

SOT-23 Formed SMD Package

CMBT4124

GENERAL PURPOSE TRANSISTOR

N-P-N transistor

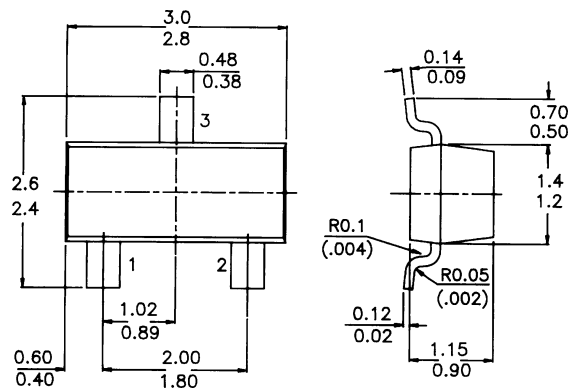
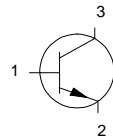
Marking

CMBT4124 = 5C

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.	25 V
Emitter-base voltage (open collector)	$-V_{EBO}$	max.	5 V
Collector current (d.c.)	$-I_C$	max.	200 mA
Total power dissipation at $T_{amb} = 25^\circ C$	P_{tot}	max	225 mW
D.C. current gain			
$-I_C = 2 \text{ mA}; -V_{CE} = 1 \text{ V}$	h_{FE}	min.	120
		max.	360

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.	25 V
Emitter-base voltage (open collector)	$-V_{EBO}$	max.	5 V
Collector current (d.c.)	$-I_C$	max.	200 mA
Total power dissipation at $T_{amb} = 25^\circ C$	P_{tot}	max	225 mW
Storage temperature	T_{stg}		$-55 \text{ to } +150^\circ C$
Junction temperature	T_j	max.	150 $^\circ C$

CMBT4124**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 °C/mW

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.

25 V

Collector-base breakdown voltage

 $-I_C = 10\text{ mA}; I_E = 0$ $-V_{(BR)CBO}$ min.

30 V

Emitter-base breakdown voltage

 $-I_E = 10\text{ mA}; I_C = 0$ $-V_{(BR)EBO}$ min.

5 V

Collector cut-off current

 $-V_{CB} = 20\text{ V}; I_E = 0\text{ V}$ $-I_{CBO}$ max.

50 nA

Emitter cut-off current

 $V_{BE} = 3\text{ V}; I_C = 0$ I_{EBO} max.

50 nA

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

4 pF

Input capacitance at $f = 100\text{ kHz}$ $I_C = 0; -V_{BE} = 0.5\text{ V}$ C_e max.

8 pF

Saturation voltages

 $-I_C = 50\text{ mA}; -I_B = 5\text{ mA}$ $-V_{CEsat}$ max.

0.3 V

 $-I_C = 50\text{ mA}; -I_B = 5\text{ mA}$ $-V_{BEsat}$ max.

0.95 V

D.C. current gain

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

120

max.

360

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

60

Noise figure at $R_S = 1\text{ kW}$ $-I_C = 100\text{ mA}; -V_{CE} = 5\text{ V}$ $f = 10\text{ Hz to } 15.7\text{ kHz}$

NF max.

6 dB

Small signal current gain

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

120

max.

480

Transition frequency

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

300 MHz

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