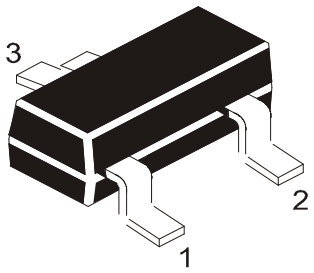
SOT-23 Formed SMD Package **CMBT4403**

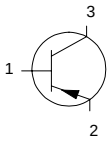
SILICON PLANAR EPITAXIAL TRANSISTOR

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				
I_C = 150 mA; V_{CE} = 2 V	h_{FE}	*min.*	*100*	
		max.	*300*	
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*

THERMAL RESISTANCE

From junction to ambient	$R_{th\ j-a}$	=	500	K/W

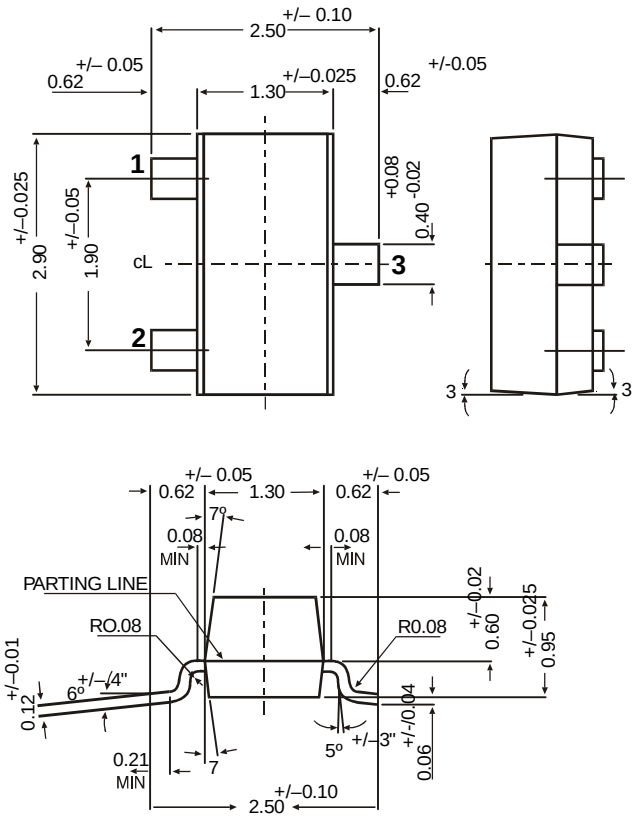
CHARACTERISTICS

T_{amb} = 25 °C unless otherwise specified

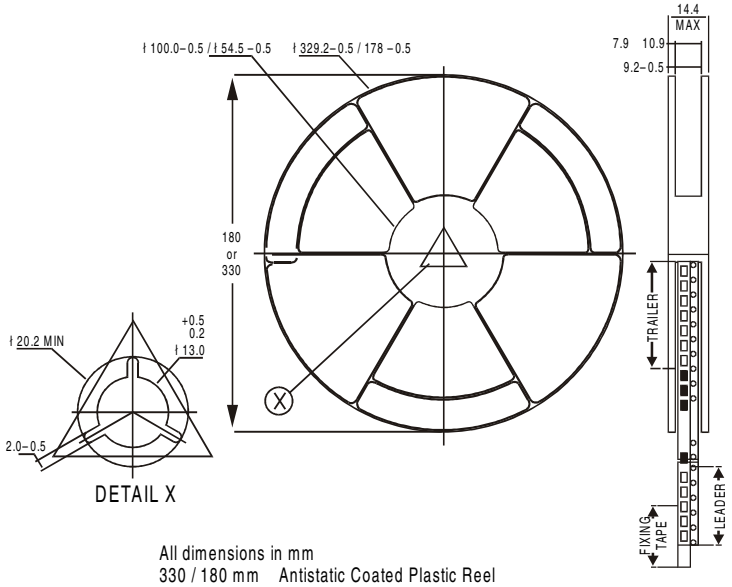
Collector–emitter breakdown voltage				
$-I_C$ = 1.0 mA; I_B = 0	$-V_{(BR)CEO}$	>	40	V
Collector–base breakdown voltage				
$-I_C$ = 100 µA; I_E = 0	$-V_{(BR)CBO}$	>	40	V
Emitter–base breakdown voltage				
$-I_E$ = 100 µA; I_C = 0	$-V_{(BR)EBO}$	>	5	V
Base cut–off current				
$-V_{CE}$ = 35 V; $-V_{EB}$ = 0.4 V	$-I_{BEX}$	<	0.1	µA
Collector cut–off current				
$-V_{CE}$ = 35 V; $-V_{EB}$ = 0.4 V	$-I_{CEX}$	<	0.1	µA
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}		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
	$-V_{BEsat}$		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}	min.	1.5	kΩ
		max.	15	kΩ
Voltage feed–back ratio at f = 1 kHz;				
$-I_C$ = 1 mA; $-V_{CE}$ = 10 V	h_{re}	min.	0.1×10^{-4}	
		max.	8×10^{-4}	
Small–signal curent gain at f = 1 kHz				
$-I_C$ = 1 mA; $-V_{CE}$ = 10 V	h_{fe}	min.	60	
		max.	500	

