

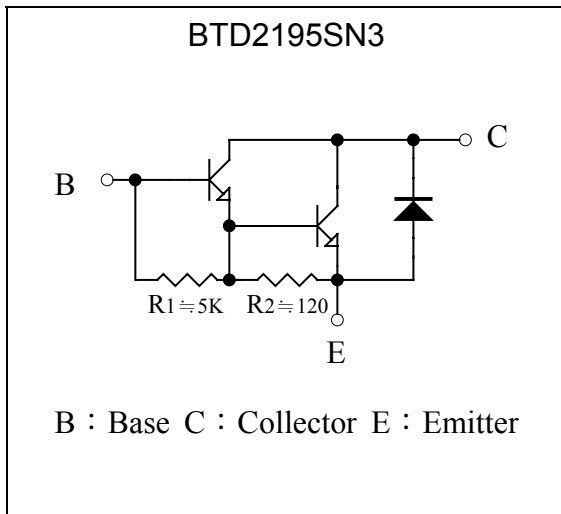
NPN Epitaxial Planar Transistor

BTD2195SN3

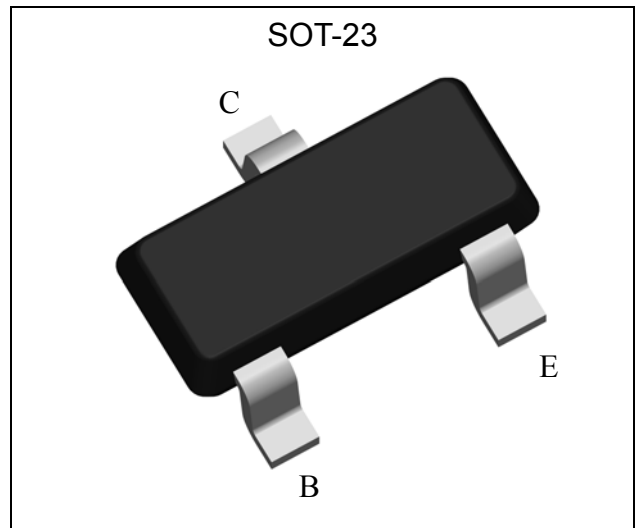
Description

The BTD2195SN3 is designed for use in general purpose amplifier and low speed switching application. Pb-free lead plating package process is adopted.

Equivalent Circuit

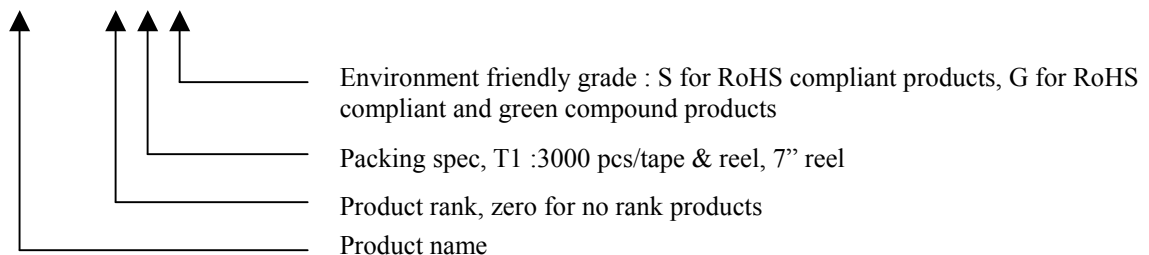


Outline



Ordering Information

Device	Package	Shipping
BTD2195SN3-0-T1-G	SOT-23 (Pb-free lead plating and halogen-free package)	3000 pcs / Tape & Reel



Absolute Maximum Ratings (Ta=25°C)

