

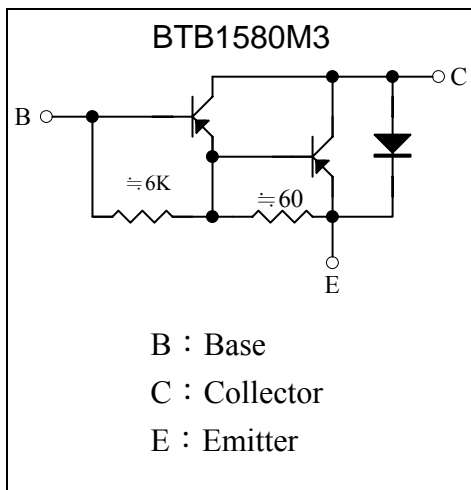
# PNP Epitaxial Planar Transistor

## BTB1580M3

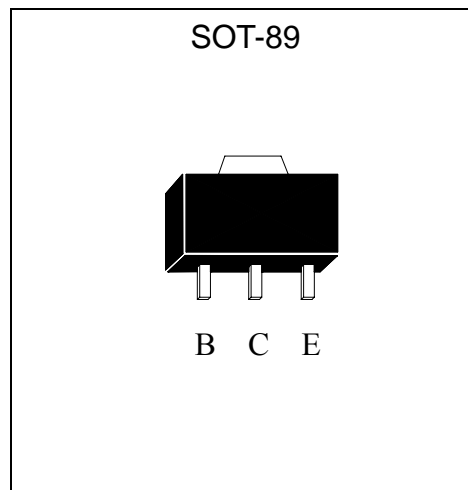
### Description

The BTB1580M3 is a PNP Darlington transistor, designed for use in general purpose amplifier and low speed switching application. Pb-free package process is adopted.

### Equivalent Circuit



### Outline



### Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Collector-Base Voltage	V <sub>CBO</sub>	-100	V
Collector-Emitter Voltage	V <sub>CEO</sub>	-100	V
Emitter-Base Voltage	V <sub>EBO</sub>	-5	V
Collector Current (DC)	I <sub>C</sub>	-4	A
Collector Current (Pulse)	I <sub>CP</sub>	-6 (Note 1)	A
Power Dissipation	P <sub>d</sub>	0.6	W
		1 (Note 2)	W
		2 (Note 3)	W
Thermal Resistance, Junction to Ambient	R <sub>θJA</sub>	208	°C/W
		125 (Note 2)	°C/W
		62.5 (Note 3)	°C/W
Junction Temperature	T <sub>j</sub>	150	°C
Storage Temperature	T <sub>stg</sub>	-55~+150	°C

Note : 1. Single Pulse Pw ≤ 350μs, Duty ≤ 2%.

2. When mounted on a FR-4 PCB with area measuring 10×10×1 mm.

3. When mounted on a ceramic board with area measuring 40×40×1mm.

**Characteristics** (Ta=25°C)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
BV <sub>CEO</sub>	-100	-	-	V	I <sub>C</sub> =-1mA, I <sub>B</sub> =0
BV <sub>CBO</sub>	-100	-	-	V	I <sub>C</sub> =-100μA, I <sub>E</sub> =0
I <sub>CBO</sub>	-	-	-1	mA	V <sub>CB</sub> =-100V, I <sub>E</sub> =0
I <sub>CEO</sub>	-	-	-2	mA	V <sub>CE</sub> =-50V, I <sub>B</sub> =0
I <sub>EBO</sub>	-	-	-2	mA	V <sub>EB</sub> =-5V, I <sub>C</sub> =0
*V <sub>CE(sat)</sub>	-	-	-2	V	I <sub>C</sub> =-2A, I <sub>B</sub> =-2mA
*V <sub>BE(on)</sub>			-2.8	V	V <sub>CE</sub> =-4V, I <sub>C</sub> =-2A
*h <sub>FE1</sub>	1000	-	-	-	V <sub>CE</sub> =-4V, I <sub>C</sub> =-1A
*h <sub>FE2</sub>	500	-	-	-	V <sub>CE</sub> =-4V, I <sub>C</sub> =-2A
Cob	-		200	pF	V <sub>CB</sub> =-10V, I <sub>E</sub> =0A, f=1MHz

