 x 25	D	2.67	0.105	-043	-091	-187	-224	-242	-260	69.09 mm (2.720 in.)	72.64 mm (2.860 in.)	82.80 mm (3.260 in.)
		3.81	0.150	-045	-093	-189	-134	-143	-215			
2 x 30	D	2.67	0.105	-097	-103	-193	-255	-243	-261	81.79 mm (3.220 in.)	85.34 mm (3.360 in.)	95.50 mm (3.760 in.)
		3.81	0.150	-099	-105	-195	-135	-144	-216			

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

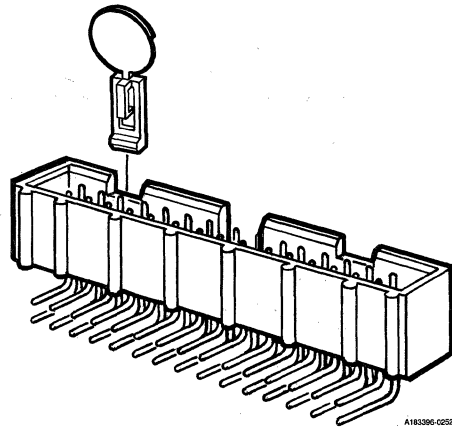
For dual polarization, order dual-polarization key P/N 66423-002.

Shrouded Headers  
2.54 x 2.54 mm (0.100 x 0.100 in.)

# Shrouded Headers

2.54 x 2.54 mm (0.100 x 0.100 in.)  
Centerlines

## Quickie™ IDC Right-Angle 4-Wall Slimline Header



### Features

- 2-row: 10 through 60 total positions.
- Applicable to pc board thicknesses 1.58 mm (0.062 in.) and 3.18 mm (0.125 in.).
- Molded-in pins assure positive retention in housing and prevent flux contamination.
- Standard plating available in 0.76  $\mu\text{m}$  (30  $\mu\text{in.}$ ) gold and 0.76  $\mu\text{m}$  (30  $\mu\text{in.}$ ) GXT™ (palladium-nickel alloy with gold flash).
- Shrouding protects pins in unmated condition and prevents misalignment.
- Standoffs for cleaning purposes.
- Round pins use smaller through-holes, leaving more room to run circuitry.
- Requires minimum space on pc board allowing dense packaging.

### Options

- Retentive pin feature holds the header onto the board during soldering process.
- Pins available in round or square configurations.
- Available in other plating types.


### Mating Data


Berg Electronics Products	Page
▪ All Quickie receptacles . . .	23-4 to 23-9
▪ Select discrete wiring mini-latch housings	
Series 65043 . . . . .	13-16
and 65846 . . . . .	13-18

### Specifications

Compatible with MIL-C-83503.

### Approvals and Certifications

 File no. E66906

 File no. LR46923

### Accessories

See page 23-50 for latch and dual-polarization key data.

## Technical Data

### Materials

- Housing material . . . . . Glass-filled thermoplastic polyester (UL 94 V-0)
  - ▶ Color . . . . . Blue
  - ▶ Applicable soldering processes . . . . . Wave
- Pin . . . . . Phosphor-bronze

### Plating

- Underplate . . . . . 1.27  $\mu\text{m}$  (50  $\mu\text{in.}$ ) min nickel
- Finish . . . . . 0.76  $\mu\text{m}$  (30  $\mu\text{in.}$ ) min gold or 0.76  $\mu\text{m}$  (30  $\mu\text{in.}$ ) min GXT™

### Electrical Performance

- Insulation resistance . . . . .  $1 \times 10^5$  M $\Omega$  min
- Withstanding voltage . . . . . >500 V ac rms (sea level)
- Current rating . . . . . 3 amp continuous

### Mechanical Performance

- Insertion force per contact . . . . . Dependent upon
- Normal force per contact . . . . . mating receptacles;
- Withdrawal force per contact . . . . . refer to mating receptacle
- Contact retention force . . . . . data for this
- Durability (mating cycles) . . . . . information

### Operating Environment

- Temperature range . . . . . -65°C to +125°C

### Packaging

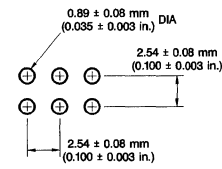
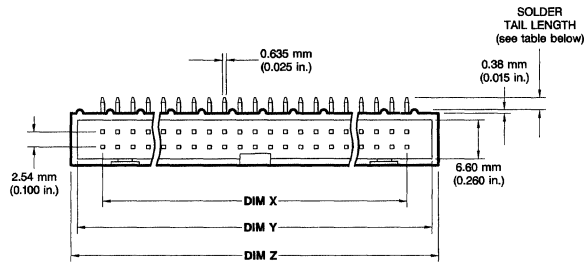
- Trays

## Customer Support Materials

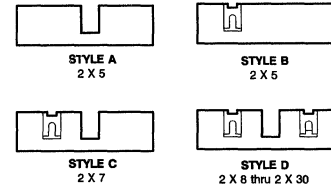
Description	Order No.	Description	Order No.
Customer Product Drawings . . . . .	By Part Number	Product Sample . . . . .	Upon Request
Product Specifications . . . . .	BUS-12-082		

## Description

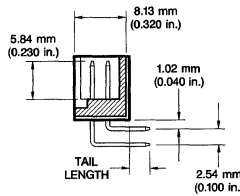
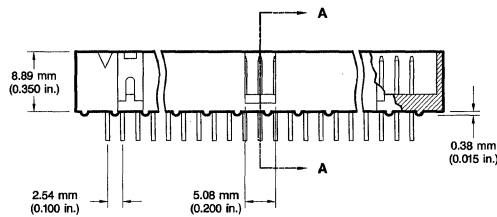
### Quickie™ Right-Angle 4-Wall Slimline Header



RECOMMENDED HOLE PATTERN



POLARIZATION STYLES



SECTION A-A

A183396-0254

## Ordering Data

### Base Number 69155

Base number

□ □ □ □ - X Y Y

Last two digits specify total positions per base number, polarization style, and plating type

Specifies tail length

23

Number of Positions	Polarization Style (see above illustrations)	Dash Numbers				Dimensions					
		0.76 μm (30 μin.) gold		0.76 μm (30 μin.) GXT™		X		Y		Z	
		Solder Tail Length		Solder Tail Length		mm	in.	mm	in.	mm	in.
2 x 5	A	-010	-210	-110	-310	10.16	0.400	18.29	0.720	19.81	0.780
2 x 5	B	-002	-202	-102	-302	10.16	0.400	18.29	0.720	19.81	0.780
2 x 7	C	-014	-214	-114	-314	15.24	0.600	23.37	0.920	24.89	0.980
2 x 8	D	-016	-216	-116	-316	17.78	0.700	25.91	1.020	27.43	1.080
2 x 10	D	-020	-220	-120	-320	22.86	0.900	30.99	1.220	32.51	1.280
2 x 12	D	-024	-224	-124	-324	27.94	1.100	36.07	1.420	37.59	1.480
2 x 13	D	-026	-226	-126	-326	30.48	1.200	38.61	1.520	40.13	1.580
2 x 15	D	-030	-230	-130	-330	35.56	1.400	43.69	1.720	45.21	1.780
2 x 17	D	-034	-234	-134	-334	40.64	1.600	48.77	1.920	50.29	1.980
2 x 20	D	-040	-240	-140	-340	48.26	1.900	56.39	2.220	57.91	2.280
2 x 22	D	-044	-244	-144	-344	53.34	2.100	61.47	2.420	62.99	2.480
2 x 25	D	-050	-250	-150	-350	60.96	2.400	69.09	2.720	70.61	2.780
2 x 30	D	-060	-260	-160	-360	73.66	2.900	81.79	3.220	83.31	3.280

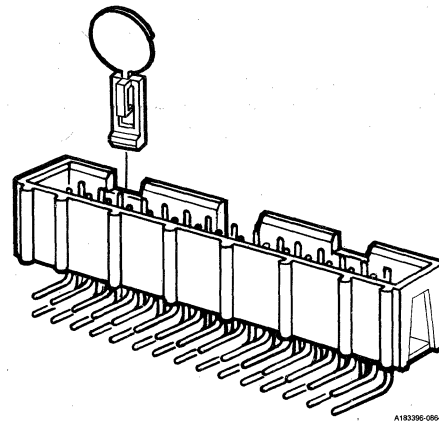
Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

For dual polarization, order dual-polarization key 66423-002.

# Shrouded Headers

2.54 x 2.54 mm (0.100 x 0.100 in.)  
Centerlines

## Quickie™ IDC Right-Angle 4-Wall Slimline Header End Windows



### Features

- 2-row: 10 through 60 total positions.
- Applicable to pc board thicknesses 1.58 mm (0.062 in.) and 3.18 mm (0.125 in.).
- Molded-in pins assure positive retention in housing and prevent flux contamination.
- Standard plating available in 0.76 µm (30 µin.) gold and 0.76 µm (30 µin.) GXT™ (palladium-nickel alloy with gold flash).
- Shrouding protects pins in unmated condition and prevents misalignment.
- Standoffs for cleaning purposes.
- Round pins use smaller through-holes, leaving more room to run circuitry.
- End windows function as a latching system when used with the Quickie™ III receptacle latching strain relief.
- Requires minimum of space on pc board allowing dense packaging.

### Options

- Retentive pin feature holds the header onto the board during soldering process.
- Pins available in round or square configurations and in varying tail lengths.
- Available in other plating types.
- High temperature, I/R compatible plastic configurations available upon request.


### Mating Data


Berg Electronics Products	Page
▪ All Quickie receptacles . . .	23-4 to 23-9
▪ Select discrete wiring mini-latch housings	
Series 65043 . . . . .	13-16
and 65846 . . . . .	13-18

### Specifications

Compatible with MIL-C-83503.

### Approvals and Certifications

 File no. E66906

 File no. LR46923

### Accessories

See page 23-50 for latch and dual-polarization key data.

### Technical Data

#### Materials

- Housing material . . . . . Glass-filled thermoplastic polyester (UL 94 V-0)
  - ▶ Color . . . . . Blue
  - ▶ Applicable soldering processes . . . . . Wave
- Pin . . . . . Phosphor-bronze

#### Plating

- Underplate . . . . . 1.27 µm (30 µin.) min nickel
- Finish . . . . . 0.76 µm (30 µin.) min gold or 0.76 µm (30 µin.) min GXT™

#### Electrical Performance

- Insulation resistance . . . . . 1 x 10<sup>5</sup> MΩ min
- Withstanding voltage . . . . . >500 V ac rms (sea level)
- Current rating . . . . . 3 amp continuous

#### Mechanical Performance

- Insertion force per contact . . . . . Dependent upon
- Normal force per contact . . . . . mating receptacles;
- Withdrawal force per contact . . . . . refer to mating receptacle data for this
- Contact retention force . . . . . information
- Durability (mating cycles) . . . . . information

#### Operating Environment

- Temperature range . . . . . -65°C to +125°C

#### Packaging

- Trays

#### Description

Customer Product Drawings . . . . . By Part Number  
Product Specifications . . . . . BUS-12-082

#### Order No.

### Customer Support Materials

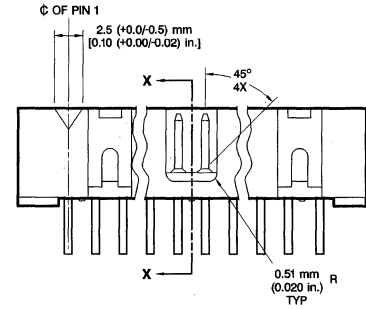
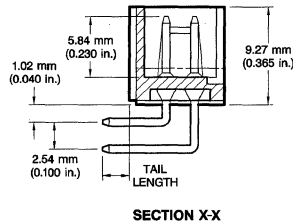
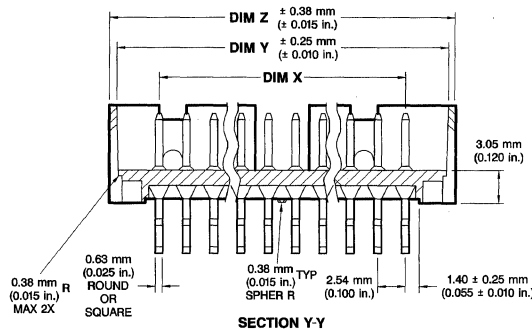
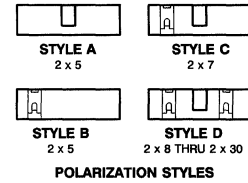
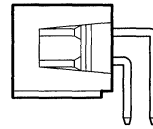
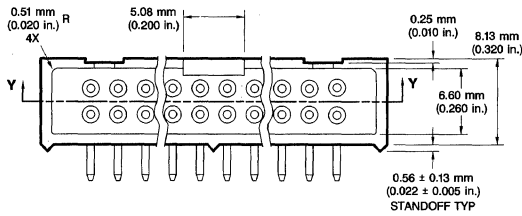
#### Description

- Product Sample . . . . . Upon Request

#### Order No.

## Description

### Quickie™ Right-Angle 4-Wall Slimline Header End Windows



a183396-0885

## Ordering Data

### Base Number 88874

Base number

□ □ □ □ - X Y Y

Last two digits specify total positions per base number, polarization style, and plating type

Specifies tail length

23

Number of Positions	Polarization Style (see above illustrations)	Dash Numbers				Dimensions					
		0.76 μm (30 μin.) gold-plated pins		0.76 μm (30 μin.) GXT™ plated pins		X		Y		Z	
		Solder Tail Length		Solder Tail Length		mm	in.	mm	in.	mm	in.
2 x 5	A	-010	-210	-110	-310	10.16	0.400	18.29	0.720	19.81	0.780
2 x 5	B	-002	-202	-102	-302	10.16	0.400	18.29	0.720	19.81	0.780
2 x 7	C	-014	-214	-114	-314	15.24	0.600	23.37	0.920	24.89	0.980
2 x 8	D	-016	-216	-116	-316	17.78	0.700	25.91	1.020	27.43	1.080
2 x 10	D	-020	-220	-120	-320	22.86	0.900	30.99	1.220	32.51	1.280
2 x 12	D	-024	-224	-124	-324	27.94	1.100	36.07	1.420	37.59	1.480
2 x 13	D	-026	-226	-126	-326	30.48	1.200	38.61	1.520	40.13	1.580
2 x 15	D	-030	-230	-130	-330	35.56	1.400	43.69	1.720	45.21	1.780
2 x 17	D	-034	-234	-134	-334	40.64	1.600	48.77	1.920	50.29	1.980
2 x 20	D	-040	-240	-140	-340	48.26	1.900	56.39	2.220	57.91	2.280
2 x 22	D	-044	-244	-144	-344	53.34	2.100	61.47	2.420	62.99	2.480
2 x 25	D	-050	-250	-150	-350	60.96	2.400	69.09	2.720	70.61	2.780
2 x 30	D	-060	-260	-160	-360	73.66	2.900	81.79	3.220	83.31	3.280

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

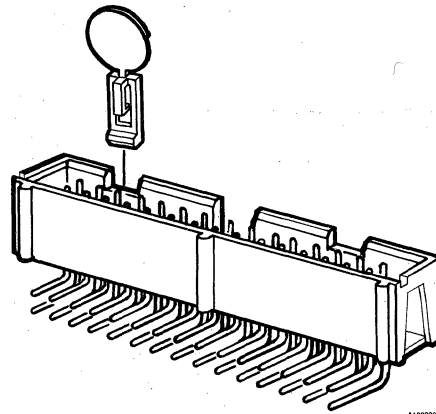
For dual polarization, order dual-polarization key P/N 66423-002.



# Shrouded Headers

2.54 x 2.54 mm (0.100 x 0.100 in.)  
Centerlines

**Quickie™ IDC Right-Angle 4-Wall  
Slimline Header End Windows and  
Duplex Plating**



A193396-082

## Features

- 2-row: 4 through 64 total positions.
- Applicable to pc board thicknesses 1.58 mm (0.062 in.) and 3.18 mm (0.125 in.).
- Headers have 0.64 mm (0.025 in.) square duplex-plated pins.
- Standard plating available in 0.76 µm (30 µin.) gold.
- Shrouding protects pins in unmated condition and prevents misalignment.
- Standoffs for cleaning purposes.
- End windows function as a latching system when used with the Quickie™ III receptacle latching strain relief.
- Requires minimum of space on pc board, allowing dense packaging.

## Options

- Pins available in round or square configurations and in varying tail lengths.
- Available in other plating types.


## Mating Data


Berg Electronics Products	Page
▪ All Quickie receptacles . . .	23-4 to 23-9
▪ Select discrete wiring mini-latch housings	
Series 65043 . . . . .	13-16
and 65846 . . . . .	13-18

## Specifications

Compatible with MIL-C-83503.

## Approvals and Certifications

 File no. E66906

 File no. LR46923

## Accessories

See page 23-50 for dual-polarization key data.

## Technical Data

### Materials

- Housing material . . . . . Glass-filled thermoplastic polyester (UL 94 V-0)
  - ▶ Color . . . . . Blue
  - ▶ Applicable soldering processes . . . . . Wave
- Pin . . . . . Phosphor-bronze

### Plating

- Underplate . . . . . 1.27 µm (50 µin.) min nickel
- Finish
  - ▶ Contact . . . . . 0.76 µm (30 µin.) min gold
  - ▶ Solder tail . . . . . 4 µm (160 µin.) min tin-lead

### Electrical Performance

- Insulation resistance . . . . . 1 x 10<sup>5</sup> MΩ min
- Withstanding voltage . . . . . >500 V ac rms (sea level)

- Current rating . . . . . 3 amp continuous

### Mechanical Performance

- Insertion force per contact . . . . . Dependent upon
- Normal force per contact . . . . . mating receptacles;
- Withdrawal force per contact . . . . . refer to mating receptacle
- Contact retention force . . . . . data for this
- Durability (mating cycles) . . . . . information

### Operating Environment

- Temperature range . . . . . -65°C to +125°C

### Packaging

- Trays

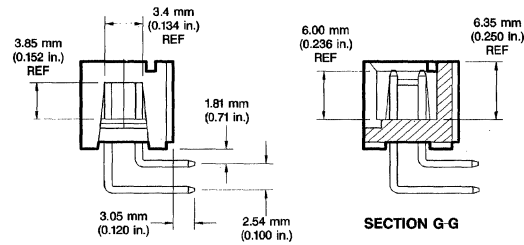
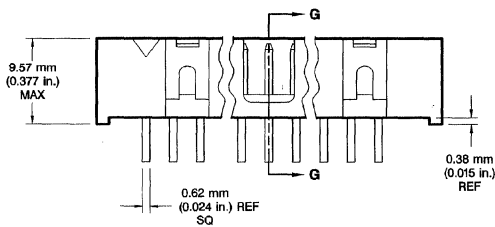
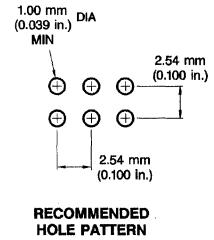
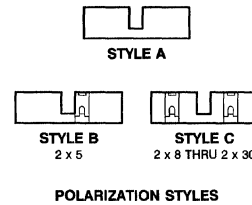
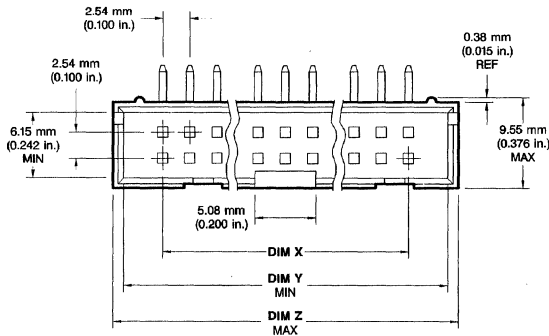
## Customer Support Materials

Description	Order No.
Customer Product Drawings . . . . .	By Part Number
Product Specifications . . . . .	BUS-12-082

Description	Order No.
Product Sample . . . . .	Upon Request
Product Information Kit . . . . .	By No.

## Description

### Quickie™ Right-Angle 4-Wall Slimline Header End Windows and Duplex Plating

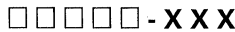


A19359E-0663

## Ordering Data

### Base Number 75867

Base number  Dash number specifies number of positions, polarization style, tail length, and plating type



Number of Positions	Polarization Style (see above illustrations)	Dash Numbers	Dimensions					
			X		Y		Z	
			mm	in.	mm	in.	mm	in.
2 x 2	A	-130	2.54	0.100	10.18	0.401	12.42	0.489
2 x 3	A	-131	5.08	0.200	12.72	0.501	14.96	0.589
2 x 4	A	-132	7.62	0.300	15.26	0.601	17.50	0.689
2 x 5	B	-101	10.16	0.400	17.80	0.701	20.04	0.789
2 x 7	C	-102	15.24	0.600	22.88	0.901	25.12	0.989
2 x 8	C	-103	17.78	0.700	25.42	1.001	27.66	1.089
2 x 10	C	-104	22.86	0.900	30.50	1.201	32.74	1.289
2 x 13	C	-105	30.48	1.200	38.12	1.501	40.36	1.589
2 x 15	C	-133	35.56	1.400	43.20	1.701	45.44	1.789
2 x 17	C	-106	40.64	1.600	48.28	1.901	50.52	1.989
2 x 20	C	-107	48.26	1.900	55.90	2.201	58.14	2.289
2 x 25	C	-108	60.96	2.400	68.60	2.701	70.84	2.789
2 x 30	C	-109	73.66	2.900	81.30	3.201	83.54	3.289
2 x 32	C	-110	78.74	3.100	86.83	3.401	88.62	3.489

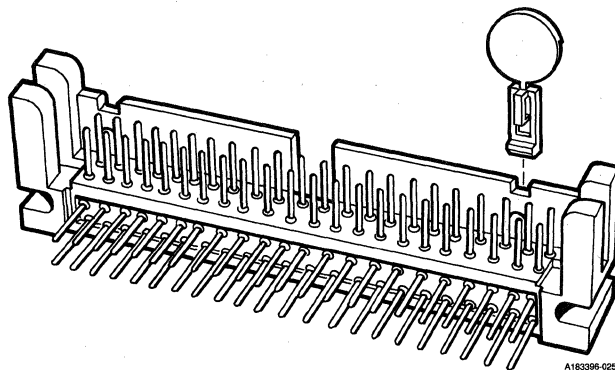
Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

For dual polarization, order dual-polarization key P/N 66423-002.

# Shrouded Headers

2.54 x 2.54 mm (0.100 x 0.100 in.)  
Centerlines

## Quickie™ IDC Right-Angle 3-Wall Slimline Header



### Features

- 2-row: 10 through 60 total positions.
- Applicable to pc board thicknesses 1.58 mm (0.062 in.) and 3.18 mm (0.125 in.).
- Fully compatible with all Quickie™ receptacle connectors.
- Molded-in pins assure positive retention in housing and prevent flux contamination.
- Standard plating available in 0.76 µm (30 µin.) gold and 0.76 µm (30 µin.) GXT™ (palladium-nickel alloy with gold flash).
- Standoffs for cleaning purposes.
- Round pins use smaller through-holes, leaving more room to run circuitry.

- Requires minimum of space on pc board, allowing dense packaging.

### Options

- Pins available in round or square configurations and in varying tail lengths.
- Available in other plating types.


### Mating Data


Berg Electronics Products	Page
▪ All Quickie receptacles ..	23-4 to 23-9
▪ Select discrete mini-latch housings Series 65043 .....	13-16
and 65846 .....	13-18

### Specifications

Compatible with MIL-C-83503.

### Approvals and Certifications

 File no. E66906

 File no. LR46923

### Accessories

See page 23-50 for latch and dual-polarization key data.

