

# NPN Epitaxial Planar Transistor

## BTC4083S3

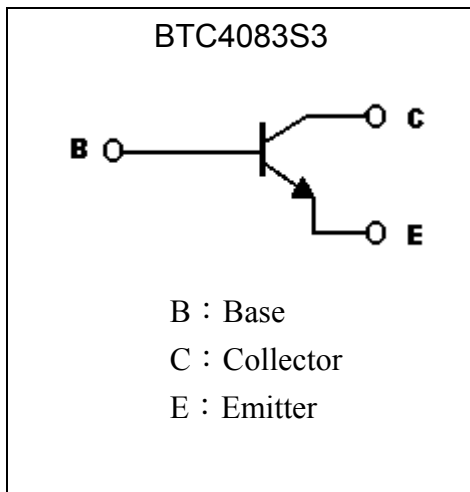
### Description

The BTC4083S3 is designed for use in VHF & UHF oscillators and VHF mixer in tuner of a TV receiver.

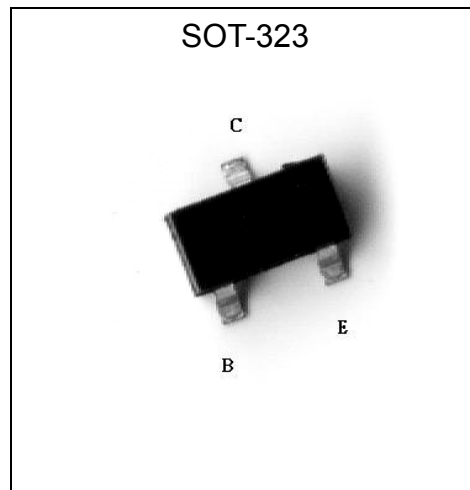
### Features

- High transition frequency. (  $f_T = 3.2\text{GHz}$ , typ. @  $V_{CE}=10\text{V}$ ,  $I_C=10\text{mA}$ ,  $f=500\text{MHz}$  )
- Very low capacitance. (  $C_{ob} = 0.8\text{pF}$ , typ. @  $V_{CB}=10\text{V}$ ,  $f=1\text{MHz}$  )
- Small  $R_{bb'}$ - $C_c$  and high gain. (  $R_{bb'}$ - $C_c = 4\text{ps}$ , typ. @  $V_{CB}=10\text{V}$ ,  $I_C=10\text{mA}$ ,  $f=31.8\text{MHz}$  )
- Small NF. (  $NF = 3.5\text{dB}$ , typ. @  $V_{CE}=12\text{V}$ ,  $I_C=2\text{mA}$ ,  $f=200\text{MHz}$ ,  $R_g=50\Omega$  )

### Symbol



### Outline



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

Parameter	Symbol	Limits	Unit
Collector-Base Voltage	$V_{CBO}$	20	V
Collector-Emitter Voltage	$V_{CEO}$	11	V
Emitter-Base Voltage	$V_{EBO}$	3	V
Collector Current	$I_C$	50	mA
Power Dissipation	$P_d$	200	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
BV <sub>CB0</sub>	20	-	-	V	I <sub>C</sub> =10μA
BV <sub>CEO</sub>	11	-	-	V	I <sub>C</sub> =1mA
BV <sub>EBO</sub>	3	-	-	V	I <sub>E</sub> =10μA
I <sub>CB0</sub>	-	-	0.5	μA	V <sub>CB</sub> =10V
I <sub>EBO</sub>	-	-	0.5	μA	V <sub>EB</sub> =2V
*V <sub>CE(sat)</sub>	-	-	0.5	V	I <sub>C</sub> =10mA, I <sub>B</sub> =5mA
*h <sub>FE</sub>	82	-	180	-	V <sub>CE</sub> =10V, I <sub>C</sub> =5mA
f <sub>T</sub>	1.4	3.2	-	GHz	V <sub>CE</sub> =10V, I <sub>C</sub> =10mA, f=500MHz
C <sub>ob</sub>	-	0.8	1.5	pF	V <sub>CB</sub> =10V, I <sub>E</sub> =0A, f=1MHz
R <sub>bb</sub> '-C <sub>C</sub>	-	4	12	ps	V <sub>CB</sub> =10V, I <sub>C</sub> =10mA, f=31.8MHz
NF	-	3.5	-	dB	V <sub>CE</sub> =12V, I <sub>C</sub> =2mA, f=200MHz, R <sub>g</sub> =50Ω

