



HESTORE.HU
elektronikai alkatrész áruház

EN: This Datasheet is presented by the manufacturer.

Please visit our website for pricing and availability at www.hestore.hu.

DESCRIPTION

M54564P and M54564FP are eight-circuit output-sourcing Darlington transistor arrays. The circuits are made of PNP and NPN transistors. Both the semiconductor integrated circuits perform high-current driving with extremely low input-current supply.

FEATURES

- High breakdown voltage ($BV_{CEO} \geq 50V$)
- High-current driving ($I_o(max) = -500mA$)
- With output pulldown resistance (Driving available with fluorescent display tube)
- Driving available with PMOS IC output or with TTL output
- Wide operating temperature range ($T_a = -20$ to $+75^{\circ}C$)
- Output current-sourcing type

APPLICATION

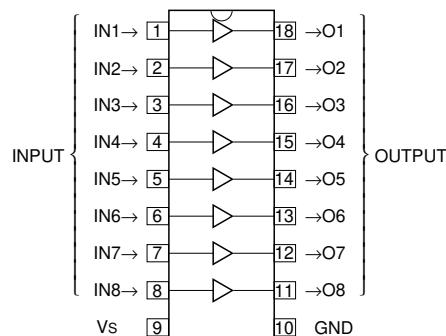
Drives of relays, printers, LEDs, fluorescent display tubes and lamps, and interfaces between MOS-bipolar logic systems and relays, solenoids, or small motors

FUNCTION

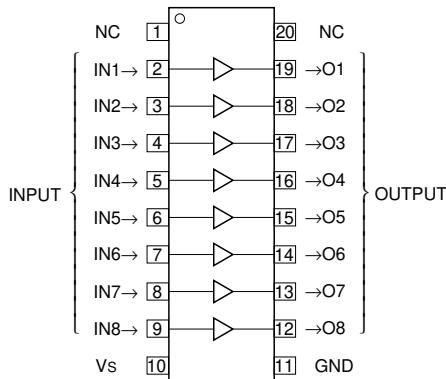
The M54564P and M54564FP each have eight circuits, which are made of input inverters and current-sourcing outputs. The outputs are made of PNP transistors and NPN Darlington transistors. The PNP transistor base current is constant. Resistance of $50k\Omega$ is connected between each output pin and GND, making these ICs suitable for fluorescent display tubes. Vs and GND are used commonly among the eight circuits.

Output current is 500mA maximum. Supply voltage Vs is 50V maximum.

The M54564FP is enclosed in a molded small flat package, enabling space-saving design.

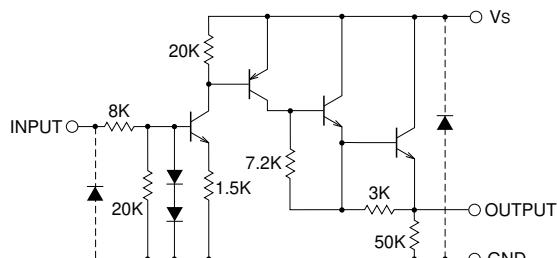
PIN CONFIGURATION

Package type 18P4G(P)



Package type 20P2N-A(FP)

NC : No connection

CIRCUIT DIAGRAM

The eight circuits share the Vs and GND.

The diode, indicated with the dotted line, is parasitic, and cannot be used.

Unit : Ω

8-UNIT 500mA SOURCE TYPE DARLINGTON TRANSISTOR ARRAY

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

Symbol	Parameter	Conditions	Ratings	Unit
V _{CEO}	Collector-emitter voltage	Output, L	-0.5 ~ +50	V
V _s	Supply voltage		50	V
V _i	Input voltage		-0.5 ~ +30	V
I _o	Output current	Current per circuit output, H	-500	mA
P _d	Power dissipation	$T_a = 25^\circ\text{C}$, when mounted on board	1.79(P)/1.10(FP)	W
T _{opr}	Operating temperature		-20 ~ +75	°C
T _{stg}	Storage temperature		-55 ~ +125	°C

RECOMMENDED OPERATING CONDITIONS (Unless otherwise noted, $T_a = -20 \sim +75^\circ\text{C}$)

Symbol	Parameter	Limits			Unit
		min	typ	max	
V _s	Supply voltage	0	—	50	V
I _o	Output current (Current per 1 circuit when 8 circuits are coming on simultaneously)	Duty Cycle P : no more than 8% FP : no more than 5%	0	—	-350
		Duty Cycle P : no more than 55% FP : no more than 30%	0	—	-100
V _{IH}	"H" input voltage	2.4	—	25	V
V _{IL}	"L" input voltage	0	—	0.2	V

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

Symbol	Parameter	Test conditions	Limits			Unit
			min	typ*	max	
I _S (leak)	Supply leak current	V _s = 50V, V _i = 0.2V	—	—	100	μA
V _{CE} (sat)	Collector-emitter saturation voltage	V _s = 10V, V _i = 2.4V, I _o = -350mA	—	1.6	2.4	V
		V _s = 10V, V _i = 2.4V, I _o = -100mA	—	1.45	2.0	
I _i	Input current	V _i = 5V, V _s = 10V	—	0.4	0.7	mA
		V _i = 25V, V _s = 30V	—	2.9	6.5	
I _s	Supply current	V _s = 50V, V _i = 5V	—	—	5.0	mA

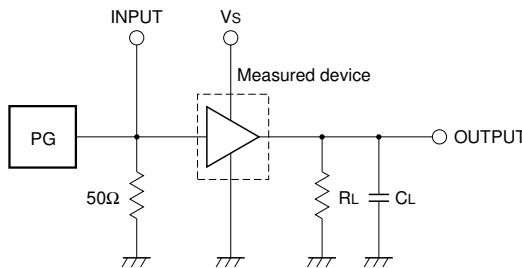
* : The typical values are those measured under ambient temperature (T_a) of 25°C . There is no guarantee that these values are obtained under any conditions.

