

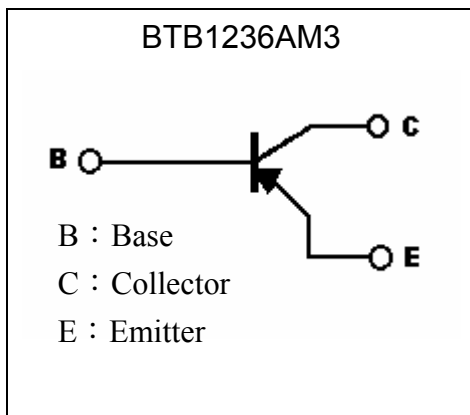
Silicon PNP Epitaxial Planar Transistor

BTB1236AM3

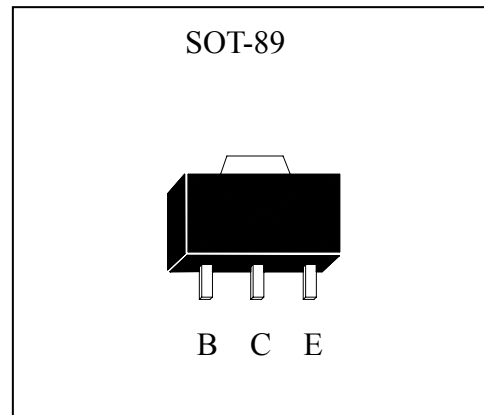
Description

- High BV_{CEO}
- High current capability
- RoHS compliant package

Symbol



Outline



Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Collector-Base Voltage	V_{CBO}	-180	V
Collector-Emitter Voltage	V_{CEO}	-160	V
Emitter-Base Voltage	V_{EBO}	-5	V
Collector Current (DC)	I_C	-1.5	A
Collector Current (Pulse)	I_{CP}	-3 (Note 1)	A
Power Dissipation	P_D	0.6	W
		1.5 (Note 2)	W
		2 (Note 3)	W
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	208	°C/W
		83.3 (Note 2)	°C/W
		62.5 (Note 3)	°C/W
Junction Temperature	T_j	150	°C
Storage Temperature	T_{stg}	-55~+150	°C

Note : 1. Single Pulse $P_w \leq 350\mu s$, Duty $\leq 2\%$.

2. When mounted on FR-4 PCB with area measuring 25×25×1.6 mm.

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

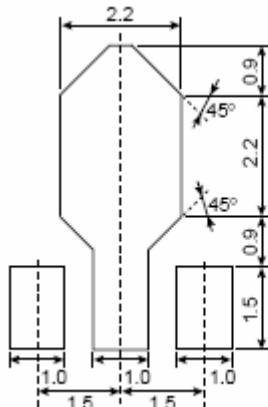
Characteristics (Ta=25°C)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
BV_{CBO}	-180	-	-	V	$I_C = -50\mu A, I_E = 0$
BV_{CEO}	-160	-	-	V	$I_C = -1mA, I_B = 0$
BV_{EBO}	-5	-	-	V	$I_E = -50\mu A, I_C = 0$
I_{CBO}	-	-	-1	μA	$V_{CB} = -160V, I_E = 0$
I_{EBO}	-	-	-1	μA	$V_{EB} = -4V, I_C = 0$
$*V_{CE(sat)}$	-	-	-0.12	V	$I_C = -250mA, I_B = -25mA$
$*V_{CE(sat)}$	-	-	-0.18	V	$I_C = -500mA, I_B = -50mA$
$*V_{CE(sat)}$	-	-0.24	-0.32	V	$I_C = -1A, I_B = -100mA$
$*R_{CE(sat)}$	-	-0.24	-0.32	Ω	$I_C = -1A, I_B = -100mA$
$*V_{BE(sat)}$	-	-	-1.1	V	$I_C = -1A, I_B = -100mA$
$*V_{BE(on)}$	-	-	-1	V	$V_{CE} = -5V, I_C = -150mA$
h_{FE1}	180	-	-	-	$V_{CE} = -5V, I_C = -1mA$
h_{FE2}	180	-	390	-	$V_{CE} = -5V, I_C = -100mA$
h_{FE3}	160	-	-	-	$V_{CE} = -5V, I_C = -500mA$
h_{FE4}	150	-	-	-	$V_{CE} = -5V, I_C = -1A$
f_T	-	180	-	MHz	$V_{CE} = -5V, I_C = -150mA$
Cob	-	24	-	pF	$V_{CB} = -10V, I_E = 0, f = 1MHz$

