General Purpose NPN Epitaxial Planar Transistor

BTC3906M3

Description

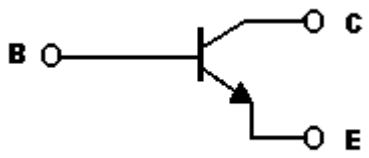
The BTC3906M3 is designed for general purpose applications requiring high breakdown voltage.

Features

- High collector-emitter breakdown voltage. (BV_{CEO}=160V @ I_C=1mA)
- Complement to BTA1514M3

Symbol

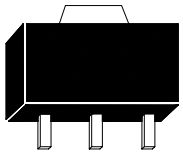
BTC3906M3



B：Base
C：Collector
E：Emitter

Outline

SOT-89



B C E

Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Collector-Base Voltage	V_{CBO}	180	V
Collector-Emitter Voltage	V_{CEO}	160	V
Emitter-Base Voltage	V_{EBO}	6	V
Collector Current	I_C	600	mA
Power Dissipation	Pd	0.6	W
		1 (Note 1)	W
		2 (Note 2)	W
Junction Temperature	Tj	150	°C
Storage Temperature	Tstg	-55~+150	°C

Note：1. When mounted on FR-4 PCB with area measuring 10×10×1 mm
2 . When mounted on ceramic with area measuring 40×40×1 mm

Characteristics (Ta=25°C)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
BV_{CBO}	180	-	-	V	I_C=100μA
BV_{CEO}	160	-	-	V	I_C=1mA
BV_{EBO}	6	-	-	V	I_E=10μA
I_{CBO}	-	-	50	nA	V_{CB}=120V
I_{EBO}	-	-	50	nA	V_{EB}=4V
*$V_{CE(sat)}$1	-	0.1	0.15	V	I_C=10mA, I_B=1mA
*$V_{CE(sat)}$2	-	-	0.2.	V	I_C=50mA, I_B=5mA
*$V_{BE(sat)}$1	-	-	1	V	I_C=10mA, I_B=1mA
*$V_{BE(sat)}$2	-	-	1	V	I_C=50mA, I_B=5mA
*h_{FE}1	25	-	-	-	V_{CE}=5V, I_C=1mA
*h_{FE}2	60	-	-	-	V_{CE}=5V, I_C=10mA
*h_{FE}3	40	-	-	-	V_{CE}=5V, I_C=50mA
*h_{FE}4	52	-	390	-	V_{CE}=6V, I_C=2mA
f_T	100	-	-	MHz	V_{CE}=20V, I_C=10mA, f=100MHz
Cob	-	-	6	pF	V_{CB}=20V, I_E=0A,f=1MHz

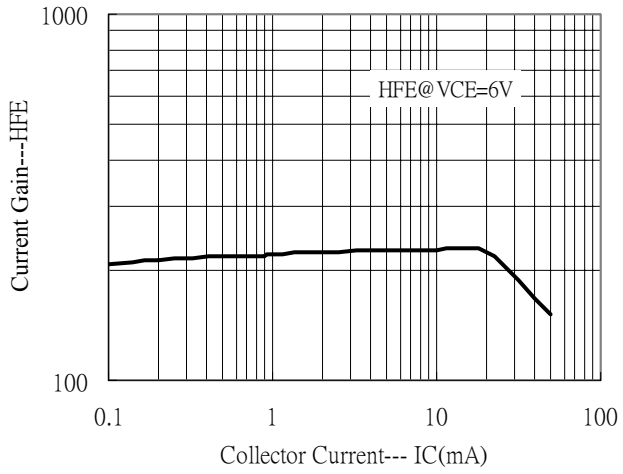
*Pulse Test: Pulse Width ≤380μs, Duty Cycle≤2%

Classification Of h_{FE} 4

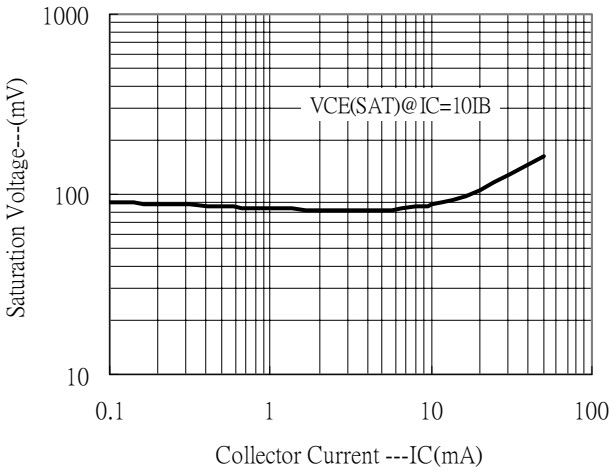
Rank	K	P	Q	R
Range	52~120	82~180	120~270	180~390