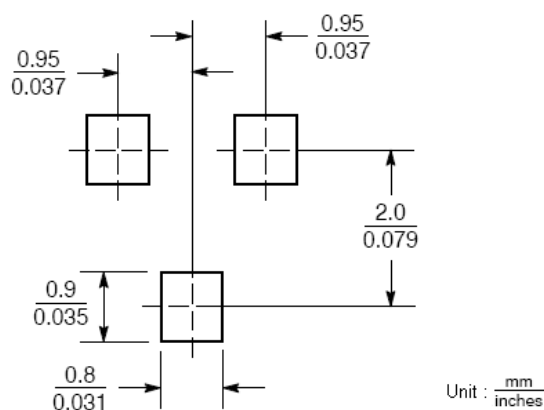
Parameter	Symbol	Limits	Unit
Collector-Base Voltage	V _{CB0}	150	V
Collector-Emitter Voltage	V _{CEO}	150	
Emitter-Base Voltage	V _{EBO}	5	
Collector Current (DC)	I _C	2	A
Collector Current (Pulse)	I _{CP}	4 (Note 1)	
Thermal Resistance, Junction to Ambient	R _{θJA}	500	°C/W
Thermal Resistance, Junction to Case	R _{θJC}	100	
Power Dissipation @ T _A =25°C	P _D	0.3	W
Power Dissipation @ T _C =25°C		1.5	
Operating Junction Temperature Range	T _j	-55~+175	°C
Storage Temperature Range	T _{stg}	-55~+175	

 Note : 1. Single Pulse P_w ≤ 350μs, Duty ≤ 2%.

