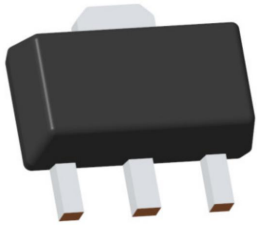
NPN Plastic-Encapsulate Transistors

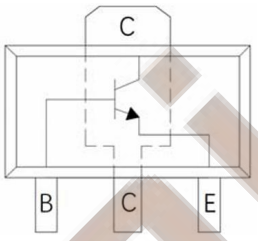
General Description

V_{CEO}	I_C	$V_{CE(sat)}$	f_T	T_{jMax}
160V	0.6A	0.2V@IC=50mA	100MHz	150℃



Features

- SOT-89 Package
- Epoxy meets UL-94 V-0 flammability rating and halogen free
- Moisture Sensitivity Level 3
- High temperature soldering guaranteed 260℃/10seconds at terminals



Package Marking and Ordering Information

Product ID	Package	Marking	Qty(PCS)
CXT5551	SOT-89	1G6	1000

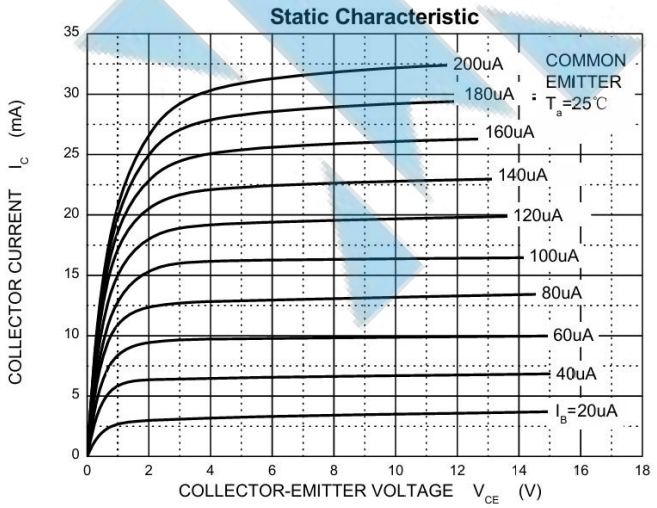
Absolute Maximum Ratings (Ta=25℃ unless otherwise noted)

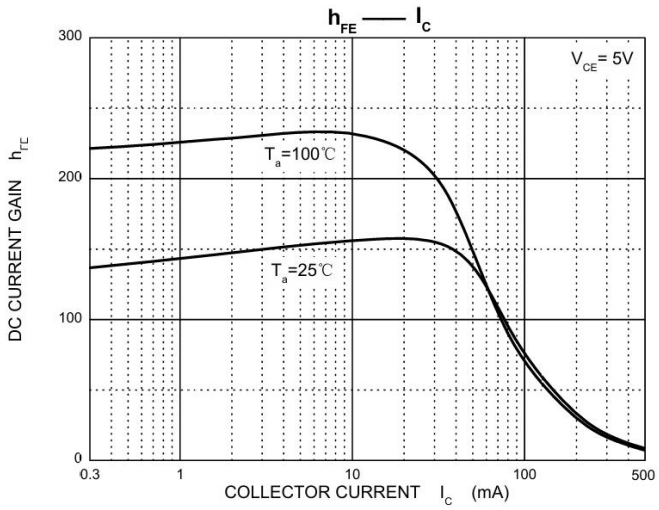
Parameter	Symbols	Rating	Units
Collector-Base Voltage	VCBO	180	V
Collector-Emitter Voltage	VCEO	160	V
Emitter -Base Voltage	VEBO	6	V
Collector Current-Continuous	IC	0.6	A
Collector Power Dissipation	PC	0.5	W
Thermal Resistance, Junction to Ambient Air	RθJA	250	° C/W
Operating and Storage Temperature Range	TJ,TSTG	-55-+150	℃

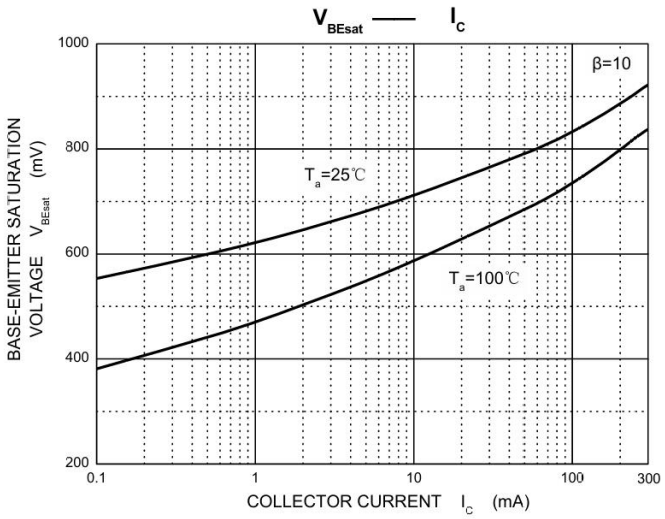
Electrical Characteristics(Ta=25℃ unless otherwise noted)