### Technical Data

#### Materials

- Housing material ..... Glass-filled thermoplastic polyester (UL 94 V-0)
  - ▶ Color ..... Blue
  - ▶ Applicable soldering processes..... Wave
- Pin ..... Phosphor-bronze

#### Plating

- Underplate ..... 1.27 µm (50 µin.) min nickel
- Finish ..... 0.76 µm (30 µin.) min gold or 0.76 µm (30 µin.) min GXT™

#### Electrical Performance

- Insulation resistance..... 1 x 10<sup>5</sup> MΩ min
- Withstanding voltage ..... >500 V ac rms (sea level)
- Current rating ..... 3 amp continuous

#### Mechanical Performance

- Insertion force per contact..... Dependent upon
- Normal force per contact..... mating receptacles;
- Withdrawal force per contact ..... refer to mating receptacle
- Contact retention force..... data for this
- Durability (mating cycles) ..... information

#### Operating Environment

- Temperature range..... -65°C to +125°C
- Relative humidity ..... 90% min

#### Packaging

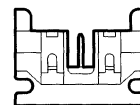
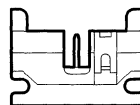
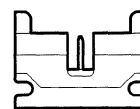
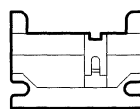
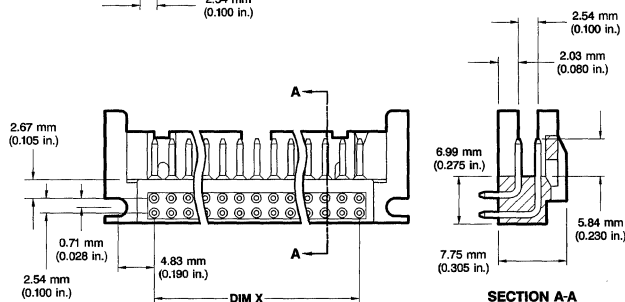
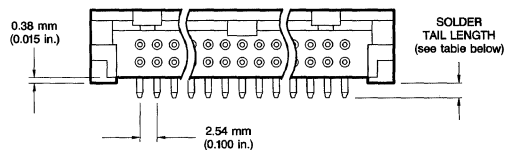
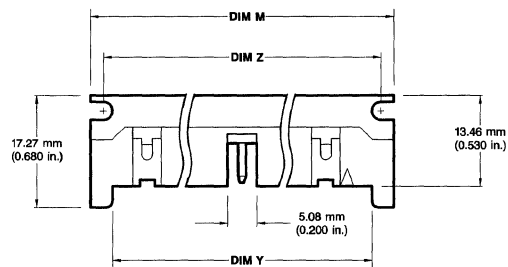
- Trays

### Customer Support Materials

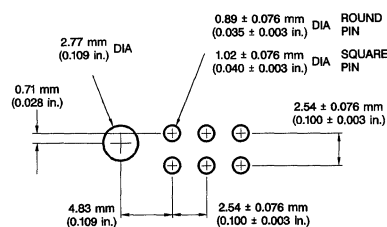
Description	Order No.	Description	Order No.
Customer Product Drawings.....	By Part Number	Product Sample.....	Upon Request
Product Specifications.....	BUS-12-082		

## Description

### Quickie™ Right-Angle 3-Wall Slimline Header



POLARIZATION STYLES

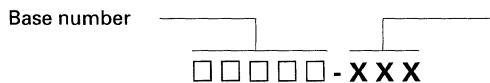


RECOMMENDED HOLE PATTERN

A183396-0261

## Ordering Data

### Base Number 65496



Dash number specifies number of positions, polarization style, finish type, and pin length

Number of Positions	Polarization Style (see above illustrations)	Dash Numbers				Dimensions							
		0.76 µm (30 µin.) gold		0.76 µm (30 µin.) GXT™		X		Y		Z		M	
		Pin Lengths		Pin Lengths		mm	in.	mm	in.	mm	in.	mm	in.
		2.67 mm (0.105 in.)	3.81 mm (0.150 in.)	2.67 mm (0.105 in.)	3.81 mm (0.150 in.)								
2 x 5	B	-001	-005	-091	-137	10.16	0.400	18.29	0.720	19.81	0.780	24.13	0.950
2 x 5	A	-085	-086	-092	-138	10.16	0.400	18.29	0.720	19.81	0.780	24.13	0.950
2 x 7	B	-037	-041	-146	-139	15.24	0.600	23.37	0.920	24.89	0.980	29.21	1.150
2 x 8	B	-043	-047	-147	-140	17.78	0.700	25.91	1.020	27.43	1.080	31.75	1.250
2 x 10	B	-007	-011	-093	-141	22.86	0.900	30.99	1.220	32.51	1.280	36.83	1.450
2 x 12	B	-104	-105	-107	-108	27.94	1.100	36.07	1.420	37.59	1.480	41.91	1.650
2 x 13	B	-013	-017	-148	-142	30.48	1.200	38.61	1.520	40.13	1.580	44.45	1.750
2 x 15	B	-116	-117	-119	-120	35.56	1.400	43.69	1.720	45.21	1.780	49.53	1.950
2 x 17	B	-019	-023	-149	-143	40.64	1.600	48.77	1.920	50.29	1.980	54.61	2.150
2 x 20	B	-025	-029	-150	-094	48.26	1.900	56.39	2.220	57.91	2.280	62.23	2.450
2 x 22	B	-128	-129	-131	-132	53.34	2.100	61.47	2.420	62.99	2.480	67.31	2.650
2 x 25	B	-031	-035	-151	-144	60.96	2.400	69.09	2.720	70.61	2.780	74.93	2.950
2 x 30	B	-049	-053	-152	-145	73.66	2.900	81.79	3.220	83.31	3.280	87.63	3.450

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

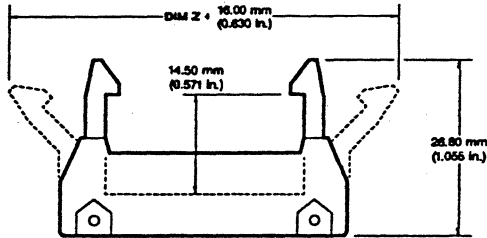
For dual polarization, order dual-polarization key 66423-002.

# Accessory Equipment

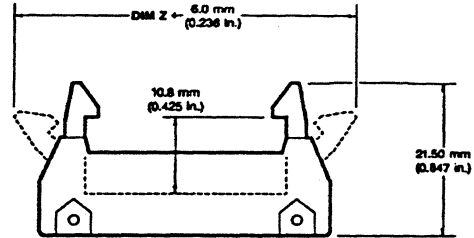
## Quickie™ Headers

### Quickie III Latches

#### Quickie III Vertical and Right-Angle Headers



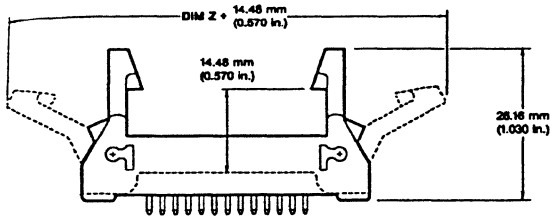
STANDARD LATCH -- P/N 67018-001  
Mates to Receptacles with Strain Relief



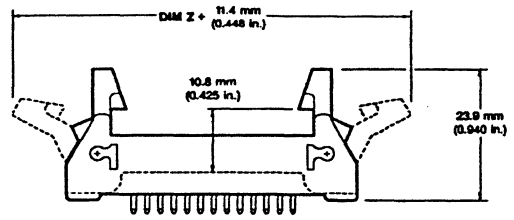
LOW-PROFILE LATCH -- P/N 67046-001  
Mates to Receptacles without Strain Relief

## Quickie II Latches

### Quickie II Vertical Headers

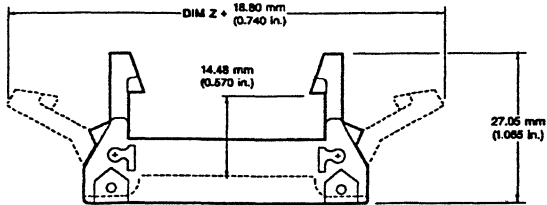


STANDARD LATCH -- P/N 65824-001  
Mates to Receptacles with Strain Relief

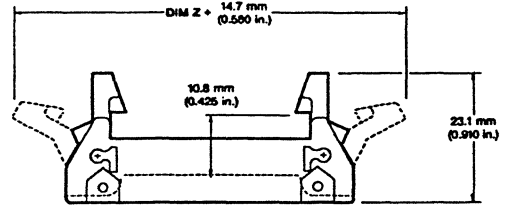


LOW-PROFILE LATCH -- P/N 66177-001  
Mates to Receptacles without Strain Relief

### Quickie II Right-Angle Headers

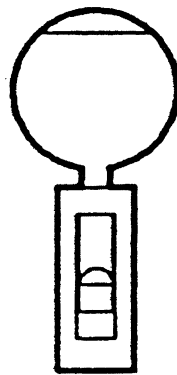


STANDARD RIGHT-ANGLE LATCH -- P/N 65824-001  
Mates to Receptacles with Strain Relief



LOW-PROFILE LATCH -- P/N 66177-001  
Mates to Receptacles without Strain Relief

## Dual-polarization key data



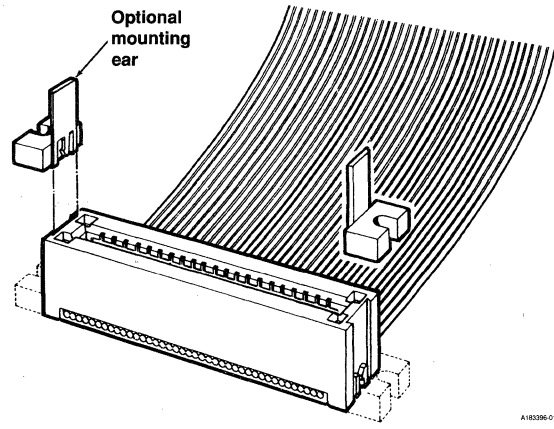
P/N 66423-002 for Quickie II Headers (Blue)  
P/N 67020-001 for Quickie III Headers (Gray)

Two of these keys are needed per header  
in order to utilize the dual-polarization slots.

# Edge Card Connectors

2.54 mm (0.100 in.) Centerline

## Quickie™ III IDC Edge Card Connector for Round Conductor, Flat Cable



A183396-01/84

### Features

- 2-row: 6 through 64 total positions.
- Accepts 28 AWG (stranded) or 30 AWG (solid) cable.
- Single-beam configuration provides high contact pressure for reliable electrical performance.
- Pre-loaded cover ensures cable positioning and protects contacts.
- Optional mounting ears in two styles provide maximum flexibility.


### Options


- Available with molded-in polarization.
- Strain relief edge card configuration available upon request.

### Mating Data

Accepts 1.37 to 1.80 mm (0.054 to 0.071 in.) thick pc boards.

### Approvals and Certifications

 File no. E66906

 File no. LR46923

### Application Equipment

Description	Page
▪ Hand-operated cable cutter HT-209A	23-65
▪ Hand-operated bench press QP-104	23-64
▪ Semi-automatic bench assembly machine QP-106	23-64
▪ Semi-automatic press QP-112	23-64
▪ Fully automatic assembly machine QP-113	23-65

### Accessories

Polarization key P/N 67043-001.

### Technical Data

#### Materials

- Housing material ..... Glass-filled thermoplastic polyester (UL 94 V-0)
  - ▶ Color ..... Gray
- Contact material ..... Phosphor-bronze

#### Plating

- Underplate ..... 1.27 µm (50 µin.) min nickel
- Finish ..... 0.76 µm (30 µin.) min gold

#### Electrical Performance

- Insulation resistance .....  $1 \times 10^5$  MΩ min
- Withstanding voltage ..... >1000 V ac rms (sea level)
- Current rating ..... 1 amp continuous

#### Mechanical Performance

- Insertion force per contact ..... For this
- Normal force per contact ..... data,
- Withdrawal force per contact ..... see
- Contact retention force ..... BUS-12-028
- Durability (mating cycles) ..... Specification

#### Operating Environment

- Temperature range ..... -65°C to +105°C

#### Packaging

- Bags
- Antistatic Tubes  
(To order, add T to end of dash number:  
Example: 71905-106T)

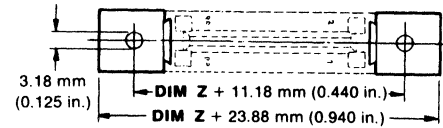
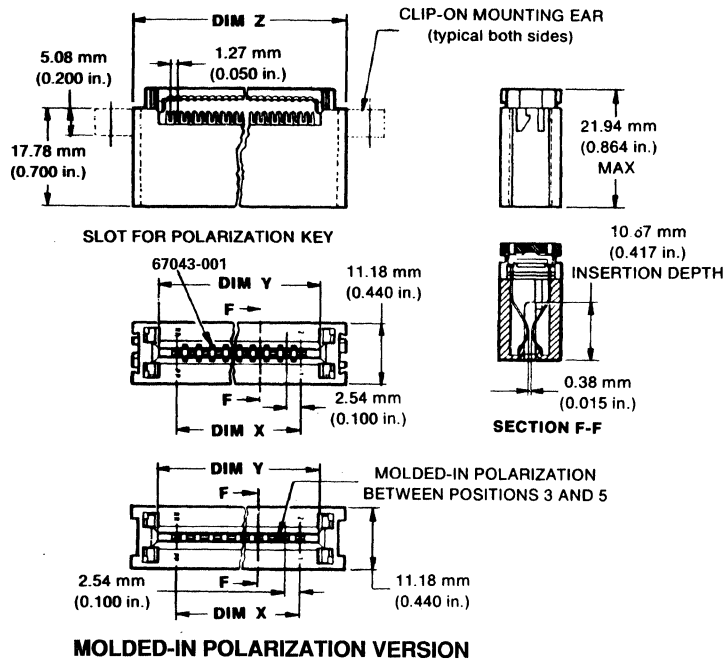
### Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawings	By Part Number	Product Sample	Upon Request
Product Specifications	BUS-12-028		

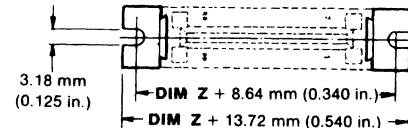
## Description

### Quickie™ III

### Edge Card Connector



**CLIP-ON MOUNTING EAR WITH HOLE**  
67041-001



**CLIP-ON MOUNTING EAR WITH SLOT**  
67042-001

A183396-0185

## Ordering Data

Base number specifies polarization options:  
Base No. 71904: Molded-in polarization between positions 3 and 5  
Base No. 71905: Polarization slots between each position for custom polarization

□ □ □ □ □ - 1 X X

Last two digits specify positions available for each base number

-1XX Specifies 0.76 μm (30 μin.) gold plating  
-5XX Specifies 0.38 μm (15 μin.) gold plating

Part numbers listed below do not include mounting ears.

Number of Positions	Base Number 71904*	Base Number 71905	Dimensions					
	Dash Number	Dash Number	X		Y		Z	
			mm	in.	mm	in.	mm	in.
2 x 3	--	-X06	5.08	0.200	10.29	0.405	19.30	0.760
2 x 4	--	-X08	7.62	0.300	12.83	0.505	21.84	0.860
2 x 5	--	-X10	10.16	0.400	15.37	0.605	24.38	0.960
2 x 7	--	-X14	15.24	0.600	20.45	0.805	29.46	1.160
2 x 8	--	-X16	17.78	0.700	22.99	0.905	32.00	1.260
2 x 9	--	-X18	20.32	0.800	25.53	1.005	34.54	1.360
2 x 10	-X20	-X20	22.86	0.900	28.07	1.105	37.08	1.460
2 x 12	--	-X24	27.94	1.100	33.15	1.305	42.16	1.660
2 x 13	--	-X26	30.48	1.200	35.69	1.405	44.70	1.760
2 x 15	--	-X30	35.56	1.400	40.77	1.605	49.78	1.960
2 x 17	-X34	-X34	40.64	1.600	45.85	1.805	54.86	2.160
2 x 19	--	-X38	45.72	1.800	50.93	2.005	59.94	2.360
2 x 20	--	-X40	48.26	1.900	53.47	2.105	62.48	2.460
2 x 22	--	-X44	53.34	2.100	58.55	2.305	67.56	2.660
2 x 25	--	-X50	60.96	2.400	66.17	2.605	75.18	2.960
2 x 28	--	-X56	68.58	2.700	73.79	2.905	82.80	3.260
2 x 30	--	-X60	73.66	2.900	78.87	3.105	87.88	3.460
2 x 31	--	-X62	76.20	3.000	81.41	3.205	90.42	3.560
2 x 32	--	-X64	78.74	3.100	83.95	3.305	92.96	3.660

\*Clip-on mounting ears will not function with this base number.

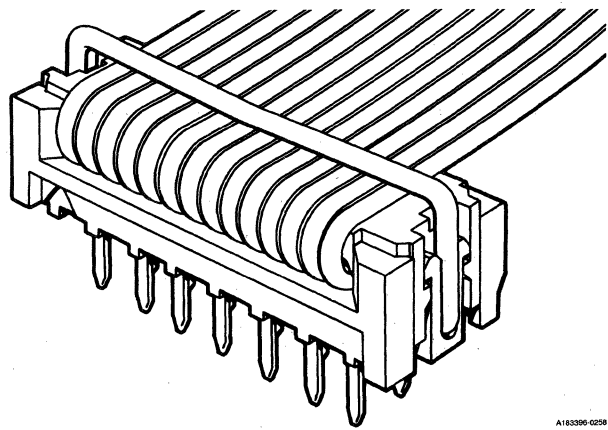
Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.



# Round Conductor, Flat Cable IDC Connectors

2.54 x 2.54 mm (0.100 x 0.100 in.)  
Centerlines

## Quickie™ IDC 2-Row PCB Connector



A18396 0258


### Features


- 2-row: 6 through 64 total positions.
- Accepts 26, 28 AWG (stranded) or 26, 28, 30 AWG (solid) cable.
- Applicable to pc board thicknesses 1.58 mm (0.062 in.) and 3.18 mm (0.125 in.).
- Pre-loaded scalloped cover provides quick assembly.
- Fits into a standard 2.54 x 2.54 mm (0.100 x 0.100 in.) header footprint.
- Uses less board space than the 4-row design PCB connector.
- Ideal for "Daisy Chain" applications.

### Options

- Stainless steel strain relief available.

### Approvals and Certifications

 File no. E66906

 File no. LR46923

### Application Equipment

Description	Page
▪ Hand-operated cable cutter HT-209A .....	23-65
▪ Hand-operated bench press QP-104 .....	23-64
▪ Semi-automatic bench assembly machine QP-106 .....	23-64
▪ Semi-automatic press QP-112 ..	23-64

### Technical Data

#### Materials

- Housing material ..... Glass-filled thermoplastic polyester (UL 94 V-0)
  - Color ..... Blue
- Pin ..... Phosphor-bronze

#### Plating

- Underplate ..... 1.27 µm (50 µin.) min nickel
- Finish ..... 2.54 µm (100 µin.) min tin-lead

#### Electrical Performance

- Insulation resistance..... 5 x 10<sup>4</sup> MΩ min
- Resistance ..... 15 mΩ max
- Withstanding voltage..... >1000 V ac rms (sea level)
- Current rating ..... 1 amp continuous

#### Mechanical Performance

- Insertion force per contact..... Mechanical
- Normal force per contact..... performance
- Withdrawal force per contact..... data
- Contact retention force..... not
- Durability (mating cycles)..... applicable

#### Operating Environment

- Temperature range..... -65°C to +105°C

#### Packaging

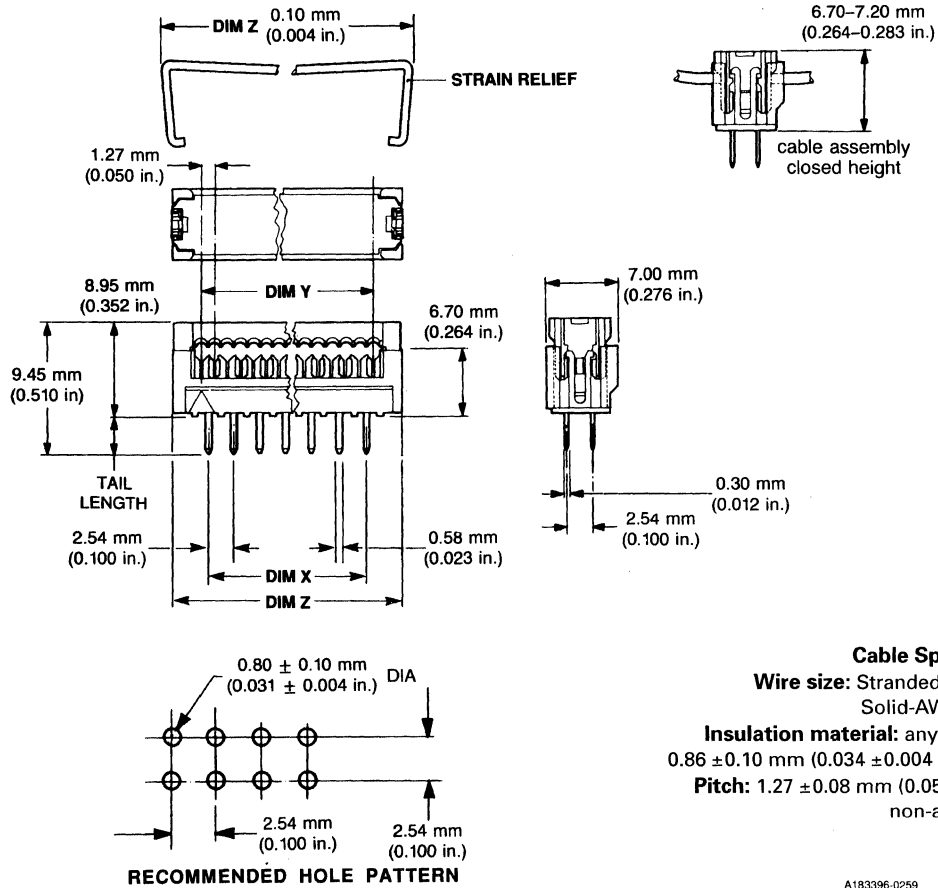
- Antistatic tubes

### Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawings.....	By Part No.	Product Sample.....	Upon Request

## Description

### Quickie™ 2-Row PCB Connector



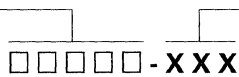
**Cable Specifications**  
**Wire size:** Stranded-AWG 26, 28  
 Solid-AWG 26, 28, 30  
**Insulation material:** any current type  
 0.86 ± 0.10 mm (0.034 ± 0.004 in.) diameter  
**Pitch:** 1.27 ± 0.08 mm (0.050 ± 0.003 in.)  
 non-accumulated

A183396-0259

## Ordering Data

23

Base number specifies part number tail length (strain relief must be ordered separately)



Dash number specifies total positions available for each base number

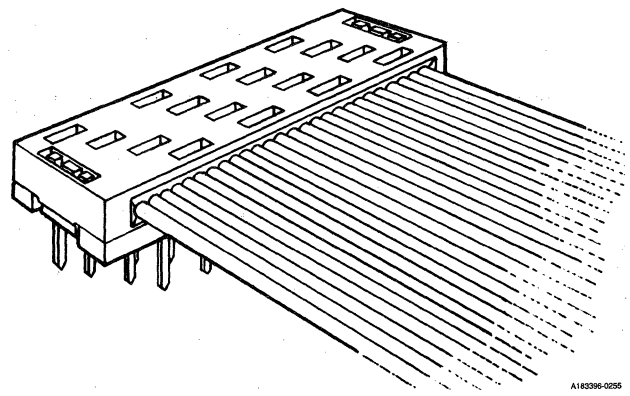
Number of Positions	Base Number 69830	Base Number 68120	Base Number 77103	Dimensions					
	Dash Number	Dash Number	Dash Number	X		Y		Z	
	2.90 mm (0.114 in.) solder tail length	4 mm (0.157 in.) Solder tail length	Optional Strain Relief	mm	in.	mm	in.	mm	in.
2 x 3	-006	-006	-006	5.08	0.200	6.35	0.250	12.09	0.476
2 x 4	-008	-008	-008	7.62	0.300	8.89	0.350	14.63	0.576
2 x 5	-010	-010	-010	10.16	0.400	11.43	0.450	17.17	0.676
2 x 7	-014	-014	-014	15.24	0.600	16.51	0.650	22.25	0.876
2 x 8	-016	-016	-016	17.78	0.700	19.05	0.750	24.79	0.976
2 x 9	-018	-018	-018	20.32	0.800	21.59	0.850	27.33	1.076
2 x 10	-020	-020	-020	22.86	0.900	24.13	0.950	29.87	1.176
2 x 12	-024	-024	-024	27.94	1.100	29.21	1.150	34.95	1.376
2 x 13	-026	-026	-026	30.48	1.200	31.75	1.250	37.49	1.476
2 x 15	-030	-030	-030	35.56	1.400	36.83	1.450	42.57	1.676
2 x 17	-034	-034	-034	40.64	1.600	41.91	1.650	47.65	1.876
2 x 20	-040	-040	-040	48.26	1.900	49.53	1.950	55.27	2.176
2 x 25	-050	-050	-050	60.96	2.400	62.23	2.450	67.97	2.676
2 x 30	-060	-060	-060	73.66	2.900	74.93	2.950	80.67	3.176
2 x 32	-064	-064	-064	78.74	3.100	80.01	3.150	85.75	3.376

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

# Round Conductor, Flat Cable IDC Connectors

2.54 mm (0.100 in.) Staggered Centerline

## Quickie™ IDC 4-Row PCB Connector




### Features


- 4-row: 10 through 64 total positions.
- Accepts 26, 28 AWG (stranded) or 26, 28, 30 (solid) cable.
- Applicable to pc board thicknesses 1.58 mm (0.062 in.) and 3.18 mm (0.125 in.).
- Meets industry standard staggered footprint.
- Supplied with feed-through double-scalloped cover for quick assembly.
- Ideal for "Daisy Chain" applications.
- Cable termination can be made before or after soldering process by use of different tooling fixtures.

