

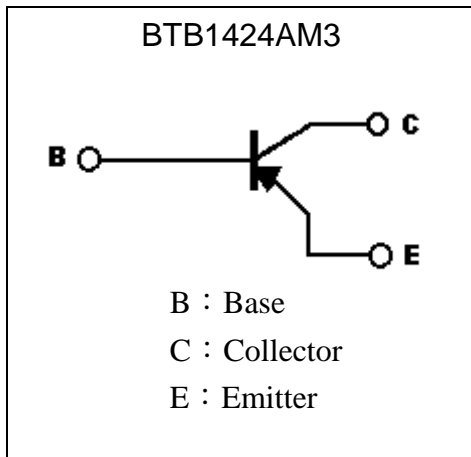
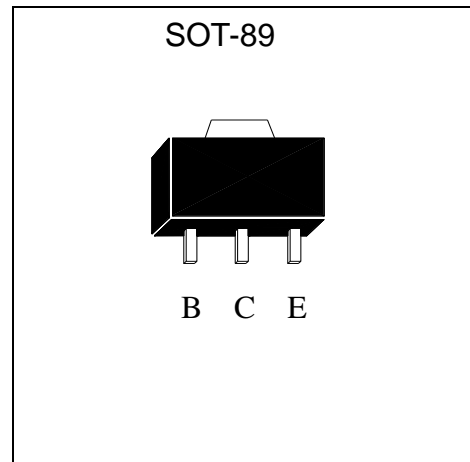
Low $V_{CE(sat)}$ PNP Epitaxial Planar Transistor

BTB1424AM3

BV_{CEO}	-50V
I_C	-3A
$R_{CESAT}(typ)$	0.12 Ω

Features

- Excellent DC current gain characteristics
- Low Saturation Voltage, $V_{CE(sat)} = -0.12V(typ)$ @ $I_C = -1A$, $I_B = -50mA$.
- Complementary to BTB2150AM3
- Pb-free lead plating and halogen-free package

Symbol

Outline

Absolute Maximum Ratings ($T_a = 25^\circ C$)

Parameter	Symbol	Limits	Unit
Collector-Base Voltage	V_{CBO}	-50	V
Collector-Emitter Voltage	V_{CEO}	-50	V
Emitter-Base Voltage	V_{EBO}	-6	V
Collector Current(DC)	I_C	-3	A
Collector Current(Pulsed)	I_{CP}	-5	
Power Dissipation	P_D	1.5 (Note 1)	W
		2.1 (Note 2)	
ESD susceptibility		8000 (Note 3)	V
Operating Temperature Range	T_j	-55~+150	$^\circ C$
Storage Temperature Range	T_{stg}	-55~+150	$^\circ C$



Thermal Performance

Parameter	Symbol	Limit	Unit
Thermal Resistance, Junction-to-Ambient, max	R θ JA	83.3 (Note 1)	°C/W
		59.5 (Note 2)	
Thermal Resistance, Junction-to-Case, max	R θ JC	30	

Note 1: When mounted on 25mm×25mm×1.6 mm FR-4 PCB with high coverage of single sided 1 oz copper, in still air condition
 2: When mounted on 50mm×50mm×1.6 mm FR-4 PCB with high coverage of single sided 1 oz copper, in still air condition
 3 : Human body model, 1.5kΩ in series with 100pF

Characteristics (Ta=25°C)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
BV _{CBO}	-50	-	-	V	I _C =-50μA
BV _{CEO}	-50	-	-	V	I _C =-1mA
BV _{EBO}	-6	-	-	V	I _E =-50μA
I _{CBO}	-	-	-0.1	μA	V _{CB} =-20V
I _{EBO}	-	-	-0.1	μA	V _{EB} =-5V
*V _{CE(sat)} 1	-	-0.12	-0.35	V	I _C =-1A, I _B =-50mA
*V _{CE(sat)} 2	-	-0.2	-0.35	V	I _C =-2A, I _B =-100mA
*R _{CE(sat)}	-	0.12	0.35	Ω	I _C =-1A, I _B =-50mA
*V _{BE(sat)}	-0.5	-0.68	-0.85	V	I _C =-30mA, I _B =-3mA
*V _{BE(sat)}	-0.5	-1.0	-1.2	V	I _C =-2A, I _B =-200mA
*h _{FE}	180	-	560	-	V _{CE} =-2V, I _C =-500mA
f _T	-	240	-	MHz	V _{CE} =-2V, I _C =-500mA, f=100MHz
Cob	-	35	-	pF	V _{CB} =-10V, f=1MHz

