

SOT-23 Formed SMD Package

CMBT4403

SILICON PLANAR EPITAXIAL TRANSISTOR

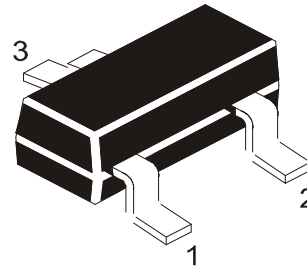
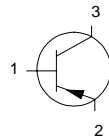
P-N-P transistor

Marking

CMBT4403 = 2T

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
Total power dissipation up to $T_{amb} = 25\text{ }^{\circ}\text{C}$	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 $T_{amb} = 25\text{ }^{\circ}\text{C}$	P_{tot}	max	250 mW
Storage temperature range	T_{stg}	-55 to +150	$^{\circ}\text{C}$
Junction temperature	T_j	max.	150 $^{\circ}\text{C}$

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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 $f = 1\ kHz$;

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

$$h_{ie} \quad \begin{matrix} min. & 1.5\ k\Omega \\ max. & 15\ k\Omega \end{matrix}$$

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

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

$$h_{re} \quad \begin{matrix} min. & 0.1 \times 10^{-4} \\ max. & 8 \times 10^{-4} \end{matrix}$$

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

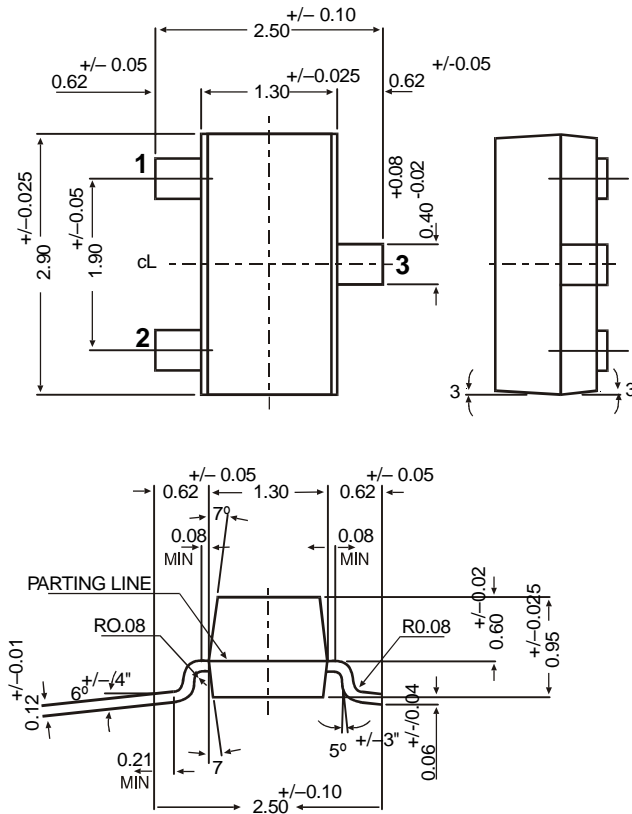
$$-I_C = 1\ mA; -V_{CE} = 10\ V$$

$$h_{fe} \quad \begin{matrix} min. & 60 \\ max. & 500 \end{matrix}$$

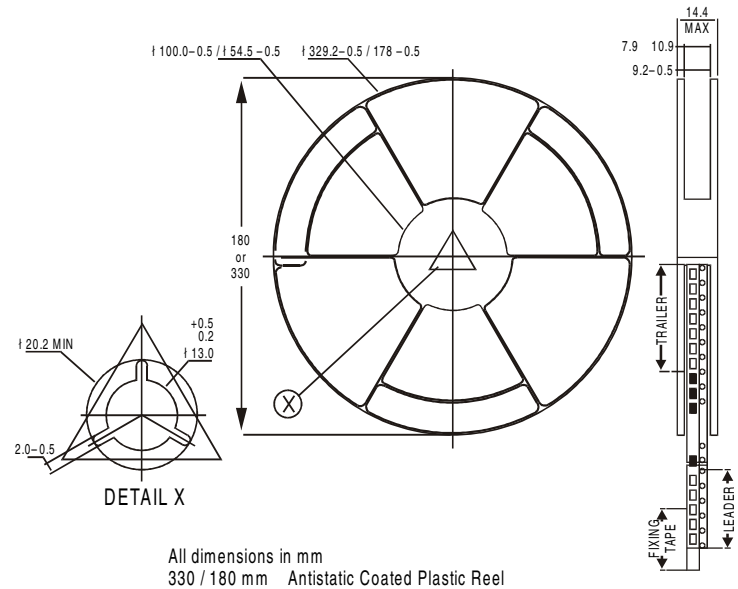
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Output admittance at $f = 1\text{ kHz}$;			
$-I_C = 1\text{ mA}; -V_{CE} = 10\text{ V}$			
h_{oe}	<i>min.</i>	1	μS
	<i>max.</i>	100	μS
Switching times (resistive load)			
Turn-on time			
$-I_C = 150\text{ mA}; -I_{B1} = 15\text{ mA};$			
$-V_{CC} = 30\text{ V}; -V_{EB} = 2\text{ V}$			
delay time	t_d	<i>max.</i>	15 ns
rise time	t_r	<i>max.</i>	20 ns
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
fall time	t_f	<i>max.</i>	30 ns