### Options

- Gold and tin-plated leads available.
- Connector with cover pre-loaded to base. Part numbers available upon request.

### Approvals and Certifications

 File no. E66906

 File no. LR46923

### Application Equipment

Description	Page
▪ Hand-operated cable cutter HT-209A . . . . .	23-65
▪ Hand-operated bench press QP-104 . . . . .	23-64
▪ Semi-automatic bench assembly machine QP-106 . . . . .	23-64
▪ Semi-automatic press QP-112 . . . . .	23-64

### Technical Data

#### Materials

- Housing material . . . . . Glass-filled thermoplastic polyester (UL 94 V-0)
  - ▶ Color . . . . . Blue
  - ▶ Applicable soldering processes. . . . . Wave
- Pin . . . . . Phosphor-bronze

#### Plating

- Underplate . . . . . 1.27 μm (50 μin.) min nickel
- Finish . . . . . Gold flash or 4 μm (160 μin.) min tin-lead

#### Electrical Performance

- Insulation resistance. . . . . 5 x 10<sup>4</sup> MΩ min
- Resistance . . . . . 15 mΩ max
- Withstanding voltage . . . . . >1000 V ac rms (sea level)
- Current rating . . . . . 1 amp continuous

#### Mechanical Performance

- Insertion force per contact . . . . . Mechanical
- Normal force per contact . . . . . performance
- Withdrawal force per contact . . . . . data
- Contact retention force. . . . . not
- Durability (mating cycles) . . . . . applicable

#### Operating Environment

- Temperature range . . . . . -65°C to +105°C

#### Packaging

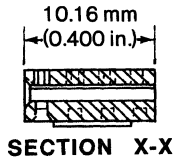
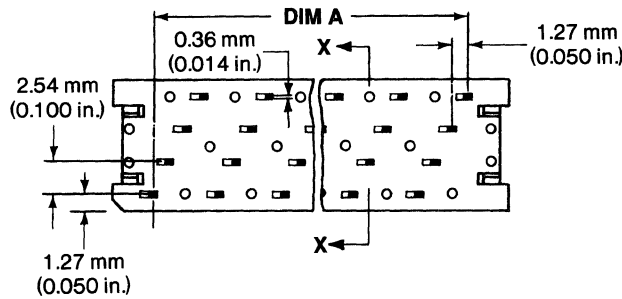
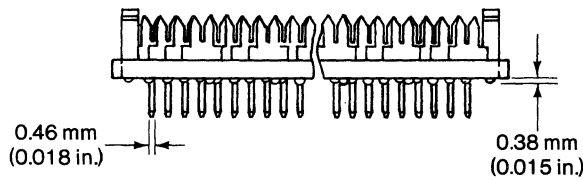
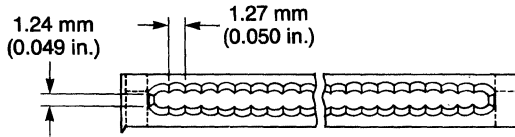
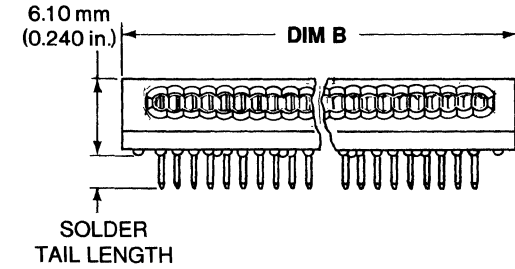
- Trays
- Antistatic tubes (call factory for part number)

### Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawings . . . . .	By Part No.	Product Sample . . . . .	Upon Request
Product Specifications . . . . .	BUS-12-014		

## Description

### Quickie™ 4-Row PCB Connector



A183396-0256

#### Cable Specifications

Wire size: Stranded-AWG 26,28  
Solid-AWG 26,28,30

Insulation material: any current type  
0.86 ± 0.10 mm (0.034 ± 0.004 in.) diameter  
Pitch: 1.27 ± 0.08 mm (0.050 ± 0.003 in.)  
non-accumulated

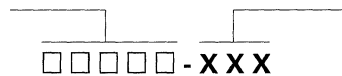
#### P.C. Board Specification

Thickness: 1.58 mm (0.062 in.) or 3.18 mm (0.125 in.)  
Hole size pins: 0.89 mm ± 0.076 mm (0.035 ± 0.003)

## Ordering Data

Base Number 65494, 65495

Base number



Dash number specifies number of positions, finish type, and solder tail length

Number of Positions	Dash Numbers				Dimensions			
	Gold		Tin-lead		A		B	
	Solder Tail Lengths		Solder Tail Lengths					
	2.54 mm (0.100 in.)	3.96 mm (0.156 in.)	2.54 mm (0.100 in.)	3.96 mm (0.156 in.)	mm	in.	mm	in.
10	65495-017	65495-019	65495-018	65495-020	11.43	0.450	17.78	0.700
14	65495-033	65495-035	65495-034	65495-036	16.51	0.650	22.86	0.900
16	65494-017	65494-019	65494-018	65494-020	19.05	0.750	25.40	1.000
20	65494-009	65494-011	65494-010	65494-012	24.13	0.950	30.48	1.200
24	65494-029	65494-031	65494-030	65494-032	29.21	1.150	35.56	1.400
26	65495-021	65495-023	65495-022	65495-024	31.75	1.250	38.10	1.500
30	65495-037	65495-039	65495-038	65495-040	36.83	1.450	43.18	1.700
34	65495-025	65495-027	65495-026	65495-028	41.91	1.650	48.26	1.900
40	65494-013	65494-015	65494-014	65494-016	49.53	1.950	55.88	2.200
44	65494-033	65494-035	65494-034	65494-036	54.61	2.150	60.96	2.400
50	65495-029	65495-031	65495-030	65495-032	62.23	2.450	68.58	2.700
60	65494-021	65494-023	65494-022	65494-024	74.93	2.950	81.28	3.200
64	65494-025	65494-027	65494-026	65494-028	80.01	3.150	86.36	3.400

Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

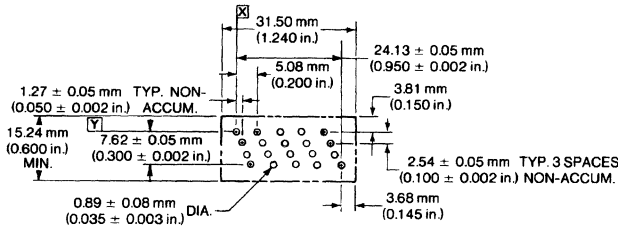
**Round Conductor, Flat Cable IDC Connectors**  
**2.54 mm (0.100 in.) Staggered Centerline**

**Description**  
**Quickie™ 4-Row PCB Connector**

PCB Transition Connector  
 Board Layout

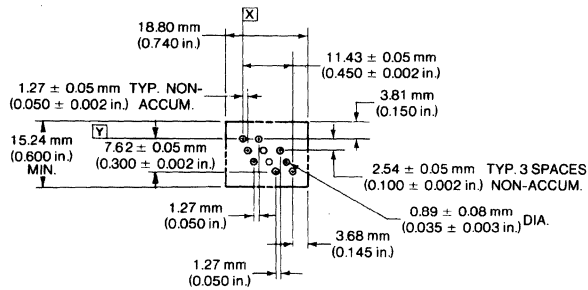
Hole pattern view from mounting side of PC board  
 Part Numbers 65494 & 65495

**PART NUMBER 65494**

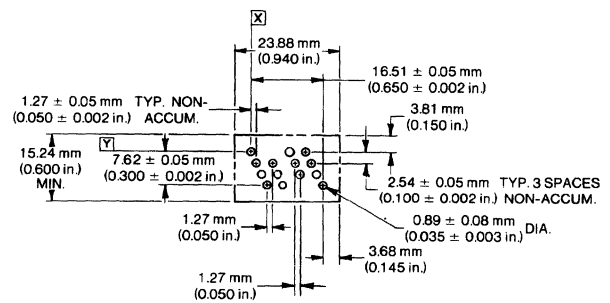


**16, 20, 24, 40, 44, 56, 60 AND 64 POS.**  
**(20 POS. SHOWN)**

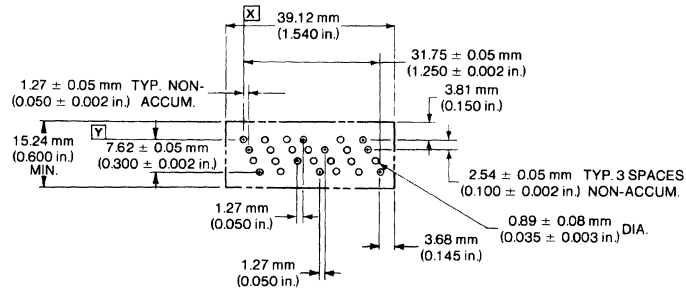
**PART NUMBER 65495**



**10 POS.**

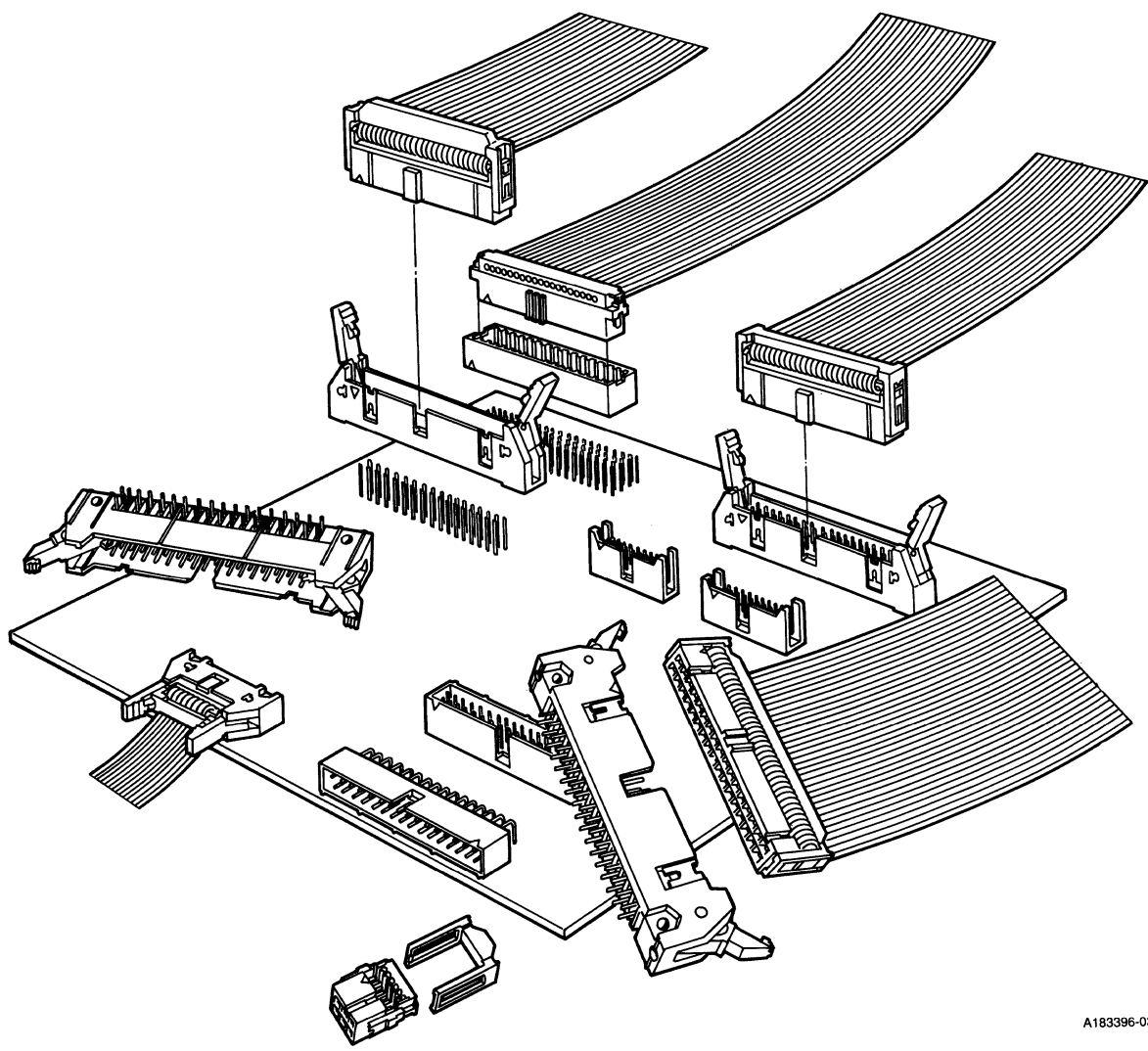


**14 AND 30 POS.**  
**(14 POS. SHOWN)**



**26, 34 AND 50 POS.**  
**(26 POS. SHOWN)**

A183396-0257

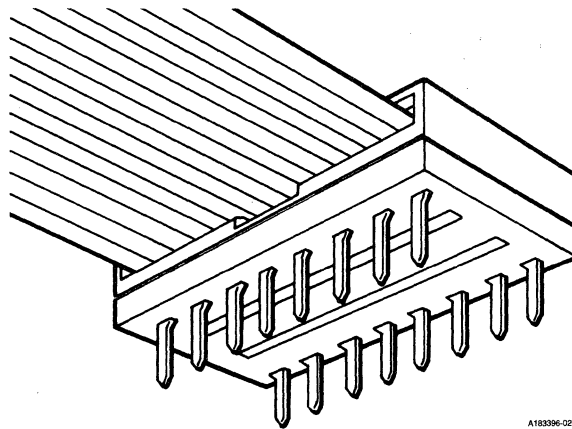


A183396-0317

# Round Conductor, Flat Cable IDC Connectors

2.54 x 7.62 mm (0.100 x 0.300 in.)  
Centerlines

## Quickie™ IDC DIP Connector



A183396-0250

### Features

- 2-row: 14, 16, or 18 positions.
- Accepts 26, 28 AWG (stranded) or 26, 28, 30 AWG (solid) cable.
- Feed-through cover for system wiring and test applications.


### Options


- Gold and tin-plated leads available.
- Double-scalloped cover configuration available upon request.

### Mating Data

Mates with standard I. C. sockets or I. C. socket pc board footprint.

### Approvals and Certifications

 File no. E66906

 File no. LR46923

### Application Equipment

Description	Page
▪ Hand-operated cable cutter HT-209A .....	23-65
▪ Hand-operated bench press QP-104 .....	23-64
▪ Semi-automatic bench assembly machine QP-106 .....	23-64
▪ Semi-automatic press QP-112 ..	23-64

### Technical Data

#### Materials

- Housing material ..... Glass-filled thermoplastic polyester (UL 94 V-0)
  - ▶ Color ..... Blue
  - ▶ Applicable soldering processes..... Wave
- Contact body material ..... Phosphor-bronze

#### Plating

- Underplate ..... 1.27 μm (50 μin.) min nickel
- Finish ..... Gold flash or 4 μm (160 μin.) min tin-lead

#### Electrical Performance

- Insulation resistance..... 5 x 10<sup>4</sup> MΩ min
- Resistance ..... 15 mΩ max
- Withstanding voltage ..... >1000 V ac rms (sea level)
- Current rating ..... 1 amp continuous

#### Mechanical Performance

- Insertion force per contact..... Mechanical
- Normal force per contact..... performance
- Withdrawal force per contact ..... data
- Contact retention force..... not
- Durability (mating cycles) ..... applicable

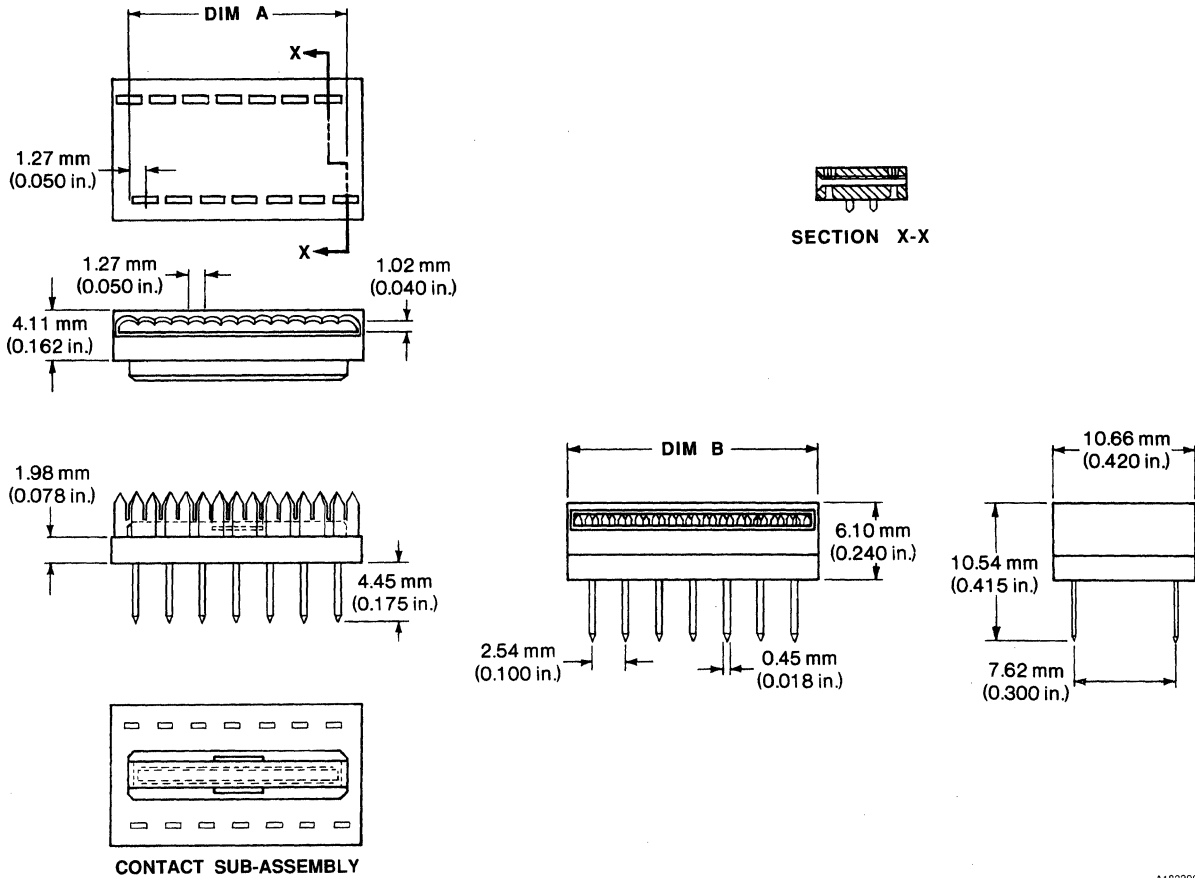
#### Operating Environment

- Temperature range ..... -65°C to +105°C
- Packaging
- Antistatic tubes

### Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawings.....	By Part No.	Product Sample.....	Upon Request

**Description**  
**Quickie™ DIP Connector**



A183396-0261

**Cable specifications**  
**Wire size:** Stranded-AWG 26,28  
 Solid-AWG 26,28,30  
**Insulation material:** any current type  
 0.86 ± 0.10 mm (0.034 ± 0.004) diameter  
**Pitch:** 1.27 ± 0.08 mm (0.050 ± 0.003)  
 non-accumulated

**Ordering Data**  
**Base Number 65493**

Base number  Dash number specifies finish and total positions

□ □ □ □ - 0 X X

Number of Positions	Dash Numbers		Dimensions			
	Finish		A		B	
	Gold	Tin-lead	mm	in.	mm	in.
2 x 7	-002	-006	16.15	0.650	19.05	0.750
2 x 8	-004	-008	19.05	0.750	21.59	0.850
2 x 9	-022	-024	21.59	0.850	24.13	0.950

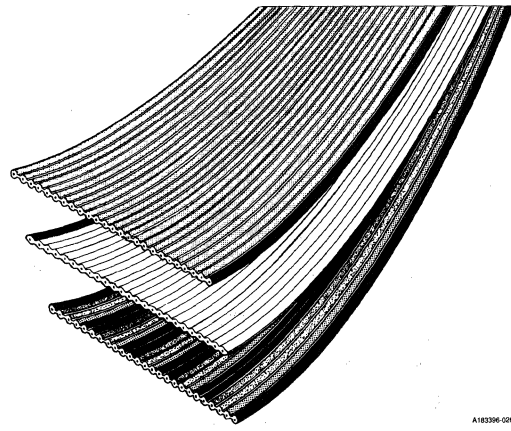
Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.



# Round Conductor, Flat Cable

1.27 0.08 mm (0.050 0.003 in.) pitch

## Quickie™ IDC Round Conductor, Flat Cable



A18336-005


### Features


- 9 through 64 positions.
- PVC insulation.
- Fully compatible with the Quickie™ connector family.
- Conductor pitch 1.27 mm (0.050 in.).
- UL and CSA recognized.
- Cables are available in Gray or Blue with an identification stripe to indicate the first position (UL listed--style 2651) or with sequentially colored conductors (UL listed--style 2884).

### Options

- Optional reel quantities available upon request.

### Approvals and Certifications

 File no. E66906

 File no. LR46923

### Application Equipment

Description	Page
▪ Hand-operated cable cutter HT-209A	23-65
▪ Hand-operated bench press QP-104	23-64
▪ Semi-automatic bench assembly machine QP-106	23-64

### Technical Data

#### Materials

- Conductor material ..... Soft annealed copper  
Tin finish
  - ▶ Type ..... 28 AWG (Stranded) (7 strand, 36 AWG);  
28 AWG (Solid); 30 AWG (Solid)
  - ▶ Color ..... Blue, Gray or color-coded
  - ▶ Insulation material ..... Polyvinyl chloride,  
UL-rated VW-1

#### Electrical Performance

- Insulation resistance .....  $>10^4$  M $\Omega$ /3m (10 ft.)
- Dielectric withstanding voltage .....  $>1000$  V ac rms  
(sea level)
- Voltage rating ..... 300 V rms
- Impedance ..... 105  $\Omega$  stranded, 125  $\Omega$  solid
- Capacitance ..... 46 pF/m stranded, 43 pF/m solid

#### Operating Environment

- Temperature range ..... -65°C to +105°C

#### Packaging

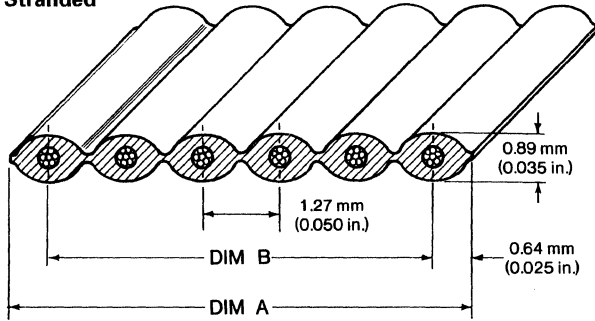
- Reels of 30.5 M or 100 feet.

