

# 2SB643, 2SB644

Silicon PNP epitaxial planer type

For low-power general amplification

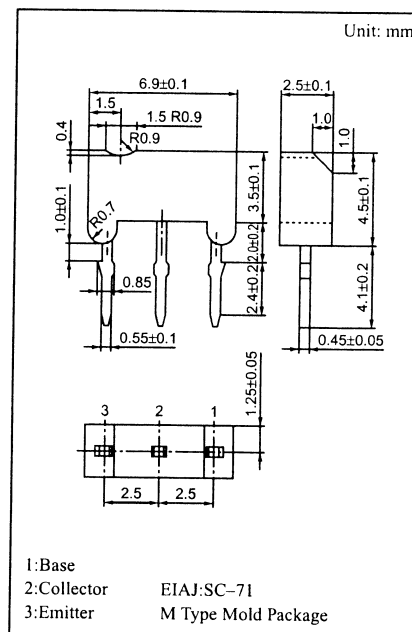
Complementary to 2SD638 and 2SD639

## Features

- M type package allowing easy automatic and manual insertion as well as stand-alone fixing to the printed circuit board.

## Absolute Maximum Ratings (Ta=25°C)

| Parameter                       |        | Symbol    | Ratings    | Unit |
|---------------------------------|--------|-----------|------------|------|
| Collector to<br>base voltage    | 2SB643 | $V_{CBO}$ | -30        | V    |
|                                 | 2SB644 |           | -60        |      |
| Collector to<br>emitter voltage | 2SB643 | $V_{CEO}$ | -25        | V    |
|                                 | 2SB644 |           | -50        |      |
| Emitter to base voltage         |        | $V_{EBO}$ | -7         | V    |
| Peak collector current          |        | $I_{CP}$  | -1         | A    |
| Collector current               |        | $I_C$     | - 0.5      | A    |
| Collector power dissipation     |        | $P_C$     | 600        | mW   |
| Junction temperature            |        | $T_j$     | 150        | °C   |
| Storage temperature             |        | $T_{stg}$ | -55 ~ +150 | °C   |



## Electrical Characteristics (Ta=25°C)

| Parameter                               | Symbol               | Conditions                                                | min                                        | typ        | max  | Unit |
|-----------------------------------------|----------------------|-----------------------------------------------------------|--------------------------------------------|------------|------|------|
| Collector cutoff current                | I <sub>CBO</sub>     | V <sub>CB</sub> = -20V, I <sub>E</sub> = 0                |                                            |            | -100 | nA   |
|                                         | I <sub>CEO</sub>     | V <sub>CE</sub> = -20V, I <sub>B</sub> = 0                |                                            |            | -1   | μA   |
| Collector to base voltage               | 2SB643<br>2SB644     | V <sub>CBO</sub>                                          | I <sub>C</sub> = -10μA, I <sub>E</sub> = 0 | -30<br>-60 |      | V    |
| Collector to emitter voltage            | 2SB643<br>2SB644     | V <sub>CEO</sub>                                          | I <sub>C</sub> = -2mA, I <sub>B</sub> = 0  | -25<br>-50 |      | V    |
| Emitter to base voltage                 | V <sub>EBO</sub>     | I <sub>E</sub> = -10μA, I <sub>C</sub> = 0                | -7                                         |            |      | V    |
| Forward current transfer ratio          | h <sub>FE1</sub> *1  | V <sub>CE</sub> = -10V, I <sub>C</sub> = -150mA*2         | 85                                         |            | 340  |      |
|                                         | h <sub>FE2</sub>     | V <sub>CE</sub> = -10V, I <sub>C</sub> = -500mA*2         | 40                                         | 90         |      |      |
| Collector to emitter saturation voltage | V <sub>CE(sat)</sub> | I <sub>C</sub> = -300mA, I <sub>B</sub> = -30mA*2         |                                            | -0.35      | -0.6 | V    |
| Transition frequency                    | f <sub>T</sub>       | V <sub>CB</sub> = -10V, I <sub>E</sub> = 10mA, f = 200MHz |                                            | 200        |      | MHz  |
| Collector output capacitance            | C <sub>ob</sub>      | V <sub>CB</sub> = -10V, I <sub>E</sub> = 0, f = 1MHz      |                                            | 6          | 15   | pF   |

\*2 Pulse measurement

\*1 h<sub>FE1</sub> Rank classification

| Rank             | Q        | R         | S         |
|------------------|----------|-----------|-----------|
| h <sub>FE1</sub> | 85 ~ 170 | 120 ~ 240 | 170 ~ 340 |

