

**M5248P/M5286P****4-UNIT 1.5A DARLINGTON CURRENT DRIVER****DESCRIPTION**

The M5248P/M5286P, 4-channel sink driver, consists of 4 PNP and 14 NPN transistors to form high current gain driver pairs.

**FEATURES**

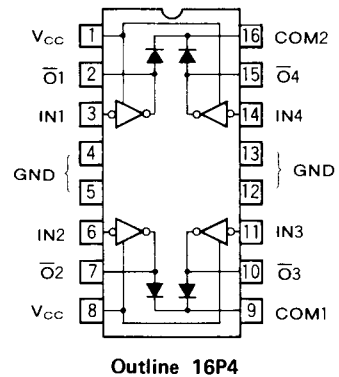
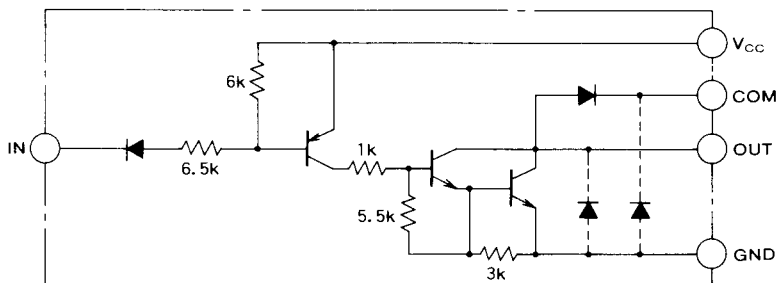
- High output sustaining voltage to 80V (M5248P)/60V (M5286P)
- High output current to 1.5A
- Integral diodes for transient suppression
- Micro Computer Compatible input.
- Wide operating temperature range ( $T_a = -40 \sim +85^\circ\text{C}$ )

**APPLICATION**

Relay and printer driver, LED or incandescent display digit driver

**FUNCTION**

The M5248P/M5286P is comprised of four PNP invertors with  $6.5\text{k}\Omega$  series input resistors and NPN darlington sink drivers. Each output has an integral diode for inductive load suppression and the anodes of the diode connected to pins 9 and 16. The outputs are capable of sinking 1.5A and will withstand 80V (M5248P)/60V (M5286P) in the OFF state.

**PIN CONFIGURATION (TOP VIEW)****CIRCUIT DIAGRAM**Unit:  $\Omega$

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**ABSOLUTE MAXIMUM RATINGS** (Ta = 25°C, unless otherwise noted)

Symbol	Parameter	Conditions	Ratings	Unit
V <sub>CC</sub>	Supply voltage		20	V
V <sub>CEO</sub>	Output sustaining voltage	Transistor OFF	80 (M5248P) / 60 (M5286P)	V
V <sub>I</sub>	Input voltage		20	V
I <sub>C</sub>	Collector current	Transistor ON	1.5	A
V <sub>R</sub>	Clamp diode reverse voltage		80	V
I <sub>F</sub>	Clamp diode forward current		1.5	A
P <sub>d</sub>	Power dissipation	GND with Cu foil (900mm, 35μ m)	2.7	W
T <sub>opr</sub>	Operating ambient temperature range		-40 ~ +85	°C
T <sub>stg</sub>	Storage temperature range		-55 ~ +125	°C

**RECOMMENDED OPERATIONAL CONDITIONS** (Ta = -40 ~ +85°C unless otherwise noted)

Symbol	Parameter	Test conditions	Limits			Unit
			Min	Typ	Max	
V <sub>C</sub>	Supply voltage		4	5	6	V
V <sub>O</sub>	Output voltage		0		70 (M5248P) / 50 (M5286P)	V
I <sub>C</sub>	Collector current		0		1.25	A
V <sub>R</sub>	Clamp diode reverse voltage		0		70 (M5248P) / 50 (M5286P)	V
I <sub>F</sub>	Clamp diode forward current		0		1.25	A
P <sub>d</sub>	Power dissipation		0		1.0	W

**ELECTRICAL CHARACTERISTICS** (Ta = -40 ~ +85°C unless otherwise noted)

Symbol	Parameter	Test conditions	Limits			Unit
			Min	Typ	Max	
V <sub>(BR)CEO</sub>	Output sustaining voltage	I <sub>CEO</sub> = 100μA	80 (M5248P) / 60 (M5286P)			V
I <sub>CCH</sub>	Supply current (OUTPUT "H")	V <sub>CC</sub> = 6V, V <sub>I</sub> = V <sub>CC</sub>			10.9	μA
I <sub>CCL</sub>	Supply current (OUTPUT "L")	V <sub>CC</sub> = 6V, V <sub>I</sub> = 0.5V			9.0	mA
V <sub>CE(sat)</sub>	Output saturation voltage	V = 4V, I <sub>C</sub> = 1.25A		1.4	1.8	V
		V <sub>I</sub> = 0.5V, I <sub>C</sub> = 0.7A		1.0	2.3	
I <sub>I</sub>	Input current	V <sub>I</sub> = V <sub>CC</sub> - 3.5V			-0.6	mA
		V <sub>I</sub> = V <sub>CC</sub> - 6V			-1.2	
I <sub>O(leak)</sub>	Output leak current	V = 80V, Ta = 85°C (M5248P) / V = 60V, Ta = 85°C (M5286P)			100	μA
I <sub>R</sub>	Clamp diode leak current	V <sub>R</sub> = 80V (M5248P) / V <sub>R</sub> = 60V (M5286P)			50	μA
V <sub>R</sub>	Clamp diode reverse voltage	I <sub>R</sub> = 100μA	80 (M5248P) / 60 (M5286P)			V
V <sub>FE</sub>	Clamp diode forward voltage	I <sub>F</sub> = 1.25A		1.6	2.0	V
h <sub>IH</sub>	DC forward current gain	V <sub>CC</sub> = 4V, V <sub>CF</sub> = 4V, I <sub>C</sub> = 1A	4000			—
V <sub>IH</sub>	"H" Input voltage	I <sub>O(leak)</sub> = 50μA	V <sub>CC</sub> - 1.3			V
V <sub>IL</sub>	"L" Input voltage	I <sub>C</sub> = 1.25A			V <sub>CC</sub> - 3.5	V

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**TYPICAL CHARACTERISTICS**

