

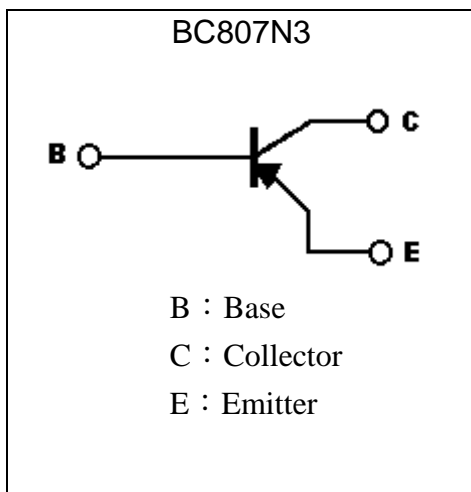
General Purpose PNP Epitaxial Planar Transistor

BC807N3

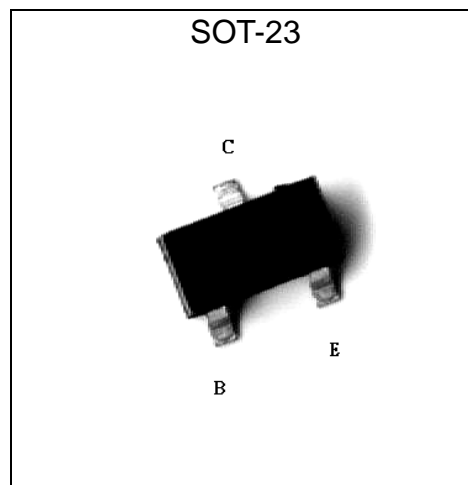
Description

- The BC807N3 is designed for general purpose switching and amplification applications. It is housed in the SOT-23/SC-59 package which is designed for low power surface mount applications.
- Low $V_{CE(sat)}$
- High switching speed.
- Complementary to BC817N3
- Pb-free lead-free and halogen-free package

Symbol

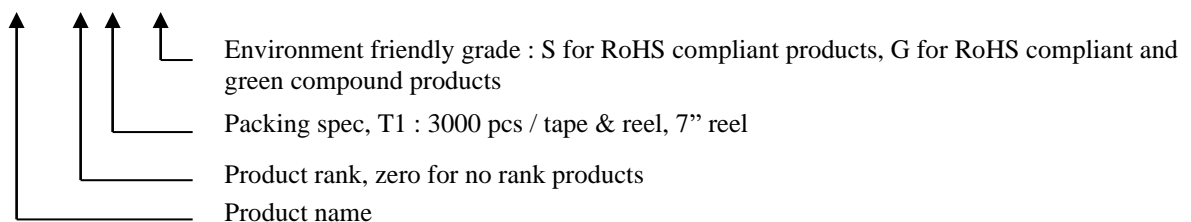


Outline



Ordering Information

Device	Package	Shipping
BC807N3-XX-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 _{CBO}	-50	V
Collector-Emitter Voltage	V _{CEO}	-45	V
Emitter-Base Voltage	V _{EBO}	-5	V
Collector Current	I _C	-500	mA
Power Dissipation @T _A =25°C	P _D	225 (Note 1)	mW
Thermal Resistance, Junction to Ambient	R _{θJA}	556 (Note 1)	°C/W
Junction Temperature	T _j	150	°C

Note 1: When mounted on a FR-5 board with area measuring 1.0x0.75x0.062 in.

Characteristics (Ta=25°C)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
BV _{CBO}	-50	-	-	V	I _C =-10μA
*BV _{CEO}	-45	-	-	V	I _C =-10mA
BV _{EBO}	-5	-	-	V	I _E =-10μA
I _{CBO}	-	-	-100	nA	V _{CB} =-20V
I _{EBO}	-	-	-100	nA	V _{EB} =-5V
*V _{CE(sat)}	-	-0.5	-0.7	V	I _C =-500mA, I _B =-50mA
*V _{BE(on)}	-	-	-1.2	V	V _{CE} =-1V, I _C =-500mA
*h _{FE 1}	160	-	600	-	V _{CE} =-1V, I _C =-100mA
*h _{FE}	40	-	-	-	V _{CE} =-1V, I _C =-500mA
f _T	80	-	-	MHz	V _{CE} =-5V, I _C =-10mA, f=100MHz
C _{ob}	-	9	-	pF	V _{CB} =-10V, I _E =0A, f=1MHz

