

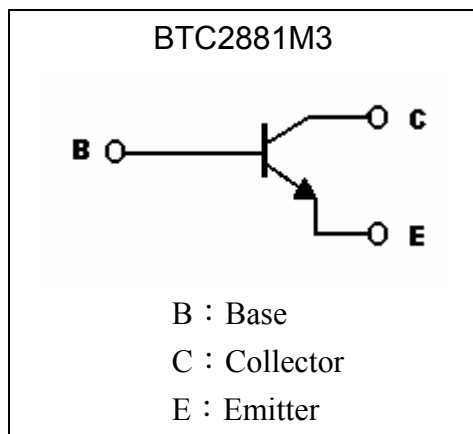
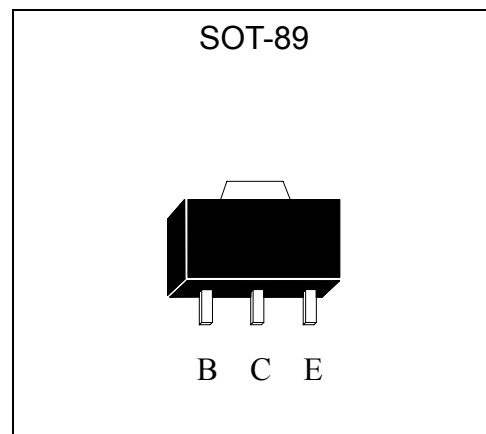
General Purpose NPN Epitaxial Planar Transistor

BTC2881M3

BV_{CEO}	200V
I_C	1A
$R_{CESAT(MAX)}$	0.86 Ω

Features

- High breakdown voltage, $BV_{CEO} \geq 200V$
- Large continuous collector current capability
- Low collector saturation voltage
- Complementary to BTA1201M3
- 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}	300	V
Collector-Emitter Voltage	V_{CEO}	200	V
Emitter-Base Voltage	V_{EBO}	6	V
Collector Current	I_C	1	A
Base Current	I_B	0.2	A
Power Dissipation	P_d	0.6	W
		1 (Note 1)	W
		2 (Note 2)	W
Junction Temperature	T_j	150	$^\circ C$
Storage Temperature	T_{stg}	-55~+150	$^\circ C$

 Note : 1. When mounted on FR-4 PCB with area measuring $10 \times 10 \times 1$ mm

 2 . 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_{CBO}	300	-	-	V	$I_C=10\mu A$
BV_{CEO}	200	-	-	V	$I_C=10mA$
BV_{EBO}	6	-	-	V	$I_E=10\mu A$
I_{CBO}	-	-	100	nA	$V_{CB}=300V$
I_{EBO}	-	-	100	nA	$V_{EB}=6V$
* $V_{CE(sat)}$	-	0.2	0.3	V	$I_C=500mA, I_B=50mA$
* $V_{CE(sat)}$	-	-	0.6	V	$I_C=700mA, I_B=35mA$
* $V_{BE(sat)}$	-	-	1	V	$I_C=500mA, I_B=50mA$
* $V_{BE(on)}$	-	-	1	V	$V_{CE}=5V, I_C=500mA$
* $h_{FE 1}$	120	-	-	-	$V_{CE}=5V, I_C=50mA$
* $h_{FE 2}$	120	-	320	-	$V_{CE}=5V, I_C=100mA$
* $h_{FE 3}$	30	-	-	-	$V_{CE}=5V, I_C=700mA$
f_T	-	120	-	MHz	$V_{CE}=5V, I_C=100mA$
Cob	-	-	30	pF	$V_{CB}=10V, I_E=0A, f=1MHz$

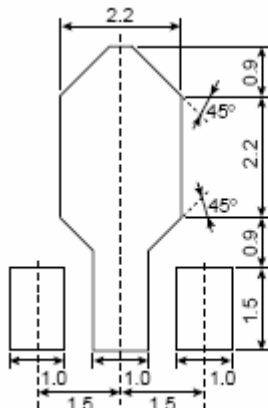
*Pulse Test: Pulse Width $\leq 380\mu s$, Duty Cycle $\leq 2\%$

