

SOT-23 Formed SMD Package

CMBT2369

SILICON PLANAR EPITAXIAL SWITCHING TRANSISTOR

N-P N transistor

Marking

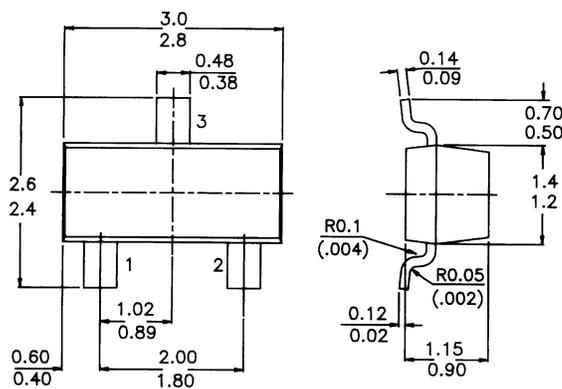
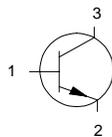
CMBT2369 = JJ

PACKAGE OUTLINE DETAILS

ALL DIMENSIONS IN mm

Pin configuration

- 1 = BASE
- 2 = EMITTER
- 3 = COLLECTOR



ABSOLUTE MAXIMUM RATINGS

| | | | |
|--|-----------|------|-----------|
| Collector-base voltage (open emitter) | V_{CB0} | max. | 40 V |
| Collector-emitter voltage ($V_{BE} = 0$) | V_{CES} | max. | 40 V |
| Collector-emitter voltage (open base) | V_{CE0} | max. | 15 V |
| Collector current (d.c. value) | I_C | max. | 500 mA |
| Total power dissipation up to $T_{amb} = 25\text{ }^\circ\text{C}$ | P_{tot} | max. | 250 mW |
| D.C. current gain | | | |
| $I_C = 10\text{ mA}; V_{CE} = 1\text{ V}$ | h_{FE} | | 40 to 120 |
| $I_C = 100\text{ mA}; V_{CE} = 2\text{ V}$ | h_{FE} | > | 20 |
| Storage time | | | |
| $I_{Con} = I_{Bon} = I_{Boff} = 10\text{ mA}$ | t_s | < | 13 ns |

RATINGS (at $T_A = 25^\circ\text{C}$ unless otherwise specified)

Limiting values

| | | | |
|--|-----------|------|----------------------------|
| Collector-base voltage (open emitter) | V_{CB0} | max. | 40 V |
| Collector-emitter voltage ($V_{BE} = 0$) | V_{CES} | max. | 40 V |
| Collector-emitter voltage (open base) | V_{CE0} | max. | 15 V |
| Emitter-base voltage (open collector) | V_{EB0} | max. | 4,5 V |
| Collector current (d.c. value) | I_C | max. | 500 mA |
| Total power dissipation up to $T_{amb} = 25^\circ\text{C}$ | P_{tot} | max. | 250 mW |
| Storage temperature | T_{stg} | | -55 to 150°C |
| Junction temperature | T_j | max. | 150°C |

THERMAL RESISTANCE

From junction to ambient in free air

$$R_{th\ j-a} = 500\ \text{K/W}$$

CHARACTERISTICS (at $T_A = 25^\circ\text{C}$ unless otherwise specified)

$T_j = 25^\circ\text{C}$ unless otherwise specified

Collector cut-off current

$$I_E = 0; V_{CB} = 20\ \text{V} \quad I_{CB0} < 400\ \text{nA}$$

$$I_E = 0; V_{CB} = 20\ \text{V}; T_j = 125^\circ\text{C} \quad I_{CB0} < 30\ \mu\text{A}$$

Saturation voltages

$$I_C = 10\ \text{mA}; I_B = 1\ \text{mA} \quad V_{CEsat} < 0,25\ \text{V}$$

$$V_{BEsat} \quad 0,70\ \text{to}\ 0,85\ \text{V}$$

D.C. current gain

$$I_C = 10\ \text{mA}; V_{CE} = 1\ \text{V} \quad h_{FE} \quad 40\ \text{to}\ 120$$

$$I_C = 10\ \text{mA}; V_{CE} = 1\ \text{V}; T_{amb} = -55^\circ\text{C} \quad h_{FE} > 20$$

$$I_C = 100\ \text{mA}; V_{CE} = 2\ \text{V} \quad h_{FE} > 20$$

Output capacitance at $f = 1\ \text{MHz}$

$$I_E = 0; V_{CB} = 5\ \text{V} \quad C_o < 4,0\ \text{pF}$$

Small-signal current gain

$$I_C = 1,0\ \text{mA}; V_{CE} = 10\ \text{V}; f = 100\ \text{MHz}; T_{amb} = 25^\circ\text{C} \quad h_{fe} > 5,0$$

Breakdown voltages

$$I_C = 10\ \text{mA}; I_B = 0 \quad V_{(BR)CEO} \quad \text{min.} \quad 15\ \text{V}$$

$$I_C = 10\ \mu\text{A}; I_E = 0 \quad V_{(BR)CBO} \quad \text{min.} \quad 40\ \text{V}$$

$$I_C = 0; I_E = 10\ \mu\text{A} \quad V_{(BR)EBO} \quad \text{min.} \quad 4,5\ \text{V}$$

$$I_C = 10\ \mu\text{A}; V_{BE} = 0 \quad V_{(BR)CES} \quad \text{min.} \quad 40\ \text{V}$$

Switching times at $T_{amb} = 25^\circ\text{C}$

Storage time

$$I_{Con} = I_{Bon} = -I_{Boff} = 10\ \text{mA} \quad t_s \quad \text{typ.} \quad 5,0\ \text{ns}$$

$$t_s < 13\ \text{ns}$$

Turn-on time

$$I_C = 10\ \text{mA}; I_{Bon} = 3\ \text{mA}; V_{CC} = 3\ \text{V} \quad t_{on} \quad \text{typ.} \quad 8,0\ \text{ns}$$

$$t_{on} < 12\ \text{ns}$$

Turn-off time

$$I_C = 10\ \text{mA}; I_{Bon} = 3\ \text{mA}; I_{Boff} = 1,5\ \text{mA}; V_{CC} = 3\ \text{V} \quad t_{off} \quad \text{typ.} \quad 10\ \text{ns}$$

$$t_{off} < 18\ \text{ns}$$

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