*Pulse Test: Pulse Width $\leq 380\mu s$, Duty Cycle $\leq 2\%$

Ordering Information

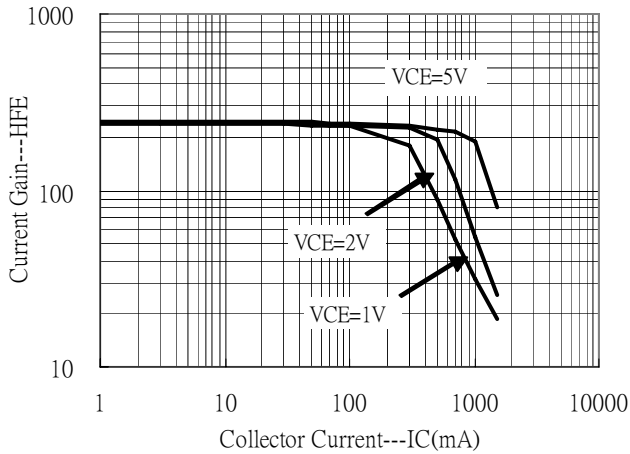
Device	Package	Shipping	Marking
BTB1236AM3	SOT-89 (RoHS compliant package)	1000 pcs / Tape & Reel	AV2

Recommended soldering footprint


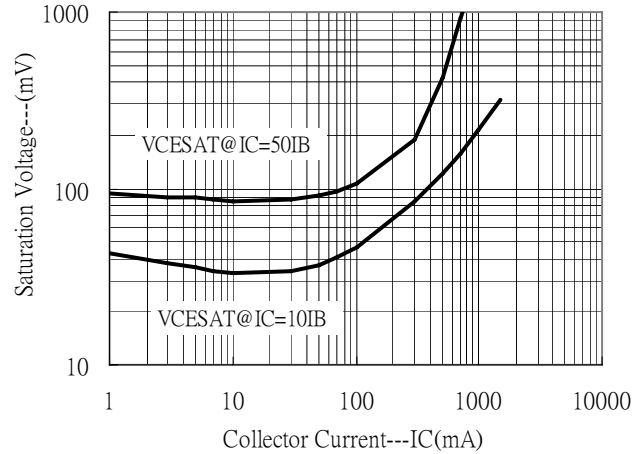
