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Continental Device India Limited

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## SOT-23 Formed SMD Package

CMBTA42

CMBTA43

## SILICON EPITAXIAL TRANSISTORS

N-P-N transistors

### Marking

CMBTA42 = 1D

CMBTA43 = 1E

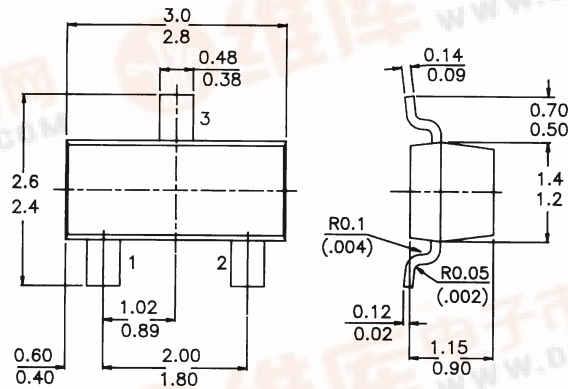
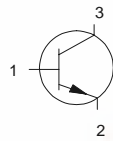
### PACKAGE OUTLINE DETAILS ALL DIMENSIONS IN mm

#### Pin configuration

1 = BASE

2 = EMITTER

3 = COLLECTOR



### ABSOLUTE MAXIMUM RATINGS

Collector-base voltage (open emitter)

Collector-emitter voltage (open base)

Emitter-base voltage (open collector)

Collector current (d.c.)

Total power dissipation up to  $T_{amb} = 25^{\circ}C$

Junction temperature

D.C. current gain

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

Transition frequency at  $f = 35\text{ MHz}$

$I_C = 10\text{ mA}$ ;  $V_{CE} = 20\text{ V}$

Feedback capacitance at  $f = 1\text{ MHz}$

$I_C = 0$ ;  $V_{CE} = 20\text{ V}$

#### CMBTA42

#### A43

$V_{CBO}$	max.	300	200 V
$V_{CEO}$	max.	300	200 V
$V_{EBO}$	max.	6	V
$I_C$	max.	500	mA
$P_{tot}$	max.	250	mW
$T_j$	max.	150	$^{\circ}C$
$h_{FE}$	min.	40	
$f_T$	min.	50	MHz
$C_{re}$	max.	3	4 pF



**CMBTA42**  
**CMBTA43**

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

*Limiting values*

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.	6		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)

			<b>CMBTA42</b>	<b>A43</b>
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
Emitter-base breakdown voltage $I_E = 100\ \mu\text{A}; I_C = 0$	$V_{(BR)EBO}$	min.	6	V
Collector cut-off current $I_E = 0; V_{CB} = 200\text{ V}$	$I_{CBO}$	max.	0.1	- $\mu\text{A}$
$I_E = 0; V_{CB} = 160\text{ V}$	$I_{CBO}$	max.	-	0.1 $\mu\text{A}$
Emitter cut-off current $I_C = 0; V_{BE} = 6\text{ V}$	$I_{EBO}$	max.	0.1	- $\mu\text{A}$
$I_C = 0; V_{BE} = 4\text{ V}$	$I_{EBO}$	max.	-	0.1 $\mu\text{A}$
Feedback capacitance at $f = 1\text{ MHz}$ $I_E = 0; V_{CB} = 20\text{ V}$	$C_{re}$	max.	3	4 pF
Saturation voltages $I_C = 20\text{ mA}; I_B = 2\text{ mA}$	$V_{CEsat}$	max.	0.5	V
$I_C = 20\text{ mA}; I_B = 2\text{ mA}$	$V_{BEsat}$	max.	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.	40	
Transition frequency at $f = 35\text{ MHz}$ $I_C = 10\text{ mA}; V_{CE} = 20\text{ V}$	$f_T$	min.	50	MHz

## Customer Notes

### Disclaimer

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