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

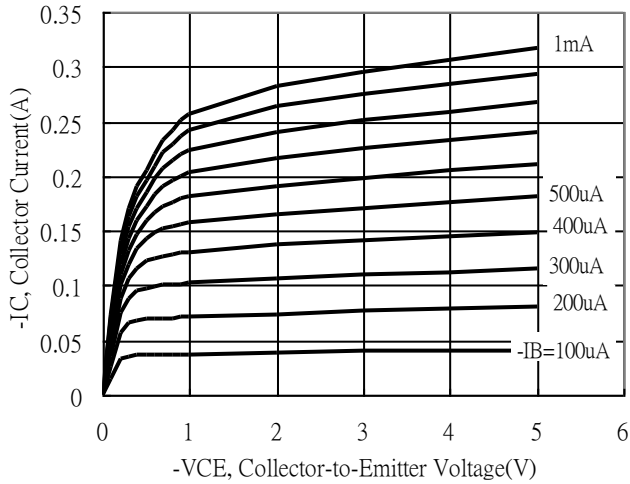
Classification of h_{FE 1}:

Rank	25	40
Range	160--400	250--600

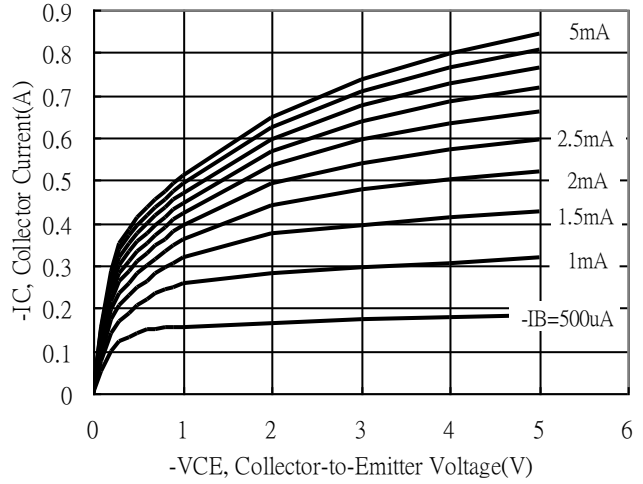


Typical Characteristics

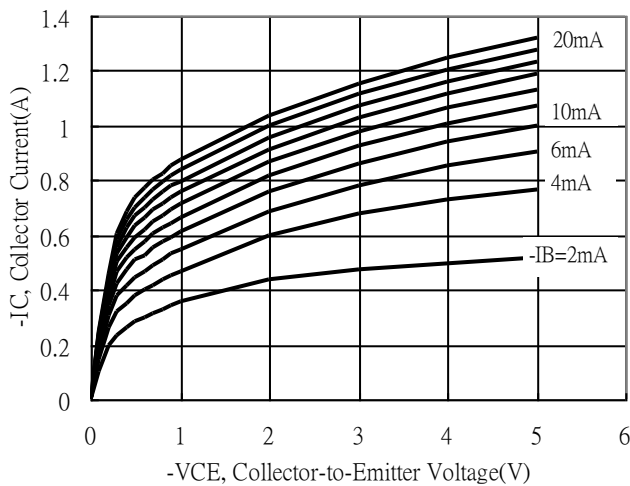
Emitter Grounded Output Characteristics



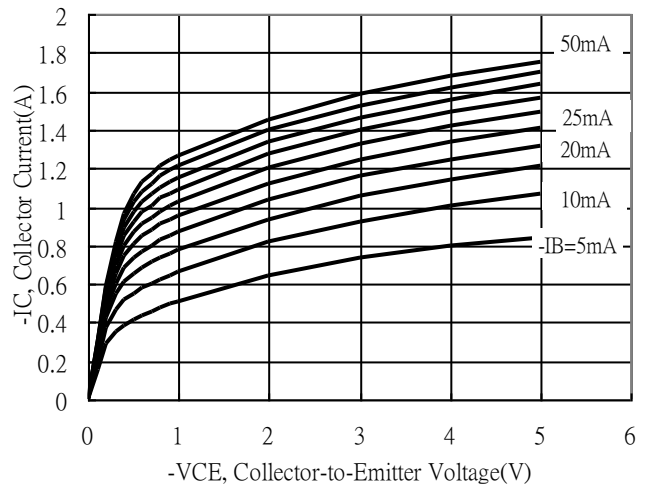
Emitter Grounded Output Characteristics