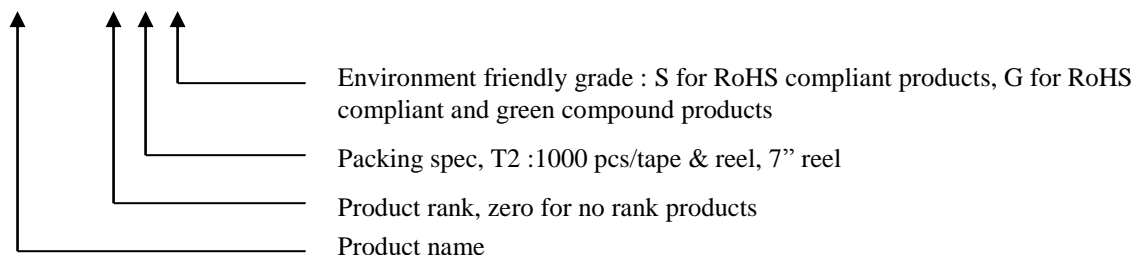
*Pulse Test: Pulse Width ≤380μs, Duty Cycle≤2%

Classification of hFE

Rank	R	S
Range	180 ~ 390	270 ~ 560

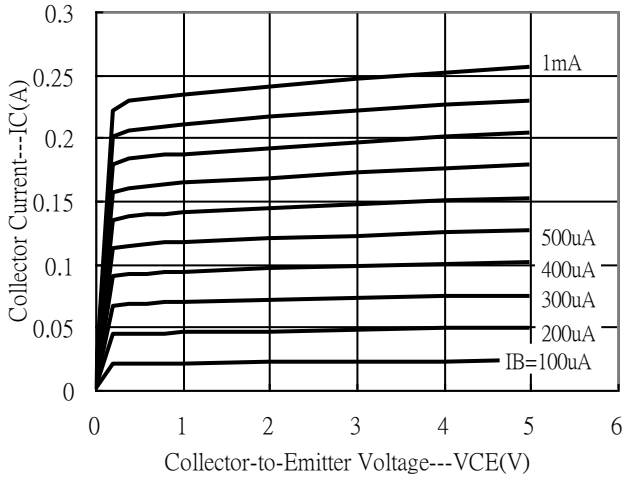
Ordering Information

Device	HFE Rank	Package	Shipping
BTB1424AM3-R-T2-G	R	SOT-89 (Pb-free lead plating and halogen-free package)	1000 pcs / Tape & Reel
BTB1424AM3-S-T2-G	S		

