

None

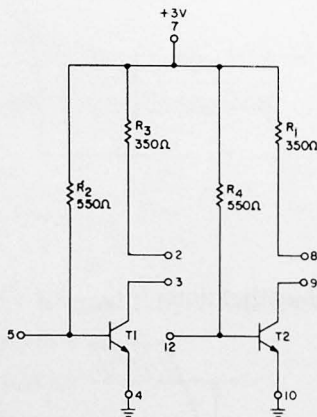
Functional Description

The Medium Power Driver MPD-1A module contains two separate Medium Power Drivers. The Drivers are designed to provide a fast, economical way of extending the fan-out of an AI or an AOI module by approximately a factor of three. This would have a useful application for driving a transmission line.

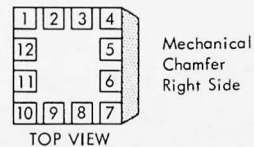
The "OR" function can be accomplished by dotting collectors (parallel connected collectors) with other circuits or modules. However, only one collector resistor is required.

Medium Power Driver MPD-1A inputs are Pins 5 and 12.

Schematic

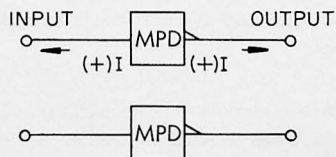


Terminal Configuration



Pins 1, 6 and 11 Leave Open

Block Diagram



Maximum Ratings

Input Voltage; must be biased through a resistor

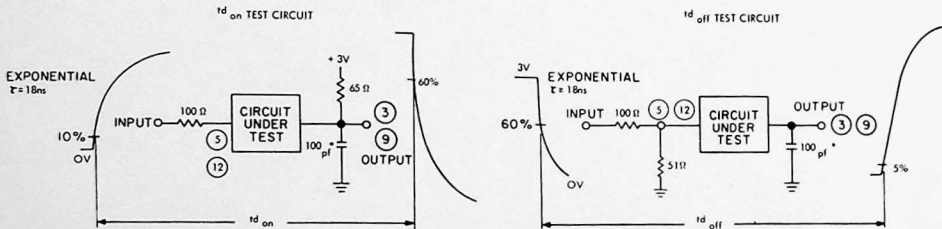
Output Voltage; = 6V

I_E ; = 56 Milliamps

(MPD-1A) Module Functional Tests

TESTS	TERMINAL CONDITIONS												°C	ADDITIONAL LOAD REQUIREMENTS	VARIABLE	LIMITS		UNITS	
	1	2	3	4	5	6	7	8	9	10	11	12				MIN	MAX		
DC ON		V _{OUT}	V _{OUT}	GND	787Ω TO -2.88V		-2.88V							25 75	42.5 ma CURRENT INTO TERMINAL 2	V _{OUT}	-0.3	-0.32	V
DC ON							-2.88V	V _{OUT}	V _{OUT}	GND		787Ω TO -2.88V		25 75	42.5 ma CURRENT INTO TERMINAL 8	V _{OUT}	-0.3	-0.32	V
DC OFF		V _{OUT}	V _{OUT}	GND	+0.5V		-3.12V							25		V _{OUT}	-3.08		V
DC OFF							+3.12V	V _{OUT}	V _{OUT}	GND			-0.5V	25		V _{OUT}	-3.08		V
DC NOISE		V _{OUT}	V _{OUT}	GND	+0.58V		-3.12V							75		V _{OUT}	+1.80		V
DC NOISE							+3.12V	V _{OUT}	V _{OUT}	GND			-0.58V	75		V _{OUT}	-1.80		V
AC _{t_{on}}		V _{OUT}	100 pf CAP TO GND	GND	INPUT		-3.0V							25	65Ω RESISTOR TIED BETWEEN TERMS 2&7	t _{on}	1	14	ns
AC _{t_{on}}							-3.0V	V _{OUT}	100 pf CAP TO GND	GND		INPUT		25	65Ω RESISTOR TIED BETWEEN TERMS 8&7	t _{on}	1	14	ns
AC _{t_{off}}		V _{OUT}	100 pf CAP TO GND	GND	INPUT		-3.0V							25 75		t _{off}	8	41 59	ns
AC _{t_{off}}							-3.0V	V _{OUT}	100 pf CAP TO GND	GND		INPUT		25 75		t _{off}	8	41 59	ns

Test Waveforms



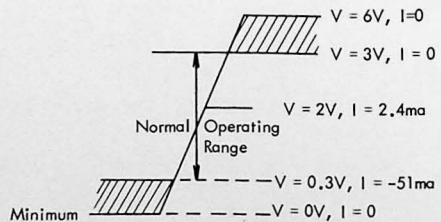
* Including Probe Capacitance

Input Requirements

Due to the special nature of this circuit the input voltage and current levels cannot be specified

The input driver module for the MPD should not drive any other module.

Output Specifications



Fan In

Must be driven from a current source, usually from a collector with a resistor returned to +V.

Fan Out

The total available collector current from a MPD-1A is = 51ma.
 $51\text{ma} = I_R + N_1 K_1 + N_2 K_2 + \dots$

I_R = Current through collector resistor

N_1 = Number of AI loads being driven

N_2 = No. of AOI loads being driven

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K_1 = 2.3ma, AI - 2A loading constant

K_2 = 3.0ma, AOI - 2A loading constant

To double the Fan Out, the output collectors and inputs must be paralleled.

Maximum Power Supply Current Requirements (per circuit)

	<u>ON</u>	<u>OFF</u>
+6V	0	0
+3V	13ma	6ma
-3V	0	0

Maximum Power Dissipation (per circuit)

<u>ON</u>	<u>OFF</u>
59ma	17mw

$$\text{Average Normal Power Dissipation} = \frac{\text{NOMINAL ON} + \text{NOMINAL OFF}}{2} = 33\text{mw}$$

General Wiring Rules (For Printed Circuit Wire - 10 Mil Width Lines)

The maximum input line length should be less than 6 inches. The total net length at the output should be less than 60 inches unless longer delays can be tolerated.