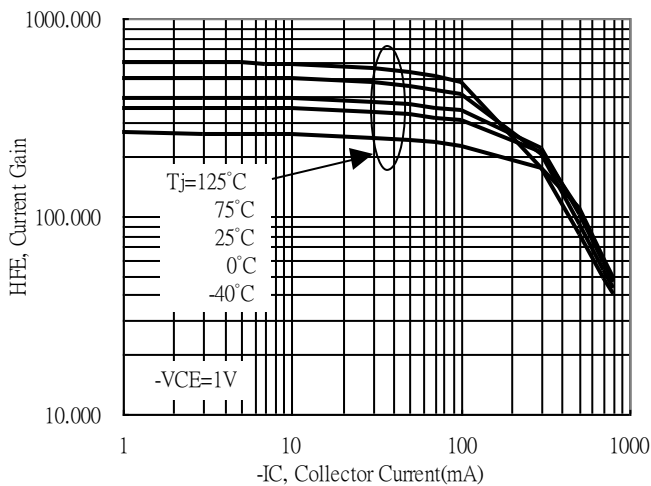
Emitter Grounded Output Characteristics



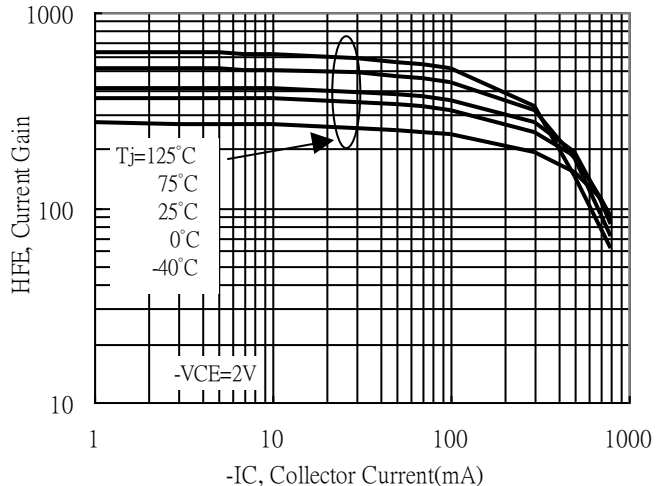
Emitter Grounded Output Characteristics



Current Gain vs Collector Current



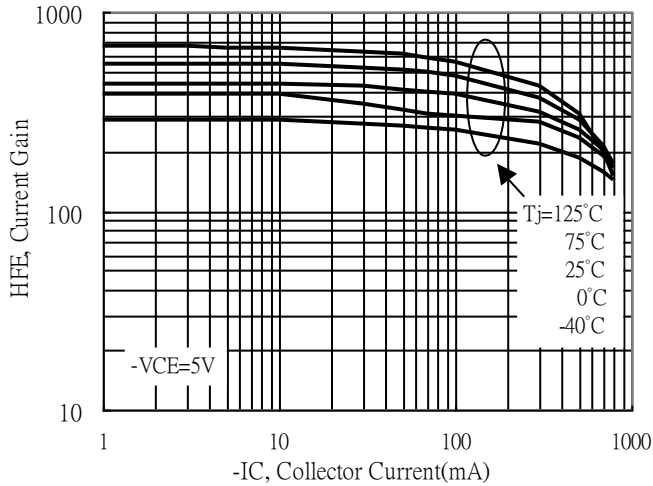
Current Gain vs Collector Current



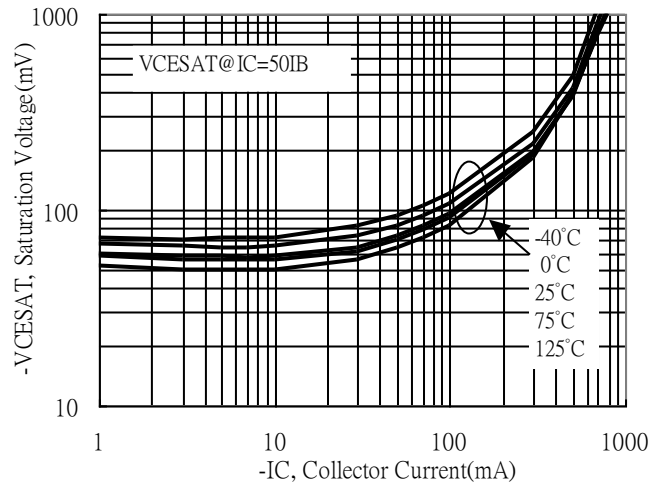


Typical Characteristics(Cont.)