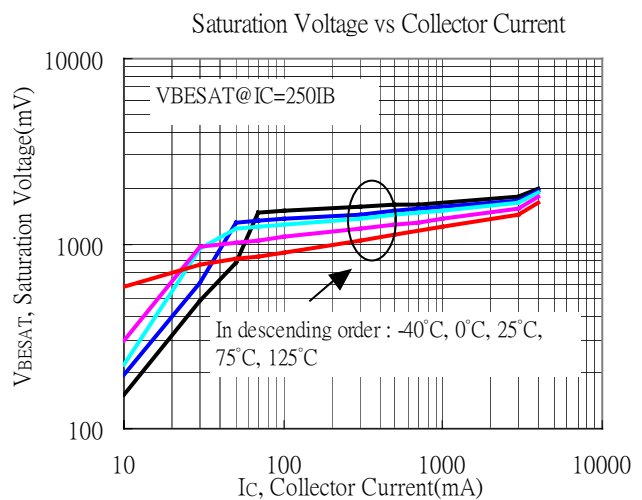
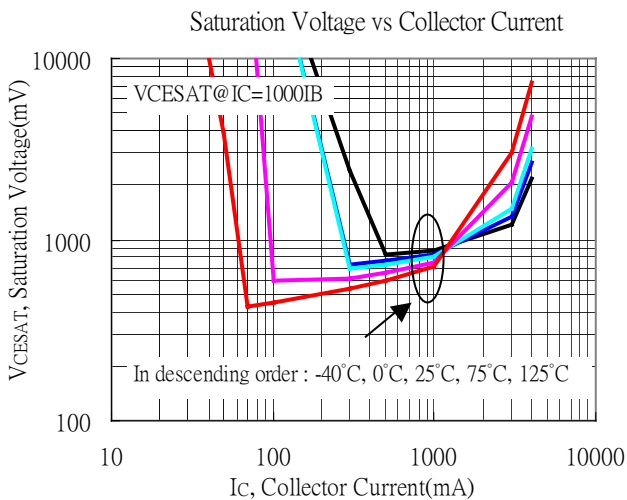
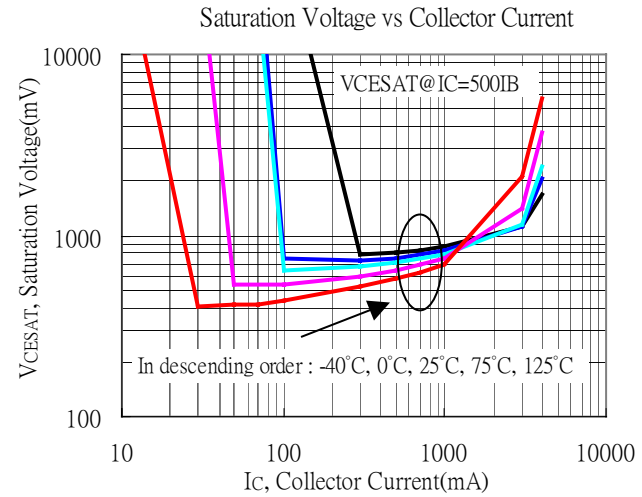
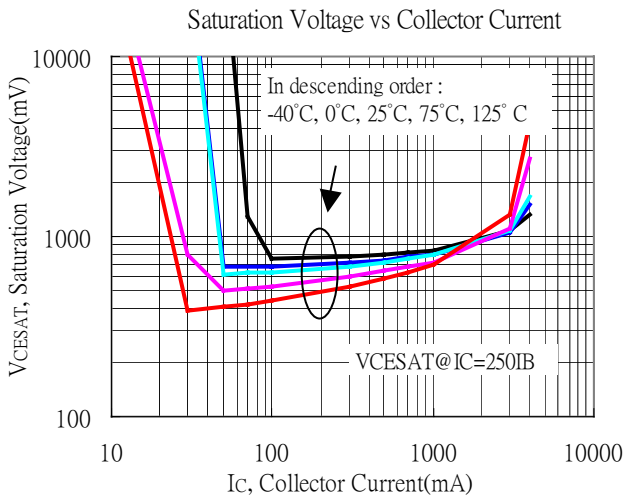
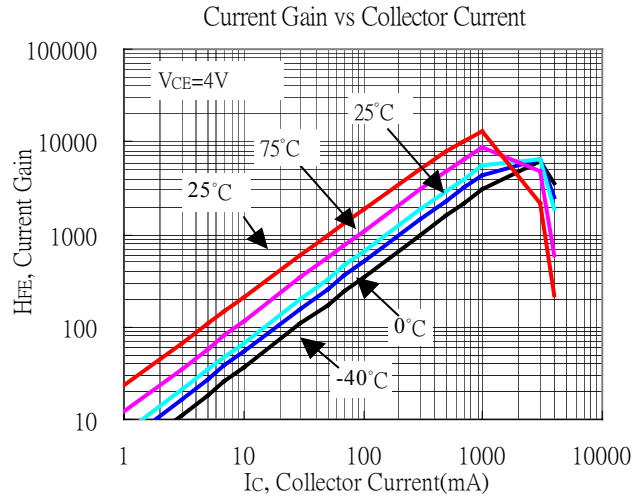
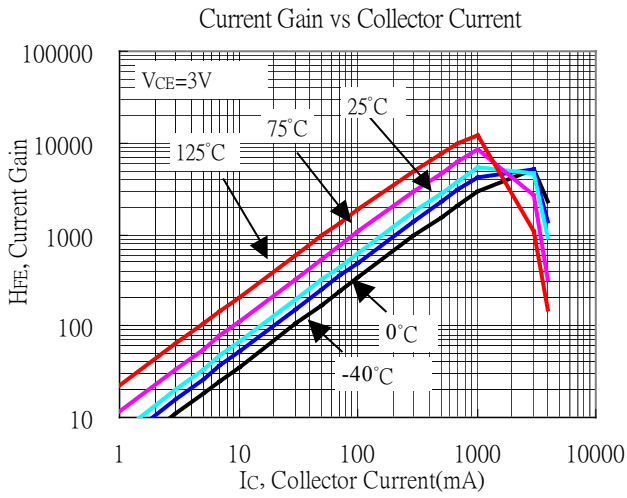
Characteristics (Ta=25°C)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
BV _{CB0}	150	-	-	V	I _C =100μA, I _E =0
I _{CB0}	-	-	100	nA	V _{CB} =150V, I _E =0
I _{CEO}	-	-	1	μA	V _{CE} =150V, I _B =0
I _{EBO}	-	-	2	mA	V _{EB} =5V, I _C =0
*V _{CE(sat)}	-	-	1.2	V	I _C =2A, I _B =2mA
*V _{BE(on)}	-	-	2.2	V	V _{CE} =4V, I _C =2A
*h _{FE1}	2000	-	-	-	V _{CE} =4V, I _C =1A
*h _{FE2}	1000	-	-	-	V _{CE} =4V, I _C =2A
C _{ob}	-	-	200	pF	V _{CB} =10V, I _E =0A, f=1MHz

