

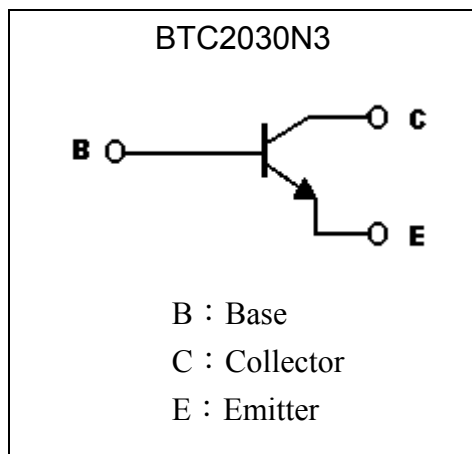
General Purpose NPN Epitaxial Planar Transistor

BTC2030N3

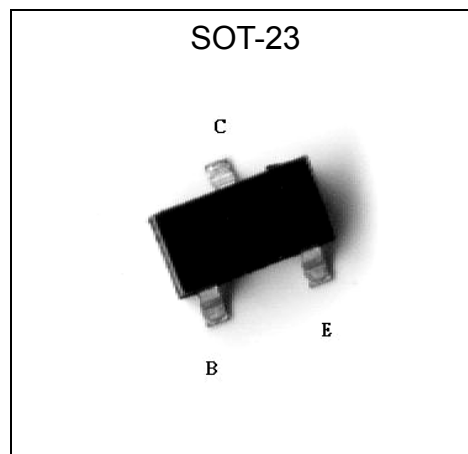
Features

- High breakdown voltage, $BV_{CEO} \geq 200V$
- Large continuous collector current capability
- Low collector saturation voltage
- Pb-free lead plating and halogen-free package

Symbol

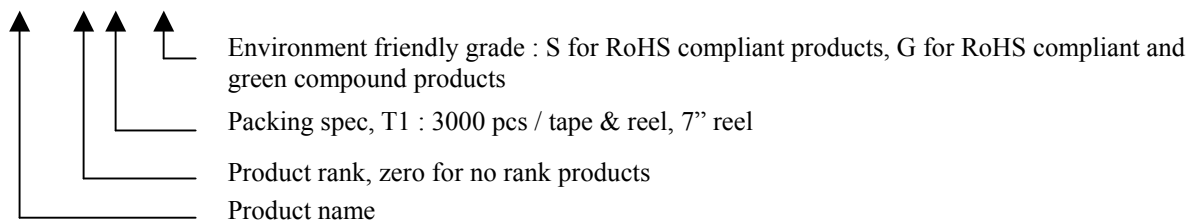


Outline



Ordering Information

Device	Package	Shipping
BTC2030N3-0-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}	280	V
Collector-Emitter Voltage	V _{CEO}	200	V
Emitter-Base Voltage	V _{EBO}	6	V
Collector Current	I _C	1	A
Base Current	I _B	0.5	A
Power Dissipation (T _A =25°C)	P _D	225 (Note)	mW
Power Dissipation (T _C =25°C)	P _D	560	mW
Thermal Resistance, Junction to Ambient	R _{θJA}	556 (Note)	°C/W
Thermal Resistance, Junction to Case	R _{θJC}	223	°C/W
Junction Temperature	T _j	150	°C
Storage Temperature	T _{stg}	-55~+150	°C

