

**SOT-23 Formed SMD Package**

**CMBT5550**

**SILICON N-P-N HIGH-VOLTAGE TRANSISTOR**

*N-P-N transistor*

**Marking**

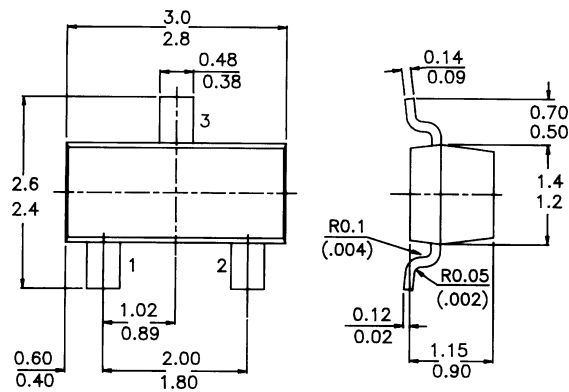
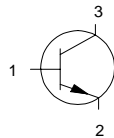
CMBT5550 = 1F

**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.	160 V
Collector-emitter voltage (open base)	$V_{CEO}$	max.	140 V
Collector current	$I_C$	max.	600 mA
Total power dissipation up to $T_{amb} = 25^\circ\text{C}$	$P_{tot}$	max.	250 mW
Collector-emitter saturation voltage			
$I_C = 50 \text{ mA}; I_B = 5 \text{ mA}$	$V_{CEsat}$	max.	0.25 V
D.C. current gain			
$I_C = 10 \text{ mA}; V_{CE} = 5 \text{ V}$	$h_{FE}$		60 to 250

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

**Limiting values**

Collector-base voltage (open emitter)	$V_{CBO}$	max.	160 V
Collector-emitter voltage (open base)	$V_{CEO}$	max.	140 V
Emitter-base voltage (open collector)	$V_{EBO}$	max.	6 V
Collector current	$I_C$	max.	600 mA

**CMBT5550**

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

## Collector cut-off current

$I_E = 0; V_{CB} = 100\text{ V}$	$I_{CBO}$	max.	100 nA
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$I_E = 0; V_{CB} = 100\text{ V}; T_{amb} = 100^{\circ}\text{C}$	$I_{CBO}$	max.	100 nA
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## Emitter cut-off current

$I_C = 0; V_{EB} = 4.0\text{ V}$	$I_{EBO}$	max.	50 nA
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## Breakdown voltages

$I_C = 1\text{ mA}; I_B = 0$	$V_{(BR)CEO}$	min.	140 V
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$I_C = 10\text{ }\mu\text{A}; I_E = 0$	$V_{(BR)CBO}$	min.	160 V
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$I_C = 0; I_E = 10\text{ }\mu\text{A}$	$V_{(BR)EBO}$	min.	6 V
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## Saturation voltages

$I_C = 10\text{ mA}; I_B = 1\text{ mA}$	$V_{CEsat}$	max.	0.15 V
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	$V_{BEsat}$	max.	1 V
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$I_C = 50\text{ mA}; I_B = 5\text{ mA}$	$V_{CEsat}$	max.	0.25 V
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	$V_{BEsat}$	max.	1.2 V
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## D.C. current gain

$I_C = 1\text{ mA}; V_{CE} = 5\text{ V}$	$h_{FE}$	min.	60
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$I_C = 10\text{ mA}; V_{CE} = 5\text{ V}$	$h_{FE}$	min.	60
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	$h_{FE}$	max.	250
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$I_C = 50\text{ mA}; V_{CE} = 5\text{ V}$	$h_{FE}$	min.	20
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Output capacitance at  $f = 1\text{ MHz}$ 

$I_E = 0; V_{CB} = 10\text{ V}$	$C_o$	max.	6 pF
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Input capacitance at  $f = 1\text{ MHz}$ 

$I_C = 0; V_{EB} = 10\text{ V}$	$C_i$	max.	30 pF
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Transition frequency at  $f = 100\text{ MHz}$ 

$I_C = 10\text{ mA}; V_{CE} = 10\text{ V}; T_{amb} = 25^{\circ}\text{C}$	$f_T$	min.	100 MHz
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	$f_T$	max.	300 MHz
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### Disclaimer

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