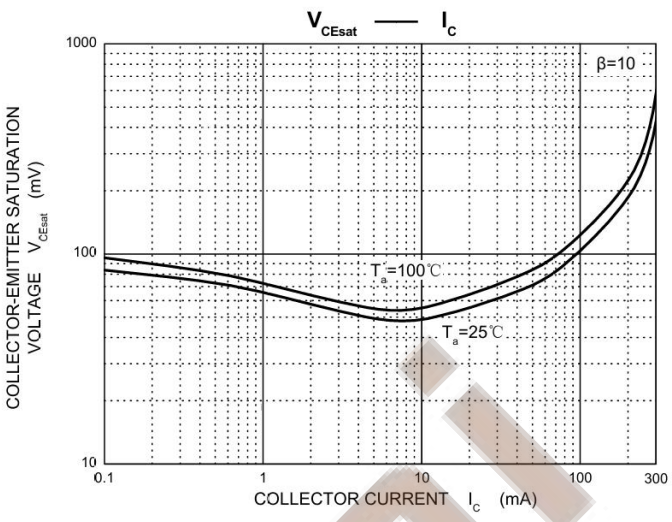
Parameter	Symbol	Conditions	Limits		
			Min.	Max.	Unit
Collector-base breakdown voltage	V(BR)CBO	IC=100uA, IE=0	180		V
Collector-emitter breakdown voltage	V(BR)CEO	IC=1mA, IB=0	160		V
Emitter-base breakdown voltage	V(BR)EBO	IE=10uA, IC=0	6		V
Collector cut-off current	ICBO	VCB=120V, IE=0		50	nA
Collector cut-off current	IEBO	VEB=4V, IC=0		50	nA
DC current gain	hFE(1)	VCE=5V, IC=1mA	80		
	hFE(2)	VCE=5V, IC=10mA	100	300	
	hFE(3)	VCE=5V, IC=50mA	30		
Collector-emitter saturation voltage	VCE(sat)	IC=10mA, IB=1mA		0.15	V
		IC=50mA, IB=5mA		0.2	V
Base -emitter voltage	VBE(sat)	IC=10mA, IB=1mA		1	V
		IC=50mA, IB=5mA		1	
Transition frequency	fT	VCE=10V, IC=10mA,f=100MHz	100		MHz
Output capacitance	Cob	VCB=10V, IE=0,f=1MHz		6	pF
Noise figure	NF	VCE=5V, IC=0.2mA, f=10Hz to 15.7KHz, Rs=10Ω		8	dB