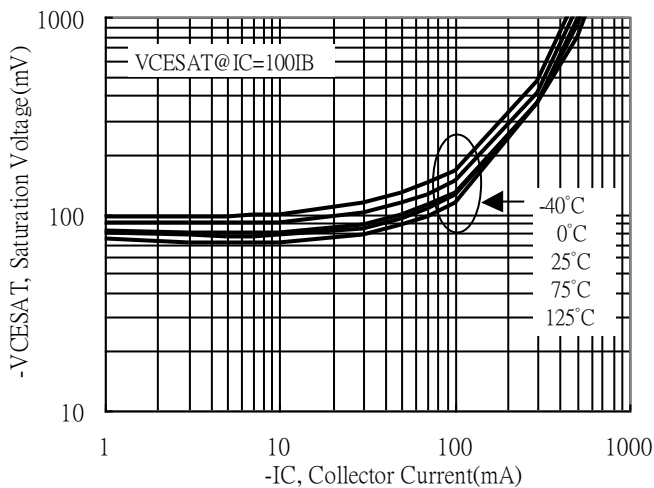
Current Gain vs Collector Current



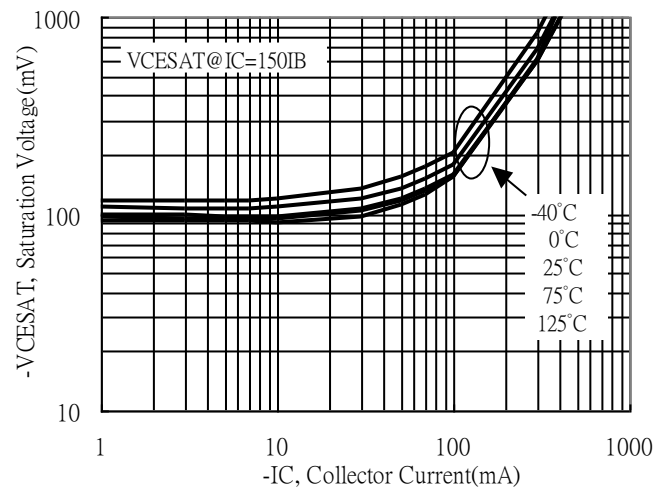
Saturation Voltage vs Collector Current



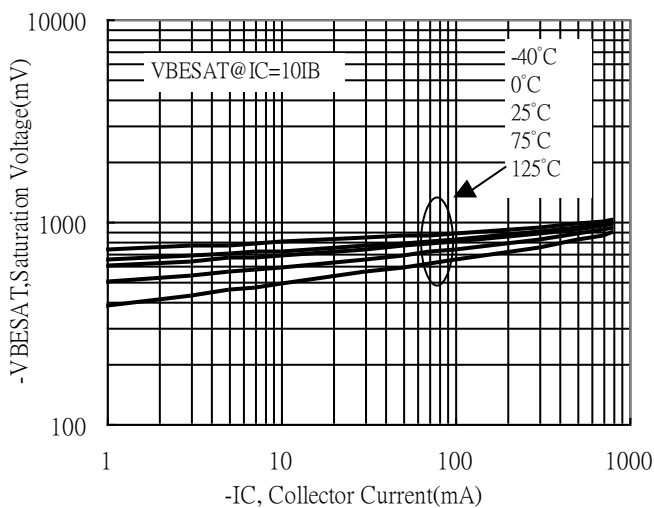
Saturation Voltage vs Collector Current



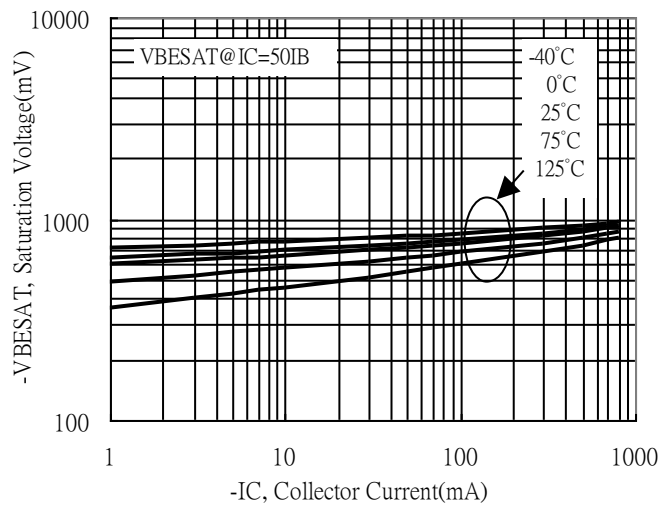
Saturation Voltage vs Collector Current



