Low Vcesat NPN Epitaxial Planar Transistor

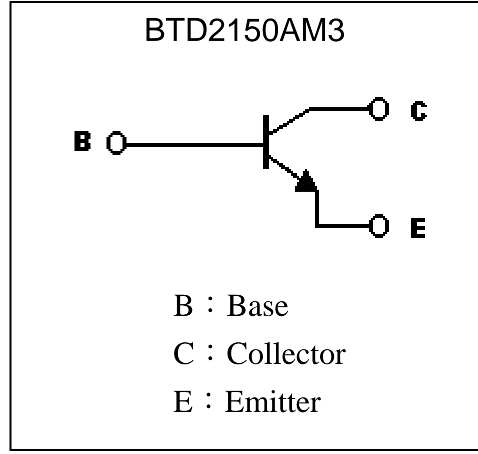
BTD2150AM3

BV_{CEO}	50V
I_C	3A
$R_{CE(SAT)}$ typ.	125mΩ

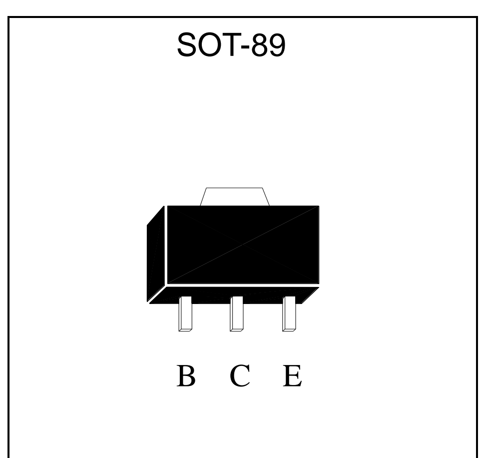
Features

- Low $V_{CE(sat)}$, $V_{CE(sat)}$=0.1 V (typical), at I_C / I_B = 1A / 50mA
- Excellent current gain characteristics
- Complementary to BTB1424AM3
- Pb-free lead plating package

Symbol



Outline



Ordering Information

Device	Package	Shipping
BTD2150AM3-X-T2-G	SOT-89 (Pb-free lead plating and halogen-free package)	1000 pcs / Tape & Reel

Environment friendly grade : S for RoHS compliant products, G for RoHS compliant and green compound products

Packing spec, T2 :1000 pcs/tape & reel, 7” reel

Product rank, zero for no rank products

Product name

Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Collector-Base Voltage	V_{CBO}	80	V
Collector-Emitter Voltage	V_{CEO}	50	V
Emitter-Base Voltage	V_{EBO}	6	V
Collector Current	I_C	3	A
Power Dissipation	Pd	0.6	W
		1 *1	
		2 *2	
Operating Junction Temperature Range	Tj	-55~+150	°C
Storage Temperature Range	Tstg	-55~+150	°C

Note : *1 Printed circuit board, 1.7mm thick, collector copper plating 10mm*10mm.
*2 When mounted on a 40*40*0.7mm ceramic board.

Characteristics (Ta=25°C)

