M54584P

8-UNIT 350mA TRANSISTOR ARRAY

DESCRIPTION

The M54584P, 8-channel sink driver, consists of 16 NPN transistors connected to form high current gain driver pairs with low input current.

FEATURES

- High output sustaining voltage to 20V
- High output sink current to 350mA
- PMOS IC output for drive
- Low output saturation voltage
  ($V_{CE(sat)}$=0.5V at I_C=250mA)
- Wide operating temperature range (T_a=−20∼+75℃)

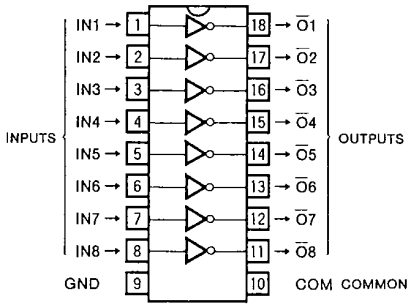
APPLICATION

Relay and thermal printer dot driver, LED or incandescent display digit driver, Interface for MOS-bipolar logic IC_S

FUNCTION

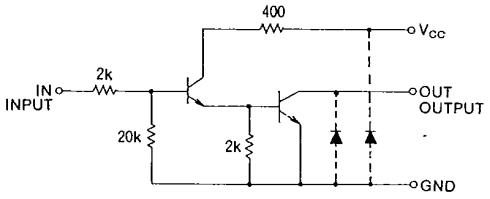
The M54584P is composed of eight NPN transistors with the emitters of output transistors connected to GND pin (pin 9). The collectors of NPN predriver transistors are connected to the V_{CC} (pin 10) via a resistor of 400Ω. The outputs are capable of sinking 350mA and will withstand 20V between collector and emitter.

PIN CONFIGURATION (TOP VIEW)



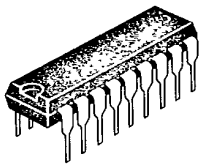
Outline 18P4

CIRCUIT SCHEMATIC (EACH CIRCUIT)



V_{CC} and GND are all common to 8 circuits.
The diodes shown by broken line are parasite diodes and must not be used.

Unit : Ω



18-pin molded plastic DIP

ABSOLUTE MAXIMUM RATINGS (T_a=−20∼+75℃, unless otherwise noted)

Symbol	Parameter	Conditions	Ratings	Unit
V_{CC}	Supply voltage		−0.5∼10	V
V_{CEO}	Output sustaining voltage	When the output is "H"	−0.5∼+20	V
I_C	Collector current	Per channel current, when the output is "L"	350	mA
V_I	Input voltage		−0.5∼+10	V
P_d	Power dissipation	T_a=25℃	1.79	W
Topr	Operating ambient temperature range		−20∼+75	℃
Tsqg	Storage temperature range		−55∼+125	℃

RECOMMENDED OPERATIONAL CONDITIONS (T_a=−20~+75℃, unless otherwise noted)

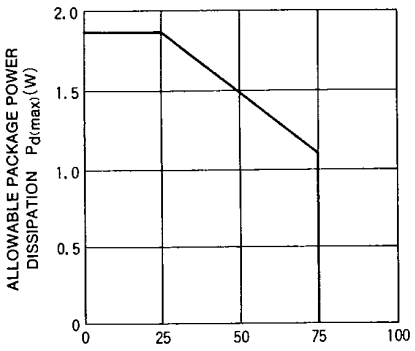
Symbol	Parameter		Limits			Unit
			Min	Typ	Max	
V_{CC}	Supply voltage		3	5	8	V
V_O	Output voltage		0		20	V
I_C	Collector current per channel	Percent duty cycle less than 45%, V_{CC}=6.5V			250	mA
		Percent duty cycle less than 70%, V_{CC}=6.5V			150	
V_{IH}	"H" Input voltage	I_C≧250mA	3		V_{CC}	V
V_{IL}	"L" Input voltage	$I_{O(leak)}$≧50μA	0		0.4	V

ELECTRICAL CHARACTERISTICS (T_a=−20~+75℃, unless otherwise noted)

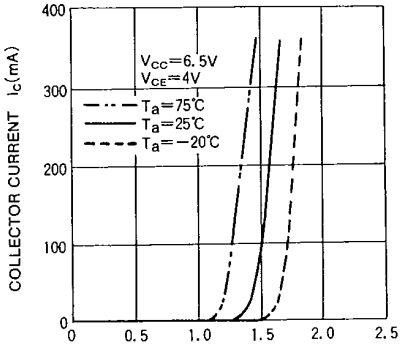
Symbol	Parameter	Test conditions	Limits			Unit
			Min	Typ	Max	
$I_{O(leak)}$	Output leakage voltage	V_{CC}=8V, V_{CE}=20V			100	μA
$V_{CE(sat)}$	Output saturawion voltage	V_{CC}=6.5V, V_I=3V, I_C=250mA		0.3	0.5	V
		V_{CC}=3V, V_I=3V, I_C=150mA		0.7	0.35	
I_I	Input current	V_{CC}=8V, V_I=3V		0.7	1.5	mA
		V_{CC}=8V, V_I=10V		4.3	7.3	
I_{CC}	Supply current (all output ON)	V_{CC}=8V, V_I=3V			220	mA
h_{FE}	DC forward current transter ratio	V_{CC}=6.5V, V_{CE}=4V, I_C=250mA, T_a=25℃	1000	7000		—

TYPICAL CHARACTERISTICS

ALLOWABLE AVERAGE POWER DISSIPATION

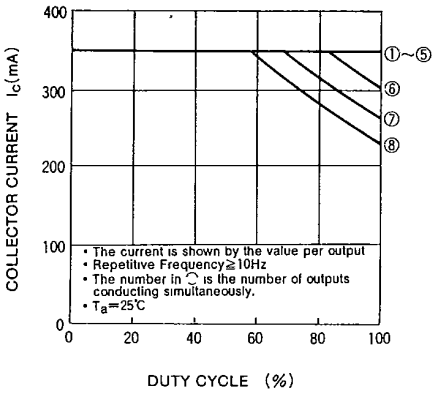


OUTPUT CURRENT CHARACTERISTICS



MITSUBISHI ELECTRIC

ALLOWABLE COLLECTOR CURRENT AS A FUNCTION OF DUTY CYCLE



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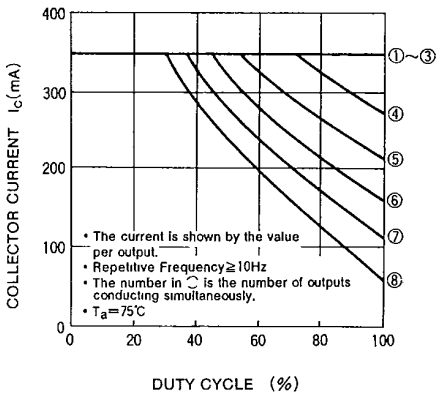

CURRENT GAIN CHARACTERISTICS