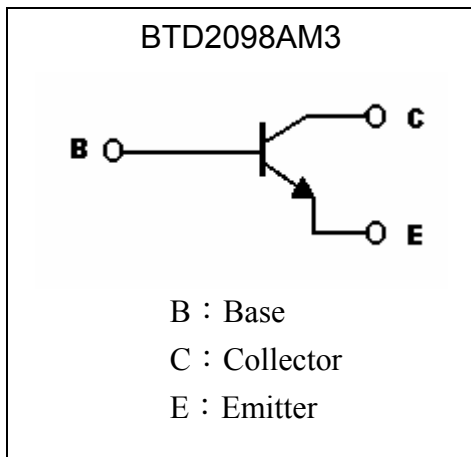
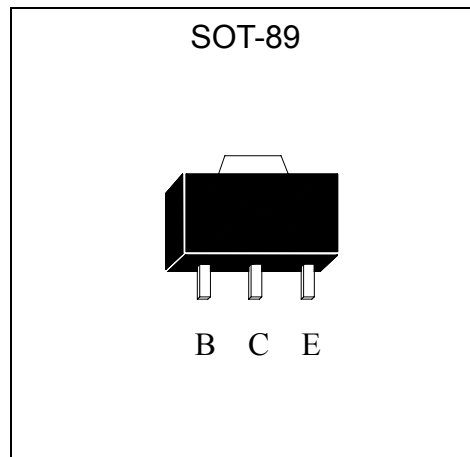


Low Vcesat NPN Epitaxial Planar Transistor

BTD2098AM3

Features

- Low $V_{CE(sat)}$, $V_{CE(sat)}=0.35$ V (typical), at $I_C / I_B = 3A / 0.1A$
- Excellent DC current gain characteristics
- Complementary to BTB1386AM3
- Pb-free package

Symbol

Outline

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

Parameter	Symbol	Limits	Unit
Collector-Base Voltage	V_{CBO}	40	V
Collector-Emitter Voltage	V_{CEO}	30	V
Emitter-Base Voltage	V_{EBO}	6	V
Collector Current (DC)	I_C	5	A
Collector Current (Pulse)		8 *1	A
Power Dissipation	P_d	0.6	W
		1 *2	
		2 *3	
Junction Temperature	T_j	150	$^\circ\text{C}$
Storage Temperature	T_{stg}	-55~+150	$^\circ\text{C}$

Note : *1 Single pulse , $P_w=10\text{ms}$

*2 Printed circuit board, glass epoxy board, 1.7mm thick with collector copper plating 10mm*10mm.

*3 When mounted on a 40*40*0.7mm ceramic board.

**Characteristics (Ta=25°C)**

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
BV _{CB0}	40	-	-	V	I _C =50μA, I _E =0
BV _{CE0}	30	-	-	V	I _C =1mA, I _B =0
BV _{EB0}	6	-	-	V	I _E =50μA, I _C =0
I _{CB0}	-	-	0.5	μA	V _{CB} =40V, I _E =0
I _{EB0}	-	-	0.5	μA	V _{EB} =5V, I _C =0
*V _{CE(sat)}	-	0.35	1.0	V	I _C =3A, I _B =0.1A
*h _{FE}	250	-	-	-	V _{CE} =2V, I _C =20mA
*h _{FE}	270	-	560	-	V _{CE} =2V, I _C =500mA
*h _{FE}	150	-	-	-	V _{CE} =2V, I _C =2A
f _T	-	150	-	MHz	V _{CE} =6V, I _C =50mA, f=100MHz
Cob	-	30	50	pF	V _{CB} =20V, I _E =0A, f=1MHz