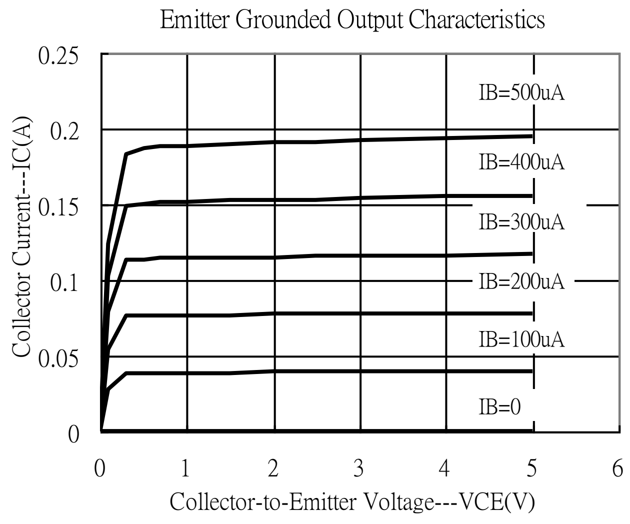
Symbol	Min.	Typ.	Max.	Unit	Test Conditions
BV_{CBO}	80	-	-	V	I_C=50μA, I_E=0
BV_{CEO}	50	-	-	V	I_C=1mA, I_B=0
BV_{EBO}	6	-	-	V	I_E=50μA, I_C=0
I_{CBO}	-	-	0.1	μA	V_{CB}=60V, I_E=0
I_{EBO}	-	-	0.1	μA	V_{EB}=5V, I_C=0
*$V_{CE(sat)}$	-	0.1	0.25	V	I_C=1A, I_B=50mA
*$V_{CE(sat)}$	-	0.25	0.5	V	I_C=2A, I_B=0.2A
*$R_{CE(sat)}$	-	0.125	0.25	Ω	I_C=2A, I_B=0.2A
*$V_{BE(sat)}$	0.8	1	1.5	V	I_C=2A, I_B=0.2A
*$h_{FE}1$	180	-	-	-	V_{CE}=2V, I_C=0.1A
*$h_{FE}2$	180	-	820	-	V_{CE}=2V, I_C=0.5A
*$h_{FE}3$	100	-	-	-	V_{CE}=2V, I_C=1A
f_T	-	90	-	MHz	V_{CE}=5V, I_C=0.1A, f =100MHz
Cob	-	45	-	pF	V_{CB}=10V, f=1MHz

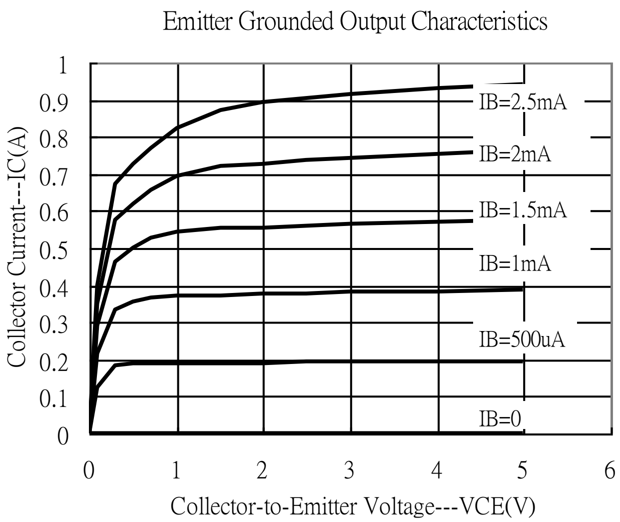
*Pulse Test : Pulse Width ≤380μs, Duty Cycle≤2%

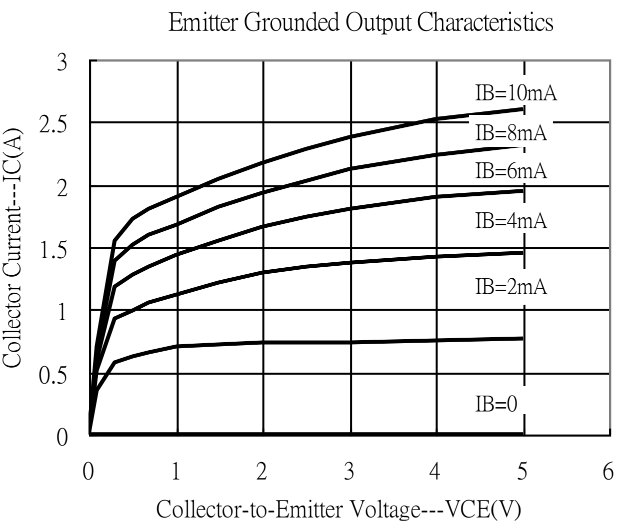
Classification Of h_{FE} 2

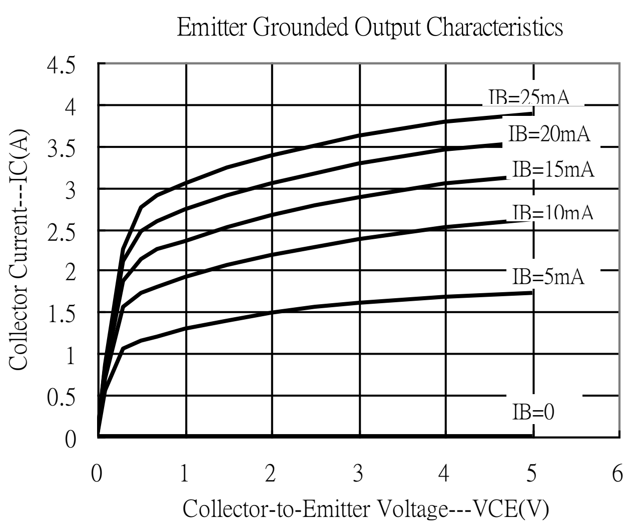
Rank	R	S	T
Range	180~390	270~560	390~820