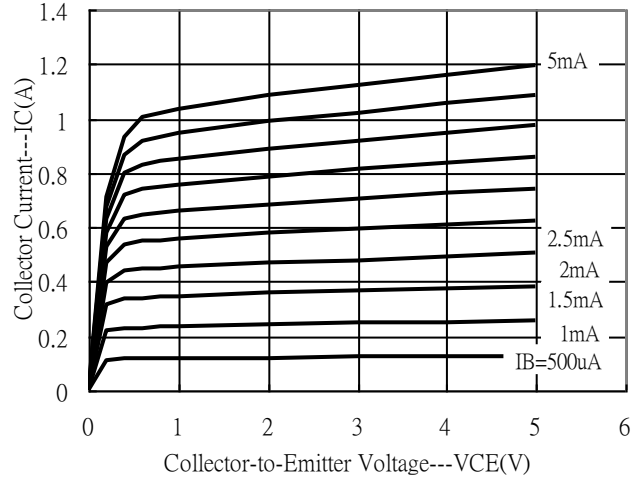


Typical Characteristics

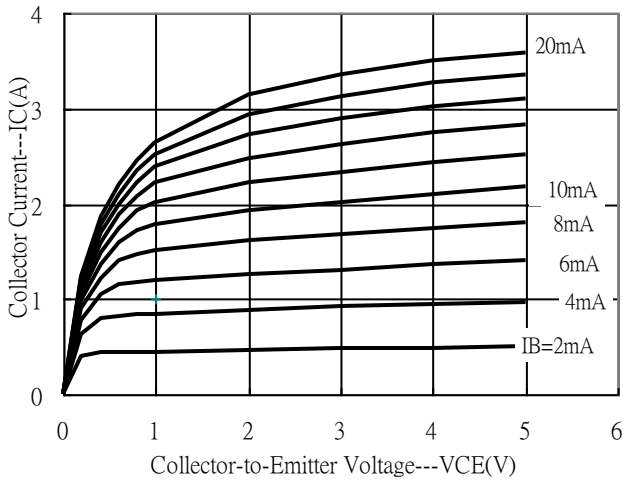
Emitter Grounded Output Characteristics



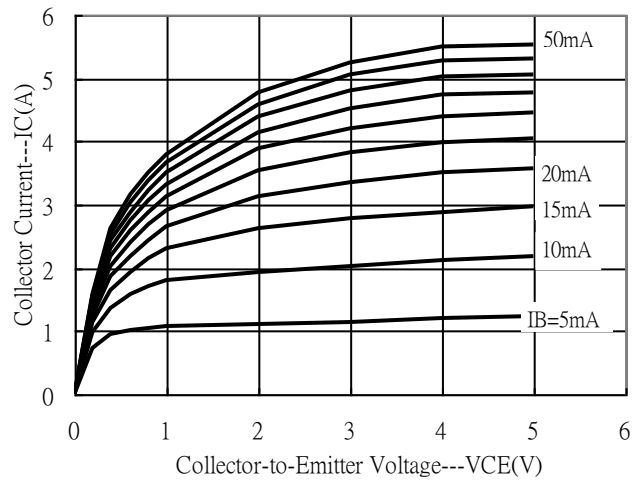
Emitter Grounded Output Characteristics



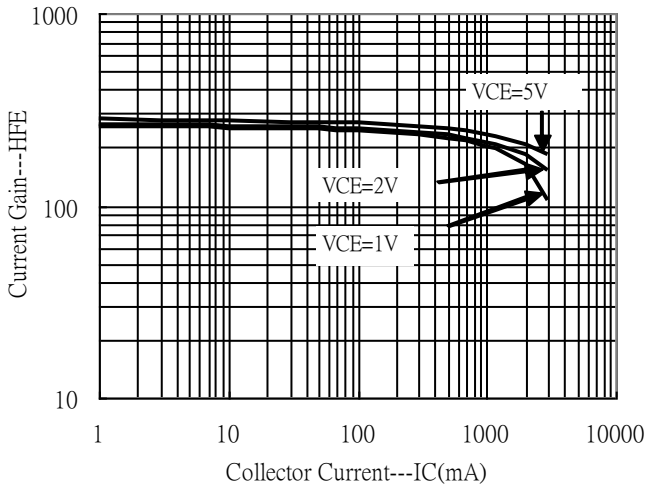
Emitter Grounded Output Characteristics



