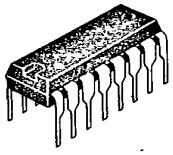
7-UNIT 50mA TRANSISTOR ARRAY

DESCRIPTION
The M54514AP, 7-channel sink drivers, consists of 7 NPN transistors with 2.8kΩ series input resistors.

FEATURES
- Output breakdown voltage to 20V
- 50mA output sink current capability
- Low output saturation voltage
- Wide operating temperature range (T_a =−20~+75℃)

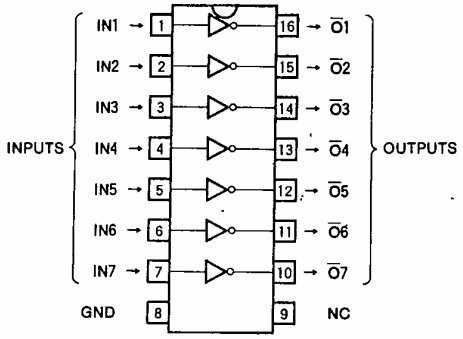
APPLICATION
LED or incandescent display digit driver

FUNCTION
The M54514AP is comprised of seven NPN drivers. Each input has a voltage divider by 2.8kΩ and 10kΩ resistors. All emitters and the substrate are connected together to pin 8. The open collector outputs are capable of sinking 50mA and will withstand 20V in the OFF state.



16-pin molded plastic DIP

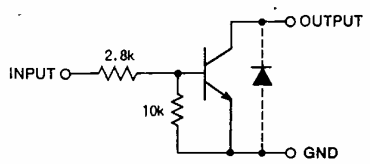
PIN CONFIGURATION (TOP VIEW)



Outline 16P4

NC : NO CONNECTION

CIRCUIT SCHEMATIC



Unit : Ω

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

Symbol	Parameter	Conditions	Ratings	Unit
V_{CEO}	Output sustaining voltage	Transistor OFF	−0.5~+20	V
I_C	Collector current	Transistor ON	50	mA
V_I	Input voltage		10	V
P_d	Power dissipation	T_a=25℃	1.47	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)

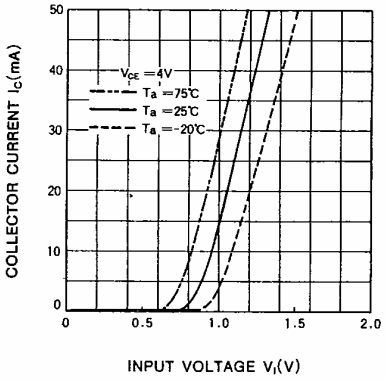
Symbol	Parameter		Limits			Unit
			Min	Typ	Max	
V_O	Output voltage		0		20	V
I_C	Collector current		0		20	mA
V_{IH}	"H" input voltage	I_C=50mA	2.4		8	V
V_{IL}	"L" input voltage		0		0.2	V

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

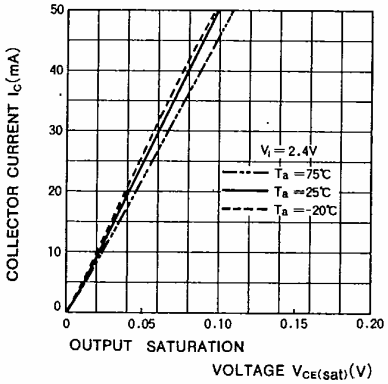
Symbol	Parameter	Test conditions		Limits			Unit
				Min	Typ	Max	
$I_{O(leak)}$	Output leakage current	V_O=20V				20	μA
$V_{CE(sat)}$	Output saturation voltage	V_I=2.4V	I_C=20mA		0.04	0.17	V
			I_C=40mA		0.08	0.23	
I_I	Input current	V_I=2.4V			0.7	1.1	mA
h_{FE}	DC forward current gain	V_{CE}=4V, I_C=40mA, T_a=25℃		80	200		—

TYPICAL CHARACTERISTICS

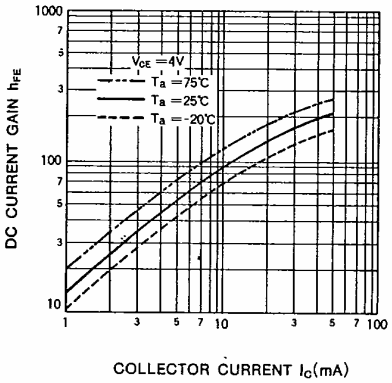
OUTPUT CURRENT CHARACTERISTICS



OUTPUT CHARACTERISTICS



DC CURRENT GAIN CHARACTERISTICS



MITSUBISHI ELECTRIC