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

Classification Of h_{FE}

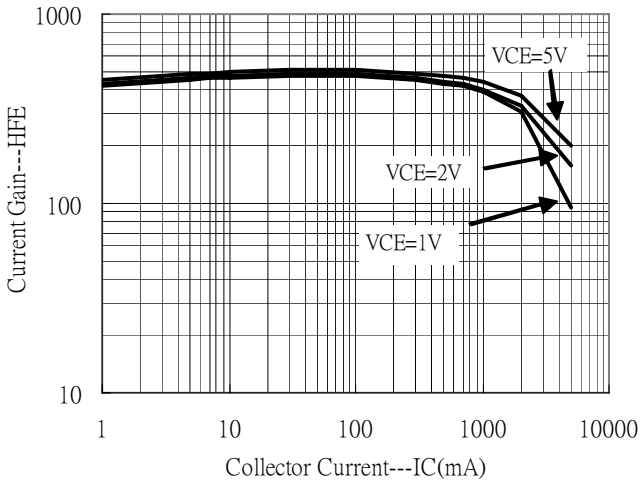
Rank	S
Range	270~560

Ordering Information

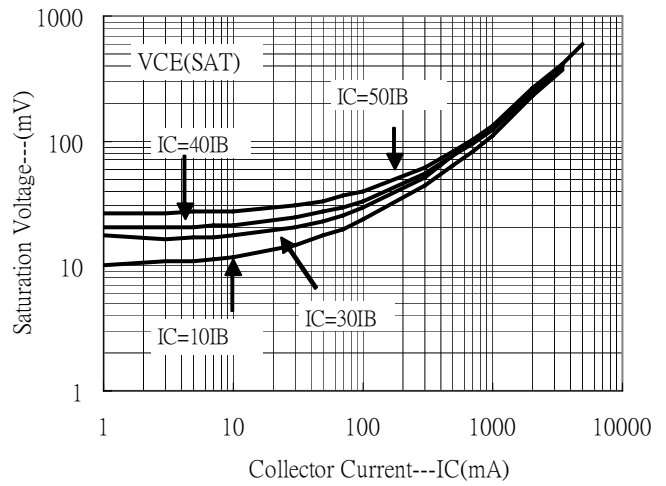
Device	Package	Shipping	Marking
BTD2098AM3	SOT-89 (Pb-free)	1000 pcs / Tape & Reel	AH

