

SOT-23 Formed SMD Package

**CMBTA42
CMBTA43**

SILICON EPITAXIAL TRANSISTORS

N-P-N transistors

Marking

CMBTA42 = 1D

CMBTA43 = 1E

PACKAGE OUTLINE DETAILS

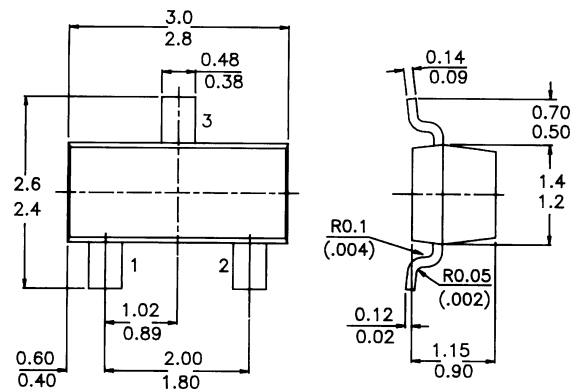
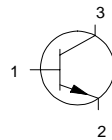
ALL DIMENSIONS IN mm

Pin configuration

1 = BASE

2 = EMITTER

3 = COLLECTOR



ABSOLUTE MAXIMUM RATINGS

	CMBTA42	A43
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 $T_{amb} = 25^\circ C$	P_{tot} max. 250	mW
Junction temperature	T_j max. 150	$^\circ C$
D.C. current gain		
$I_C = 10$ mA; $V_{CE} = 10$ V	h_{FE} min. 40	
Transition frequency at $f = 35$ MHz		
$I_C = 10$ mA; $V_{CE} = 20$ V	f_T min. 50	MHz
Feedback capacitance at $f = 1$ MHz		
$I_C = 0$; $V_{CE} = 20$ V	C_{re} max. 3	4 pF

CMBTA42
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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)

			CMBTA42	A43
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	- μA
$I_E = 0; V_{CB} = 160\text{ V}$	I_{CBO}	max.	-	0.1 μA
Emitter cut-off current				
$I_C = 0; V_{BE} = 6\text{ V}$	I_{EBO}	max.	0.1	- μA
$I_C = 0; V_{BE} = 4\text{ V}$	I_{EBO}	max.	-	0.1 μA
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

Disclaimer

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