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 (Ta = −20~+75℃)

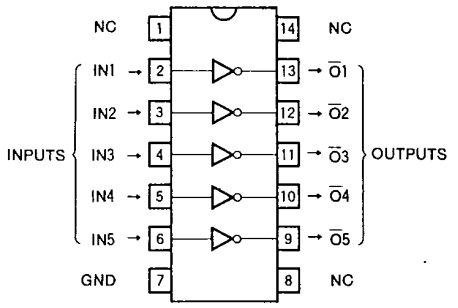
APPLICATION

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.

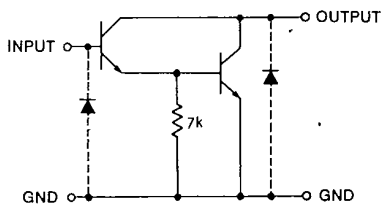
PIN CONFIGURATION (TOP VIEW)



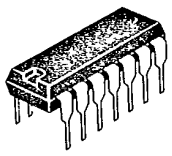
Outline 14P4

NC : NO CONNECTION

CIRCUIT SCHEMATIC



Unit : Ω



14-pin molded plastic DIP

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

Symbol	Parameter	Conditions	Ratings	Unit
V_{CEO}	Output sustaining voltage	Transistor OFF	−0.5~+30	V
I_C	Collector current	Transistor ON	500	mA
P_d	Power dissipation	T_a=25℃	1.47	W
T_{opr}	Operating ambient temperature range		−20~+75	℃
T_{stg}	Storage temperature range		−55~+125	℃

5-UNIT 500mA DARLINGTON TRANSISTOR ARRAY

RECOMMENDED OPERATIONAL CONDITIONS (T_a=−20~+75℃, 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=200mA	1		5	mA
		I_C=400mA	2		5	
I_{IL}	"L" Input current			0		μA

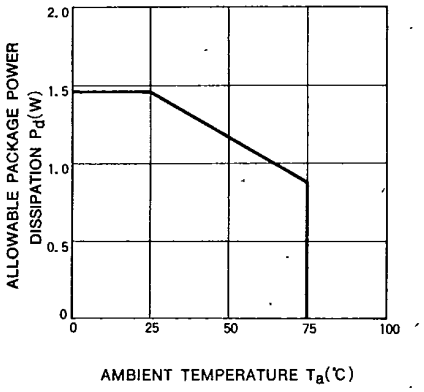
ELECTRICAL CHARACTERISTICS (T_a=−20~+75℃, unless otherwise noted)

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

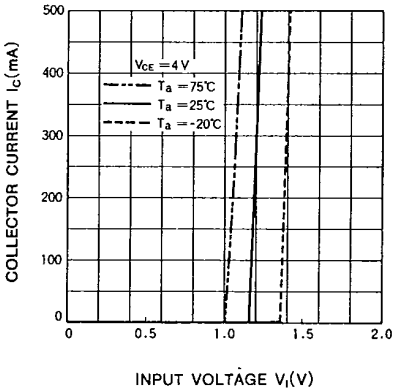
* : A typical value is at T_a=25℃.

TYPICAL CHARACTERISTICS

ALLOWABLE AVERAGE POWER DISSIPATION



OUTPUT CURRENT CHARACTERISTICS



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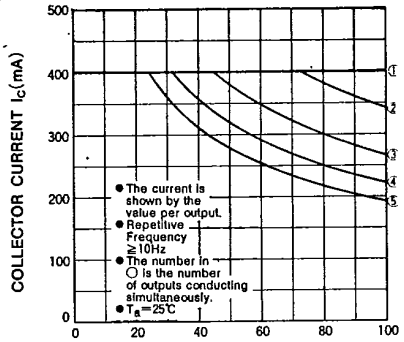
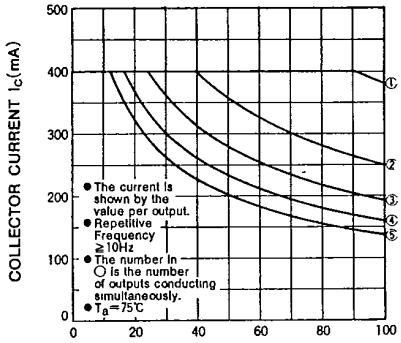
ALLOWABLE COLLECTOR CURRENT AS A FUNCTION OF DUTY CYCLE



ALLOWABLE COLLECTOR CURRENT AS A FUNCTION OF DUTY CYCLE



DC CURRENT GAIN CHARACTERISTICS