

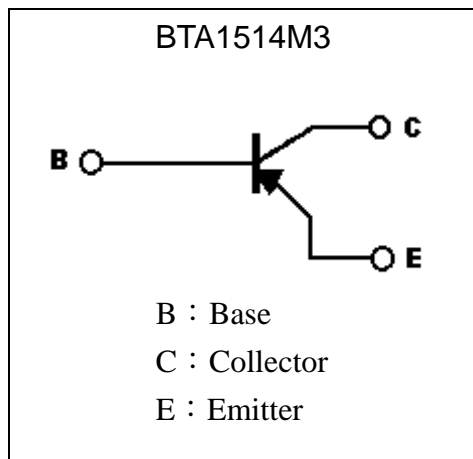
General Purpose PNP Epitaxial Planar Transistor

BTA1514M3

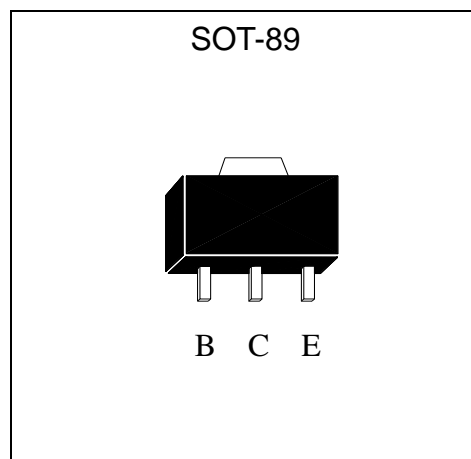
Description

- The BTA1514M3 is designed for general purpose application requiring high breakdown voltage.
- Large I_C , $I_{C(Max)} = -0.6A$
- High BV_{CEO} , $BV_{CEO} = -150V$
- Complementary to BTC3906M3.
- Pb-free lead plating and halogen-free package

Symbol

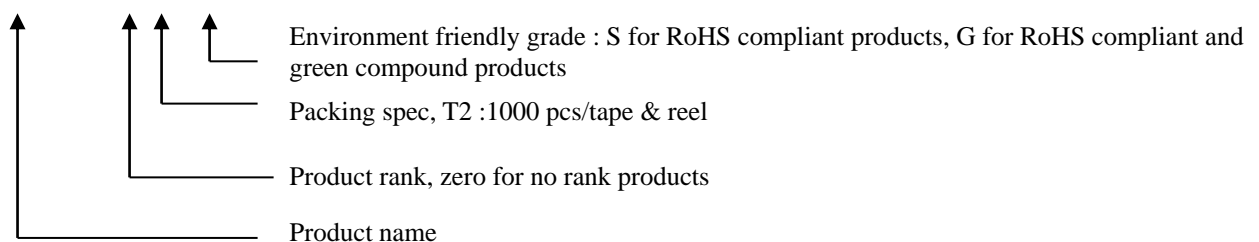


Outline



Ordering Information

Device	Package	Shipping
BTA1514M3-X-T2-G	SOT-89 (Pb-free lead plating and halogen-free package)	1000 pcs / Tape & Reel





Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Collector-Base Voltage	V _{CB0}	-160	V
Collector-Emitter Voltage	V _{CEO}	-150	V
Emitter-Base Voltage	V _{EBO}	-5	V
Collector Current	I _C	-0.6	A
Power Dissipation	P _D	0.6	W
		1 (Note 1)	W
		2 (Note 2)	W
Operating Junction Temperature Range	T _j	-55~+150	°C
Storage Temperature Range	T _{stg}	-55~+150	°C

Thermal Characteristics

Parameter	Symbol	Value	Unit
Thermal Resistance, Junction to Ambient	R _{θJA}	208	°C/W
		125 (Note 1)	
		62.5 (Note 2)	

Note : 1. When mounted on FR-4 PCB with area measuring 10×10×1 mm

2 . When mounted on ceramic with area measuring 40×40×1 mm

Characteristics (Ta=25°C)

