

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

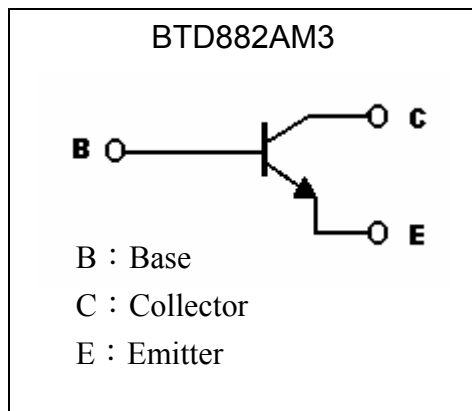
BTD882AM3

BV_{CEO}	50V
I_C	3A
R_{CESAT} (Typ)	125m Ω

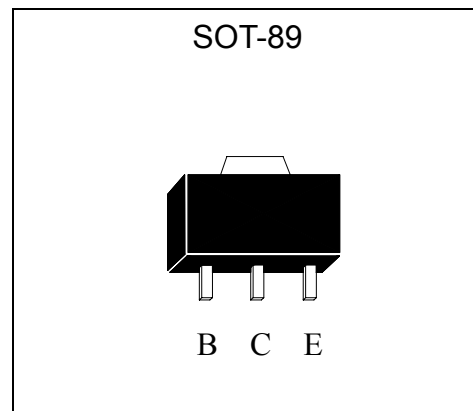
Features

- Low $V_{CE(sat)}$, typically 0.25V at $I_C / I_B = 2A / 0.2A$
- Excellent current gain characteristics
- Complementary to BTB772AM3
- Pb-free lead plating package

Symbol



Outline



Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Limit	Unit
Collector-Base Voltage	V_{CBO}	80	V
Collector-Emitter Voltage	V_{CEO}	50	V
Emitter-Base Voltage	V_{EBO}	5	V
Collector Current (DC)	I_C	3	A
Collector Current (Pulse)	I_{CP}	7 (Note 1)	A
Power Dissipation	P_d	600	mW
		1 (Note 2)	W
		2 (Note 3)	W
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	208	°C/W
		125 (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 10×10×1 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 _{CB0}	80	-	-	V	I _C =50μA, I _E =0
BV _{CE0}	50	-	-	V	I _C =1mA, I _B =0
BV _{EB0}	5	-	-	V	I _E =50μA, I _C =0
I _{CB0}	-	-	1	μA	V _{CB} =50V, I _E =0
I _{EB0}	-	-	1	μA	V _{EB} =3V, I _C =0
*V _{CE(sat)}	-	0.25	0.5	V	I _C =2A, I _B =0.2A
*V _{BE(sat)}	-	-	2	V	I _C =2A, I _B =0.2A
*h _{FE1}	150	-	-	-	V _{CE} =2V, I _C =100mA
*h _{FE2}	180	-	820	-	V _{CE} =2V, I _C =500mA
*h _{FE3}	100	-	-	-	V _{CE} =2V, I _C =1A
f _T	-	90	-	MHz	V _{CE} =5V, I _C =0.1A, f=100MHz
C _{ob}	-	45	-	pF	V _{CB} =10V, f=1MHz