*Pulse Test : Pulse Width ≤ 380μs, Duty Cycles ≤ 2%

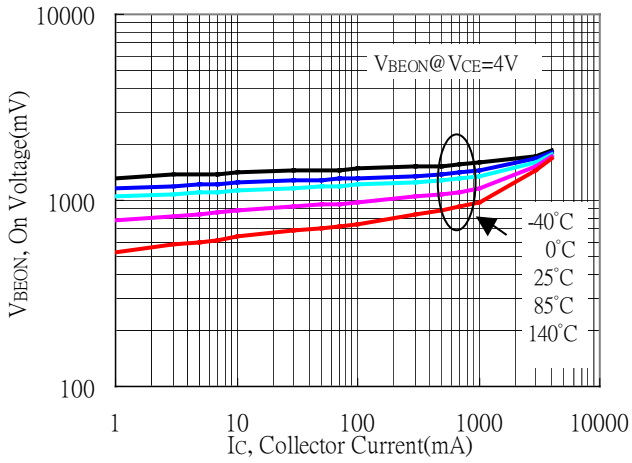
Recommended Soldering Footprint


Typical Characteristics

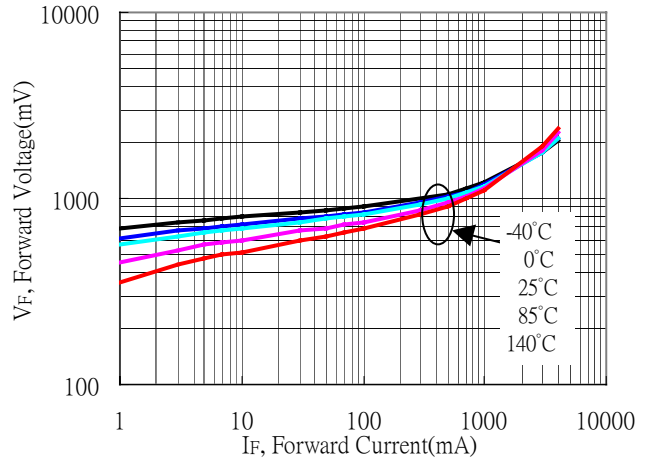


Typical Characteristics(Cont.)

