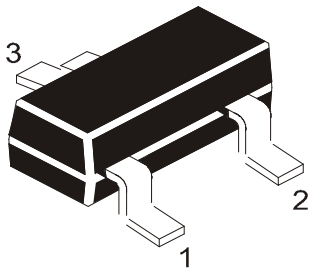
SOT-23 Formed SMD Package **CMBT5551**

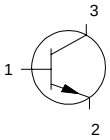
SILICON N–P–N HIGH–VOLTAGE TRANSISTOR

N–P–N transistor

Marking
CMBT5551 = G1



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 °C	P_{tot}	*max*	*250* mW
Junction temperature	T_j	*max.*	*150 °C*
Collector–emitter saturation voltage			
I_C = 50 mA; I_B = 5 mA	V_{CEsat}	*max.*	*0.2 V*
D.C. current gain			
I_C = 10 mA; V_{CE} = 5 V	h_{FE}	*min.*	*80*

***RATINGS** (at T_A = 25°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*

Collector current	I_C	*max.*	*600*	*mA*
Total power dissipation up to T_{amb} *= 25 °C*	P_{tot}	*max*	*250*	mW
Junction temperature	T_j	*max.*	*150*	*° C*
Storage temperature range	T_{stg}		*–55 to +150*	*° C*

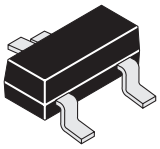
THERMAL RESISTANCE

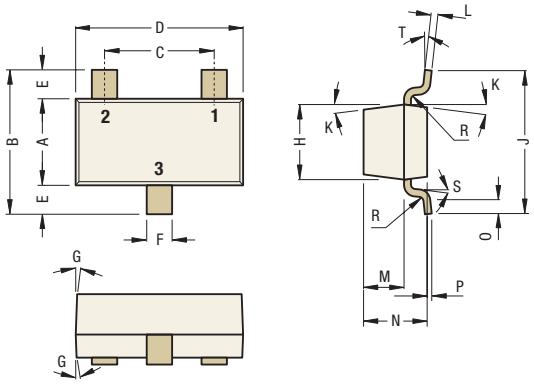
from junction to ambient	$R_{th\ j-a}$		*500*	K/W

CHARACTERISTICS *(at* T_A *= 25°C unless otherwise specified)*

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

SOT-23
SMD Plastic Package



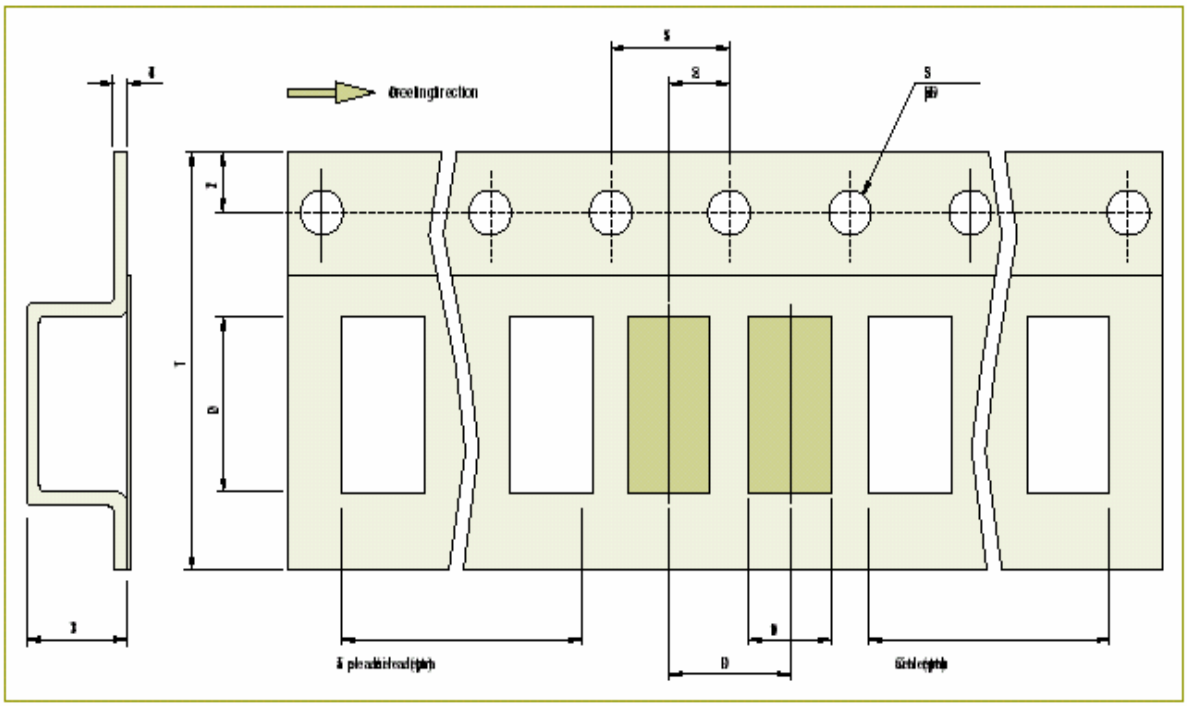


DIM	Min	Max
A	1.20	1.40
B	2.10	2.64
C	1.85	1.95
D	2.80	3.04
E	0.54	0.67
F	0.30	0.50
G	3°	
H	—	1.30
J	2.10	2.64

