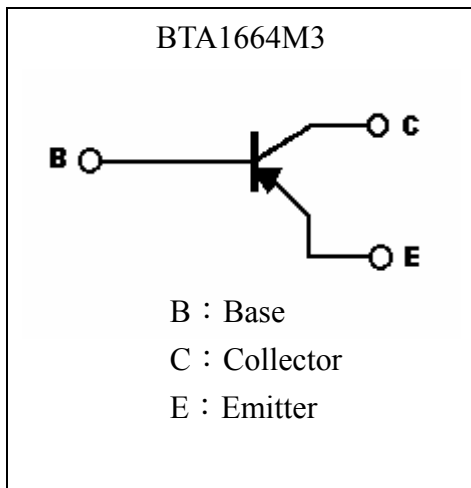
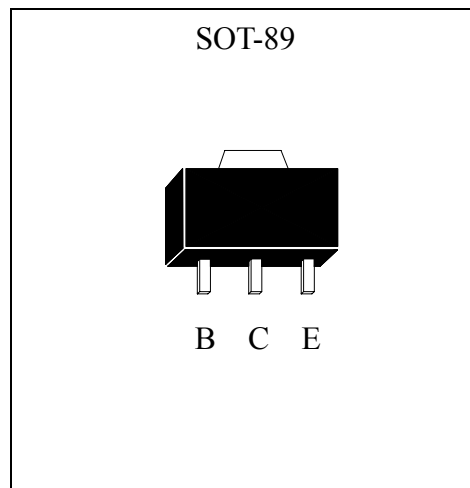


Low Vcesat PNP Epitaxial Planar Transistor

BTA1664M3

Features

- Low $V_{CE(sat)}$, $V_{CE(sat)} = -0.24V$ (typical), at $I_C / I_B = -500mA / -20mA$
- Pb-free package

Symbol

Outline

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

Parameter	Symbol	Limits	Unit
Collector-Base Voltage	V_{CBO}	-40	V
Collector-Emitter Voltage	V_{CEO}	-25	V
Emitter-Base Voltage	V_{EBO}	-5	V
Collector Current(DC)	I_C	-2	A
Power Dissipation	P_d	0.6	W
		1 *2	
		2 *3	
Junction Temperature	T_j	150	$^\circ C$
Storage Temperature	T_{stg}	-55~+150	$^\circ C$

 Note : *1 Single pulse, $P_w = 10ms$

 *2 When mounted on FR-4 PCB with area measuring $10 \times 10 \times 1$ mm

 *3 When mounted on ceramic with area measuring $40 \times 40 \times 1$ mm

**Characteristics (Ta=25°C)**

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
BV _{CB0}	-40	-	-	V	I _C =-50μA, I _E =0
BV _{CE0}	-25	-	-	V	I _C =-1mA, I _B =0
BV _{EBO}	-5	-	-	V	I _E =-50μA, I _C =0
I _{CB0}	-	-	-100	nA	V _{CB} =-40V, I _E =0
I _{EBO}	-	-	-100	nA	V _{EB} =-5V, I _C =0
*V _{CE(sat)}	-	-0.24	-0.4	V	I _C =-500mA, I _B =-20mA
*V _{BE(on)}	-0.5	-	-0.8	V	V _{CE} =-1V, I _C =-10mA
*h _{FE 1}	120	-	390	-	V _{CE} =-1V, I _C =-100mA
*h _{FE 2}	40	-	-	-	V _{CE} =-1V, I _C =-700mA
f _T	-	120	-	MHz	V _{CE} =-5V, I _C =-10mA, f=100MHz
Cob	-	19	-	pF	V _{CB} =-10V, f=1MHz

