

SILICON TRANSISTOR

2SA1412-Z

PNP SILICON TRIPLE DIFFUSED TRANSISTOR

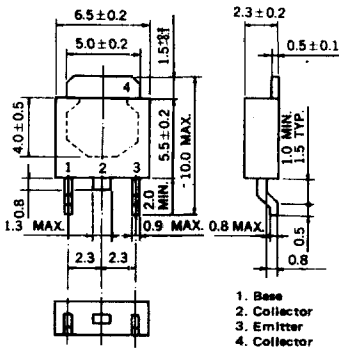
MP-3

DESCRIPTION

2SA1412-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 : $t_r \leq 0.7 \mu s$
- Complement to 2SC3631-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 | -2.0 | A |
| Collector Current (Pulse)* | I_C | -4.0 | 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 | $^\circ C$ |

* $PW \leq 10$ ms, Duty Cycle $\leq 50\%$

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

ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ C$)

| CHARACTERISTIC | SYMBOL | MIN. | TYP. | MAX. | UNIT | TEST CONDITIONS |
|------------------------------|---------------------|-------|------|------|---------|---|
| Collector Cutoff Current | I_{CB0} | | | -10 | μA | $V_{CB} = -400$ V, $I_E = 0$ |
| Emitter Cutoff Current | I_{EB0} | | | -10 | μA | $V_{EB} = -5.0$ V, $I_C = 0$ |
| DC Current Gain | h_{FE1}^{***} | 40 | 60 | 120 | | $V_{CE} = -5.0$ V, $I_C = -0.1$ A |
| DC Current Gain | h_{FE2}^{***} | 10 | 22 | | | $V_{CE} = -5.0$ V, $I_C = -1.0$ A |
| Collector Saturation Voltage | $V_{CE(sat)}^{***}$ | -0.25 | -0.5 | | V | $I_C = -0.5$ A, $I_B = -0.1$ A |
| Base Saturation Voltage | $V_{BE(sat)}^{***}$ | -0.85 | -1.2 | | V | $I_C = -0.5$ A, $I_B = -0.1$ A |
| Gain Bandwidth Product | f_T | | 40 | | MHz | $V_{CE} = -10$ V, $I_E = -100$ mA |
| Output Capacitance | C_{ob} | | 30 | | pF | $V_{CB} = -10$ V, $I_E = 0$, $f = 1.0$ MHz |
| Turn-on Time | t_{on} | | 0.03 | 0.5 | μs | $I_C = -1.0$ A, $R_L = 150 \Omega$ |
| Storage Time | t_{stg} | | 1.4 | 2.0 | μs | $I_{B1} = -I_{B2} = -0.2$ A |
| Fall Time | t_f | | 0.1 | 0.7 | μs | $V_{CC} = -150$ V |

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

h_{FE} Classification

| MARKING | L | K |
|-----------|----------|-----------|
| h_{FE1} | 40 to 80 | 60 to 120 |

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

