

SOT-23 Formed SMD Package

**CMBTA92
CMBTA93**

SILICON EPITAXIAL TRANSISTORS

P-N-P transistor

Marking

CMBTA92 = 2D

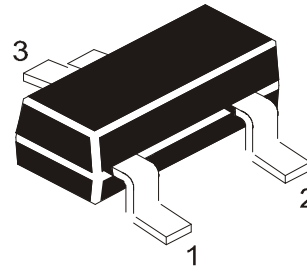
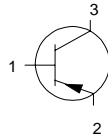
CMBTA93 = 2E

Pin configuration

1 = BASE

2 = EMITTER

3 = COLLECTOR



ABSOLUTE MAXIMUM RATINGS

	CMBTA92	A93
Collector-base voltage (open emitter)	$-V_{CBO}$ max. 300	200 V
Collector-emitter voltage (open base)	$-V_{CEO}$ max. 300	200 V
Emitter-base voltage (open collector)	$-V_{EBO}$ max. 5	V
Collector current (d.c.)	$-I_C$ max. 500	mA
Total power dissipation up to $T_{amb} = 25\text{ }^{\circ}\text{C}$	P_{tot} 250	mW
D.C. current gain		
$-I_C = 10\text{ mA}; -V_{CE} = 10\text{ V}$	h_{FE} min. 40	
Transition frequency at $f = 100\text{ MHz}$		
$-I_C = 10\text{ mA}; -V_{CE} = 20\text{ V}$	f_T min. 50	MHz
Collector-base capacitance at $f = 1\text{ MHz}$		
$I_E = 0; -V_{CB} = 20\text{ V}$	C_{cb} max. 6	8 pF

CMBTA92
CMBTA93

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

Limiting values

		CMBTA92	A93
Collector-base voltage (open emitter)	$-V_{CBO}$	max. 300	200 V
Collector-emitter voltage (open base)	$-V_{CEO}$	max. 300	200 V
Emitter-base voltage (open collector)	$-V_{EBO}$	max. 5	V
Collector current (d.c.)	$-I_C$	max. 500	mA
Total power dissipation up to $T_{amb} = 25^\circ\text{C}$	P_{tot}	max. 250	mW
Storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$
Junction temperature	T_j	max. 150	$^\circ\text{C}$

THERMAL CHARACTERISTICS

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

Thermal resistance

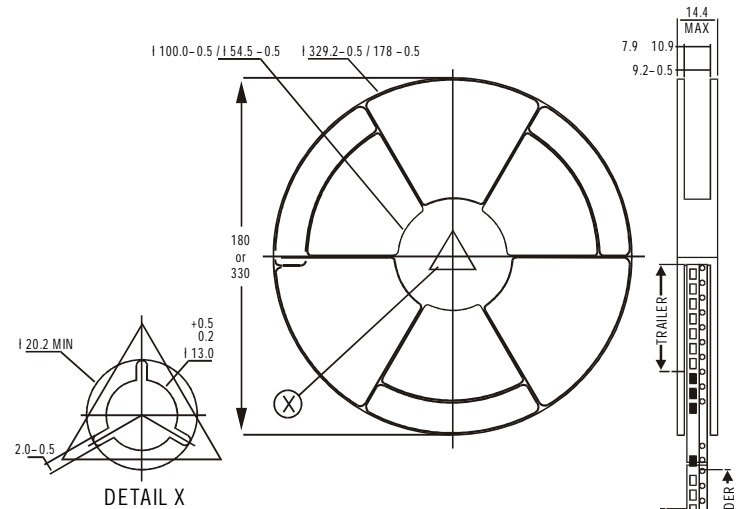
from junction to ambient	$R_{th\ j-a}$	500	K/W
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CHARACTERISTICS (at $T_A = 25^\circ\text{C}$ unless otherwise specified)

Collector-emitter breakdown voltage			
$-I_C = 1\text{ mA}; I_B = 0$	$-V_{(BR)CEO}$ min.	300	200 V
Collector-base breakdown voltage			
$-I_C = 100\ \mu\text{A}; I_E = 0$	$-V_{(BR)CBO}$ min.	300	200 V
Collector cut-off current			
$-V_{CB} = 200\text{ V}; I_E = 0$	$-I_{CBO}$ max.	0.25	- μA
$-V_{CB} = 160\text{ V}; I_E = 0$	$-I_{CBO}$ max.	-	0.25 μA
Emitter-base breakdown voltage			
$-I_E = 100\ \mu\text{A}; I_C = 0$	$-V_{(BR)EBO}$ min.	5	V
Emitter cut-off current			
$I_C = 0; -V_{BE} = 3\text{ V}$	$-I_{EBO}$ max.	0.1	0.1 mA
Collector-base capacitance at $f = 1\text{ MHz}$			
$I_E = 0; -V_{CB} = 20\text{ V}$	C_{cb} max.	6	8 pF
Saturation voltages			
$-I_C = 20\text{ mA}; -I_B = 2\text{ mA}$	$-V_{CEsat}$ max.	0.5	0.5 V
$-I_C = 20\text{ mA}; -I_B = 2\text{ mA}$	$-V_{BEsat}$ max.	0.9	0.9 V
D.C. current gain			
$-I_C = 1\text{ mA}; -V_{CE} = 10\text{ V}$	h_{FE} min.	25	
$-I_C = 10\text{ mA}; -V_{CE} = 10\text{ V}$	h_{FE} min.	40	
$-I_C = 30\text{ mA}; -V_{CE} = 10\text{ V}$	h_{FE} min.	25	

SOT-23 Package Reel Information

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



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 wire mesh strip showing dimensions and tolerances. The drawing includes a cross-section on the left and a plan view on the right. The cross-section shows a rectangular profile with dimensions 2.77, 1.22, and 1.6 MAX. The plan view shows a series of rectangular openings with dimensions 4.0, 2.0, 4.0, 1.55, and 3.15. Tolerances are indicated throughout the drawing.

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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

The product information and the selection guides facilitate selection of the CDIL's 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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