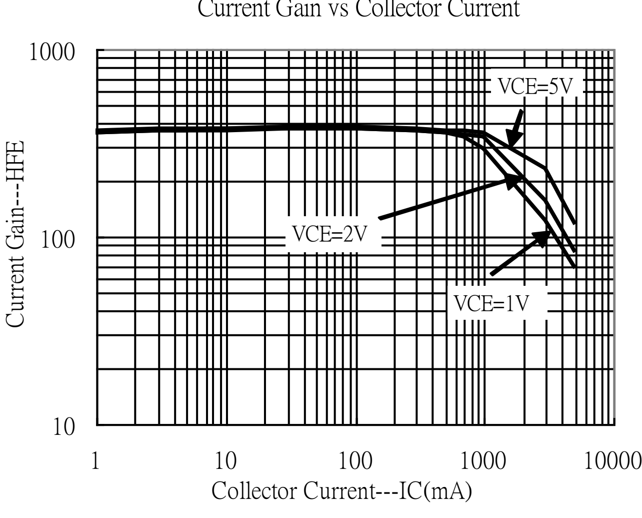
Typical Characteristics

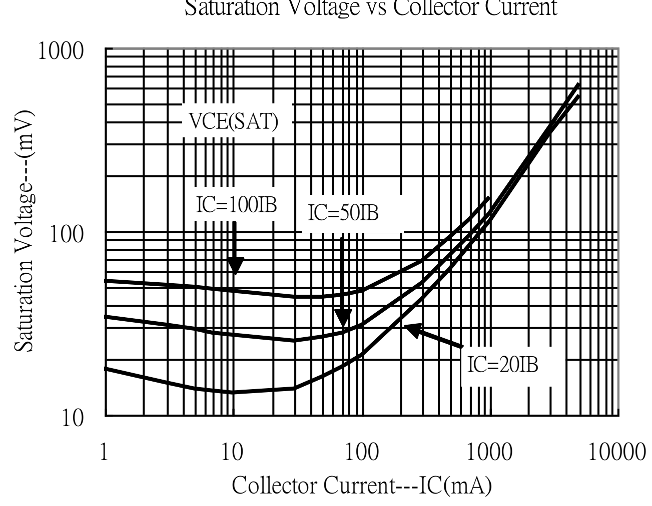




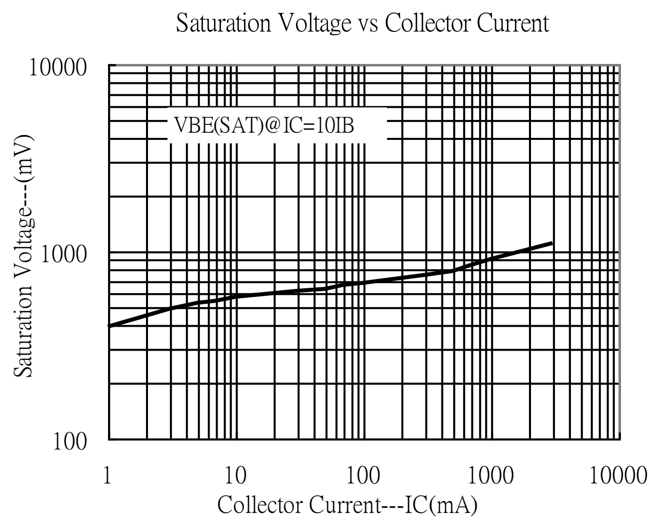


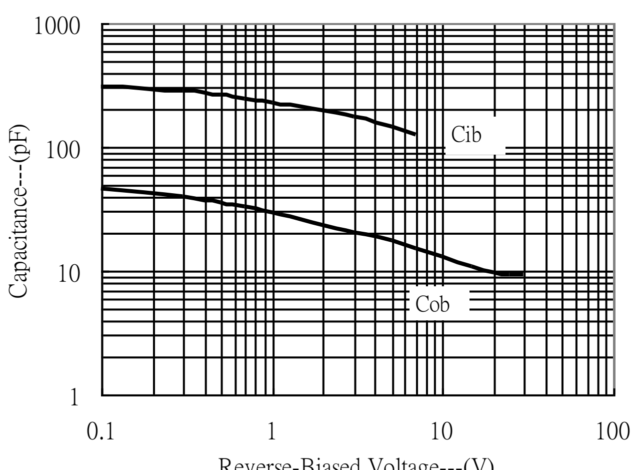


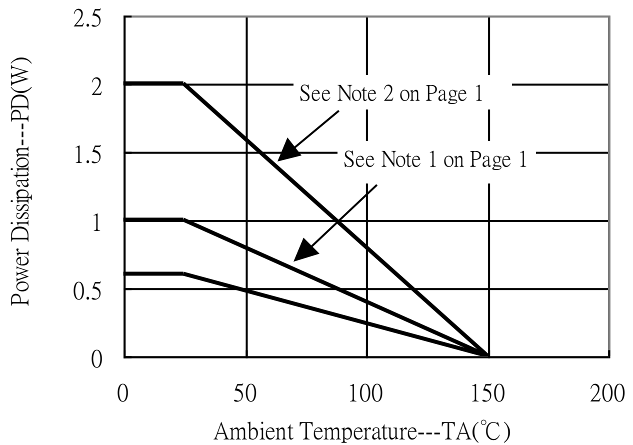




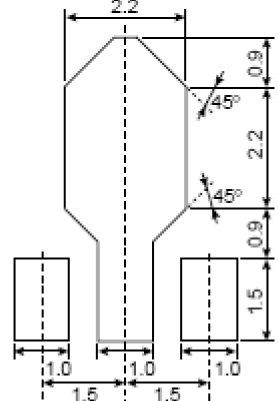
Typical Characteristics(Cont.)