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

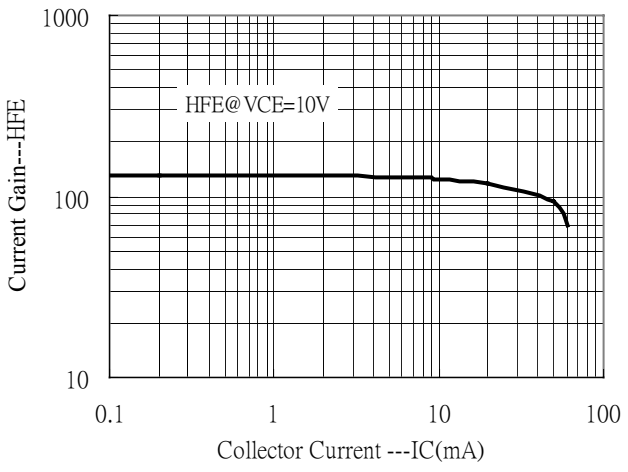
**Ordering Information**

Device	Package	Shipping	Marking
BTC4083S3	SOT-323	3000 pcs / Tape & Reel	1D

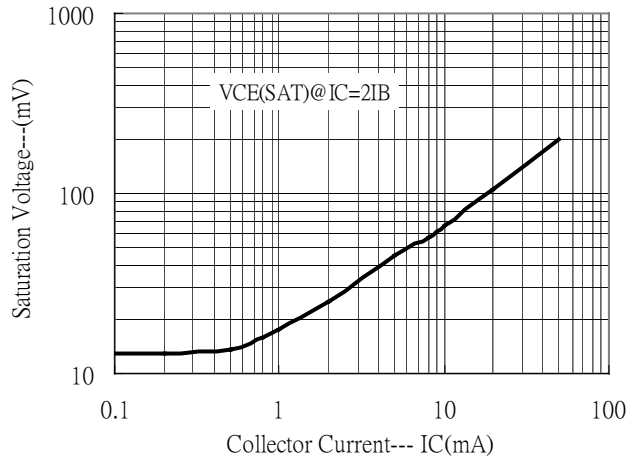


### Characteristic Curves

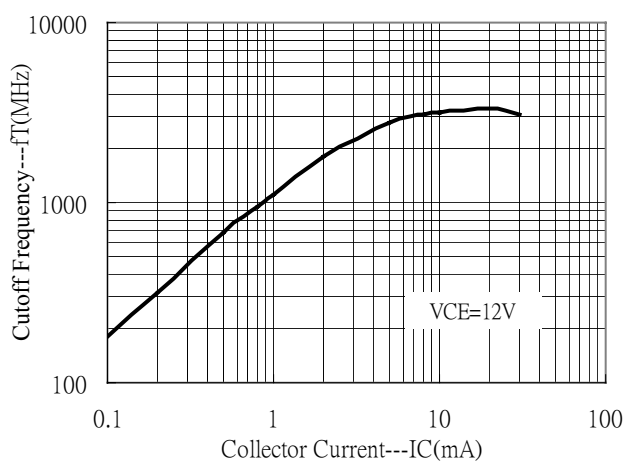
Current Gain vs Collector Current



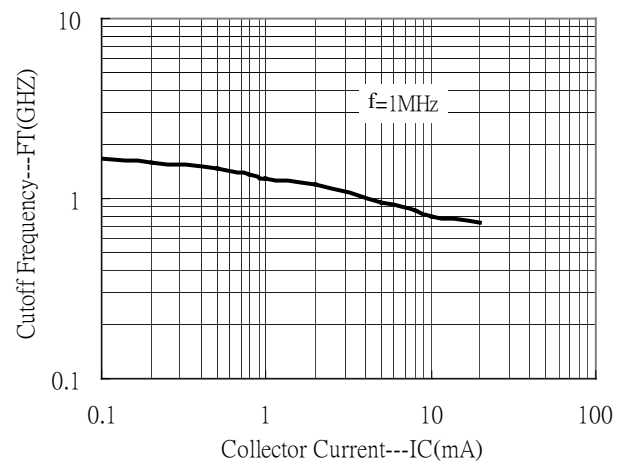
Saturation Voltage vs Collector Current



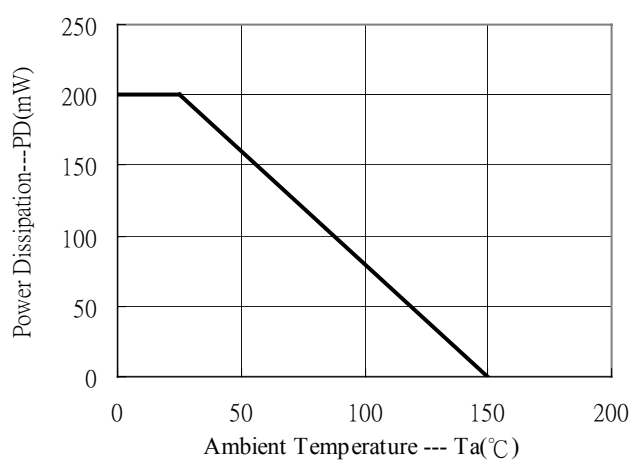
Cutoff Frequency vs Collector Current



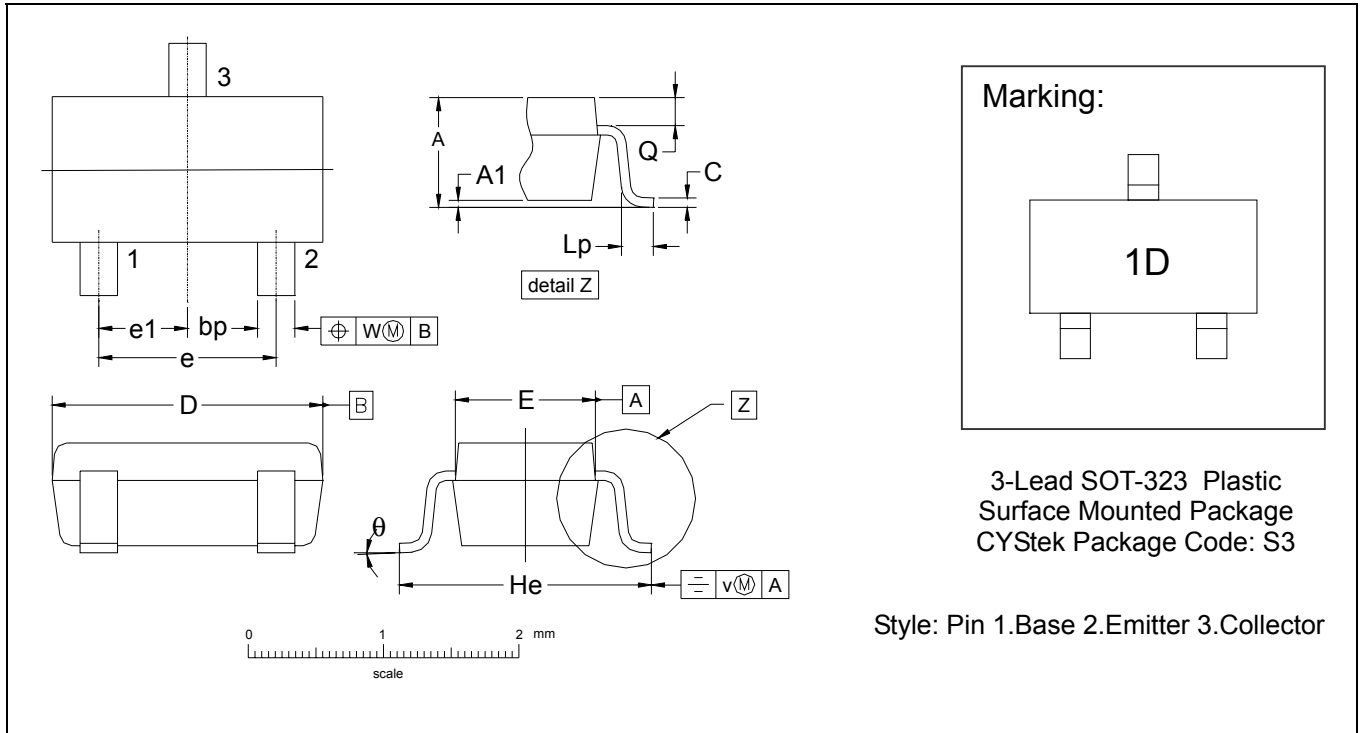
Output Capacitance vs Reverse Biased Voltage



Power Derating Curve



**SOT-323 Dimension**



\*: Typical

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.0315	0.0433	0.80	1.10	e1	0.0256	-	0.65	-
A1	0.0000	0.0039	0.00	0.10	He	0.0787	0.0886	2.00	2.25
bp	0.0118	0.0157	0.30	0.40	Lp	0.0059	0.0177	0.15	0.45
C	0.0039	0.0098	0.10	0.25	Q	0.0051	0.0091	0.13	0.23
D	0.0709	0.0866	1.80	2.20	v	0.0079	-	0.2	-
E	0.0453	0.0531	1.15	1.35	w	0.0079	-	0.2	-
e	0.0512	-	1.3	-	θ	-	-	10°	0°

- Notes:**
- Controlling dimension: millimeters.
  - Maximum lead thickness includes lead finish thickness, and minimum lead thickness is the minimum thickness of base material.
  - 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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