

# SILICON TRANSISTOR

## 2SA1400-Z

### PNP SILICON TRIPLE DIFFUSED TRANSISTOR

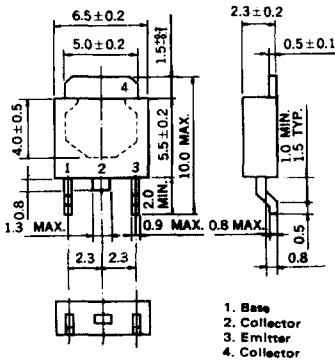
#### MP-3

#### DESCRIPTION

2SA1400-Z is designed for High Voltage Switching, especially in Hybrid Integrated Circuits.

#### PACKAGE DIMENSIONS

in millimeters



#### FEATURES

- High Voltage :  $V_{CE0} = -400$  V
- High Speed :  $t_f \leq 1.0 \mu s$
- Complement to 2SC3588-Z

#### ABSOLUTE MAXIMUM RATINGS

Maximum Voltages and Currents ( $T_a = 25^\circ C$ )

|                              |           |      |   |
|------------------------------|-----------|------|---|
| Collector to Base Voltage    | $V_{CB0}$ | -400 | V |
| Collector to Emitter Voltage | $V_{CE0}$ | -400 | V |
| Emitter to Base Voltage      | $V_{EB0}$ | -7   | V |
| Collector Current (DC)       | $I_C$     | -0.5 | A |
| Collector Current (Pulse)*   | $I_C$     | -1.0 | A |

Maximum Power Dissipation

|   |       |     |   |
|---|-------|-----|---|
| Total Power Dissipation at $25^\circ C$ Ambient Temperature** | $P_T$ | 2.0 | W |
|---|-------|-----|---|

Maximum Temperatures

|                           |           |             |            |
|---------------------------|-----------|-------------|------------|
| Junction Temperature      | $T_j$     | 150         | $^\circ C$ |
| Storage Temperature Range | $T_{stg}$ | -55 to +150 | $^\circ C$ |

\* $PW \leq 300 \mu s$ , Duty Cycle  $\leq 10\%$

\*\*When mounted on ceramic substrate of  $7.5 \text{ cm}^2 \times 0.7 \text{ mm}$

#### ELECTRICAL CHARACTERISTICS ( $T_B = 25^\circ C$ )

| CHARACTERISTIC               | SYMBOL              | MIN. | TYP. | MAX. | UNIT    | TEST CONDITIONS  |
|------------------------------|---------------------|------|------|------|---------|--|
| Collector Cutoff Current     | $I_{CBO}$           |      |      | -100 | $\mu A$ | $V_{CB} = -400 \text{ V}, I_E = 0$                           |
| Emitter Cutoff Current       | $I_{EBO}$           |      |      | -10  | $\mu A$ | $V_{EB} = -5.0 \text{ V}, I_C = 0$                           |
| DC Current Gain              | $h_{FE1}^{***}$     | 30   |      | 200  |         | $V_{CE} = -5.0 \text{ V}, I_C = -50 \text{ mA}$              |
| Collector Saturation Voltage | $V_{CE(sat)}^{***}$ |      |      | -1.0 | V       | $I_C = -100 \text{ mA}, I_B = -10 \text{ mA}$                |
| Base Saturation Voltage      | $V_{BE(sat)}^{***}$ |      |      | -1.2 | V       | $I_C = -100 \text{ mA}, I_B = -10 \text{ mA}$                |
| Turn-on Time                 | $t_{on}$            |      |      | 1.0  | $\mu s$ | $I_C = -100 \text{ mA}, R_L = 1.5 \text{ k}\Omega$           |
| Storage Time                 | $t_{stg}$           |      |      | 5.0  | $\mu s$ | $I_{B1} = -I_{B2} = -10 \text{ mA}, V_{CC} = -150 \text{ V}$ |
| Fall Time                    | $t_f$               |      |      | 1.0  | $\mu s$ | $PW \leq 50 \mu s, \text{ Duty Cycle } \leq 2\%$             |

\*\*\* Pulsed:  $PW \leq 350 \mu s$ , Duty Cycle  $\leq 2\%$

#### $h_{FE}$ Classification

| MARKING  | N        | M        | L         | K          |
|----------|----------|----------|-----------|------------|
| $h_{FE}$ | 30 to 60 | 40 to 80 | 60 to 120 | 100 to 200 |

TYPICAL CHARACTERISTICS ( $T_a = 25^\circ\text{C}$ )

