General Purpose NPN Epitaxial Planar Transistor

BTD1782N3

Description

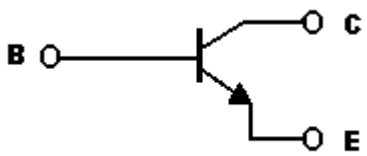
The BTD1782N3 is designed for use in driver and output stages of AF amplifier and general purpose application.

Features

- Low $V_{CE(SAT)}$, $V_{CE(SAT)}$= 0.15V(typ) @I_C=500mA/I_B=50mA
- High breakdown voltage, V_{CEO}=80V (min.)
- Complements to BTB1198N3
- Pb-free package

Symbol

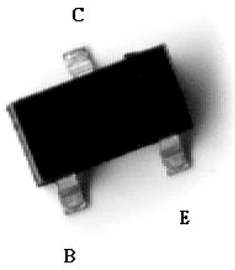
BTD1782N3



B：Base
C：Collector
E：Emitter

Outline

SOT-23



Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Collector-Base Voltage	V_{CBO}	80	V
Collector-Emitter Voltage	V_{CEO}	80	V
Emitter-Base Voltage	V_{EBO}	5	V
Collector Current (DC)	I_C	0.5	A
Power Dissipation	P_D	200	mW
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	625	°C/W
Junction Temperature	Tj	150	°C
Storage Temperature	Tstg	-55~+150	°C

Note : Pulse test, Pw ≤ 10ms, Duty ≤ 50%.

Characteristics (Ta=25°C)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
BV_{CBO}	80	-	-	V	I_C=50μA
BV_{CEO}	80	-	-	V	I_C=2mA
BV_{EBO}	5	-	-	V	I_E=50μA
I_{CBO}	-	-	0.5	μA	V_{CB}=50V, I_E=0
I_{EBO}	-	-	0.5	μA	V_{EB}=4V, I_C=0
*$V_{CE(SAT)}$	-	0.15	0.5	V	I_C=500mA, I_B=20mA
*h_{FE}	120	-	390	-	V_{CE}=3V, I_C=100mA
f_T	-	180	-	MHz	V_{CE}=10V, I_C=50mA, f=100MHz
Cob	-	7.5	-	pF	V_{CB}=10V, I_E=0A, f=1MHz

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

Classification Of h_{FE}

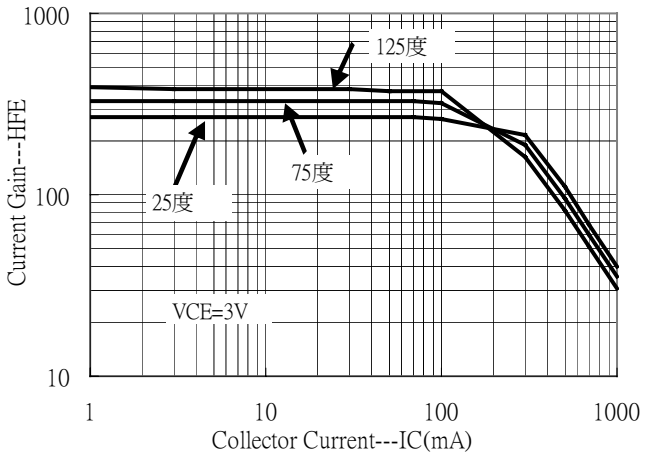
Rank	Q	R
Range	120~270	180~390

Ordering Information

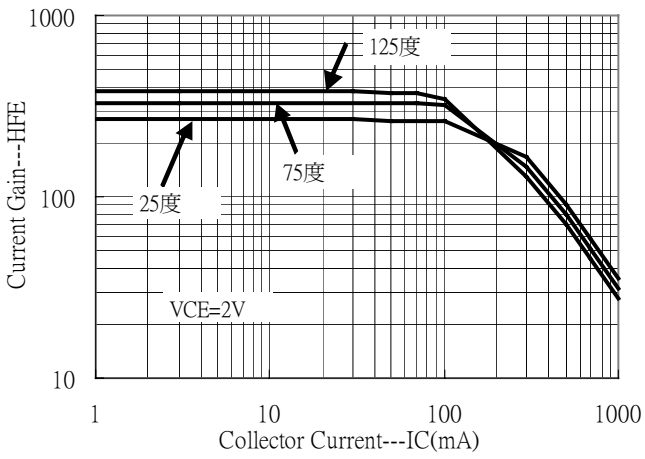
Device	Package	Shipping	Marking
BTD1782N3	SOT-23 (Pb-free)	3000 pcs / Tape & Reel	AJ