unit : mm

Typical Characteristics

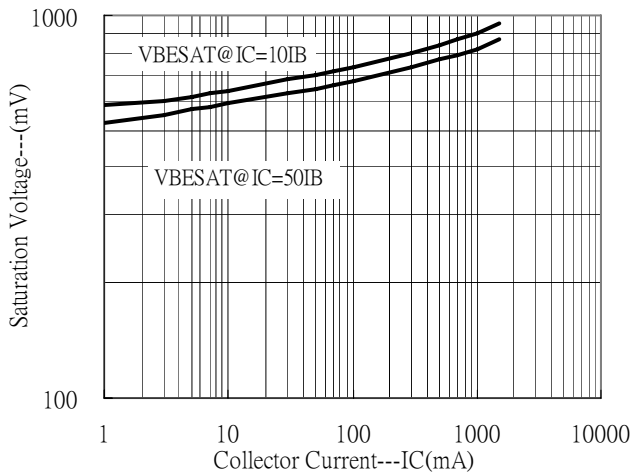
Current Gain vs Collector Current



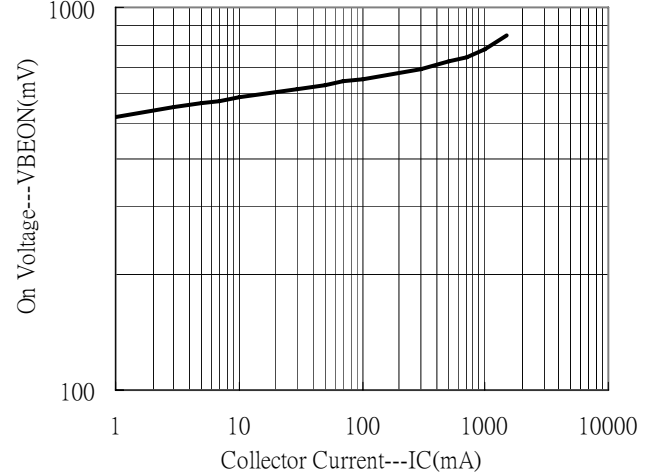
Saturation Voltage vs Collector Current



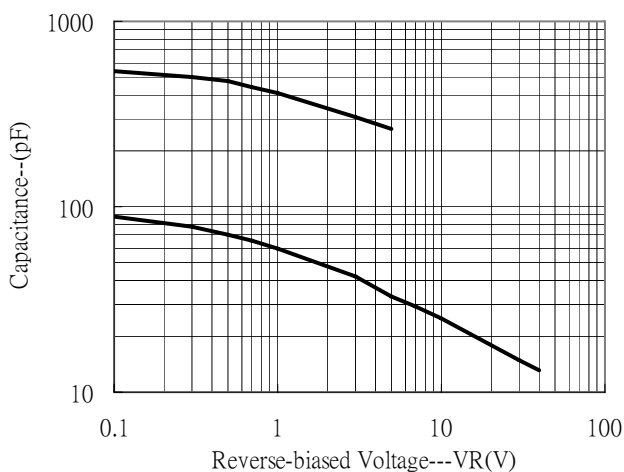
Saturation Voltage vs Collector Current