Output admittance at f = 1 kHz;			
$-I_C$ = 1 mA; $-V_{CE}$ = 10 V	h_{oe}	*min.*	1 µS
		max.	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	*max.*	15 ns
rise time	t_r	*max.*	20 ns
Turn–off time			
$-I_C$ = 150 mA; $-V_{CC}$ = 30 V;			
$-I_{B1} = +I_{B2}$ = 15 mA			
storage time	t_s	*max.*	225 ns
fall time	t_f	*max.*	30 ns

SOT-23 Formed SMD Package



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

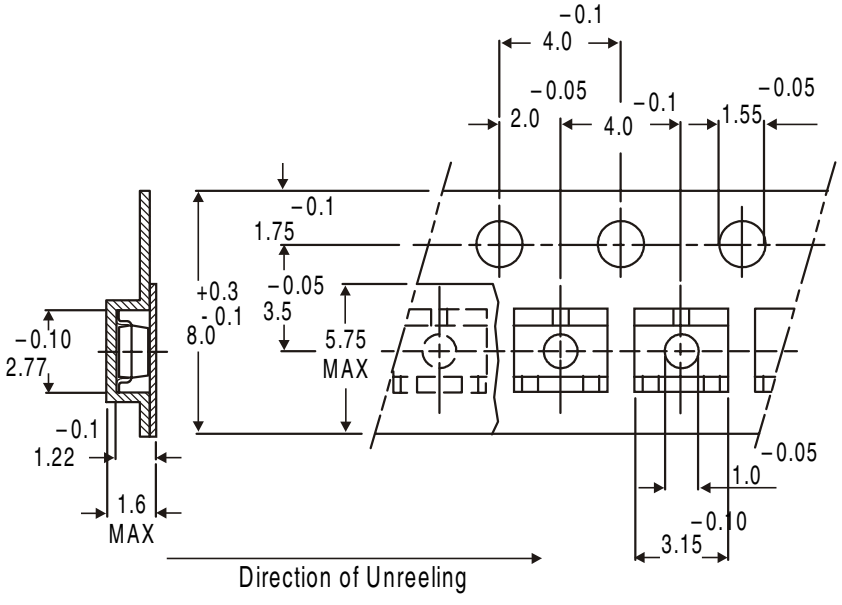


All dimensions in mm
330 / 180 mm Antistatic Coated Plastic Reel

NOTES:	8mm Tape Size of Reel 330 mm (13")	8mm Tape Size of Reel 180 mm (7")
No. of Devices	10,000 Pcs	3,000 Pcs

1. The bandolier of 330 mm reel contains at least 10,000 devices.
2. The bandolier of 180 mm reel contains at least 3,000 devices.
3. No more than 0.5% missing devices / reel. 50 empty compartments for 330 mm reel. 15 empty compartments for 180 mm reel.
4. Three consecutive empty places might be found provided this gap is followed by 6 consecutive devices.
5. 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

CDIL is a registered Trademark of
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