

General Purpose NPN Epitaxial Planar Transistor

BC847N3

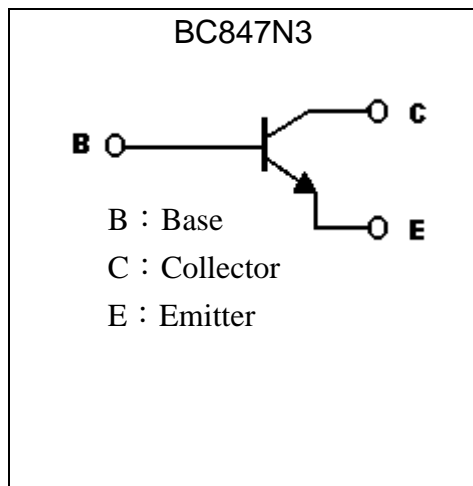
Description

- The BC847N3 is designed for general purpose switching and amplification applications.
- Complementary to BC857N3.
- Pb-free lead plating and halogen-free package

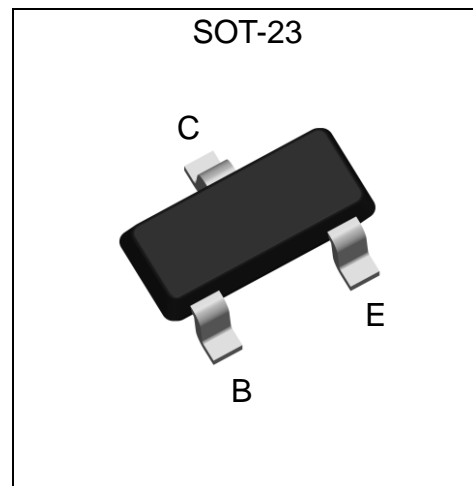
Features

- Low current, $I_{C(max)}=100mA$
- Low voltage, $BV_{CEO}= 45V$.

Symbol

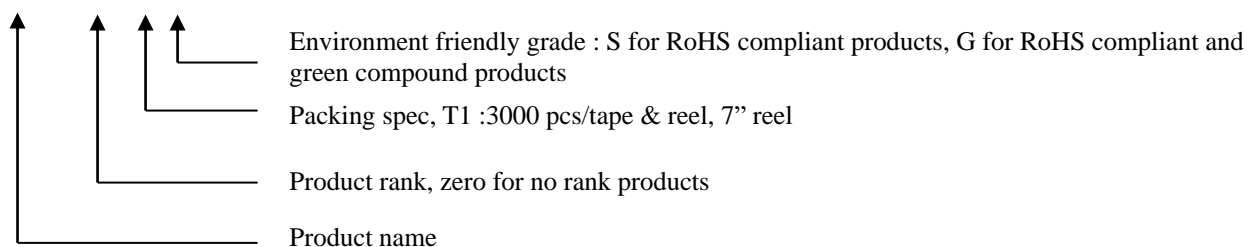


Outline



Ordering Information

Device	Package	Shipping
BC847N3-0-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 _{CBO}	50	V
Collector-Emitter Voltage	V _{CEO}	45	V
Emitter-Base Voltage	V _{EBO}	6	V
Collector Current (DC)	I _C	100	mA
Collector Current (Pulse)	I _{CP}	200	mA
Power Dissipation	P _d	225	mW
Junction Temperature	T _j	150	°C
Storage Temperature	T _{stg}	-55~+150	°C