Characteristic Curves

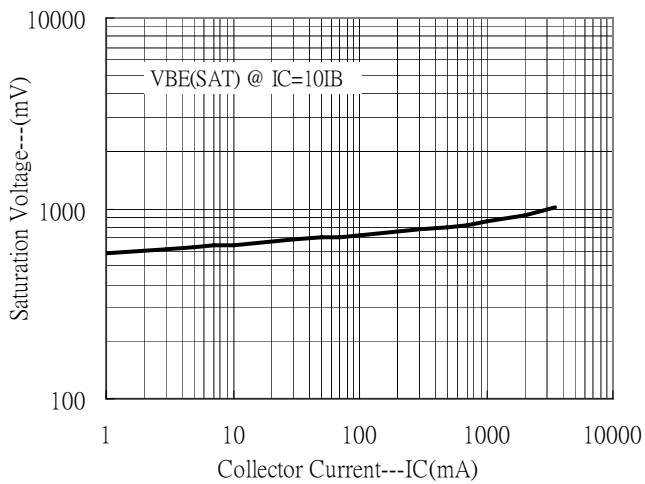
Current Gain vs Collector Current



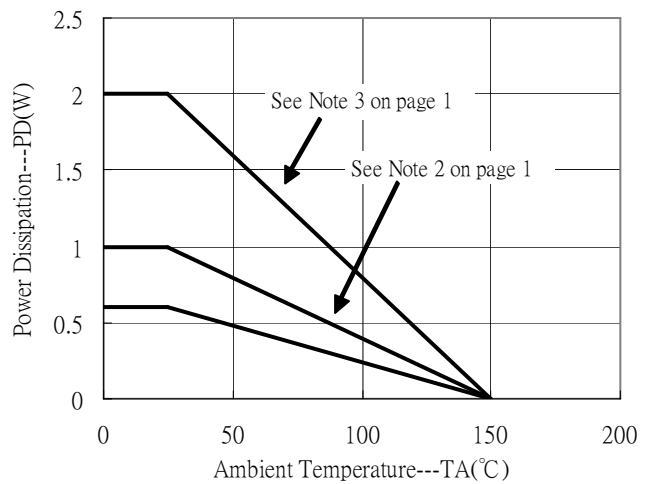
Saturation Voltage vs Collector Current



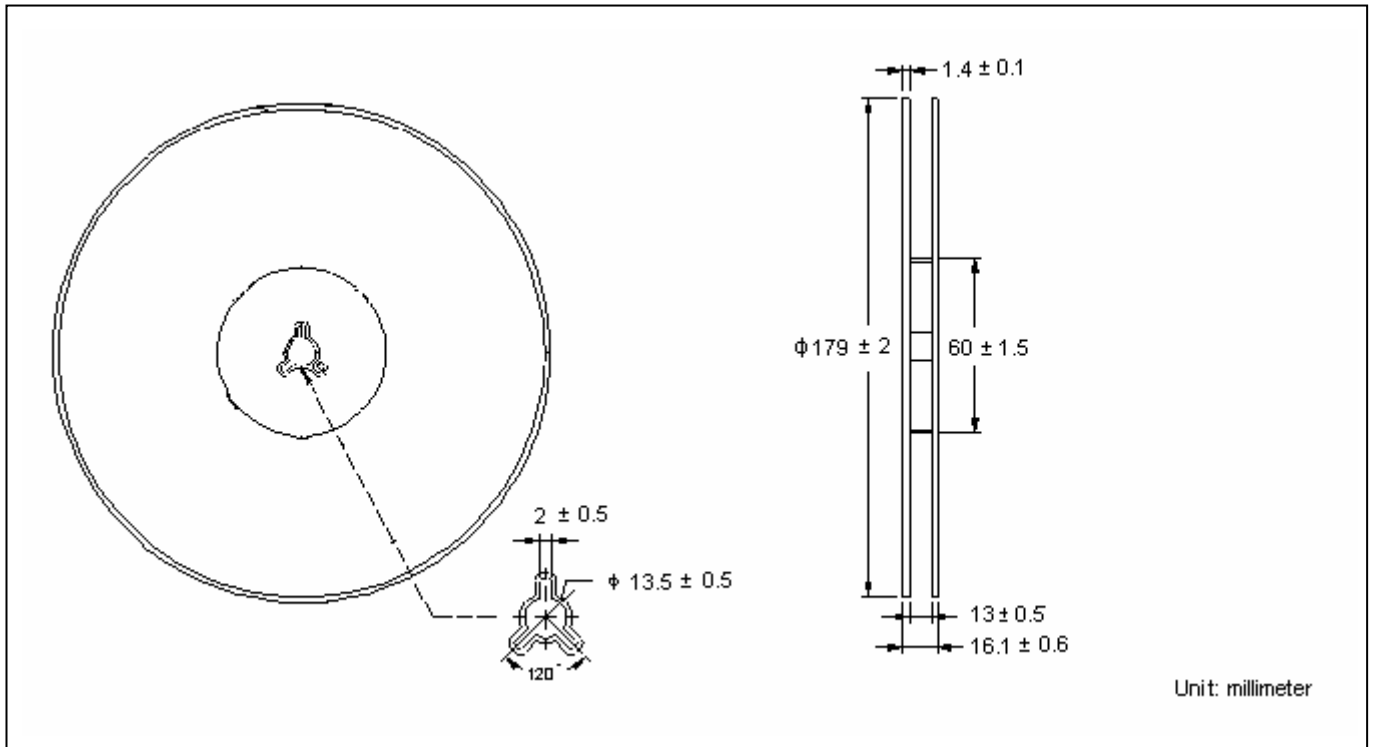
Saturation Voltage vs Collector Current