### Customer Support Materials

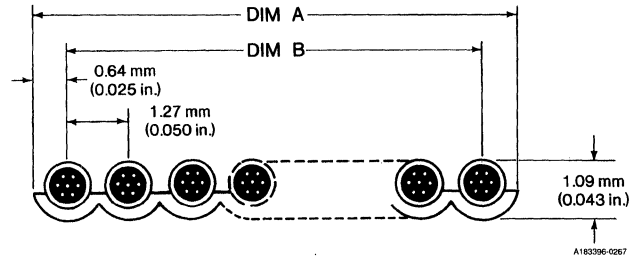
Description	Order No.	Description	Order No.
Customer Product Drawings	By Part No.	Product Sample	Upon Request
Product Specifications	BUS-12-001	Application Drawings	By Number

### Description

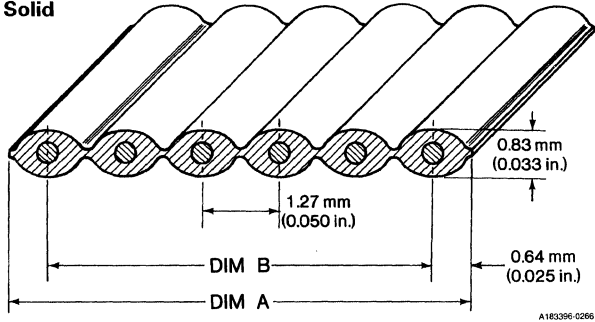
#### Stranded



#### Color-coded



#### Solid



**Solid Color Cables (N = number of conductors)**  
(Y = N-1)

**Color-coded Cables (N = number of conductors)**  
(Y = N-1)

**N less than 16**

A max. . . . . = [1.27 x N] + 0.25 mm ([0.050 x N] + 0.010 in.)  
B . . . . . = [1.27 x Y] + 0.18 mm ([0.050 x Y] + 0.007 in.)

**N less than 16**

A max. . . . . = [1.27 x N] + 0.25 mm ([0.050 x N] + 0.010 in.)  
B . . . . . = [1.27 x Y] + 0.18 mm ([0.050 x Y] + 0.007 in.)

**N 16 through 39**

A max. . . . . = [1.27 x N] + 0.38 mm ([0.050 x N] + 0.015 in.)  
B . . . . . = [1.27 x Y] + 0.23 mm ([0.050 x Y] + 0.009 in.)

**N 16 through N 26**

A max. . . . . = [1.27 x N] + 0.38 mm ([0.050 x N] + 0.015 in.)  
B . . . . . = [1.27 x Y] + 0.28 mm ([0.050 x Y] + 0.011 in.)

**N greater than 39**

A max. . . . . = [1.27 x N] + 0.38 mm ([0.050 x N] + 0.015 in.)  
B . . . . . = [1.27 x Y] + 0.28 mm ([0.050 x Y] + 0.011 in.)

**N 27 through N 50**

A max. . . . . = [1.27 x N] + 0.51 mm ([0.050 x N] + 0.020 in.)  
B . . . . . = [1.27 x Y] + 0.38 mm ([0.050 x Y] + 0.015 in.)

**N greater than 50**

A max. . . . . = [1.27 x N] + 0.51 mm ([0.050 x N] + 0.020 in.)  
B . . . . . = [1.27 x Y] + 0.46 mm ([0.050 x Y] + 0.018 in.)

### Ordering Data

Base number \_\_\_\_\_ Specifies number of positions \_\_\_\_\_



76164-0XX: 28 AWG -- blue stranded  
76825-0XX: 28 AWG -- gray stranded

76177-0XX: 28 AWG -- color-coded stranded

77060-0XX: 28 AWG -- blue solid  
76167-0XX: 30 AWG -- blue solid

Number of Positions	Dash Number	Number of Positions	Dash Number	Number of Positions	Dash Number
9	-009	24	-024	40	-040
10	-010	25	-025	44	-044
14	-014	26	-026	50	-050
15	-015	30	-030	60	-060
16	-016	34	-034	64	-064
20	-020	37	-037		

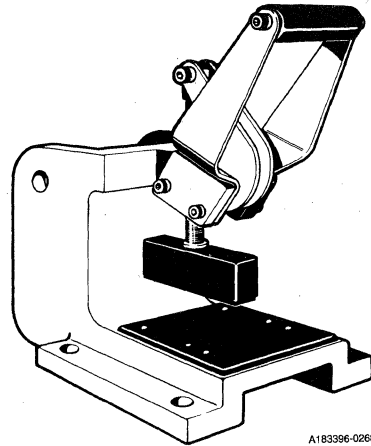
Ordering data shown is for our standard product offering. For non-standard or custom products, contact your authorized Berg Electronics representative.

# Application Equipment for Quickie™ Connectors

## QP-104 Hand Press

### Features

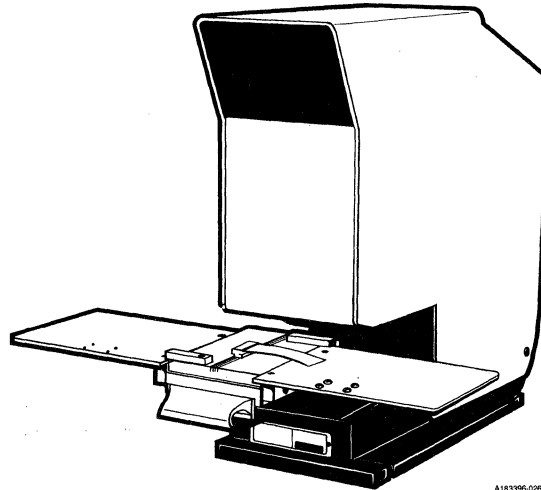
- For mass-termination of all Quickie™ connectors for specified stranded and solid round conductor flat cable.
- Simple to operate.
- Low operating force.
- Adjustable to different pc board thicknesses.
- Virtually maintenance-free.
- Can be bench-mounted or easily moved from job to job.
- Tooling for 2 mm IDC available.



## QP-106 Semi-Automatic Press

### Features

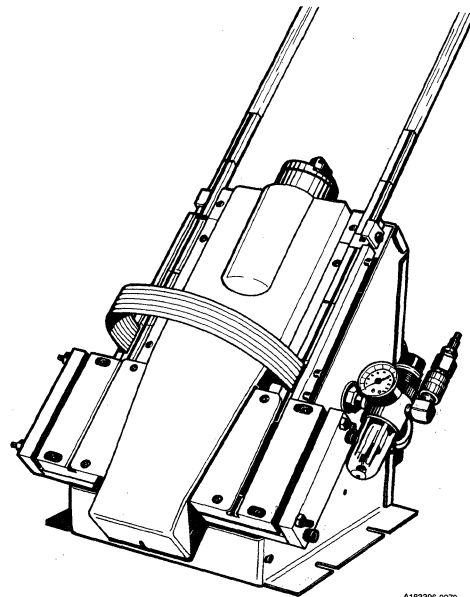
- For mass-termination of all Quickie™ connectors for specified stranded and solid round conductor flat cable.
- Simple to operate.
- Pneumatically operated.
- Virtually maintenance-free, does not require lubrication.
- Tooling for 2 mm IDC available.



## QP-112 Semi-Automatic Press

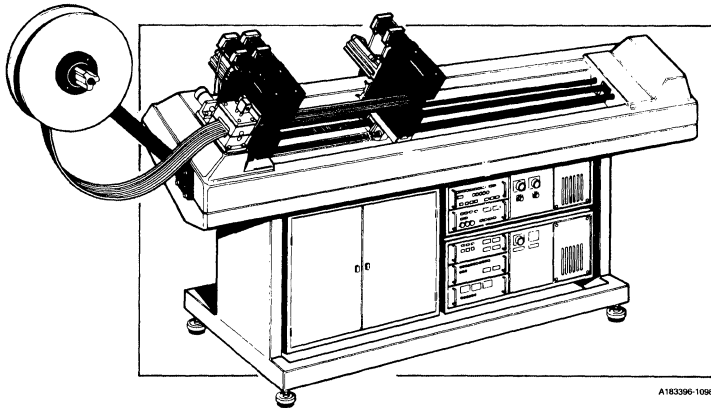
### Features

- For mass-termination of Quickie™ Receptacle, Edge Card\*, "D" Subminiature, DIP, and PCB\* connectors.
- Dual-head design permits simultaneous termination of any two connectors.
- Connectors are cartridge-fed from tubes. This ensures proper orientation of the connector assembly on both ends of the cable.
- Terminates 10- through 60-position connectors without making any machine adjustments.
- Quiet pneumatic power minimizes operator fatigue.
- Tooling setups, see next-to-last Application Equipment page.



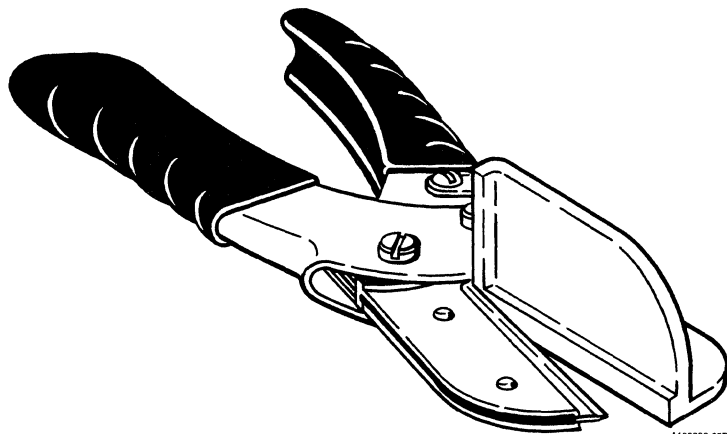
\*Require special product numbers not listed in catalog. Please contact your Berg Electronics sales representative.

## QP-113 Fully-Automatic Assembly Machine



### Features

- Fully automatic termination of flat ribbon cable with up to 4 IDC connectors simultaneously.
- Designed for QUICKIE III, Edge Card III, and DIL/PCB connectors.
- Manual, semi- and fully automatic backloading of connectors.
- Automatic cable de-reeling, feeding, and cutting-to-length.
- Fast, easy tooling changeover for different product types.
- Pneumatically operated.
- Freely programmable PLC control (Festo).
- High quality assured by integrated continuity test (insulation test optional).

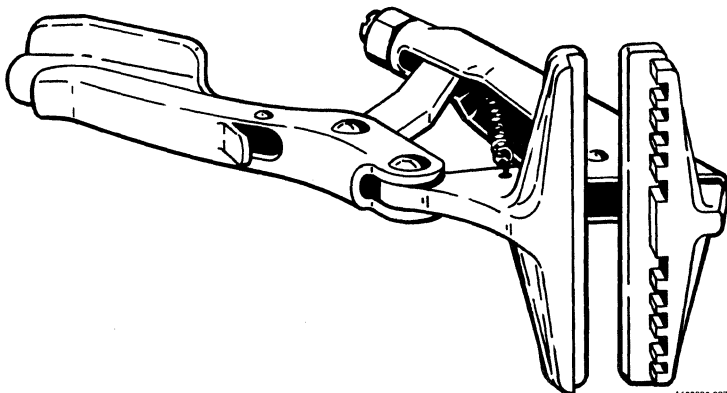


## HT-209A Cable Shear

### Features

- Cuts perpendicularly all flat cable up to 50 conductors on 1.27 mm (0.050 in. centers).
- Lightweight and easy to operate.
- Low operating force.
- Rugged.
- Ideal for maintenance and small-scale production.

23



## HT-210A

### Features

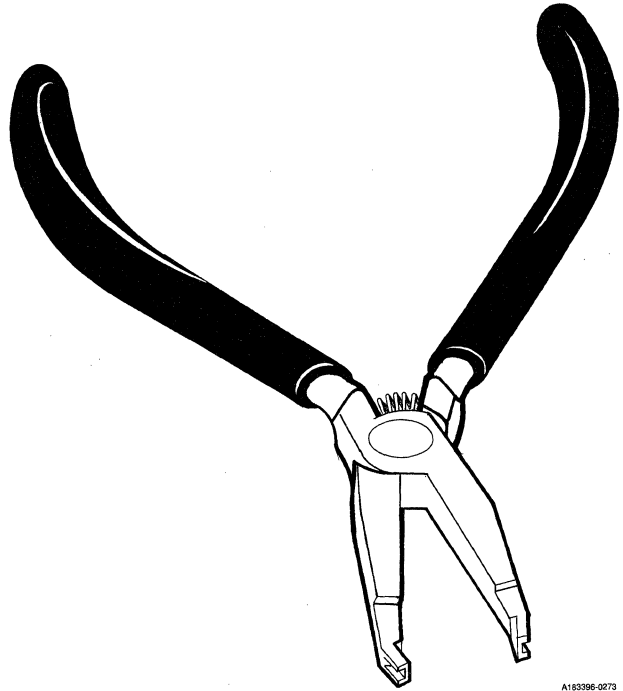
- Suitable for terminating all Quickie Receptacle connectors up to 50 positions, Receptacle IC connectors, Quickie Receptacle DIP, and PCB connectors.
- Lightweight and easy to operate.
- Low operating force.
- Rugged.
- Ideal for maintenance and small-scale production.

## HT-115 Quickie Header Polarizing Tool

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### Features

- Lightweight and easy to operate.
- Low operating force.
- Rugged.
- Ideal for maintenance and small-scale production.

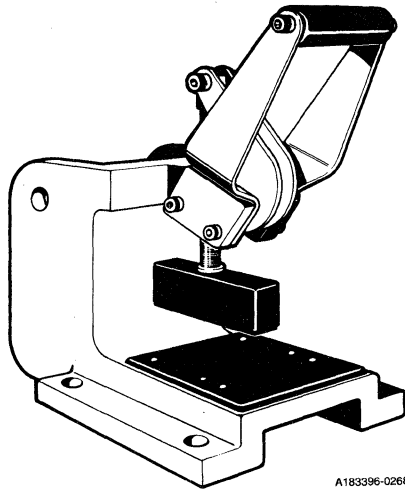


A18396-0273

## Ordering Data

Machines (for strip-form terminals)		Identification Number	
QP-104 Hand Press (machine only)		107484-002	
QP-106 Pneumatic Press (machine only)		117545-001	
QP-104 and QP-106 Optional Fixtures		QP-104	QP-106
QP-104 Cable Shear		119218-002	---
QP-104 Set-up Gauge		116098-002	---
QP-106 Cable Shear Assembly (includes cable shear which can be ordered separately):		---	117741-001
Cable Shear		---	119218-001
Universal Fixture for all Quickie™ receptacle connectors		114145-005	117596-002
2 mm IDC Receptacles		160561-001	160479-001
Quickie™ DIP Fixture		116096-001	117739-001
PCB Cable Termination Fixture:			
Before soldering to board		116096-001	117739-001
After soldering to board		116097-002	117743-001
QP-112 Pneumatic Press (machine only) Up to 2 x 25		140838-500	
Cable length requirements:			
45 mm (1.77 in.) minimum for separate termination			
230 mm (9.06 in.) minimum for simultaneous termination			
QP-112 Tooling Combinations			
Left-Side Tooling	Right-Side Tooling		
Quickie II	Quickie II	140838-001	
Quickie II	DIP or PCB *	140838-007	
Quickie III	Quickie III	140838-017	
Quickie III	Edge Card III	162473-002	
Edge Card III	Edge Card III	162473-001	
Edge Card III	Quickie III	162473-003	
DIP or PCB*	DIP or PCB*	140838-004	
DIP or PCB*	Quickie II	140838-014	
Hand Tools: HT-209A		HT-209A	
HT-210A		HT-210A	
*Special part numbers not listed in the catalog are required to use Edge Card I and PCB product with this tooling. Please contact your Berg Electronics sales representative.			

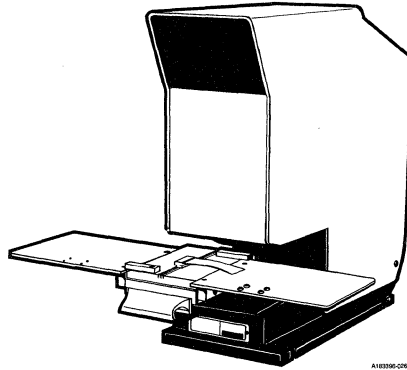
## Application Machines Features



A183396-0268

### QP-104 Hand Press

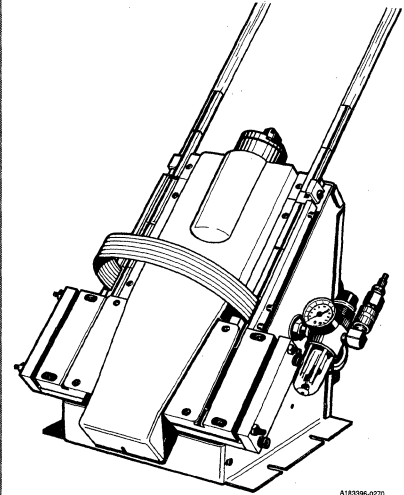
- Operator fatigue reduced, and production increased by the over-center handle design.
- Virtually maintenance-free.
- Eliminates misassembly of cover to base with positive stop action.
- Can be bench-mounted or easily moved from job to job.



A183396-0269

### QP-106 Air Press

- Replaces time-consuming two-handed operation with one-handed slide-motion which automatically completes termination.
- Precise positioning in applicator by connector and cable clamp.
- Precise crimp height determined by stop block on the fixtures. No ram adjustment needed.
- Consistent termination of all sizes achieved through cylindrical pad which assures even pressure distribution.



A183396-0270

### QP-112 Air Press

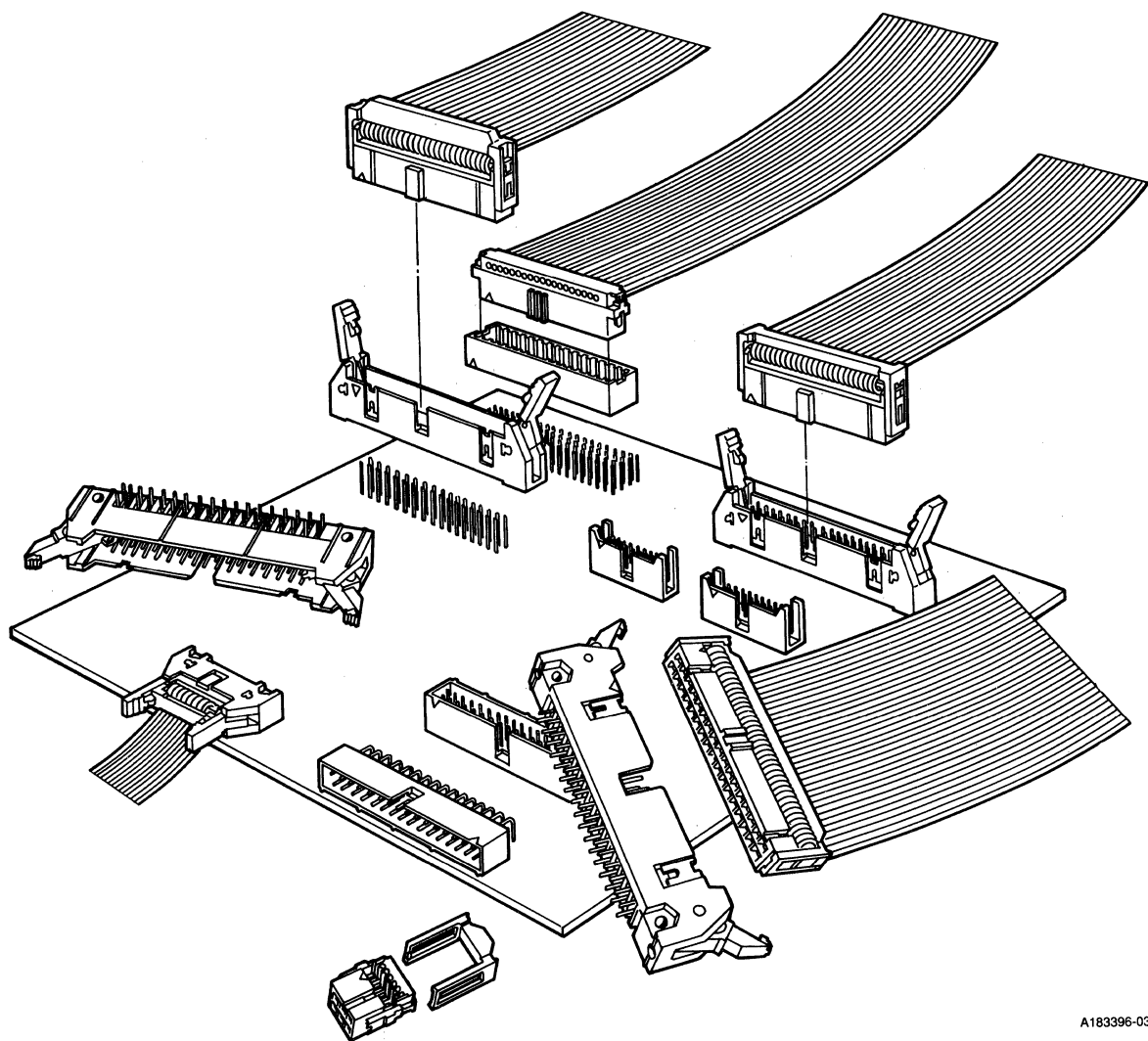
- Dual-head design permits simultaneous termination of two connectors.
- Connectors are cartridge-fed from tubes ensuring proper orientation of the connector assembly on both ends of the cable.
- Terminates any size connector without making machine adjustments.
- Quiet pneumatic power minimizes operator fatigue.

## Technical Data

	QP-104	QP-106	QP-112
Application Rate (Crimps/hour)	360*	360*	500*
Air Consumption	N/A	12.6-l/min. (6 scfm)	6-l/min. (0.2 scfm)
Air Pressure	N/A	552 kPa (80 psi)	620 kPa (90 psi)
Weight	3.6 kg (8 lb.)	9 kg (45 lb.)	27 kg (60 lb.)
Dimensions (HxWxD)	33 x 15 x 30 cm (13 x 6 x 12 in.)	46 x 46 x 58 cm (18 x 18 x 23 in.)	76 x 38 x 71 cm (30 x 15 x 28 in.)

\* Application rates are approximate. Actual rates are dependent upon operator dexterity.

\*\*Minimum cable length required for termination: 45 mm (1.77 in.), separate; 230 mm (9.06 in.), simultaneous.

