

Low Saturation PNP Epitaxial Planar Transistor

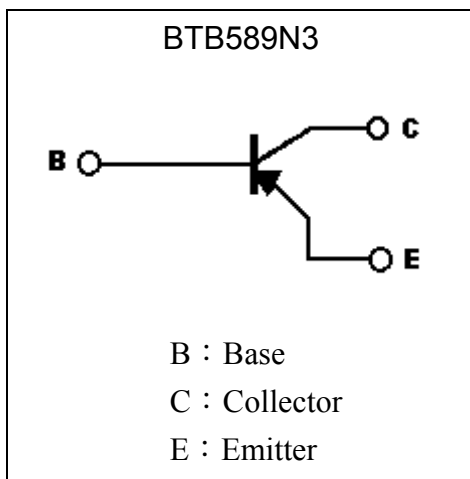
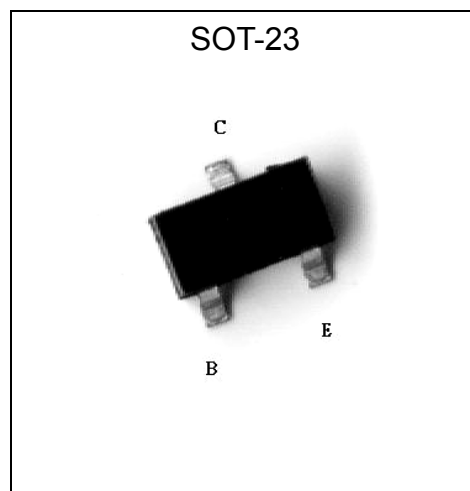
BTB589N3

Description

The BTB589N3 is designed with high current gain and low saturation voltage with collector current up to 1A continuous.

Features

- Low $V_{CE(SAT)}$, $V_{CE(SAT)} \leq -0.3V$ ($I_C / I_B = -1A / -100mA$)
- Large collector current, $I_C = -1A$
- Pb-free package

Symbol**Outline**



Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Collector-Base Voltage	V _{CB0}	-50	V
Collector-Emitter Voltage	V _{CEO}	-32	V
Emitter-Base Voltage	V _{EBO}	-5	V
Collector Current (DC)	I _C	-1	A
Collector Current (Pulse)	I _{CP}	-2	
Power Dissipation	P _d	310 (Note 1)	mW
		500 (Note 2)	
Thermal Resistance, Junction to Ambient	R _{θJA}	403 (Note 1)	°C/W
		250 (Note 2)	
Junction Temperature	T _j	-55~+150	°C
Storage Temperature	T _{stg}	-55~+150	°C

Note: 1. Device mounted on FR-4 PCB with minimum pad
 2. Device mounted on FR-4 PCB with area of 4.5"x5", mounting pad 0.02 in² of 2 oz copper

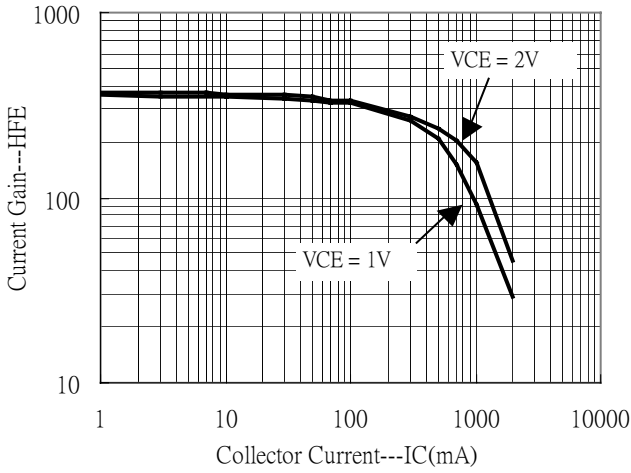
Characteristics (Ta=25°C)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
BV _{CB0}	-40	-	-	V	I _C =-50μA
BV _{CEO}	-32	-	-	V	I _C =-1mA
BV _{EBO}	-5	-	-	V	I _E =-50μA
I _{CB0}	-	-	-100	nA	V _{CB} =-30V
I _{EBO}	-	-	-100	nA	V _{EB} =-4V
*V _{CE(sat) 1}	-	-	-0.25	V	I _C =-500mA, I _B =-50mA
*V _{CE(sat) 2}	-	-	-0.30	V	I _C =-1A, I _B =-100mA
*V _{CE(sat) 3}	-	-	-0.65	V	I _C =-2A, I _B =-200mA
*V _{BE(sat)}	-	-	-1.2	V	I _C =-1A, I _B =-100mA
*V _{BE(on)}	-	-	-1.1	V	V _{CE} =-2V, I _C =-1A
*h _{FE 1}	180	-	420	-	V _{CE} =-3V, I _C =-100mA
*h _{FE 2}	100	-	-	-	V _{CE} =-2V, I _C =-500mA
*h _{FE 3}	80	-	-	-	V _{CE} =-2V, I _C =-1A
*h _{FE 4}	30	-	-	-	V _{CE} =-2V, I _C =-2A
f _T	100	200	-	MHz	V _{CE} =-5V, I _C =-50mA, f=100MHz
C _{ob}	-	12	25	pF	V _{CB} =-10V, f=1MHz

