

General Purpose NPN Epitaxial Planar Transistor

BTC2059N3

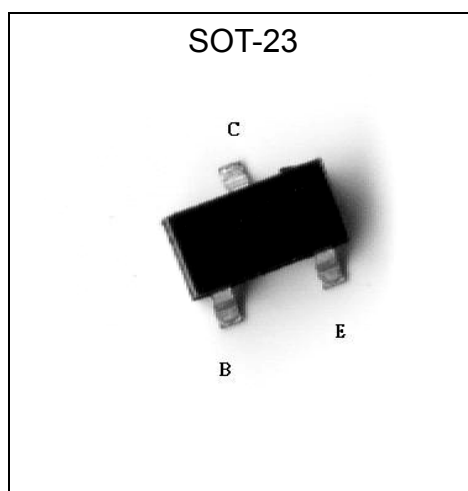
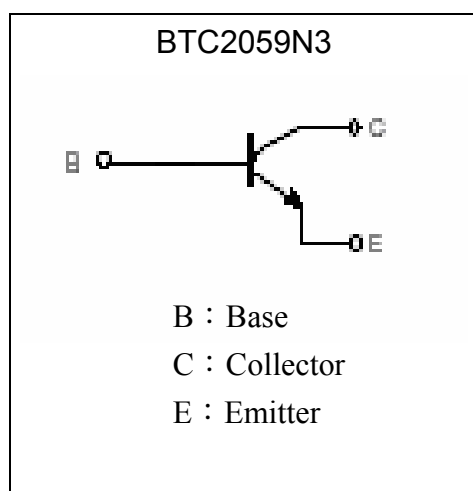
Description

The BTC2059N3 is designed for using in VHF & UHF oscillators and VHF mixer in tuner of a TV receiver.

Features

- High transition frequency. ($f_T = 1.0\text{GHz}$, TYP. @ $V_{CB}=10\text{V}$, $I_C=10\text{mA}$, $f=200\text{MHz}$)
- Very low capacitance. ($C_{ob} = 1.4\text{pF}$, TYP. @ $V_{CB}=10\text{V}$, $f=1\text{MHz}$)
- Small $r_{bb'}$ - C_c and high gain. ($r_{bb'}$ - $C_c = 8\text{ps}$, TYP. @ $V_{CB}=10\text{V}$, $I_C=10\text{mA}$, $f=31.8\text{MHz}$)
- Small NF. ($NF = 5.5\text{dB}$, TYP. @ $V_{CE}=12\text{V}$, $I_C=2\text{mA}$, $f=200\text{MHz}$, $R_g=50\text{ohm}$)

Equivalent Circuit



Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Collector-Base Voltage	V_{CBO}	25	V
Collector-Emitter Voltage	V_{CEO}	18	V
Emitter-Base Voltage	V_{EBO}	3	V
Collector Current	I_C	50	mA
Power Dissipation	P_d	225	mW
Junction Temperature	T_j	150	°C
Storage Temperature	T_{stg}	-55~+150	°C

Characteristics (Ta=25°C)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
BVCBO	25	-	-	V	IC=10uA
BVCEO	18	-	-	V	IC=1mA
BVEBO	3	-	-	V	IC=10uA
ICBO	-	-	0.5	uA	VCB=10V
IEBO	-	-	0.5	uA	VEB=2V
*VCE(sat)	-	0.1	0.5	V	IC=20mA, IB=4mA
*hFE	52	-	270		VCE=10V, IC=10mA
fT	600	1000	-	MHz	VCB=10V, IC=10mA, f=200MHz
Cob	-	1.4	2.0	pF	VCB=10V, IE=0A, f=1MHz
Rbb'-Cc	-	8	15	pF	VCB=10V, IC=10mA, f=31.8MHz
NF	-	5.5	-	dB	VCE=12V, IC=2mA, f=200MHz, Rg=50ohm