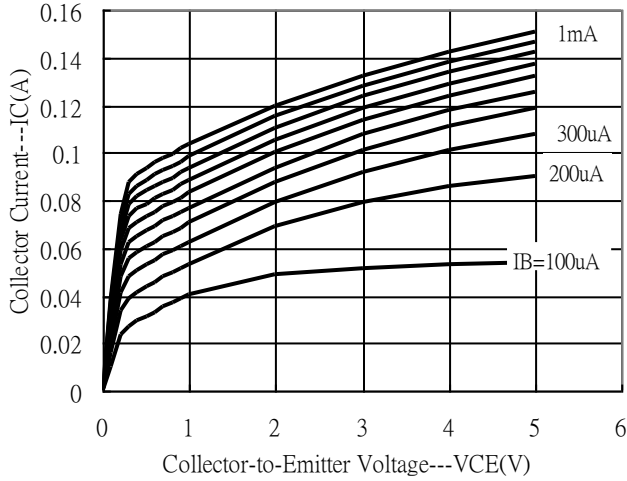
Characteristics (Ta=25°C)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
BV _{CBO}	50	-	-	V	I _C =10μA
BV _{CEO}	45	-	-	V	I _C =1mA
BV _{EBO}	6	-	-	V	I _E =10μA
I _{CBO}	-	-	15	nA	V _{CE} =30V
I _{EBO}	-	-	100	nA	V _{EB} =5V
*V _{CE(sat)} 1	-	-	250	mV	I _C =10mA, I _B =0.5mA
*V _{CE(sat)} 2	-	-	600	mV	I _C =100mA, I _B =5mA
*V _{BE(sat)} 1	-	700	-	mV	I _C =10mA, I _B =0.5mA
*V _{BE(sat)} 2	-	900	-	mV	I _C =100mA, I _B =5mA
*V _{BE(on)} 1	580	660	700	mV	V _{CE} =5V, I _C =2mA
*V _{BE(on)} 2	-	-	770	mV	V _{CE} =5V, I _C =10mA
*h _{FE}	420	-	800	-	V _{CE} =5V, I _C =2mA
f _T	100	-	-	MHz	V _{CE} =5V, I _E =10mA, f=100MHz
C _{ob}	-	2.1	-	pF	V _{CB} =10V, I _E =0A, f=1MHz

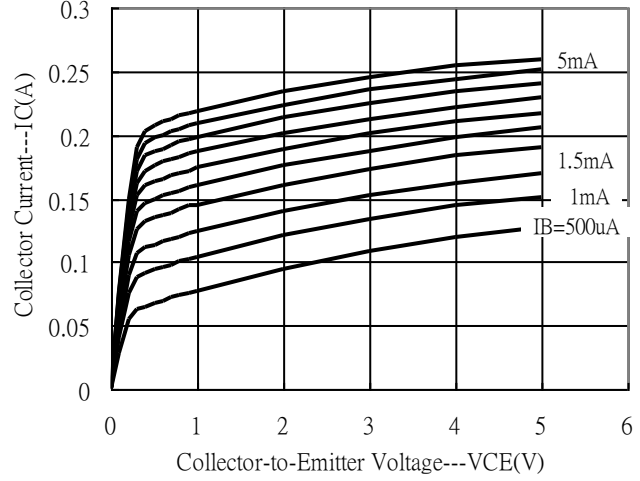
*Pulse Test: Pulse Width ≤380μs, Duty Cycle≤2%