Classification Of $h_{FE 2}$

Rank	Y	G
Range	120~240	160~320

Ordering Information

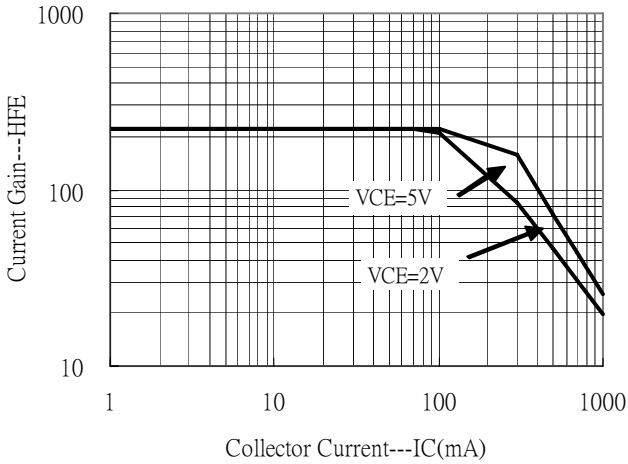
Device	Package	Shipping	Marking
BTC2881M3	SOT-89 (Pb-free lead plating and halogen-free package)	1000 pcs / Tape & Reel	CB

Recommended soldering footprint


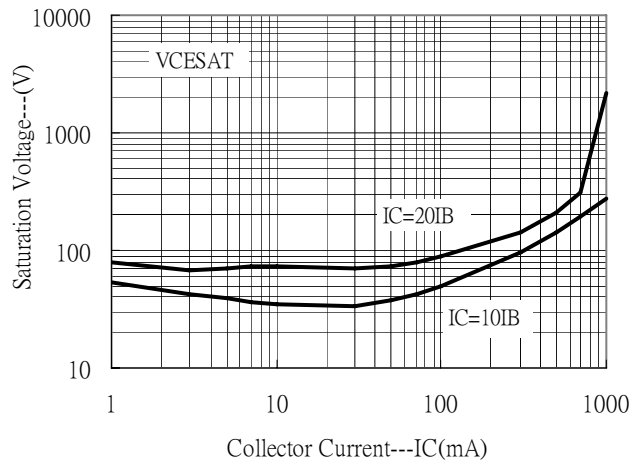
unit : mm

Characteristic Curves

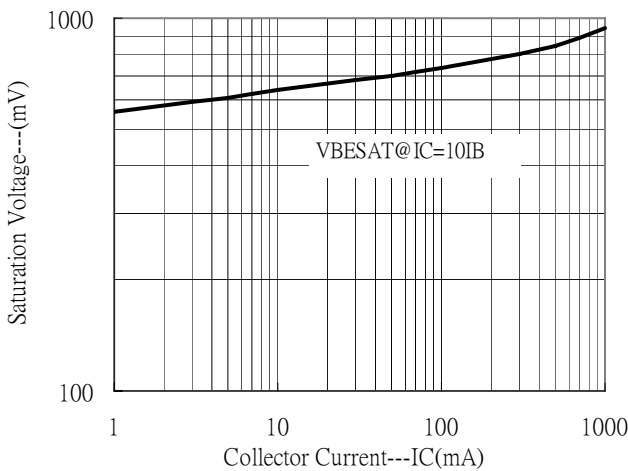
Current Gain vs Collector Current



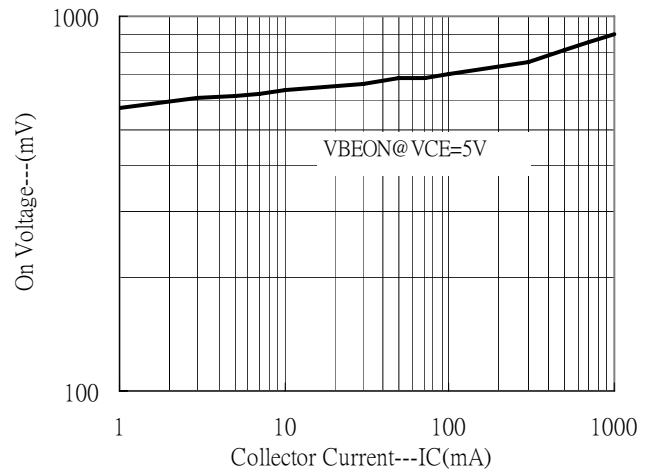
Saturation Voltage vs Collector Current



