SOT-23 Formed SMD Package

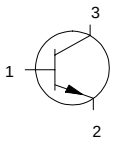
CMBTA42
CMBTA43

SILICON EPITAXIAL TRANSISTORS

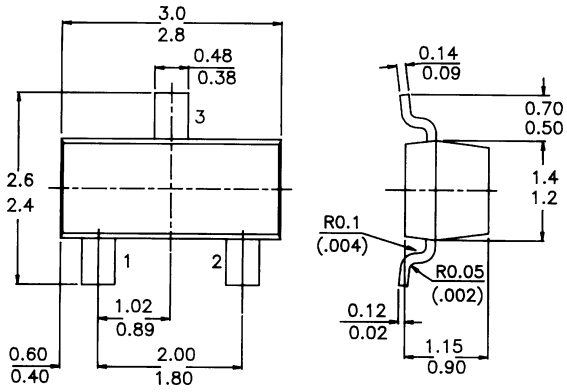
N–P–N transistors

Marking
CMBTA42 = 1D
CMBTA43 = 1E

Pin configuration
1 = BASE
2 = EMITTER
3 = COLLECTOR



PACKAGE OUTLINE DETAILS
ALL DIMENSIONS IN mm



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 °C	P_{tot}	*max.*	*250*		mW
Junction temperature	T_j	*max.*	*150*		*° 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*

RATINGS *(at T_A = 25°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 °C	P_{tot}	*max.*	*250*		mW
Storage temperature	T_{stg}		*–55 to +150*		*° C*
Junction temperature	T_j	*max.*	*150*		*° 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

CHARACTERISTICS *(at T_A = 25°C unless otherwise specified)*

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

Customer Notes

Disclaimer

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