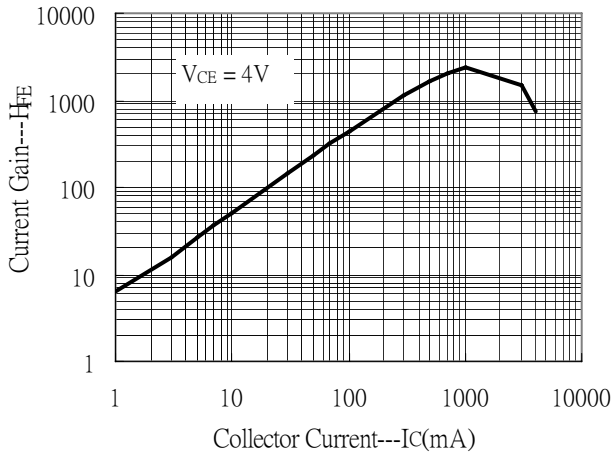
\*Pulse Test : Pulse Width ≤380μs, Duty Cycle≤2%

**Ordering Information**

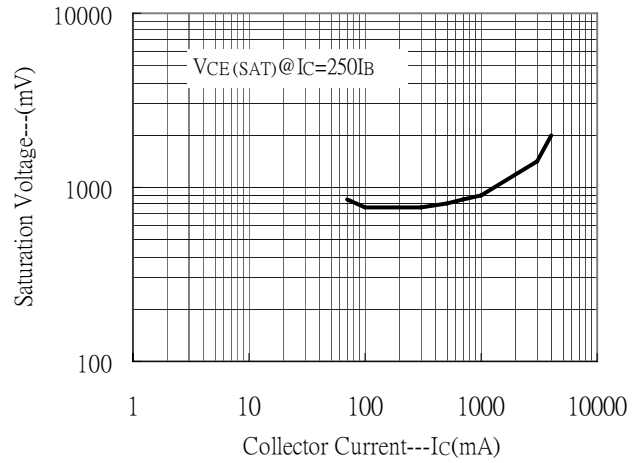
Device	Package	Shipping	Marking
BTB1580M3	SOT-89 (Pb-free)	1000 pcs / Tape & Reel	BN