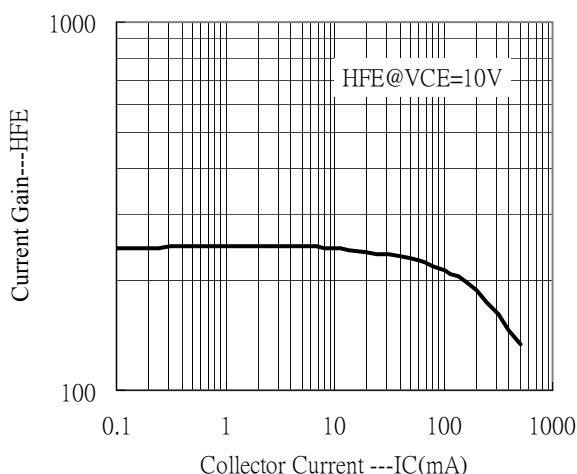
*Pulse Test : Pulse Width ≤380us, Duty Cycle≤2%

Classification Of hFE

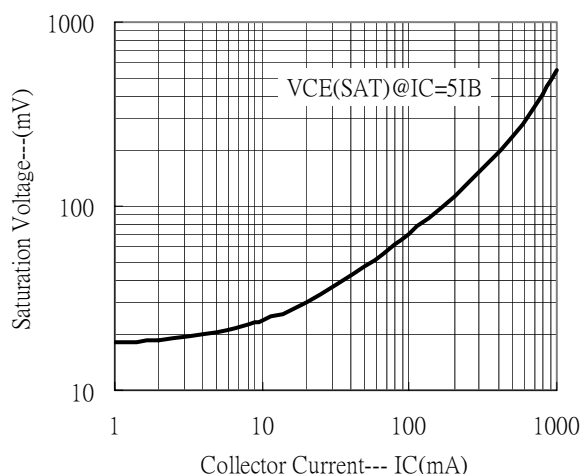
Rank	K	P	Q
Range	52~120	82~180	120~270

Characteristic Curves

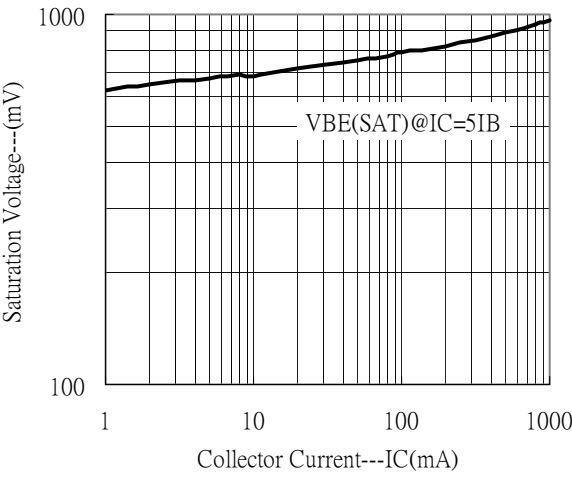
Current Gain vs Collector Current



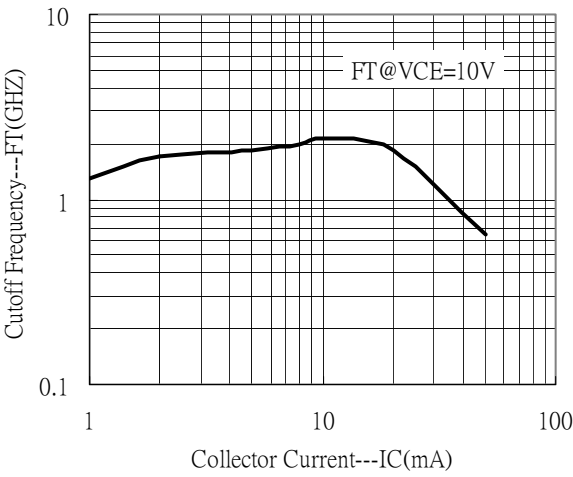
Saturation Voltage vs Collector Current



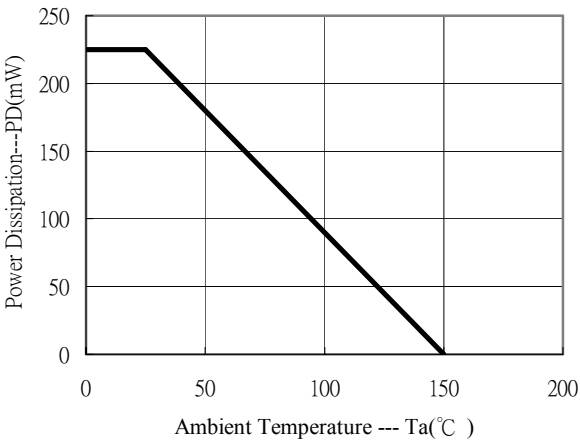
Saturation Voltage vs Collector Current