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

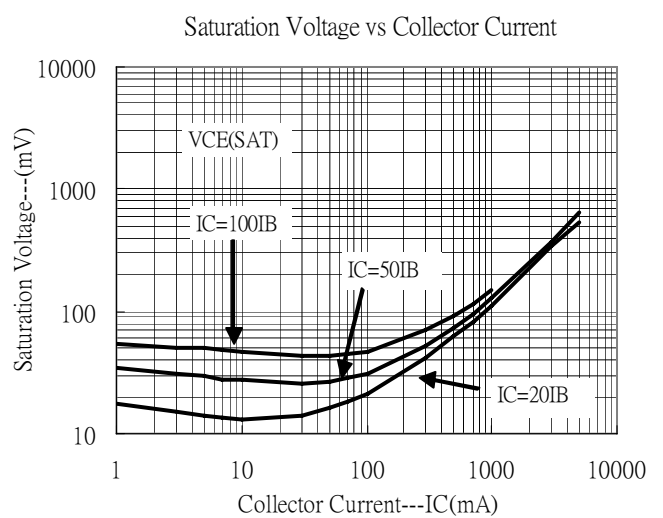
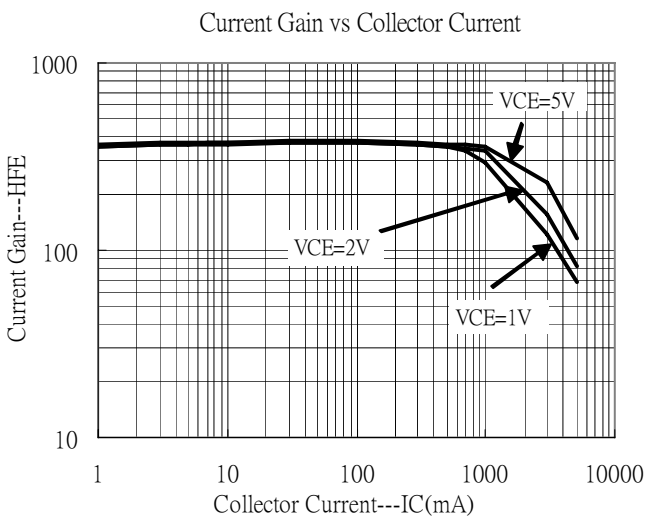
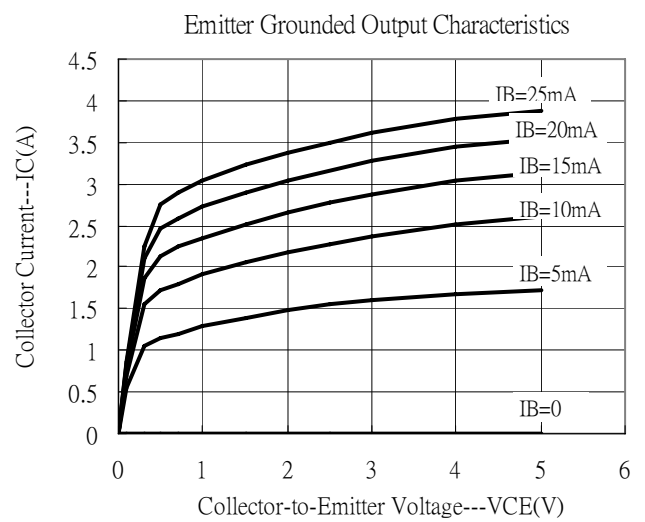
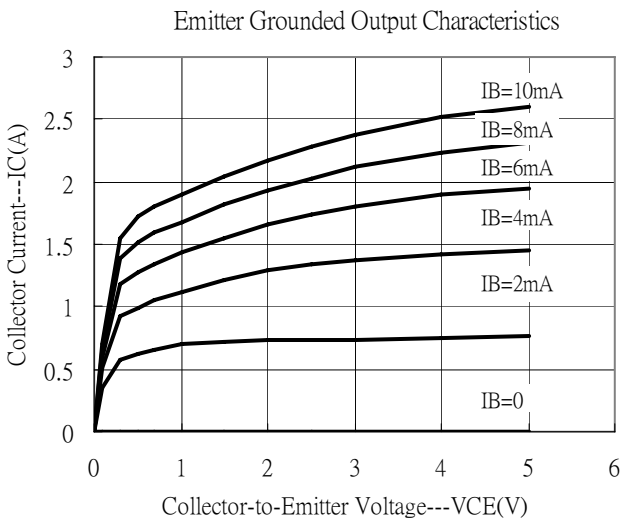
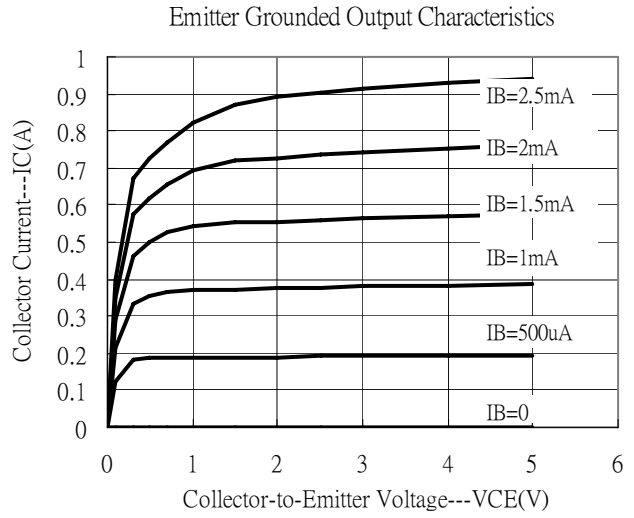
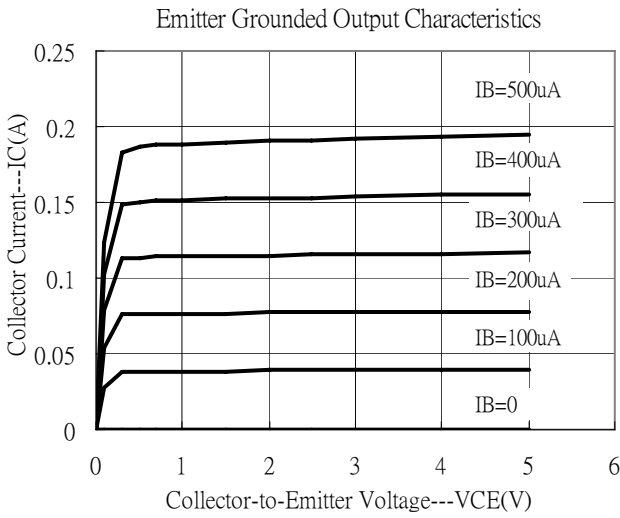
Classification Of hFE2