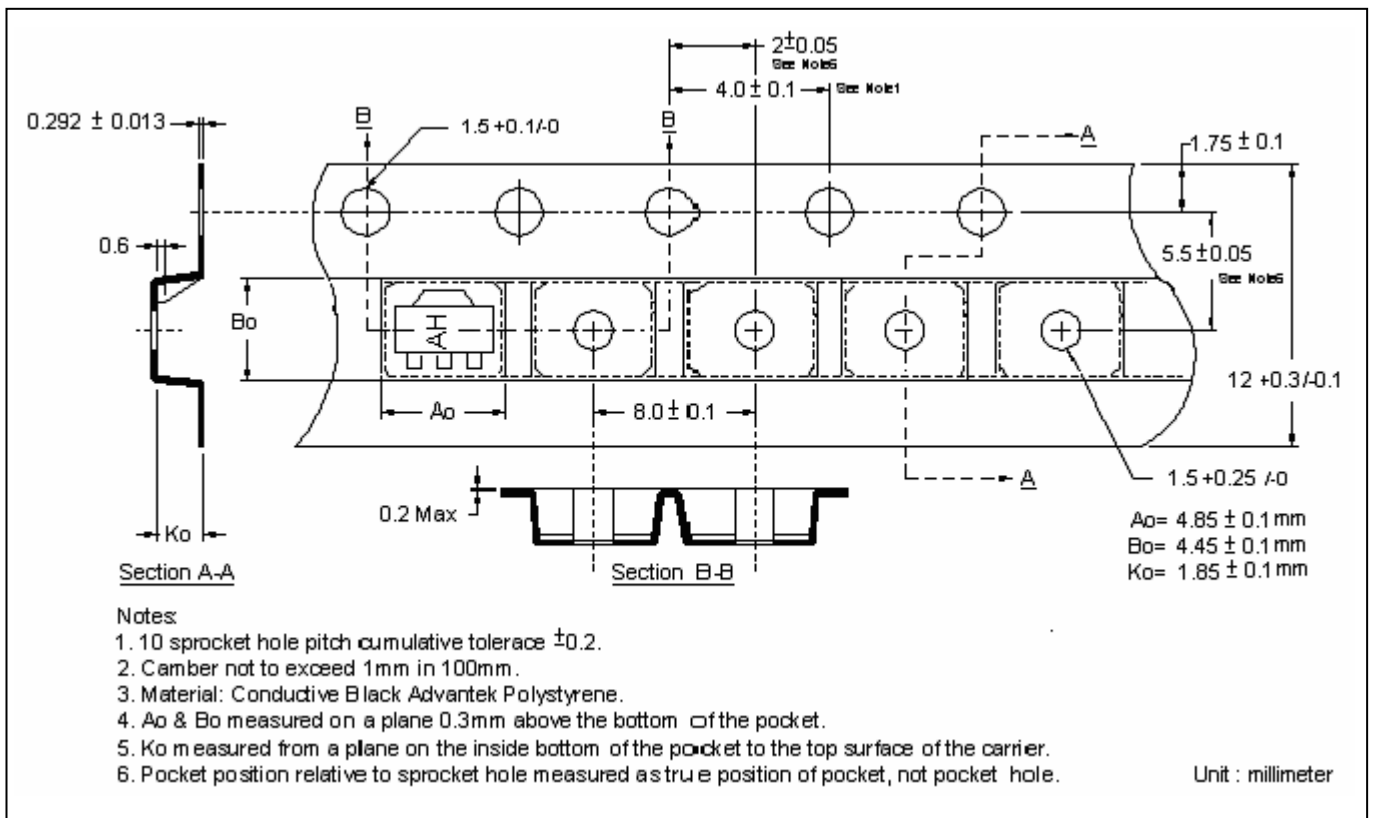
Power Derating Curve



Reel Dimension



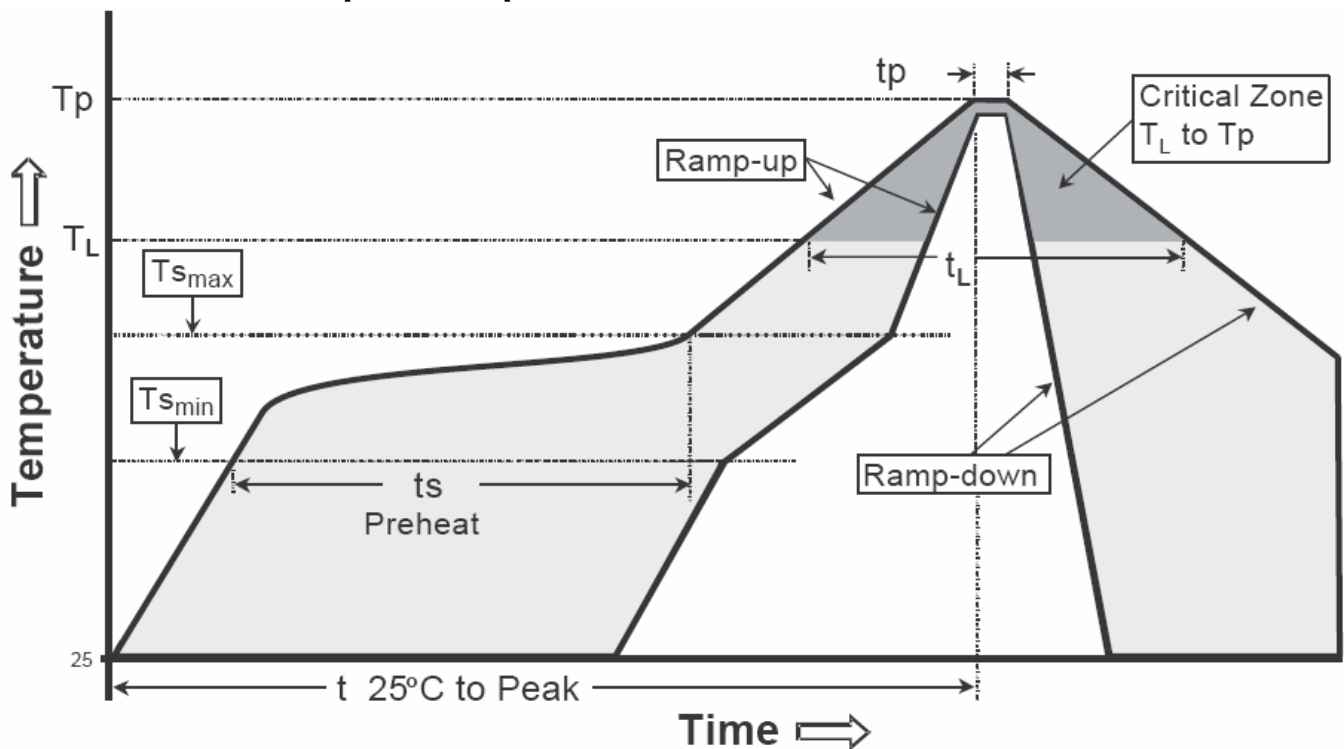
Carrier Tape Dimension



Recommended wave soldering condition

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

