

M54525P

7-UNIT 500mA DARLINGTON TRANSISTOR ARRAY WITH CLAMP DIODE

DESCRIPTION

The M54525P, 7-channel sink driver, consists of 14 NPN transistors connected to form high current gain driver pairs.

FEATURES

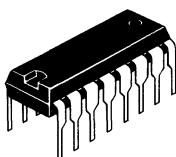
- High output sustaining voltage to 50V
- High output sink current to 500mA
- Integral diodes for transient suppression
- 24V PMOS compatible input
- Wide operating temperature range ($T_a = -20 \sim +75^\circ\text{C}$)

APPLICATIONS

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

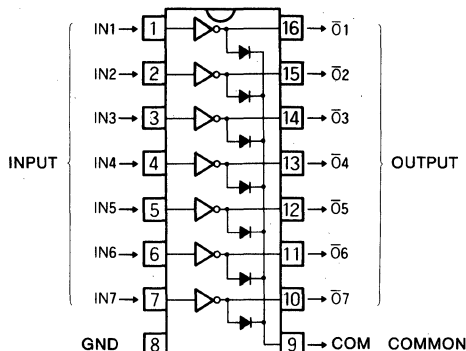
FUNCTION

The M54525P is comprised of seven NPN darlington driver pairs. Each input has a Zener diode and $10.5\text{k}\Omega$ resistor in series to limit the input current. Between pin 9 and each output, there are integral diodes for inductive load transient suppression. All emitters and the substrate are connected together to pin 8. The outputs are capable of sinking 500mA and will withstand 50V in the OFF state.



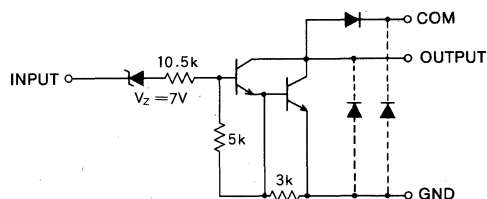
16-pin molded plastic DIL

PIN CONFIGURATION (TOP VIEW)



Outline 16P4

CIRCUIT SCHEMATIC



UNIT : Ω

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

Symbol	Parameter	Conditions	Limits	Unit
V_{CEO}	Output sustaining voltage	Transistor OFF	50	V
I_C	Collector current	Transistor ON	500	mA
V_I	Input voltage		30	V
I_F	Clamp diode forward current		500	mA
V_R	Clamp diode reverse voltage		50	V
P_d	Power dissipation	$T_a = 25^\circ\text{C}$	1.47	W
T_{opr}	Operating ambient temperature range		$-20 \sim +75$	$^\circ\text{C}$
T_{stg}	Storage temperature range		$-55 \sim +125$	$^\circ\text{C}$

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RECOMMENDED OPERATIONAL CONDITIONS (T_a=-20~+75°C, unless otherwise noted)

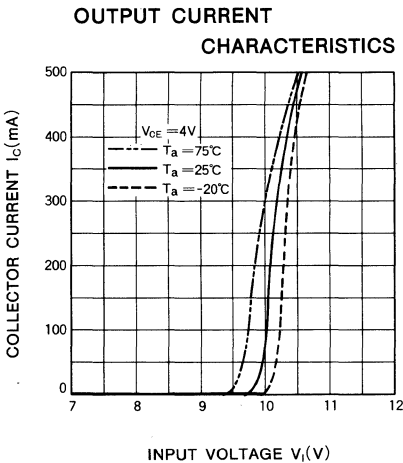
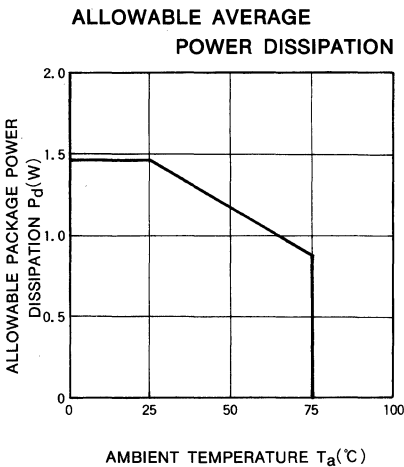
Symbol	Parameter		Limits			Unit
			Min	Typ	Max	
V _O	Output voltage				50	V
I _C	Collector current per channel	Percent duty cycle less than 8%			400	mA
		Percent duty cycle less than 30%			200	mA
V _{IH}	"H" Input voltage	I _C =400mA	17			V
V _{IL}	"L" Input voltage				6	V

ELECTRICAL CHARACTERISTICS (T_a=-20~+75°C, unless otherwise noted)

Symbol	Parameter	Test conditions	Limits			Unit
			Min	Typ*	Max	
I _{O(leak)}	Input leakage current	V _{CE} =50V, I _I =0mA			100	μA
		V _I =6V			500	μA
V _{CE(sat)}	Output saturation voltage	V _I =17V, I _C =400mA		1.3	2.4	V
		V _I =17V, I _C =200mA			1.6	V
I _I	Input current	V _I =17V		0.85	1.8	mA
		V _I =25V		1.6	3.2	mA
V _F	Clamp diode forward voltage	I _F =400mA		1.5	2.4	V
I _R	Clamp diode leakage current	V _R =50V			100	μA
h _{FE}	DC forward current gain	V _{CE} =4V, I _C =350mA, T _a =25°C	1000			

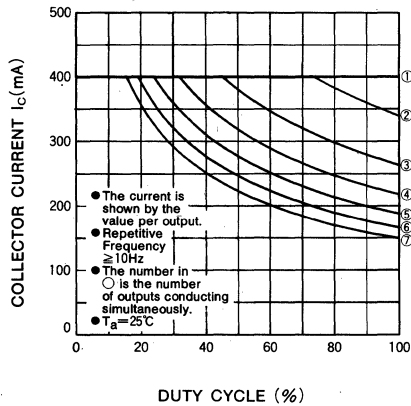
* : All typical values are at T_a=25°C.

TYPICAL CHARACTERISTICS

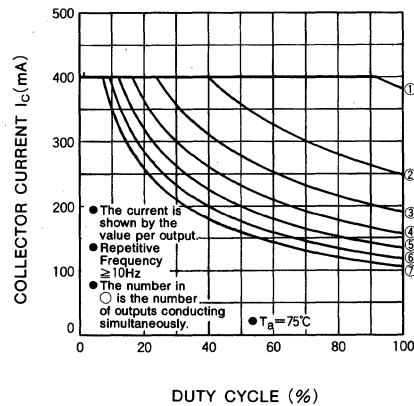


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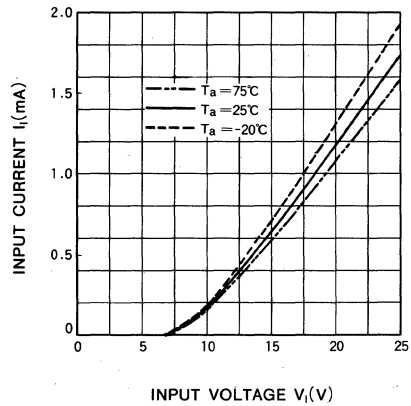
**ALLOWABLE COLLECTOR CURRENT
AS A FUNCTION OF DUTY CYCLE**



**ALLOWABLE COLLECTOR CURRENT
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INPUT CHARACTERISTICS



**DC CURRENT GAIN
CHARACTERISTICS**

