

SOT-23 Formed SMD Package

CMBT4403

SILICON PLANAR EPITAXIAL TRANSISTOR

P-N-P transistor

Marking

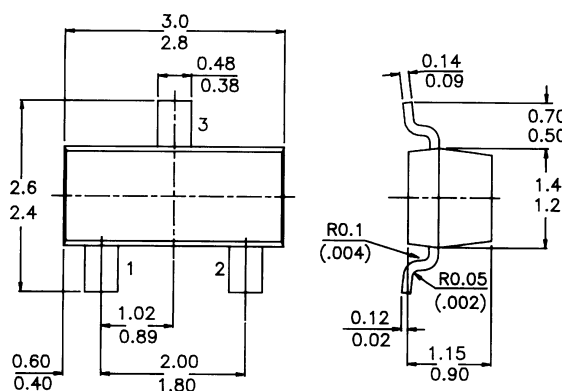
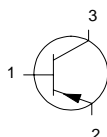
CMBT4403 = 2T

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
$I_C = 150 \text{ mA}; V_{CE} = 2 \text{ V}$			
Total power dissipation up to $T_{amb} = 25^\circ \text{C}$	P_{tot}	max	250 mW

RATINGS (at $T_A = 25^\circ \text{C}$ 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 $T_{amb} = 25^\circ \text{C}$	P_{tot}	max	250 mW
Storage temperature range	T_{stg}		$-55 \text{ to } +150^\circ \text{C}$
Junction temperature	T_j	max.	150 $^\circ \text{C}$

CMBT4403**THERMAL RESISTANCE**

From junction to ambient

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

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

Collector-emitter breakdown voltage

$$-I_C = 1.0\ mA; I_B = 0$$

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

Collector-base breakdown voltage

$$-I_C = 100\ \mu A; I_E = 0$$

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

Emitter-base breakdown voltage

$$-I_E = 100\ \mu A; I_C = 0$$

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

Base cut-off current

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

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

Collector cut-off current

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

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

D.C. current gain

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

$$h_{FE} > 30$$

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

$$h_{FE} > 60$$

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

$$h_{FE} > 100$$

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

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

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

$$h_{FE} > 20$$

Saturation voltage

$$-I_C = 150\ mA; -I_B = 15\ mA$$

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

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

$$-I_C = 500\ mA; -I_B = 50\ mA$$

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

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

Transition frequency

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

$$f_T > 200\ MHz$$

Collector-base capacitance

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

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

Emitter-base capacitance

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

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

Input impedance at $f = 1\ kHz$;

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

$$h_{ie} \quad min. \quad 1.5\ k\Omega$$

$$max. \quad 15\ k\Omega$$

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

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

$$h_{re} \quad min. 0.1 \times 10^{-4}$$

$$max. \quad 8 \times 10^{-4}$$

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

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

$$h_{fe} \quad min. \quad 60$$

$$max. \quad 500$$

CMBT4403*Output admittance at $f = 1$ kHz;* $-I_C = 1$ mA; $-V_{CE} = 10$ V

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

*Switching times (resistive load)**Turn-on time* $-I_C = 150$ mA; $-I_{B1} = 15$ mA; $-V_{CC} = 30$ V; $-V_{EB} = 2$ 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 $-I_C = 150$ mA; $-V_{CC} = 30$ V; $-I_{B1} = +I_{B2} = 15$ 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

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