Note : Free air condition

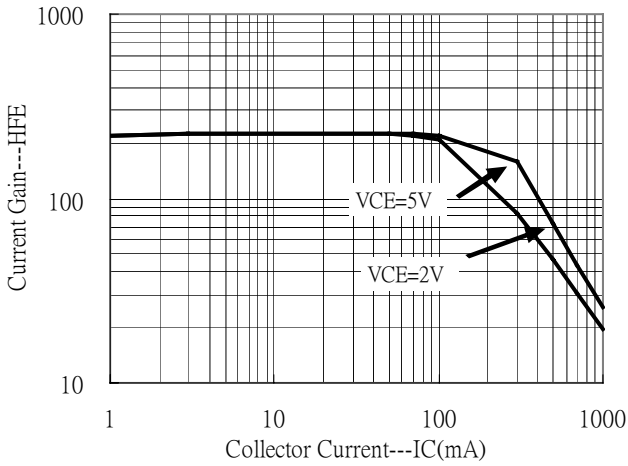
Characteristics (Ta=25°C)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
BV _{CB0}	280	-	-	V	I _C =100μA
BV _{CEO}	200	-	-	V	I _C =10mA
BV _{EBO}	6	-	-	V	I _E =10μA
I _{CB0}	-	-	100	nA	V _{CB} =250V
I _{EBO}	-	-	100	nA	V _{EB} =6V
*V _{CE(sat)}	-	-	0.1	V	I _C =100mA, I _B =10mA
*V _{CE(sat)}	-	-	0.2	V	I _C =250mA, I _B =25mA
*V _{CE(sat)}	-	0.2	0.5	V	I _C =500mA, I _B =50mA
*V _{BE(sat)}	-	-	0.95	V	I _C =250mA, I _B =25mA
*V _{BE(on)}	-	-	0.9	V	V _{CE} =5V, I _C =250mA
*h _{FE 1}	100	-	-	-	V _{CE} =5V, I _C =1mA
*h _{FE 2}	100	-	320	-	V _{CE} =5V, I _C =200mA
*h _{FE 3}	10	-	-	-	V _{CE} =5V, I _C =1A
f _T	75	-	-	MHz	V _{CE} =10V, I _C =50mA, f=100MHz
C _{ob}	-	-	10	pF	V _{CB} =10V, I _E =0A, f=1MHz

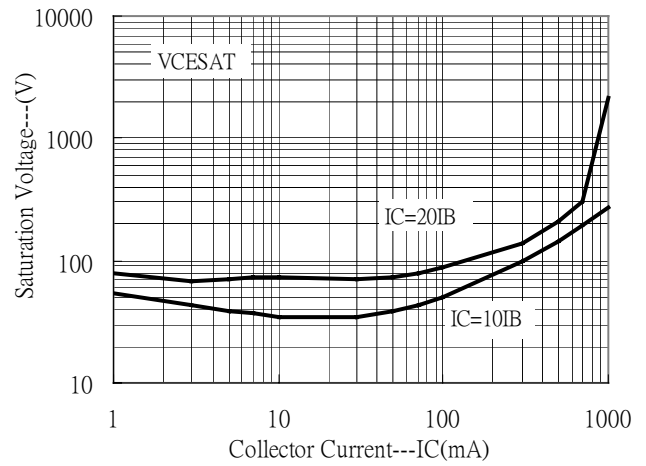
*Pulse Test: Pulse Width ≤380μs, Duty Cycles ≤2%