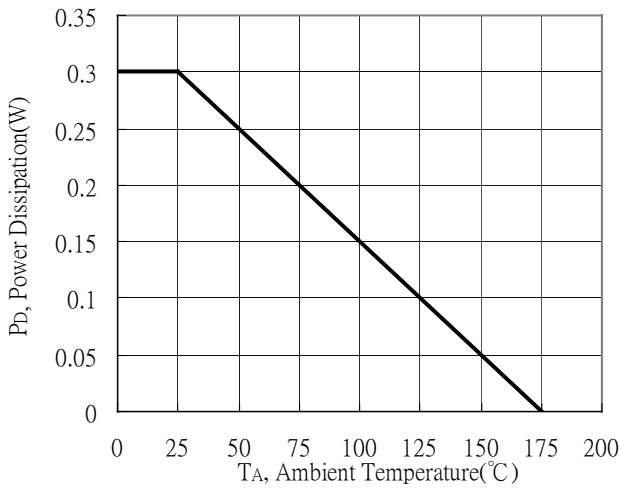
On Voltage vs Collector Current



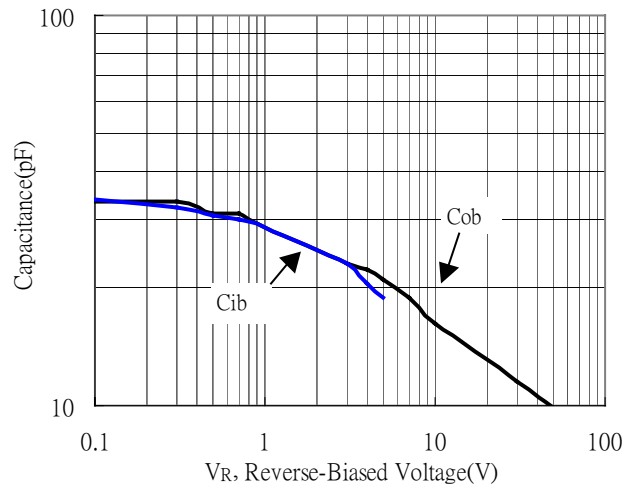
Built-in Diode Characteristics



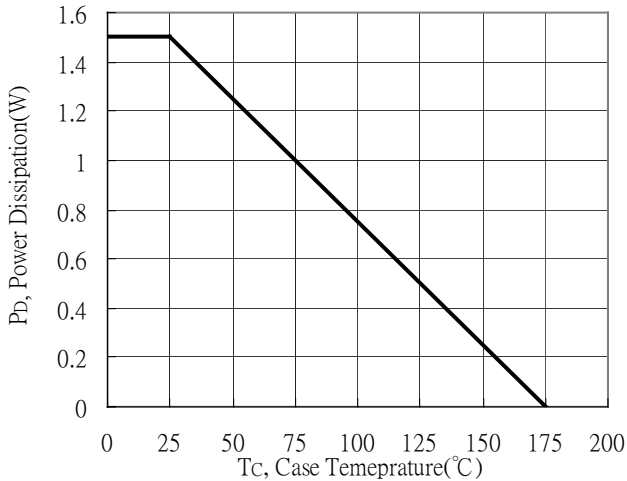
Power Derating Curves



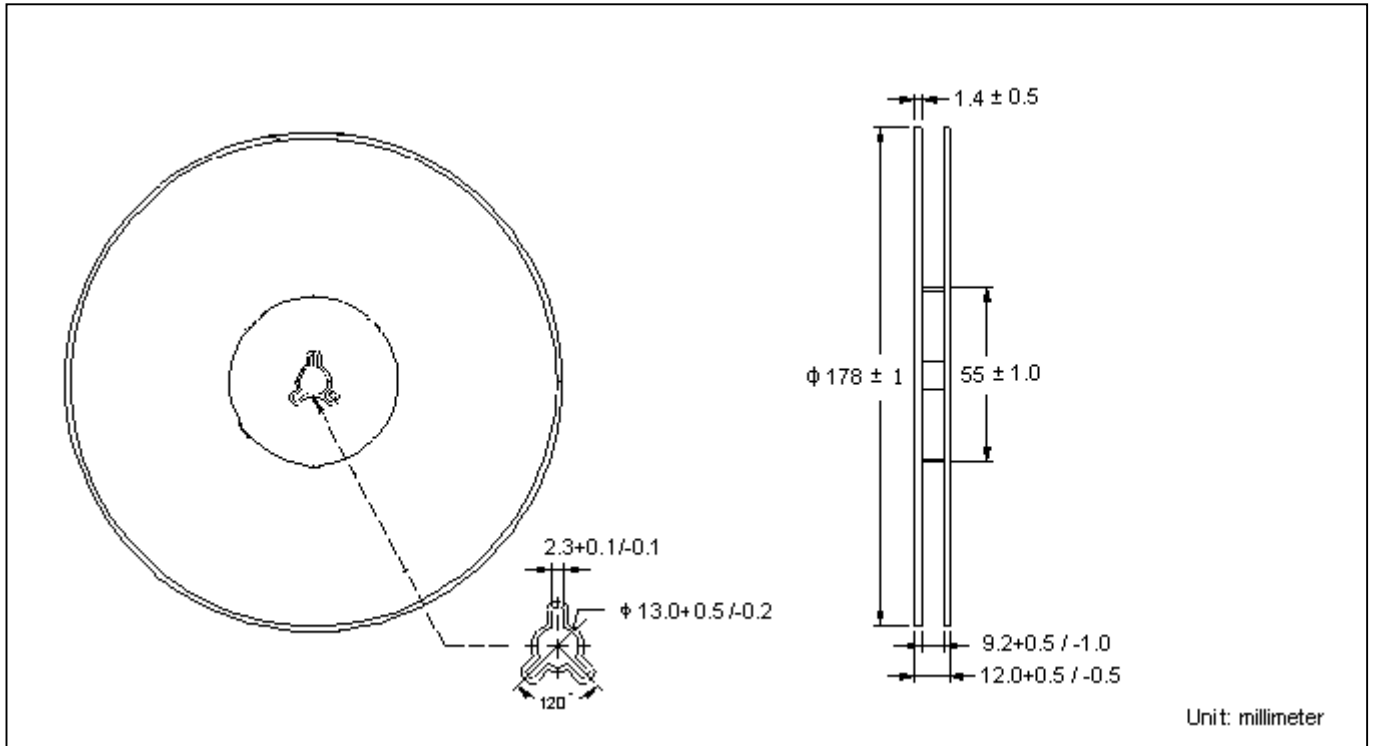
Capacitance vs Reverse-Biased Voltage