Characteristic Curves

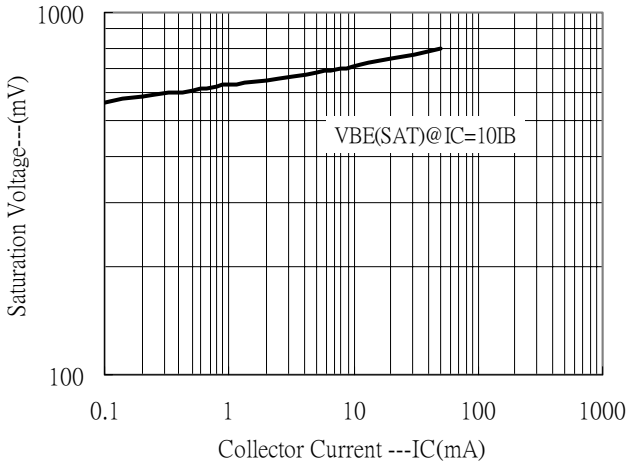
Current Gain vs Collector Current



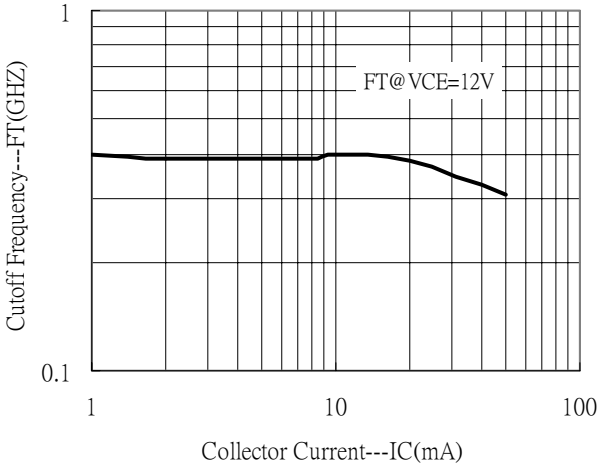
Saturation Voltage vs Collector Current



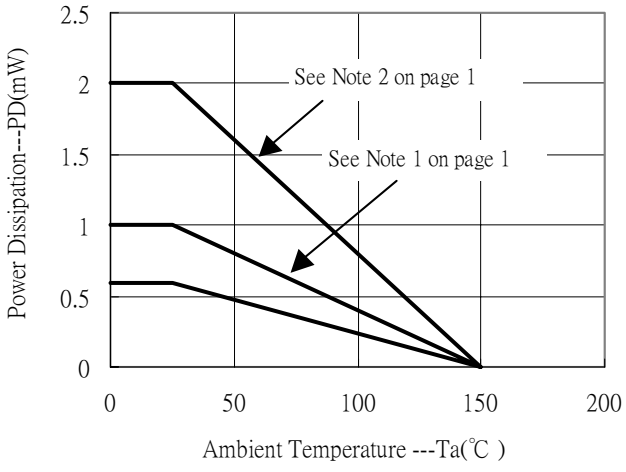
Saturation Voltage vs Collector Current



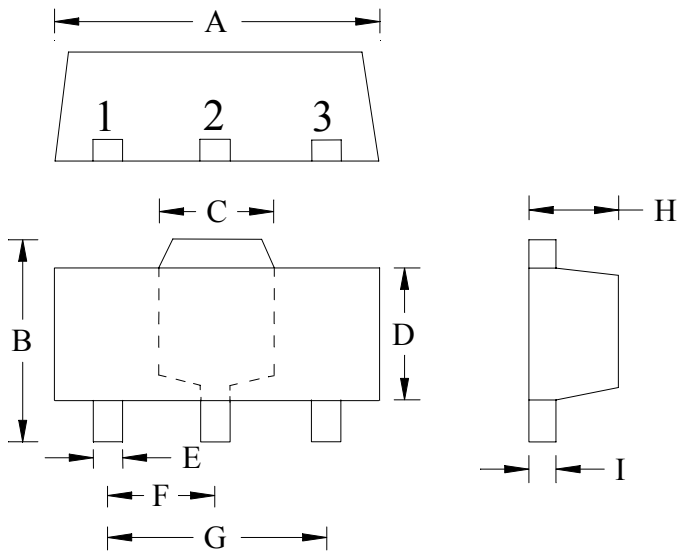
Cutoff Frequency vs Collector Current

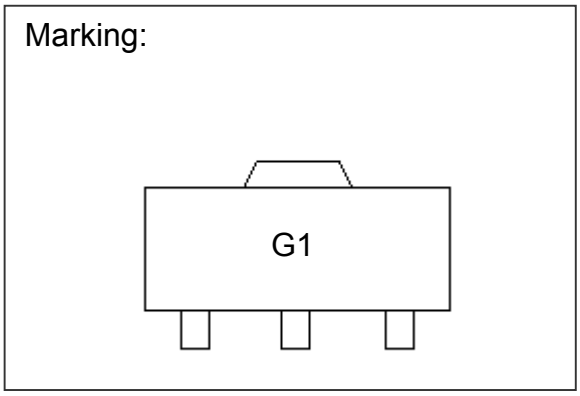


Power Derating Curves



SOT-89 Dimension





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

3-Lead SOT-89 Plastic
Surface Mounted Package
CYStek Package Code: M3

*: 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