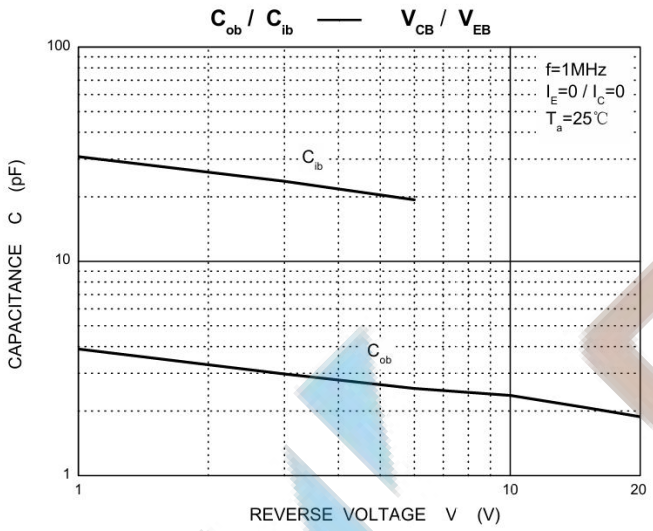
Typical characteristics

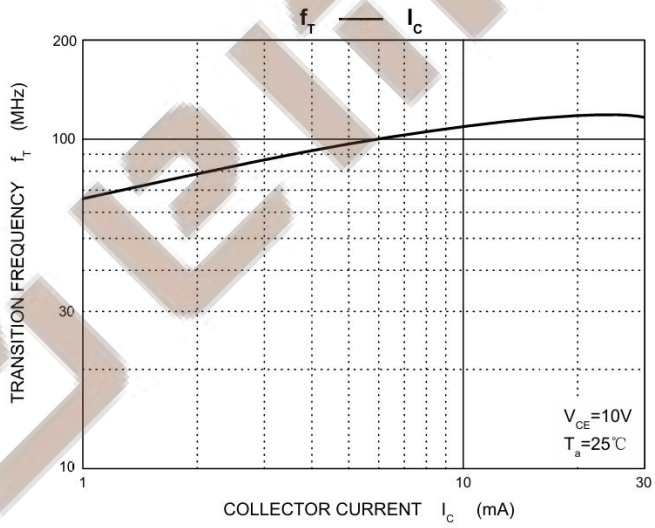


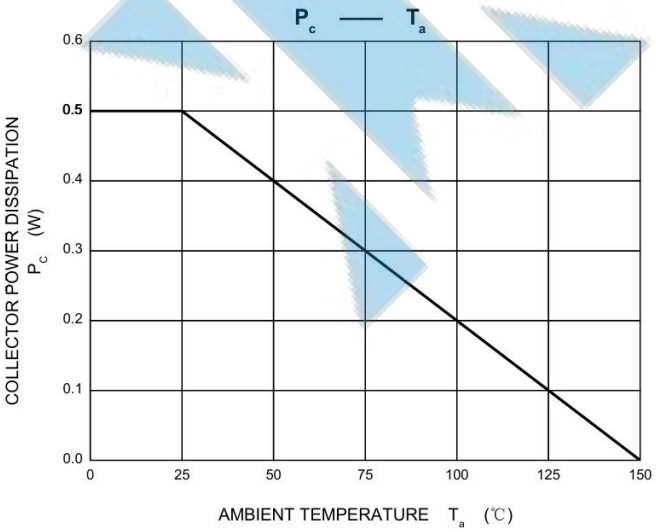



V_{BEsat} —— I_C
β=10
T_a=25℃
T_a=100℃
BASE-EMITTER SATURATION VOLTAGE V_{BEsat} (mV)
COLLECTOR CURRENT I_C (mA)


V_{CEsat} —— I_C
β=10
T_a=100℃
T_a=25℃
COLLECTOR-EMITTER SATURATION VOLTAGE V_{CEsat} (mV)
COLLECTOR CURRENT I_C (mA)

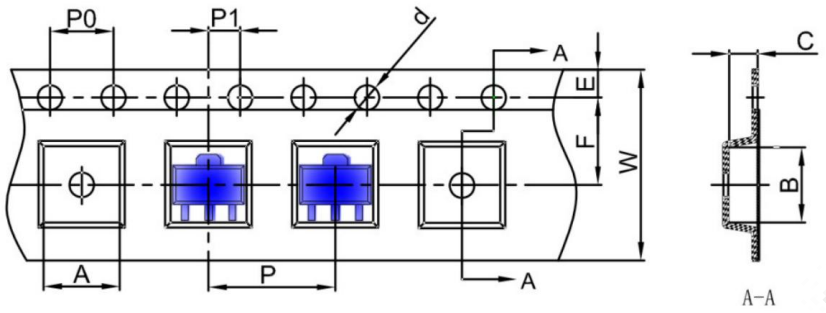

C_{ob} / C_{ib} —— V_{CB} / V_{EB}
f=1MHz
I_E=0 / I_C=0
T_a=25℃
C_{ib}
C_{ob}
CAPACITANCE C (pF)
REVERSE VOLTAGE V (V)


f_T —— I_C
V_{CE}=10V
T_a=25℃
TRANSITION FREQUENCY f_T (MHz)
COLLECTOR CURRENT I_C (mA)

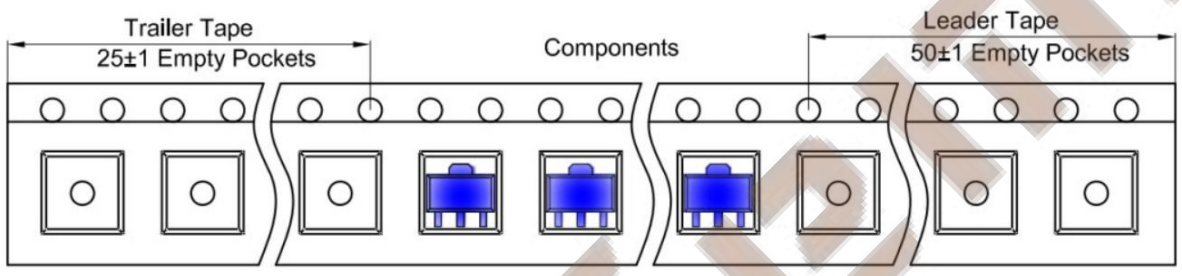

P_c —— T_a
COLLECTOR POWER DISSIPATION P_C (W)
AMBIENT TEMPERATURE T_a (℃)