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

Classification of hFE 1

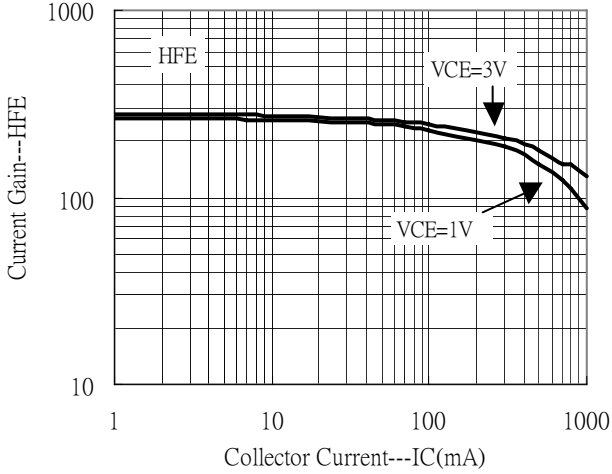
Rank	Q	R
Range	120~270	180~390

Ordering Information

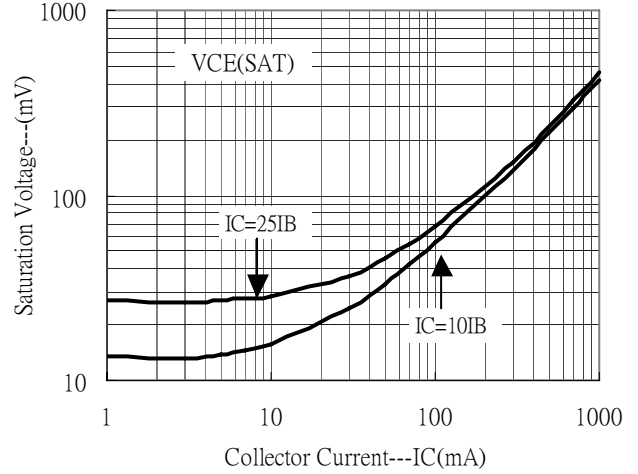
Device	Package	Shipping	Marking
BTA1664M3	SOT-89 (Pb-free)	1000 pcs / Tape & Reel	BA