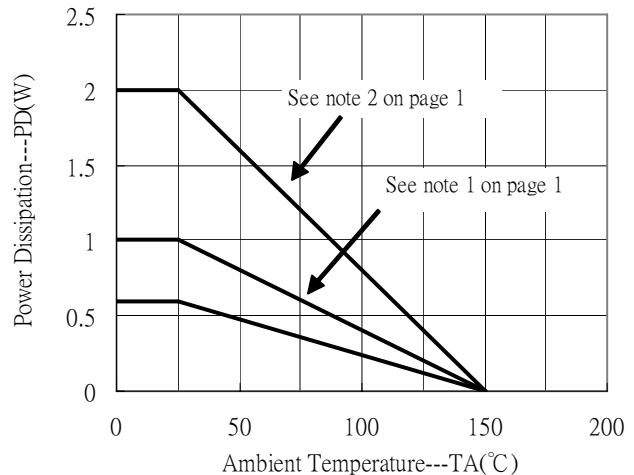
On Voltage vs Collector Current



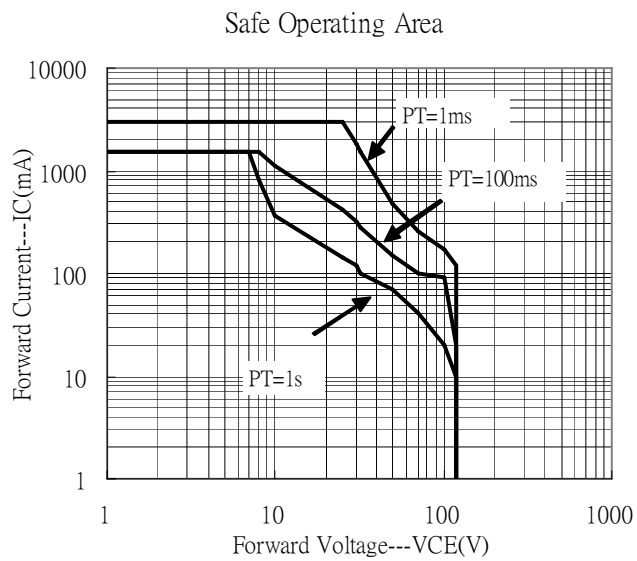
Capacitance vs Reverse-biased Voltage



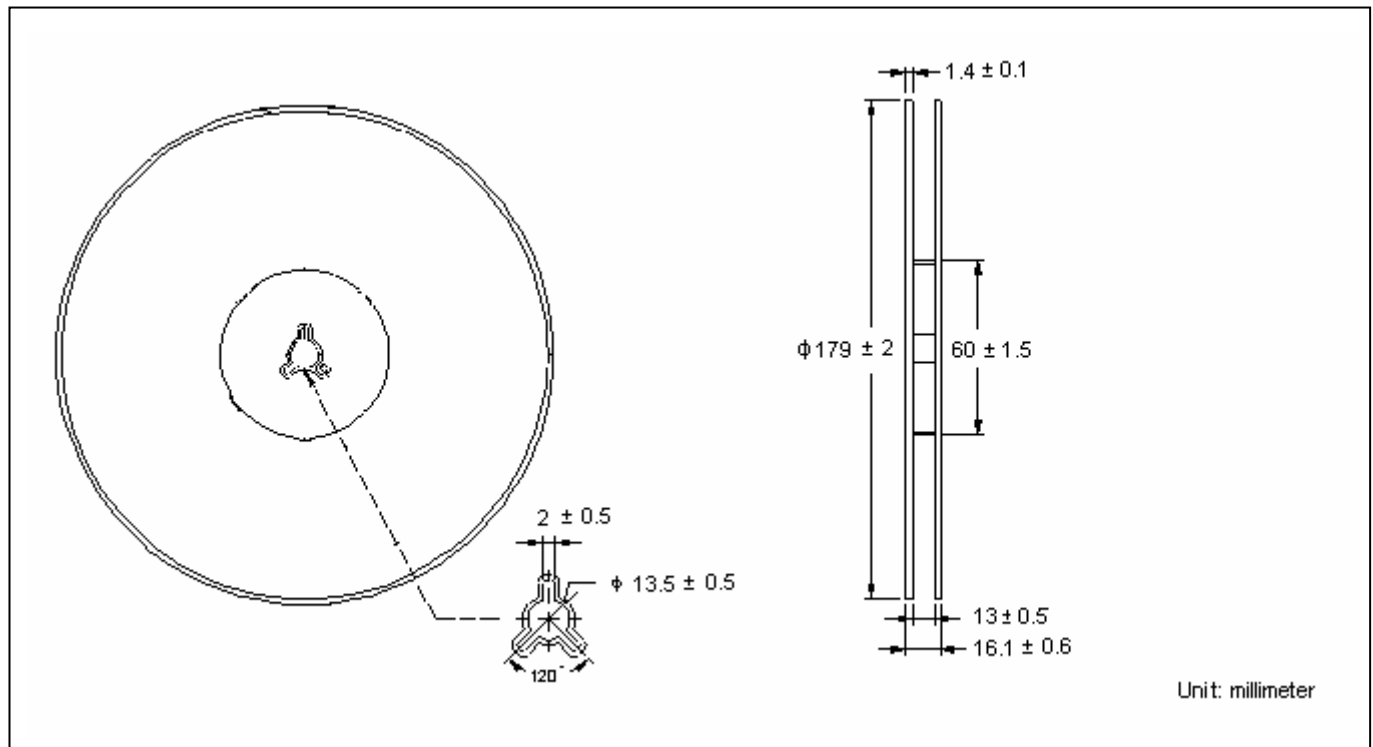
Power Derating Curve



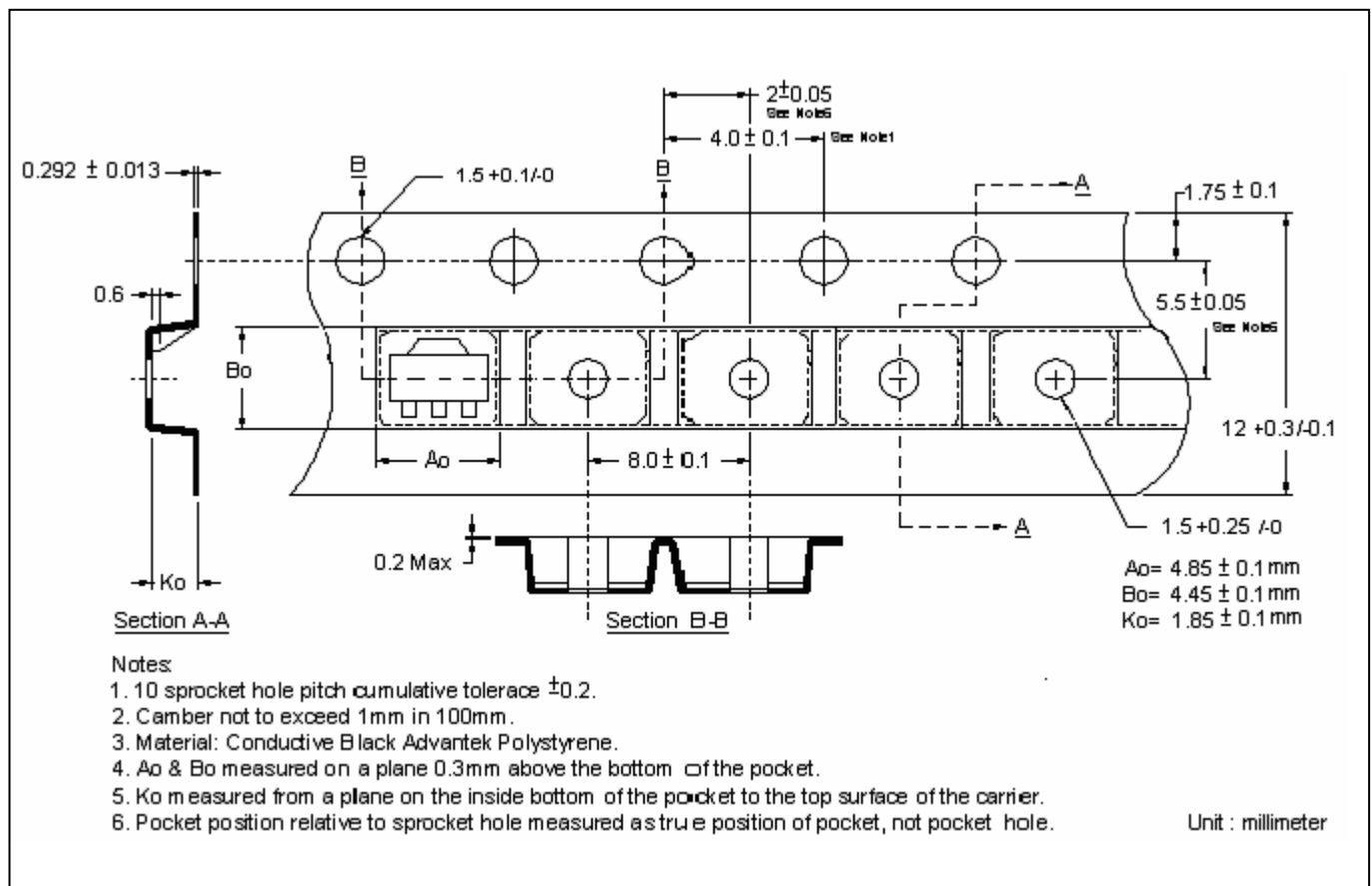
Typical Characteristics(Cont.)



