

MITSUBISHI (DGTL LOGIC)

**M54517P****7-UNIT 400mA DARLINGTON TRANSISTOR ARRAY****DESCRIPTION**

The M54517P, 7-channel sink driver, consists of 14 NPN transistors connected to form seven high current gain driver pairs.

**FEATURES**

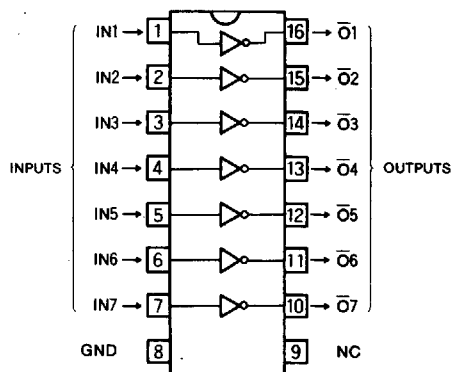
- Output sustaining voltage to 25V
- High output sink current to 400mA
- PMOS Compatible input
- Wide operating temperature range ( $T_a = -20 \sim +75^\circ\text{C}$ )

**APPLICATION**

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

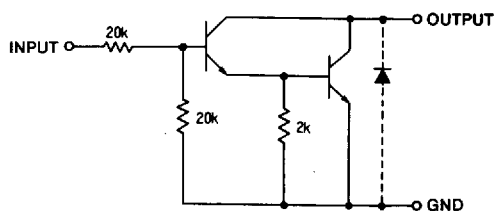
**FUNCTION**

The M54517P is comprised of seven NPN darlington driver pairs with  $20\text{k}\Omega$  series input resistors. All emitters and the substrate are connected to pin 8. The output are capable of sinking 400mA and will withstand 25V in the OFF state.

**PIN CONFIGURATION (TOP VIEW)**

Outline 16P4

NC : No connection

**CIRCUIT SCHEMATIC**

The diodes shown by broken line are parasite diodes and must not be used

Unit :  $\Omega$ **ABSOLUTE MAXIMUM RATINGS** ( $T_a = -20 \sim +75^\circ\text{C}$ , unless otherwise noted)

Symbol	Parameter	Conditions	Ratings	Unit
$V_{CE0}$	Output sustaining voltage	Transistor OFF	-0.5 ~ +25	V
$I_C$	Collector current per channel	Transistor ON	400	mA
$V_I$	Input voltage		25	V
$P_d$	Power dissipation	$T_a = 25^\circ\text{C}$	1.47	W
$T_{opr}$	Operating temperature		-20 ~ +75	$^\circ\text{C}$
$T_{stg}$	Storage temperature		-55 ~ +125	$^\circ\text{C}$

**7-UNIT 400mA DARLINGTON TRANSISTOR ARRAY**

**RECOMMENDED OPERATIONAL CONDITIONS** ( $T_a = -20 \sim +75^\circ\text{C}$ , unless otherwise noted)

Symbol	Parameter		Limits			Unit
			Min	Typ	Max	
$V_O$	Output voltage		0		25	V
$I_C$	Collector current per channel	Percent duty cycle less than 8 %	0		400	mA
		Percent duty cycle less than 40%	0		200	
$V_{IH}$	"H" Input voltage	$I_C = 400\text{mA}$	8		20	V
		$I_C = 100\text{mA}$	5		20	
$V_{IL}$	"L" Input voltage	$I_{O(leak)} = 50\mu\text{A}$	0		0.5	V

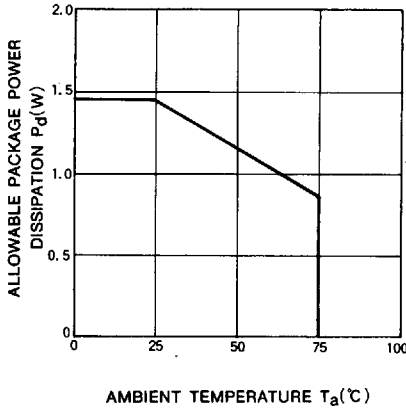
**ELECTRICAL CHARACTERISTICS** ( $T_a = -20 \sim +75^\circ\text{C}$ , unless otherwise noted)

Symbol	Parameter	Test conditions	Limits			Unit
			Min	Typ*	Max	
$V_{(BR)CEO}$	Output sustaining voltage	$I_{CEO} = 100\mu\text{A}$	25			V
$V_{CE(sat)}$	Output saturation voltage	$V_I = 8\text{V}, I_C = 400\text{mA}$		1.15	2.2	V
		$V_I = 5\text{V}, I_C = 200\text{mA}$		0.95	1.4	
$I_I$	Input current	$V_I = 17\text{V}$	0.3	0.8	1.8	mA
$h_{FE}$	DC forward current gain	$V_{CE} = 4\text{V}, I_C = 400\text{mA}, T_B = 25^\circ\text{C}$	1000	4500		—

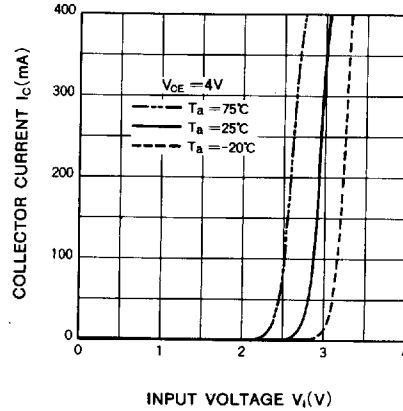
\* : A typical value at  $T_a = 25^\circ\text{C}$ .

**TYPICAL CHARACTERISTICS**

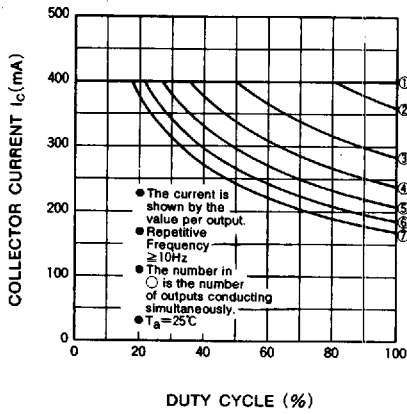
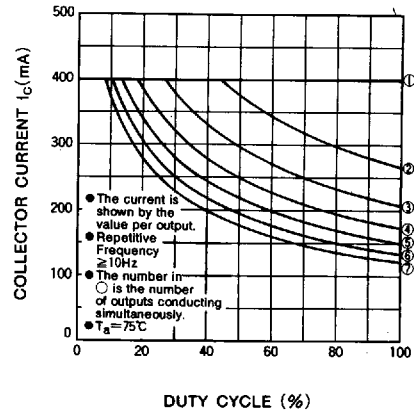
**ALLOWABLE AVERAGE POWER DISSIPATION**



**OUTPUT CURRENT CHARACTERISTICS**



## 7-UNIT 400mA DARLINGTON TRANSISTOR ARRAY

ALLOWABLE COLLECTOR CURRENT  
AS A FUNCTION OF DUTY CYCLEALLOWABLE COLLECTOR CURRENT  
AS A FUNCTION OF DUTY CYCLEDC CURRENT GAIN  
CHARACTERISTICS