

MITSUBISHI (DGTL LOGIC)

M54537P**7-UNIT 350mA TRANSISTOR ARRAY****DESCRIPTION**

The M54537P, 7-channel sink driver, consists of 14 NPN transistors connected to form high current gain driver pairs.

FEATURES

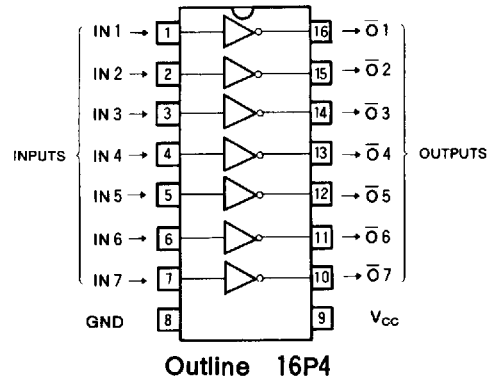
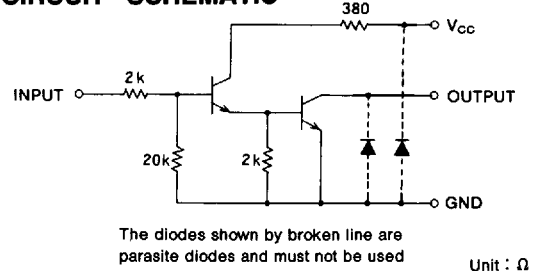
- Output breakdown voltage to 20V
- High output sink current to 250mA
- PMOS Compatible input
- Low output saturation voltage
- Wide operating temperature range ($T_a = -20 \sim +75^\circ\text{C}$)

APPLICATION

Relay and printer driver, LED or incandescent display digit driver, Interfacing for standard MOS/BIPOLAR logics

FUNCTION

The M54537P uses a predriver stage with $2k\Omega$ series input resistor. The power supply of the predrivers is connected to pin 9. All emitters and the substrate are connected together to pin 8. The outputs are capable of sinking 250mA and will withstand 20V in the OFF state.

PIN CONFIGURATION (TOP VIEW)**CIRCUIT SCHEMATIC****ABSOLUTE MAXIMUM RATINGS** ($T_a = -25 \sim +75^\circ\text{C}$, unless otherwise noted)

Symbol	Parameter	Conditions	Rating	Unit
V_{CC}	Supply voltage		10	V
V_{CEO}	Output sustaining voltage	Transistor OFF	$-0.5 \sim +20$	V
I_C	Collector current	Transistor ON	350	mA
V_I	Input voltage		10	V
P_d	Power dissipation	$T_a = 25^\circ\text{C}$	1.47	W
T_{opr}	Operating temperature		$-20 \sim +75$	$^\circ\text{C}$
T_{stg}	Storage temperature		$-55 \sim +125$	$^\circ\text{C}$

RECOMMENDED OPERATIONAL CONDITIONS ($T_a = -25 \sim +75^\circ\text{C}$, unless otherwise noted)

Symbol	Parameter		Limits			Unit
			Min	Typ	Max	
V_{CC}	Supply voltage		3		8	V
V_O	Output voltage		0		20	V
I_C	Collector current per channel	$V_{CC} = 6.5\text{V}$ Percent duty cycle less than 40%	0		250	mA
		$V_{CC} = 6.5\text{V}$ Percent duty cycle less than 65%	0		150	
V_{IH}	"H" input voltage	$I_C = 250\text{mA}$	3		6	V
V_{IL}	"L" input voltage	$I_{O(leak)} = 50\mu\text{A}$	0		0.3	V

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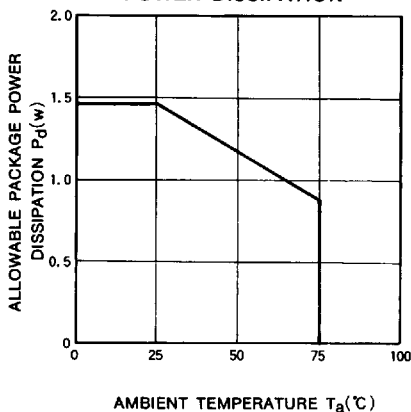
ELECTRICAL CHARACTERISTICS (T_a = -25~+75°C, unless otherwise noted)

Symbol	Parameter	Test conditions	Limits			Unit
			Min	Typ*	Max	
V _{(BR)CEO}	Output sustaining voltage	V _{CC} =8V, I _{CE0} =100μA	20			V
V _{CE(sat)}	Output saturation voltage	V _I =3V V _{CC} =6.5V, I _C =250mA V _{CC} =3V, I _C =150mA		0.28 0.17	0.5 0.35	V
I _I	Input current	V _{CC} =8V, V _I =3.2V V _{CC} =8V, V _I =10V		0.7 3.8	1.5 7.3	mA
I _{CC}	Supply current	V _{CC} =8V, V _I =3.2V		130	190	mA
h _{FE}	DC forward current gain	V _{CE} =4V, V _{CC} =6.5V, I _C =250mA, T _a =25°C	1000	7000		—

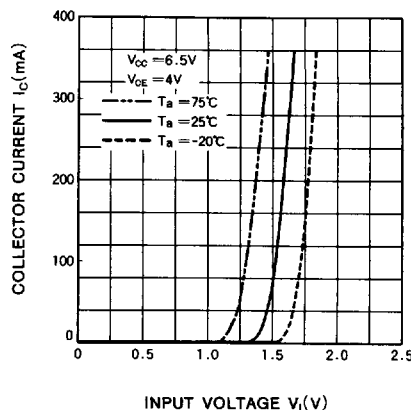
* : Typical values are at T_a=25°C

TYPICAL CHARACTERISTICS

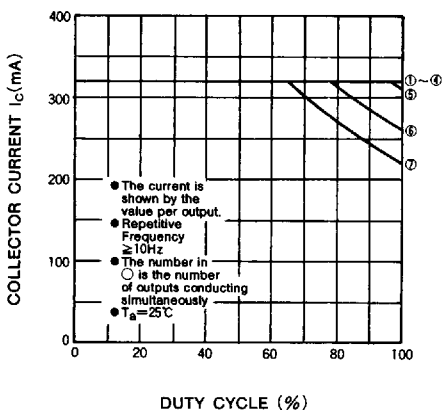
ALLOWABLE AVERAGE POWER DISSIPATION



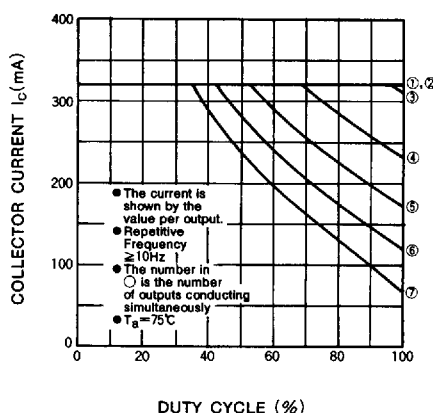
OUTPUT CURRENT CHARACTERISTICS



ALLOWABLE COLLECTOR CURRENT AS A FUNCTION OF DUTY CYCLE



ALLOWABLE COLLECTOR CURRENT AS A FUNCTION OF DUTY CYCLE



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