Characteristic Curves

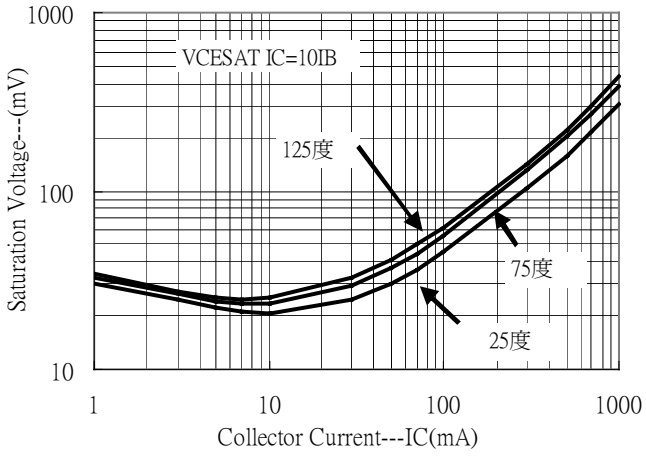
Current Gain vs Collector Current



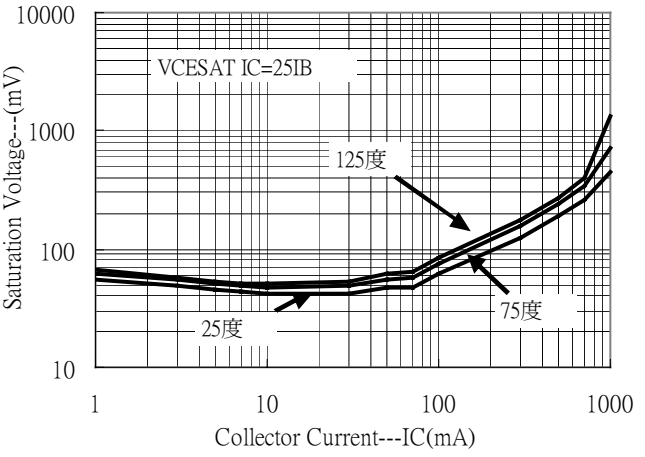
Current Gain vs Collector Current



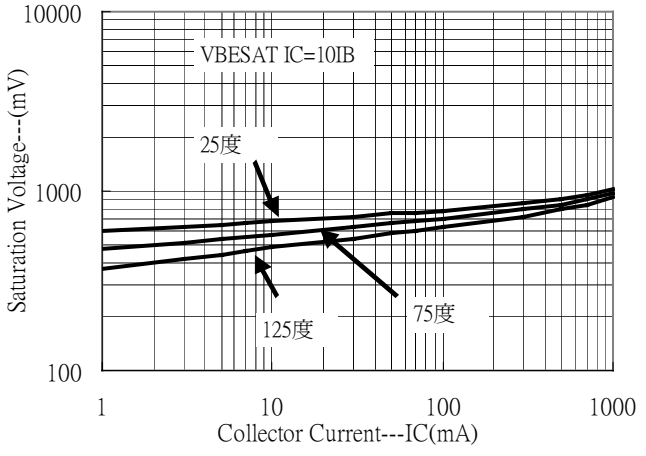
Saturation Voltage vs Collector Current



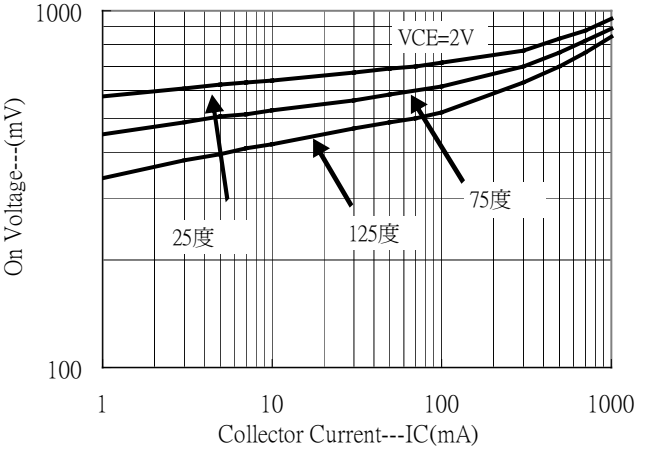
Saturation Voltage vs Collector Current



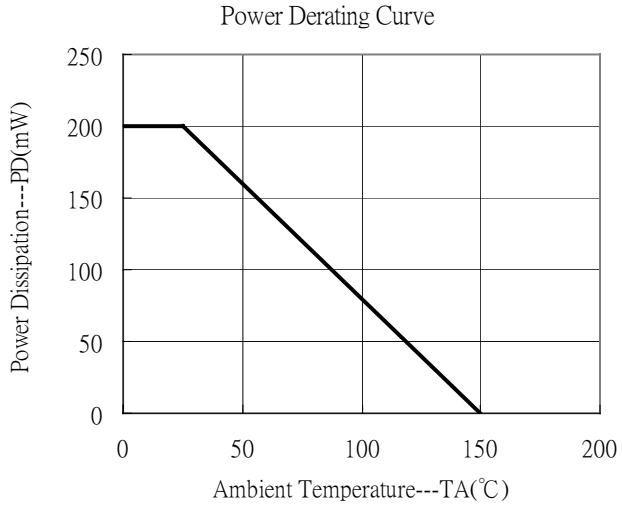
Saturation Voltage vs Collector Current



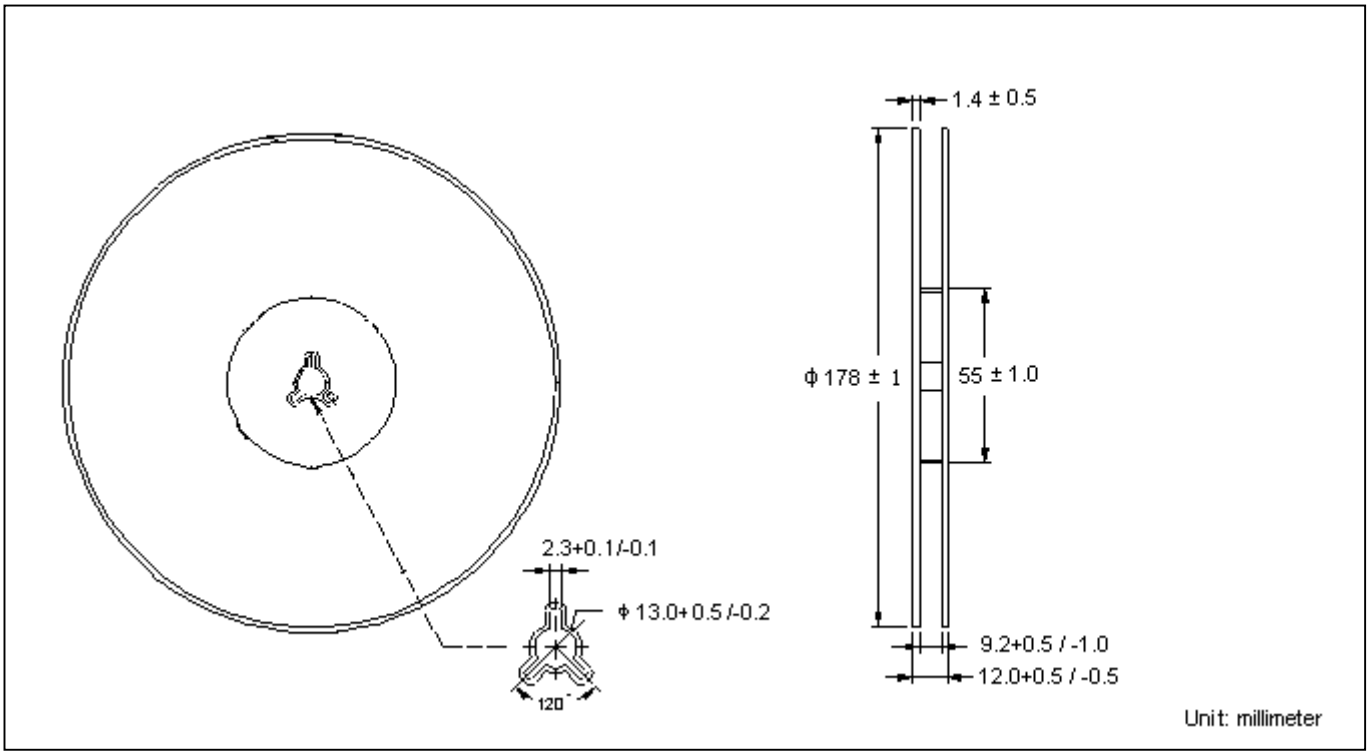