Typical Characteristics

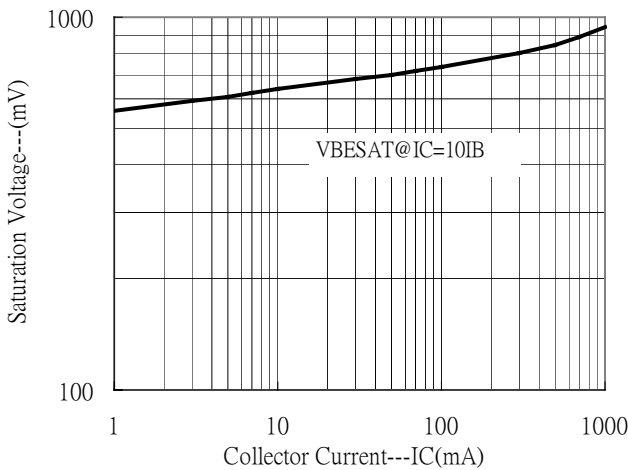
Current Gain vs Collector Current



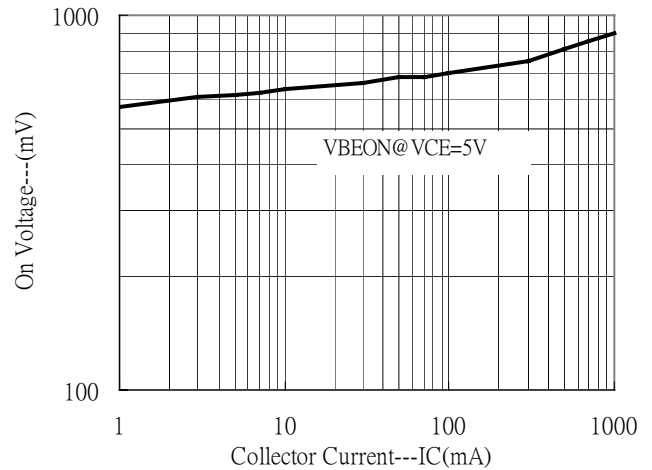
Saturation Voltage vs Collector Current



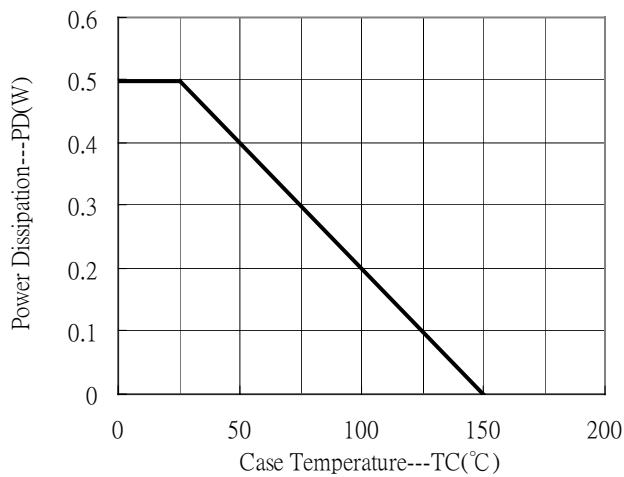