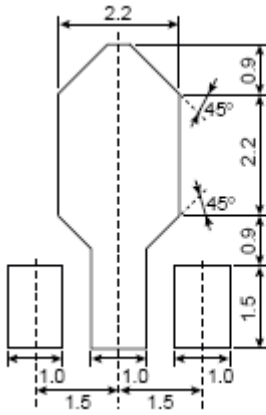
Symbol	Min.	Typ.	Max.	Unit	Test Conditions
BV _{CB0}	-160	-	-	V	I _C =-50μA
BV _{CEO}	-150	-	-	V	I _C =-1mA
BV _{EBO}	-5	-	-	V	I _E =-50μA
IC _{B0}	-	-	-50	nA	V _{CB} =-120V
IE _{B0}	-	-	-50	nA	V _{EB} =-4V
*V _{CE(sat)} 1	-	-	-0.2	V	I _C =-10mA, I _B =-1mA
*V _{CE(sat)} 2	-	-	-0.5	V	I _C =-50mA, I _B =-5mA
*V _{BE(sat)} 1	-	-	-1	V	I _C =-10mA, I _B =-1mA
*V _{BE(sat)} 2	-	-	-1	V	I _C =-50mA, I _B =-5mA
h _{FE} 1	100	-	-	-	V _{CE} =-5V, I _C =-1mA
h _{FE} 2	100	-	-	-	V _{CE} =-5V, I _C =-10mA
h _{FE} 3	50	-	-	-	V _{CE} =-5V, I _C =-50mA
h _{FE} 4	120	-	390	-	V _{CE} =-6V, I _C =-2mA
f _T	100	-	-	MHz	V _{CE} =-30V, I _C =-10mA, f=100MHz
C _{ob}	-	-	6	pF	V _{CB} =-10V, f=1MHz

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

Classification Of h_{FE} 4

Rank	Q	R
Range	120~270	180~390

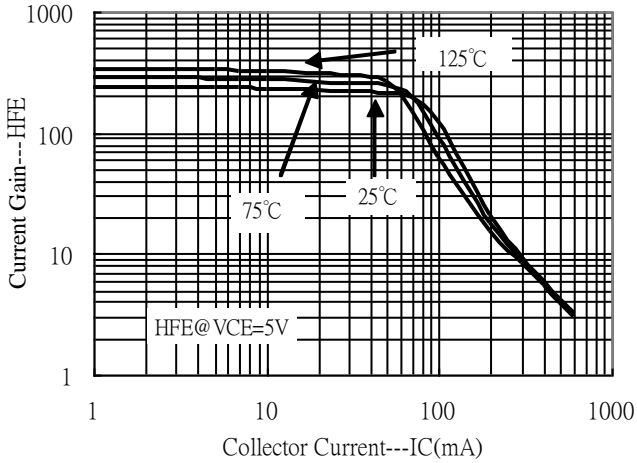
Recommended soldering footprint and stencil design