Saturation Voltage vs Collector Current



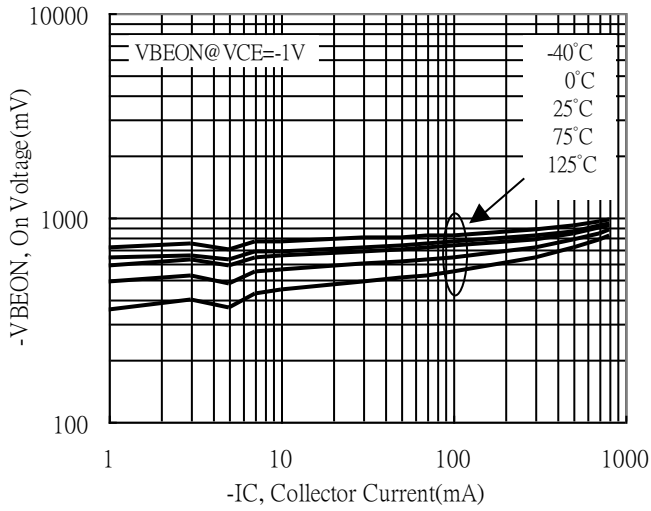
Saturation Voltage vs Collector Current



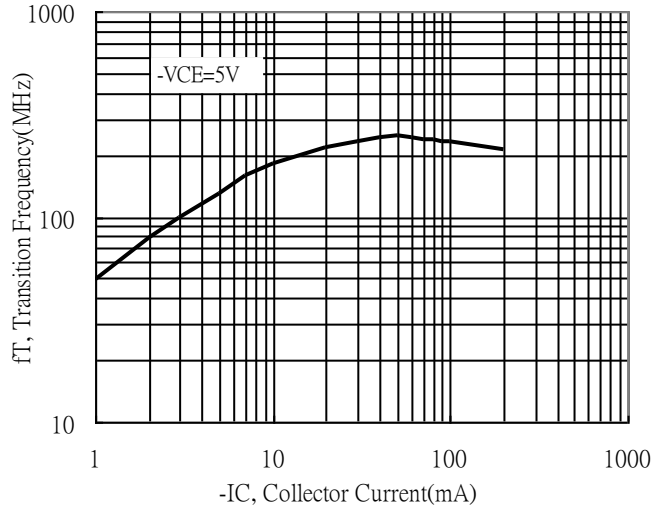


Typical Characteristics(Cont.)

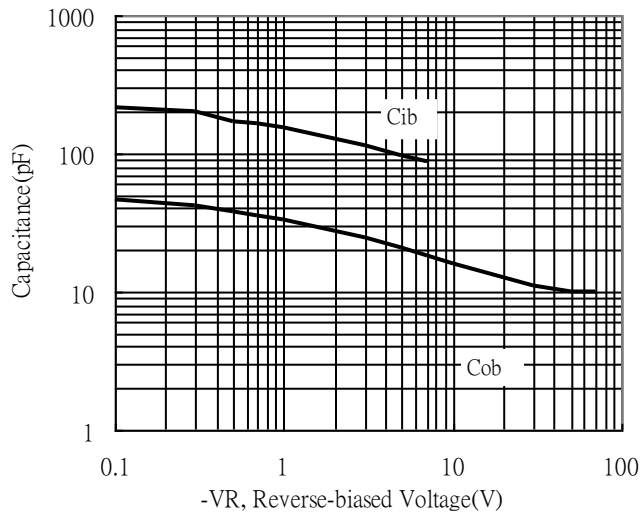
On Voltage vs Collector Current



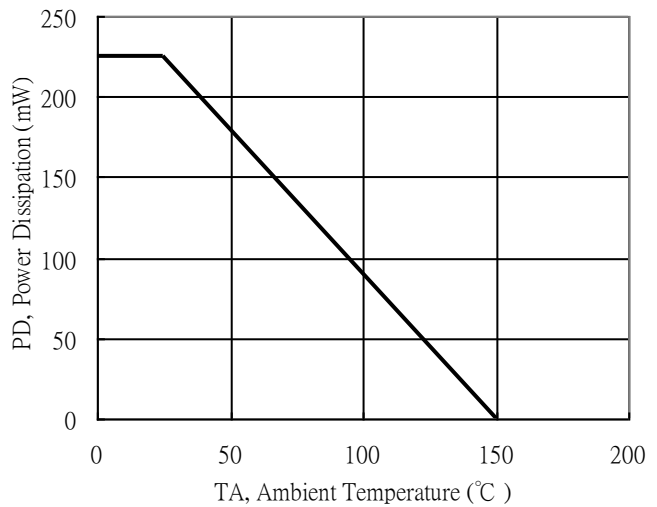
Transition Frequency vs Collector Current