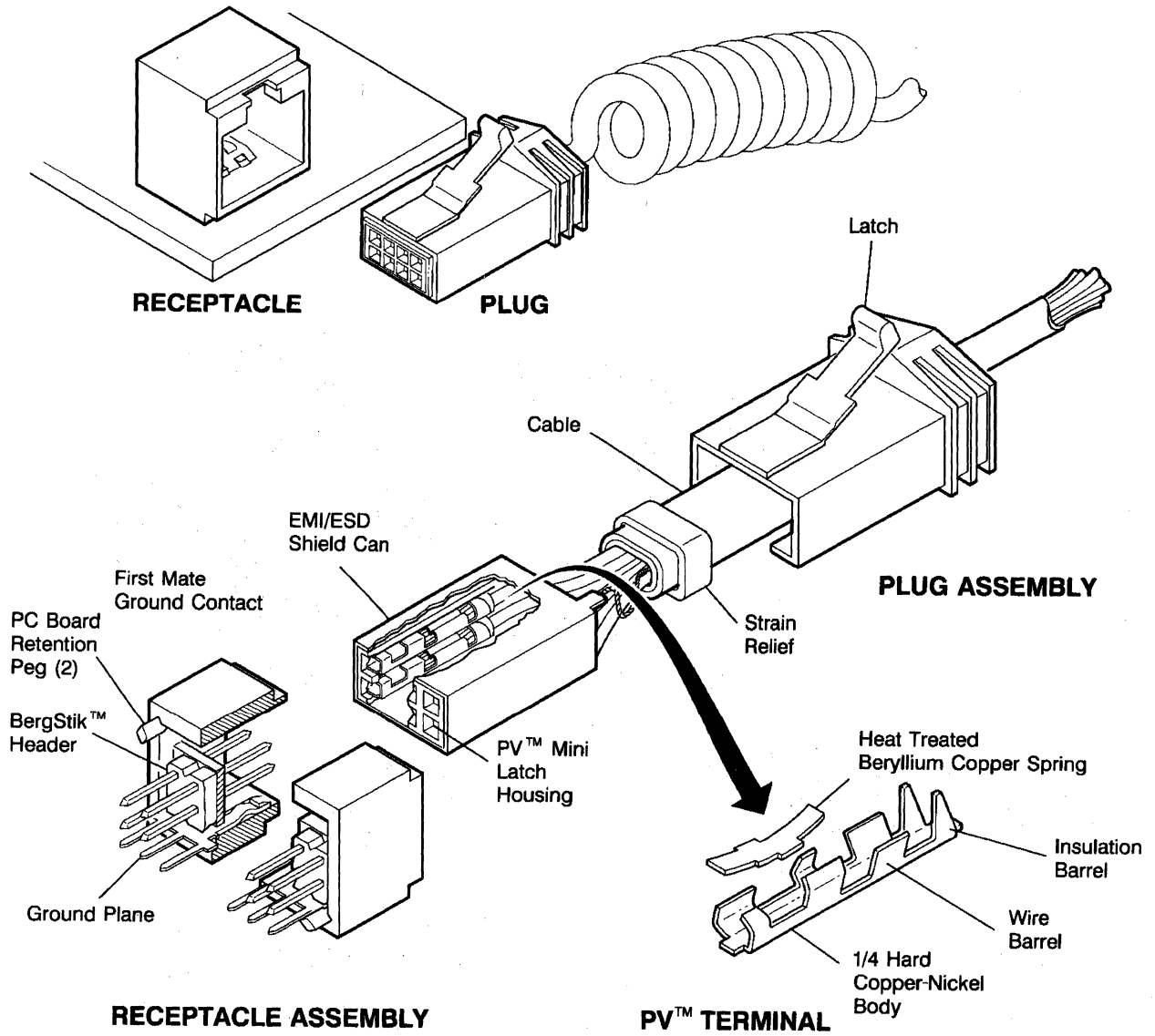


A183396-0317



# Latch-N-Lok™

## Connector System



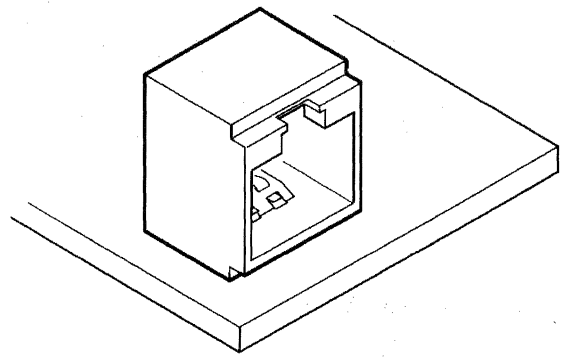
## Connector System

### Table of Contents

Receptacles .....	25-2
Connector Kits .....	25-6

# Latch-N-Lok™ EMI Shielded Modular Interconnections

**Crimp-to-wire 2.54 mm (0.100 in.) Centerline**  
**Connectors, Kits and PCB Headers**



## Features

- Latch-N-Lok™ connectors and cable assemblies provide system designers the best of both worlds; a wide variety of standard products, plus the capability of designing in custom features to meet specific design and cost objectives. This makes Berg Electronics Latch-N-Lok™ system ideally suited for data processing, telecommunications, medical, instrumentation, and other electronic equipment.
- This system utilizes industry standard two-piece crimp-to-wire 0.64 mm (0.025 in.) square PV™ Receptacles and Phosphor-bronze 0.64 mm (0.025 in.) square drawn-wire pins on 2.54 mm (0.100 in.) centerline spacing.
- Assemblies accommodate a wide range of wire requirements in a single cable:
  - ▶ Mixed wire sizes from 20 to 32 AWG
  - ▶ Mixed insulation diameters in a wide variety of materials
  - ▶ Multiple wire terminations within the same terminal
- Plugs and PCB receptacles are available in single and double-row configurations:

PCB Receptacle Configurations	Connector Kits/PCB Receptacle Positions
Single row - right angle	4, 6, 8 & 10
Double row - straight	6, 8, 12, 16 & 20
Double row - right angle	6, 8, 12, 16 & 20
Double row - right angle low profile	6, 8, 12 & 20

- System components have been designed to facilitate customization of cabling: programmable pin-outs, internal bussing and chassis-to-chassis grounding.
- Cable assemblies can be configured to accommodate signal, power, signal/power ground, and EMI/ESD shielding requirements.
- EMI/ESD shielding is available for 360° protection and up to 100% coverage
- Quick disconnect system provides positive latching with audible click. The system has been performance tested for 1,000 mating cycles.
- Unique shape provides automatic keying between plug and receptacle.
- Molded-in standoffs on PCB receptacles allow for easy cleaning of pc boards.
- The product is available in a variety of color schemes. Customized color


schemes can be procured for high volume orders.


- Assembly components can be individually labeled with a logo, part number or other special markings.
- Many optional components are available for greater design flexibility:
  - ▶ 20 position male cable plug and female PCB receptacle
  - ▶ Molded-in latch guard for latch protection
  - ▶ Junction boxes
  - ▶ Terminators
  - ▶ Polarization plugs
  - ▶ Components are UL and CSA approved

## Options

- Call Harbor Electronics, a subsidiary of Berg Electronics for cable assembly requirements.

## Approvals and Certifications

 File no. E66906

 File no. LR46923

## Technical Data

### Plug Materials

- Housing ..... Polycarbonate  
UL 94 V-0
- Insulator ..... Black polyphenylene oxide-based resin  
MIL-P-46129 (MR), UL 94 V-1  
Berg's mini-latch housing
- Contact ..... 1/4-hard, copper-nickel alloy body  
with welded gold dot  
1,000 µin. thick in contact area;  
heat-treated beryllium-copper spring
- Shield ..... 1/2-hard 260 brass,  
100-300 µin. 93/7 tin-lead

### Receptacle Header Materials

- Housing ..... Polycarbonate  
UL 94 V-0
- Insulator ..... 20% minimum glass-filled nylon  
UL 94 V-0
- Contact ..... 3/4-hard phosphor bronze  
0.76 µm (30 µin.) GXT™ Palladium-nickel alloy  
over nickel underplate

- Shield ..... 3/4-hard phosphor bronze  
with 100-300 µin. 93/7 tin-lead

### Mechanical Performance

- Durability ..... 1,000 mating cycles minimum
  - ▶ Strain Relief Plug to Cable .. 15 lb. minimum retention

### Electrical Performance

- Connector
  - ▶ Current rating ..... 3 amperes continuous per contact
- Cable Assembly
  - ▶ Shielding ..... 20 dB minimum from 30 to 500 MHz

### Environmental

- Temperature range ..... -40°C to +85°C

### Packaging

- Headers ..... Trays in boxes
- Kits ..... Bags in bulk

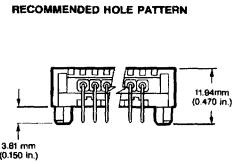
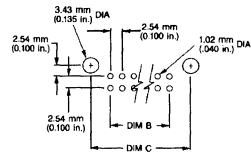
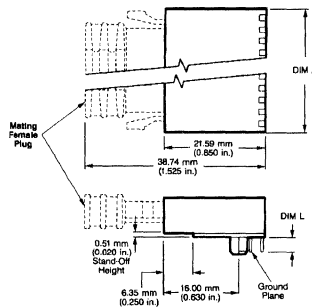
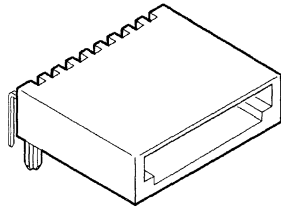
## Customer Support Materials

<b>Description</b>	<b>Order No.</b>
Customer Product Drawings.....	By Part No.
Product Specifications.....	GES-12-003

<b>Description</b>	<b>Order No.</b>
Product Samples.....	By Part No.
Product Bulletin.....	950503-001

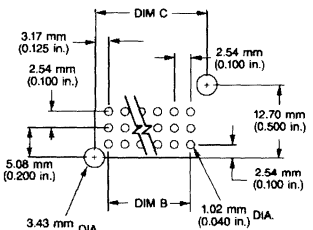
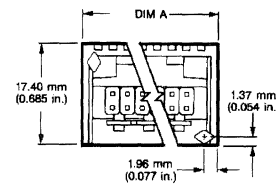
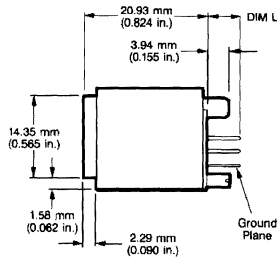
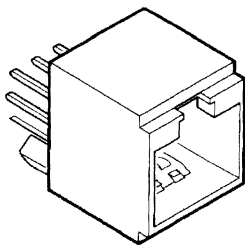
### Single Row, Right Angle, 4, 6, 8 & 10 Positions

See page 25-5 for Ordering Data



### Double Row, Straight, 6, 12, 16 & 20 Positions

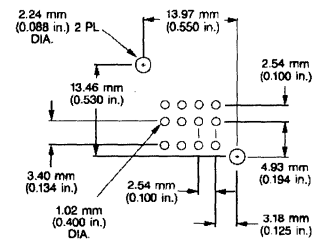
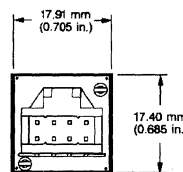
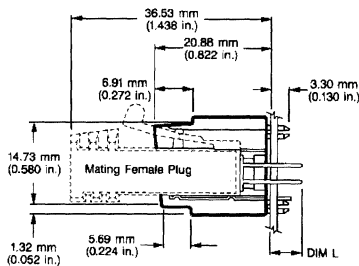
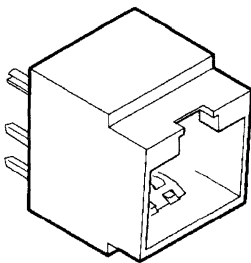
See page 25-5 for Ordering Data



RECOMMENDED HOLE PATTERN

### Double Row, Straight, 8 Position

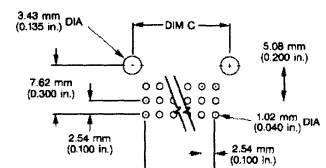
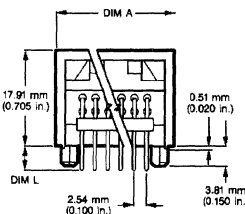
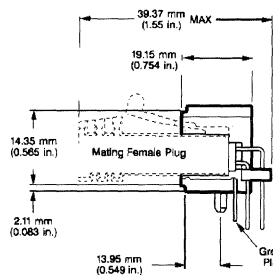
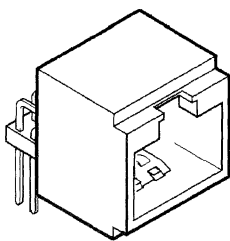
See page 25-5 for Ordering Data



RECOMMENDED HOLE PATTERN

### Double Row, Right Angle, 6, 8, 12, 16 & 20 Positions

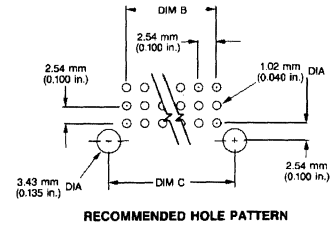
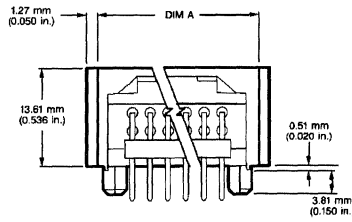
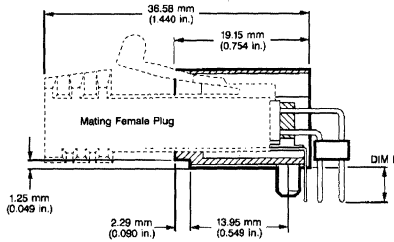
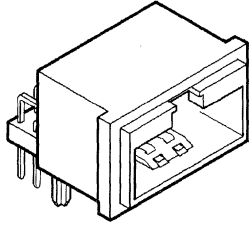
See page 25-5 for Ordering Data



RECOMMENDED HOLE PATTERN

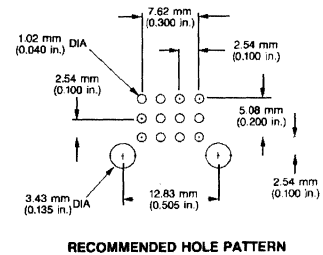
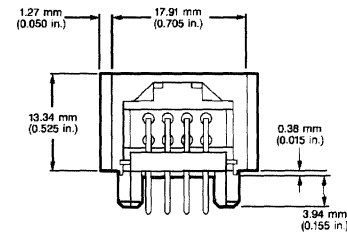
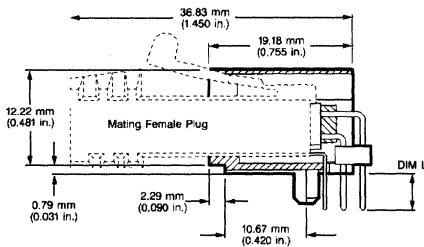
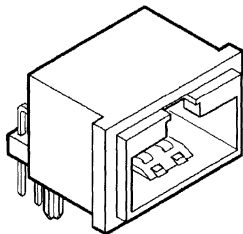
### Low-Profile, Double Row, Right Angle, 6, 12 & 20 Positions

See page 25-6 for Ordering Data



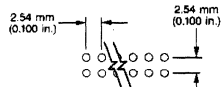
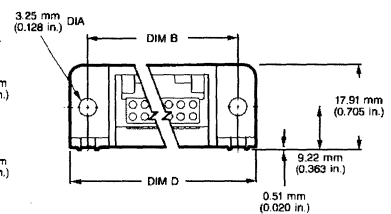
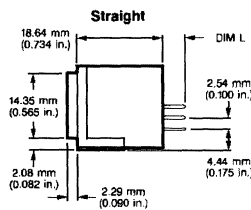
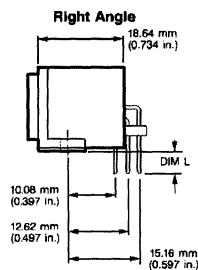
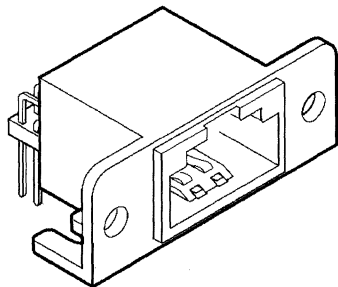
### Low-Profile, Double Row, Right Angle, 8 Position

See page 25-6 for Ordering Data

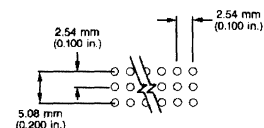
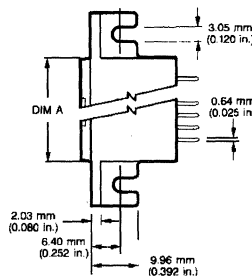


### Panel Mount, Double Row, Straight and Right Angle, 6, 8, 12, 16 & 20 Positions

See page 25-6 for Ordering Data

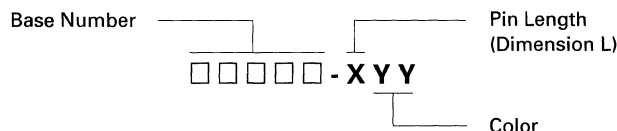


**RECOMMENDED HOLE PATTERN**  
Panel Ground



**RECOMMENDED HOLE PATTERN**  
Standard Ground

## Ordering Data



### Pin Length Key (Dimension L)

Dash Number	Double Row				Single Row	
	Straight		Right Angle		Right Angle	
	mm	in.	mm	in.	mm	in.
0YY	3.30	0.130	5.08	0.200	3.81	0.150
1YY	5.84	0.230	3.30	0.130	2.79	0.110
2YY	8.08	0.318	n/a	n/a	n/a	n/a

### Color Legend

Dash Number	Color
-X01	Light Gray
-X02	Off White
-X03	Dark Gray
-X04	Black
-X05	Slate Gray
-X07	Silver Gray

### Single Row - Right Angle (4, 6, 8 and 10 Positions)

Number of Positions	Part Number	Dash Number X (Dim L)	Dash Number YY	Dimensions					
				A		B		C	
				mm	in.	mm	in.	mm	in.
4	69273-XY	See Pin Length Key	See Color Legend	21.08	0.830	7.62	0.300	16.00	0.630
6	78304-XY			26.16	1.030	12.70	0.500	21.08	0.830
8	69913-XY			31.24	1.230	17.78	0.700	26.16	1.030
10	78305-XY			36.32	1.430	22.86	0.900	31.24	1.230

### Double Row - Straight (6, 8, 12, 16 and 20 Positions)

Number of Positions	Part Number	Dash Number X (Dim L)	Dash Number YY	Dimensions					
				A		B		C	
				mm	in.	mm	in.	mm	in.
6	78065-XY	See Pin Length Key	See Color Legend	15.37	0.605	5.08	0.200	11.56	0.455
12	69694-XY			22.99	0.905	12.70	0.500	19.18	0.755
16	69904-XY			28.07	1.105	17.78	0.700	24.13	0.950
20	69905-XY			33.15	1.305	22.86	0.900	29.21	1.150
8	68290-XY			Pin lengths dimensions and color specifications available upon request					

### Double Row - Right Angle (6, 8, 12, 16 and 20 Positions)

Number of Positions	Part Number	Dash Number X (Dim L)	Dash Number YY	Dimensions					
				A		B		C	
				mm	in.	mm	in.	mm	in.
6	78066-XY	See Pin Length Key	See Color Legend	15.37	0.605	5.08	0.200	10.16	0.400
8	87316-XY			17.90	0.705	7.62	0.300	12.83	0.505
12	69693-XY			22.99	0.905	12.70	0.500	17.78	0.700
16	69901-XY			28.07	1.105	17.78	0.700	22.86	0.900
20	69903-XY			33.15	1.305	22.86	0.900	27.94	1.100

### Low Profile - Double Row - Right Angle (6, 8, 12 and 20 Positions)

Number of Positions	Part Number	Dash Number X (Dim L)	Dash Number YY	Dimensions					
				A		B		C	
				mm	in.	mm	in.	mm	in.
6	78097-XY	See Pin Length Key	See Color Legend	15.37	0.605	5.08	0.200	10.16	0.400
8	69958-XY			17.90	0.705	7.62	0.300	12.83	0.505
12	78098-XY			22.99	0.905	12.70	0.500	17.78	0.700
20	79610-XY			33.15	1.305	22.86	0.900	27.94	1.100

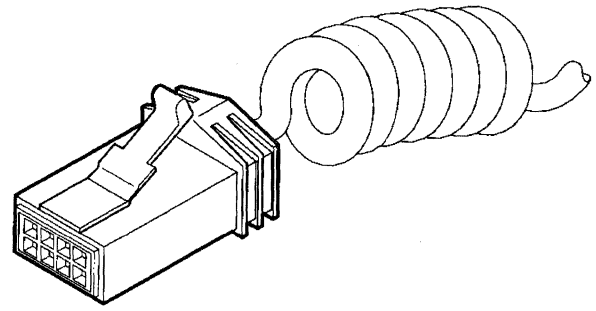
### Panel Mount - Double Row - Straight and Right Angle (6, 8, 12, 16 and 20 Positions)

Number of Positions	Straight		Right Angle		Dash Number X (Dim L)	Dash Number YY	Dimensions					
	Standard Ground	Panel Ground	Standard Ground	Panel Ground			A		B		C	
							mm	in.	mm	in.	mm	in.
6	78067	78084	78068	78085	See Pin Length Key	See Color Legend	15.37	0.605	24.13	0.950	31.24	1.230
8	78064	78086	78087	78088			17.91	0.705	26.67	1.050	33.78	1.330
12	69983	78089	78090	78076			22.99	0.905	31.75	1.250	38.86	1.530
16	69902	78091	78092	78093			28.07	1.105	36.83	1.450	43.94	1.730
20	69906	78094	78095	78096			33.15	1.305	41.91	1.650	49.02	1.930

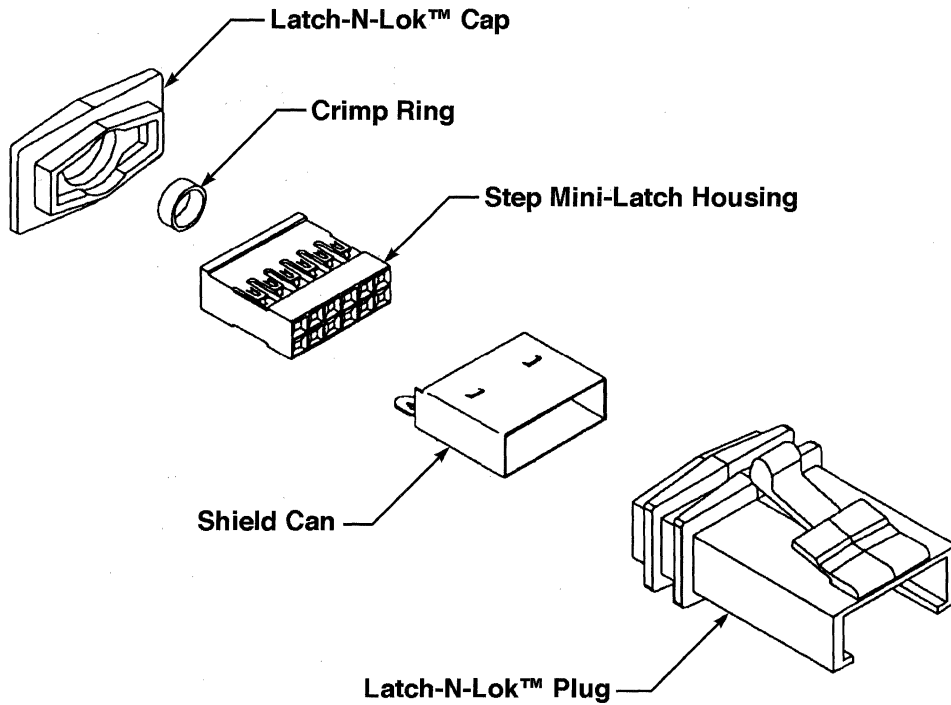
25

# Latch-N-Lok

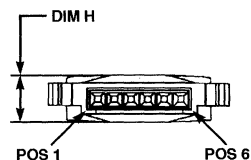
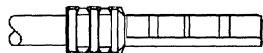
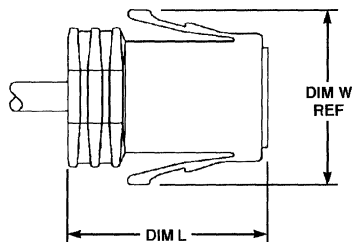
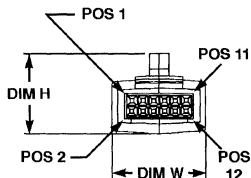
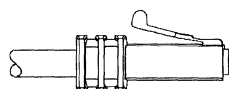
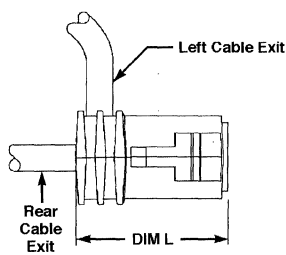
## Connector Kit



- Available in single and double row
- Kits have five components as shown below
- Plugs, caps, Mini-Latch housing, and shield cans are all UL recognized and CSA approved.
- PV crimp-to-wire receptacles must be ordered separately.



**Description**



**Double Row Plug Assembly**

Available in right, left or rear exit versions

**Single Row Plug Assembly**

Available in rear exit version only

Available Sizes	Dimension H		Dimension L		Dimension W	
	mm	in.	mm	in.	mm	in.
1 x 4	7.62	0.300	36.50	1.437	n/a	n/a
1 x 6	7.62	0.300	36.50	1.437	n/a	n/a
1 x 8	7.62	0.300	36.50	1.437	n/a	n/a
1 x 10	7.62	0.300	36.50	1.437	n/a	n/a
2 x 3	17.91	0.705	32.18	1.267	14.22	0.560
2 x 4	17.91	0.705	32.18	1.267	16.76	0.660
2 x 6	18.67	0.735	34.67	1.365	21.84	0.860
2 x 8	18.67	0.735	34.67	1.365	26.92	1.060
2 x 10	18.67	0.735	34.67	1.365	32.00	1.260

**Ordering Data**

**Example**

91486-541 - is a 2 x 4 rear exit plug in black with a cable exit hole size of 5.59 mm (0.220 in.) diameter (4.83 mm (0.190 in.) to 5.46 mm (0.215 in.) cable range).