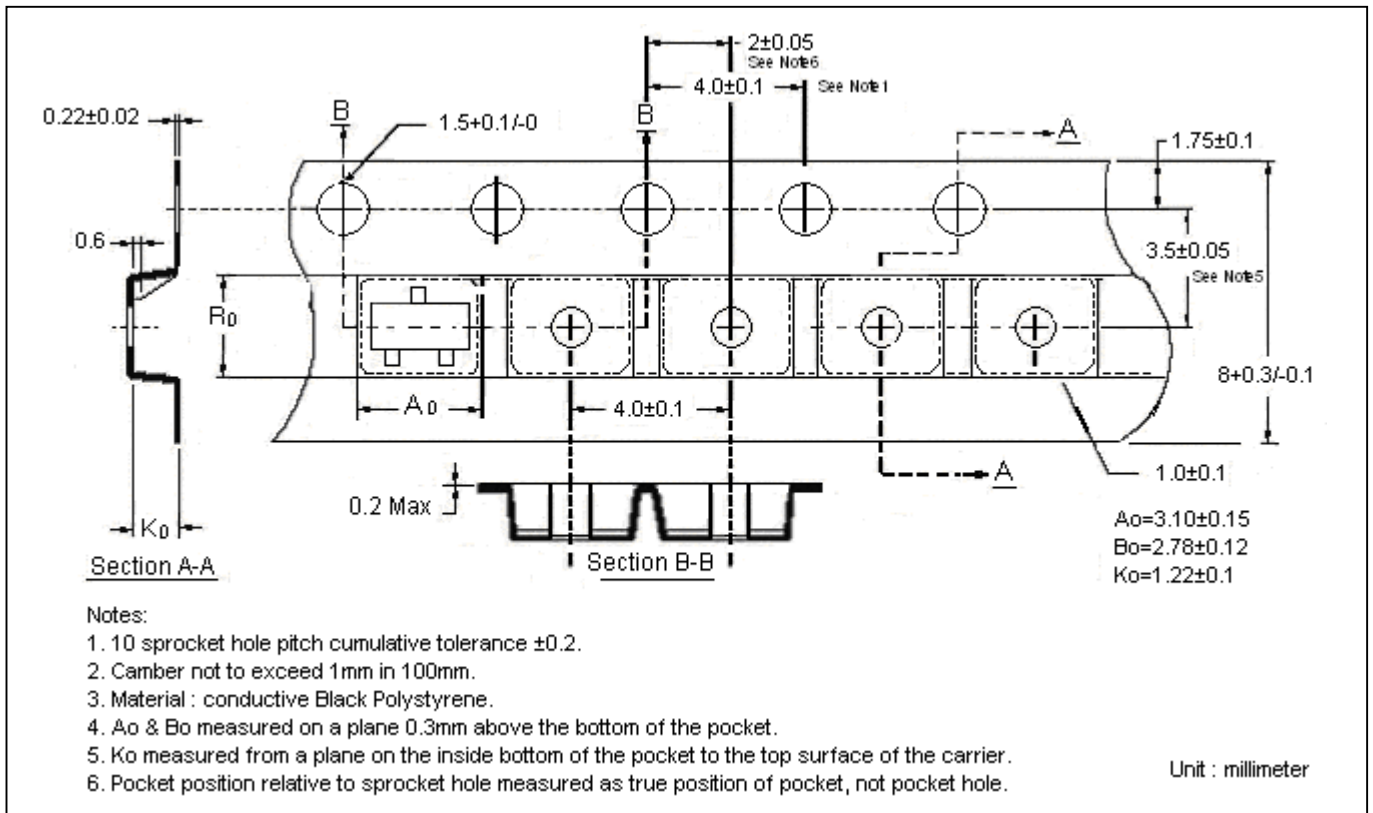
Power Derating Curve



Reel Dimension



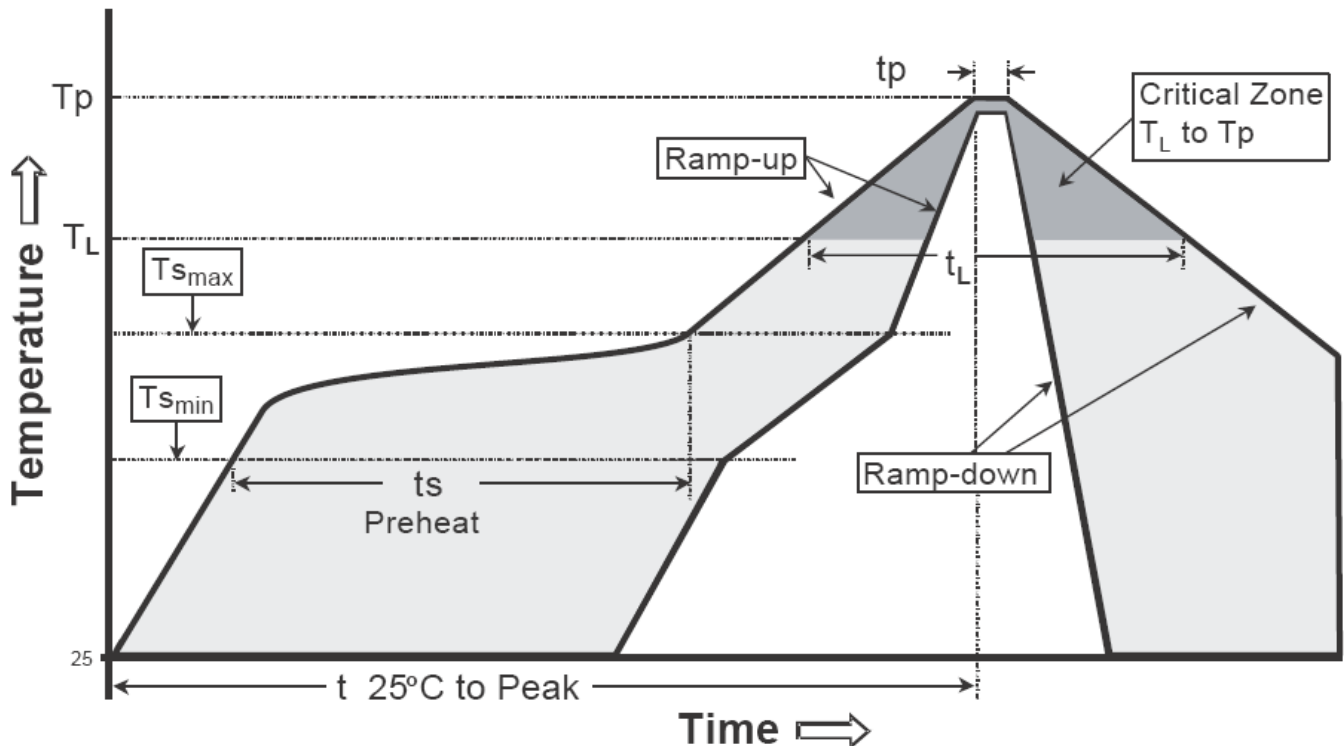
Carrier Tape Dimension



- Notes:
1. 10 sprocket hole pitch cumulative tolerance ± 0.2 .
 2. Camber not to exceed 1mm in 100mm.
 3. Material : conductive Black Polystyrene.
 4. A_0 & B_0 measured on a plane 0.3mm above the bottom of the pocket.
 5. K_0 measured from a plane on the inside bottom of the pocket to the top surface of the carrier.
 6. Pocket position relative to sprocket hole measured as true position of pocket, not pocket hole.

