



查询CMBT3903供应商

Continental Device India Limited

An ISO/TS 16949, ISO 9001 and ISO 14001 Certified Company

捷多邦, 专业PCB打样工厂, 24小时加急出货

ISO 14001



SOT-23 Formed SMD Package

CMBT3903
CMBT3904

SILICON EPITAXIAL TRANSISTORS

N-P-N transistors

Marking

CMBT3903 = 1Y

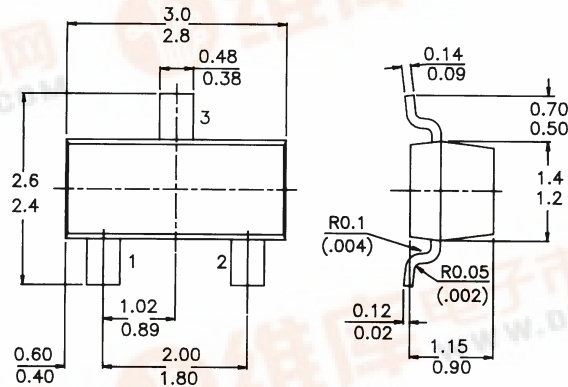
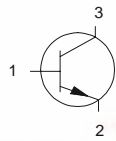
CMBT3904 = 1A

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. 60 V

Collector-emitter voltage (open base)

V_{CE0} max. 40 V

Emitter-base voltage (open collector)

V_{EB0} max. 6 V

Collector current (DC)

I_C max. 200 mA

Total power dissipation up to $T_{amb} = 25^\circ C$

P_{tot} max. 250 mW

DC current gain

CMBT3903 > 50

$I_C = 10$ mA; $V_{CE} = 1$ V

$h_{FE} < 150$

$I_C = 10$ mA; $V_{CE} = 1$ V

CMBT3904 > 100

$h_{FE} < 300$

Transition frequency at $f = 35$ MHz

$f_T > 300$ MHz

$I_C = 10$ mA; $V_{CE} = 20$ V



CMBT3903
CMBT3904

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

Limiting values

| | | | |
|---|-----------|------|----------------------|
| Collector-base voltage (open emitter) | V_{CB0} | max. | 60 V |
| Collector-emitter voltage (open base) | V_{CE0} | max. | 40 V |
| Emitter-base voltage (open collector) | V_{EB0} | max. | 6 V |
| Collector current (d.c.) | I_C | max. | 200 mA |
| Total power dissipation up to $T_{amb} = 25^\circ\text{C}$ | P_{tot} | max. | 250 mW |
| Storage temperature $^\circ\text{C}$ | T_{stg} | | -55 to +150 |
| Junction temperature | T_j | max. | 150 $^\circ\text{C}$ |

THERMAL RESISTANCE

$$T_j = P (R_{th\ j-t} + R_{th\ t-s} + R_{th\ s-a}) + T_{amb}$$

Thermal resistance

from junction to ambient

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

CHARACTERISTICS

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

Collector-emitter breakdown voltage

$$I_C = 1\ \text{mA}; I_B = 0$$

$$V_{(BR)CEO}\ \text{min.}\ 40\ \text{V}$$

Collector-base breakdown voltage

$$I_C = 10\ \mu\text{A}; I_E = 0$$

$$V_{(BR)CBO}\ \text{min.}\ 60\ \text{V}$$

Emitter-base breakdown voltage

$$I_E = 10\ \mu\text{A}; I_C = 0$$

$$V_{(BR)EBO}\ \text{min.}\ 6\ \text{V}$$

Collector cut-off current

$$V_{CE} = 30\ \text{V}; V_{EB} = 3\ \text{V}$$

$$I_{CEX}\ \text{max.}\ 50\ \text{nA}$$

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

$$I_E = 0; V_{CB} = 5\ \text{V}$$

$$C_c\ \text{max.}\ 4\ \text{pF}$$

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

$$I_C = 0; V_{BE} = 0,5\ \text{V}$$

$$C_e\ \text{max.}\ 8\ \text{pF}$$

Base current

with reverse biased emitter junction

$$V_{EB} = 3\ \text{V}; V_{CE} = 30\ \text{V}$$

$$I_{BEX}\ \text{max.}\ 50\ \text{nA}$$

Saturation voltages

$$I_C = 10\ \text{mA}; I_B = 1\ \text{mA}$$

$$V_{CEsat}\ \text{max.}\ 0.2\ \text{V}$$

$$I_C = 50\ \text{mA}; I_B = 5\ \text{mA}$$

$$V_{CEsat}\ \text{max.}\ 0.3\ \text{V}$$

$$I_C = 10\ \text{mA}; I_B = 1\ \text{mA}$$

$$V_{BEsat}\ \text{min.}\ 0.65\ \text{V}$$

$$\text{max.}\ 0.85\ \text{V}$$

$$I_C = 50\ \text{mA}; I_B = 5\ \text{mA}$$

$$V_{BEsat}\ \text{max.}\ 0.95\ \text{V}$$

**CMBT3903
CMBT3904**

| | | CMBT3903 | CMBT3904 | |
|---|----------|-----------------|-----------------|-----|
| <i>D.C. current gain *</i> | | | | |
| $I_C = 0,1 \text{ mA}; V_{CE} = 1 \text{ V}$ | h_{FE} | > 20 | 40 | |
| $I_C = 1 \text{ mA}; V_{CE} = 1 \text{ V}$ | h_{FE} | > 35 | 70 | |
| $I_C = 10 \text{ mA}; V_{CE} = 1 \text{ V}$ | h_{FE} | > 50 | 100 | |
| | | < 150 | 300 | |
| $I_C = 50 \text{ mA}; V_{CE} = 1 \text{ V}$ | h_{FE} | > 30 | 60 | |
| $I_C = 100 \text{ mA}; V_{CE} = 1 \text{ V}$ | h_{FE} | > 15 | 30 | |
| <i>Transition frequency at $f = 100 \text{ MHz}$</i> | | | | |
| $I_C = 10 \text{ mA}; V_{CE} = 20 \text{ V}$ | f_T | min. 250 | 300 | MHz |
| <i>Noise figure at $R_S = 1 \text{ k}\Omega$</i> | | | | |
| $I_C = 100 \mu\text{A}; V_{CE} = 5 \text{ V}$ | F | max. 6 | 5 | dB |
| $f = 10 \text{ Hz to } 15,7 \text{ kHz}$ | | | | |
| <i>Small Signal Current Gain</i> | | | | |
| $V_{CE} = 10\text{V}; I_C = 1 \text{ mA}; f = 1 \text{ KHz}$ | h_{fe} | min. 50 | 100 | |
| | | max. 200 | 400 | |

Disclaimer

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