SWITCHING CHARACTERISTICS (Unless otherwise noted, $T_a = 25^\circ\text{C}$)

Symbol	Parameter	Test conditions	Limits			Unit
			min	typ	max	
t _{on}	Turn-on time	C _L = 15pF (note 1)	—	185	—	ns
t _{off}	Turn-off time		—	4300	—	ns

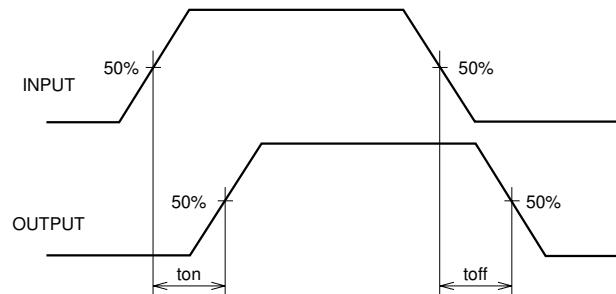
8-UNIT 500mA SOURCE TYPE DARLINGTON TRANSISTOR ARRAY

NOTE 1 TEST CIRCUIT

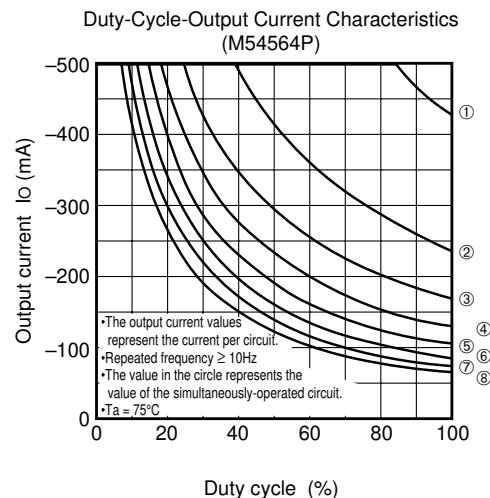
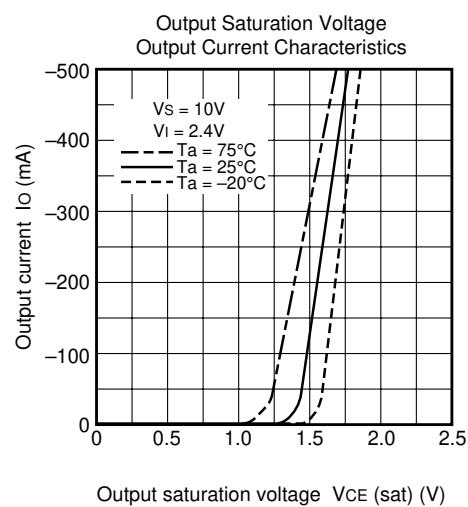
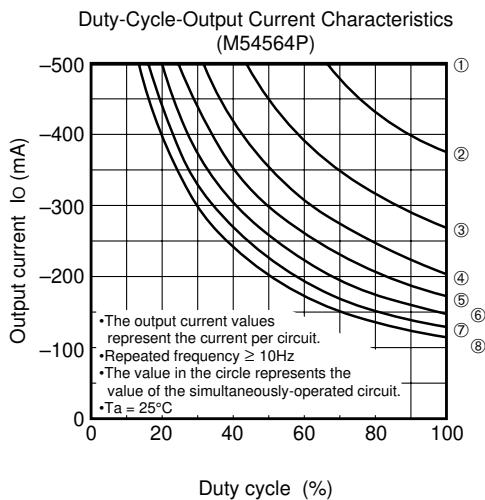
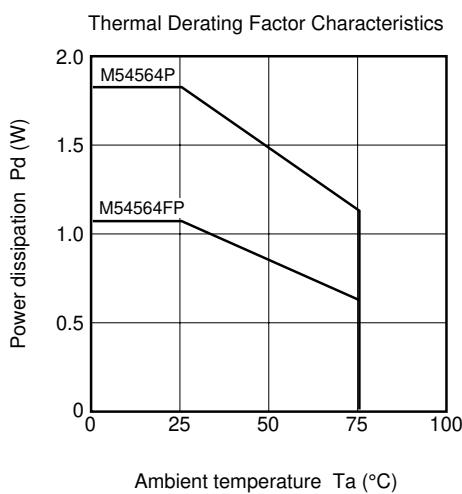


- (1) Pulse generator (PG) characteristics : PRR = 1kHz,
 $t_w = 10\mu s$, $t_r = 6ns$, $t_f = 6ns$, $Z_0 = 50\Omega$
 $V_i = 0$ to $2.4V$
(2) Input-output conditions : $R_L = 30\Omega$, $V_s = 10V$
(3) Electrostatic capacity C_L includes floating capacitance at connections and input capacitance at probes

TIMING DIAGRAM



TYPICAL CHARACTERISTICS



8-UNIT 500mA SOURCE TYPE DARLINGTON TRANSISTOR ARRAY

