

MITSUBISHI (DCTL LOGIC)

**M54563P****8-UNIT 500mA SOURCE TYPE DARLINGTON TRANSISTOR ARRAY  
WITH CLAMP DIODE****DESCRIPTION**

The M54563P, 8-channel source driver, is designed for use with +6 to +16V MOS logic systems.

**FEATURES**

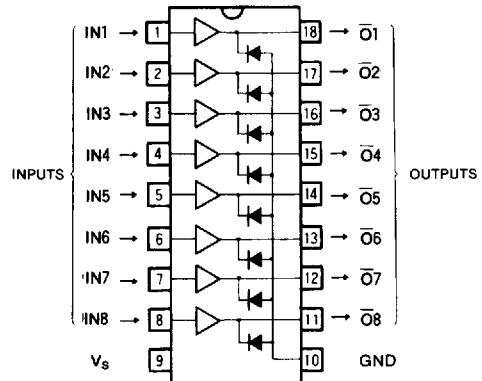
- High output sustaining voltage to 50V
- High output source current to 500mA
- Integral diode for transient suppression
- Wide operating temperature range ( $T_a = -20 \sim +75^\circ\text{C}$ )

**APPLICATION**

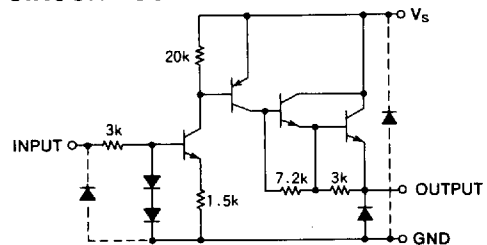
Relay and printer driver, LED, incandescent or fluorescent display driver, Interfacing for standard MOS/BIPOLAR logics

**FUNCTION**

The driver of the M54563P is comprised of a NPN inverter and compound PNP/NPN/NPN output source driver and the output is turned ON by an active high input level. Each output has an integral diode for inductive load transient suppression. The outputs are capable of driving 500mA and are rated for operating with output voltage up to 50V.

**PIN CONFIGURATION (TOP VIEW)**

Outline 18P4

**CIRCUIT SCHEMATIC**

The diodes shown by broken line are parasite diodes and must not be used

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

Symbol	Parameter	Conditions	Ratings	Unit
$V_{CEO}$	Output sustaining voltage	Transistor OFF	-0.5 ~ +50	V
$V_S$	Supply voltage		50	V
$V_I$	Input voltage		0 ~ +10	V
$I_O$	Output current	Transistor OFF	-500	mA
$I_F$	Clamp diode forward current		-500	mA
$V_R$	Clamp diode reverse voltage		50	V
$P_d$	Power dissipation	$T_a = 25^\circ\text{C}$	1.79	W
$T_{opr}$	Operating temperature		-20 ~ +75	$^\circ\text{C}$
$T_{stg}$	Storage temperature		-55 ~ +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	
$V_S$	Supply voltage		0		50	V
$I_O$	Output current per channel	Percent duty cycle less than 8%	0		-350	mA
		Percent duty cycle less than 60%	0		-100	
$V_{IH}$	High-level Input voltage	$I_O = -350\text{mA}$	2.4		25	V
$V_{IL}$	Low-level Input voltage		0		0.2	V

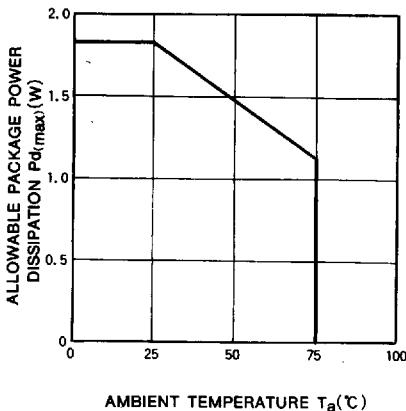
**ELECTRICAL CHARACTERISTICS** ( $T_a = -20 \sim +75^\circ\text{C}$ , unless otherwise noted)

Symbol	Parameter	Test conditions	Limits			Unit	
			Min	Typ*	Max		
$I_{S(leak)}$	Supply leak current	$V_S = 50\text{V}, V_I = 0.2\text{V}$			100	$\mu\text{A}$	
$V_{CE(sat)}$	Output saturation voltage	$V_S = 10\text{V}$			1.6	V	
		$V_I = 4\text{V}$	$I_O = -350\text{mA}$		2.4		
$I_i$	Input current	$V_I = 3\text{V}$			0.6	mA	
		$V_I = 10\text{V}$	$I_O = -100\text{mA}$		2		
$I_S$	Supply current	$V_S = 50\text{V}, V_I = 3\text{V}$			5.6	15	mA
$V_F$	Clamp diode forward voltage	$I_C = -350\text{mA}$			-1.2	-2.4	V
$V_R$	Clamp diode forward voltage	$I_R = 100\mu\text{A}$	50				V

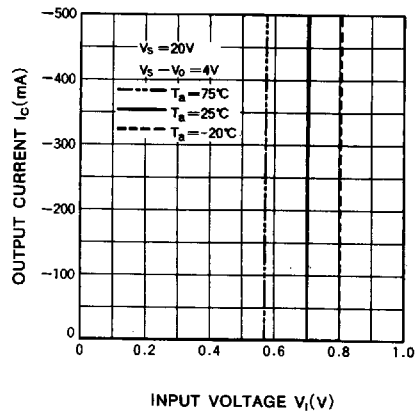
\* : Typical values are at  $T_a = 25^\circ\text{C}$ .

**TYPICAL CHARACTERISTICS**

**ALLOWABLE AVERAGE POWER DISSIPATION**



**OUTPUT CURRENT CHARACTERISTICS**



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