

**General Purpose NPN Epitaxial Planar Transistor**

# BTC4082S3

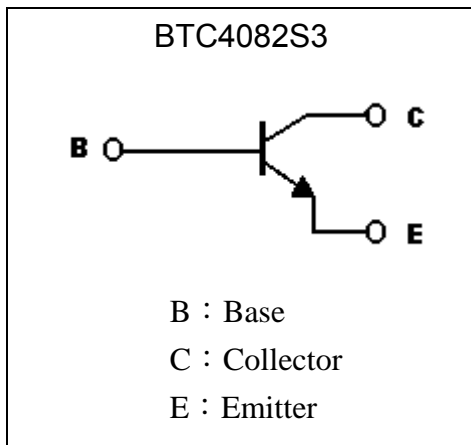
## Description

The BTC4082S3 is designed for using in VHF & UHF oscillators and VHF mixer in tuner of a TV receiver.

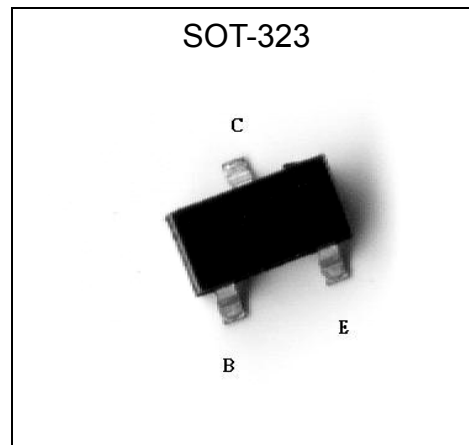
## Features

- 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. @  $V_{CE}=12\text{V}$ ,  $I_c=2\text{mA}$ ,  $f=200\text{MHz}$ ,  $R_g=50\text{ohm}$  )
- Pb-free package

## Symbol



## Outline



## 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	$P_d$	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>	25	-	-	V	I <sub>C</sub> =10μA
BV <sub>CEO</sub>	18	-	-	V	I <sub>C</sub> =1mA
BV <sub>EBO</sub>	3	-	-	V	I <sub>C</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>	-	0.1	0.5	V	I <sub>C</sub> =20mA, I <sub>B</sub> =4mA
*h <sub>FE</sub>	52	-	270	-	V <sub>CE</sub> =10V, I <sub>C</sub> =10mA
f <sub>T</sub>	600	1000	-	MHz	V <sub>CE</sub> =10V, I <sub>C</sub> =10mA, f=200MHz
Cob	-	1.4	2.0	pF	V <sub>CB</sub> =10V, I <sub>E</sub> =0A, f=1MHz
R <sub>bb'</sub> -C <sub>c</sub>	-	8	15	ps	V <sub>CB</sub> =10V, I <sub>C</sub> =10mA, f=31.8MHz
NF	-	5.5	-	dB	V <sub>CE</sub> =12V, I <sub>C</sub> =2mA, f=200MHz, R <sub>g</sub> =50ohm

