

SOT-23 Formed SMD Package

CMBT5551

SILICON N-P-N HIGH-VOLTAGE TRANSISTOR

N-P-N transistor

Marking

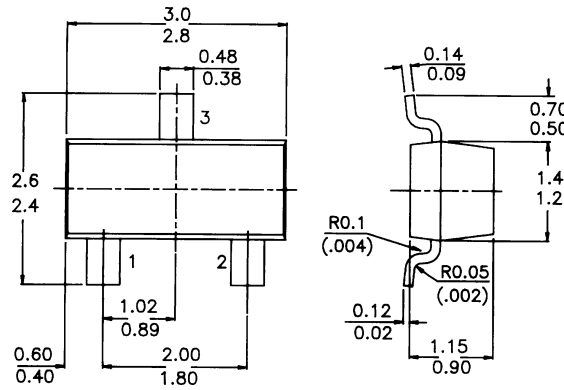
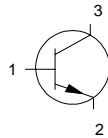
CMBT5551 = G1

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.	180 V
Collector-emitter voltage (open base)	V_{CEO}	max.	160 V
Collector current	I_C	max.	600 mA
Total power dissipation up to $T_{amb} = 25\text{ }^\circ\text{C}$	P_{tot}	max.	250 mW
Junction temperature	T_j	max.	150 $^\circ\text{C}$
Collector-emitter saturation voltage $I_C = 50\text{ mA}; I_B = 5\text{ mA}$	V_{CEsat}	max.	0.2 V
D.C. current gain $I_C = 10\text{ mA}; V_{CE} = 5\text{ V}$	h_{FE}	min.	80

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

Limiting values

Collector-base voltage (open emitter)	V_{CBO}	max.	180 V
Collector-emitter voltage (open base)	V_{CEO}	max.	160 V
Emitter-base voltage (open collector)	V_{EBO}	max.	6 V

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Collector current	I_C	max.	600 mA
Total power dissipation up to $T_{amb} = 25\text{ }^\circ\text{C}$	P_{tot}	max.	250 mW
Junction temperature	T_j	max.	150 $^\circ\text{C}$
Storage temperature range	T_{stg}		-55 to +150 $^\circ\text{C}$

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)

<i>Collector cut-off current</i>			
$I_E = 0; V_{CB} = 120\text{ V}$	I_{CBO}	max.	50 nA
$I_E = 0; V_{CB} = 120\text{ V}; T_{amb} = 100\text{ }^\circ\text{C}$	I_{CBO}	max.	50 μA
<i>Emitter cut-off current</i>			
$I_C = 0; V_{EB} = 4\text{ V}$	I_{EBO}	max.	50 nA
<i>Breakdown voltages</i>			
$I_C = 1\text{ mA}; I_B = 0$	$V_{(BR)CEO}$	min.	160 V
$I_C = 100\text{ }\mu\text{A}; I_E = 0$	$V_{(BR)CBO}$	min.	180 V
$I_C = 0; I_E = 10\text{ }\mu\text{A}$	$V_{(BR)EBO}$	min.	6 V
<i>Saturation voltages</i>			
$I_C = 10\text{ mA}; I_B = 1\text{ mA}$	V_{CEsat}	max.	0.15 V
	V_{BEsat}	max.	1 V
$I_C = 50\text{ mA}; I_B = 5\text{ mA}$	V_{CEsat}	max.	0.2 V
	V_{BEsat}	max.	1 V
<i>D.C. current gain</i>			
$I_C = 1\text{ mA}; V_{CE} = 5\text{ V}$	h_{FE}	min.	80
$I_C = 10\text{ mA}; V_{CE} = 5\text{ V}$	h_{FE}	min.	80
	h_{FE}	max.	250
$I_C = 50\text{ mA}; V_{CE} = 5\text{ V}$	h_{FE}	min.	30
<i>Small-signal current gain</i>			
$I_C = 1\text{ mA}; V_{CE} = 10\text{ V}; f = 1\text{ kHz}$	h_{fe}	min.	50
	h_{fe}	max.	200
<i>Output capacitance at $f = 1\text{ MHz}$</i>			
$I_E = 0; V_{CB} = 10\text{ V}$	C_o	max.	6 pF
<i>Input capacitance at $f = 1\text{ MHz}$</i>			
$I_C = 0; V_{EB} = 0.5\text{ V}$	C_i	max.	30 pF
<i>Transition frequency at $f = 100\text{ MHz}$</i>			
$I_C = 10\text{ mA}; V_{CE} = 10\text{ V}$	f_T	min.	100 MHz
	f_T	max.	300 MHz

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