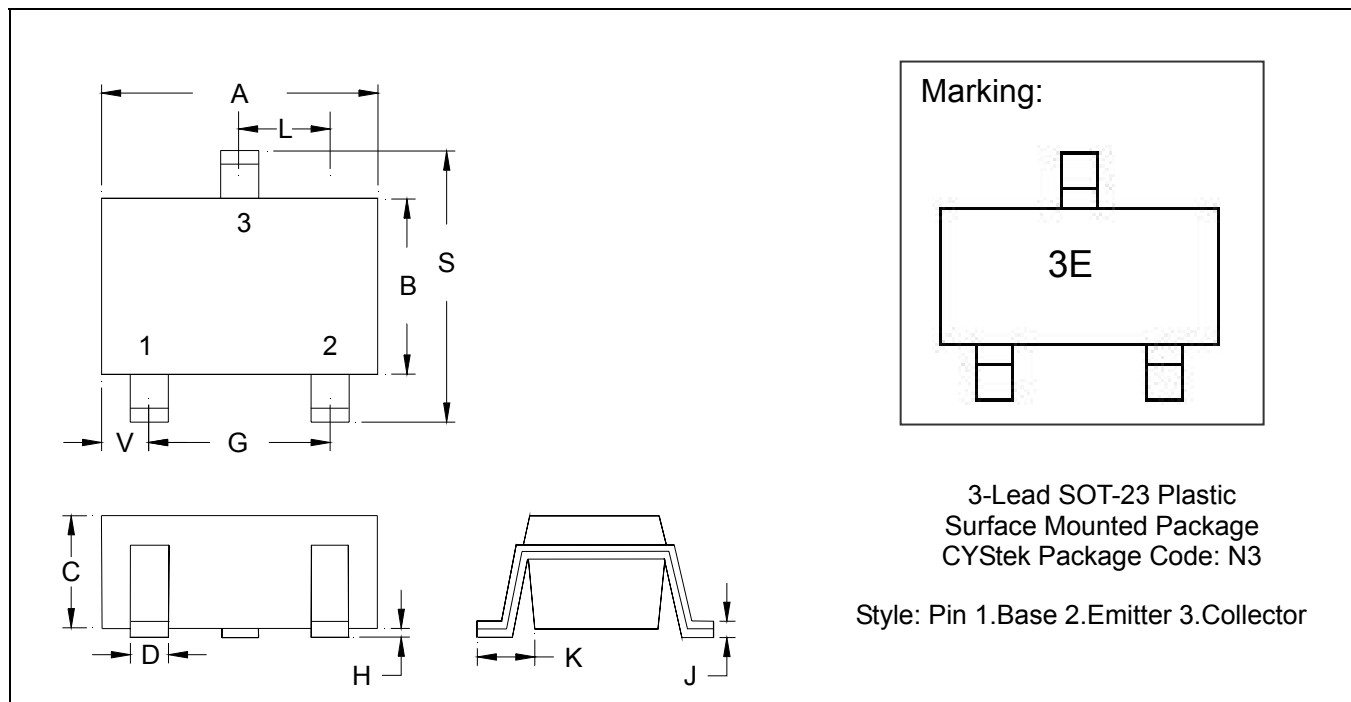
Cutoff Frequency vs Collector Current



PD - T_a



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.Dimension and tolerance based on our Spec. dated Feb. 18,2002.

2.Controlling dimension: millimeters.

3.Maximum lead thickness includes lead finish thickness, and minimum lead thickness is the minimum thickness of base material.

4.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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