Characteristic Curves

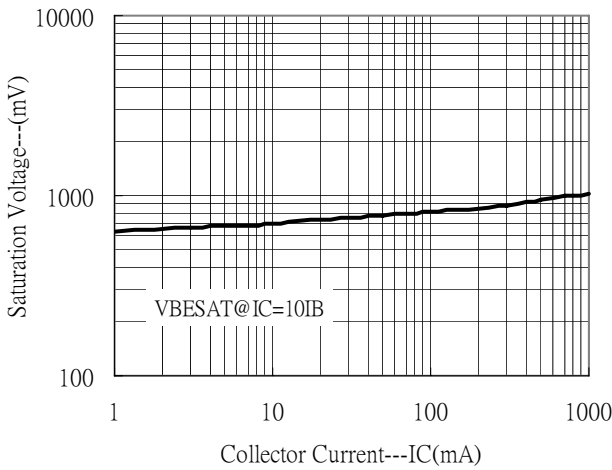
Current Gain vs Collector Current



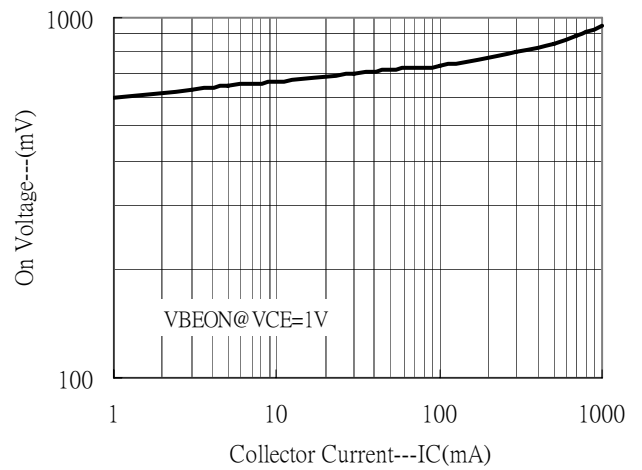
Saturation Voltage vs Collector Current



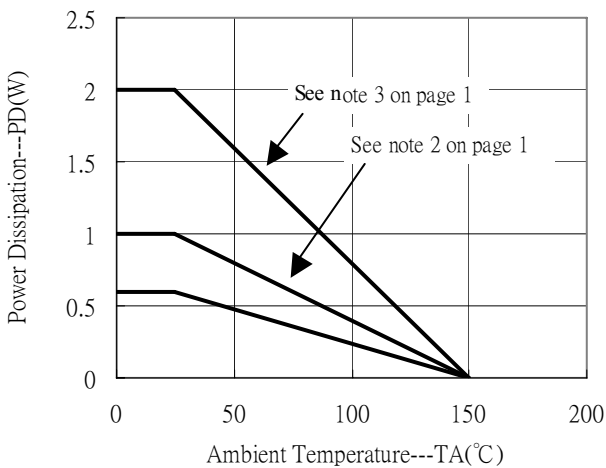
Saturation Voltage vs Collector Current



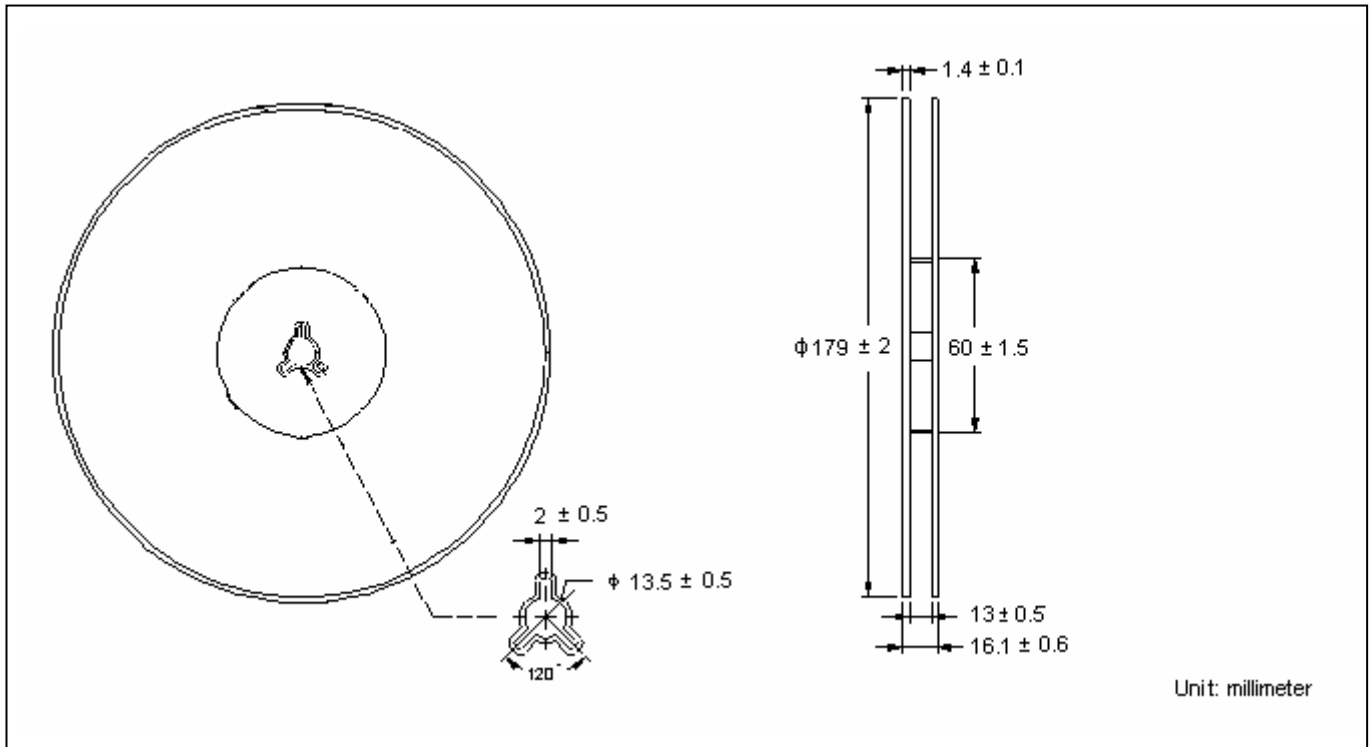