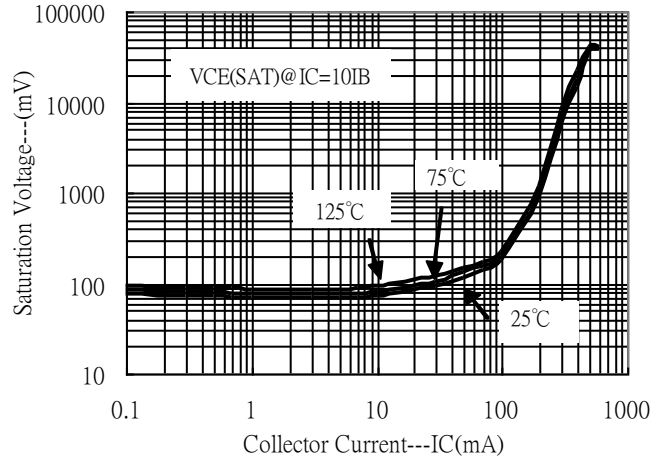
unit : mm

Typical Characteristics

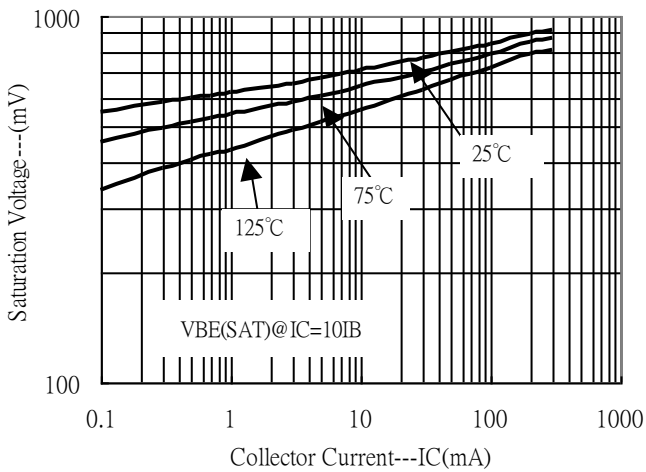
Current Gain vs Collector Current



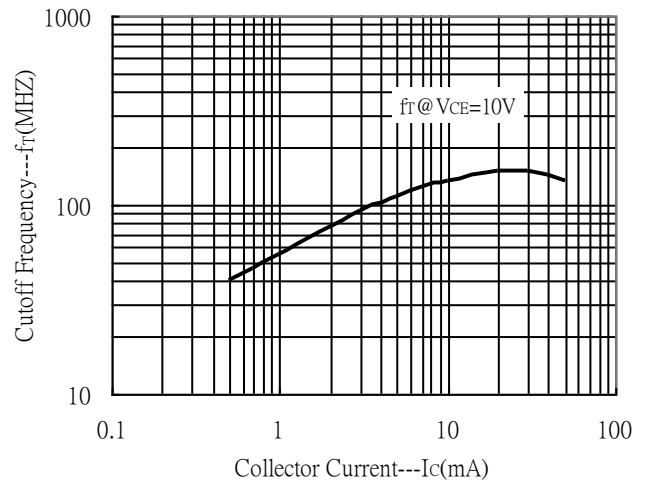
Saturation Voltage vs Collector Current



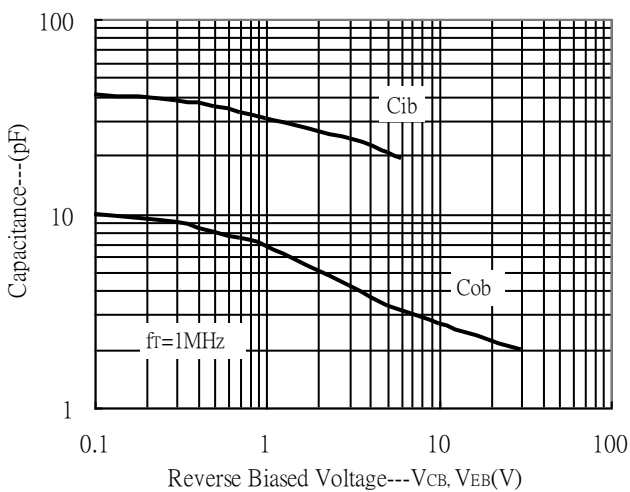
Saturation Voltage vs Collector Current