Package Information

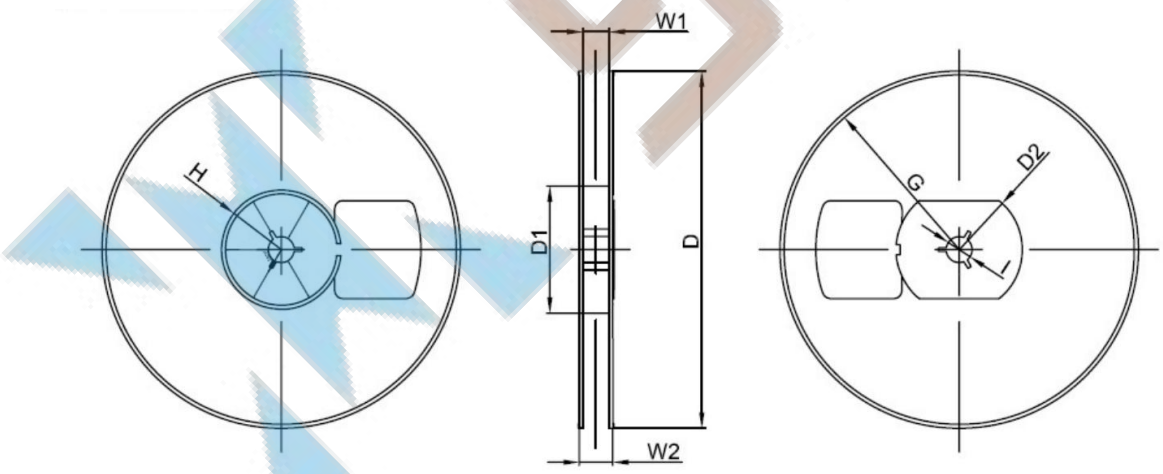
Carrier Dimension(mm)



Dimensions are in millimeter										
Pkg Type	A	B	C	d	E	F	P0	P	P1	W
SOT-89-3L	4.85	4.45	1.85	Ø1.50	1.75	5.50	4.00	8.00	2.00	12.00
(Tolerance)	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	+0.3/-0.1



Reel Dimension(mm)



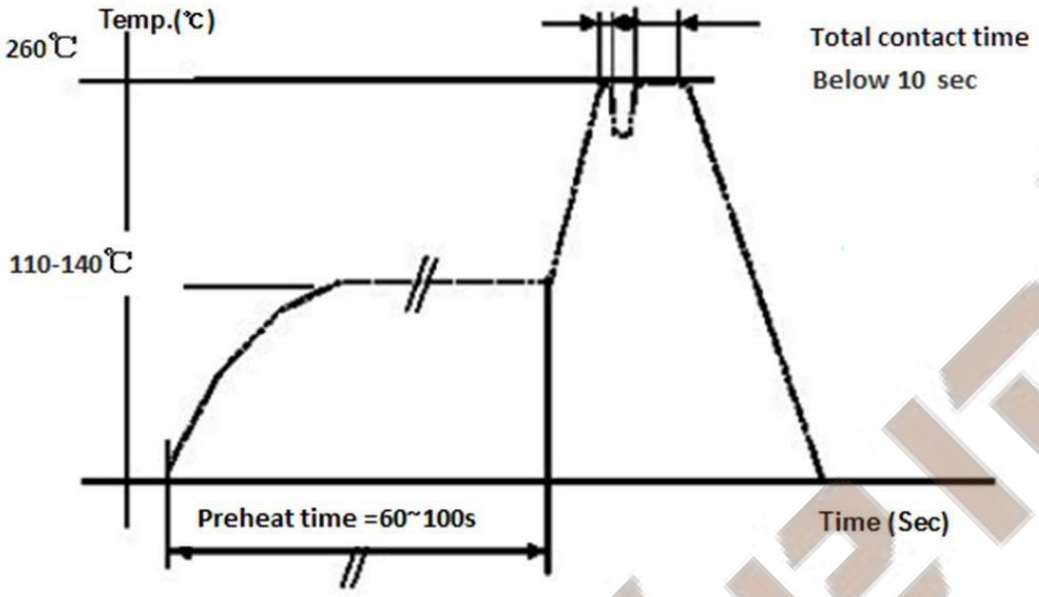
Reel Option	D	D1	D2	G	H	I	W1	W2
7"Dia	Φ180.00	60.00	R32.00	R86.50	R30.00	Φ13.00	13.20	16.50
Tolerance	±2	±1	±1	±1	±1	±1	±1	±1