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

Ordering Information

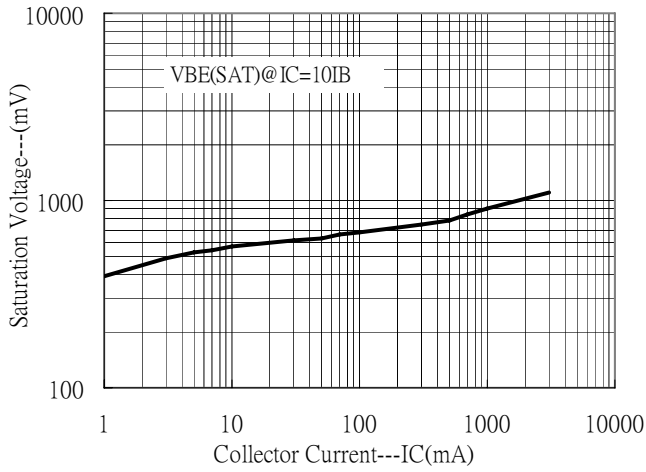
Device	Package	Shipping	Marking
BTD882AM3	SOT-89 (Pb-free)	1000 pcs / Tape & Reel	CF

Characteristic Curves

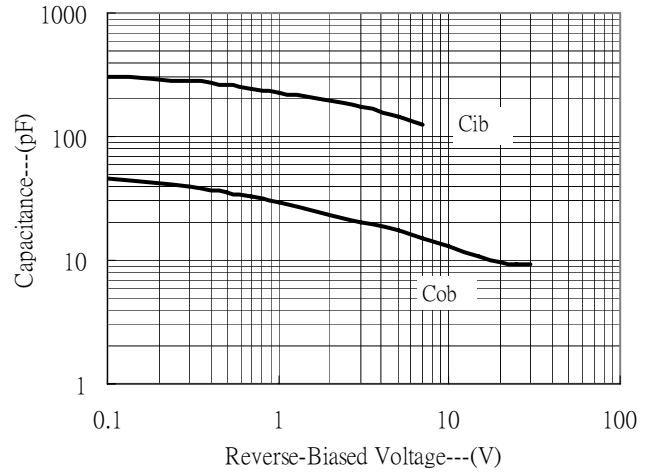


Characteristic Curves(Cont.)