Typical Characteristics

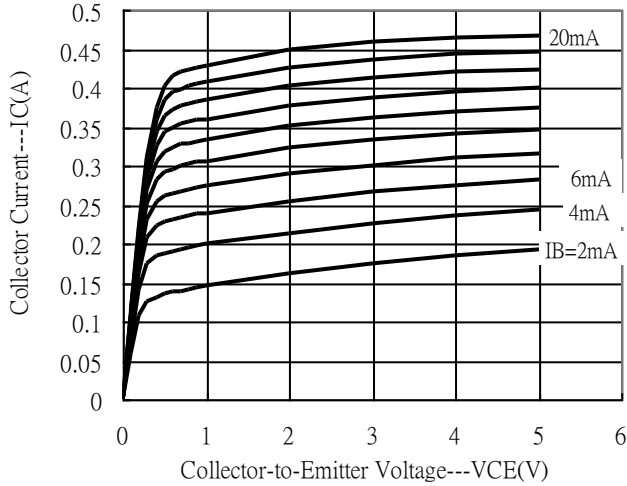
Emitter Grounded Output Characteristics



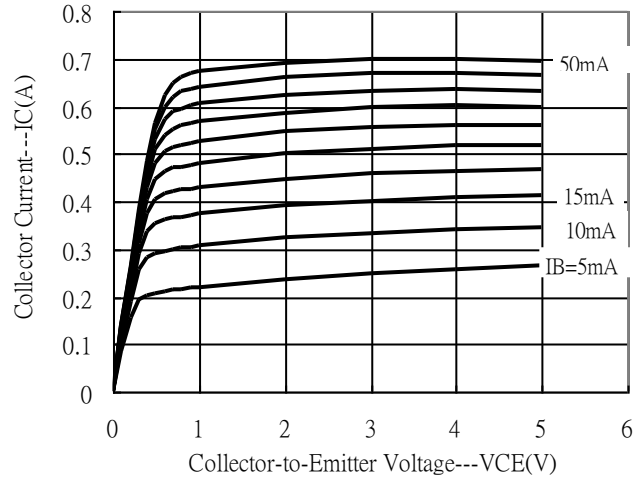
Emitter Grounded Output Characteristics



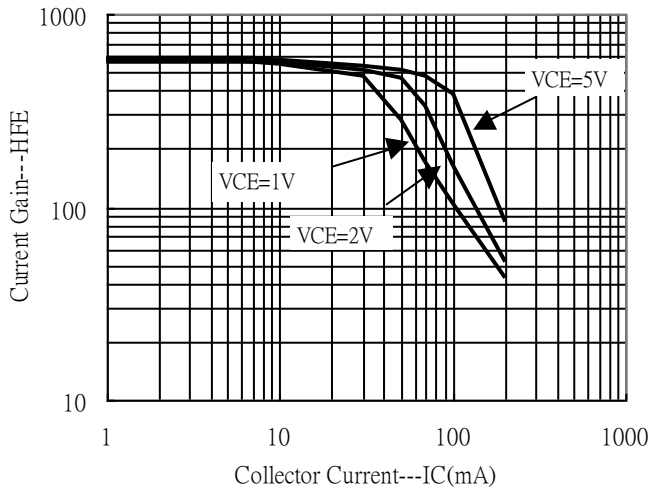
Emitter Grounded Output Characteristics



