

SOT-23 Formed SMD Package

CMBT4125

GENERAL PURPOSE TRANSISTOR

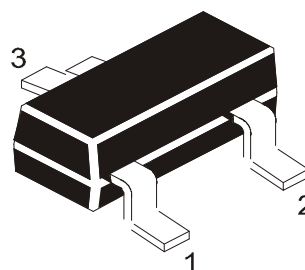
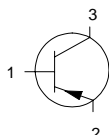
P-N-P transistor

Marking

CMBT4125 = 5D

Pin configuration

1 = BASE
2 = EMITTER
3 = COLLECTOR



ABSOLUTE MAXIMUM RATINGS

Collector-base voltage (open emitter)	$-V_{CBO}$	max.	30 V
Collector-emitter voltage (open base)	$-V_{CEO}$	max.	30 V
Emitter-base voltage (open collector)	$-V_{EBO}$	max.	4 V
Collector current (d.c.)	$-I_C$	max.	200 mA
Total power dissipation at $T_{amb} = 25^\circ\text{C}$	P_{tot}	max	350 mW
D.C. current gain	h_{FE}	min.	50
		max.	150

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

Limiting values

Collector-base voltage (open emitter)	$-V_{CBO}$	max.	30 V
Collector-emitter voltage (open base)	$-V_{CEO}$	max.	30 V

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Emitter-base voltage (open collector)	$-V_{EBO}$	max.	4	V
Collector current (d.c.)	$-I_C$	max.	200	mA
Total power dissipation at $T_{amb} = 25^\circ\text{C}$	P_{tot}	max.	350	mW
Storage temperature	T_{stg}		-55 to +150	$^\circ\text{C}$
Junction temperature	T_j	max.	150	$^\circ\text{C}$

THERMAL CHARACTERISTICS

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

Thermal resistance

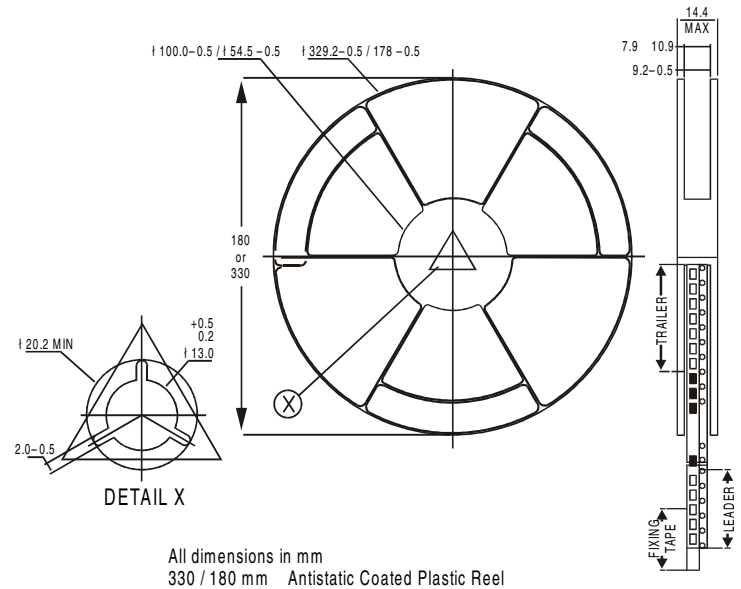
from junction to ambient	$R_{th\ j-a}$	556	$^\circ\text{C/mW}$
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CHARACTERISTICS (at $T_A = 25^\circ\text{C}$ unless otherwise specified)

Collector-emitter breakdown voltage $-I_C = 1\text{ mA}; I_B = 0$	$-V_{(BR)CEO}$	min.	30	V
Collector-base breakdown voltage $-I_C = 10\text{ mA}; I_E = 0$	$-V_{(BR)CBO}$	min.	30	V
Emitter-base breakdown voltage $-I_E = 10\text{ mA}; I_C = 0$	$-V_{(BR)EBO}$	min.	4	V
Collector cut-off current $-V_{CB} = 20\text{ V}; I_E = 0\text{ V}$	$-I_{CBO}$	max.	50	nA
Emitter cut-off current $V_{BE} = 3\text{ V}; I_C = 0$	I_{EBO}	max.	50	nA
Output capacitance at $f = 100\text{ kHz}$ $I_E = 0; -V_{CB} = 5\text{ V}$	C_c	max.	4.5	pF
Input capacitance at $f = 100\text{ kHz}$ $I_C = 0; -V_{BE} = 0.5\text{ V}$	C_e	max.	10	pF
Saturation voltages $-I_C = 50\text{ mA}; -I_B = 5\text{ mA}$	$-V_{CEsat}$	max.	0.4	V
$-I_C = 50\text{ mA}; -I_B = 5\text{ mA}$	$-V_{BEsat}$	max.	0.95	V
D.C. current gain $-I_C = 2\text{ mA}; -V_{CE} = 1\text{ V}$	h_{FE}	min. max.	50 150	
$-I_C = 50\text{ mA}; -V_{CE} = 1\text{ V}$	h_{FE}	min.	25	
Noise figure at $R_S = 1\text{ kW}$ $-I_C = 100\text{ mA}; -V_{CE} = 5\text{ V}$ $f = 10\text{ Hz to } 15.7\text{ kHz}$	NF	max.	5	dB
Small signal current gain $-V_{CE} = 1\text{ V}; -I_C = 2\text{ mA}; f = 1\text{ KHz}$	h_{fe}	min. max.	50 150	
Transition frequency $-V_{CE} = 20\text{ V}; -I_C = 10\text{ mA}; f = 100\text{ MHz}$	f_T	min.	200	MHz

SOT-23 Package Reel Information

Reel specifications for Packing (13"/7" reels)



- | NOTES: | | 8mm Tape | 8mm Tape |
|----------------|--|--------------|--------------|
| | | Size of Reel | Size of Reel |
| No. of Devices | | 330 mm (13") | 180 mm (7") |
| | | 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. | | |

Technical drawing of a roller assembly, showing a cross-section and a plan view.

Cross-section (Left):

- Overall width: 2.77
- Central hole diameter: 0.10
- Housing thickness: 0.1
- Roller diameter: 1.75
- Distance from roller center to housing edge: 1.22
- Maximum housing width: 1.6 MAX

Plan View (Right):

- Overall length: 8.0
- Roller diameter: 1.75
- Center-to-center distance between rollers: 4.0
- Distance from roller center to housing edge: 1.22
- Maximum housing width: 1.6 MAX
- Direction of Unreeling: Indicated by a dashed line and arrow.

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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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