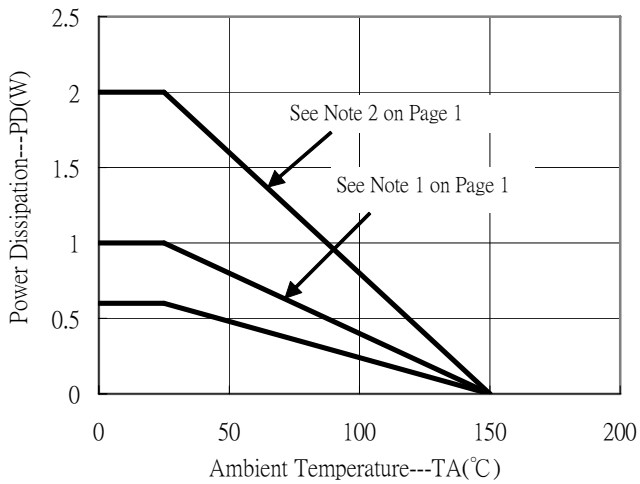
Saturation Voltage vs Collector Current



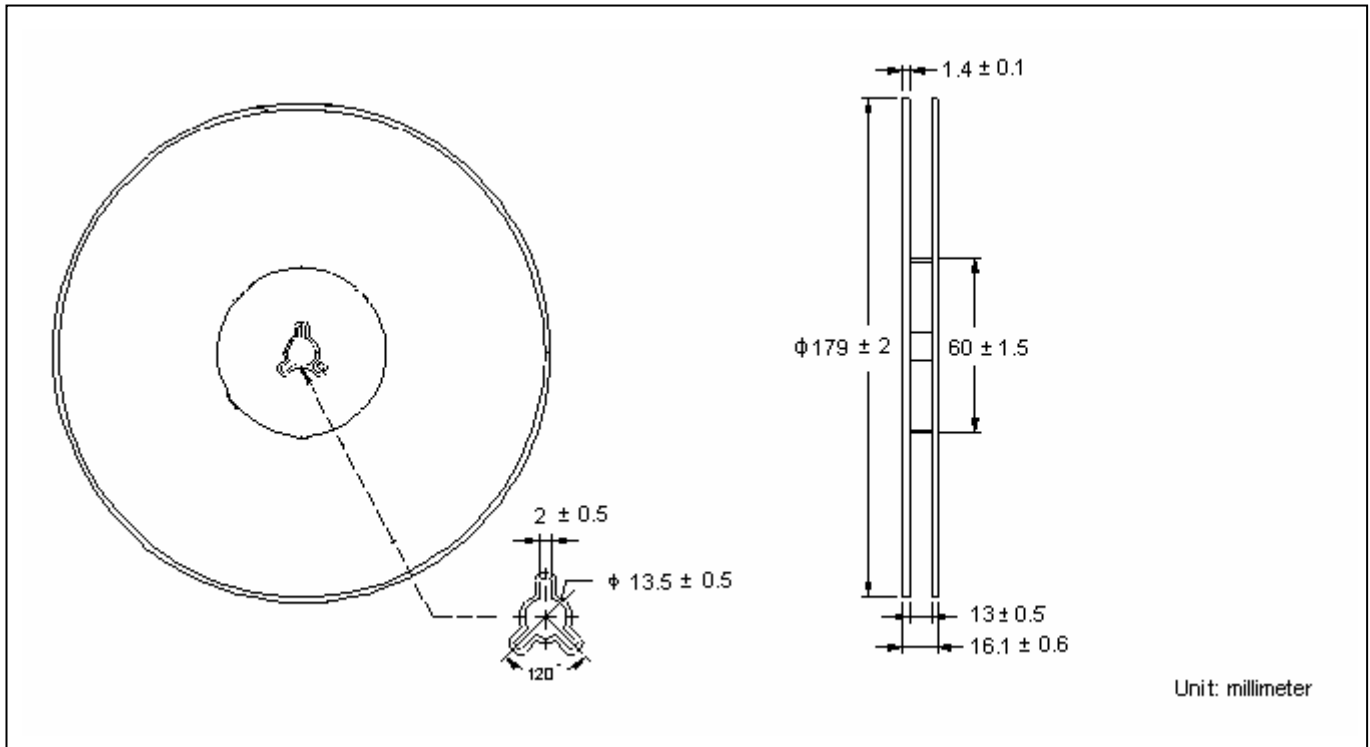
Capacitance vs Reverse-Biased Voltage



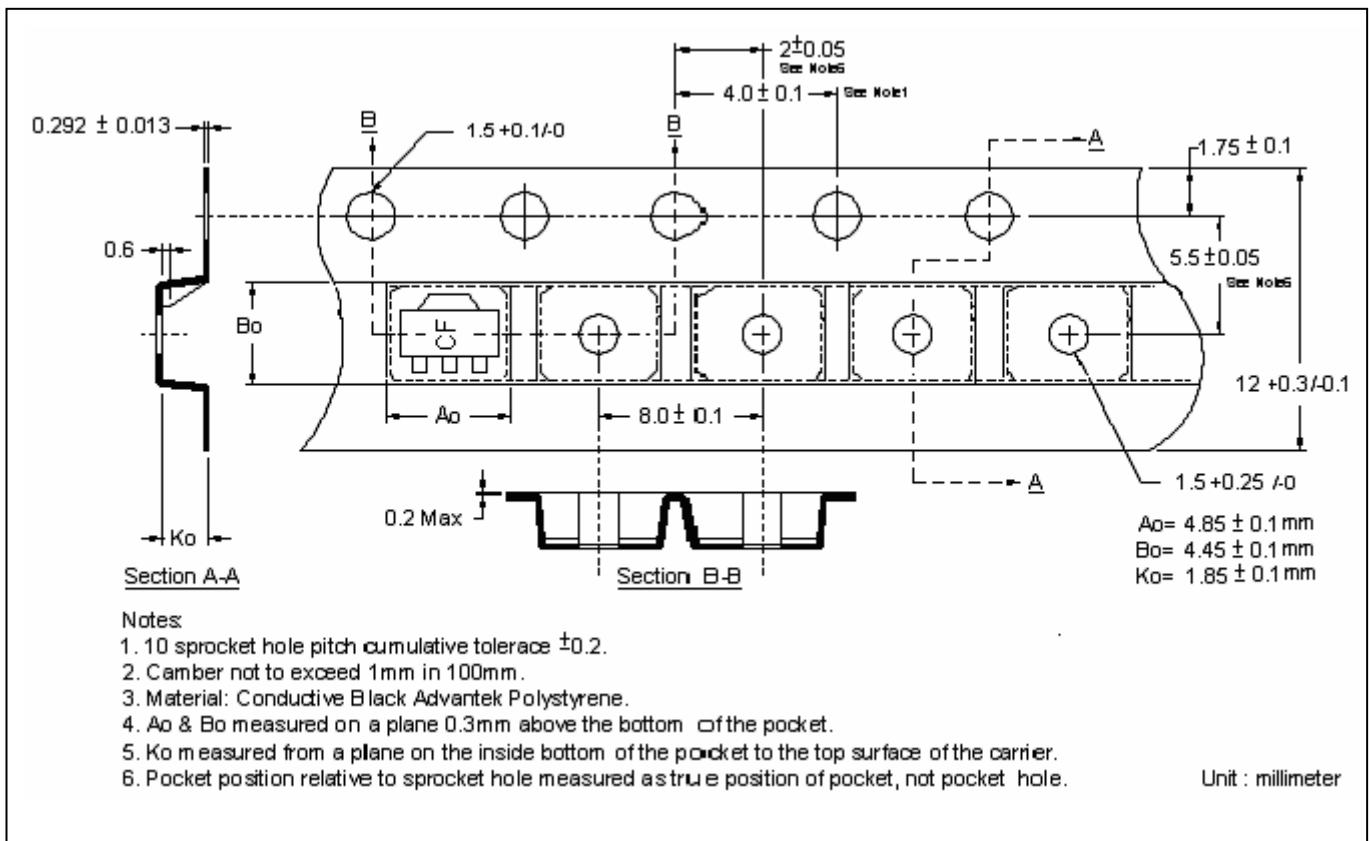
Power Derating Curves



Reel Dimension



Carrier Tape Dimension



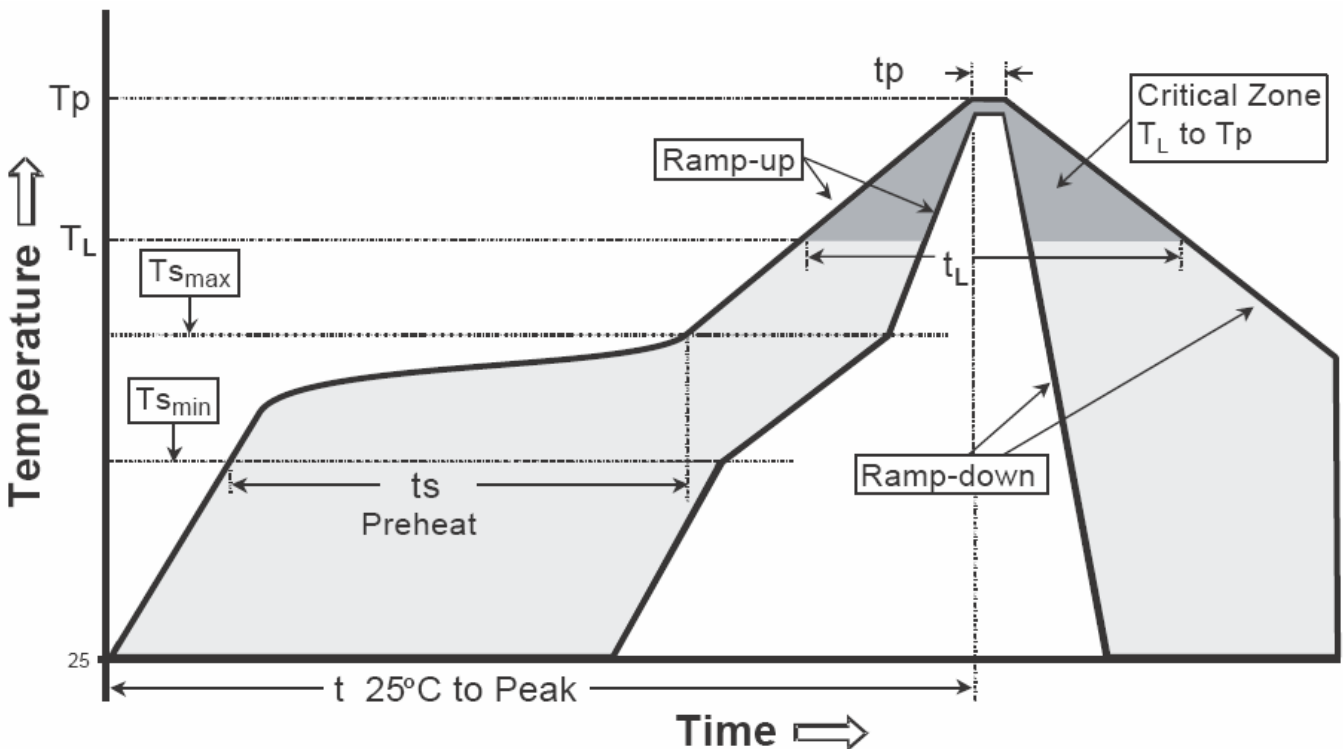
Notes

1. 10 sprocket hole pitch cumulative tolerance ± 0.2 .
2. Camber not to exceed 1mm in 100mm.
3. Material: Conductive Black Advantek Polystyrene.
4. A_0 & B_0 measured on a plane 0.3mm above the bottom of the pocket.