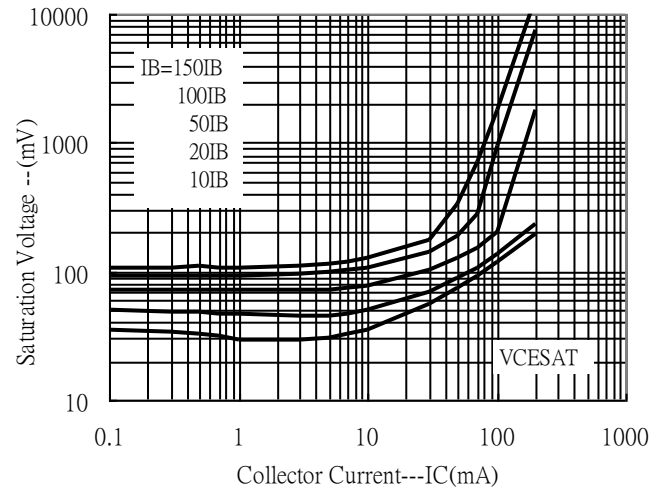
Emitter Grounded Output Characteristics



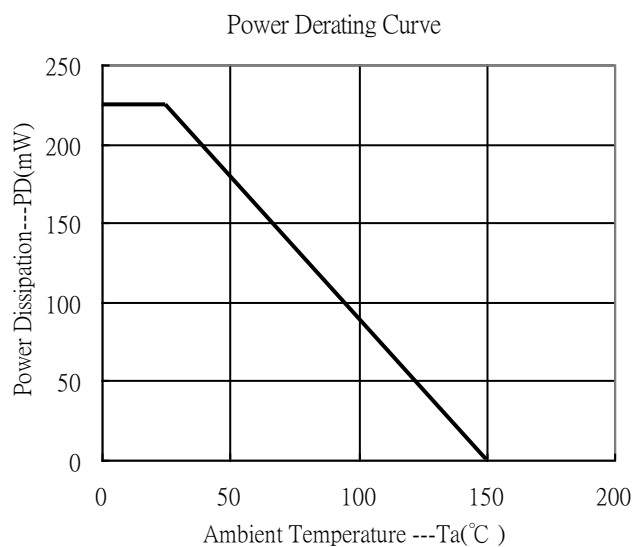
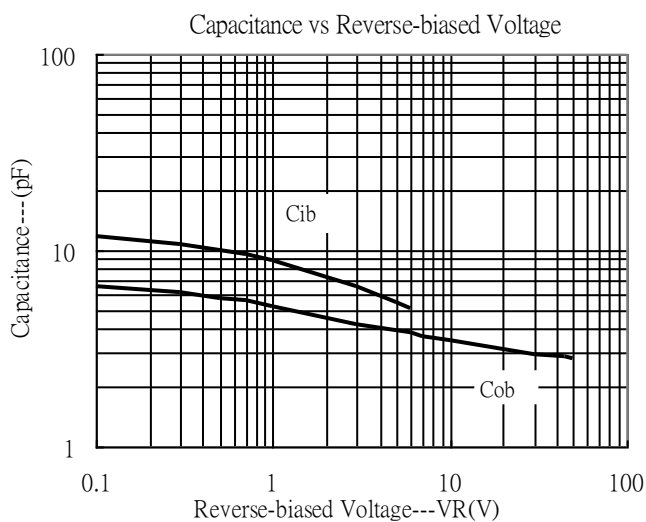
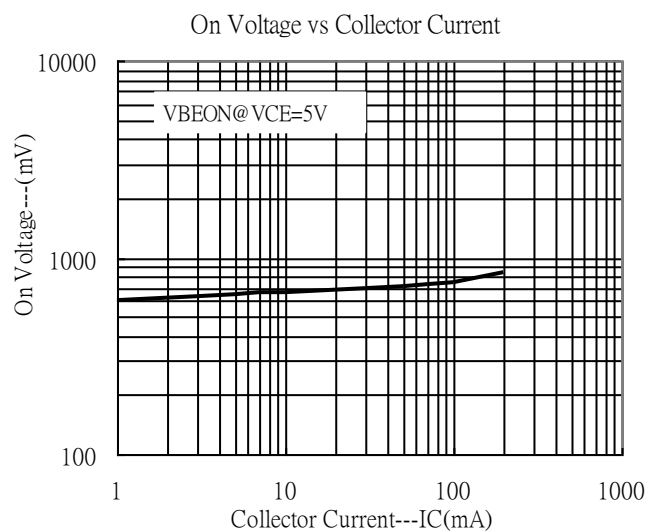
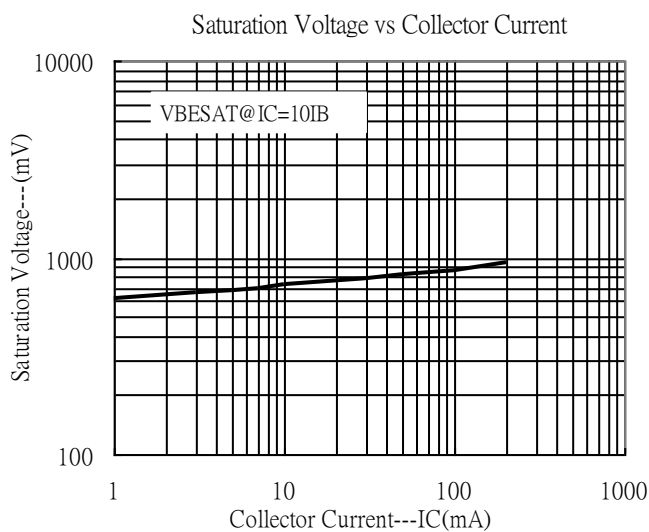
Current Gain vs Collector Current