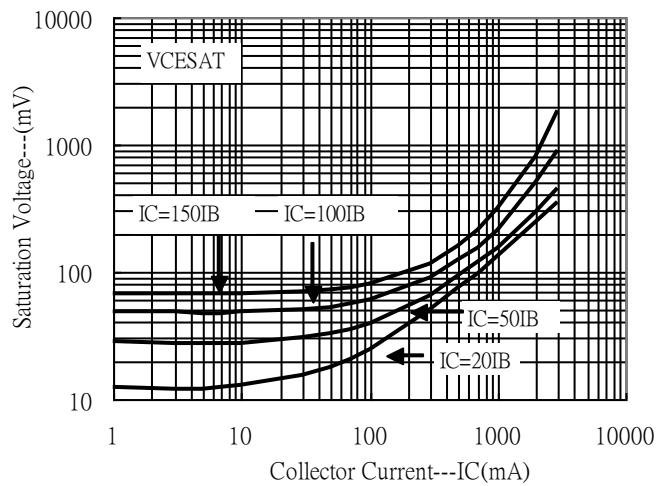
Emitter Grounded Output Characteristics



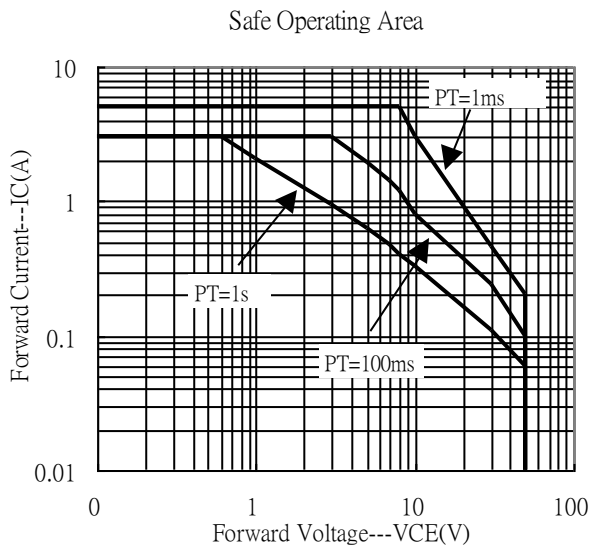
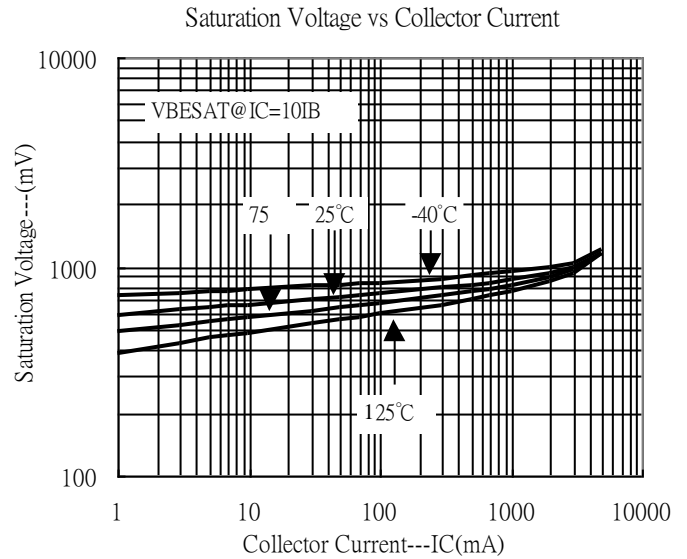
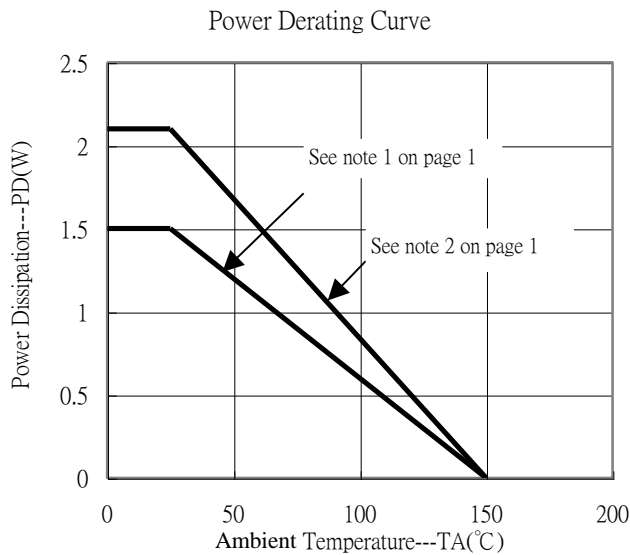
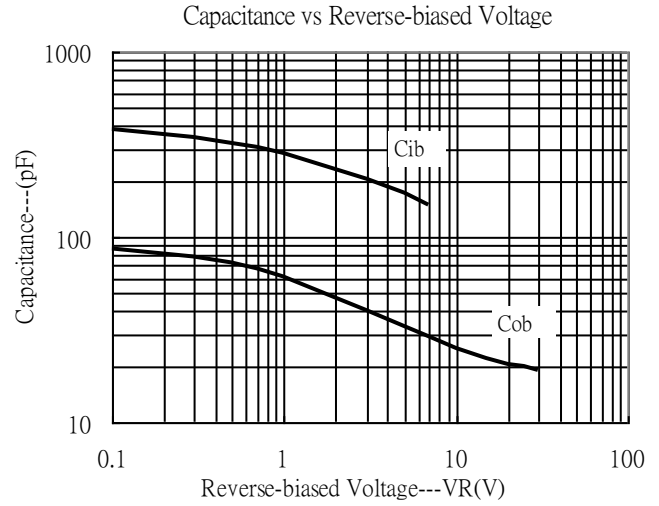
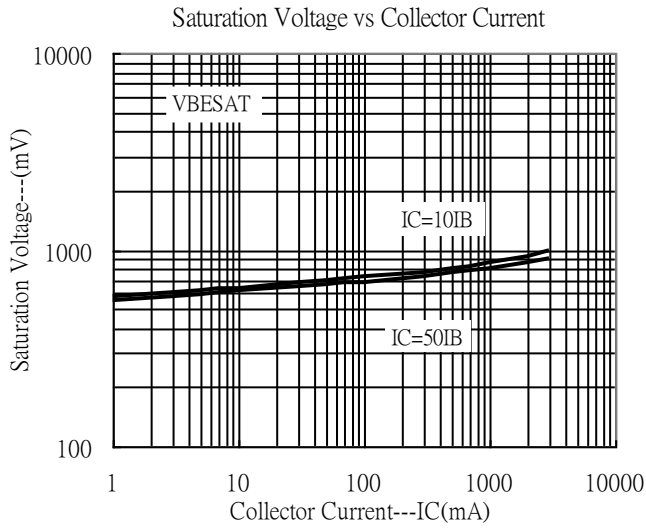
Current Gain vs Collector Current



