

MITSUBISHI ELEK {LINEAR} 80 DE

6249826 0009200 3

M54512L

4-UNIT 50mA TRANSISTOR ARRAY

80C 09200 DT-43-25

6249826 MITSUBISHI ELEK (LINEAR)

**DESCRIPTION**

The M54512L, 4-channel sink driver, consists of four NPN transistors, and designed for use in medium-current switching applications.

**FEATURES**

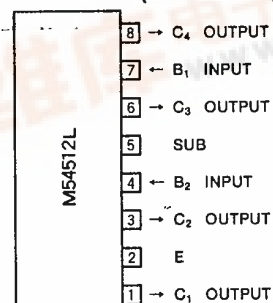
- Output breakdown voltage to 20V
- 50mA output sink current capability
- Wide operating temperature range ( $T_a = -20 \sim +75^\circ\text{C}$ )

**APPLICATION**

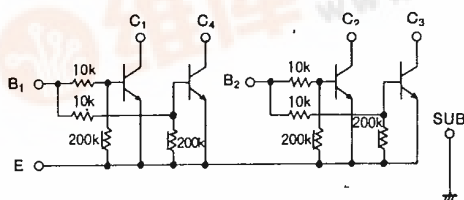
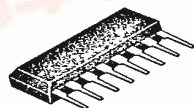
LED or incandescent display driver

**FUNCTION**

The M54512L is comprised of four NPN transistors with a  $10\text{k}\Omega$  series input resistor, connected to form dual 2-parallel output drivers. All emitters of transistors are connected together to pin 2. The substrate is connected to pin 5 and pin 5 must be tied to the most negative point in the external circuit. The drivers are capable of sinking 50mA and will withstand 20V in the OFF state.

**PIN CONFIGURATION (TOP VIEW)**

Outline 8P5

**CIRCUIT SCHEMATIC**Unit :  $\Omega$ 

8-pin molded plastic SIP

**ABSOLUTE MAXIMUM RATINGS** ( $T_a = 25^\circ\text{C}$ , unless otherwise noted)

| Symbol    | Parameter                           | Conditions               | Ratings         | Unit             |
|-----------|-------------------------------------|--------------------------|-----------------|------------------|
| $V_{CEO}$ | Output sustaining voltage           | Transistor OFF           | $-0.5 \sim +20$ | V                |
| $V_{EBO}$ | Emitter-base sustaining voltage     |                          | 4               | V                |
| $I_C$     | Collector current                   | Transistor ON            | 50              | mA               |
| $V_i$     | Input voltage                       |                          | 20              | V                |
| $P_d$     | Power dissipation                   | $T_a = 75^\circ\text{C}$ | 500             | mW               |
| $T_{opr}$ | Operating ambient temperature range |                          | $-10 \sim +75$  | $^\circ\text{C}$ |
| $T_{stg}$ | Storage temperature range           |                          | $-55 \sim +125$ | $^\circ\text{C}$ |

**RECOMMENDED OPERATING CONDITIONS** ( $T_a = 25^\circ\text{C}$ , unless otherwise noted)

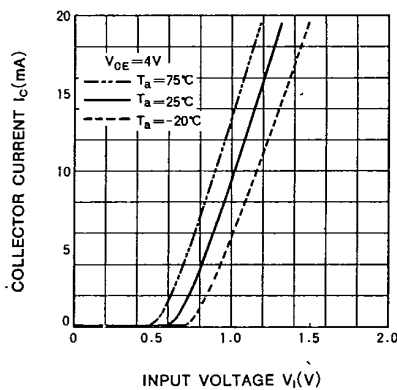
| Symbol   | Parameter                     | Limits |     |     | Unit |
|----------|-------------------------------|--------|-----|-----|------|
|          |                               | Min    | Typ | Max |      |
| $V_O$    | Output voltage                | 0      |     | 18  | V    |
| $I_C$    | Collector current per channel | 0      |     | 20  | mA   |
| $V_{IH}$ | "H" Input voltage             | 11     |     | 18  | V    |
| $V_{IL}$ | "L" Input voltage             | 0      |     | 0.2 | -V   |

ELECTRICAL CHARACTERISTICS ( $T_A=25^\circ\text{C}$ , unless otherwise noted)

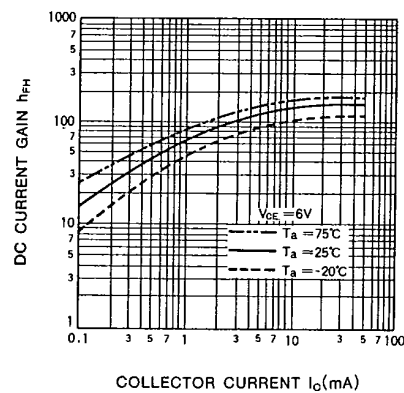
| Symbol        | Parameter                       | Test conditions                                                 | Limits |      |     | Unit          |
|---------------|---------------------------------|-----------------------------------------------------------------|--------|------|-----|---------------|
|               |                                 |                                                                 | Min    | Typ  | Max |               |
| $I_{O(Leak)}$ | Output leakage current          | $V_{CE}=20\text{V}$                                             |        |      | 20  | $\mu\text{A}$ |
| $V_{CE(sat)}$ | Output saturation voltage       | $I_B=2\text{mA}$                                                |        | 0.02 | 0.1 | V             |
|               |                                 | $I_C=10\text{mA}$                                               |        |      |     |               |
|               |                                 | $I_C=20\text{mA}$                                               |        | 0.04 | 0.2 | V             |
| $BV_{EBO}$    | Emitter-base sustaining voltage | $I_{EBO}=150\mu\text{A}$                                        | 4      |      |     | V             |
| $V_I$         | Input voltage                   | $I_B=2\text{mA}$                                                | 4      | 11   | 18  | V             |
| $h_{FE}$      | DC forward current gain         | $V_{CE}=6\text{V}$ , $I_C=20\text{mA}$ , $T_A=25^\circ\text{C}$ | 60     | 150  |     | —             |

## TYPICAL CHARACTERISTICS

OUTPUT CURRENT CHARACTERISTICS



DC CURRENT GAIN CHARACTERISTICS



OUTPUT CHARACTERISTICS