V	Wire Size
6	Latch Guard (PV™ receptacle not included)
8	PV™ receptacles not included

W	Size Configuration
1	1 x 4
2	1 x 6
3	1 x 8
4	1 x 10
5	2 x 3
6	2 x 4
7	2 x 6
8	2 x 8
9	2 x 10

9 1 4 V W - X Y Z

Z	Cable Exit Style
0	No Exit
1	Rear Exit
2	Right Exit
3	Left Exit

Y	Color Plug and Cap
1	Light Gray
2	Off-White
3	Dark Gray
4	Black
5	Slate Gray
7	Silver Gray

X	Sizes 2x3 and 2x4 Cable O.D.						Sizes 2x6, 2x8 and 2x10 Cable O.D.						Sizes 1x4, 1x6, 1x8, 1x10 Cable O.D.					
	mm	in.	to	mm	in.	to	mm	in.	to	mm	in.	to	mm	in.	to	mm	in.	
0	1.02	0.040	to	1.65	0.065	to	3.68	0.145	to	4.19	0.165	to	1.14	0.045	to	1.91	0.075	
1	1.78	0.070	to	2.41	0.095	to	4.32	0.170	to	4.95	0.195	to	2.03	0.080	to	2.41	0.095	
2	2.54	0.100	to	3.18	0.125	to	5.08	0.200	to	5.72	0.225	to	2.54	0.100	to	2.92	0.115	
3	3.30	0.130	to	3.94	0.155	to	5.84	0.230	to	6.48	0.255	to	3.05	0.120	to	3.43	0.135	
4	4.06	0.160	to	4.70	0.185	to	6.60	0.260	to	7.24	0.285	to	3.56	0.140	to	3.94	0.155	
5	4.83	0.190	to	5.46	0.215	to	7.37	0.290	to	8.00	0.315	to	4.06	0.160	to	4.45	0.175	
6	5.59	0.220	to	6.22	0.245	N/A						4.57	0.180	to	4.95	0.195		
7	6.35	0.250	to	6.99	0.275	N/A						N/A						
8	No Exit Hole						No Exit Hole						N/A					



## Major Features and Benefits

---

### Leaded Jacks

- Manufactured by Berg since early 1970's
- Drawn wire contacts
- GXT™ plating
- UL and CSA approved
- Multiple styles
- Worldwide supplier
- FCC compliant - Part 68, subpart F

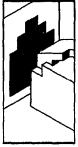
### PCB Jacks

- Drawn wire contacts
- GXT™ plating
- UL and CSA approved
- Multiple size and configurations
- Customized designs available
- Available with snap and/or diamond shaped mounting pegs
- Special packaging for robotic assembly available
- Worldwide supplier
- FCC compliant - Part 68, subpart F

### Gang Jacks

- Drawn wire contacts
- GXT™ plating
- UL and CSA approval pending
- FCC compliant - Part 68, subpart F
- 1 through 12 ports available
- Available with snap and/or diamond shaped mounting pegs
- Customized designs available
- Worldwide supplier

# Modular Jack Connectors



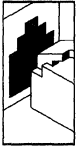
## Networking Interconnection Systems

PCB Gang Jacks .....	27-2
PCB Filtered Jacks .....	27-4
PCB Category 5 Jacks.....	27-6



## Leaded Modular Jacks

Leaded Modular Jacks .....	27-14
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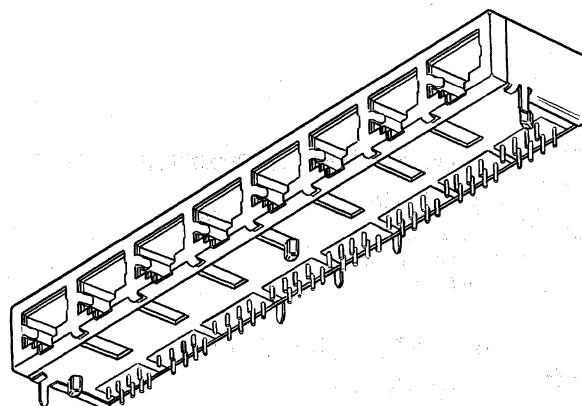
## PCB Modular Jacks

PCB Modular Jacks.....	27-8
------------------------	------

# Networking Interconnection Systems

2.54 x 2.54 mm (0.100 x 0.100 in.)  
Centerlines (Staggered)

## PCB Gang Jack



### Features

- Available in shielded and unshielded versions.
- Components are designed and packaged for robotic placement, ensuring true positioning of the legs and contact wires.
- Through-mount, solder-to-board configuration.
- Available in 1 through 12 ports.
- GXT™ (palladium-nickel alloy with gold flash), a Berg Electronics gold equivalent plating, ensures high cycle life and excellent solderability.
- Selective loading is available.

- Press-fit peg design eliminates hot and cold staking.
- Meets industry standard jack-to-board footprint.

### Options

- Contact wire plating is also available in 0.76 μm (30 μin.) or 1.27 μm (50 μin.) gold.
- Custom configuration available on request.


### Mating Data


Mates with modular plugs conforming to FCC part 68, subpart F.

### Specifications

FCC part 68, subpart F UL Standard 1863

### Approvals and Certifications

 File no. E82037

 File no. LR46923

### Technical Data

#### Materials

- Housing
  - Material ..... Thermoplastic resin (UL 94 V-0)
  - Color ..... Black
- Contact spring..... Phosphor-bronze (alloy 510 per ASTM B-159), 0.46 mm (0.018 in.) diameter
- Shield..... Copper Alloy with bright tin finish

#### Plating

- Contact spring
  - Finish ..... 0.76 μm (30 μin.) GXT™ or 0.76 μm (30 μin.) gold or 1.27 μm (50 μin.) gold

#### Electrical Performance

- Insulation resistance..... 500 MΩ min
- Withstanding voltage ..... 1000 volts rms, 60 Hz
- Current rating ..... 2.0 amp dc
- Contact resistance..... 20 mΩ max

#### Mechanical Performance

- Maximum total mating force
  - 8-wire lead ..... 20.0 N (4.5 lbf)
- Retention force ..... 22.5 N (5 lbf) min between jack and plug
- Durability (mating cycles)..... 500

#### Packaging

- Tubes

### Customer Support Materials

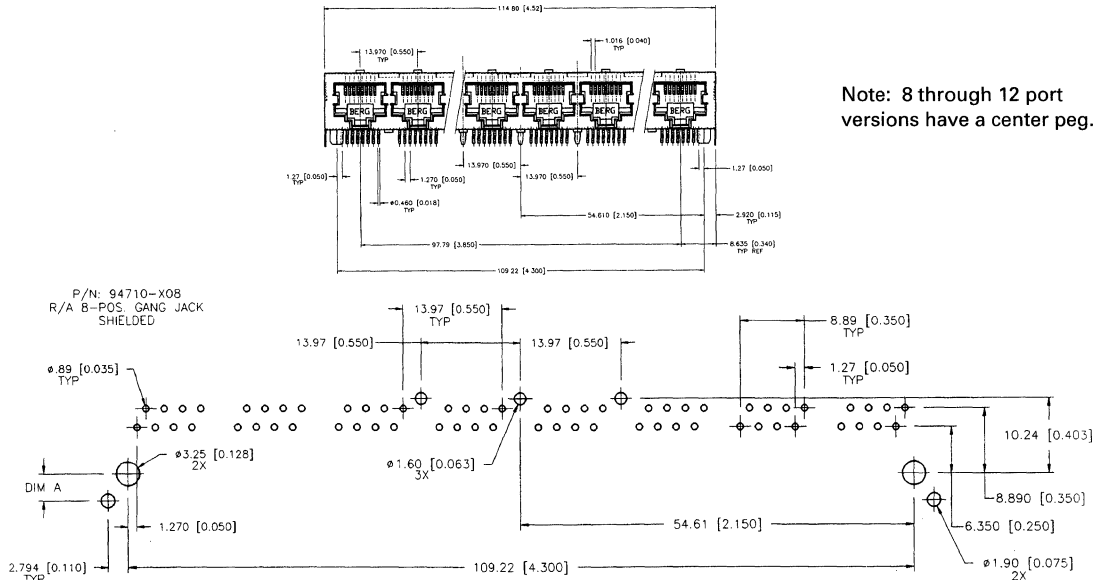
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Customer Product Drawings.....	By Part No.	Product Samples.....	Upon request
Product Specifications.....	BUS 12-018 & BUS 12-068		

### Description

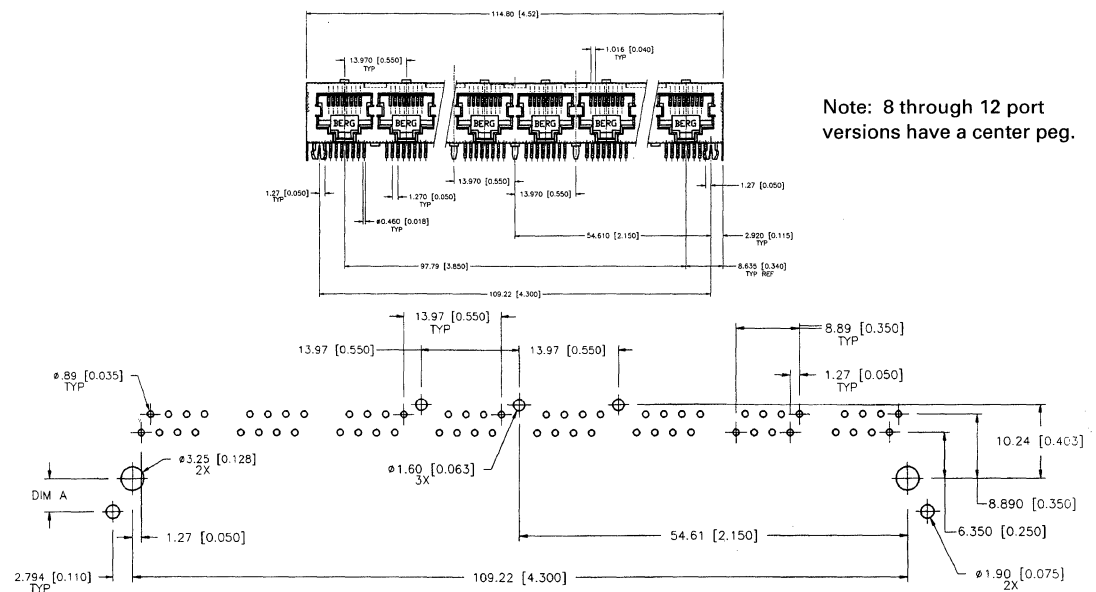
### Horizontal Shielded and Unshielded PCB Gang Jacks

8 Port, 8 Position Shown

### 8 Port Shielded, Diamond Peg Version



### 8 Port Shielded, Snap Peg Version



### Ordering Data

□ □ □ □ - X Y Z M

This digit specifies plating

These digits specify Number of Ports (01 through 12)

**Plating**

0YZ - 0.76 μm (30 μin.) GTX™

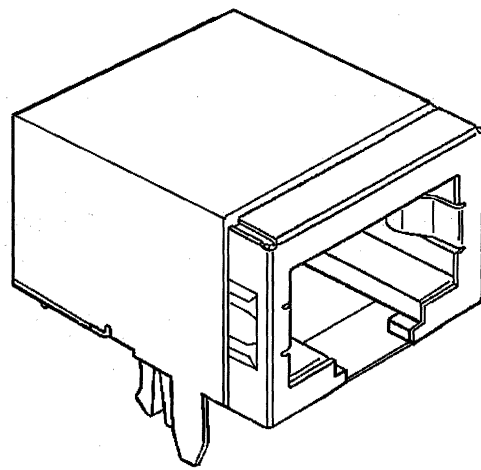
3YZ - 0.76 μm (30 μin.) 30 Gold

Part Number	Peg Type	"A" Dim.	Shielded
94710 - XYZM	Diamond	3.68 mm (0.145 in.)	Yes
94711 - XYZM	Diamond	N/A	No
94910 - XYZM	Snap	4.57 mm (0.180 in.)	Yes
94911 - XYZM	Snap	N/A	No

# Networking Interconnection Systems

2.54 x 2.54 mm (0.100 x 0.100 in.)  
Centerlines (Staggered)

## Filtered Modular Jack



### Features

- Inductive filtering for improved signal integrity.
- Industry standard pin out configuration for drop-in replacement into existing PCB footprint patterns.
- round, drawn wire contact provides highly reliable interface with plug.
- FCC approved GXT™ plating is available as an alternative to gold.
- RJ-45 style.

### Options

- 1 to 2 ports.
- GXT™ or gold plating.
- Shielded or unshielded.
- Diamond peg or snap peg.


### Mating Data


- RJ-45 modular plug cable.

### Specifications

- FCC, Section 15, part 68
- Bell Core
- EIA/TIA 568, TSB 31, 40

### Approvals and Certifications

 File no. E82037

 File no. LR46923

### Technical Data

#### Materials

- Housing
  - ▶ Material ..... Thermoplastic resin (UL 94 V-0)
  - ▶ Color ..... Black
- Contact..... Copper alloy
- Shield..... Plated copper Alloy

#### Plating

- Contact..... 0.76 μm (30 μin.) GXT™ or 0.38 μm (15 μin.) gold or 0.76 μm (30 μin.) gold or 1.27 μm (50 μin.) gold

#### Electrical Performance

- Contact resistance ..... 20 mΩ max

- Impedance
  - ▶ At 10 MHz..... 25Ω
  - ▶ At 100 MHz..... 148Ω
  - ▶ At 500 MHz..... 170Ω

#### Mechanical Performance

- Retention force between jack and plug..... 22.5 N (5 lbf) minimum
- Durability..... 250 cycles

#### Packaging

- Tubes

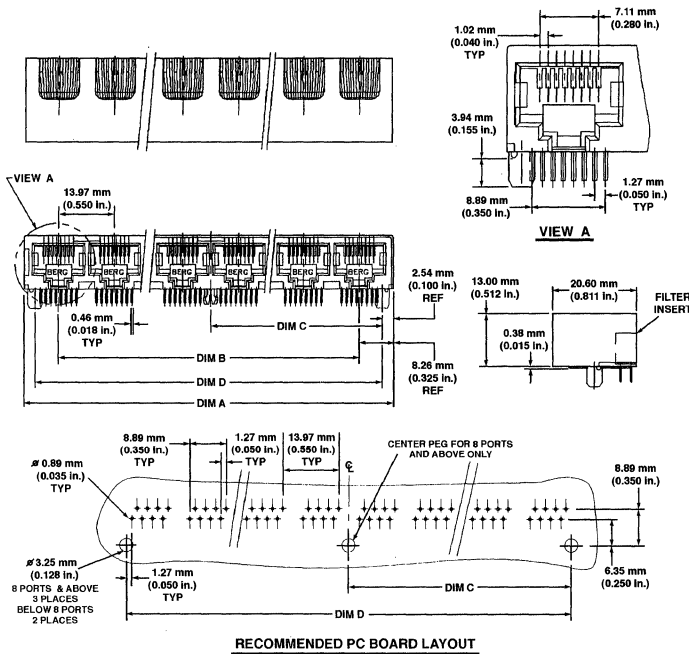
### Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawings.....	By Part No.	Product Samples.....	Upon request
Product Specifications.....	GES-12-083		

## Description

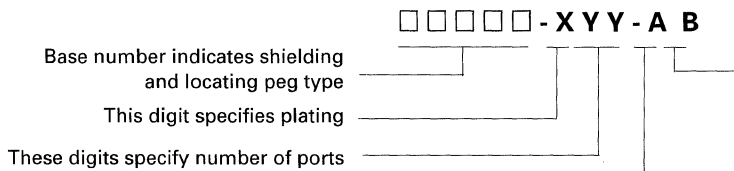
### Filtered Modular Jacks

Unshielded version shown



**NOTE:** Contact your Berg Electronics representative for availability of rear shield ground leg options 1 through 4 referenced in Ordering Data below.

## Ordering Data



Specifies rear shield ground leg configuration (2 to 12 ports only)

- 0 = Standard ground legs
- 1 = 1 standard ground leg
- 2 = All ground legs
- 3 = No ground legs
- 4 = Every other ground leg

Specifies front shield ground tab configuration (2 to 12 ports only)

- 0 = Standard ground tabs
- 1 = No ground tabs

Base Number	Shielded	Peg
95670	Yes	Diamond
95672	Yes	Snap
95671	No	Diamond
95673	No	Snap

0.76  $\mu$ m (30  $\mu$ in.) GXT™  
0.38  $\mu$ m (15  $\mu$ in.) gold

-0YY  
-1YY

0.76  $\mu$ m (30  $\mu$ in.) gold  
1.27  $\mu$ m (50  $\mu$ in.) gold

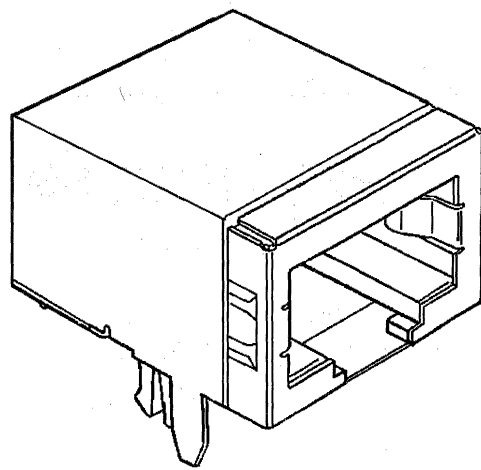
## Plating

Product Number	Number of Ports	Dimension A		Dimension B		Dimension C		Dimension D	
		mm	in.	mm	in.	mm	in.	mm	in.
95670 & 95672-X01	1	15.74	0.620	N/A	N/A	5.72	0.225	11.43	0.450
95670 & 95672-X02-AB	2	30.98	1.220	13.97	0.550	12.70	0.500	25.40	1.000
95670 & 95672-X03-AB	3	44.95	1.770	27.94	1.100	19.69	0.775	39.37	1.550
95670 & 95672-X04-AB	4	58.92	2.320	41.91	1.650	26.67	1.050	53.34	2.100
95670 & 95672-X05-AB	5	72.89	2.870	55.88	2.200	33.66	1.325	67.31	2.650
95670 & 95672-X06-AB	6	86.86	3.420	69.85	2.750	40.64	1.600	81.28	3.200
95670 & 95672-X07-AB	7	100.83	3.970	83.82	3.300	47.63	1.875	95.25	3.750
95670 & 95672-X08-AB	8	114.80	4.520	97.79	3.850	54.61	2.150	109.22	4.300
95670 & 95672-X09-AB	9	128.77	5.070	111.76	4.400	61.60	2.425	123.19	4.850
95670 & 95672-X10-AB	10	142.74	5.620	125.73	4.950	68.58	2.700	137.16	5.400
95670 & 95672-X11-AB	11	156.71	6.170	139.70	5.500	75.57	2.975	151.13	5.950
95670 & 95672-X12-AB	12	170.68	6.720	153.67	6.050	82.55	3.250	165.10	6.500
95671 & 95673-X01	1	15.74	0.620	N/A	N/A	5.72	0.225	11.43	0.450
95671 & 95673-X02	2	30.48	1.200	13.97	0.550	12.70	0.500	25.40	1.000
95671 & 95673-X03	3	44.45	1.750	27.94	1.100	19.69	0.775	39.37	1.550
95671 & 95673-X04	4	58.42	2.300	41.91	1.650	26.67	1.050	53.34	2.100
95671 & 95673-X05	5	72.39	2.850	55.88	2.200	33.66	1.325	67.31	2.650
95671 & 95673-X06	6	86.36	3.400	69.85	2.750	40.64	1.600	81.28	3.200
95671 & 95673-X07	7	100.33	3.950	83.82	3.300	47.63	1.875	95.25	3.750
95671 & 95673-X08	8	114.30	4.500	97.79	3.850	54.61	2.150	109.22	4.300
95671 & 95673-X09	9	128.27	5.050	111.76	4.400	61.60	2.425	123.19	4.850
95671 & 95673-X10	10	142.24	5.600	125.73	4.950	68.58	2.700	137.16	5.400
95671 & 95673-X11	11	156.21	6.150	139.70	5.500	75.57	2.975	151.13	5.950
95671 & 95673-X12	12	170.18	6.700	153.67	6.050	82.55	3.250	165.10	6.500

# Networking Interconnection Systems

2.54 x 2.54 mm (0.100 x 0.100 in.)  
Centerlines (Staggered)

## Category 5 Modular Jack



### Features

- 100 MHz bandwidth performance.
- Industry standard pin out configuration for drop-in replacement into existing PCB footprint patterns.
- Round, drawn wire contact provides highly reliable interface with plug.
- FCC approved GXT™ plating is available as an alternative to gold.
- RJ-45 style.

### Options

- 1 to 2 ports.
- GXT™ or gold plating.
- Shielded or unshielded.
- Diamond peg or snap peg.


### Mating Data


- RJ-45 modular plug cable.

### Specifications

- FCC, Section 15, part 68
- Bell Core
- EIA/TIA 568, TSB 31, 40

### Approvals and Certifications

 File no. E82037

 File no. LR46923

### Technical Data

#### Material

- Housing
  - ▶ Material ..... Thermoplastic resin (UL 94 V-0)
  - ▶ Color ..... Black
- Contact ..... Copper alloy
- Shield ..... Plated copper Alloy

#### Plating

- Contact ..... 0.76 µm (30 µin.) GXT™ or 0.38 µm (15 µin.) gold or 0.76 µm (30 µin.) gold or 1.27 µm (50 µin.) gold

#### Electrical Performance

- Attenuation at 100 MHz ..... 0.13 db max.

- Return loss at 100 MHz ..... 19 db min.
- Near end crosstalk
  - ▶ 1-100 MHz meets EIA/TIA 568A

#### Mechanical Performance

- Retention force between jack and plug ..... 22.5 N (5 lbf) minimum
- Durability ..... 250 cycles

#### Packaging

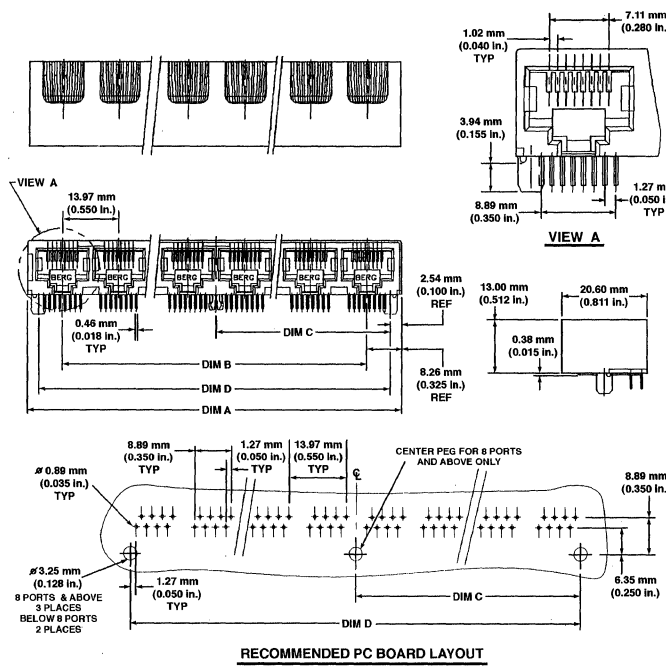
- Tubes

### Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawings .....	By Part No.	Product Samples .....	Upon request
Product Specifications .....	GES-12-083		

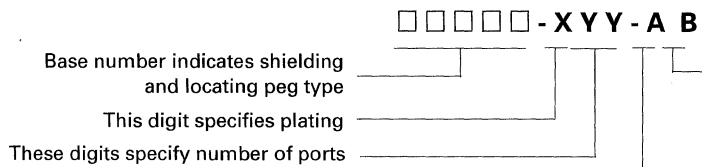
## Description

### Category 5 Modular Jack Unshielded version shown



**NOTE:** Contact your Berg Electronics representative for availability of rear shield ground leg options 1 through 4 referenced in Ordering Data below.