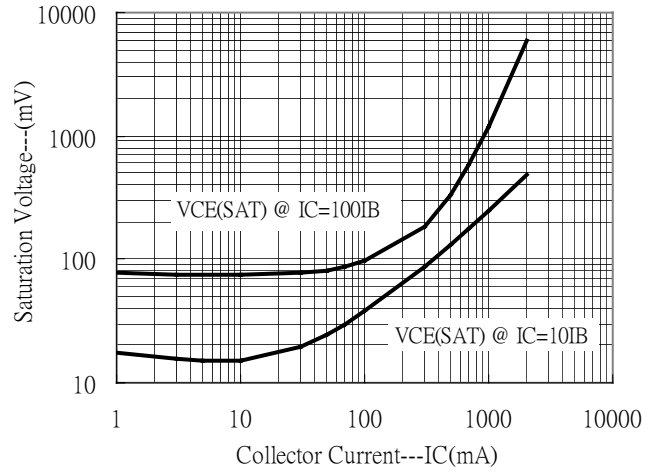
*Pulse Test: Pulse Width ≤380μs, Duty Cycle ≤2%

Characteristic Curves

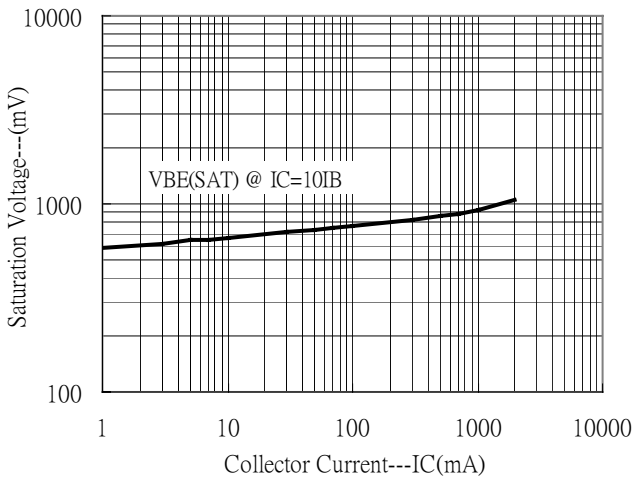
Current Gain vs Collector Current



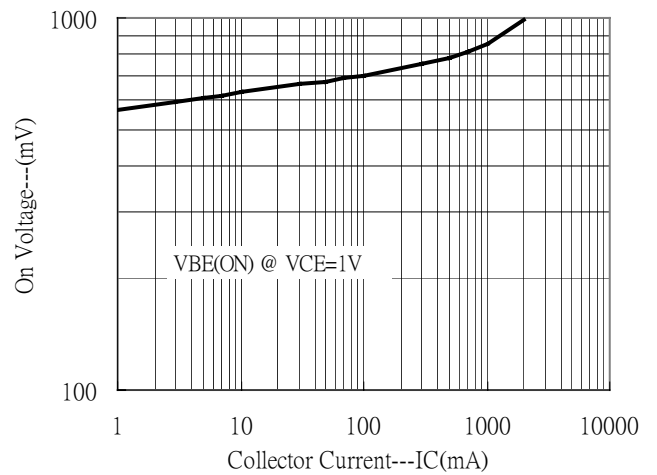
Saturation Voltage vs Collector Current