5. K_0 measured from a plane on the inside bottom of the pocket to the top surface of the carrier.
6. Pocket position relative to sprocket hole measured as true position of pocket, not pocket hole.

Recommended wave soldering condition

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

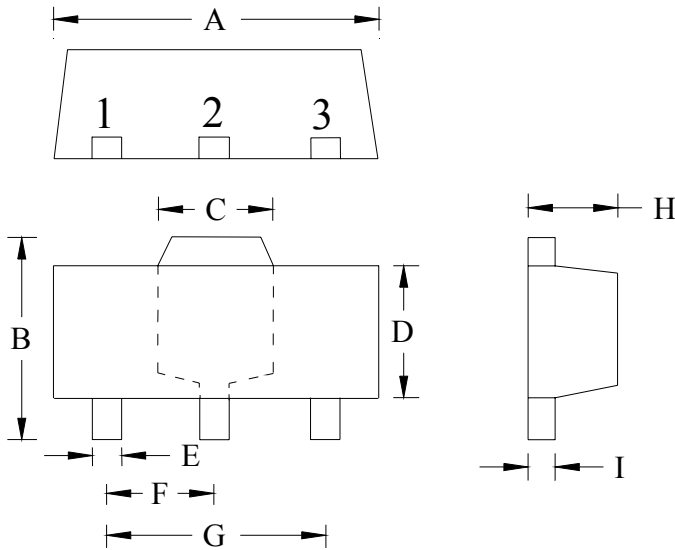
Recommended temperature profile for IR reflow



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.

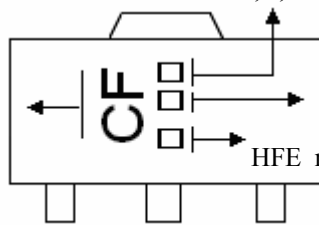
Note : All temperatures refer to topside of the package, measured on the package body surface.

SOT-89 Dimension



The diagram shows three views of the SOT-89 package: a top view with dimensions A, C, E, F, and G; a front view with dimensions B, D, and I; and a side view with dimension H. The top view also labels the three pins as 1, 2, and 3.

Marking:



month code: 1~9, A,B,C
 Year code : 6→2006, 7→2007,...
 Product Code
 HFE rank

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: KFC ;Pure tin plated.
- Mold Compound: Epoxy resin family, flammability solid burning class: UL94V-0.

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