Reel Dimension



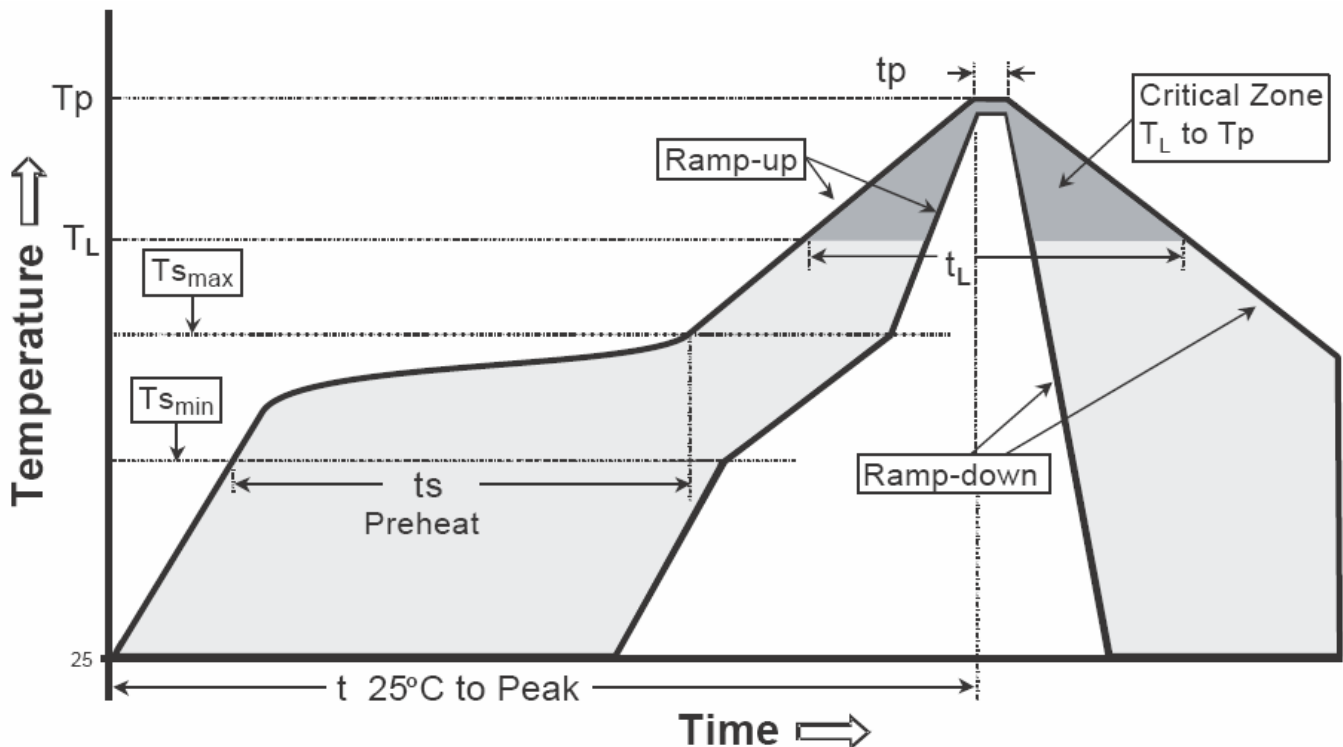
Carrier Tape Dimension



Recommended wave soldering condition

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

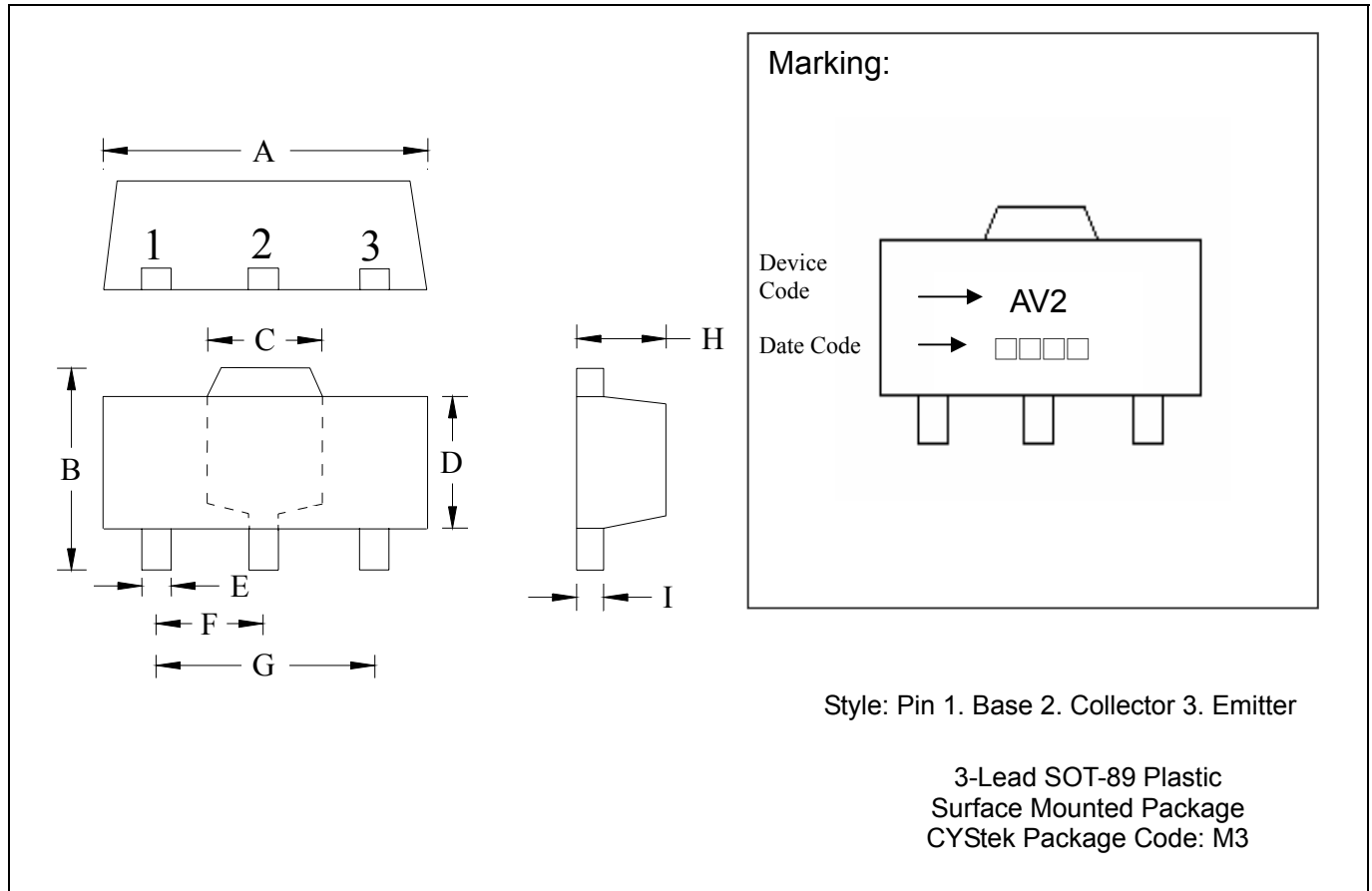
Recommended temperature profile for IR reflow



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-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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