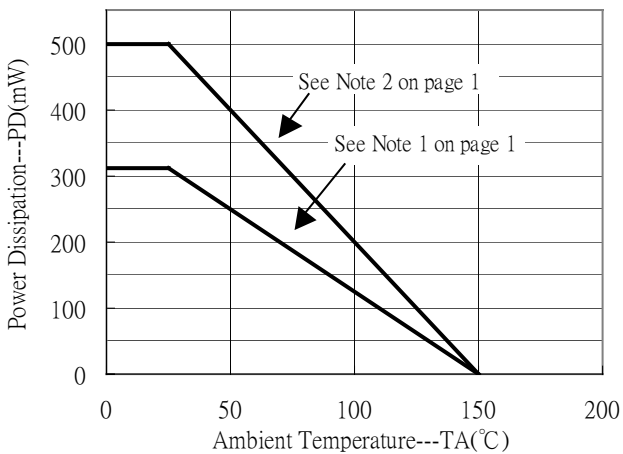
Saturation Voltage vs Collector Current



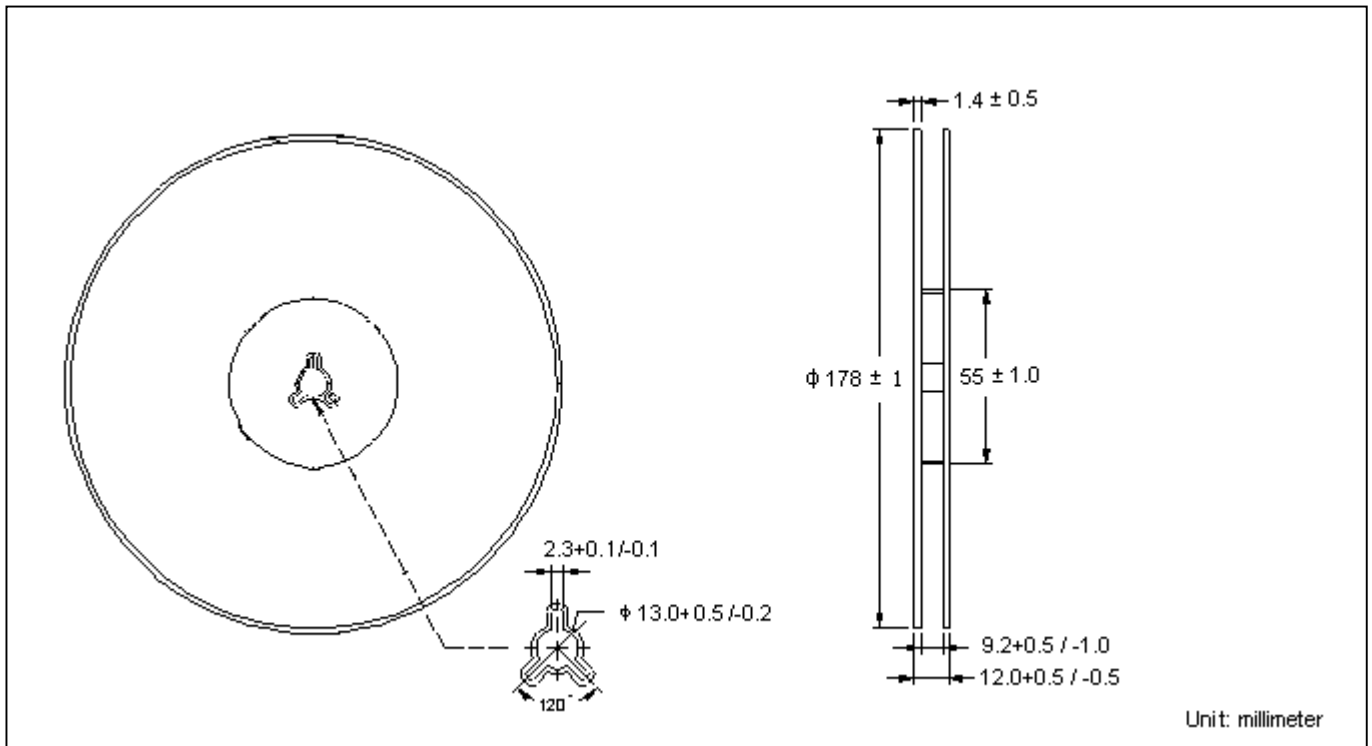
On Voltage vs Collector Current



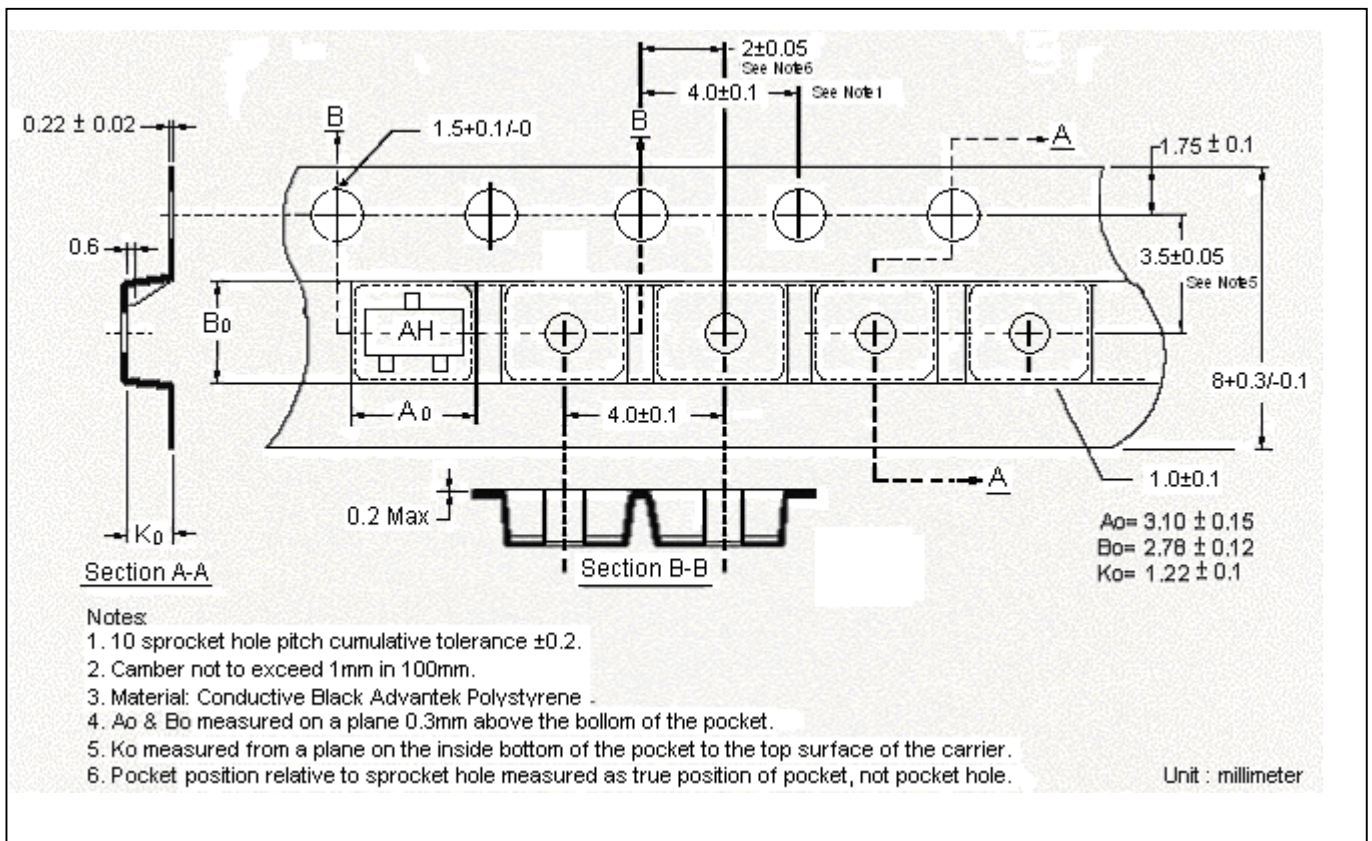
Power Derating Curves



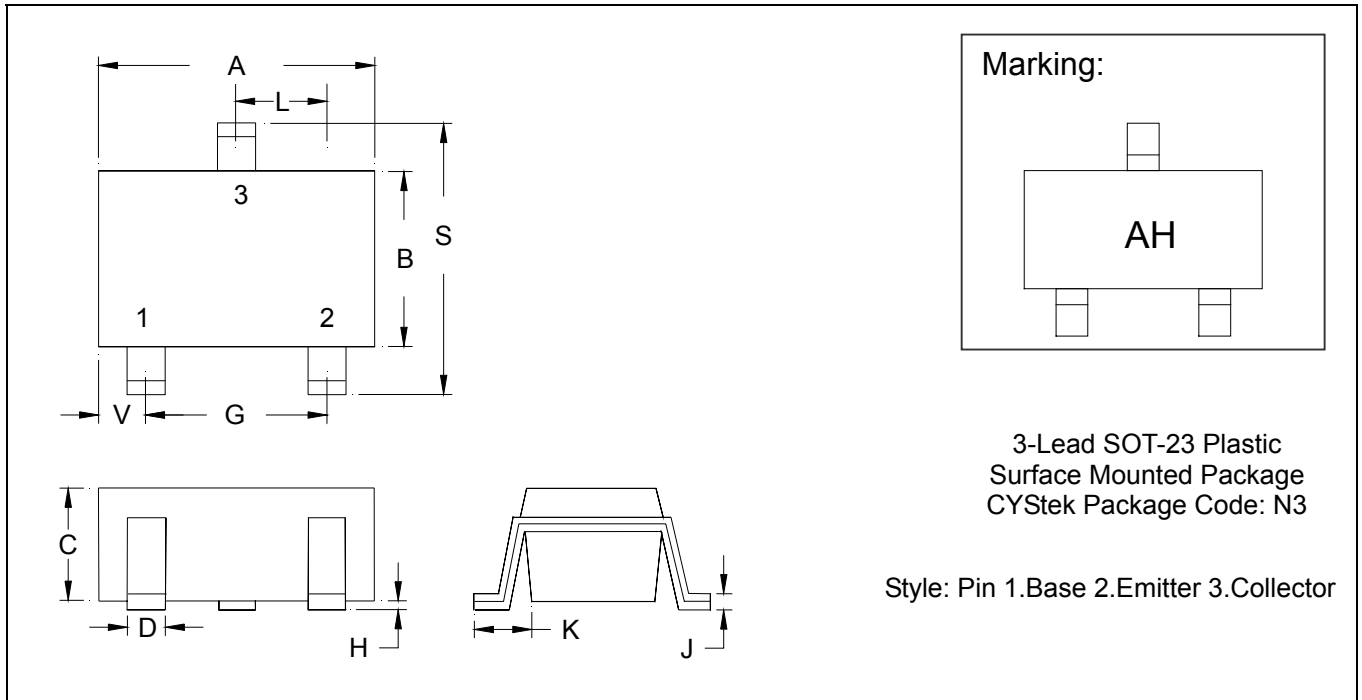
Reel Dimension



Carrier Tape Dimension



SOT-23 Dimension



*: Typical

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.1102	0.1204	2.80	3.04	J	0.0034	0.0070	0.085	0.177
B	0.0472	0.0630	1.20	1.60	K	0.0128	0.0266	0.32	0.67
C	0.0335	0.0512	0.89	1.30	L	0.0335	0.0453	0.85	1.15
D	0.0118	0.0197	0.30	0.50	S	0.0830	0.1083	2.10	2.75
G	0.0669	0.0910	1.70	2.30	V	0.0098	0.0256	0.25	0.65
H	0.0005	0.0040	0.013	0.10					

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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