

**VHF/UHF NPN Epitaxial Planar Transistor**

# BTC2059A3

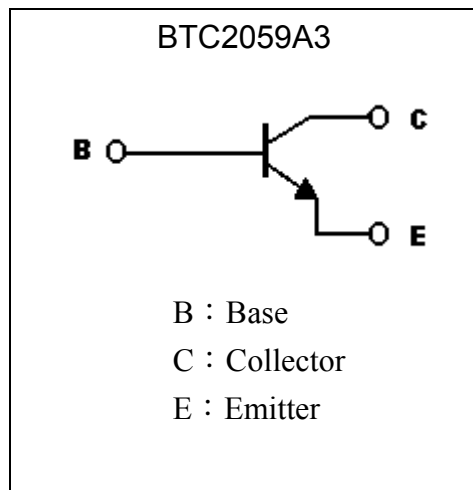
**Description**

The BTC2059A3 is designed for use in VHF & UHF oscillators and VHF mixer in tuner of a TV receiver.

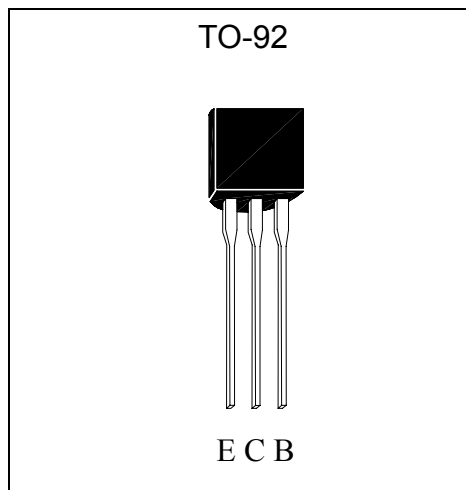
**Features**

- High transition frequency.
- Very low capacitance.
- Small  $R_{bb'}$ - $C_c$  and high current gain.

**Symbol**



**Outline**



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

Parameter	Symbol	Limits	Unit
Collector-Base Voltage	V <sub>CBO</sub>	30	V
Collector-Emitter Voltage	V <sub>CEO</sub>	25	V
Emitter-Base Voltage	V <sub>EBO</sub>	3	V
Collector Current	I <sub>C</sub>	50	mA
Power Dissipation	P <sub>d</sub>	350	mW
Junction Temperature	T <sub>j</sub>	150	°C
Storage Temperature	T <sub>stg</sub>	-55~+150	°C



**Characteristics (Ta=25°C)**

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
BV <sub>CBO</sub>	30	-	-	V	I <sub>C</sub> =100μA
BV <sub>CEO</sub>	25	-	-	V	I <sub>C</sub> =1mA
BV <sub>EBO</sub>	3	-	-	V	I <sub>C</sub> =10μA
I <sub>CBO</sub>	-	-	100	nA	V <sub>CB</sub> =25V
I <sub>EBO</sub>	-	-	100	nA	V <sub>EB</sub> =2V
*V <sub>CE(sat)</sub>	-	-	0.5	V	I <sub>C</sub> =4mA, I <sub>B</sub> =0.4mA
*V <sub>BE(on)</sub>	-	-	0.95	V	V <sub>CE</sub> =10V, I <sub>C</sub> =4mA
*h <sub>FE</sub>	52	-	270	-	V <sub>CE</sub> =10V, I <sub>C</sub> =4mA
f <sub>T</sub>	650	1000	-	MHz	V <sub>CE</sub> =10V, I <sub>C</sub> =4mA, f=100MHz
Cob	-	-	0.7	pF	V <sub>CB</sub> =10V, I <sub>E</sub> =0A, f=1MHz
R <sub>bb'</sub> -C <sub>c</sub>	-	-	9	ps	V <sub>CB</sub> =10V, I <sub>C</sub> =4mA, f=31.8MHz