On Voltage vs Collector Current



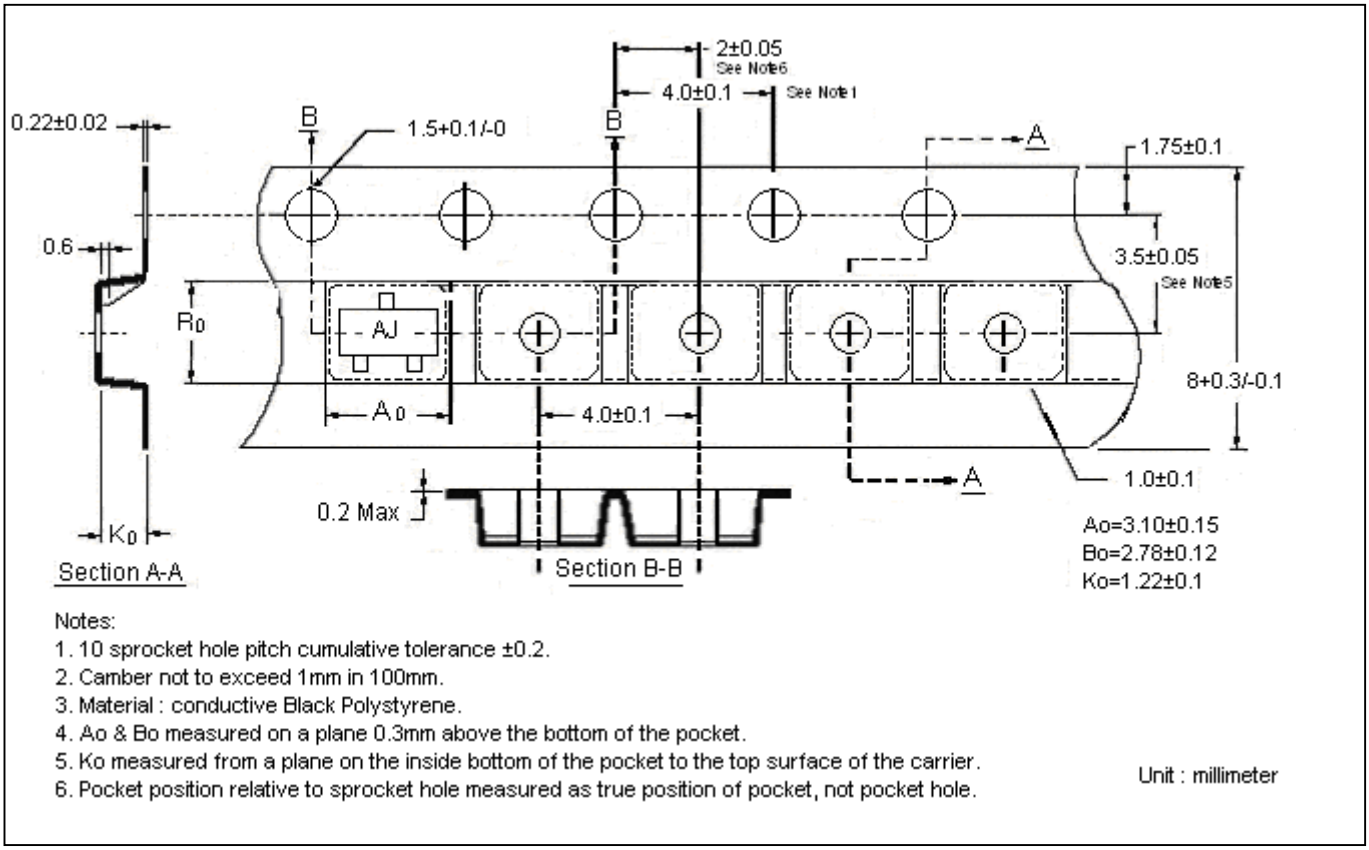
Characteristic Curves(Cont.)



Reel Dimension



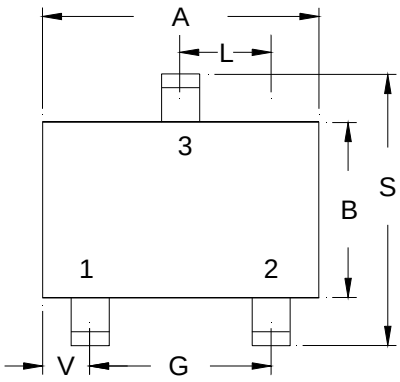
Carrier Tape Dimension

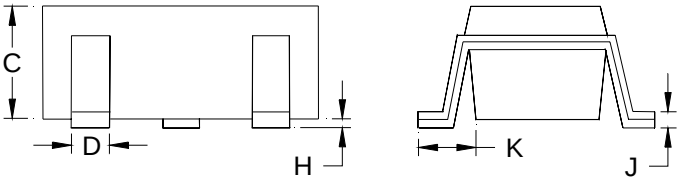


Notes:
1. 10 sprocket hole pitch cumulative tolerance ±0.2.
2. Camber not to exceed 1mm in 100mm.
3. Material : conductive Black Polystyrene.
4. Ao & Bo measured on a plane 0.3mm above the bottom of the pocket.
5. Ko measured from a plane on the inside bottom of the pocket to the top surface of the carrier.
6. Pocket position relative to sprocket hole measured as true position of pocket, not pocket hole.

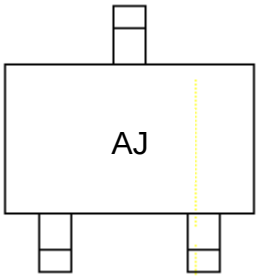
Unit : millimeter

SOT-23 Dimension





Marking:



3-Lead SOT-23 Plastic
Surface Mounted Package
CYStek Package Code: N3

Style: Pin 1.Base 2.Emitter 3.Collector

*: 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