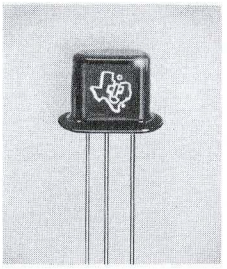
TYPE 2N120

N-P-N GROWN JUNCTION SILICON TRANSISTOR

TYPE 2N120
BULLETIN NO. DL-S 900 MARCH, 1958



76 to 333 beta spread

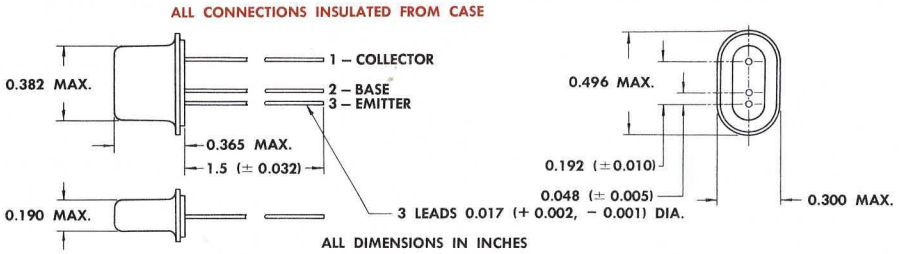
Specifically designed for high gain at high temperatures

qualification testing

All units are thoroughly heat cycled from −65°C to + 175°C. This test consists of fourteen cycles, including four at 95% relative humidity (from −65°C to + 75°C). In addition, the hermetic seal is checked by pressure testing. All units are completely tested for design characteristics and undergo a rigorous tumble test to check for mechanical reliability.

mechanical data

Welded case with glass-to-metal hermetic seal between case and leads. Approximate weight is 1.7 grams.



absolute maximum ratings at 25°C ambient [except where advanced temperatures are indicated]

Collector Voltage Referred to Base	45 V
Emitter Voltage Referred to Base	1 V
Collector Current	25 mA
Emitter Current	−25 mA
Collector Dissipation	150 mW
at 100°C	100 mW
at 150°C	50 mW

junction temperature

Maximum Range	−65°C to +175°C

common base design characteristics at T_j = 25°C [except where advanced temperatures are indicated]

		test conditions		min.	design center	max.	unit
BV_{CBO}	Collector Breakdown Voltage	I_C = 50μA	I_E = 0	45	—	—	Volt
I_{CBO}	Collector Cutoff Current	V_{CB} = 30V	I_E = 0	—	—	2	μA
	at 100° C	V_{CB} = 5V	I_E = 0	—	—	10	μA
	at 150° C	V_{CB} = 5V	I_E = 0	—	—	50	μA
h_{ib}	Input Impedance	V_{CB} = 5V	I_E = −1mA	30	42	80	Ohm
h_{ob}	Output Admittance	V_{CB} = 5V	I_E = −1mA	0.0	0.4	1.2	μmho
h_{rb}	Feedback Voltage Ratio	V_{CB} = 5V	I_E = −1mA	50	400	1000	X10⁻⁶
h_{fb}	Current Transfer Ratio	V_{CB} = 5V	I_E = −1mA	−0.987	−0.99	−0.997	—
PG_e	Power Gain*†	V_{CE} = 20V	I_E = −2mA	—	42.5	—	db
NF	Noise Figure*‡	V_{CE} = 5V	I_E = −1mA	—	20	—	db
$f_{\alpha b}$	Frequency Cutoff	V_{CB} = 5V	I_E = −1mA	—	7	—	mc
C_{ob}	Output Capacitance (1mc)	V_{CB} = 5V	I_E = −1mA	—	7	—	μμf
R_{CS}	Saturation Resistance*	I_B = 2.2mA	I_C = 5mA	—	100	200	Ohm

*Common Emitter †R_g = 1k; R_L = 20k ‡Conventional Noise—Compared to 1000 ohm resistor, 1000 cps and 1 cycle band width