## Characteristic Curves

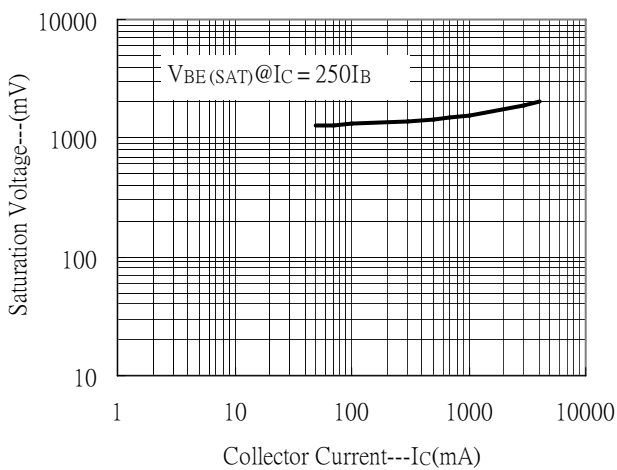
Current Gain vs Collector Current



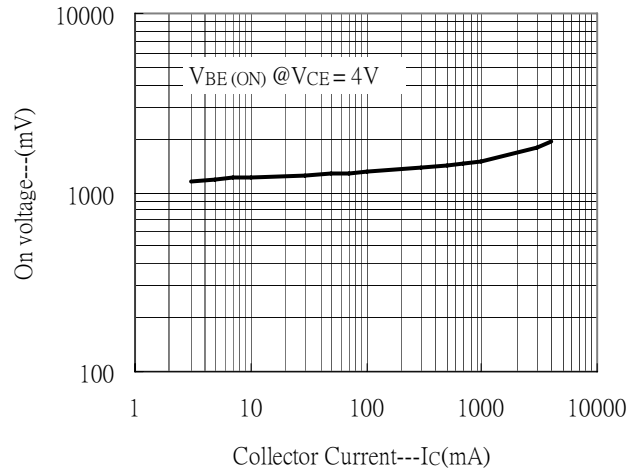
Saturation Voltage vs Collector Current



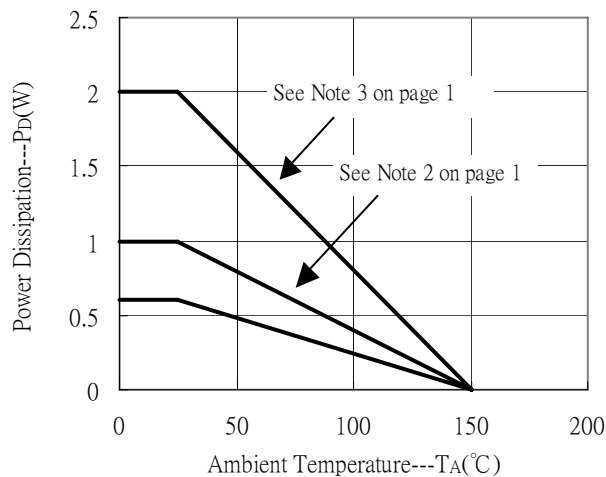
Saturation Voltage vs Collector Current



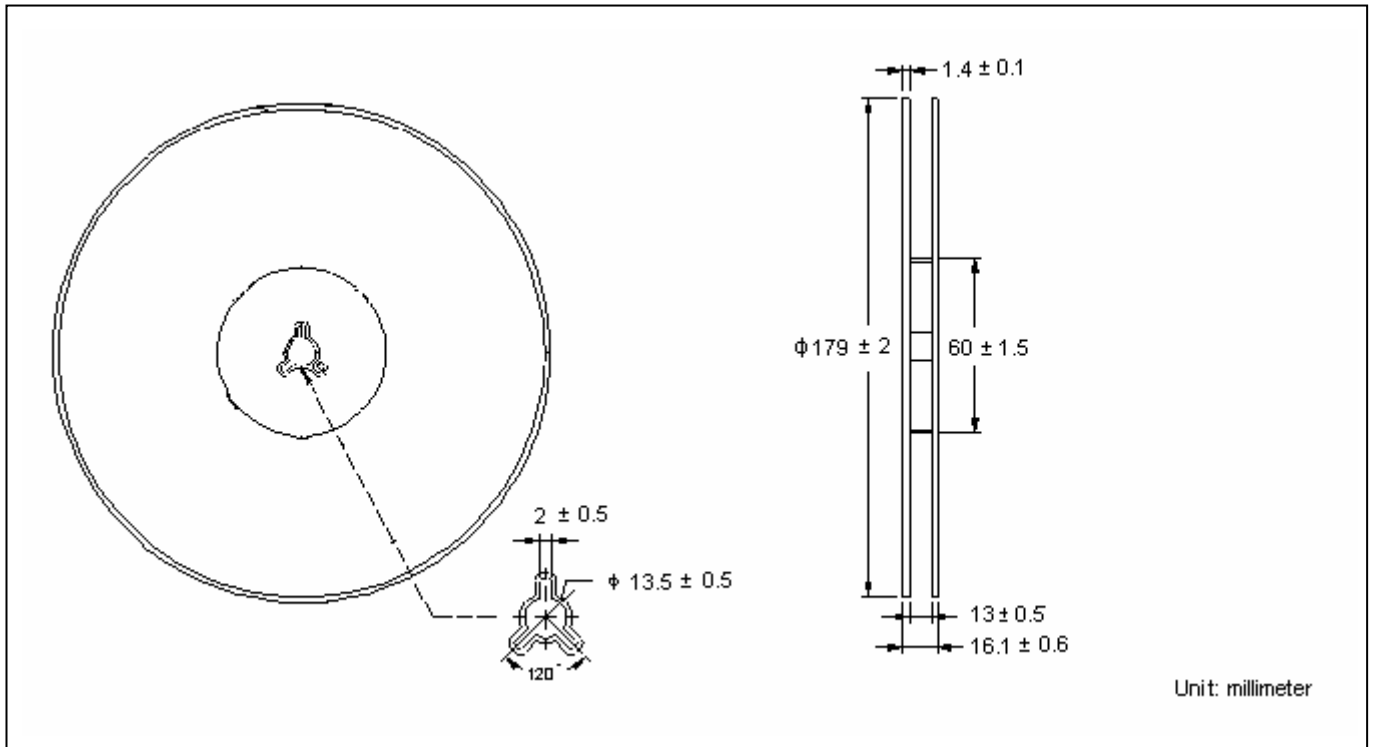