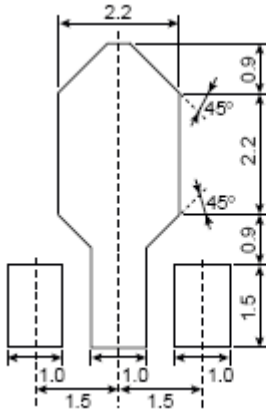
Saturation Voltage vs Collector Current



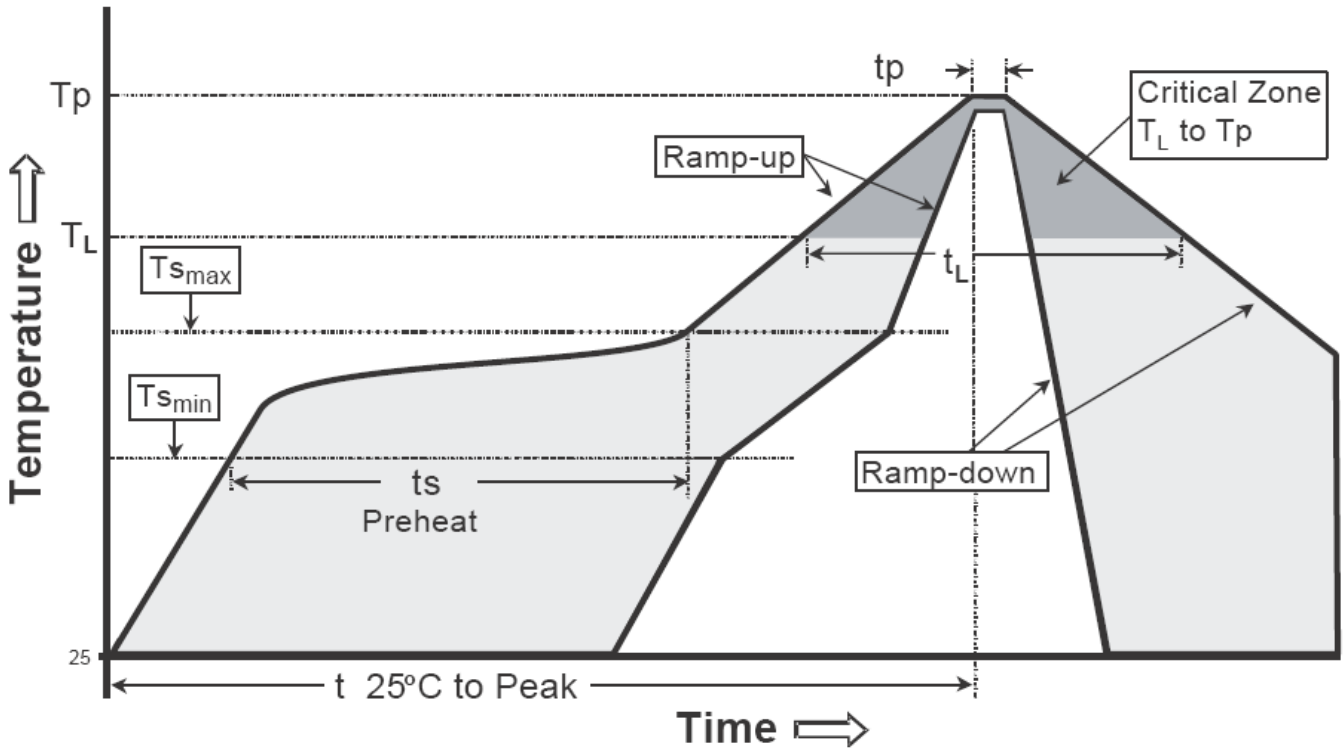
Typical Characteristics(Cont.)