Saturation Voltage vs Collector Current



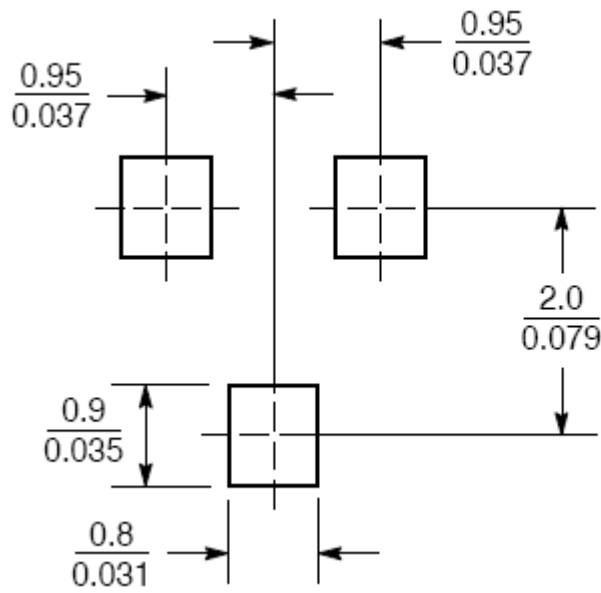
On Voltage vs Collector Current



Power Derating Curve

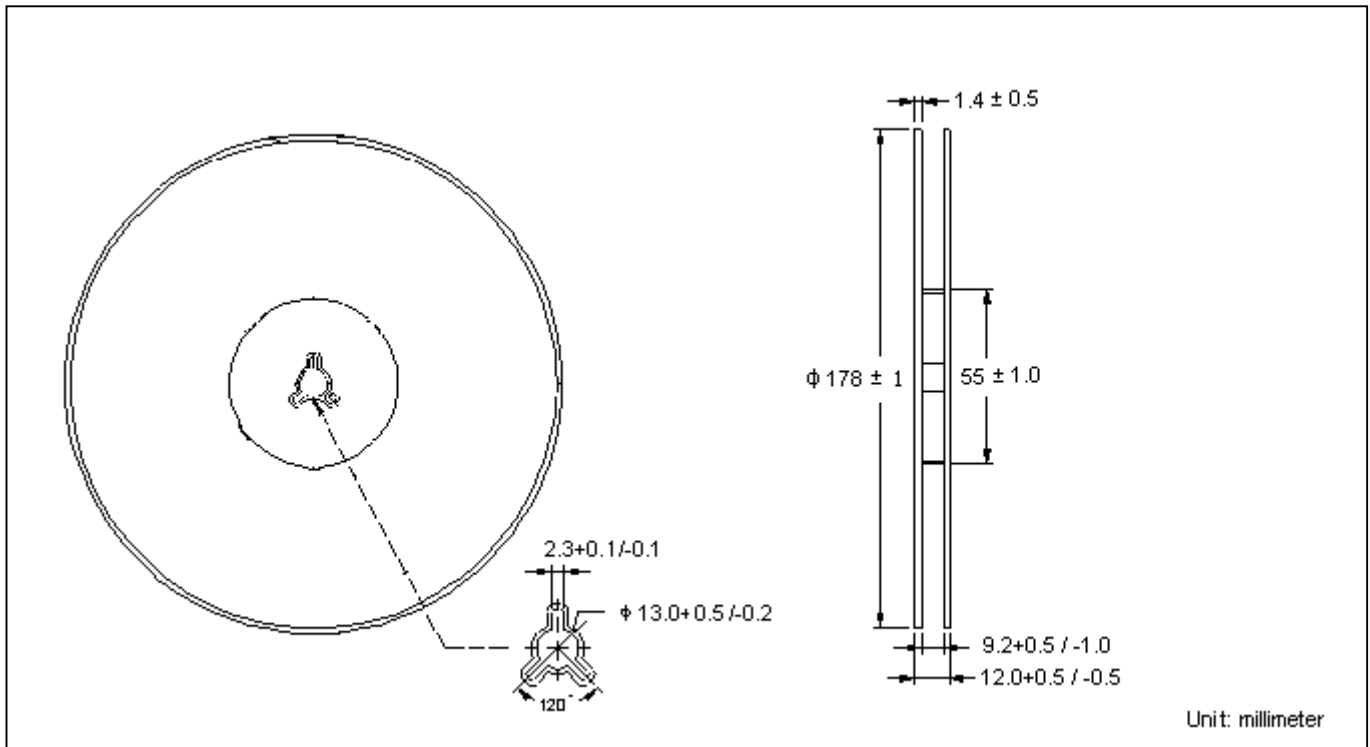