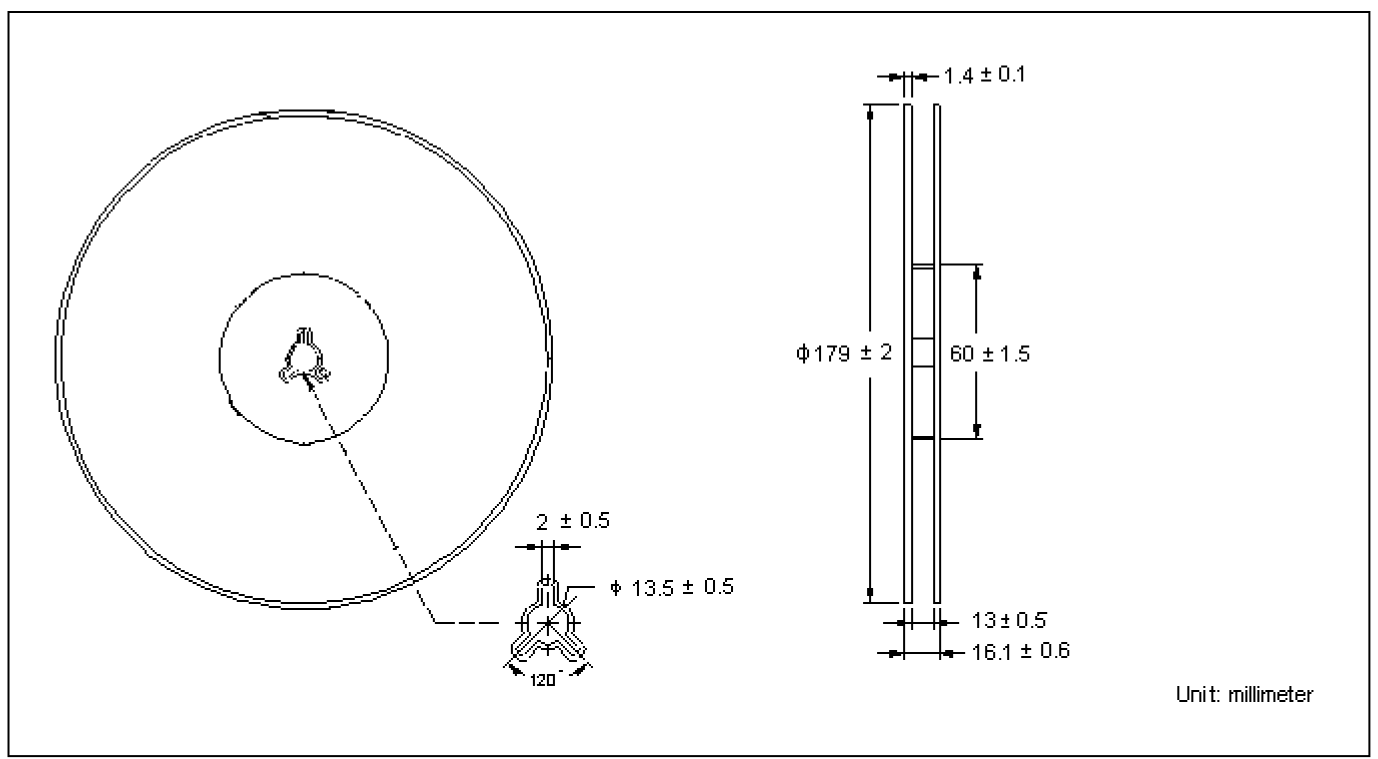


Recommended soldering footprint

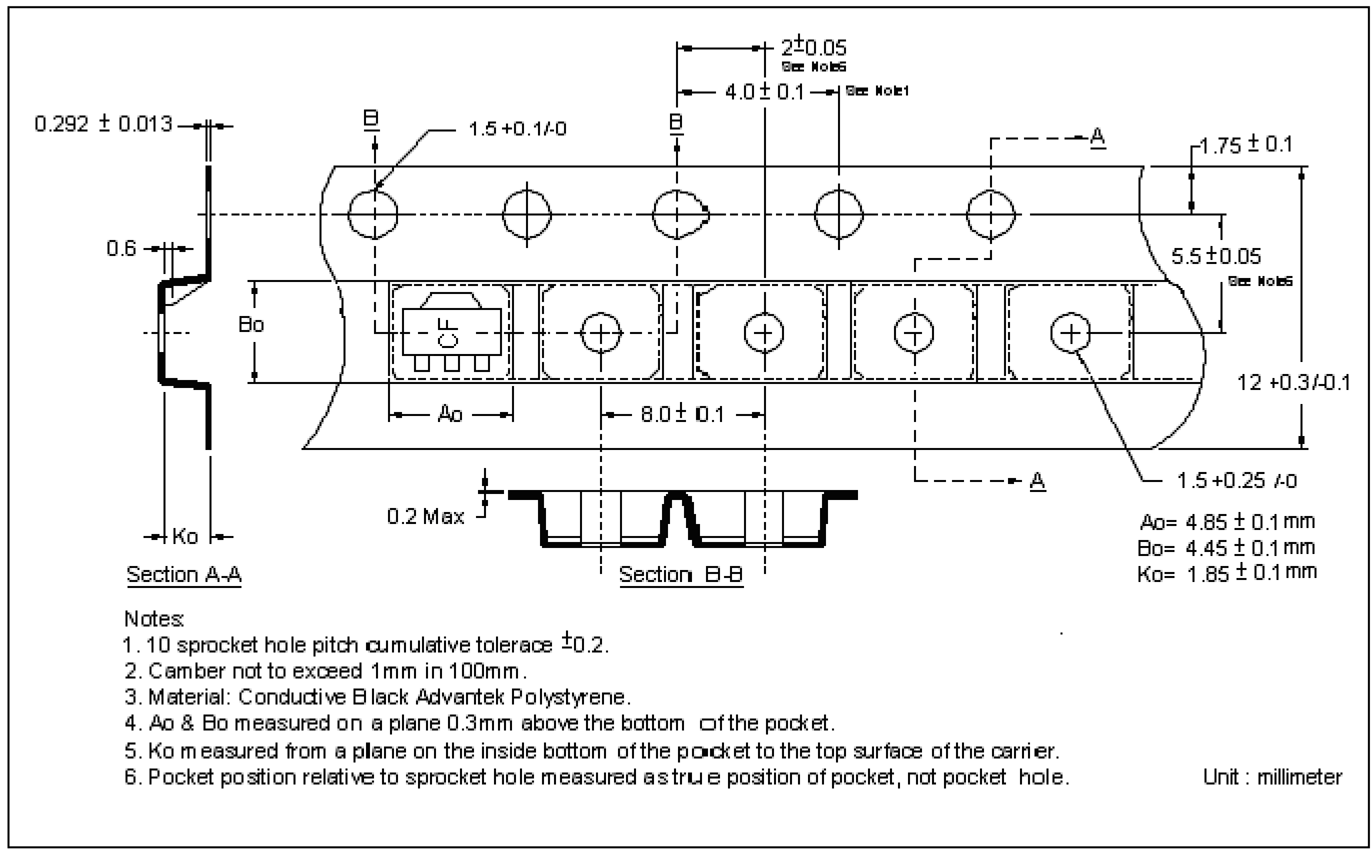


unit : mm

Reel Dimension



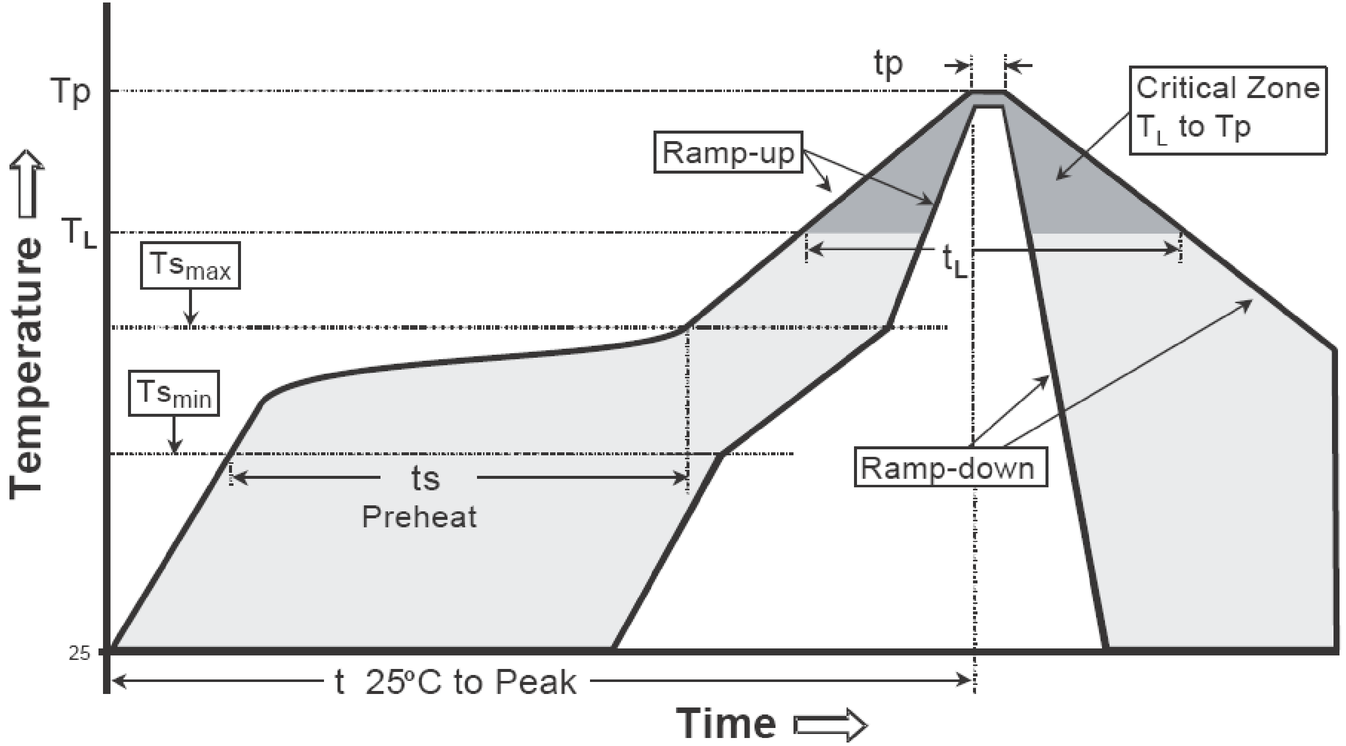
Carrier Tape Dimension



