



Continental Device India Limited

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

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ISO 14001



SOT-23 Formed SMD Package

CMBT4403

SILICON PLANAR EPITAXIAL TRANSISTOR

P-N-P transistor

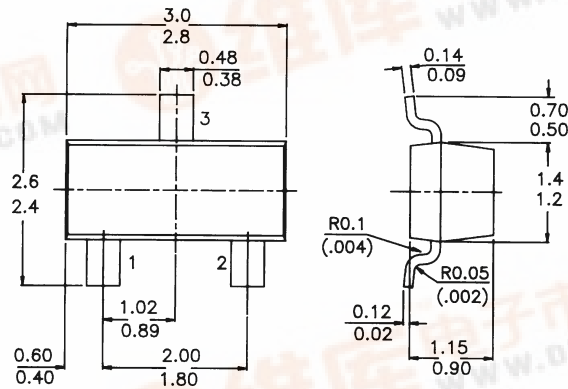
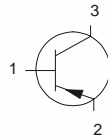
Marking

CMBT4403 = 2T

PACKAGE OUTLINE DETAILS ALL DIMENSIONS IN mm

Pin configuration

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



ABSOLUTE MAXIMUM RATINGS

Collector-emitter voltage

$-V_{CEO}$ max. 40 V

Collector current (DC)

$-I_C$ max. 600 mA

DC current gain

h_{FE} min. 100
max. 300

$I_C = 150$ mA; $V_{CE} = 2$ V

Total power dissipation up to $T_{amb} = 25$ °C

P_{tot} max 250 mW

RATINGS (at $T_A = 25$ °C unless otherwise specified)

Limiting values

Collector-emitter voltage

$-V_{CEO}$ max. 40 V

Collector-base voltage

$-V_{CBO}$ max. 40 V

Emitter-base voltage

$-V_{EBO}$ max. 5 V

Collector current (DC)

$-I_C$ max. 600 mA

Total power dissipation up to $T_{amb} = 25$ °C

P_{tot} max 250 mW

Storage temperature range

T_{stg} -55 to +150 °C

Junction temperature

T_j max. 150 °C



CMBT4403

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

$$-I_C = 1.0\ \text{mA}; I_B = 0$$

$$-V_{(BR)CEO} > 40\ \text{V}$$

Collector-base breakdown voltage

$$-I_C = 100\ \mu\text{A}; I_E = 0$$

$$-V_{(BR)CBO} > 40\ \text{V}$$

Emitter-base breakdown voltage

$$-I_E = 100\ \mu\text{A}; I_C = 0$$

$$-V_{(BR)EBO} > 5\ \text{V}$$

Base cut-off current

$$-V_{CE} = 35\ \text{V}; -V_{EB} = 0.4\ \text{V}$$

$$-I_{BEX} < 0.1\ \mu\text{A}$$

Collector cut-off current

$$-V_{CE} = 35\ \text{V}; -V_{EB} = 0.4\ \text{V}$$

$$-I_{CEX} < 0.1\ \mu\text{A}$$

D.C. current gain

$$-I_C = 0.1\ \text{mA}; -V_{CE} = 1\ \text{V}$$

$$h_{FE} > 30$$

$$-I_C = 1.0\ \text{mA}; -V_{CE} = 1\ \text{V}$$

$$h_{FE} > 60$$

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

$$h_{FE} > 100$$

$$-I_C = 150\ \text{mA}; -V_{CE} = 2\ \text{V}$$

$$h_{FE} \quad 100\ \text{to}\ 300$$

$$-I_C = 500\ \text{mA}; -V_{CE} = 2\ \text{V}$$

$$h_{FE} > 20$$

Saturation voltage

$$-I_C = 150\ \text{mA}; -I_B = 15\ \text{mA}$$

$$-V_{CEsat} < 0.4\ \text{V}$$

$$-V_{BEsat} \quad 0.75\ \text{to}\ 0.95\ \text{V}$$

$$-I_C = 500\ \text{mA}; -I_B = 50\ \text{mA}$$

$$-V_{CEsat} < 0.75\ \text{V}$$

$$-V_{BEsat} < 1.3\ \text{V}$$

Transition frequency

$$f = 100\ \text{MHz}; -I_C = 20\ \text{mA}; -V_{CE} = 10\ \text{V}$$

$$f_T > 200\ \text{MHz}$$

Collector-base capacitance

$$I_E = 0; -V_{CB} = 10\ \text{V}; f = 100\ \text{kHz}$$

$$C_{cb} < 8.5\ \text{pF}$$

Emitter-base capacitance

$$I_C = 0; -V_{BE} = 0.5\ \text{V}; f = 100\ \text{kHz}$$

$$C_{eb} < 35\ \text{pF}$$

Input impedance at $f = 1\ \text{kHz}$;

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

$$h_{ie} \quad \begin{array}{l} \text{min.} \quad 1.5\ \text{k}\Omega \\ \text{max.} \quad 15\ \text{k}\Omega \end{array}$$

Voltage feed-back ratio at $f = 1\ \text{kHz}$;

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

$$h_{re} \quad \begin{array}{l} \text{min.} \quad 0.1 \times 10^{-4} \\ \text{max.} \quad 8 \times 10^{-4} \end{array}$$

Small-signal current gain at $f = 1\ \text{kHz}$

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

$$h_{fe} \quad \begin{array}{l} \text{min.} \quad 60 \\ \text{max.} \quad 500 \end{array}$$

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Output admittance at $f = 1 \text{ kHz}$;

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

h_{oe}	<i>min.</i>	1 μS
	<i>max.</i>	100 μS

Switching times (resistive load)

Turn-on time

$$-I_C = 150 \text{ mA}; -I_{B1} = 15 \text{ mA};$$

$$-V_{CC} = 30 \text{ V}; -V_{EB} = 2 \text{ V}$$

delay time

t_d	<i>max.</i>	15 ns
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rise time

t_r	<i>max.</i>	20 ns
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Turn-off time

$$-I_C = 150 \text{ mA}; -V_{CC} = 30 \text{ V};$$

$$-I_{B1} = +I_{B2} = 15 \text{ mA}$$

storage time

t_s	<i>max.</i>	225 ns
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fall time

t_f	<i>max.</i>	30 ns
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Disclaimer

The product information and the selection guides facilitate selection of the CDIL's Discrete Semiconductor Device(s) best suited for application in your product(s) as per your requirement. It is recommended that you completely review our Data Sheet(s) so as to confirm that the Device(s) meet functionality parameters for your application. The information furnished on the CDIL Web Site/ CD are believed to be accurate and reliable. CDIL however, does not assume responsibility for inaccuracies or incomplete information. Furthermore, CDIL does not assume liability whatsoever, arising out of the application or use of any CDIL product; neither does it convey any license under its patent rights nor rights of others. These products are not designed for use in life saving/support appliances or systems. CDIL customers selling these products (either as individual Discrete Semiconductor Devices or incorporated in their end products), in any life saving/support appliances or systems or applications do so at their own risk and CDIL will not be responsible for any damages resulting from such sale(s).

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