On Voltage vs Collector Current



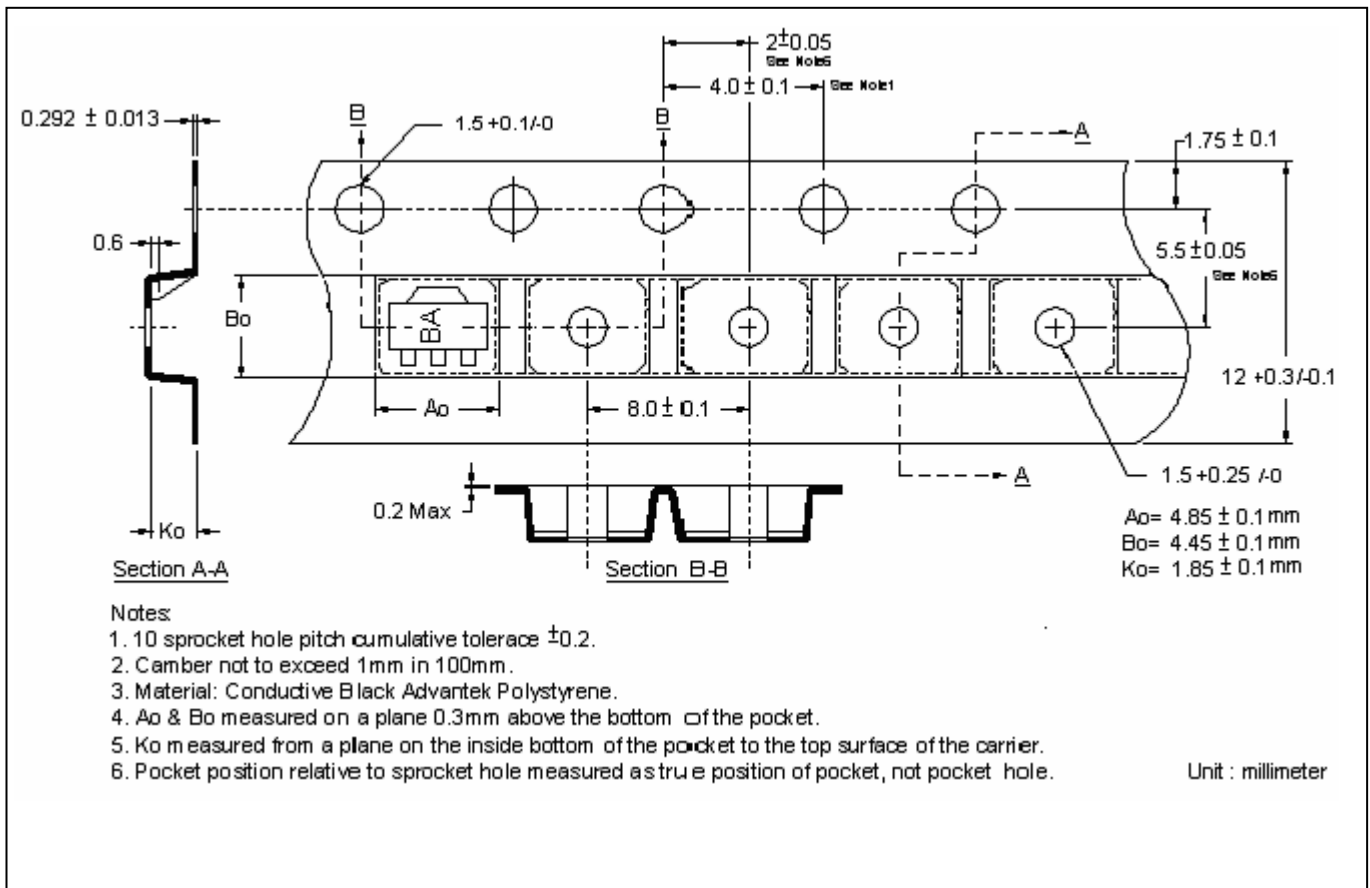
Power Derating Curves



Reel Dimension

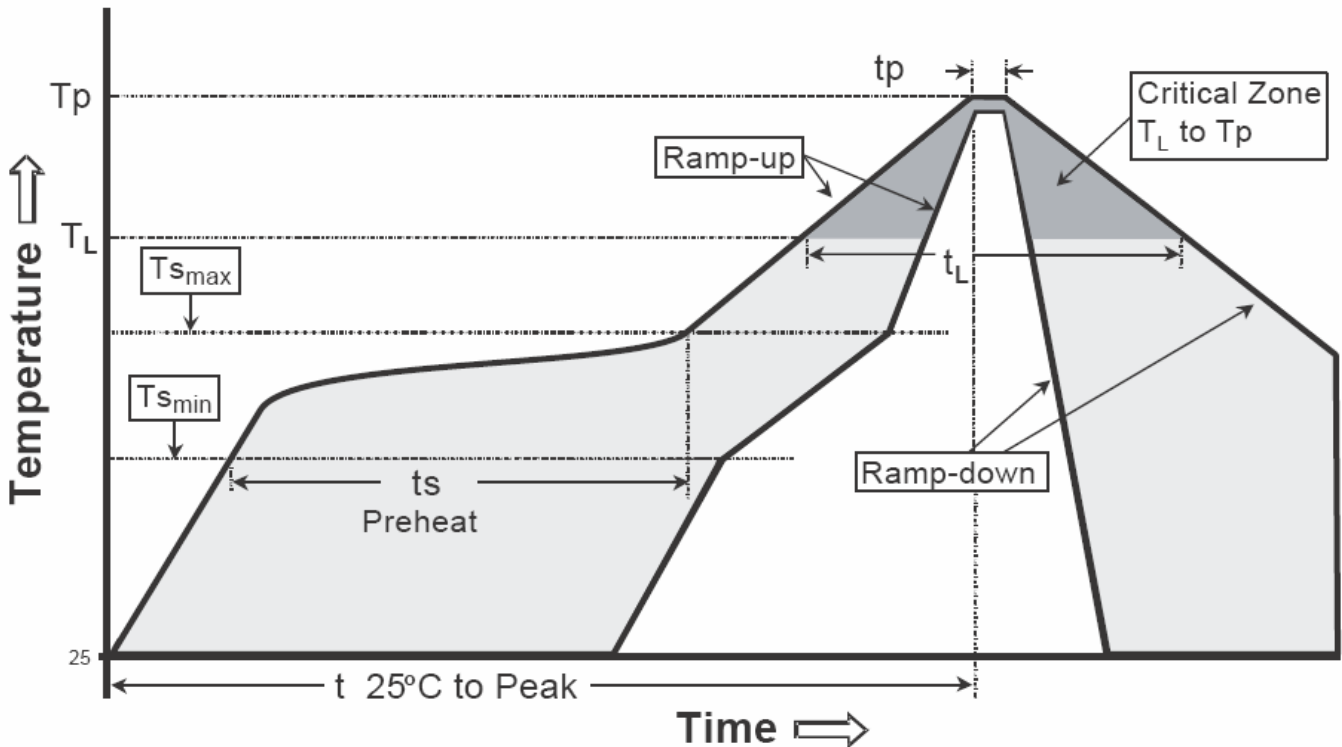


Carrier Tape Dimension



Recommended wave soldering condition

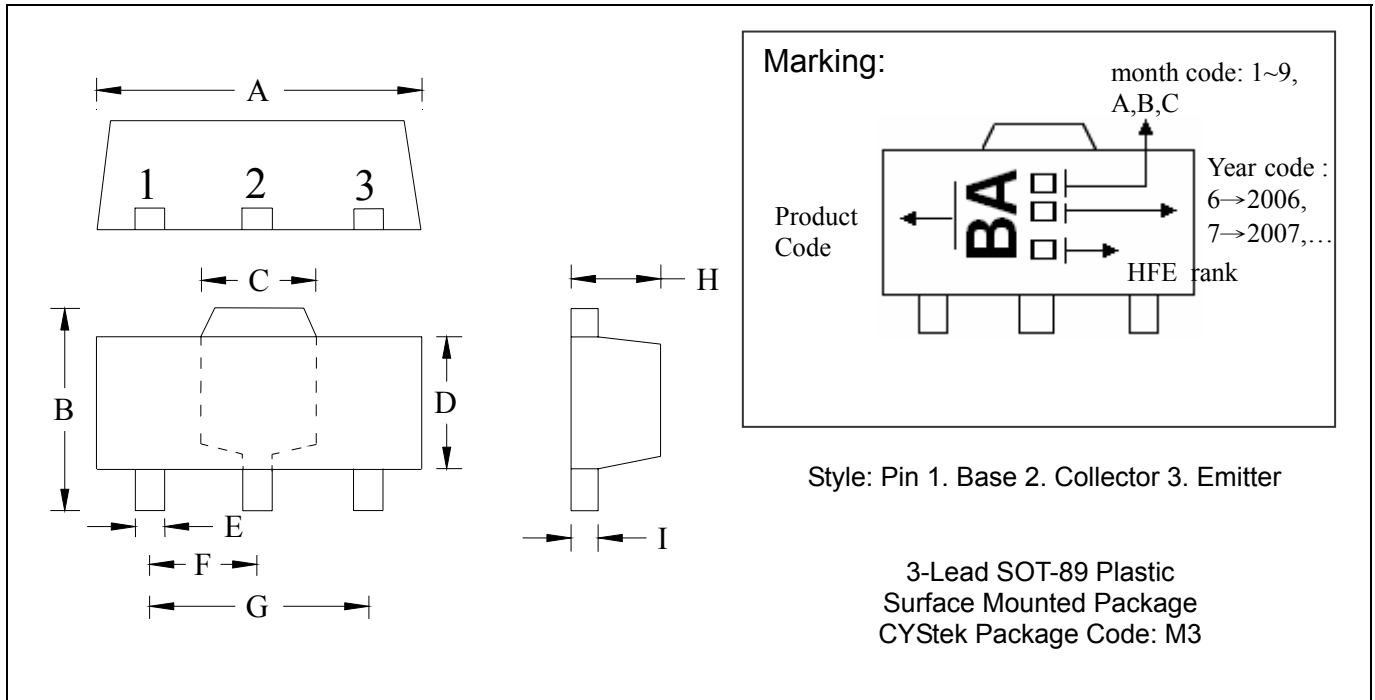
Product	Peak Temperature	Soldering Time
Pb-free devices	260 +0/-5 °C	5 +1/-1 seconds

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



*: Typical

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.1732	0.1811	4.40	4.60	F	0.0583	0.0598	1.48	1.527
B	0.1594	0.1673	4.05	4.25	G	0.1165	0.1197	2.96	3.04
C	0.0591	0.0663	1.50	1.70	H	0.0551	0.0630	1.40	1.60
D	0.0945	0.1024	2.40	2.60	I	0.0138	0.0161	0.35	0.41
E	0.01417	0.0201	0.36	0.51					

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: 42 Alloy ; solder plating
- Mold Compound: Epoxy resin family, flammability solid burning class: UL94V-0

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