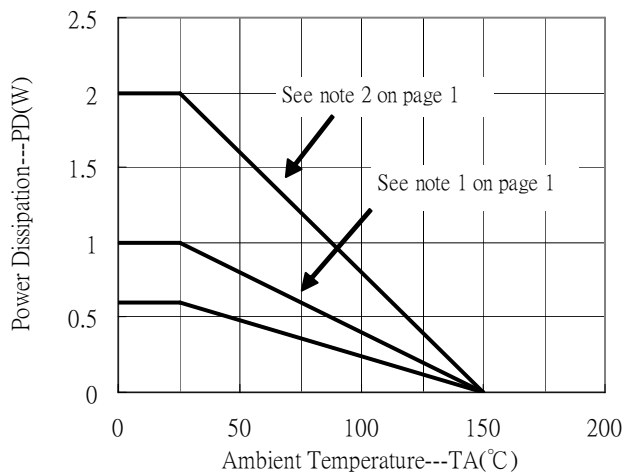
Saturation Voltage vs Collector Current



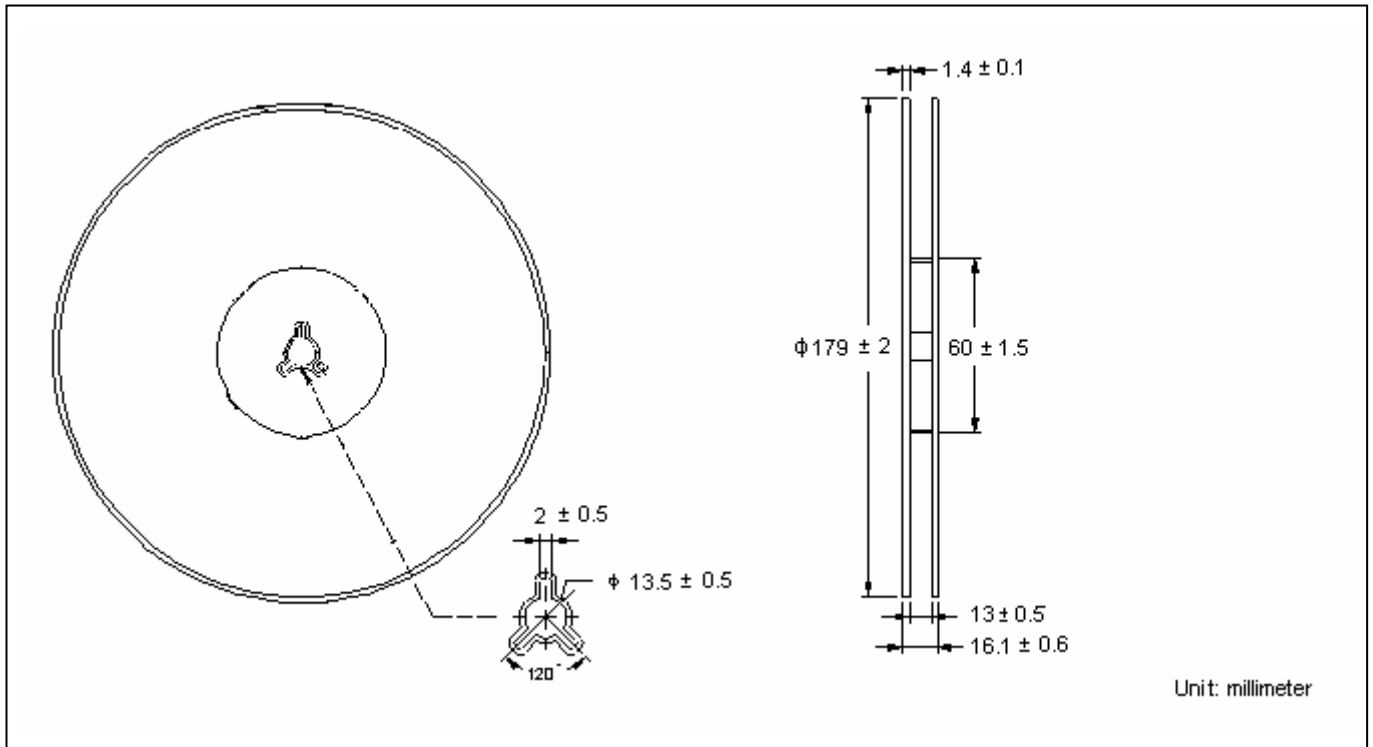
On Voltage vs Collector Current



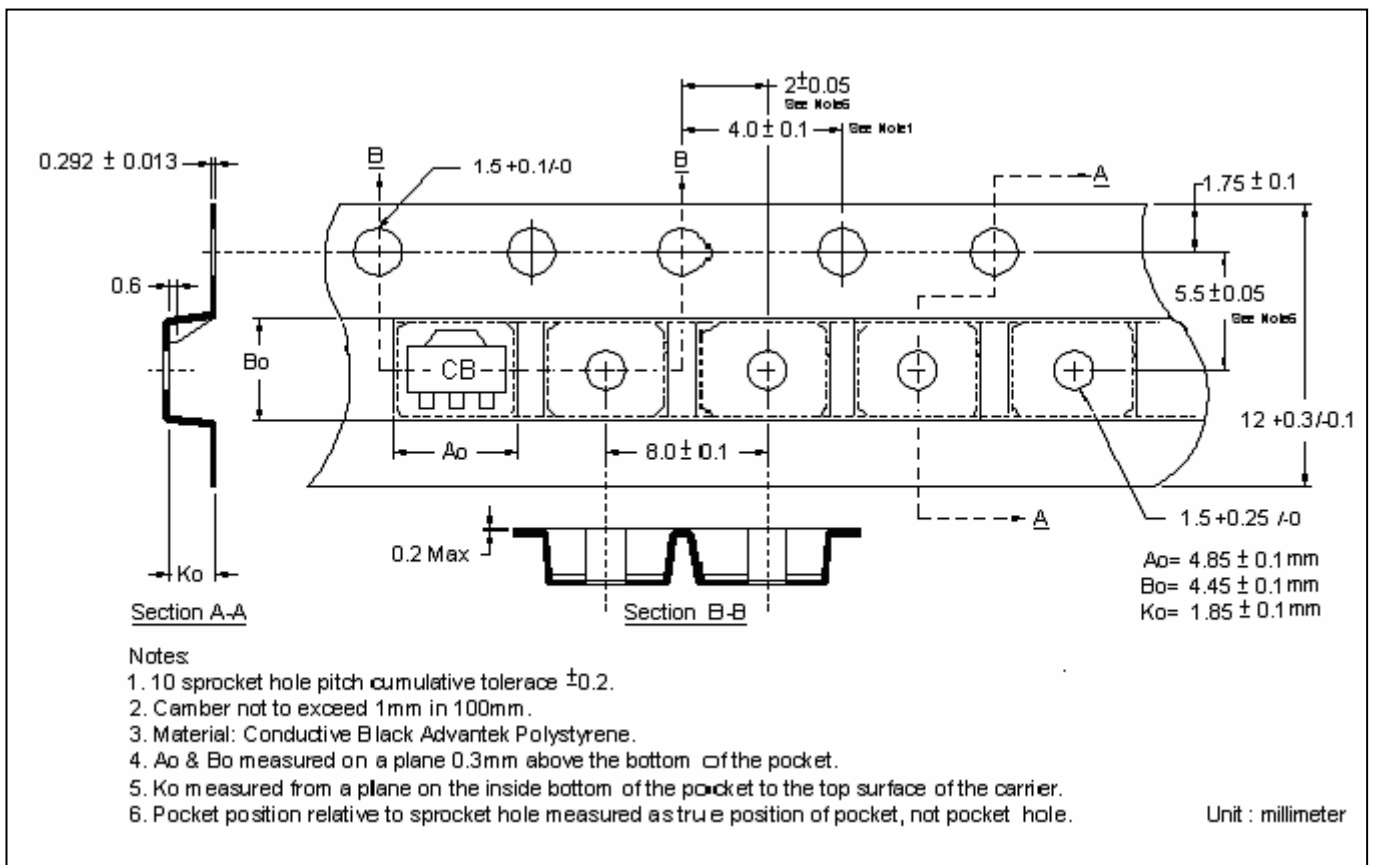
Power Derating Curve



Reel Dimension



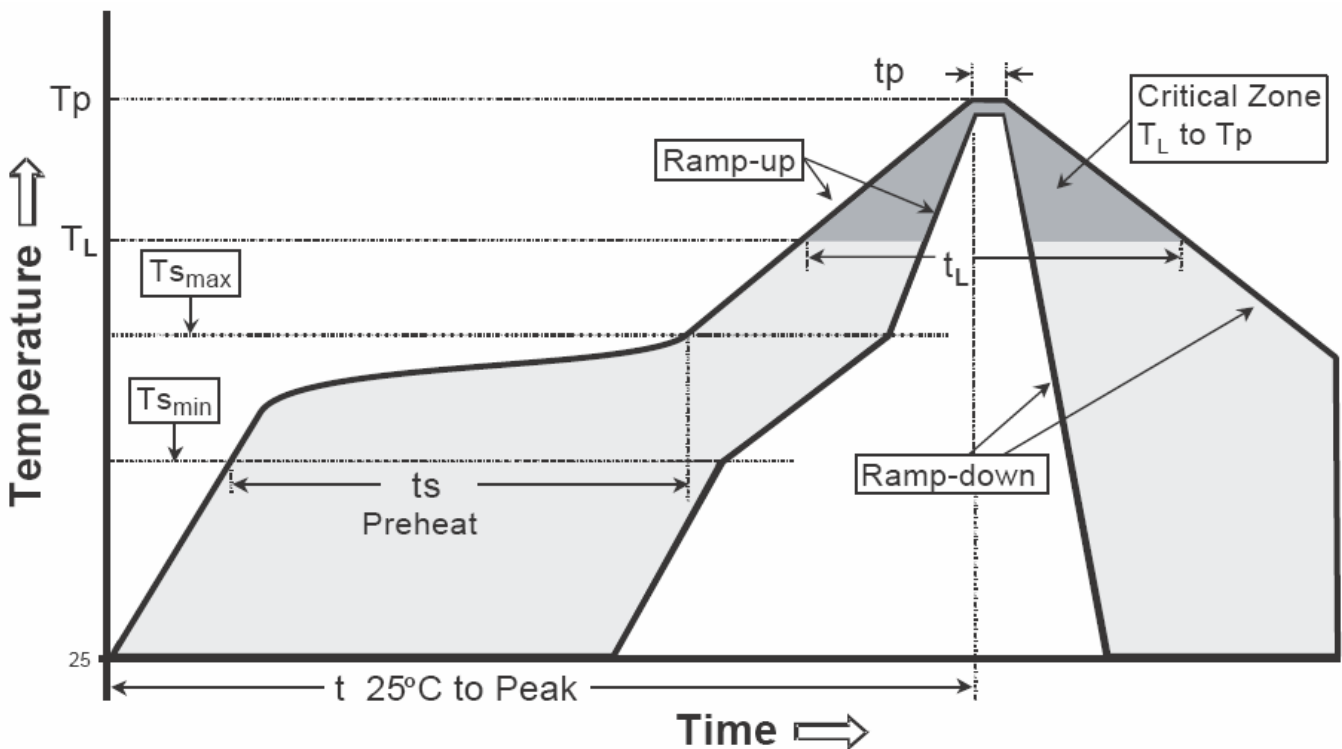
Carrier Tape Dimension



Recommended wave soldering condition

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

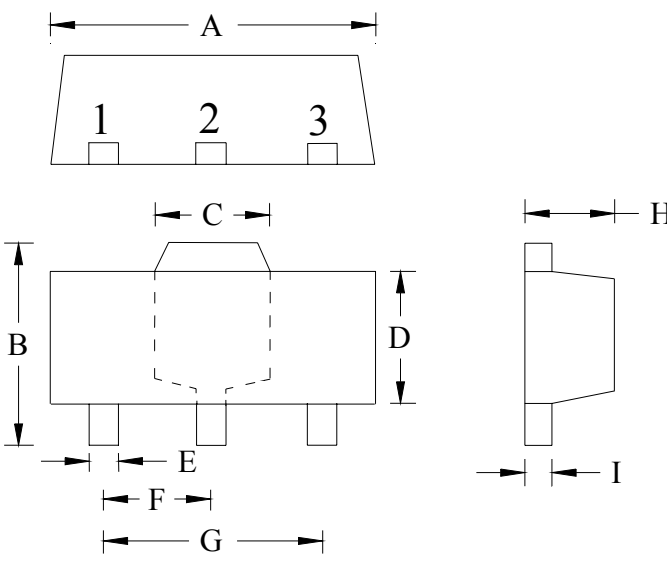
Recommended temperature profile for IR reflow