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

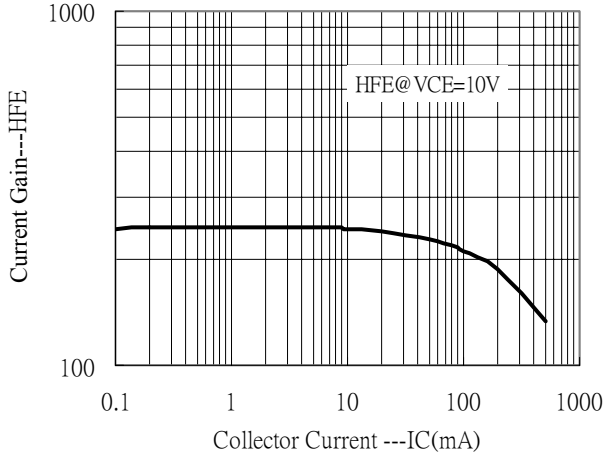
**Classification Of h<sub>FE</sub>**

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

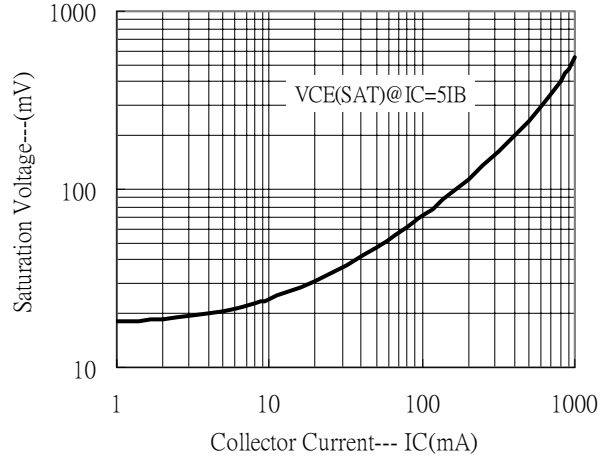


### Characteristic Curves

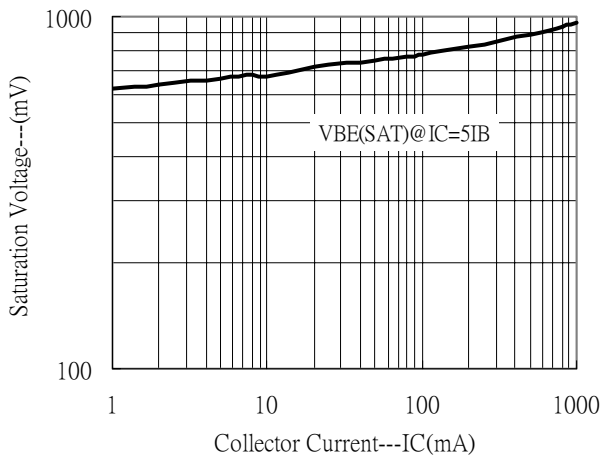
Current Gain vs Collector Current



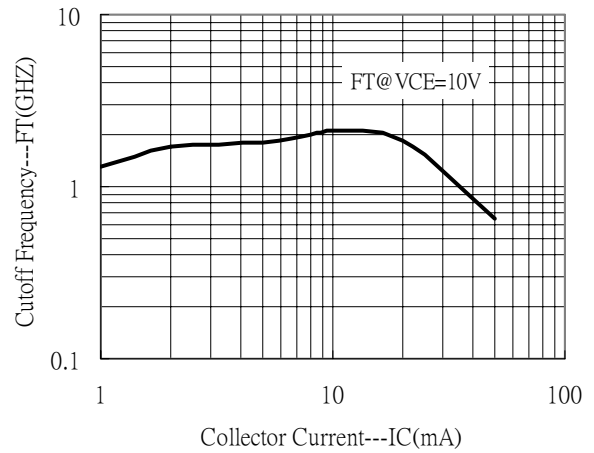
Saturation Voltage vs Collector Current



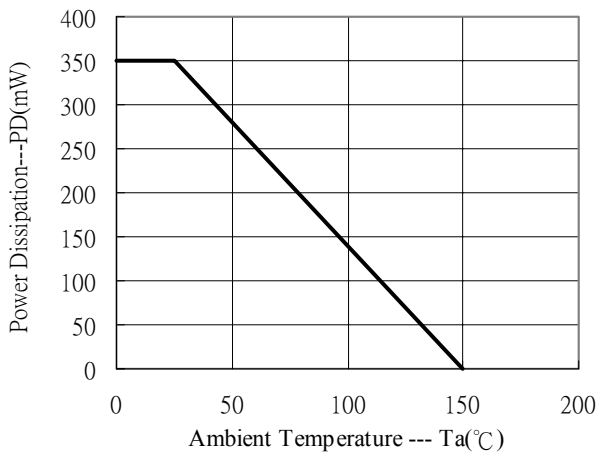
Saturation Voltage vs Collector Current



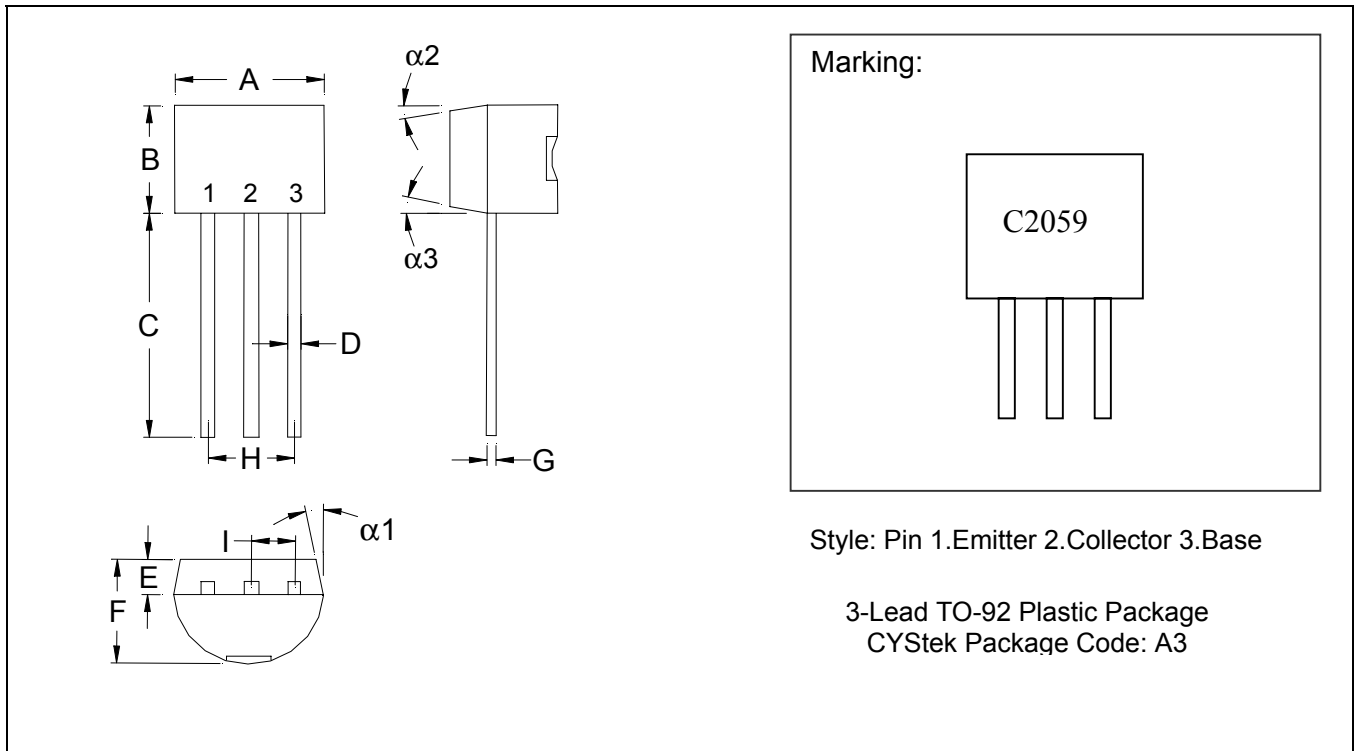
Cutoff Frequency vs Collector Current



Power Derating Curve



**TO-92 Dimension**



\*: Typical

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.1704	0.1902	4.33	4.83	G	0.0142	0.0220	0.36	0.56
B	0.1704	0.1902	4.33	4.83	H	-	*0.1000	-	*2.54
C	0.5000	-	12.70	-	I	-	*0.0500	-	*1.27
D	0.0142	0.0220	0.36	0.56	α1	-	*5°	-	*5°
E	-	*0.0500	-	*1.27	α2	-	*2°	-	*2°
F	0.1323	0.1480	3.36	3.76	α3	-	*2°	-	*2°

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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