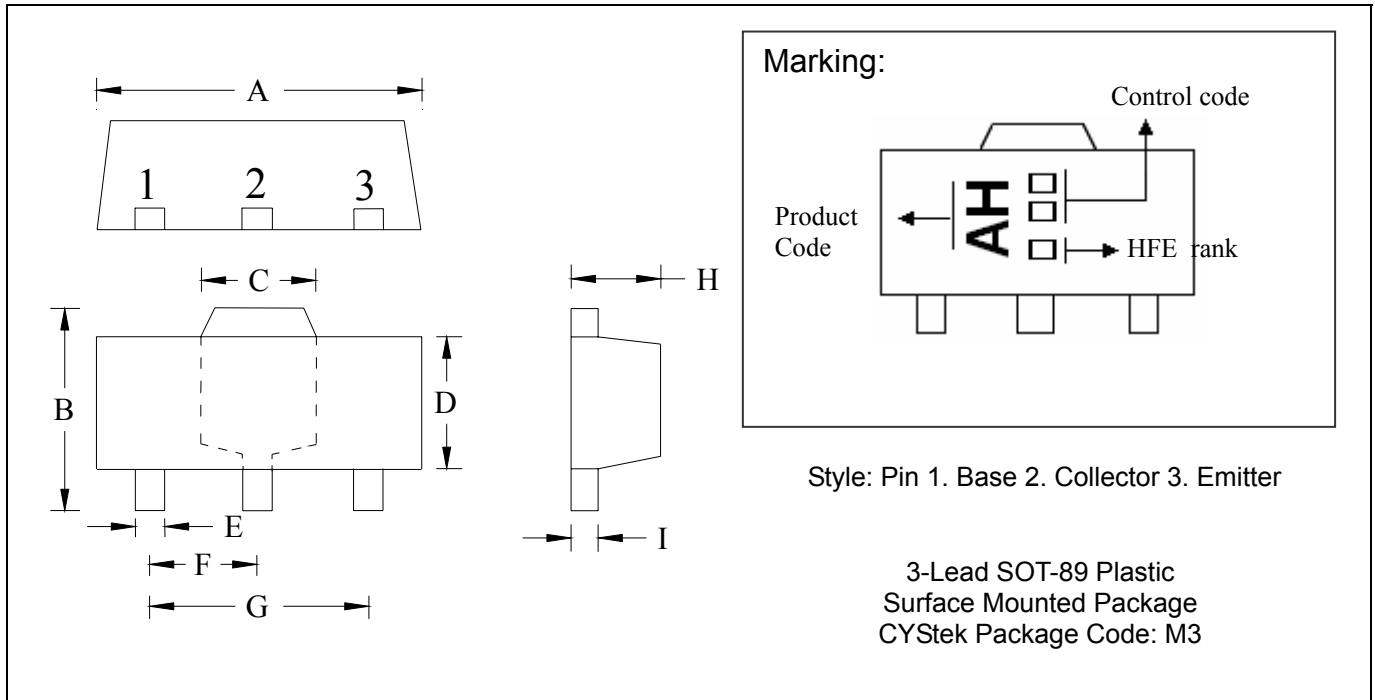
Recommended temperature profile for IR reflow



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



Marking:

Control code

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

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