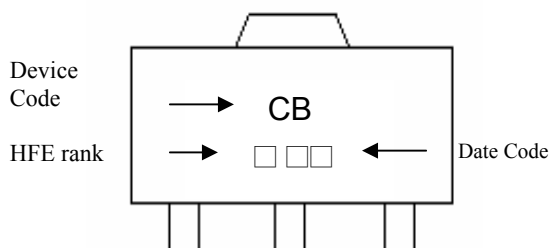
Profile feature	Sn-Pb eutectic Assembly	Pb-free Assembly
Average ramp-up rate (T _{smax} to T _p)	3°C/second max.	3°C/second max.
Preheat		
-Temperature Min(T _{s min})	100°C	150°C
-Temperature Max(T _{s max})	150°C	200°C
-Time(t _{s min} to t _{s max})	60-120 seconds	60-180 seconds
Time maintained above: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



Device Code → CB ←
 HFE rank → □ □ □ ← Date Code

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: 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.

Important Notice:

- All rights are reserved. Reproduction in whole or in part is prohibited without the prior written approval of CYStek.
- CYStek reserves the right to make changes to its products without notice.
- CYStek **semiconductor products are not warranted to be suitable for use in Life-Support Applications, or systems.**
- CYStek assumes no liability for any consequence of customer product design, infringement of patents, or application assistance.