Recommended wave soldering condition

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

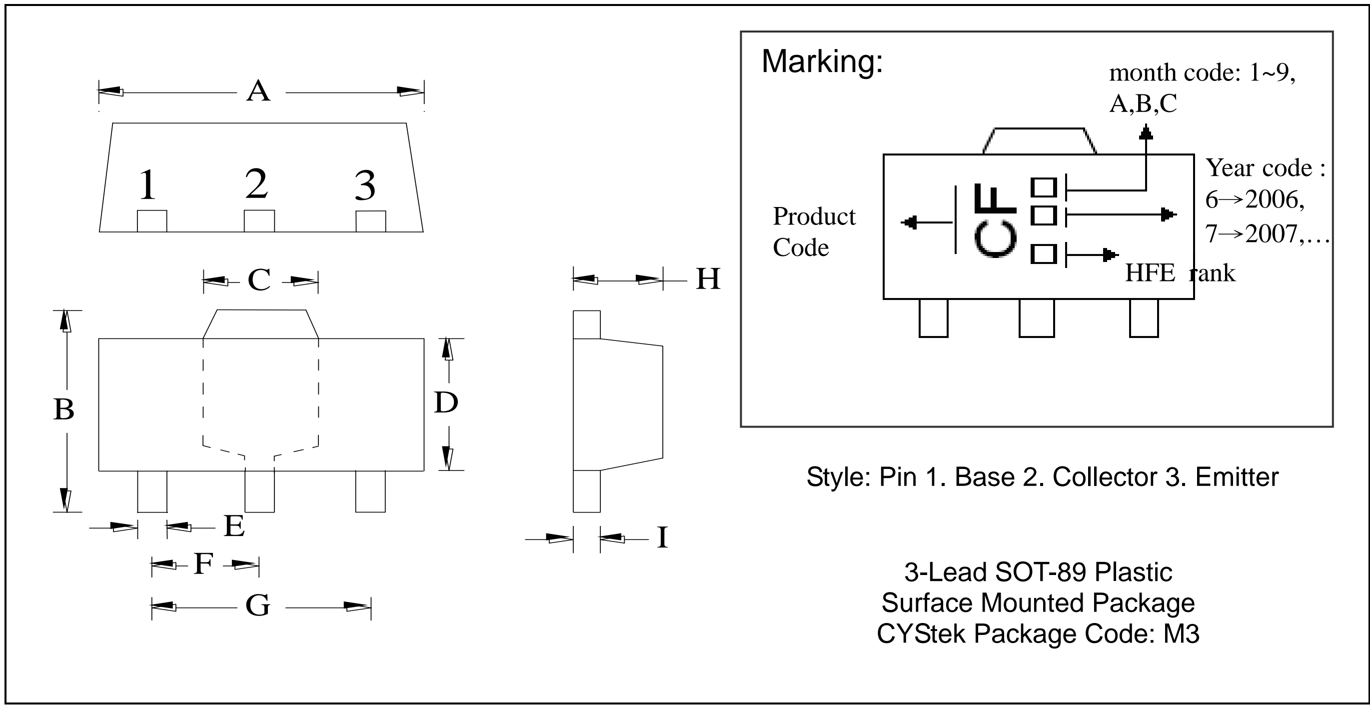
Recommended temperature profile for IR reflow



Profile feature	Sn-Pb eutectic Assembly	Pb-free Assembly
Average ramp-up rate (Tsmax to Tp)	3°C/second max.	3°C/second max.
Preheat −Temperature Min(Ts min) −Temperature Max(Ts max) −Time(ts min to ts max)	100°C 150°C 60-120 seconds	150°C 200°C 60-180 seconds
Time maintained above: −Temperature (T_L) − Time (t_L)	183°C 60-150 seconds	217°C 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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