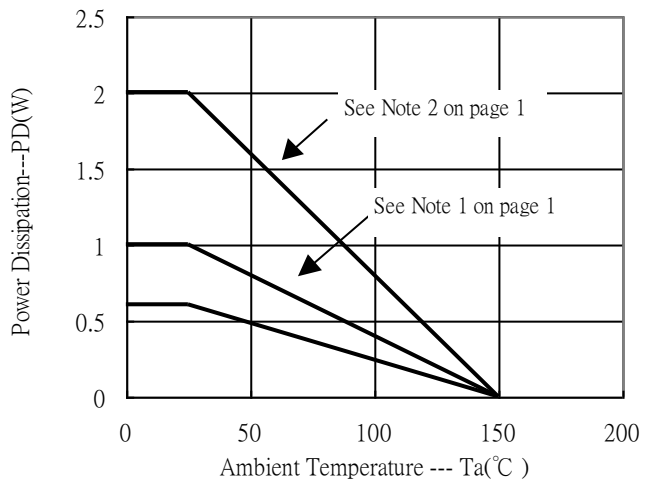
Cutoff Frequency vs Collector Current



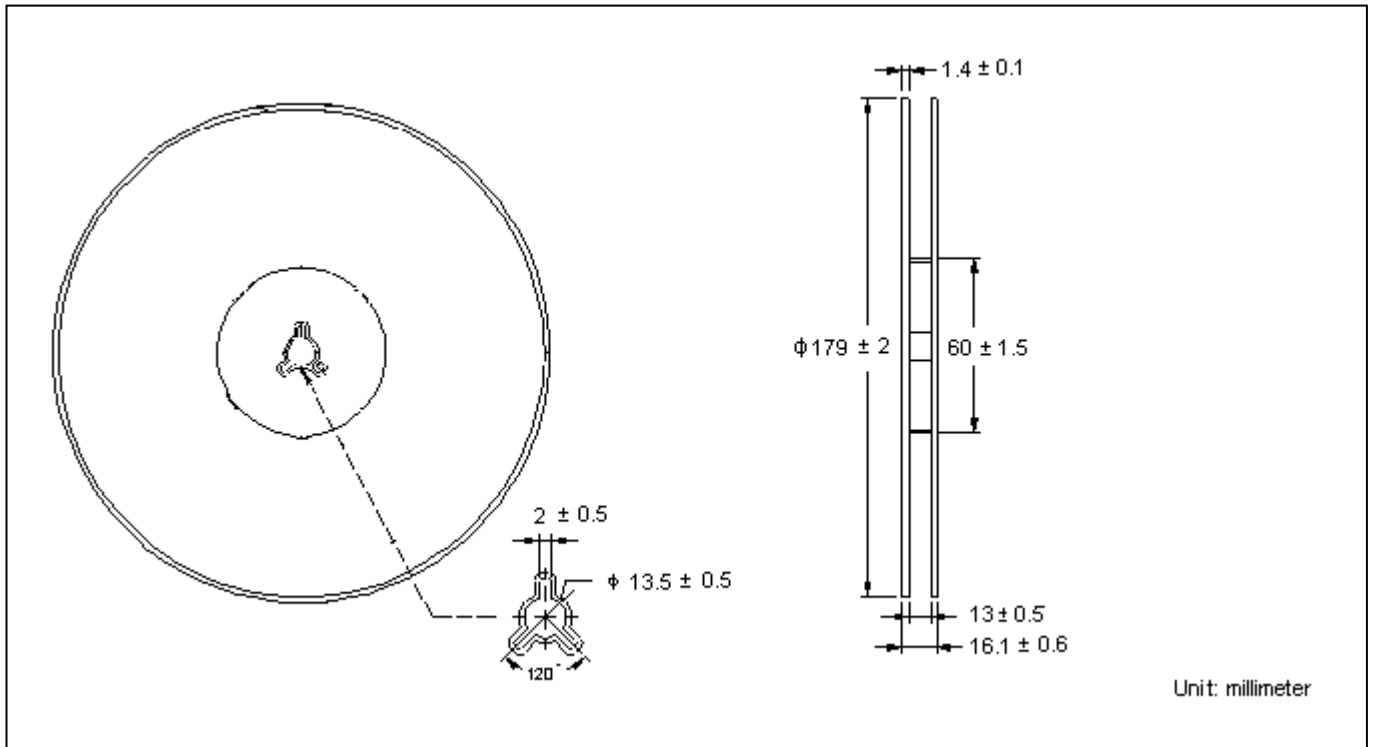
Capacitance Characteristics



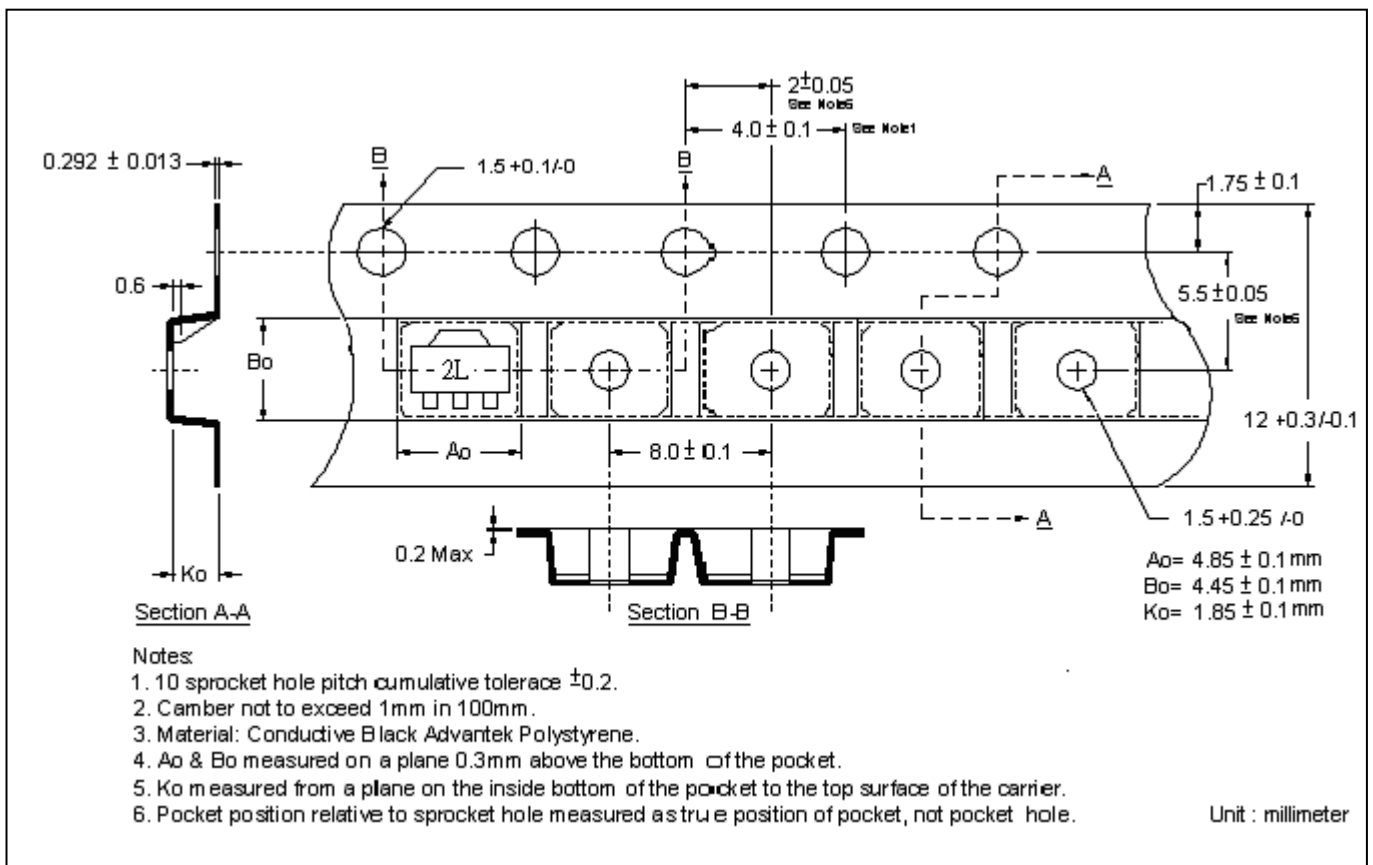
Power Derating Curves



Reel Dimension

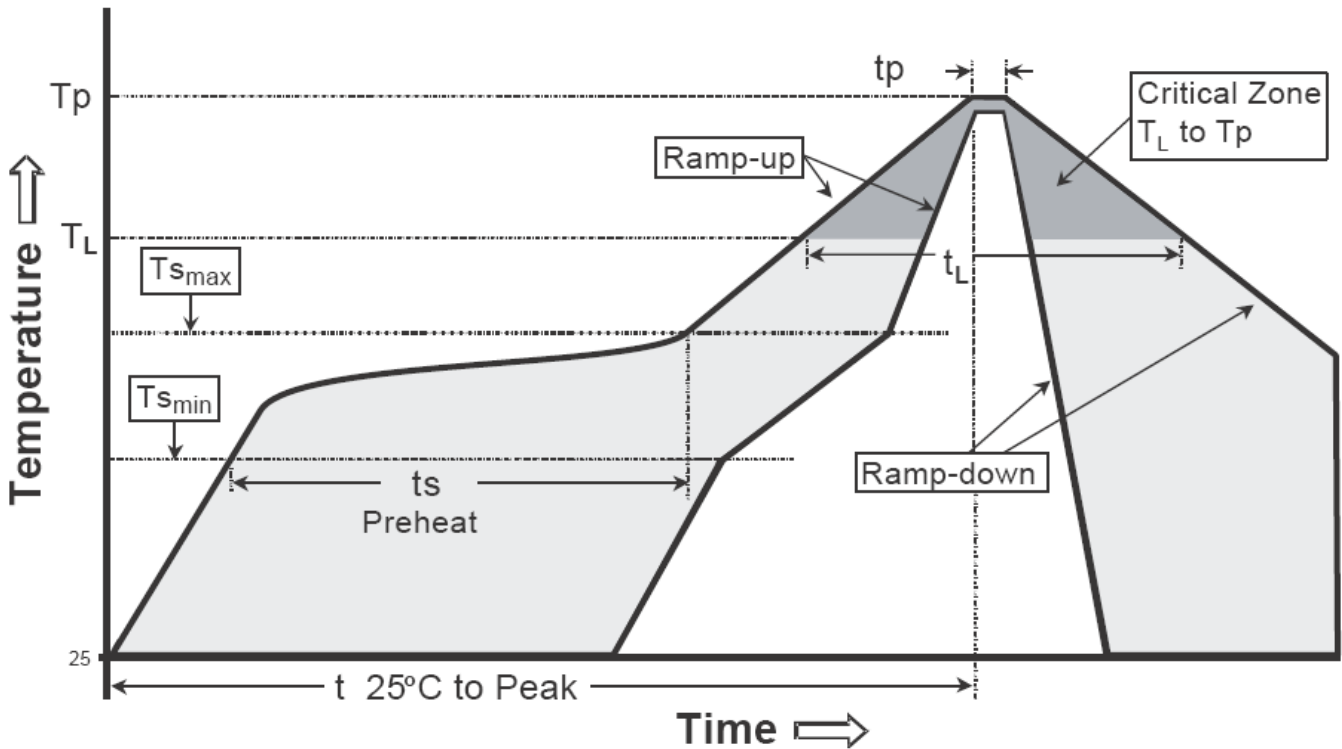


Carrier Tape Dimension



Recommended wave soldering condition