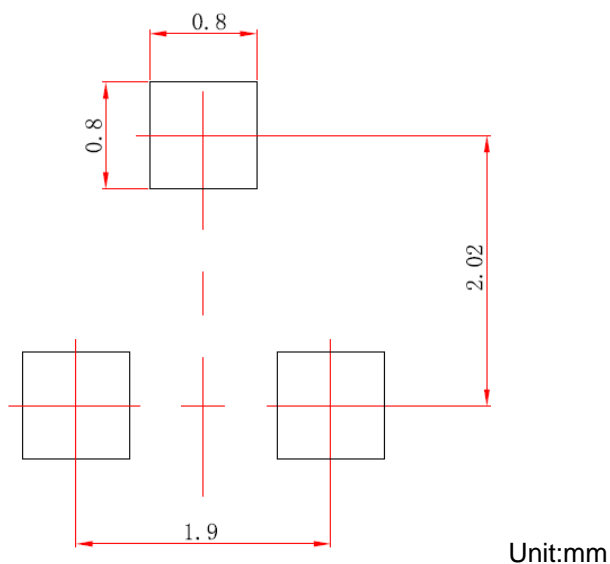
Saturation Voltage vs Collector Current



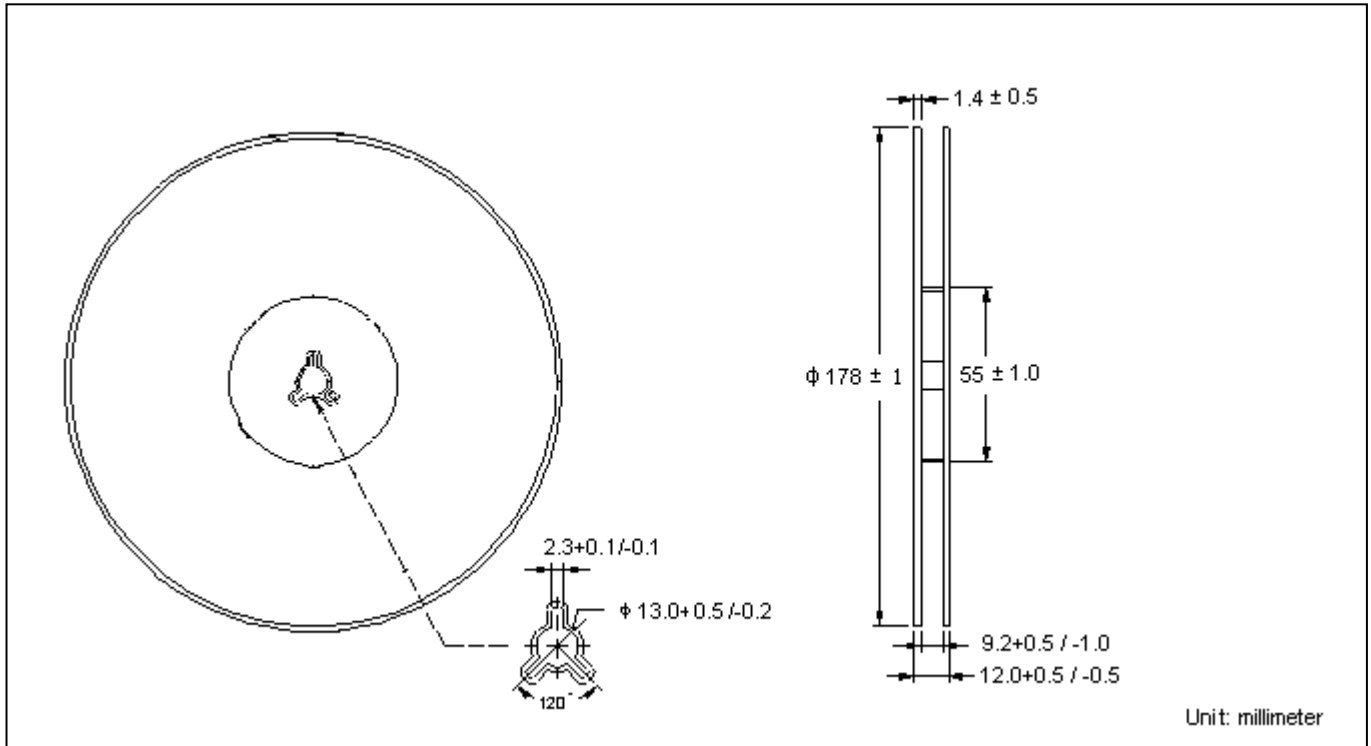
Typical Characteristics(Cont.)



