

MITSUBISHI (DGTL LOGIC)

**M54521P****5-UNIT 500mA DARLINGTON TRANSISTOR ARRAY****DESCRIPTION**

The M54521P, 5-channel sink driver, consists of 10 NPN transistors connected to form high current gain driver pairs.

**FEATURES**

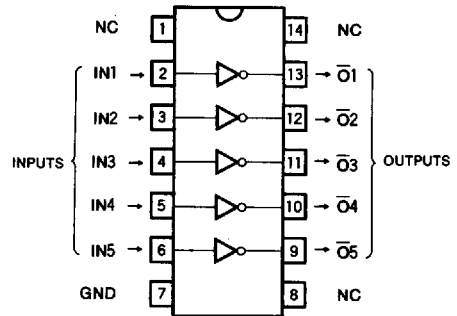
- Output sustaining voltage to 30V
- High output sink current to 500mA
- Wide operating temperature range ( $T_a = -20 \sim +75^\circ\text{C}$ )

**APPLICATION**

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

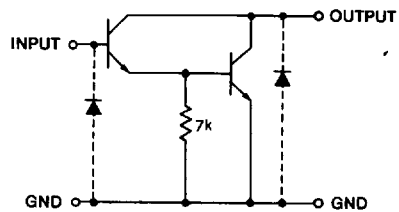
**FUNCTION**

The M54521P is comprised of five NPN darlington driver pairs. All emitters and the substrate are connected together to pin 7. The output are capable of sinking 500mA and will withstand 30V in the OFF state.

**PIN CONFIGURATION (TOP VIEW)**

Outline 14P4

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
$V_{CEO}$	Output sustaining voltage	Transistor OFF	-0.5 ~ +30	V
$I_C$	Collector current per channel	Transistor ON	500	mA
$P_d$	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	$^\circ\text{C}$

## 5-UNIT 500mA 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		30	V
$I_C$	Collector current per channel	Percent duty cycle less than 10%	0		400	mA
		Percent duty cycle less than 55%	0		200	
$I_{IH}$	"H" Input current	$I_C = 200\text{mA}$	1		5	mA
		$I_C = 400\text{mA}$	2		5	
$I_{IL}$	"L" Input current		0		10	$\mu\text{A}$

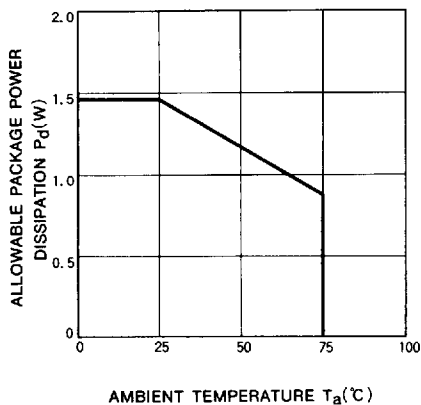
ELECTRICAL CHARACTERISTICS ( $T_a = -20 \sim +75^\circ\text{C}$ , unless otherwise noted)

Symbol	Parameter	Test conditions	Limits			Unit
			Min	Typ*	Max	
$V_{(BR)CEO}$	Output sustaining voltage	$I_{CEO} = 100\mu\text{A}$	30			V
$V_{CE(sat)}$	Output saturation voltage	$V_I = 2\text{mA}$ , $I_C = 400\text{mA}$		1.0	2.4	V
		$V_I = 1\text{mA}$ , $I_C = 200\text{mA}$		0.8	1.6	
$V_I$	Input voltage	$I_I = 1\text{mA}$	0.6	1.35	1.7	V

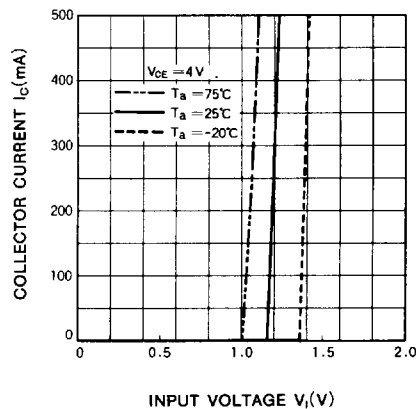
\* : Typical values are at  $T_a = 25^\circ\text{C}$ .

## TYPICAL CHARACTERISTICS

ALLOWABLE AVERAGE POWER DISSIPATION

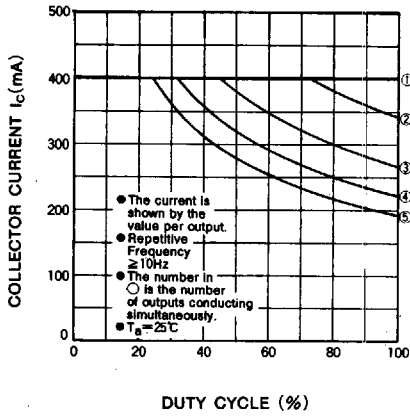


OUTPUT CURRENT CHARACTERISTICS

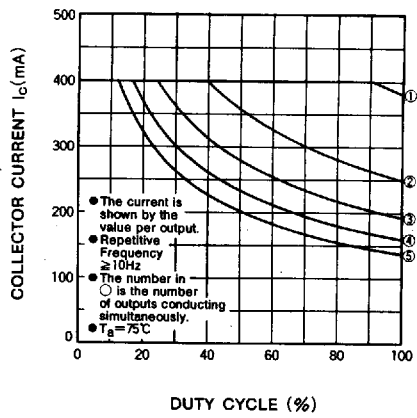


**5-UNIT 500mA DARLINGTON TRANSISTOR ARRAY**

**ALLOWABLE COLLECTOR CURRENT AS A FUNCTION OF DUTY CYCLE**



**ALLOWABLE COLLECTOR CURRENT AS A FUNCTION OF DUTY CYCLE**



**DC CURRENT GAIN CHARACTERISTICS**

