M54577

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℃)

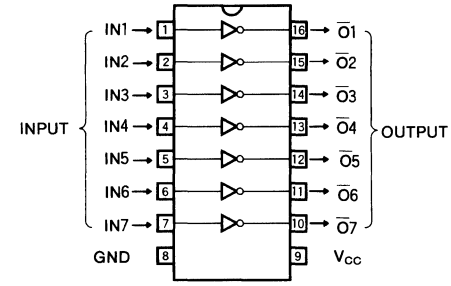
APPLICATION

LED or incandescent display digit driver

FUNCTION

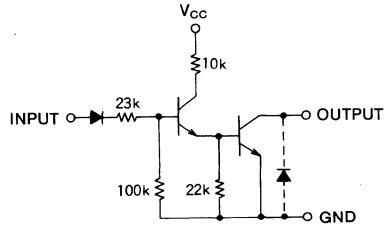
The M54577P/FP uses a predriver stage with a diode and 23kΩ resistor in series to the input. The power supply of the predrivers is connected to pin 9 . The outputs are capable of sinking 30mA and will withstand 30V in the OFF state. The M54577FP features a small flat mold package.

PIN CONFIGURATION (TOP VIEW)

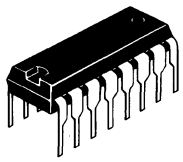


Outline 16P2 (M54577FP)
Outline 16P4 (M54577P)

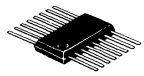
CIRCUIT SCHEMATIC



UNIT : Ω



16-pin molded plastic DIL



16-pin molded plastic FLAT

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

Symbol	Parameter	Conditions	Limits	Unit
V_{CC}	Supply voltage		13	V
V_{CEO}	Output sustaining voltage	Transistor OFF	30	V
I_C	Collector current	Transistor ON	30	mA
V_I	Input voltage		−20, 13	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)

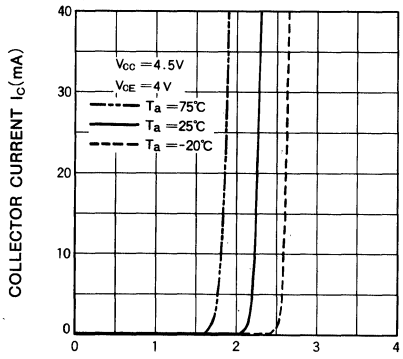
Symbol	Parameter		Limits			Unit
			Min	Typ	Max	
V_{CC}	Supply voltage		4.5	5	13	V
I_C	Collector current per channel			10	20	mA
V_{IH}	"H" Input voltage	I_C=20mA	3			V
V_{IL}	"L" Input voltage				1	V

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			0.9	mA
		V_{CC} =13 V, V_I =3 V			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			

TYPICAL CHARACTERISTICS

OUTPUT CURRENT CHARACTERISTICS



DC CURRENT GAIN CHARACTERISTICS