Recommended Soldering Footprint

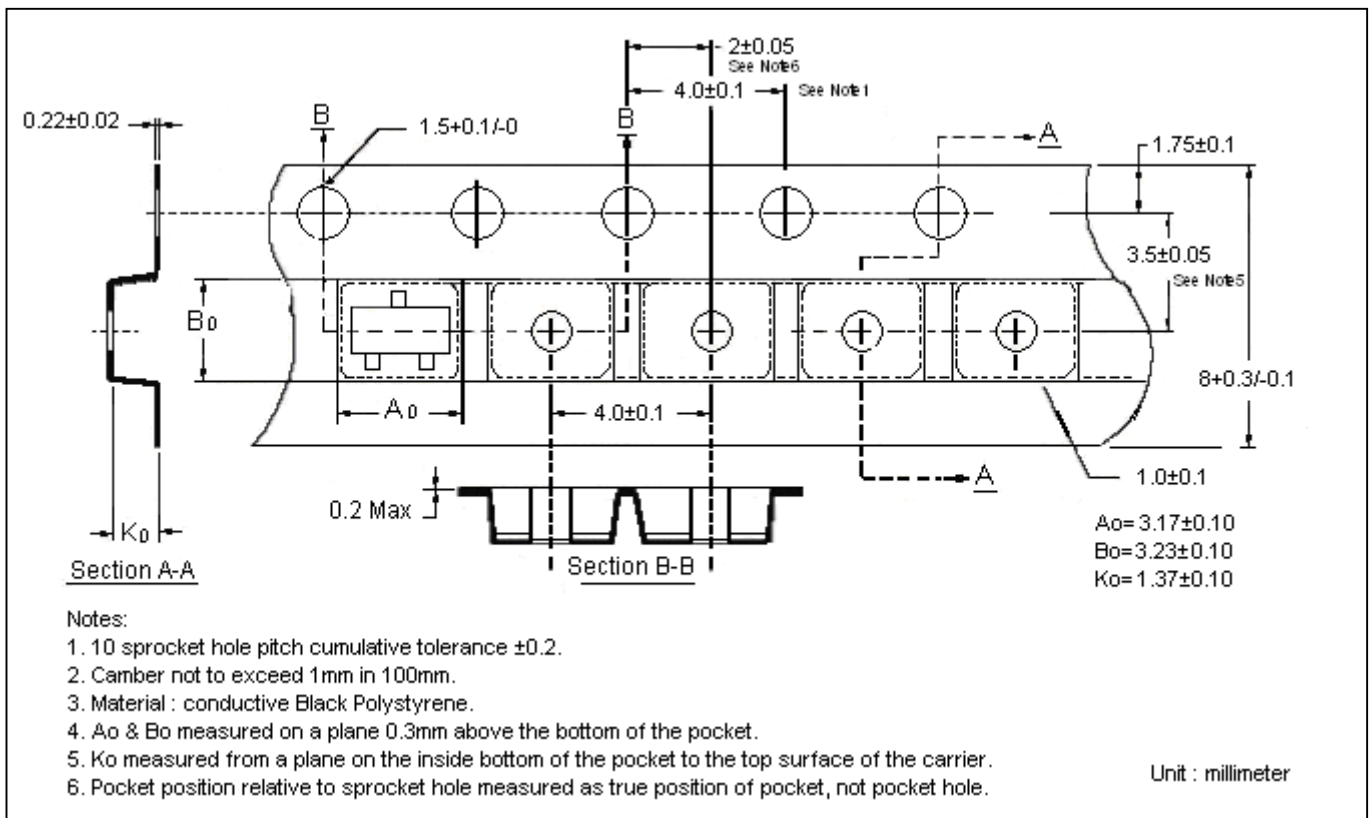


Unit : $\frac{\text{mm}}{\text{inches}}$

Reel Dimension



Carrier Tape Dimension



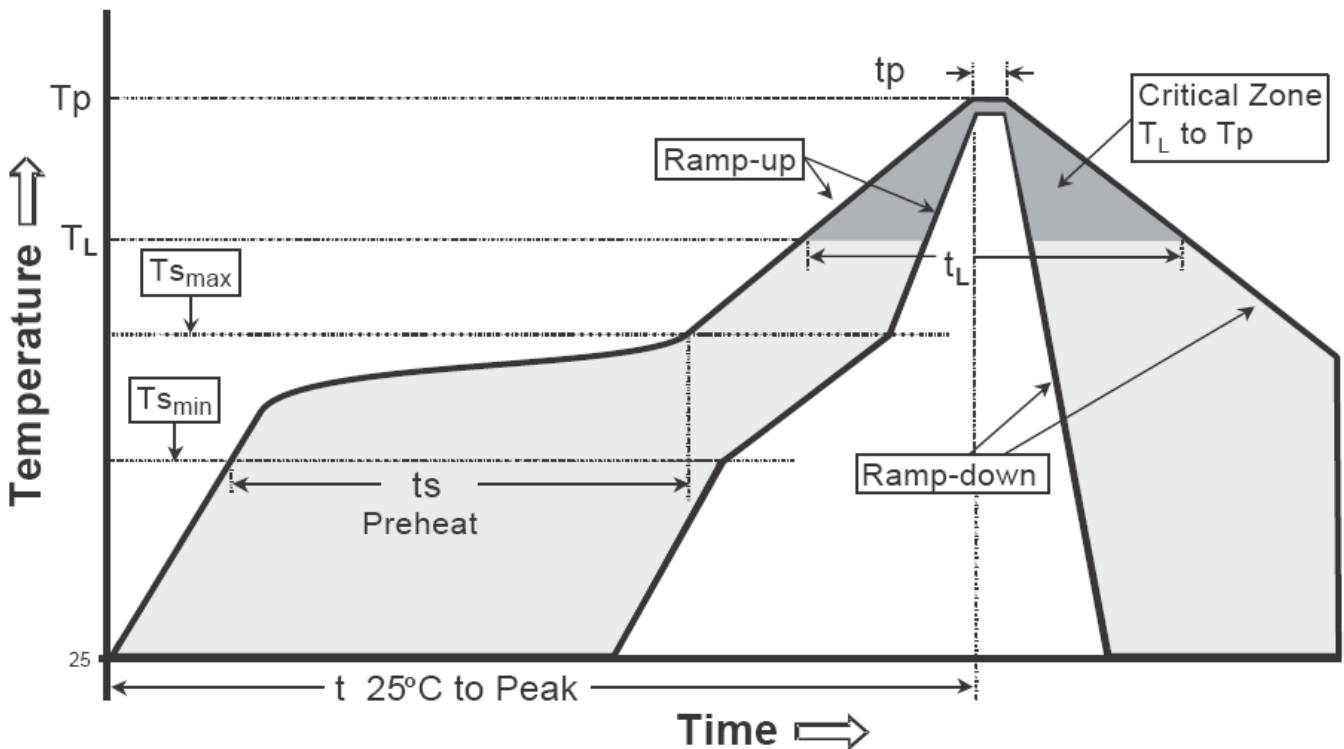
Notes:

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

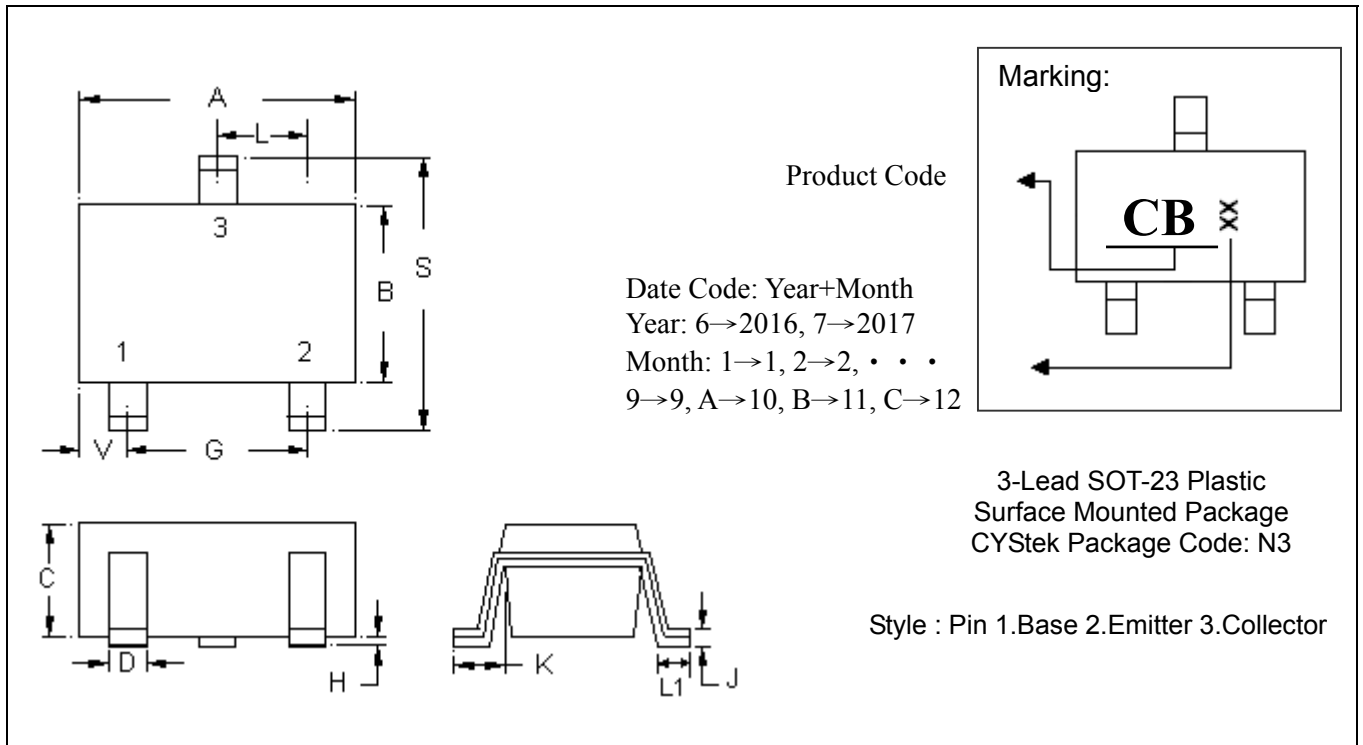
Recommended temperature profile for IR reflow



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	0.0197	0.0283	0.50	0.72
C	0.0335	0.0453	0.89	1.15	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	0.0787	1.70	2.00	V	0.0098	0.0256	0.25	0.65
H	0.0000	0.0040	0.00	0.10	L1	0.0118	0.0236	0.30	0.60

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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