M54576

7-UNIT 30mA TRANSISTOR ARRAY (INPUT "L" ACTIVE)

DESCRIPTION

The M54576P/FP, 7-channel sink driver, consists of 28 NPN transistors connected to form high current gain driver pairs.

FEATURES

- 30V output breakdown
- 30mA output sink current capability
- CMOS compatible input
- Low output saturation voltage
- Wide operating temperature range (T_a = −20∼+75℃)

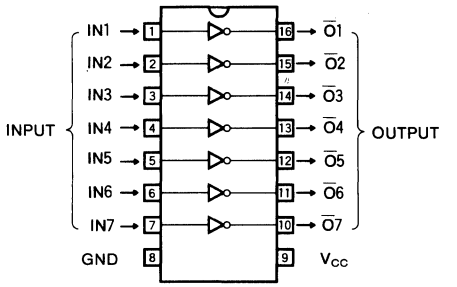
APPLICATION

LED or incandescent display digit driver

FUNCTION

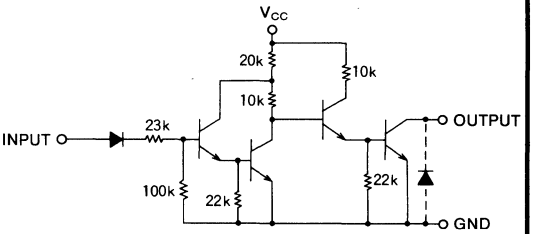
The M54576P/FP is comprised of seven NPN invertors with diodes and 23k Ω resistors in series to the input and non darlington NPN sink drivers. The output is turned ON by switching the input low. The outputs are capable of sinking 30mA and will withstand 30V in the OFF state. The M54576FP features a small flat mold package.

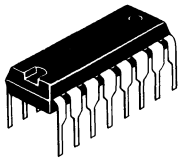
PIN CONFIGURATION (TOP VIEW)

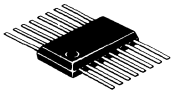


Outline 16P2 (M54576FP)
Outline 16P4 (M54576P)

CIRCUIT SCHEMATIC







16-pin molded plastic DIL 16-pin molded plastic FLAT

ABSOLUTE MAXIMUM RATINGS (T_a=25℃, 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
P_d	Power dissipation	T_a=25℃	1.47/0.56	W
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)

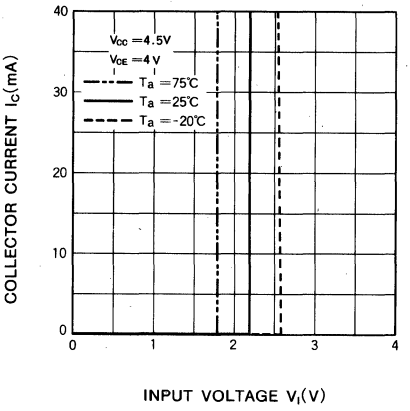
Symbol	Parameter		Limits			Unit
			Min	Typ	Max	
V_{CC}	Supply voltage		4	5	13	V
I_C	Collector current per channel			10	20	mA
V_{IH}	"H" Input voltage		3			V
V_{IL}	"L" Input voltage	I_C=20mA			1	V

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

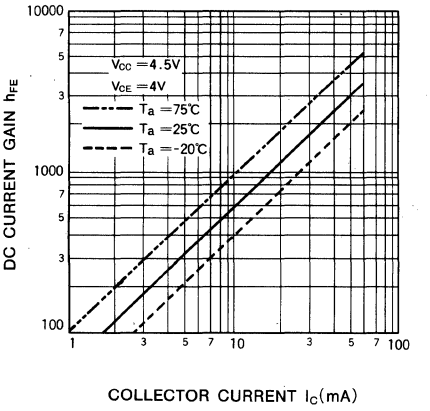
Symbol	Parameter	Test conditions	Limits			Unit
			Min	Typ	Max	
$I_{O(leak)}$	Output leakage current	V_{CE}=30V, V_I=3V, V_{CC}=6V			100	μA
$V_{CE(sat)}$	Output saturation voltage	V_{CC}=4.5V, V_I=1V, I_C=10mA			0.25	V
		V_{CC}=6V, V_I=1V, I_C=20mA			0.35	
I_I	Input current	V_{CC}=4.5V, V_I=3V	30		90	μA
I_{CC}	Supply current	V_{CC}=4.5V, V_I=1V			6.3	mA
		V_{CC}=13V, V_I=1V			18	
h_{FE}	DC forward current gain	V_{CE}=4V, V_{CC}=4.5V, I_C=20mA, T_a=25℃	500			

TYPICAL CHARACTERISTICS

OUTPUT CURRENT CHARACTERISTICS



DC CURRENT GAIN CHARACTERISTICS



MITSUBISHI ELECTRIC