Recommended soldering footprint



unit : mm

Recommended temperature profile for IR reflow


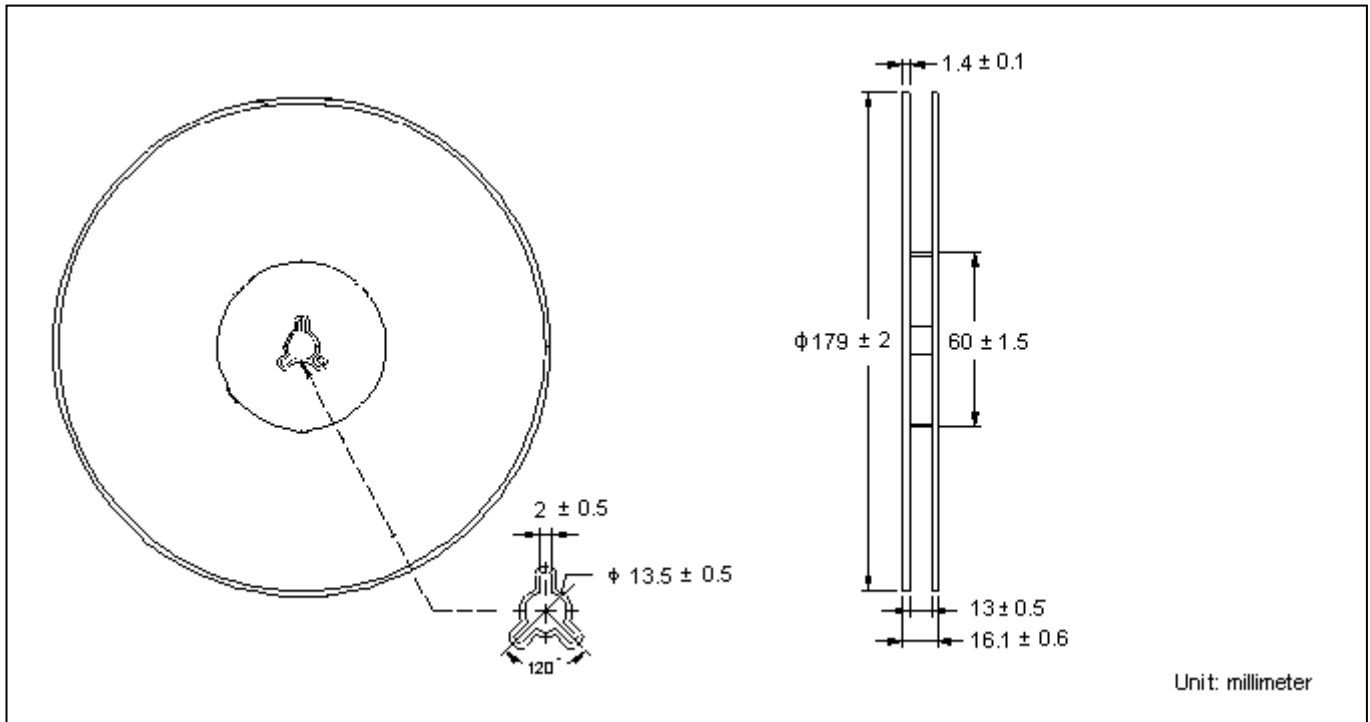
Profile feature	Sn-Pb eutectic Assembly	Pb-free Assembly
Average ramp-up rate (T _{smax} to T _p)	3°C/second max.	3°C/second max.
Preheat		
-Temperature Min(T _{s min})	100°C	150°C
-Temperature Max(T _{s max})	150°C	200°C
-Time(t _{s min} to t _{s max})	60-120 seconds	60-180 seconds
Time maintained above: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

