

7-UNIT 400mA DARLINGTON TRANSISTOR ARRAY WITH CLAMP DIODE

6249826 MITSUBISHI ELEK (LINEAR)

80C 09269

D 7-43-25

DESCRIPTION

The M54530P, 7-channel sink driver, consists of 14 NPN transistors connected to form seven high current gain driver pairs.

FEATURES

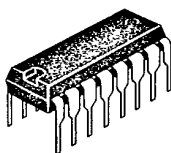
- High output sustaining voltage to 40V
- High output sink current to 400mA
- Integral diodes for transient suppression
- PMOS compatible input
- Wide operating temperature range ($T_a = -20 \sim +75^\circ\text{C}$)

APPLICATION

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

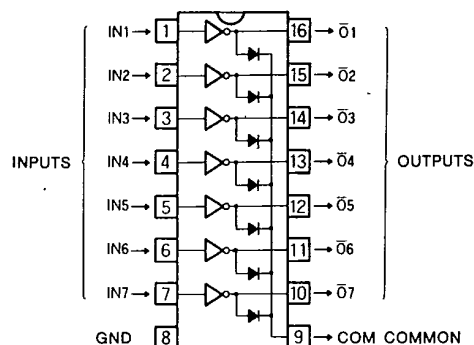
FUNCTION

The M54530P is comprised of seven NPN darlington driver pairs with $20\text{k}\Omega$ series input resistors. 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 400mA and will withstand 40V in the OFF state.



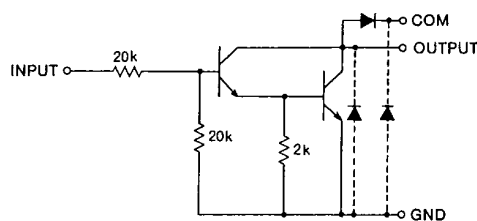
16-pin molded plastic DIP

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	Rating	Unit
V_{CEO}	Output sustaining voltage	Transistor OFF	$-50 \sim +40$	V
I_C	Collector current	Transistor ON	400	mA
V_I	Input voltage		40	V
I_F	Clamp diode forward current		400	mA
V_R	Clamp diode reverse voltage		40	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 ($T_a = -20 \sim +75^\circ\text{C}$, unless otherwise noted)

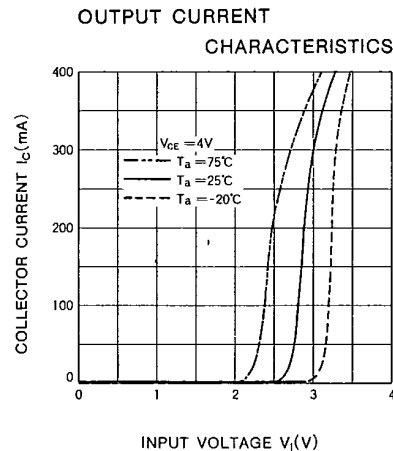
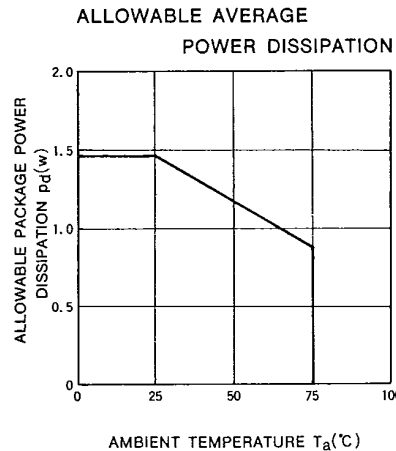
Symbol	Parameter	Limits			Unit
		Min	Typ	Max	
V_O	Output voltage	0		40	V
I_C	Collector current per channel			400	mA
				200	
V_{IH}	"H" Input voltage			35	V
				35	
V_{IL}	"L" Input voltage	0		0.5	V

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	$I_{CER} = 100\mu\text{A}$	40			V
$V_{CE(sat)}$	Output saturation voltage	$V_I = 8\text{V}, I_C = 400\text{mA}$		1.3	2.4	V
		$V_I = 5\text{V}, I_C = 200\text{mA}$		1	1.6	
I_I	Input current	$V_I = 17\text{V}$		0.85	1.8	mA
		$V_I = 35\text{V}$		2.0	3.8	
V_F	Clamp diode forward voltage	$I_{F(D)} = 400\text{mA}$		1.5	2.4	V
V_R	Clamp diode reverse voltage	$V_{R(D)} = 100\text{V}$	40			V
h_{FE}	DC forward current gain	$V_{CE} = 4\text{V}, I_C = 300\text{mA}, T_a = 25^\circ\text{C}$	1000	3500		—

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

TYPICAL CHARACTERISTICS



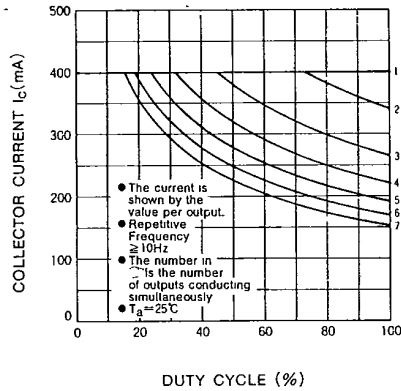
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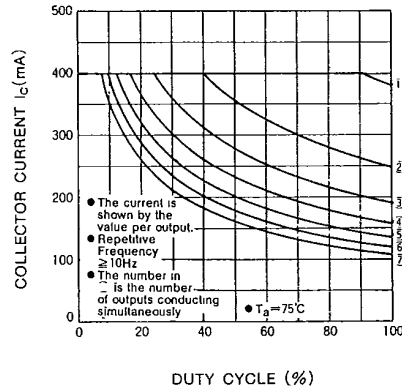
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ALLOWABLE COLLECTOR CURRENT
AS A FUNCTION OF DUTY CYCLE



ALLOWABLE COLLECTOR CURRENT
AS A FUNCTION OF DUTY CYCLE



DC CURRENT GAIN
CHARACTERISTICS

