

SOT-23 Formed SMD Package

CMBT5551

SILICON N-P-N HIGH-VOLTAGE TRANSISTOR

N-P-N transistor

Marking

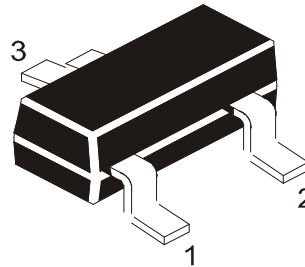
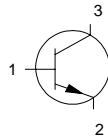
CMBT5551 = G1

This product is available in AEC-Q101 Compliant also.

NOTE: For AEC-Q101 compliant products, please use suffix -AQ in the part number while ordering.

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 $T_A = 25^\circ\text{C}$ 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

CMBT5551

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 $^\circ\text{C}$

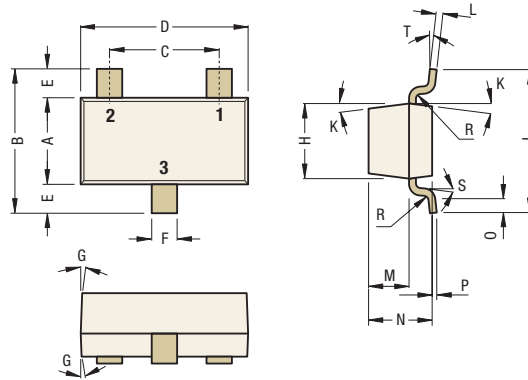
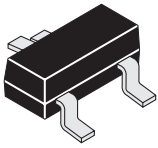
THERMAL RESISTANCE

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

SOT-23
SMD Plastic Package

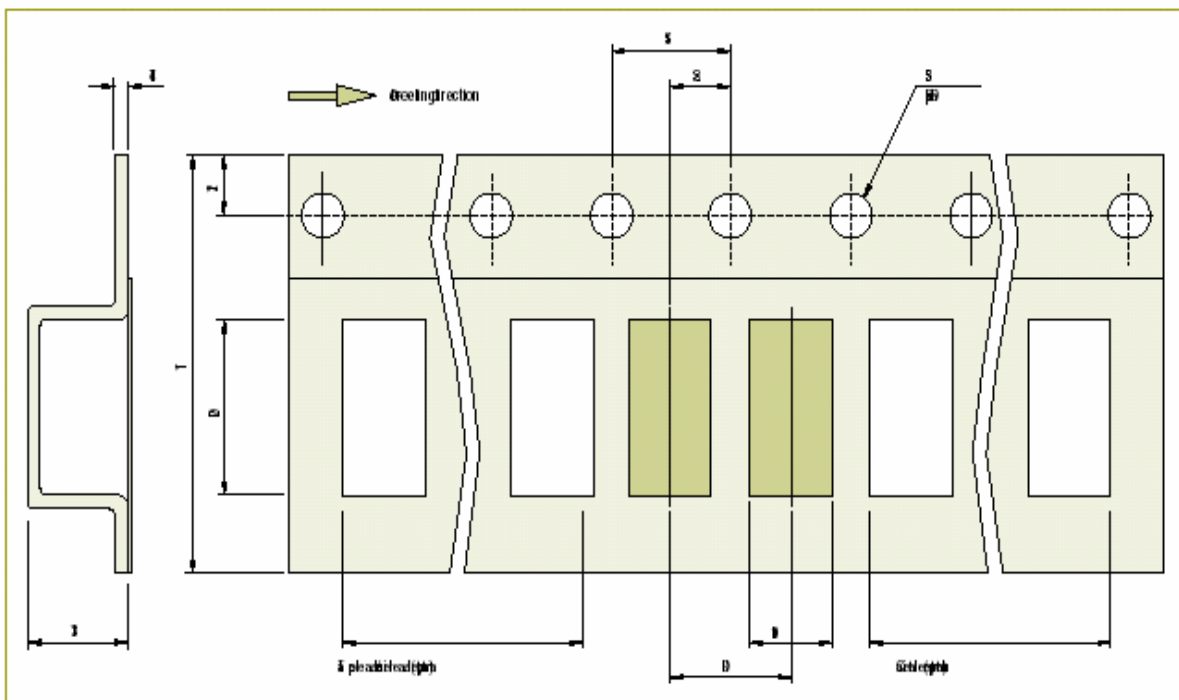


DIM	Min	Max
A	1.20	1.40
B	2.10	2.64
C	1.85	1.95
D	2.80	3.04
E	0.54	0.67
F	0.30	0.50
G	3°	
H	—	1.30
J	2.10	2.64

DIM	Min	Max
K	7°	
L	0.08	0.20
M	0.58	0.62
N	0.70	1.02
O	0.21	—
P	0.02	0.15
R	—	0.08
S	2°	8°
T	2°	10°

Pin Configuration Pin 1: Base Pin 2: Emitter Pin 3: Collector

Packaging Tape Specifications for SMD Packages



SMD Tape Specifications (8-12 mm)

