

**SOT-23 Formed SMD Package**

**CMBT4125**

**GENERAL PURPOSE TRANSISTOR**

*P-N-P transistor*

**Marking**

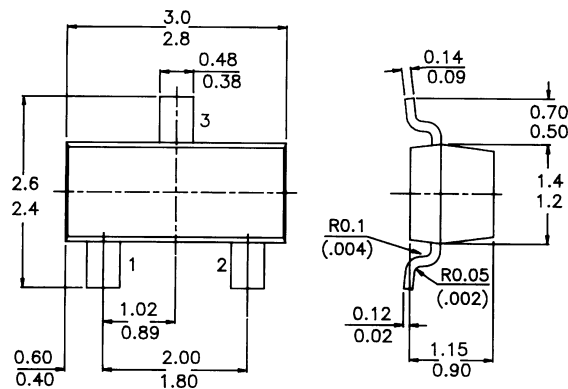
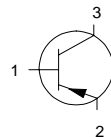
*CMBT4125 = 5D*

**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  $T_{amb} = 25^\circ\text{C}$

$P_{tot}$  max. 350 mW

D.C. current gain

$-I_C = 2 \text{ mA}; -V_{CE} = 1 \text{ V}$

$h_{FE}$  min. 50  
max. 150

**RATINGS** (at  $T_A = 25^\circ\text{C}$  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 $^\circ\text{C}$

**THERMAL 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	$^\circ\text{C/mW}$
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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
		max.	150

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

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

Small signal current gain

$-V_{CE} = 1\text{ V}; -I_C = 2\text{ mA}; f = 1\text{ KHz}$	$h_{fe}$	min.	50
		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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### Disclaimer

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C-120 Naraina Industrial Area, New Delhi 110 028, India.  
Telephone + 91-11-2579 6150, 5141 1112 Fax + 91-11-2579 5290, 5141 1119  
email@cdil.com www.cdilsemi.com

[www.DataSheet4U.com](http://www.DataSheet4U.com)