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~+75℃)

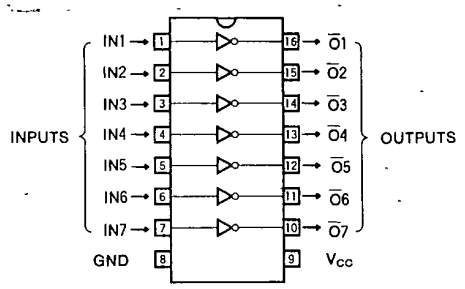
APPLICATION

LED or incandescent display digit driver

FUNCTION

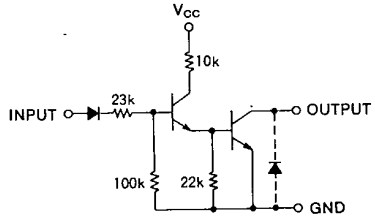
The M54577P, FP uses a predriver stage with a diode and 23kΩ resistor in series to the input. The power supply of the predrivers is connected to pin 9. The outputs are capable of sinking 30mA and will withstand 30V in the OFF state. The M54577FP features a small flat mold package.

PIN CONFIGURATION (TOP VIEW)

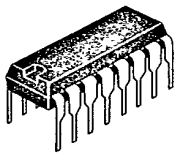


Outline 16P2 (M54577FP)
Outline 16P4 (M54577P)

CIRCUIT SCHEMATIC



Unit : Ω



16-pin molded plastic DIP

16-pin molded plastic FLAT

ABSOLUTE MAXIMUM RATINGS (T_a=−20~+75℃, unless otherwise noted)

Symbol	Parameter	Conditions	Ratings	Unit
V_{CC}	Supply voltage		13	V
V_{CEO}	Output sustaining voltage	Transistor OFF	−0.5~+30	V
I_C	Collector current	Transistor ON	30	mA
V_I	Input voltage		−20~+30	V
T_{opr}	Operating ambient temperature range		−20~+75	℃
T_{stg}	Storage temperature range		−55~+125	℃

RECOMMENDED OPERATIONAL CONDITIONS (T_a=−20~+75℃, unless otherwise noted)

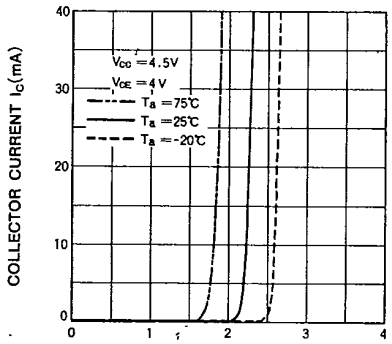
Symbol	Parameter		Limits			Unit
			Min	Typ	Max	
V_{CC}	Supply voltage		4.5	5	13	V
I_C	Collector current per channel		0	10	20	mA
V_{IH}	"H" Input voltage	I_C=20mA	3		V_{CC}	V
V_{IL}	"L" Input voltage		0		1	V

ELECTRICAL CHARACTERISTICS (T_a=−20~+75℃, unless otherwise noted)

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

TYPICAL CHARACTERISTICS

OUTPUT CURRENT CHARACTERISTICS



DC CURRENT GAIN CHARACTERISTICS