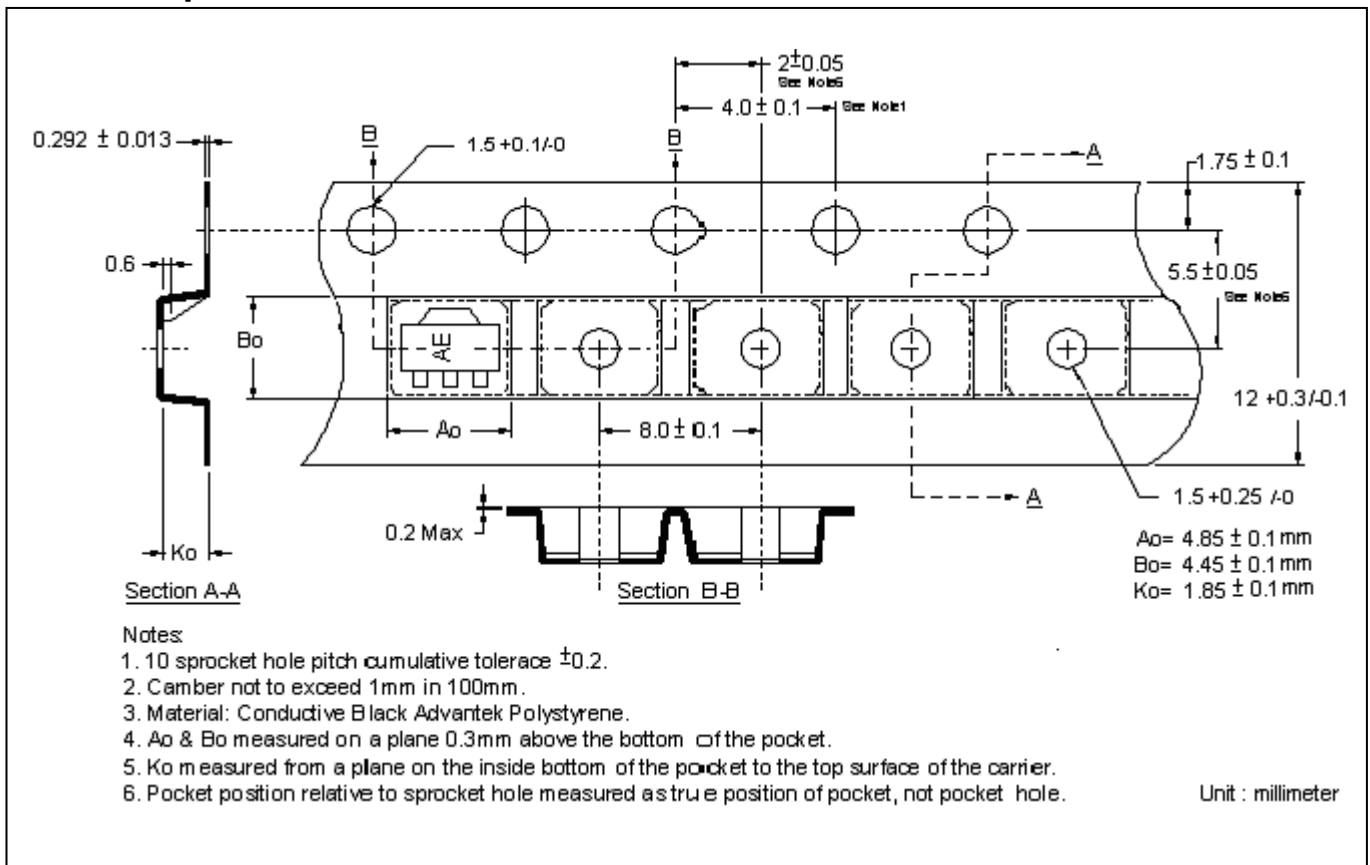
Recommended wave soldering condition

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

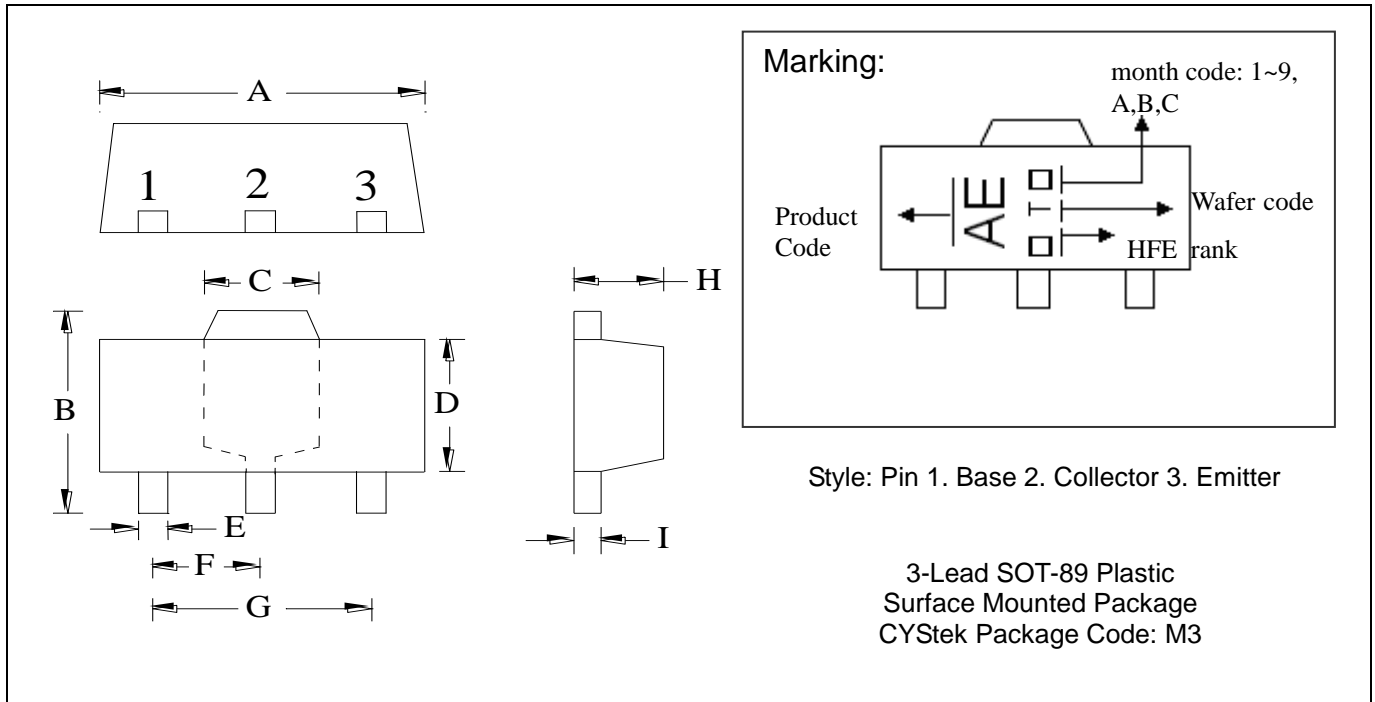
Reel Dimension



Carrier Tape Dimension



SOT-89 Dimension



Marking:

month code: 1~9, A,B,C

Product Code ← AE → Wafer code

rank HFE

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

3-Lead SOT-89 Plastic
 Surface Mounted Package
 CYStek Package Code: M3

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:**
- Controlling dimension: millimeters.
 - Maximum lead thickness includes lead finish thickness, and minimum lead thickness is the minimum thickness of base material.
 - 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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