Capacitance vs Reverse-biased Voltage

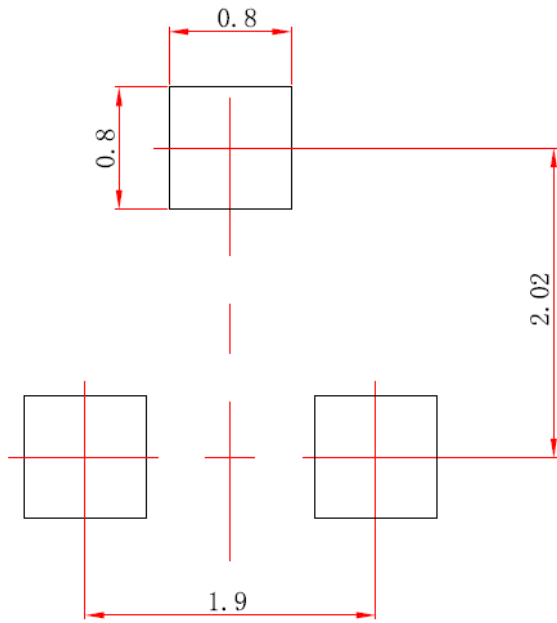


Power Derating Curve



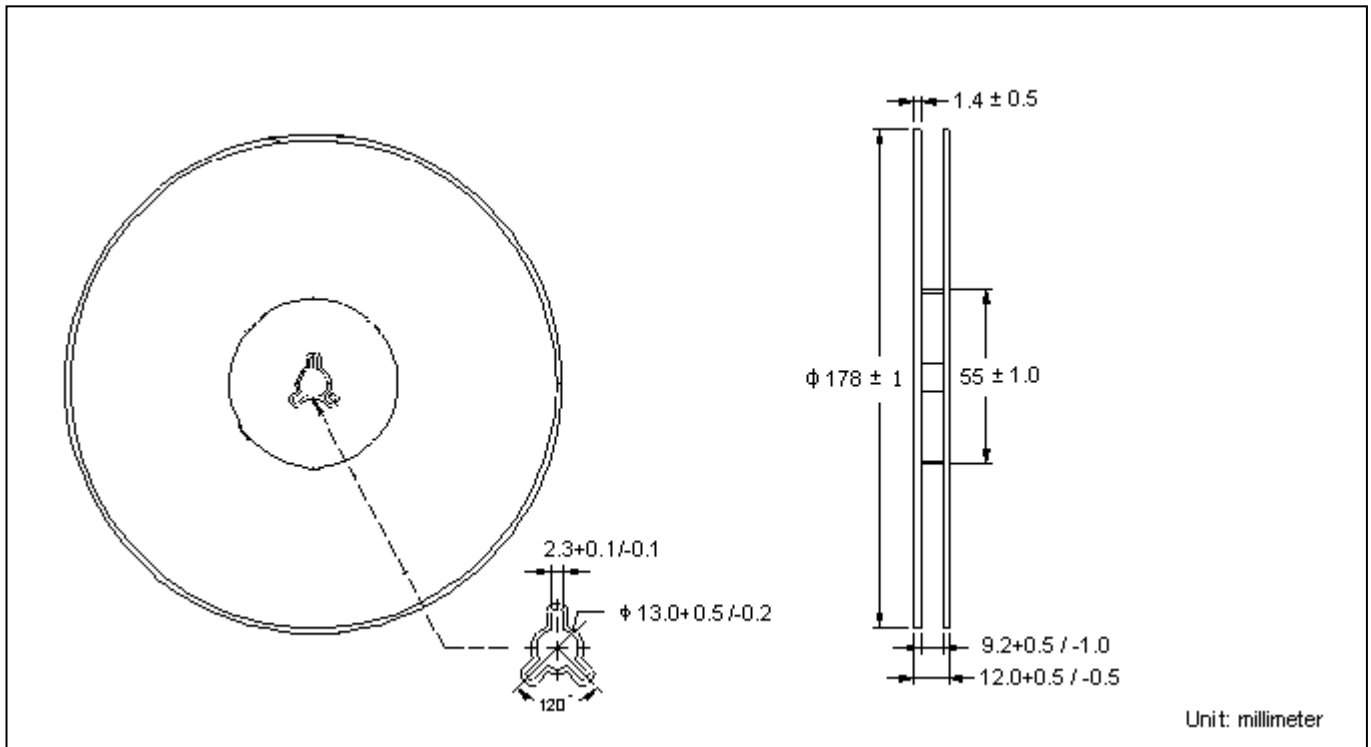


Recommended Soldering Footprint

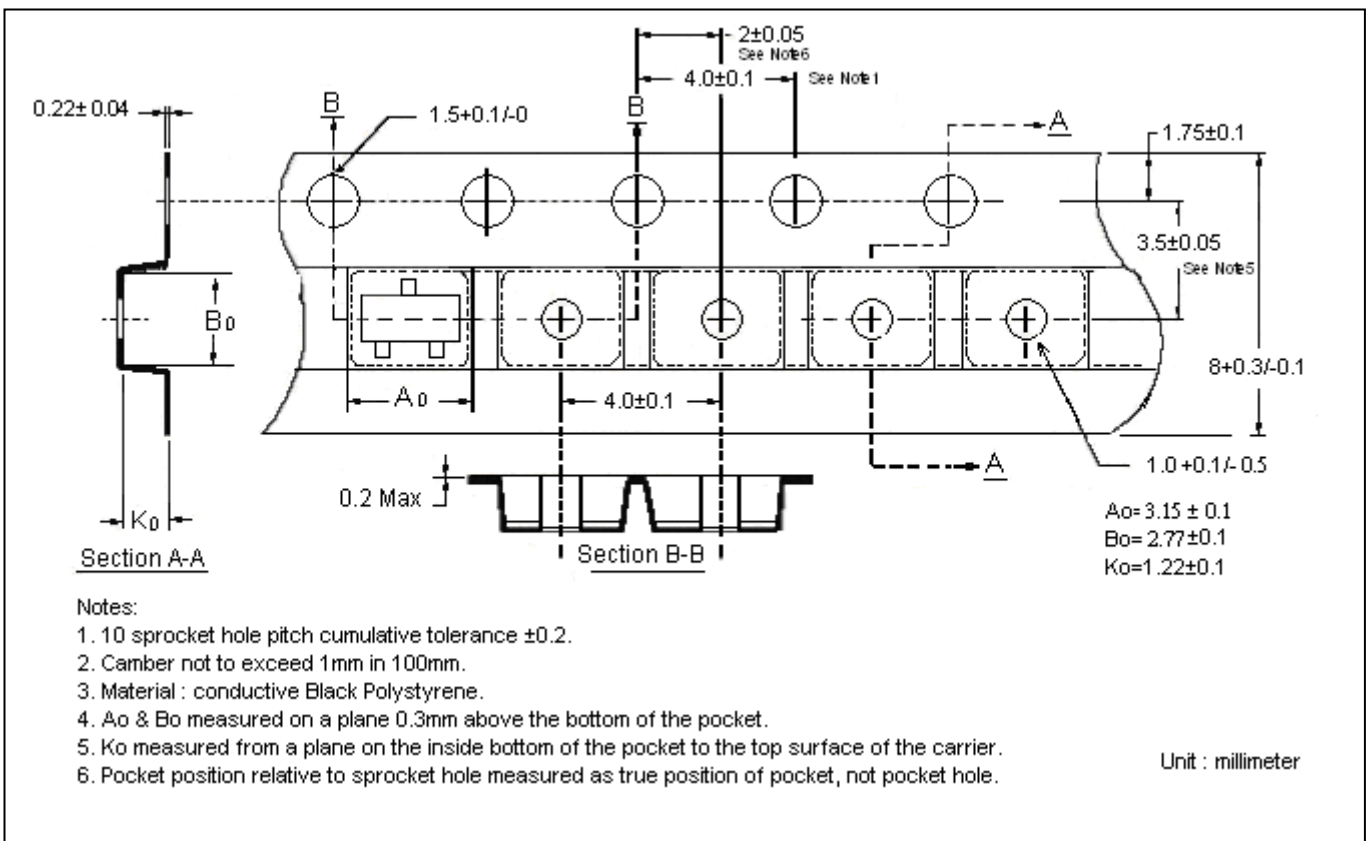


Unit:mm

Reel Dimension



Carrier Tape Dimension

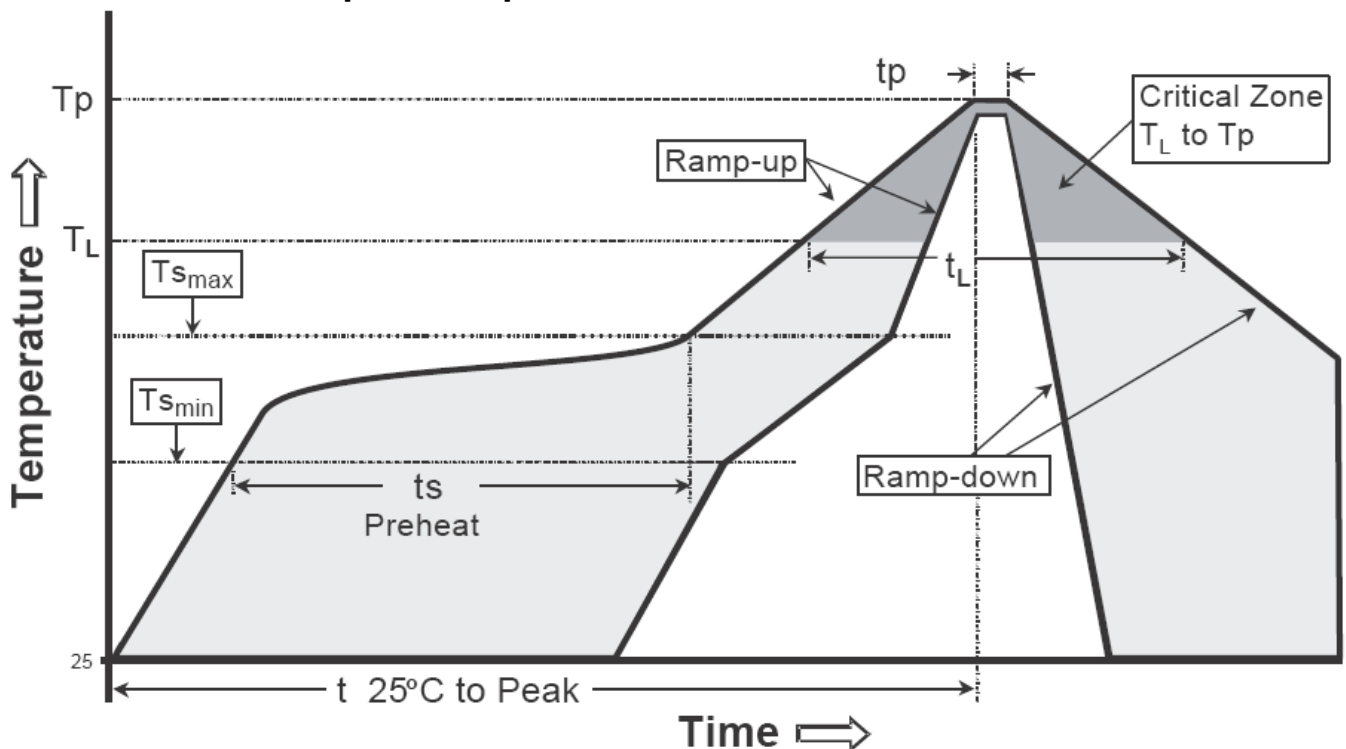




Recommended wave soldering condition

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

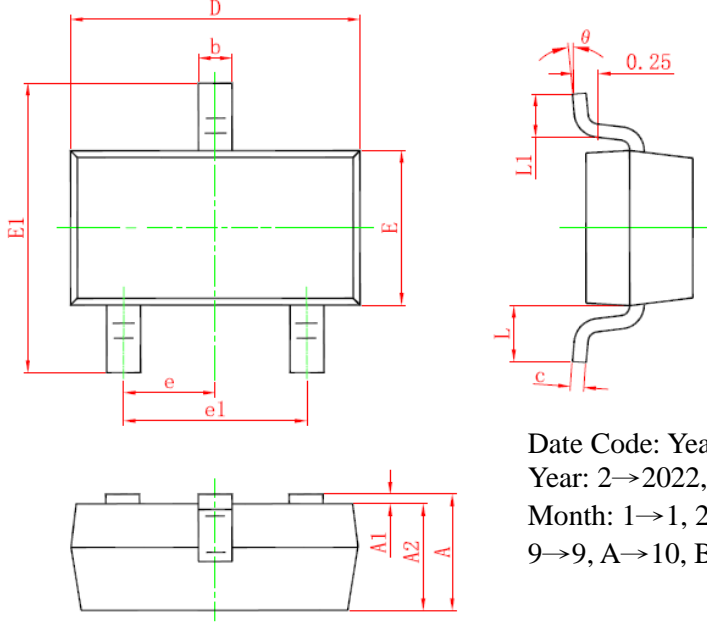
Recommended temperature profile for IR reflow



Profile feature	Sn-Pb eutectic Assembly	Pb-free Assembly
Average ramp-up rate (Tsmmax 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.