## Ordering Data



Base Number	Shielded	Peg
95676	Yes	Diamond
95678	Yes	Snap
95677	No	Diamond
95679	No	Snap

Specifies rear shield ground leg configuration (2 to 12 ports only)

- 0 = Standard ground legs
- 1 = 1 standard ground leg
- 2 = All ground legs
- 3 = No ground legs
- 4 = Every other ground leg

Specifies front shield ground tab configuration (2 to 12 ports only)

- 0 = Standard ground tabs
- 1 = No ground tabs

## Plating

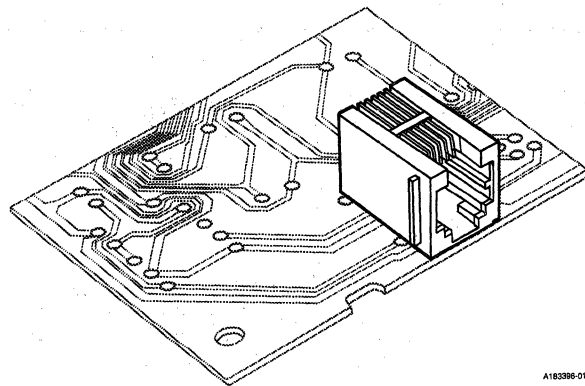
0.76 μm (30 μin.) GXT™      -0YY      0.76 μm (30 μin.) gold      -3YY  
 0.38 μm (15 μin.) gold      -1YY      1.27 μm (50 μin.) gold      -5YY

Product Number	Number of Ports	Dimension A		Dimension B		Dimension C		Dimension D	
		mm	in.	mm	in.	mm	in.	mm	in.
95676 & 95678-X01	1	15.74	0.620	N/A	N/A	5.72	0.225	11.43	0.450
95676 & 95678-X02-AB	2	30.98	1.220	13.97	0.550	12.70	0.500	25.40	1.000
95676 & 95678-X03-AB	3	44.95	1.770	27.94	1.100	19.69	0.775	39.37	1.550
95676 & 95678-X04-AB	4	58.92	2.320	41.91	1.650	26.67	1.050	53.34	2.100
95676 & 95678-X05-AB	5	72.89	2.870	55.88	2.200	33.66	1.325	67.31	2.650
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95676 & 95678-X07-AB	7	100.83	3.970	83.82	3.300	47.63	1.875	95.25	3.750
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95676 & 95678-X11-AB	11	156.71	6.170	139.70	5.500	75.57	2.975	151.13	5.950
95676 & 95678-X12-AB	12	170.68	6.720	153.67	6.050	82.55	3.250	165.10	6.500
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95677 & 95679-X02	2	30.48	1.200	13.97	0.550	12.70	0.500	25.40	1.000
95677 & 95679-X03	3	44.45	1.750	27.94	1.100	19.69	0.775	39.37	1.550
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95677 & 95679-X11	11	156.21	6.150	139.70	5.500	75.57	2.975	151.13	5.950
95677 & 95679-X12	12	170.18	6.700	153.67	6.050	82.55	3.250	165.10	6.500



# Telephone Interconnection Systems

## PCB Modular Jacks



### Features

- Components are designed and packaged for robotic placement, ensuring true positioning of the legs and contact wires.
- Through-mount, solder-to-board configuration.
- 4-, 6-, and 8-position receptacles are available in both horizontal and vertical entry styles.
- GXT™ (palladium-nickel alloy with gold flash), a Berg Electronics gold equivalent plating, ensures high cycle life and excellent solderability.
- Selective loading is available.
- Press-fit peg design eliminates hot and cold staking.

- Meets industry standard jack-to-board footprints.

### Options

- Contact wire plating is also available in 0.76  $\mu\text{m}$  (30  $\mu\text{in.}$ ) or 1.27  $\mu\text{m}$  (50  $\mu\text{in.}$ ) gold.
- IR reflow compatible housings available.


### Mating Data


Mates with modular plugs conforming to FCC part 68, subpart F.

### Specifications

FCC part 68, subpart F  
UL Standard 1863

### Approvals and Certifications

 File no. E82037

 File no. LR46923

### Technical Data

#### Materials

- Housing
  - Material ..... Thermoplastic resin (UL 94 V-0)
  - Color ..... Gray or Black
- Contact spring ..... Phosphor-bronze (alloy 510 per ASTM B-159), 0.46 mm (0.018 in.) diameter

#### Plating

- Contact spring
  - Finish ..... 0.76  $\mu\text{m}$  (30  $\mu\text{in.}$ ) GXT™ or 0.76  $\mu\text{m}$  (30  $\mu\text{in.}$ ) gold or 1.27  $\mu\text{m}$  (50  $\mu\text{in.}$ ) gold

#### Electrical Performance

- Insulation resistance ..... 500 M $\Omega$  min
- Withstanding voltage ..... 1000 volts rms, 60 Hz
- Current rating ..... 2.0 amp dc
- Contact resistance ..... 20 m $\Omega$  max

#### Mechanical Performance

- Maximum total mating force
  - 4-wire lead ..... 20.0 N (4.5 lbf)
  - 6-wire lead ..... 20.0 N (4.5 lbf)
  - 8-wire lead ..... 20.0 N (4.5 lbf)
- Retention force ..... 22.5 N (5 lbf) min between jack and plug
- Durability (mating cycles) ..... 250

#### Packaging (package type depends on part number)

- Tubes
- Trays

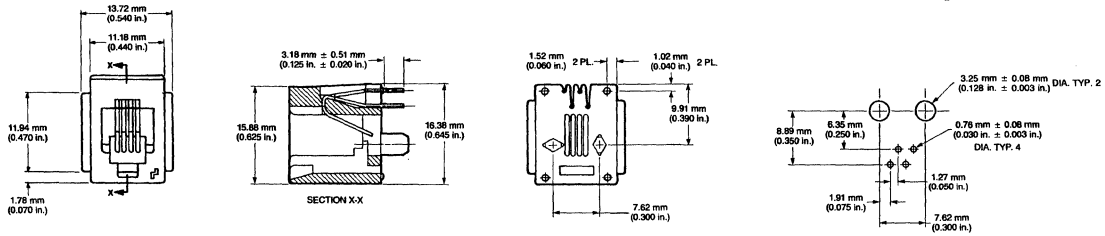
### Customer Support Materials

Description	Order No.	Description	Order No.
Customer Product Drawings.....	By Part No.	Product Samples.....	Upon request
Product Specifications.....	BUS 12-068		

### Description

#### 4-Position Vertical PCB Jacks

Height: 15.62 / 0.615



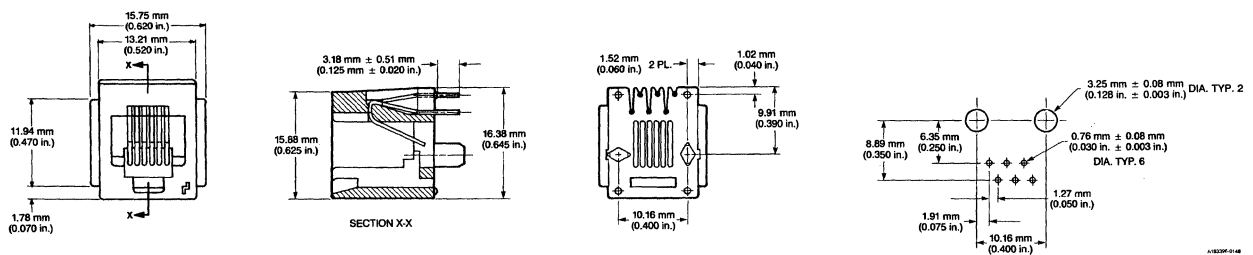
### Ordering Data

Number of Positions	Number of Wires	Configuration	Part Number
4	4	Vertical	69253-001

### Description

#### 6-Position Vertical PCB Jacks

Height: 15.62 / 0.615



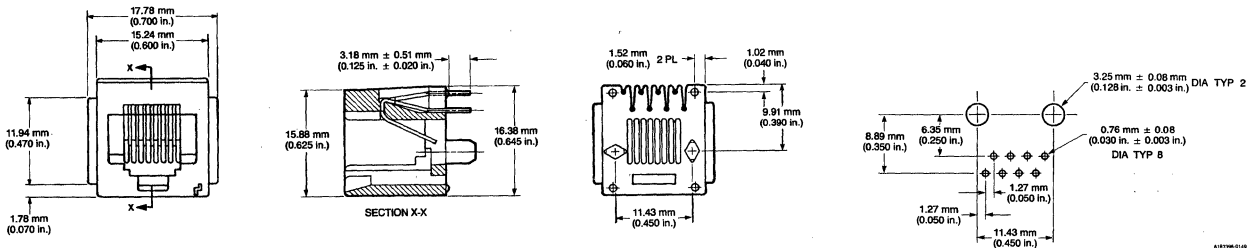
### Ordering Data

Number of Positions	Number of Wires	Configuration	Part Number	Notes
6	6	Vertical	69254-001	
6	4	Vertical	69254-002	Positions 1 and 6 unloaded.
6	2	Vertical	69254-003	Positions 1, 2, 5, and 6 unloaded

### Description

#### 8-Position Vertical PCB Jacks

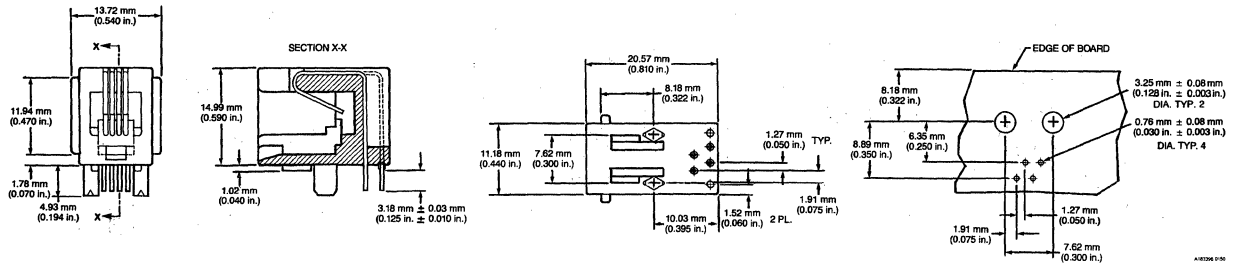
Height: 15.62/0.615



### Ordering Data

Number of Positions	Number of Wires	Keyed	Configuration	Part Number
8	8	No	Vertical	69255-001
8	8	Yes	Vertical	69255-002

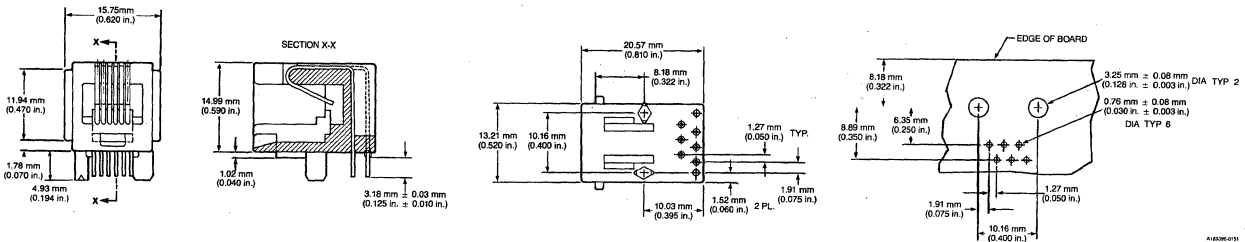
**Description**  
**4-Position Horizontal PCB Jacks**  
**Height: 14.99/0.590**



**Ordering Data**

Number of Positions	Number of Wires	Configuration	Part Number
4	4	Horizontal	68897-001

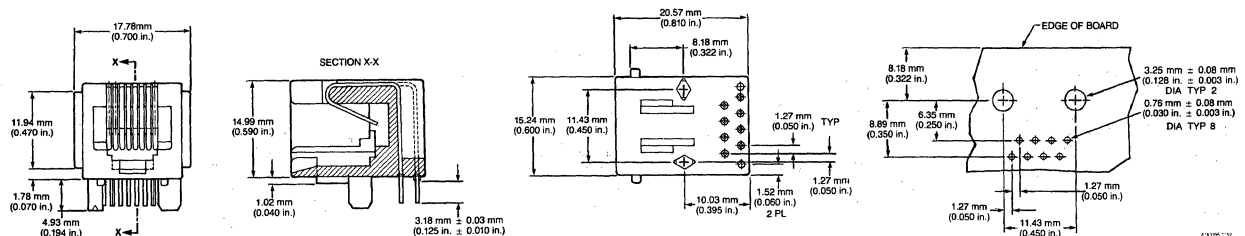
**Description**  
**6-Position Horizontal PCB Jacks**  
**Height: 14.99/0.590**



**Ordering Data**

Number of Positions	Number of Wires	Configuration	Part Number	Notes
6	6	Horizontal	68898-001	
6	4	Horizontal	68898-002	Positions 1 and 6 unloaded.

**Description**  
**8-Position Horizontal PCB Jacks**  
**Height: 14.99/0.590**



**Ordering Data**

Number of Positions	Number of Wires	Keyed	Configuration	Part Number
8	8	No	Horizontal	68899-001
8	8	Yes	Horizontal	68899-002

**Description**  
**4-Position, Low Profile Horizontal PCB Jacks**  
**Height: 11.50/0.452**

<b>Ordering Data</b>			
Number of Positions	Number of Wires	Configuration	Part Number
4	4	Horizontal	87180-X44
4	2	Horizontal	87180-X42

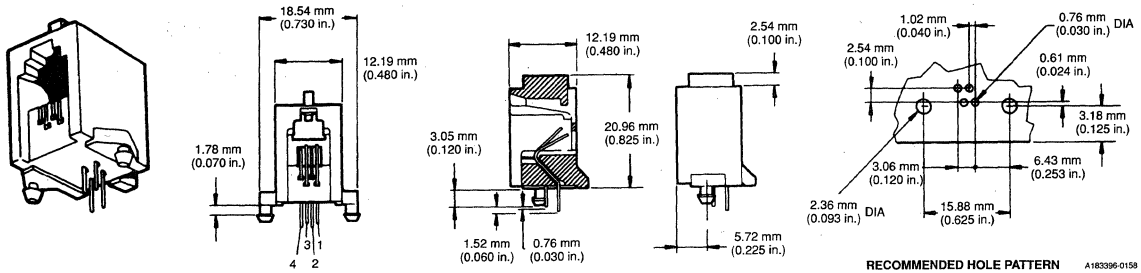
**Description**  
**6-Position, Low Profile Horizontal PCB Jacks**  
**Height: 11.50/0.452**

<b>Ordering Data</b>			
Number of Positions	Number of Wires	Configuration	Part Number
6	6	Horizontal	87180-X66
6	4	Horizontal	87180-X64
6	2	Horizontal	87180-X62

**Description**  
**8-Position, Low Profile Horizontal PCB Jacks**  
**Height: 11.50/0.452**

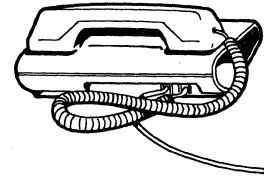
<b>Ordering Data</b>			
Number of Positions	Number of Wires	Configuration	Part Number
8	8	Horizontal	87180-X88
8	6	Horizontal	87180-X86
8	4	Horizontal	87180-X84

### Description PCB Jacks - 616 Type

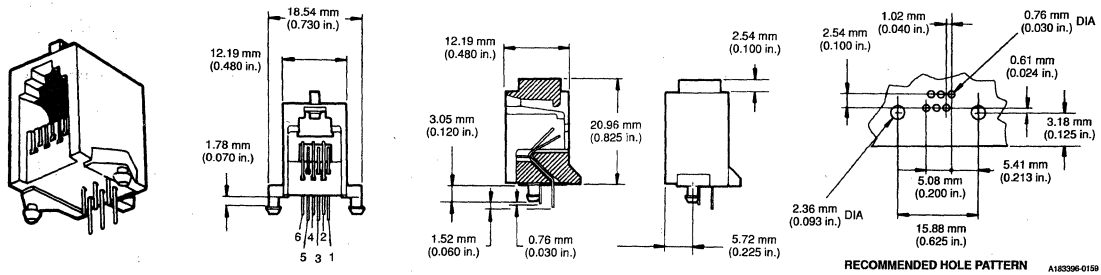


### Ordering Data

Type	Number of Positions	Number of Wires	Part Number
616	4	4	66010-001

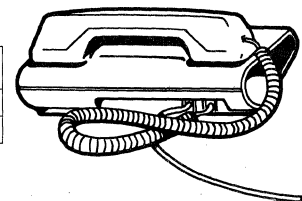


### Description PCB Jacks - 623 Type

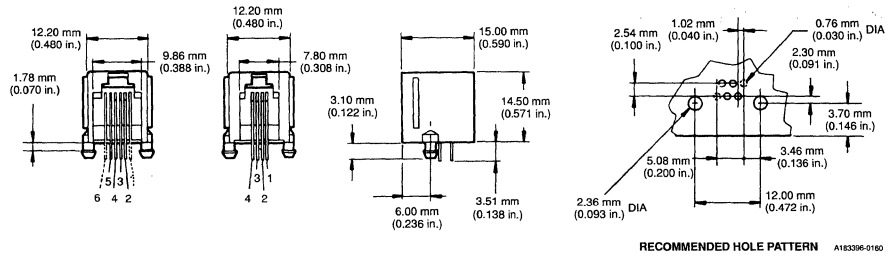
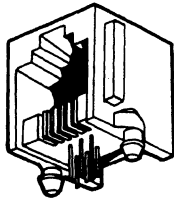


### Ordering Data

Type	Number of Positions	Number of Wires	Part Number	Notes
623	6	4	66011-001	Positions 1 and 6 unloaded.
623	6	6	66011-002	

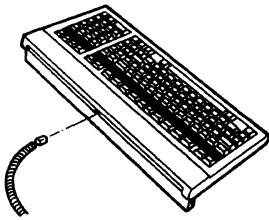


**Description**  
**PCB Jacks**  
**Low Profile, 4 to 6 Positions**



RECOMMENDED HOLE PATTERN A183396-0180

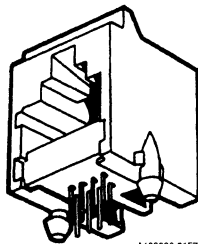
**Ordering Data**



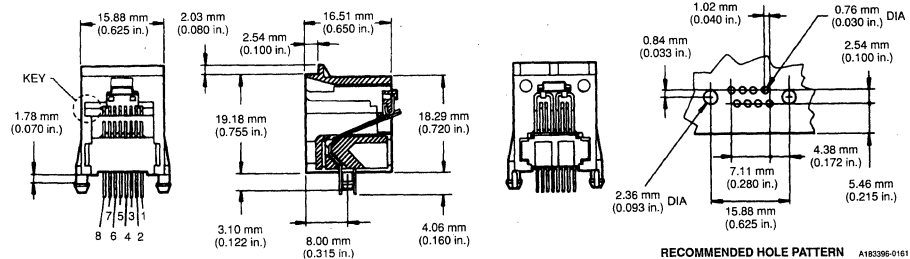
A183396-0667

Number of Positions	Number of Wires	Part Number	Notes
4	4	67969-001	
6	4	67968-001	Positions 1 and 6 unloaded.
6	6	67968-002	

**Description**  
**PCB Jacks---641 and 647 Type**  
**Low Profile, 8 Positions**



A183396-0157



RECOMMENDED HOLE PATTERN A183396-0161

**Ordering Data**



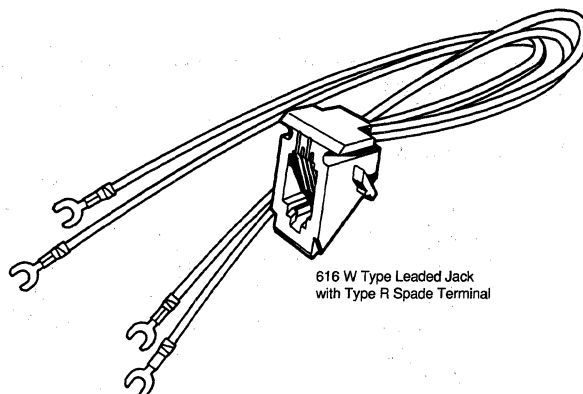
Type	Number of Positions	Number of Wires	Keyed	Part Number
641	8	8	No	66175-001
647	8	8	Yes	66476-001

**Customer Support Materials**

Description	Order No.	Description	Order No.
Customer Product Drawings .....	By Part No.	Product Samples .....	Upon request
Product Specifications .....	BUS 12-018		

# Telephone Interconnection Systems

## Leaded Modular Jacks



616 W Type Leaded Jack with Type R Spade Terminal

A183396-0109

### Features

- A wide range of hand-set cord and line cord connectors meets most telephone interconnection requirements.
- Contact wire plating is 0.76  $\mu\text{m}$  (30  $\mu\text{in.}$ ) gold.
- Insulated wires are available in various lead lengths and color-coding schemes.
- Available in a variety of wire terminations, including spade terminals; cut wire; cut and stripped wire; and cut, stripped, and tinned wire.

### Options

- Contact wire is also available in 0.76  $\mu\text{m}$  (30  $\mu\text{in.}$ ) GXT™ plating (palladium-nickel alloy with gold flash) or 1.27  $\mu\text{m}$  (50  $\mu\text{in.}$ ) gold.


### Mating Data


Mates with modular plugs conforming to FCC part 68, subpart F.

### Specifications

FCC part 68, subpart F UL Standard 1863

### Approvals and Certifications

 File no. E66906

 File no. LR46923

## Technical Data

### Materials

- Housing
  - ▶ Standard material . . . . . ABS resin (UL 94 V-0)
  - ▶ Optional material . . . . . Polycarbonate (UL 94 V-0) or Polycarbonate ABS-blend/65C rating
  - ▶ Color . . . . . Medium gray (other colors available upon request)
- Contact spring . . . . . Phosphor-bronze, 0.46 mm (0.018 in.) diameter wire
- Spade . . . . . Brass
- Wire
  - ▶ Conductor style A . . . . . Tinned copper wire
  - ▶ Conductor style B . . . . . Copper wire top-coated with tin
  - ▶ Insulation . . . . . PVC
  - ▶ Color . . . . . Wire color coding other than indicated is available upon request.

### Mechanical Performance

- Insertion force
  - ▶ 4-wire lead . . . . . 5.0 N (1.1 lbf)
  - ▶ 6-wire lead . . . . . 7.5 N (1.7 lbf)
  - ▶ 8-wire lead . . . . . 9.0 N (2.0 lbf)
- Retention force . . . . . 22.5 N (5 lbf) min between jack and plug
- Crimp tensile strength . . . . . 22.5 N (5 lbf)
- Durability (mating cycles) . . . . . 250

### Plating

- Contact wire
  - ▶ Underplate . . . . . 2.54  $\mu\text{m}$  (100  $\mu\text{in.}$ ) nickel
  - ▶ Finish . . . . . 0.76  $\mu\text{m}$  (30  $\mu\text{in.}$ ) gold
- Spade
  - ▶ Style S . . . . . 2.50–7.50  $\mu\text{m}$  (100–300  $\mu\text{in.}$ ) tin-lead
  - ▶ Style R . . . . . Unplated

### Electrical Performance

- Insulation resistance . . . . . 10 M $\Omega$  min
- Withstanding voltage . . . . . 1000 V rms (sea level)
- Current rating . . . . . 2.0 amp dc
- Contact resistance . . . . . 20 m $\Omega$  max per contact

### Spade Configurations

Style S



A183396-0111

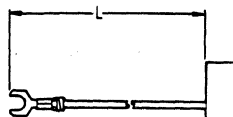
Style R



Other wire contacts are available upon request.

### Wire Dimensions

- Size . . . . . AWG 27, 7 strands
- Dimension L



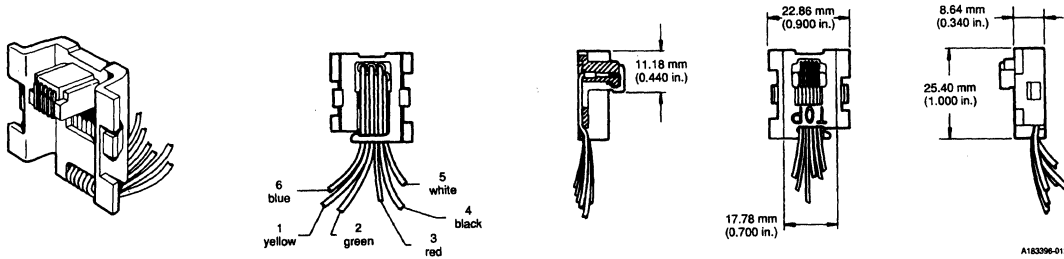
A183396-0112

### Packaging

- Cartons

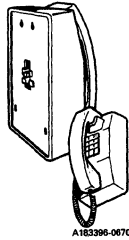
**Description**

**Leaded Jacks - Line Cord Connectors 523 Type**



Spade style S Dimension L = 234.95 mm (9.250 in.)