On voltage vs Collector Current



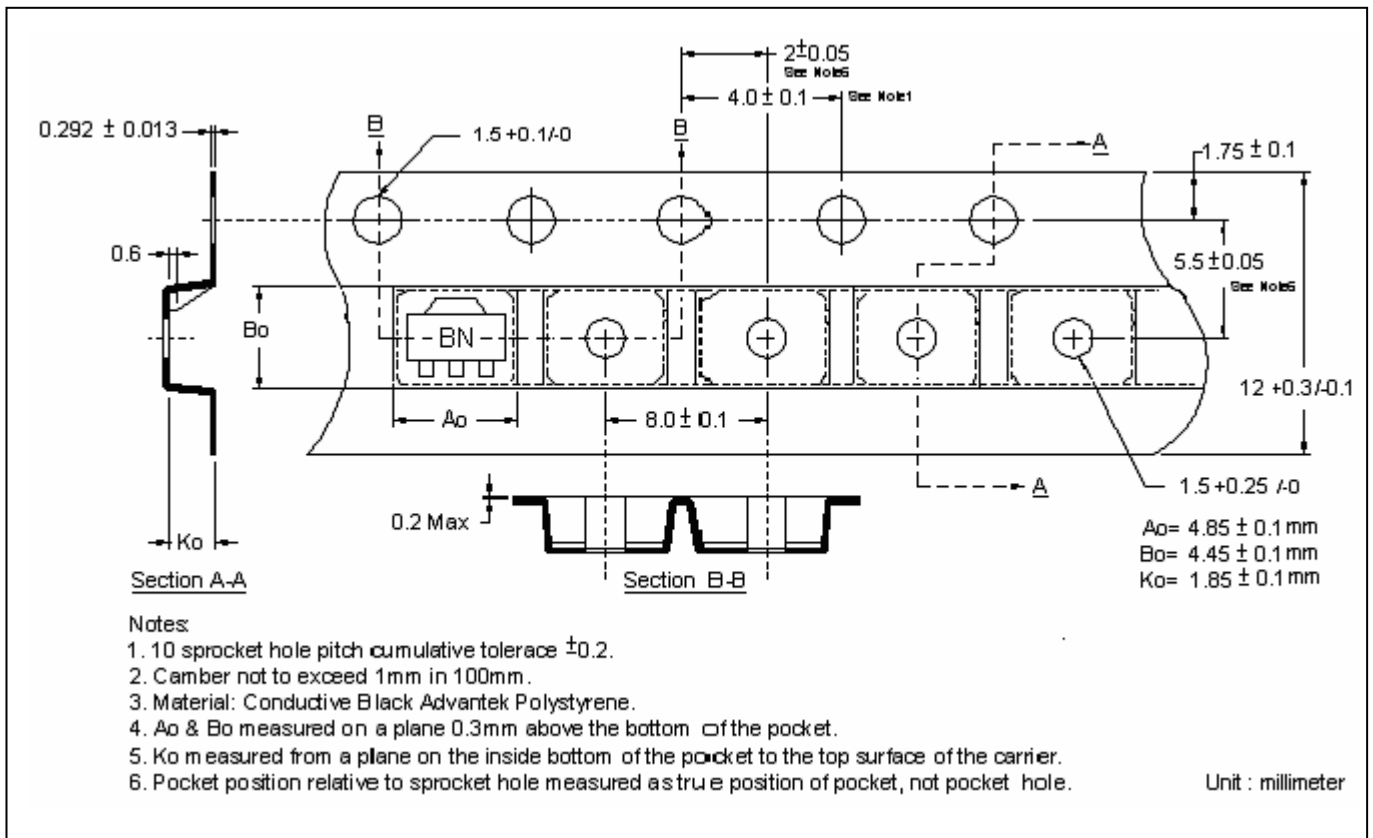
Power Derating Curves



**Reel Dimension**



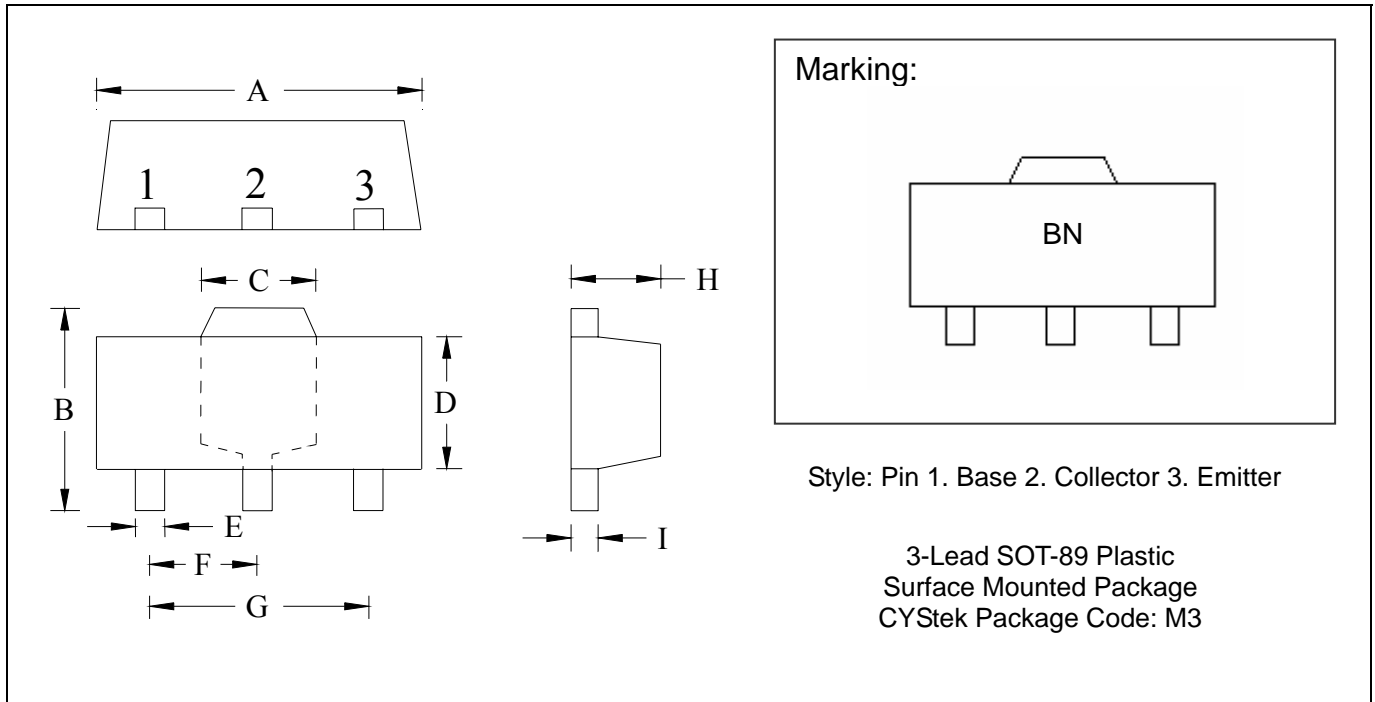
**Carrier Tape Dimension**



**Notes:**

1. 10 sprocket hole pitch cumulative tolerance  $\pm 0.2$ .
2. Camber not to exceed 1mm in 100mm.
3. Material: Conductive Black Advantek Polystyrene.
4.  $A_o$  &  $B_o$  measured on a plane 0.3mm above the bottom of the pocket.
5.  $K_o$  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.

**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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