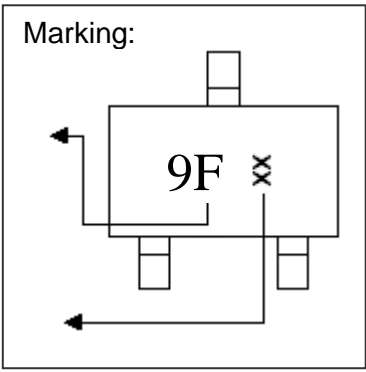
Note : All temperatures refer to topside of the package, measured on the package body surface.

SOT-23 Dimension



The diagram shows three views of the SOT-23 package: a top view with dimensions D, b, E1, E, e, and e1; a side view with dimensions L1, L, c, and a lead thickness of 0.25; and a perspective view with dimensions A1, A2, and A.

Marking:



The marking diagram shows a rectangular package with three leads. The top lead is labeled '9F' and the bottom lead is labeled 'XX'. Arrows indicate the lead positions.

Device Code

Date Code: Year+Month
 Year: 2→2022, 3→2023
 Month: 1→1, 2→2, . . .
 9→9, A→10, B→11, C→12

3-Lead SOT-23 Plastic Surface Mounted Package
 CYS Package Code: N3

Style : Pin 1.Base 2.Emitter 3.Collector

*:Typical

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.035	0.045	0.900	1.150	E1	0.089	0.100	2.250	2.550
A1	0.000	0.004	0.000	0.100	e	0.037 TYP		0.950 TYP	
A2	0.035	0.041	0.900	1.050	e1	0.071	0.079	1.800	2.000
b	0.012	0.020	0.300	0.500	L	0.022 REF		0.550 REF	
c	0.003	0.006	0.080	0.150	L1	0.012	0.020	0.300	0.500
D	0.110	0.118	2.800	3.000	θ	0°	8°	0°	8°
E	0.047	0.055	1.200	1.400					

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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