

SILICON EPITAXIAL TRANSISTORS

N-P-N transistor

Marking

CMBTA05 = 1H

CMBTA06 = 1G

PACKAGE OUTLINE DETAILS

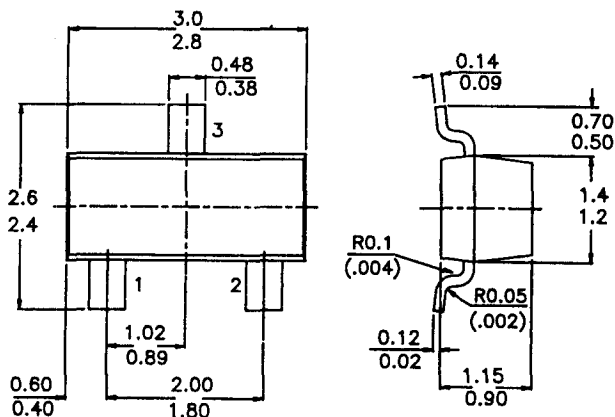
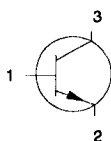
ALL DIMENSIONS IN mm

Pin configuration

1 = BASE

2 = EMITTER

3 = COLLECTOR



ABSOLUTE MAXIMUM RATINGS

		CMBTA05	A06
Collector-base voltage (open emitter)	V_{CBO}	max. 60	80 V
Collector-emitter voltage (open base)	V_{CEO}	max. 60	80 V
Emitter-base voltage (open collector)	V_{EBO}	max. 4	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
D.C. current gain			
$I_C = 100\text{ mA}; V_{CE} = 1\text{ V}$	h_{FE}	min. 50	
Transition frequency at $f = 100\text{ MHz}$			
$I_C = 10\text{ mA}; V_{CE} = 2\text{ V}$	f_T	min. 100	MHz
Collector-emitter saturation voltage			
$I_C = 100\text{ mA}; I_B = 10\text{ mA}$	V_{CEsat}	max. 0.25	V

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

Limiting values

Collector-base voltage (open emitter)	V_{CB0}	max.	60	80	V
Collector-emitter voltage (open base)	V_{CEO}	max.	60	80	V
Emitter-base voltage (open collector)	V_{EBO}	max.	4		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}	max.	-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)

			CMBTA05	A06
Collector-emitter breakdown voltage				
$I_C = 1\text{ mA}; I_B = 0$	$V_{(BR)CEO}$	min.	60	80 V
Emitter-base breakdown voltage				
$I_C = 0; I_E = 100\ \mu\text{A}$	$V_{(BR)EBO}$	min.	4	V
Collector cut-off current				
$V_{CE} = 60\text{ V}; I_B = 0$	I_{CEO}	max.	0.1	μA
$V_{CB} = 60\text{ V}; I_E = 0$	I_{CBO}	max.	0.1	μA
$V_{CB} = 80\text{ V}; I_E = 0$	I_{CBO}	max.		0.1 μA
Saturation voltages				
$I_C = 100\text{ mA}; I_B = 10\text{ mA}$	V_{CEsat}	max.	0.25	V
Base-emitter on voltage				
$I_C = 100\text{ mA}; V_{CE} = 1\text{ V}$	$V_{BE(on)}$	max.	1.2	V
D.C. current gain				
$I_C = 10\text{ mA}; V_{CE} = 1\text{ V}$	h_{FE}	min.	100	
$I_C = 100\text{ mA}; V_{CE} = 1\text{ V}$	h_{FE}	min.	100	
Transition frequency at $f = 100\text{ MHz}$				
$I_C = 10\text{ mA}; V_{CE} = 2\text{ V}$	f_T	min.	100	MHz