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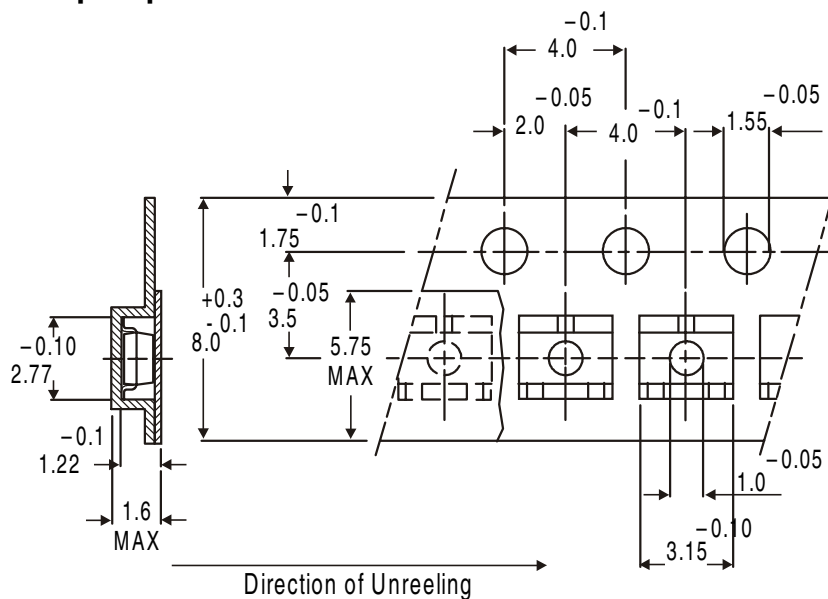


SOT-23 Package Reel Information
Reel specifications for Packing (13"/7" reels)



- | NOTES: | | 8mm Tape
Size of Reel
330 mm (13")
10,000 Pcs | 8mm Tape
Size of Reel
180 mm (7")
3,000 Pcs |
|----------------|--|--|--|
| No. of Devices | | | |
- The bandolier of 330 mm reel contains at least 10,000 devices.
 - The bandolier of 180 mm reel contains at least 3,000 devices.
 - No more than 0.5% missing devices / reel. 50 empty compartments for 330 mm reel. 15 empty compartments for 180 mm reel.
 - Three consecutive empty places might be found provided this gap is followed by 6 consecutive devices.
 - The carrier tape (leader) starts with at least 75 empty positions (equivalent to 330 mm). In order to fix the carrier tape a self adhesive tape of 20 to 50 mm is applied. At the end of the bandolier at least 40 empty positions (equivalent to 160 mm) are there.

Tape Specification for SOT-23 Surface Mount Device



All dimensions in mm

Packing Detail

PACKAGE	STANDARD PACK		INNER CARTON BOX		OUTER CARTON BOX		
	Details	Net Weight/Qty	Size	Qty	Size	Qty	Gr Wt
SOT-23 T&R	3K/reel	136 gm/3K pcs	3" x 7.5" x 7.5"	12.0K	17" x 15" x 13.5"	192.0K	12 kgs
			9" x 9" x 9"	51.0K	19" x 19" x 19"	408.0K	28 kgs
	10K/reel	415 gm/10K pcs	13" x 13" x 0.5"	10.0K	17" x 15" x 13.5"	300.0K	16 kgs

Customer Notes

Component Disposal Instructions

1. CDIL Semiconductor Devices are RoHS compliant, customers are requested to please dispose as per prevailing Environmental Legislation of their Country.
2. In Europe, please dispose as per EU Directive 2002/96/EC on Waste Electrical and Electronic Equipment (WEEE).

Disclaimer

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Continental Device India Limited

C-120 Naraina Industrial Area, New Delhi 110 028, India.

Telephone + 91-11-2579 6150, 4141 1112 Fax + 91-11-2579 5290, 4141 1119

email@cdil.com www.cdilsemi.com