

SOT-23 Formed SMD Package

**CMBTA42
CMBTA43**

SILICON EPITAXIAL TRANSISTORS

N-P-N transistors

Marking

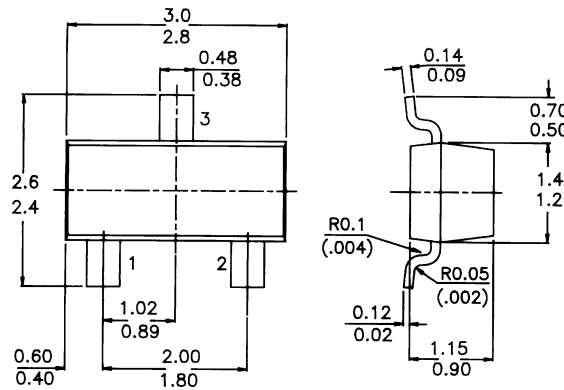
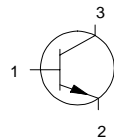
CMBTA42 = 1D

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 $T_{amb} = 25^\circ\text{C}$	P_{tot} max. 250	mW
Junction temperature	T_j max. 150	$^\circ\text{C}$
D.C. current gain	h_{FE} min. 40	
Transition frequency at $f = 35\text{ MHz}$	f_T min. 50	MHz
Feedback capacitance at $f = 1\text{ MHz}$	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 $R_{th\ j-a} = 500\ \text{K/W}$

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

		CMBTA42	A43	
Collector–emitter breakdown voltage		min. 300	200	V
$I_C = 1\ \text{mA}; I_B = 0$	$V_{(BR)CEO}$			
Collector–base breakdown voltage		min. 300	200	V
$I_C = 100\ \mu\text{A}; I_E = 0$	$V_{(BR)CBO}$			
Emitter–base breakdown voltage		min.	6	V
$I_E = 100\ \mu\text{A}; I_C = 0$	$V_{(BR)EBO}$			
Collector cut-off current		I_{CBO} max. 0.1	–	μA
$I_E = 0; V_{CB} = 200\ \text{V}$		I_{CBO} max. –	0.1	μA
$I_E = 0; V_{CB} = 160\ \text{V}$		I_{EBO} max. 0.1	–	μA
Emitter cut-off current		I_{EBO} max. –	0.1	μA
$I_C = 0; V_{BE} = 6\ \text{V}$				
$I_C = 0; V_{BE} = 4\ \text{V}$				
Feedback capacitance at $f = 1\ \text{MHz}$		C_{re} max. 3	4	pF
$I_E = 0; V_{CB} = 20\ \text{V}$				
Saturation voltages		V_{CEsat} max.	0.5	V
$I_C = 20\ \text{mA}; I_B = 2\ \text{mA}$		V_{BEsat} max.	0.9	V
$I_C = 20\ \text{mA}; I_B = 2\ \text{mA}$				
D.C. current gain		h_{FE} min.	25	
$I_C = 1\ \text{mA}; V_{CE} = 10\ \text{V}$		h_{FE} min.	40	
$I_C = 10\ \text{mA}; V_{CE} = 10\ \text{V}$		h_{FE} min.	40	
$I_C = 30\ \text{mA}; V_{CE} = 10\ \text{V}$				
Transition frequency at $f = 35\ \text{MHz}$		f_T min.	50	MHz
$I_C = 10\ \text{mA}; V_{CE} = 20\ \text{V}$				

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