**Ordering Data**

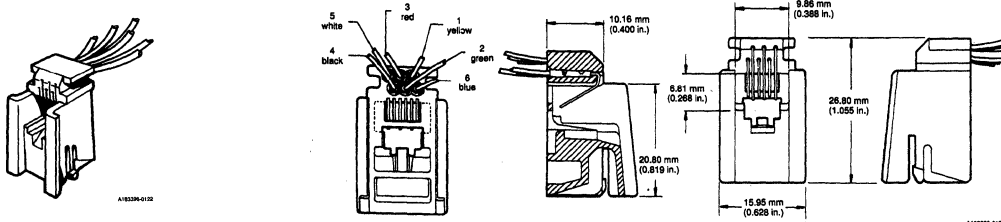


Type	Number of Positions	Number of Wires	Part Number	Notes
523 B4	6	4	66018-001	Positions 5 and 6 unloaded.
523 B6	6	6	66018-002	

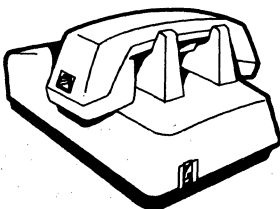
**Description**

Spade style S  
Dimension L = 177.80 mm (7.000 in.)

**Leaded Jacks - Line Cord Connectors 623 D Type**



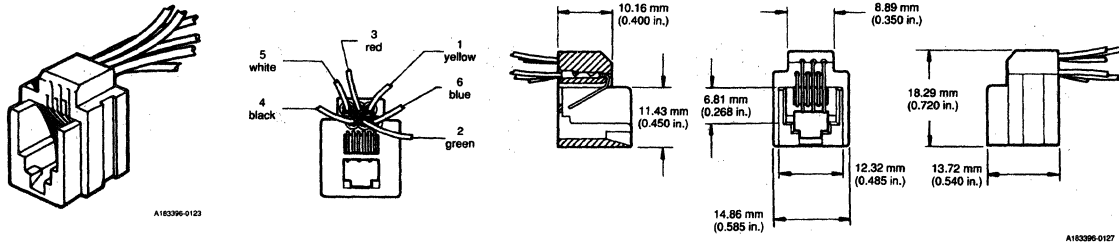
**Ordering Data**



Type	Number of Positions	Number of Wires	Part Number	Notes
623 D4	6	4	65898-006	Positions 5 and 6 unloaded.
623 D6	6	6	65898-007	



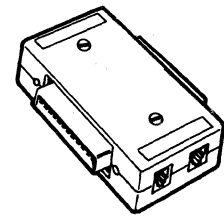
**Description**  
**Leaded Jacks - Line Cord Connectors 623 K Type**



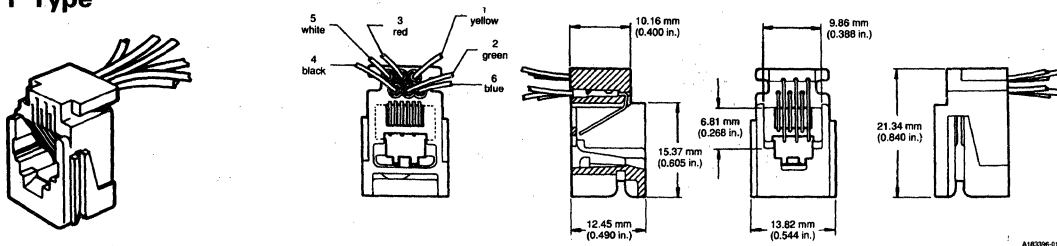
Spade style S Dimension L = 177.80 mm (7.000 in.)

**Ordering Data**

Type	Number of Positions	Number of Wires	Part Number	Notes
623 K4	6	4	66521-001	Positions 5 and 6 unloaded.
623 K6	6	6	66521-002	



**Description**  
**Leaded Jacks - Line Cord Connectors 623 P Type**



Spade style S Dimension L = 177.80 mm (7.000 in.)

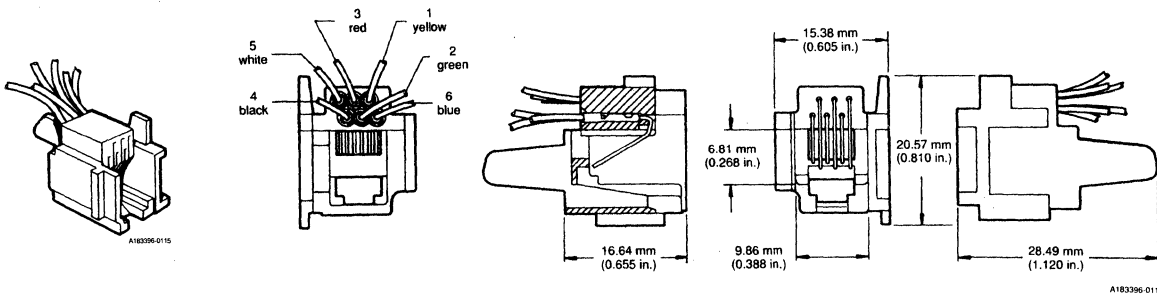
**Ordering Data**

Type	Number of Positions	Number of Wires	Part Number	Notes
623 P4	6	4	65903-001	Positions 5 and 6 unloaded.
623 P6	6	6	65903-002	



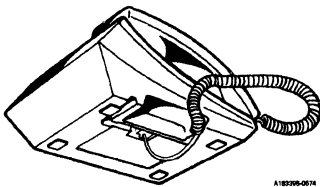
**Description**

**Leaded Jacks - Line Cord Connectors 623 T Type**



Spade style S Dimension L = 177.80 mm (7.000 in.)

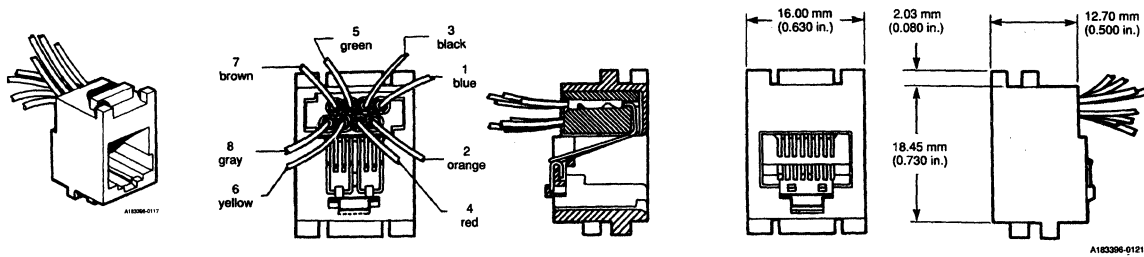
**Ordering Data**



Type	Number of Positions	Number of Wires	Part Number	Notes
623 T4	6	4	65904-001	Positions 5 and 6 unloaded.
623 T6	6	6	65904-002	

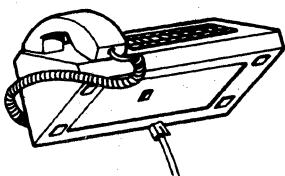
**Description**

**Leaded Jacks - Line Cord Connectors 641 W and 647 W Type**



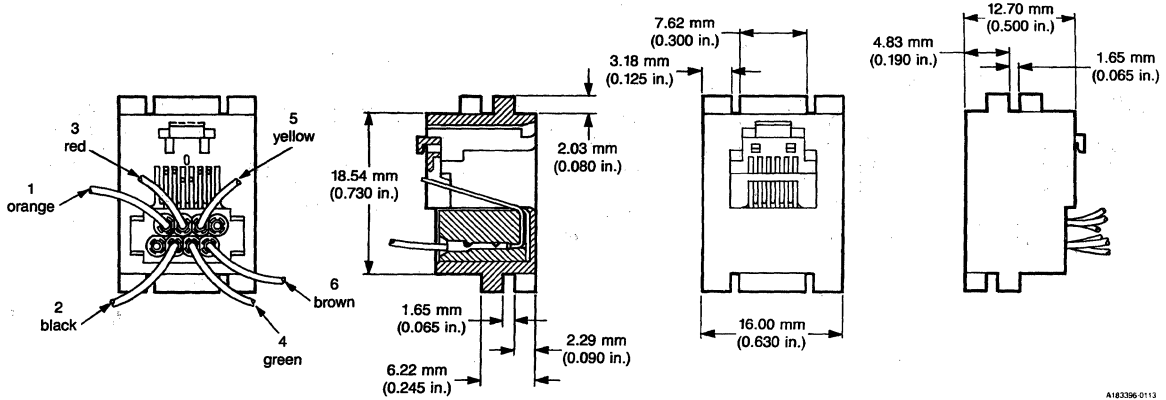
Spade style S Dimension L = 177.80 mm (7.000 in.)

**Ordering Data**



Type	Number of Positions	Number of Wires	Keyed	Part Number
641 W8	8	8	No	66174-001
647 W8	8	8	Yes	66467-001

**Description**  
**Leaded Jacks - Line Cord Connectors 652 Type**

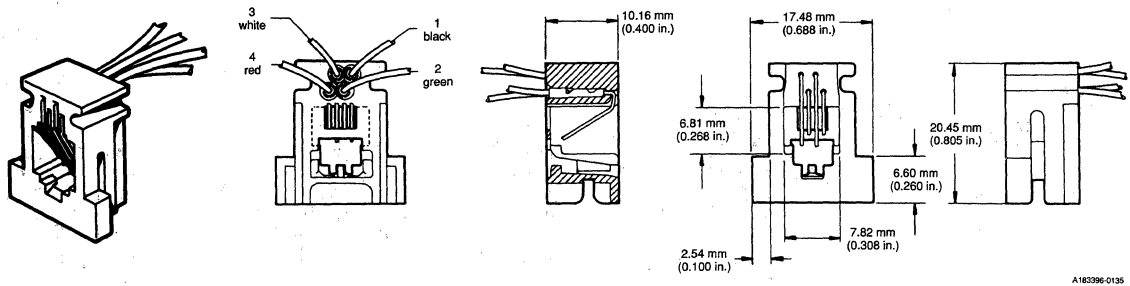


Housing color: Black

**Ordering Data**

Type	Number of Positions	Number of Wires	Part Number	Notes
652	6	4	69972-003	Positions 5 and 6 unloaded.
652	6	6	69972-004	

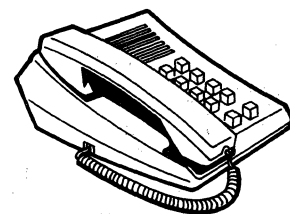
**Description**  
**Leaded Jacks - Handset Cord Connectors 616 B Type**



Spade style S Dimension L = 177.80 mm (7.000 in.)

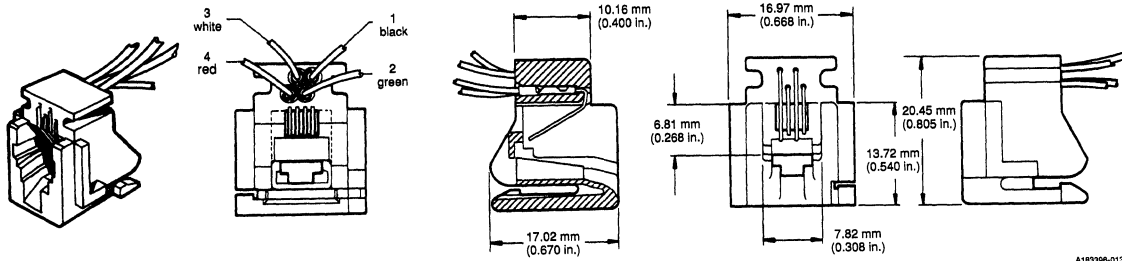
**Ordering Data**

Type	Number of Positions	Number of Wires	Part Number
616 B4	4	4	65900-001



### Description

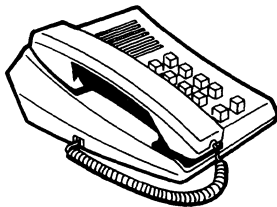
#### Leaded Jacks - Handset Cord Connectors 616 C Type



A183396-0136

Spade style S Dimension L = 177.80 mm (7.000 in.)

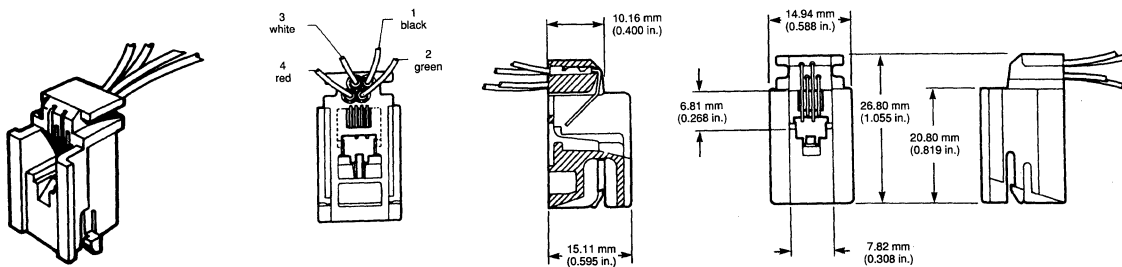
### Ordering Data



Type	Number of Positions	Number of Wires	Part Number
616 C4	4	4	65901-001

### Description

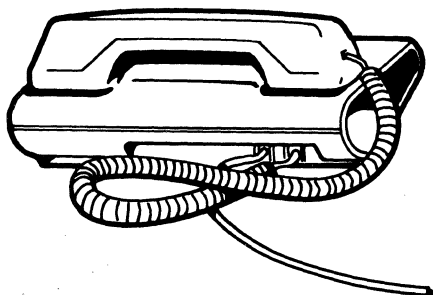
#### Leaded Jacks - Handset Cord Connectors 616 D Type



A183396-0137

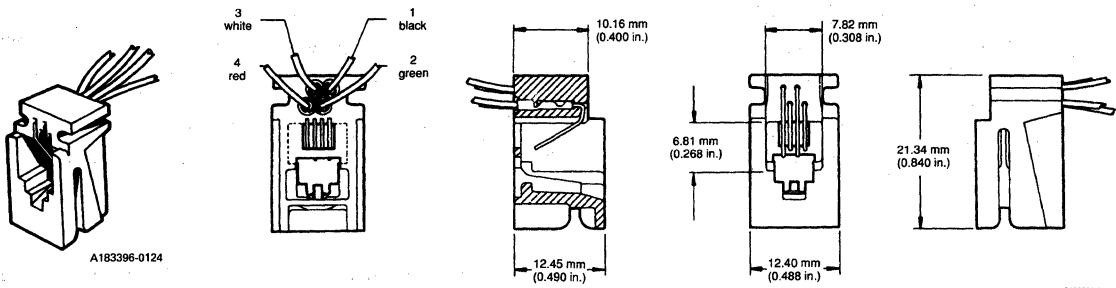
Spade style S Dimension L = 203.20 mm (8.000 in.)

### Ordering Data



Type	Number of Positions	Number of Wires	Part Number
616 D4	4	4	65899-007

**Description**  
**Leaded Jacks - Handset Cord Connectors**  
**616 P Type**



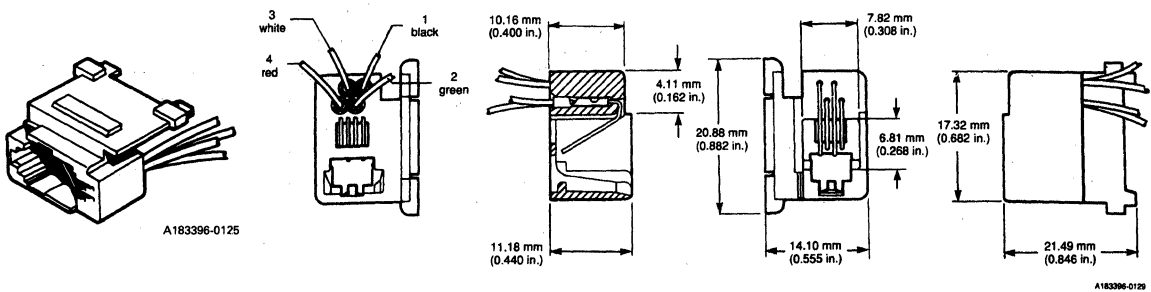
Spade style S Dimension L = 177.80 mm (7.000 in.)

**Ordering Data**

Type	Number of Positions	Number of Wires	Part Number
616 P4	4	4	65902-001



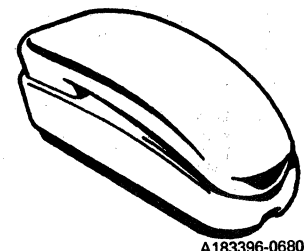
**Description**  
**Leaded Jacks - Handset Cord Connectors**  
**616 T Type**



Spade style S Dimension L = 177.80 mm (7.000 in.)

**Ordering Data**

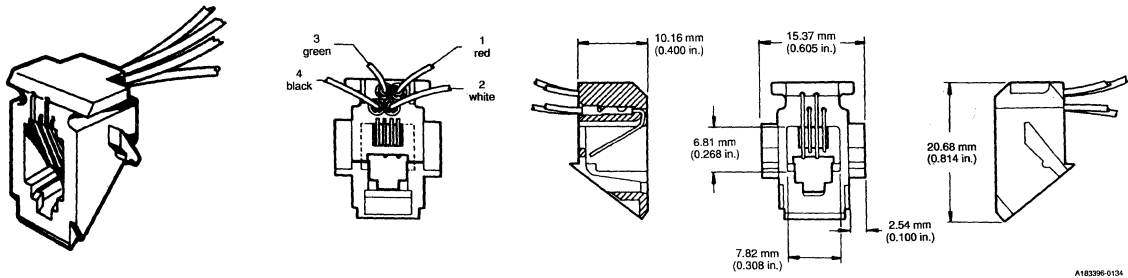
Type	Number of Positions	Number of Wires	Part Number
616 T4	4	4	65907-001



A183396-0680

**Description**

**Leaded Jacks - Handset Cord Connectors 616 W Type**

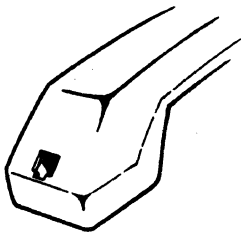


A183396-0134

**Spade style R**

For positions 1 and 4, dimension L = 81.79 mm (3.220 in.)  
 For positions 2 and 3, dimension L = 234.19 mm (9.220 in.)

**Ordering Data**

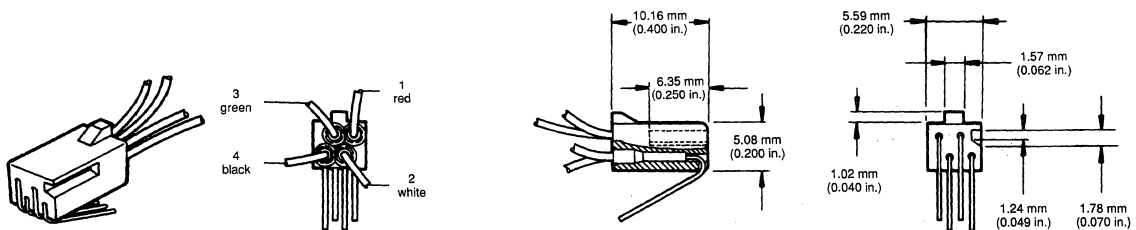


A183396-0681

Type	Number of Positions	Number of Wires	Part Number
616 W4	4	4	65906-001

**Description**

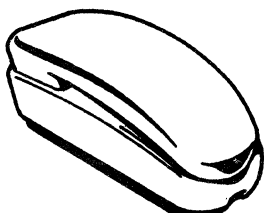
**Inserts - 4 Positions/4 Wires 616 Type**



A183396-0142

Spade style S Dimension L = 107.95 mm (4.250 in.)

**Ordering Data**

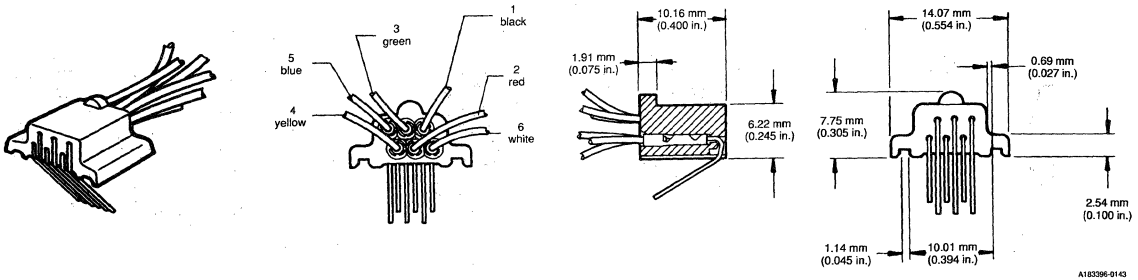


A183396-0680

Type	Number of Positions	Number of Wires	Part Number
616	4	4	66031-001

### Description

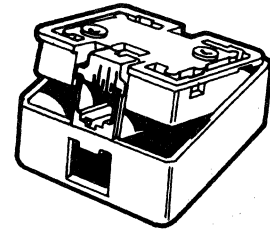
Inserts - 6 Positions/4 Wires, 6 Positions/6 Wires  
625 F Type



Spade style R Dimension L = 57.15 mm (2.250 in.)

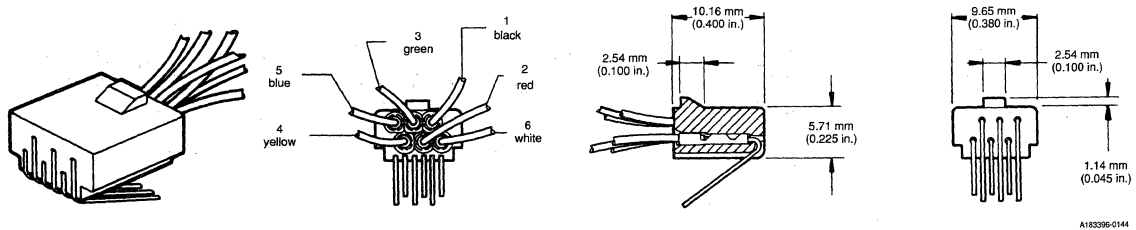
### Ordering Data

Type	Number of Positions	Number of Wires	Part Number	Notes
625 F4	6	4	65886-001	Positions 5 and 6 unloaded.
625 F6	6	6	65886-002	



### Description

Inserts - 6 Positions/4 Wires, 6 Positions/6 Wires 645 A Type



Spade style S Dimension L = 107.95 mm (4.250 in.)

### Ordering Data

Type	Number of Positions	Number of Wires	Part Number	Notes
645 A4	6	4	66037-001	Positions 5 and 6 unloaded.
645 A6	6	6	66037-002	

### Description

#### Inserts---8 Positions/8 Wires

A183996-0138

**Spade style S Dimension L = 177.80 mm (7.000 in.)**

### Ordering Data

Number of Positions	Number of Wires	Part Number
8	8	66145-001

### Customer Support Materials

Description	Order No.	Description	Order No.
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Product Specifications (Types 616, 623, 647) .....	BUS 12-003	Product Samples .....	Upon request



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91872	2-15	92912	9-31	94276	9-21	94921	6-5
91877	10-37, 10-40	<b>93000</b>		94277	9-21	94944	6-4
91894	3-5	93002	7-12	94359	3-13 to 3-14	94966	7-15
91895	3-6	93111	13-123 to 13-125	94369	3-13	94977	7-24, 7-26
91900	8-7	93112	13-127 to 13-128	94510	13-65	<b>95000</b>	
91901	8-7	93150	13-63	94529	13-59	95000	9-41
91910	8-7	93167	13-52	94532	13-55	95017	13-52
91911	8-7	93216	13-55	94536	13-68	95033	4-25, 4-31
91920	8-5	93217	13-54	94544	13-52	95034	13-68
91921	8-5	93223	13-66	94549	13-53	95035	13-62
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# Engineering Notes

For more detailed product information, or for the location nearest you, contact one of the Regional Headquarters listed below. Or access Berg's Home Page on the Internet Worldwide Web at: <http://www.bergelect.com>

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