SEMICONDUCTOR-COMPONENTS DIVISION

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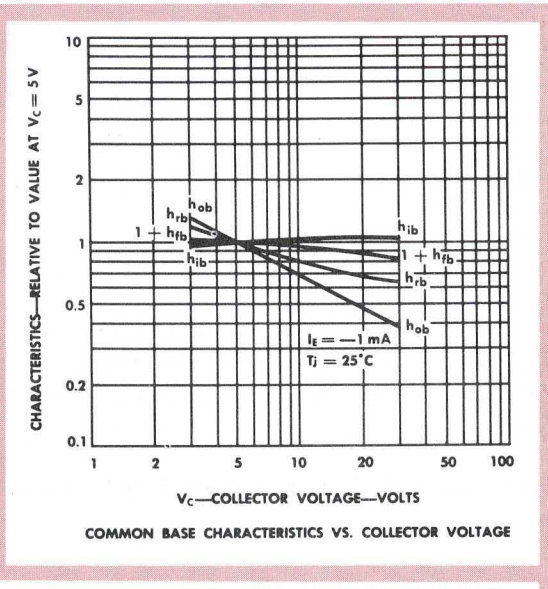
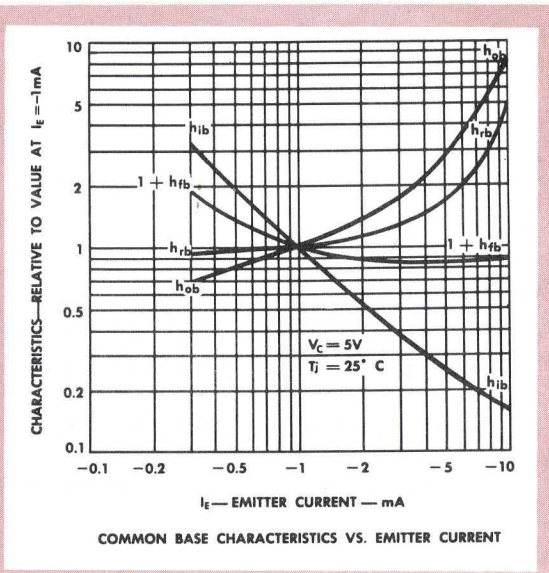
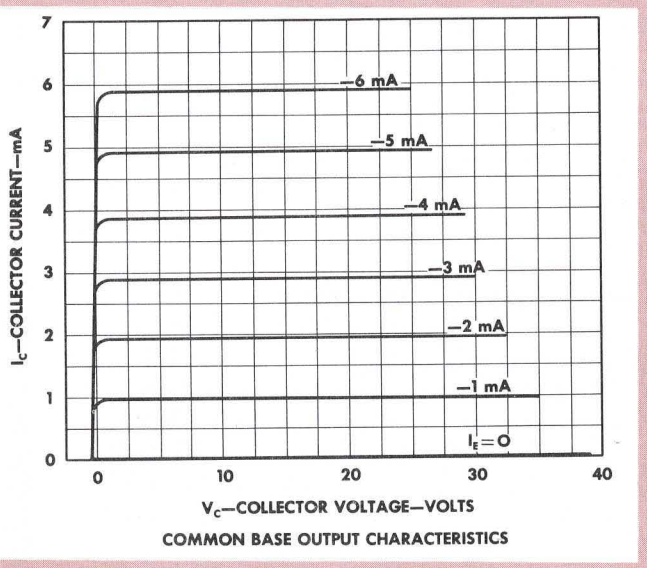
TYPICAL CHARACTERISTICS



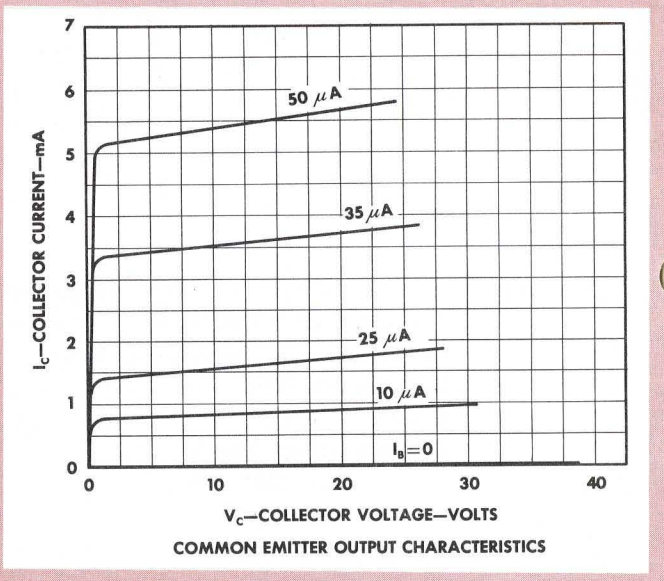
COMMON BASE CHARACTERISTICS VS. COLLECTOR VOLTAGE



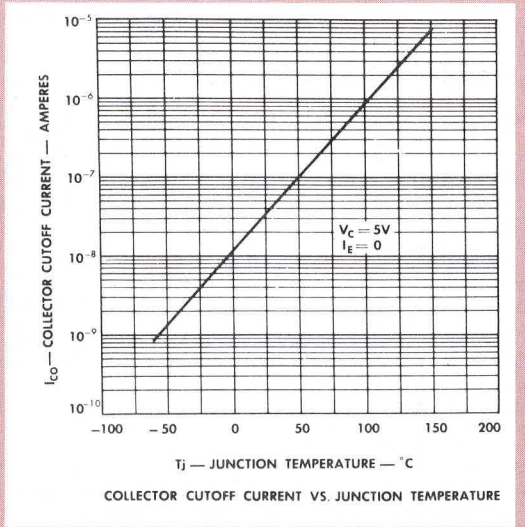
COMMON BASE CHARACTERISTICS VS. EMITTER CURRENT



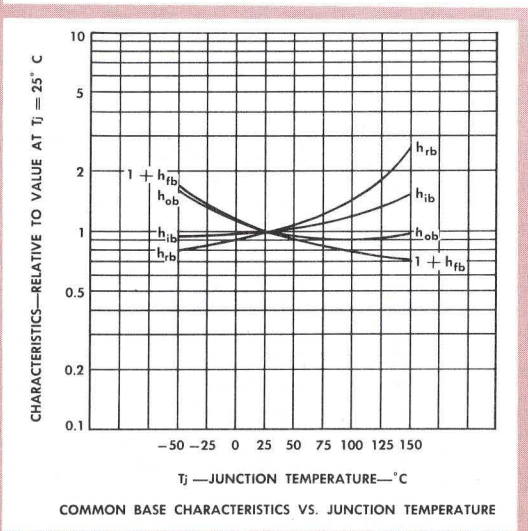
COMMON BASE OUTPUT CHARACTERISTICS



COMMON EMITTER OUTPUT CHARACTERISTICS



COLLECTOR CUTOFF CURRENT VS. JUNCTION TEMPERATURE



COMMON BASE CHARACTERISTICS VS. JUNCTION TEMPERATURE

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