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)

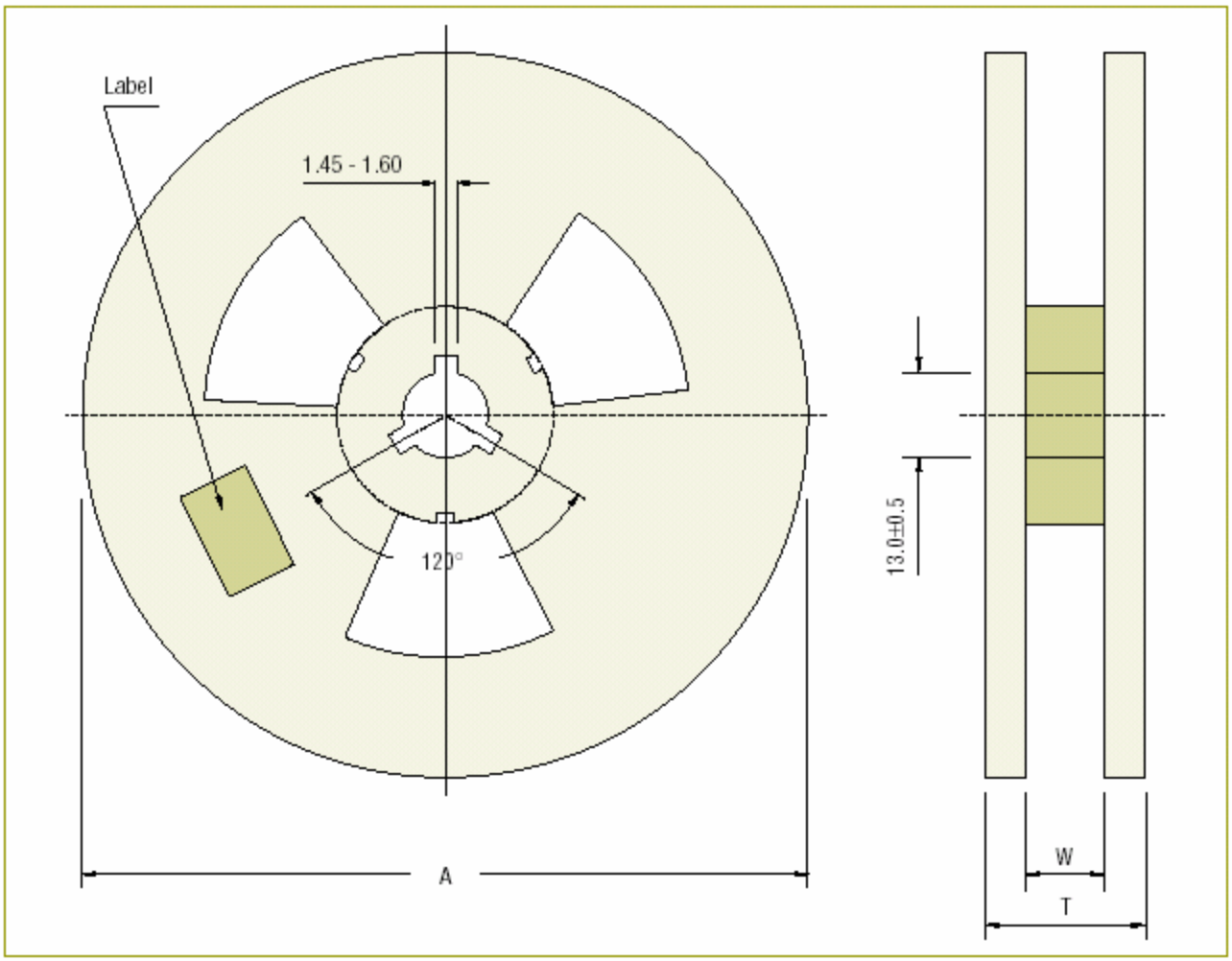
Device	D1	D2	D3	T1	T2	T3	T4	S1	S2	S3
						Max	Max			Dia
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
SOT-23	3.2±0.1	2.8±0.1	4.0±0.1	8.0±0.2	1.75±0.1	1.60	0.35	4.0±0.1	2.0±0.1	1.5±0.1

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	Gross Weight	Qty	Size L x W x H	Gross Weight
				(cm)	(Kg)		(cm)	(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 Width	Reel Dia. A - Max	Devices per Reel and MOQ	Inside Thickness W	Reel Thickness T - Max
SOT-23	8	180	3,000	8.4±2	14.4
	8	330	10,000	8.4±2	14.4

Customer Notes

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

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