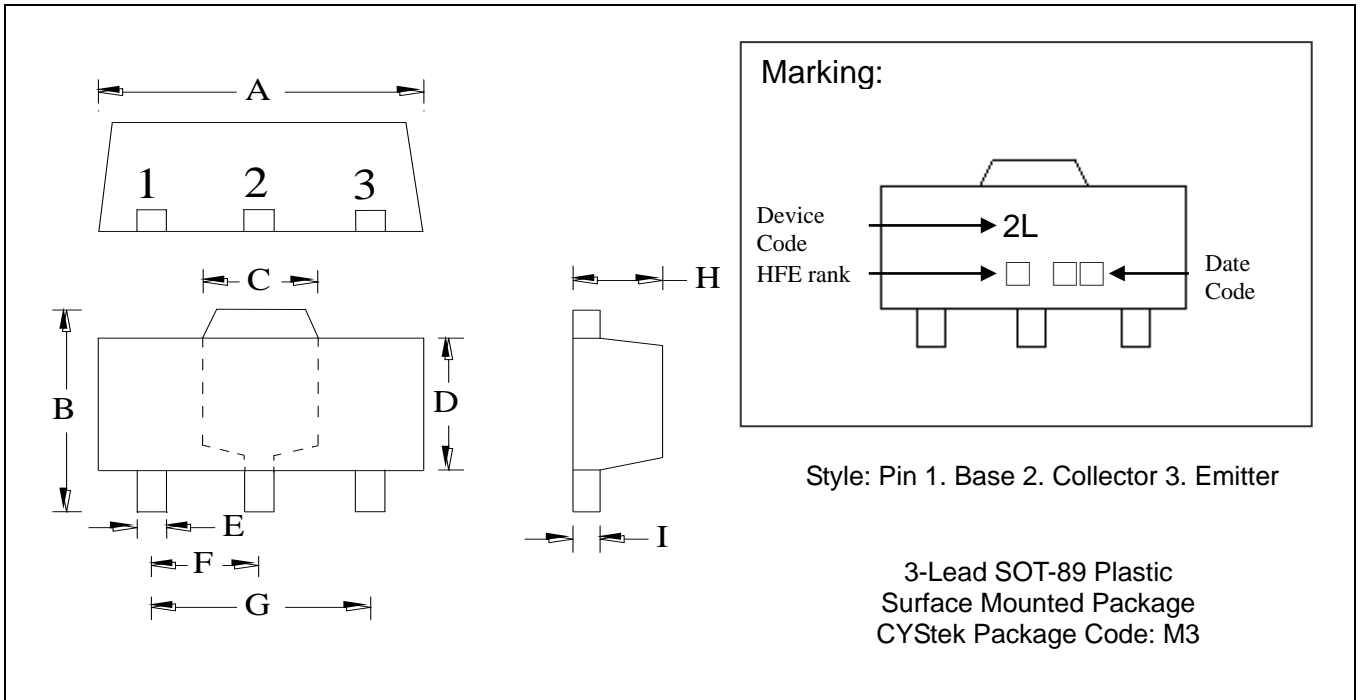
Product	Peak Temperature	Soldering Time
Pb-free devices	260 +0/-5 °C	5 +1/-1 seconds

Recommended temperature profile for IR reflow


Profile feature	Sn-Pb eutectic Assembly	Pb-free Assembly
Average ramp-up rate (T _{smax} to T _p)	3°C/second max.	3°C/second max.
Preheat		
-Temperature Min(T _{s min})	100°C	150°C
-Temperature Max(T _{s max})	150°C	200°C
-Time(t _{s min} to t _{s max})	60-120 seconds	60-180 seconds
Time maintained above:		
-Temperature (T _L)	183°C	217°C
- Time (t _L)	60-150 seconds	60-150 seconds
Peak Temperature(T _p)	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-89 Dimension



DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.1732	0.1811	4.40	4.60	F	0.0591	TYP	1.50	TYP
B	0.1551	0.1673	3.94	4.25	G	0.1181	TYP	3.00	TYP
C	0.0610	REF	1.55	REF	H	0.0551	0.0630	1.40	1.60
D	0.0906	0.1024	2.30	2.60	I	0.0138	0.0173	0.35	0.44
E	0.0126	0.0205	0.32	0.52					

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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