Package Specifications

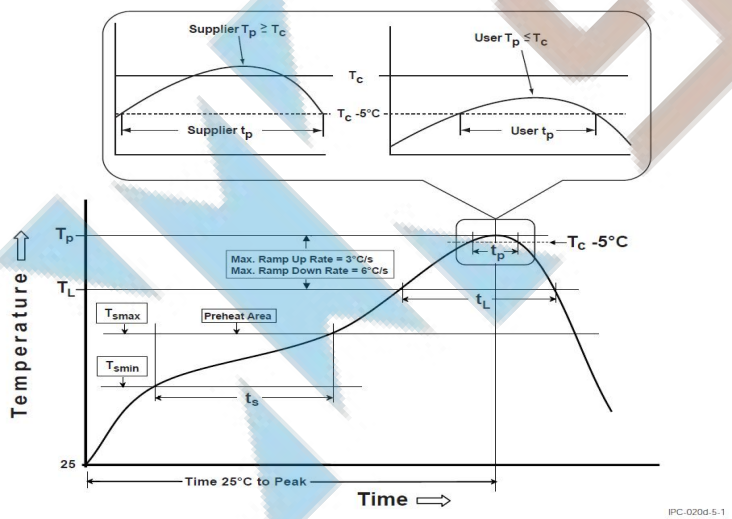
Package	Reel Size	Reel DIA. (mm)	Q'TY/Reel (Kpcs)	Box Size (mm)	QTY/Box (Kpcs)	Carton Size (mm)	Q'TY/Carton (Kpcs)
SOT89	7'	178	1	210*208*203	10	440*400*230	40

Recommended Soldering Profile for Rectifier Diodes (Pb Free)

a) Wave Soldering Profile



b) Reflow Soldering Profile (Pb Free Application), refer to IPC/JEDEC J-STD-020

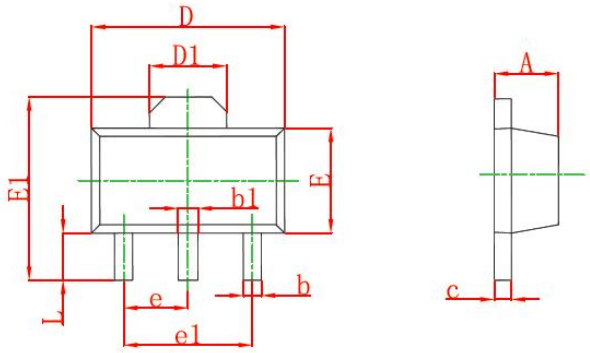


Preheat/Soak Temperature Min (Tsmin) Temperature Max (Tsmax) Time (ts) from (Tsmin to Tsmax)	50 °C 200 °C 60-120 seconds
Melting Point of Solder (Sn Ag Cu)	217℃
Ramp-up Rate to 217℃(Melting Point of Solder)	3℃/sec
Time at Temp.>217℃ (Melting Point of Solder)	60~150 Sec
Peak Temperature	255±5℃
Time within 5℃below Peak Temp.	20~40 Sec
Cooling Rate	6℃/sec (max)
Time from 25℃ to Peak Temp.	8min (max)

c) Manual Soldering

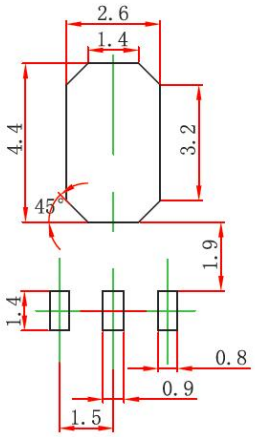
When using an electric soldering iron for manual soldering, it is recommended that the temperature does not exceed 300°C and the soldering time is less than 10 seconds.

Package Mechanical Data



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.400	1.600	0.055	0.063
b	0.320	0.520	0.013	0.020
b1	0.400	0.580	0.016	0.023
c	0.350	0.440	0.014	0.017
D	4.400	4.600	0.173	0.181
D1	1.550 REF.		0.061 REF.	
E	2.300	2.600	0.091	0.102
E1	3.940	4.250	0.155	0.167
e	1.500 TYP.		0.060 TYP.	
e1	3.000 TYP.		0.118 TYP.	
L	0.900	1.200	0.035	0.047

Suggested Pad Layout



Note:
1.Controlling dimension:in millimeters.
2.General tolerance:±0.05mm.
3.The pad layout Is for reference purposes only.

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