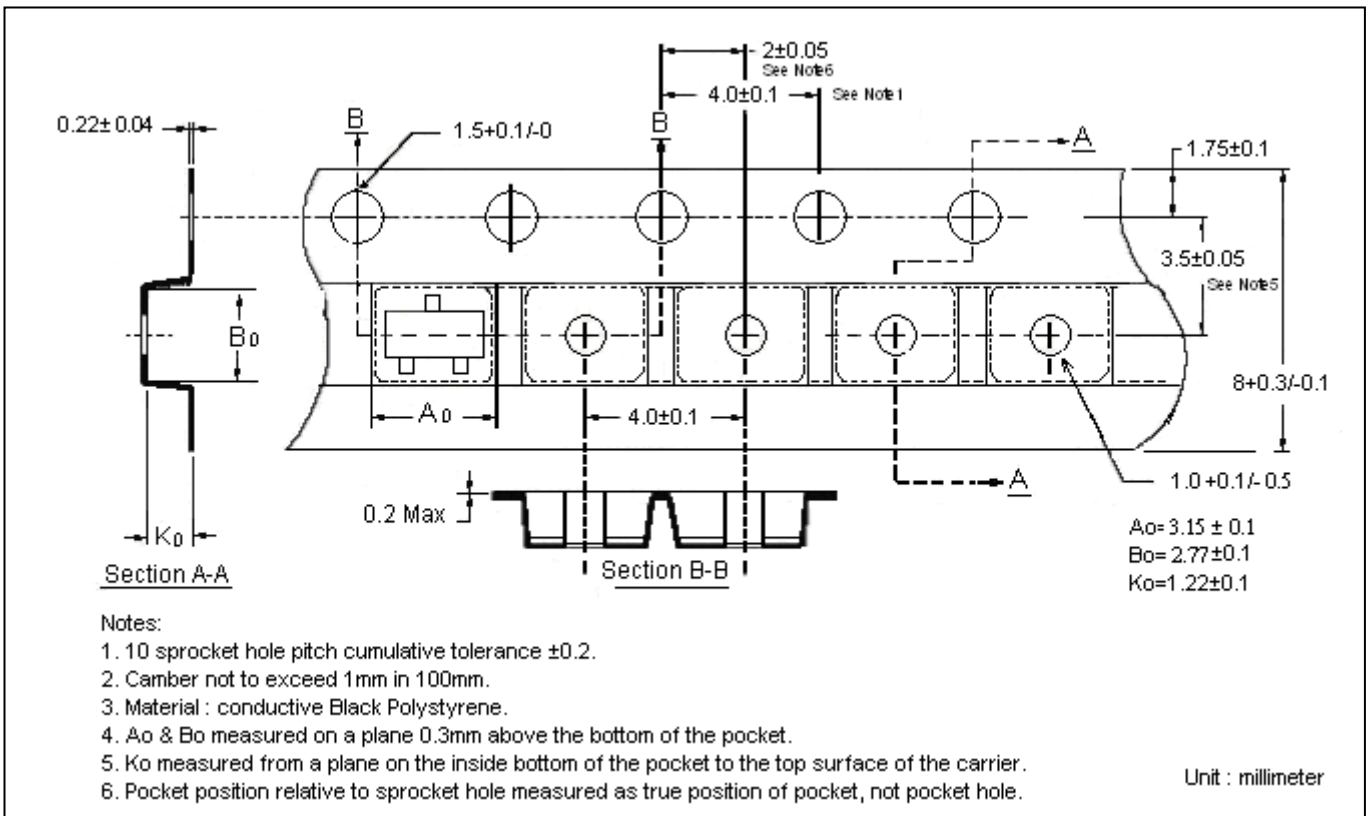
Recommended Soldering Footprint



Reel Dimension



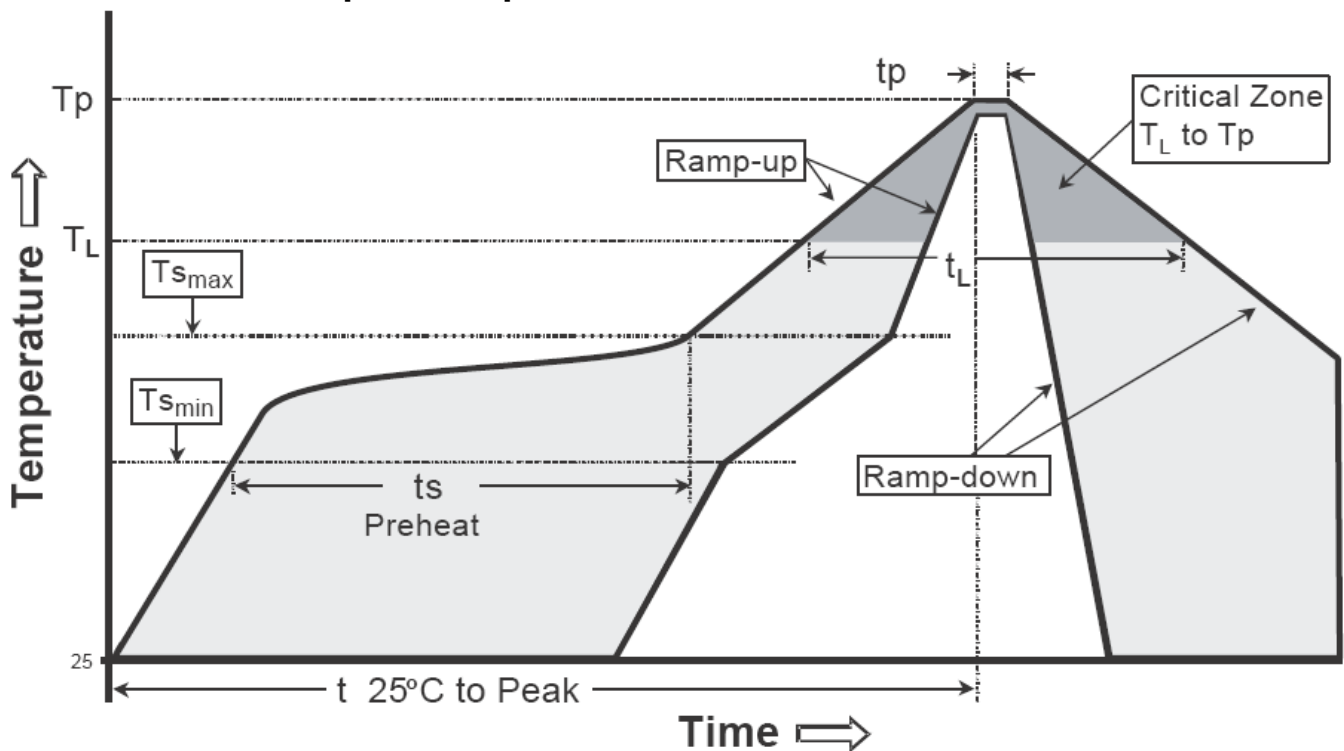
Carrier Tape Dimension



Recommended wave soldering condition

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

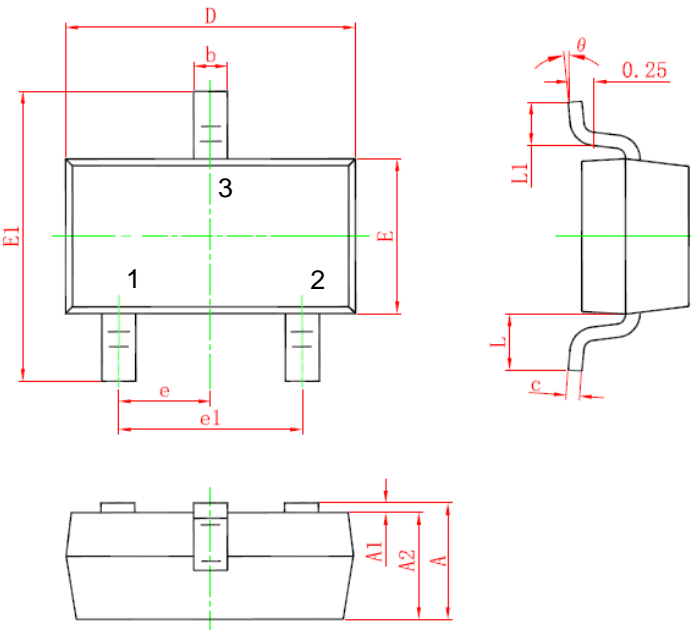
Recommended temperature profile for IR reflow



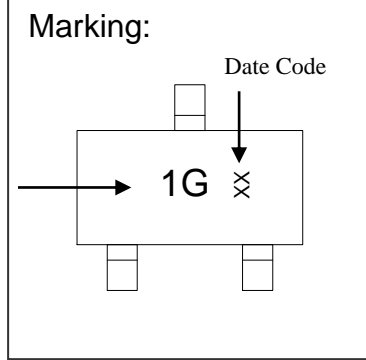
Profile feature	Sn-Pb eutectic Assembly	Pb-free Assembly
Average ramp-up rate (Tsmax to Tp)	3°C/second max.	3°C/second max.
Preheat		
-Temperature Min(Ts min)	100°C	150°C
-Temperature Max(Ts max)	150°C	200°C
-Time(ts min to ts max)	60-120 seconds	60-180 seconds
Time maintained above:		
-Temperature (TL)	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



Marking:



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

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

Date Code: Year+Month
 Year: 3→2003, 4→2004
 Month: 1→1, 2→2, . . .
 9→9, A→10, B→11, C→12

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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