MITSUBISHI BIPOLAR DIGITAL ICs

M54515P

7-UNIT 16mA TRANSISTOR ARRAY

DESCRIPTION

The M54515P, transistor array, consists of seven NPN transistors and is connected in a common-emitter configuration.

FEATURES

- Output breakdown voltage to 17V
- 16mA output sink current capability
- Wide operating temperature range ($T_a = -20 \sim +75°C$)

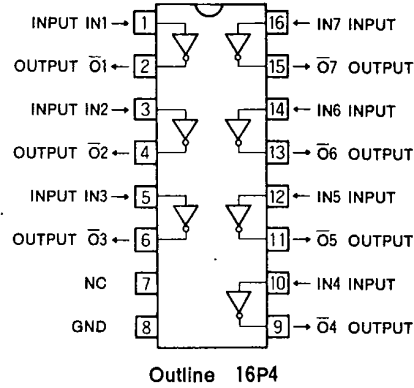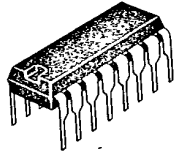## APPLICATION

LED or incandescent display driver

FUNCTION

The M54515P is comprised of seven NPN transistors. All emitters and the substrate are connected together to pin 8. The outputs are capable of sinking 16mA and will withstand 17V in the OFF state.
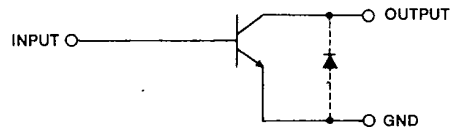
PIN CONFIGURATION (TOP VIEW)

INPUT IN1 → [1]	[16] ← IN7 INPUT
OUTPUT Ō1 ← [2]	[15] → Ō7 OUTPUT
INPUT IN2 → [3]	[14] ← IN6 INPUT
OUTPUT Ō2 ← [4]	[13] → Ō6 OUTPUT
INPUT IN3 → [5]	[12] ← IN5 INPUT
OUTPUT Ō3 ← [6]	[11] → Ō5 OUTPUT
NC [7]	[10] ← IN4 INPUT
GND [8]	[9] → Ō4 OUTPUT

Outline 16P4

NC : NO CONNECTION

16-pin molded plastic DIP

CIRCUIT SCHEMATIC

Unit : Ω

ABSOLUTE MAXIMUM RATINGS ($T_a = -20 \sim +75°C$, unless otherwise noted)

Symbol	Parameter	Conditions	Ratings	Unit
V_{CEO}	Output sustaining voltage	Transistor OFF	$-0.5 \sim +17$	V
V_I	Input voltage		1.2	V
I_C	Collector current	Transistor ON	16	mA
T_{opr}	Operating ambient temperature range		$-20 \sim +75$	°C
T_{stg}	Storage temperature range		$-55 \sim +125$	°C

RECOMMENDED OPERATIONAL CONDITIONS ($T_a = -20 \sim +75°C$, unless otherwise noted)

Symbol	Parameter	Limits			Unit
		Min	Typ	Max	
V_O	Output voltage	0		17	V
I_C	Collector current per channel	0		16	mA

ELECTRICAL CHARACTERISTICS ($T_a = -20 \sim +75°C$, unless otherwise noted)

Symbol	Parameter	Test conditions	Limits			Unit
			Min	Typ	Max	
$V_{(BR)CEO}$	Output sustaining voltage	$I_{OH} = 100\mu A$	17			V
$V_{CE(sat)}$	Output saturation voltage	$I_{OL} = 16mA$, $I_B = 0.5mA$		0.14	0.5	V
$V_{BE(sat)}$	Base-emitter saturation voltage	$I_{OL} = 16mA$, $I_B = 0.5mA$		0.64	1.2	V
h_{FE}	DC forward current gain	$V_{CE} = 5V$, $I_C = 16mA$, $T_a = 25°C$	32	50		—
$I_{o(leak)}$	Output leakage current	$V_O = 17V$, $V_I = 0.2V$			700	μA

TYPICAL CHARACTERISTICS

OUTPUT CURRENT CHARACTERISTICS

INPUT VOLTAGE V_I(V)
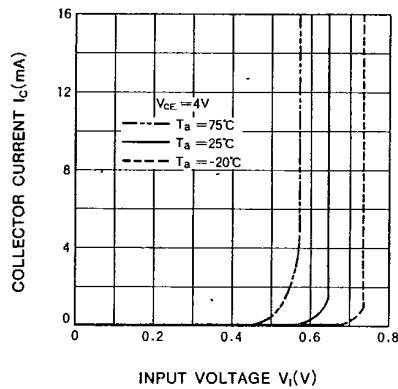
DC CURRENT GAIN CHARACTERISTICS

COLLECT CURRENT I_C(mA)

MITSUBISHI ELECTRIC