Recommended wave soldering condition

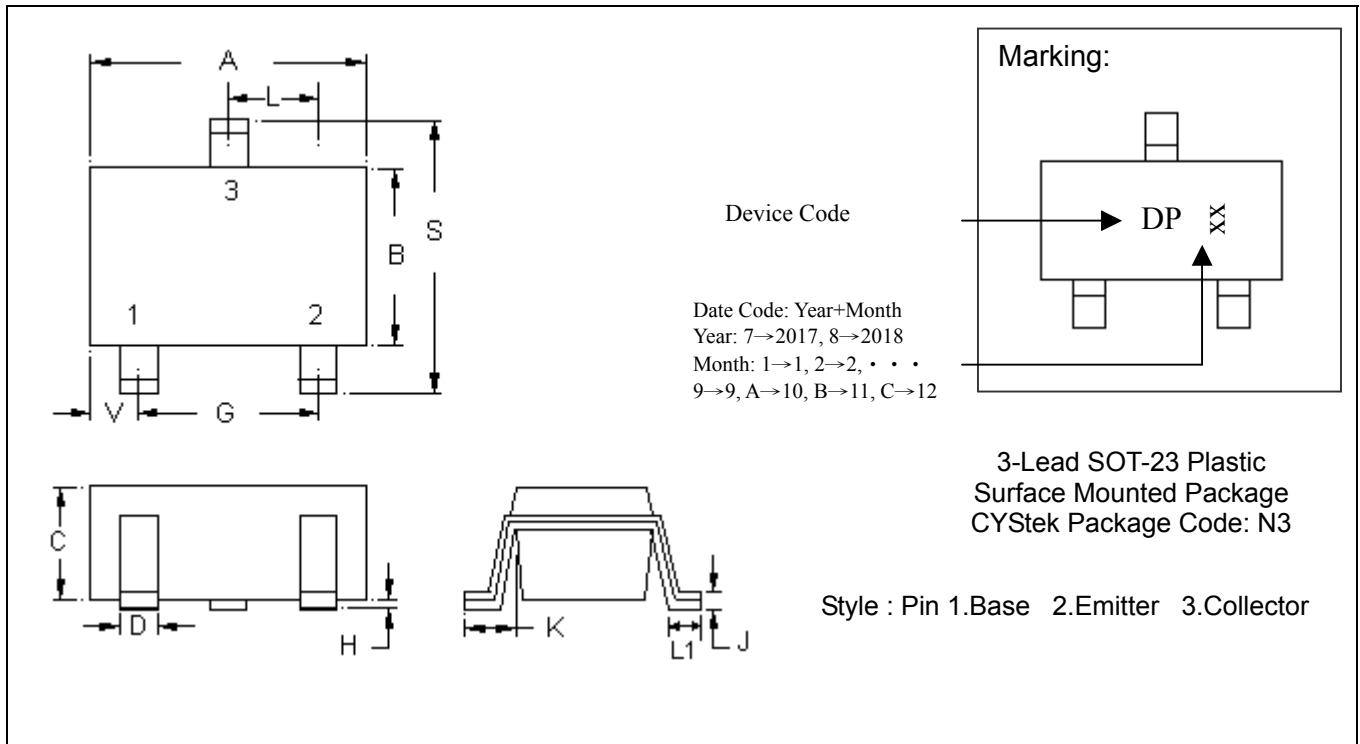
Product	Peak Temperature	Soldering Time
Pb-free devices	260 +0/-5 °C	5 +1/-1 seconds

Recommended temperature profile for IR reflow


Profile feature	Sn-Pb eutectic Assembly	Pb-free Assembly
Average ramp-up rate (Tsmax to Tp)	3°C/second max.	3°C/second max.
Preheat		
-Temperature Min(Ts min)	100°C	150°C
-Temperature Max(Ts max)	150°C	200°C
-Time(ts min to ts max)	60-120 seconds	60-180 seconds
Time maintained above:		
-Temperature (TL)	183°C	217°C
- Time (tL)	60-150 seconds	60-150 seconds
Peak Temperature(TP)	240 +0/-5 °C	260 +0/-5 °C
Time within 5°C of actual peak temperature(tp)	10-30 seconds	20-40 seconds
Ramp down rate	6°C/second max.	6°C/second max.
Time 25 °C to peak temperature	6 minutes max.	8 minutes max.

Note : All temperatures refer to topside of the package, measured on the package body surface.

SOT-23 Dimension



DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.1102	0.1204	2.80	3.04	J	0.0032	0.0079	0.08	0.20
B	0.0472	0.0669	1.20	1.70	K	0.0118	0.0266	0.30	0.67
C	0.0335	0.0512	0.89	1.30	L	0.0335	0.0453	0.85	1.15
D	0.0118	0.0197	0.30	0.50	S	0.0830	0.1161	2.10	2.95
G	0.0669	0.0910	1.70	2.30	V	0.0098	0.0256	0.25	0.65
H	0.0000	0.0040	0.00	0.10	L1	0.0118	0.0197	0.30	0.50

Notes : 1.Controlling dimension : millimeters.
 2.Maximum lead thickness includes lead finish thickness, and minimum lead thickness is the minimum thickness of base material.
 3.If there is any question with packing specification or packing method, please contact your local CYStek sales office.

Material :

- Lead : Pure tin plated.
- Mold Compound : Epoxy resin family, flammability solid burning class:UL94V-0.

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