

SOT-23 Formed SMD Package

CMBT4125

GENERAL PURPOSE TRANSISTOR

P-N-P transistor

Marking

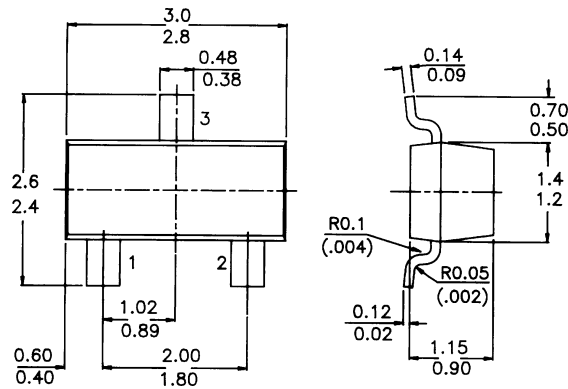
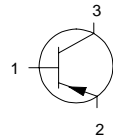
CMBT4125 = 5D

PACKAGE OUTLINE DETAILS

ALL DIMENSIONS IN mm

Pin configuration

- 1 = BASE
- 2 = EMITTER
- 3 = COLLECTOR



ABSOLUTE MAXIMUM RATINGS

Collector-base voltage (open emitter)	$-V_{CBO}$	max.	30 V
Collector-emitter voltage (open base)	$-V_{CEO}$	max.	30 V
Emitter-base voltage (open collector)	$-V_{EBO}$	max.	4 V
Collector current (d.c.)	$-I_C$	max.	200 mA
Total power dissipation at $T_{amb} = 25^\circ C$	P_{tot}	max.	350 mW
D.C. current gain	h_{FE}	min.	50
$-I_C = 2 \text{ mA}; -V_{CE} = 1 \text{ V}$		max.	150

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

Limiting values

Collector-base voltage (open emitter)	$-V_{CBO}$	max.	30 V
Collector-emitter voltage (open base)	$-V_{CEO}$	max.	30 V

CMBT4125

Emitter-base voltage (open collector)	$-V_{EBO}$	max.	4	V
Collector current (d.c.)	$-I_C$	max.	200	mA
Total power dissipation at $T_{amb} = 25^\circ\text{C}$	P_{tot}	max.	350	mW
Storage temperature	T_{stg}		-55 to +150	$^\circ\text{C}$
Junction temperature	T_j	max.	150	$^\circ\text{C}$

THEMAL CHARACTERISTICS

$$T_j = P (R_{th\ j-t} + R_{th\ s-a}) + T_{amb}$$

Thermal resistance

from junction to ambient	$R_{th\ j-a}$		556	$^\circ\text{C}/\text{mW}$
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CHARACTERISTICS (at $T_A = 25^\circ\text{C}$ unless otherwise specified)

Collector-emitter breakdown voltage

$-I_C = 1\ \text{mA}; I_B = 0$	$-V_{(BR)CEO}$	min.	30	V
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Collector-base breakdown voltage

$-I_C = 10\ \text{mA}; I_E = 0$	$-V_{(BR)CBO}$	min.	30	V
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Emitter-base breakdown voltage

$-I_E = 10\ \text{mA}; I_C = 0$	$-V_{(BR)EBO}$	min.	4	V
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Collector cut-off current

$-V_{CB} = 20\ \text{V}; I_E = 0\ \text{V}$	$-I_{CBO}$	max.	50	nA
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Emitter cut-off current

$V_{BE} = 3\ \text{V}; I_C = 0$	I_{EBO}	max.	50	nA
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Output capacitance at $f = 100\ \text{kHz}$

$I_E = 0; -V_{CB} = 5\ \text{V}$	C_c	max.	4.5	pF
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Input capacitance at $f = 100\ \text{kHz}$

$I_C = 0; -V_{BE} = 0.5\ \text{V}$	C_e	max.	10	pF
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Saturation voltages

$-I_C = 50\ \text{mA}; -I_B = 5\ \text{mA}$	$-V_{CEsat}$	max.	0.4	V
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$-I_C = 50\ \text{mA}; -I_B = 5\ \text{mA}$	$-V_{BEsat}$	max.	0.95	V
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D.C. current gain

$-I_C = 2\ \text{mA}; -V_{CE} = 1\ \text{V}$	h_{FE}	min.	50	
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max. 150

$-I_C = 50\ \text{mA}; -V_{CE} = 1\ \text{V}$	h_{FE}	min.	25	
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Noise figure at $R_S = 1\ \text{k}\Omega$

$-I_C = 100\ \text{mA}; -V_{CE} = 5\ \text{V}$	NF	max.	5	dB
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$f = 10\ \text{Hz to } 15.7\ \text{kHz}$

Small signal current gain

$-V_{CE} = 1\ \text{V}; -I_C = 2\ \text{mA}; f = 1\ \text{kHz}$	h_{fe}	min.	50	
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max. 150

Transition frequency

$-V_{CE} = 20\ \text{V}; -I_C = 10\ \text{mA}; f = 100\ \text{MHz}$	f_T	min.	200	MHz
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