

MITSUBISHI (DGTL LOGIC)

M54577P,FP**7-UNIT 30mA TRANSISTOR ARRAY****DESCRIPTION**

The M54577P, FP, 7-channel sink driver, consists of 14 NPN transistors connected to form high current gain driver pairs.

FEATURES

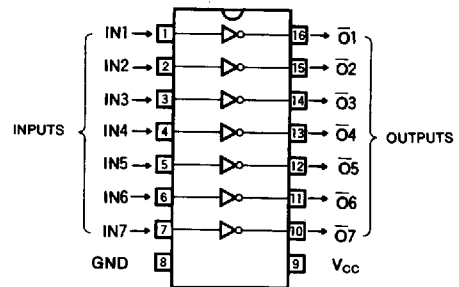
- Output breakdown voltage to 30V
- Output sink current to 30mA
- PMOS, CMOS Compatible input
- Low output saturation voltage
- Wide operating temperature range ($T_a = -20 \sim +75^\circ\text{C}$)

APPLICATION

LED or incandescent display digit driver

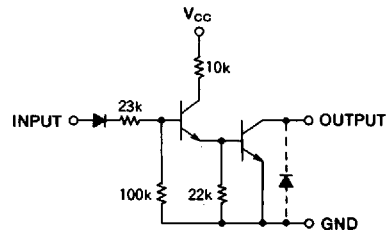
FUNCTION

The M54577P, FP uses a predriver stage with a diode and $23\text{k}\Omega$ resistor in series to the input. The power supply of the predrivers is connected to pin 9. The outputs are capable of sinking 30mA and will withstand 30V in the OFF state. The M54577FP features a small flat mold package.

PIN CONFIGURATION (TOP VIEW)

Outline 16P2 (M54577FP)

Outline 16P4 (M54577P)

CIRCUIT SCHEMATIC

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

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

Symbol	Parameter	Conditions	Ratings	Unit
V_{CC}	Supply voltage		$-0.5 \sim +13$	V
V_{CEO}	Output sustaining voltage	Transistor OFF	$-0.5 \sim +30$	V
I_C	Collector current	Transistor ON	30	mA
V_I	Input voltage		$-20 \sim +13$	V
T_{opr}	Operating temperature		$-20 \sim +75$	$^\circ\text{C}$
T_{stg}	Storage temperature		$-55 \sim +125$	$^\circ\text{C}$

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

Symbol	Parameter	Limits			Unit
		Min	Typ	Max	
V_{CC}	Supply voltage	4.5	5	13	V
I_C	Collector current per channel	0	10	20	mA
V_{IH}	"H" Input voltage	3		V_{CC}	V
V_{IL}	"L" Input voltage	0		1	V

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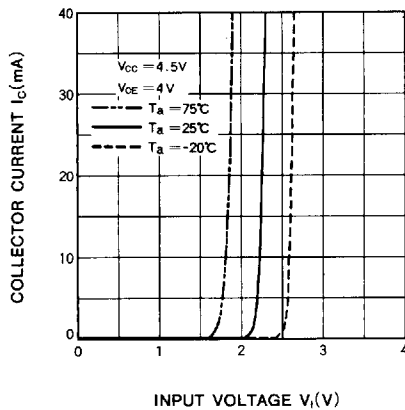
7-UNIT 30mA TRANSISTOR ARRAY

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

Symbol	Parameter	Test conditions	Limits			Unit
			Min	Typ*	Max	
$I_{O(\text{leak})}$	Output leak current	$V_{CE} = 30\text{ V}$			100	μA
$V_{CE(\text{sat})}$	Output saturation voltage	$V_{CC} = 4.5\text{ V}, V_i = 3\text{ V}, I_c = 10\text{ mA}$			0.25	V
		$V_{CC} = 6\text{ V}, V_i = 3\text{ V}, I_c = 20\text{ mA}$			0.35	
I_i	Input current	$V_{CC} = 4.5\text{ V}, V_i = 3\text{ V}$	30		90	μA
I_{CC}	Supply current per channel (an only output conducting)	$V_{CC} = 4.5\text{ V}, V_i = 3\text{ V}$		0.4	0.9	mA
		$V_{CC} = 13\text{ V}, V_i = 3\text{ V}$		1.3	2.3	
h_{FE}	DC forward current gain	$V_{CE} = 4\text{ V}, V_{CC} = 4.5\text{ V}, I_c = 20\text{ mA}, T_a = 25^\circ\text{C}$	500	1200		—

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

TYPICAL CHARACTERISTICS

OUTPUT CURRENT
CHARACTERISTICSDC CURRENT GAIN
CHARACTERISTICS