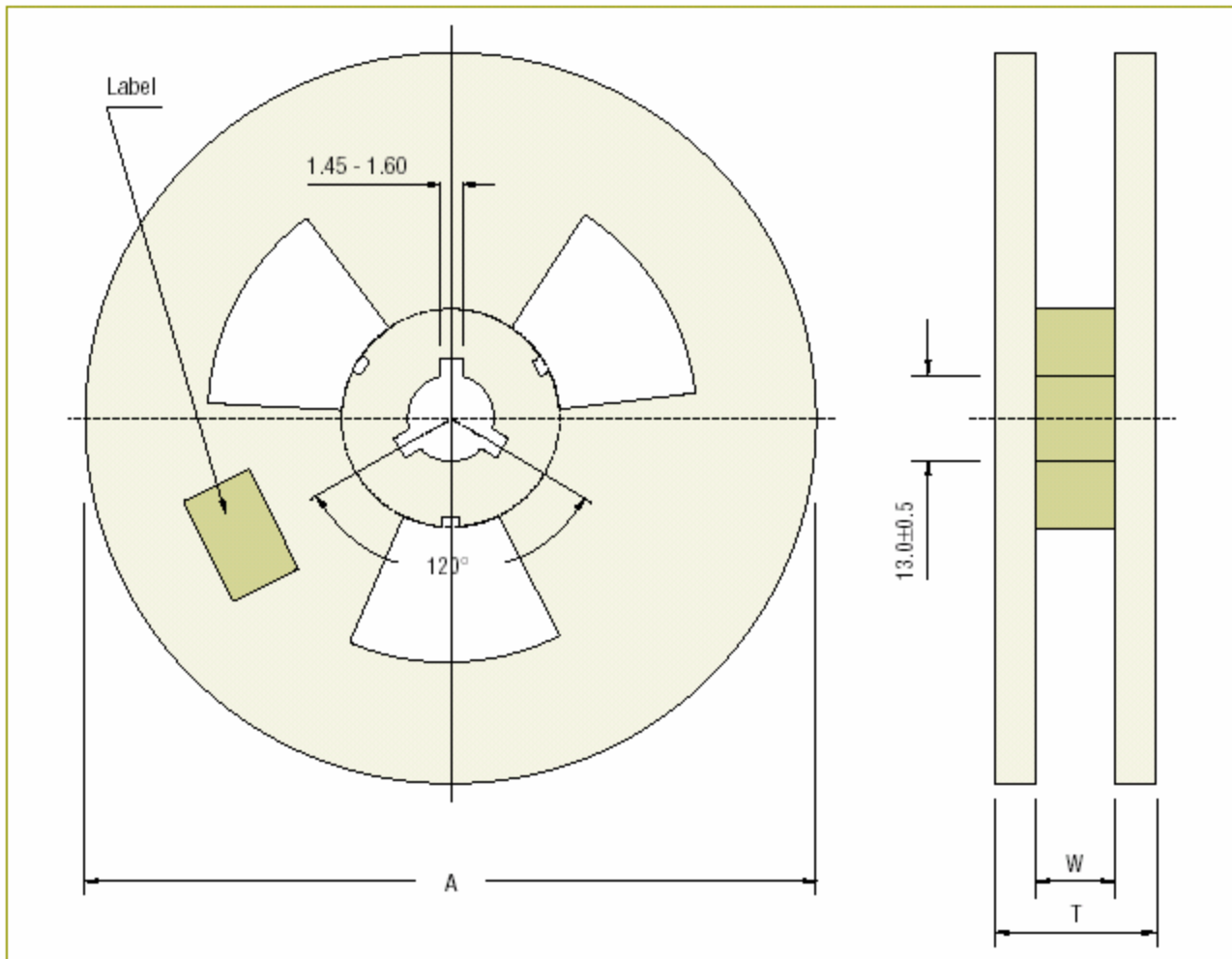
Device	D1	D2	D3	T1	T2	T3	T4	S1	S2	S3
						Max	Max			Dia
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
SOT-23	3.2±0.1	2.8±0.1	4.0±0.1	8.0±0.2	1.75±0.1	1.60	0.35	4.0±0.1	2.0±0.1	1.5±0.1

Packaging Specifications ...

T & A: Tape and Ammo Pack; T & R: Tape and Reel; Bulk: Loose in Poly Bags; Tube: Tube and Carton; K: 1,000

Package / Case Type	Packaging Type	Std. Packing	Inner Carton			Outer Carton		
		Qty	Qty	Size L x W x H (cm)	Gross Weight (Kg)	Qty	Size L x W x H (cm)	Gross Weight (Kg)
SOT-23	T & R	3,000	15K	19 x 19 x 8	0.6	51K	23 x 23 x 23	2.2
	T & R	3,000	15K	19 x 19 x 8	0.6	408K	48 x 48 x 51	20.2
	T & R	10,000	50K	35.5 x 35.5 x 8.9	2.4	350K	48 x 48 x 51	19.2

Reel Specifications for SMD Packages



Reel Specifications

Package	Tape	Reel Dia.	Devices	Inside	Reel
	Width		per Reel	Thickness	Thickness
		A - Max	and MOQ	W	T - Max
SOT-23	8	180	3,000	8.4 ± 2	14.4
	8	330	10,000	8.4 ± 2	14.4

Component Disposal Instructions

1. CDIL Semiconductor Devices are RoHS compliant, customers are requested to please dispose as per prevailing Environmental Legislation of their Country.
2. In Europe, please dispose as per EU Directive 2002/96/EC on Waste Electrical and Electronic Equipment (WEEE).

Disclaimer

The product information and the selection guides facilitate selection of the CDIL's Semiconductor Device(s) best suited for application in your product(s) as per your requirement. It is recommended that you completely review our Data Sheet(s) so as to confirm that the Device(s) meet functionality parameters for your application. The information furnished on the CDIL Web Site/CD are believed to be accurate and reliable. CDIL however, does not assume responsibility for inaccuracies or incomplete information. Furthermore, CDIL does not assume liability whatsoever, arising out of the application or use of any CDIL product; neither does it convey any license under its patent rights nor rights of others. These products are not designed for use in life saving/support appliances or systems. CDIL customers selling these products (either as individual Semiconductor Devices or incorporated in their end products), in any life saving/support appliances or systems or applications do so at their own risk and CDIL will not be responsible for any damages resulting from such sale(s).

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