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

Classification Of hFE

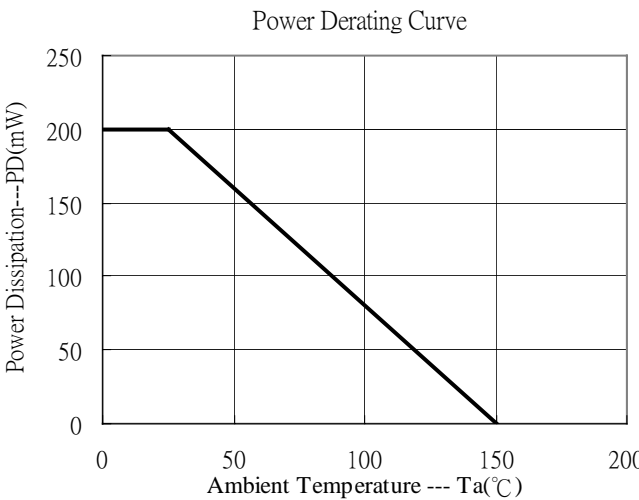
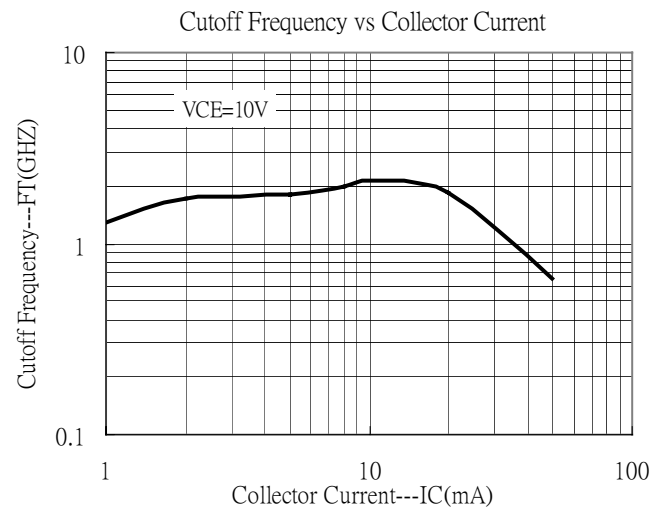
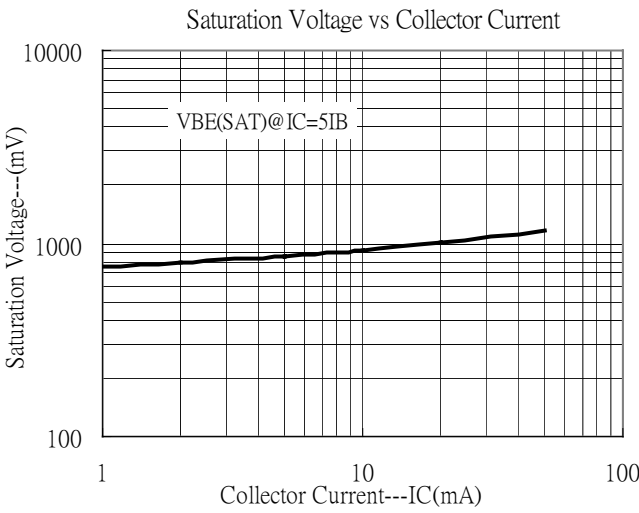
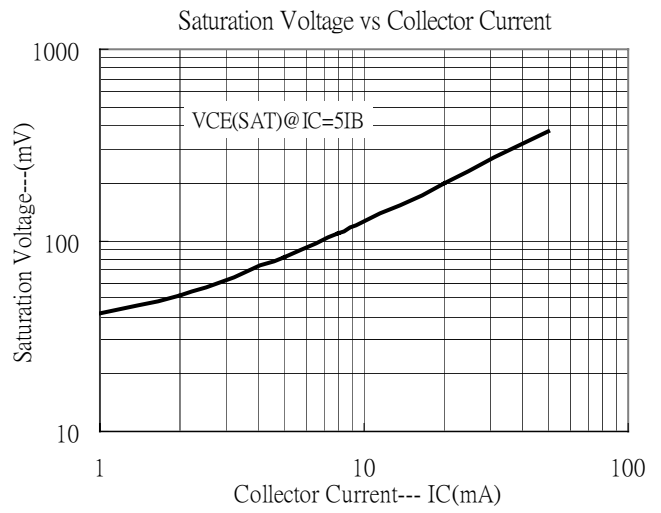
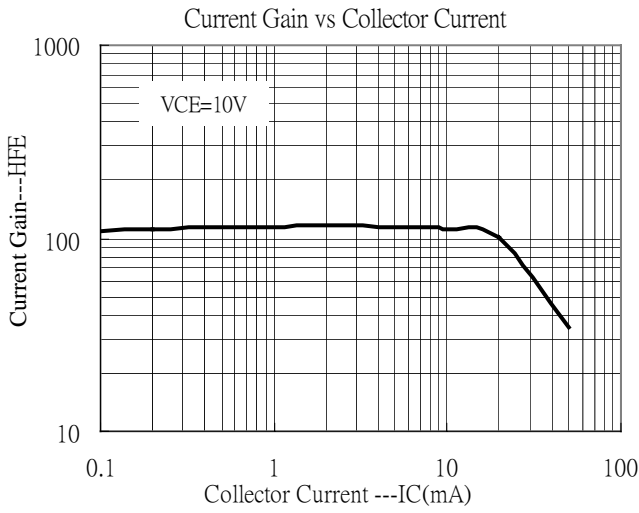
Rank	K	P	Q
Range	52~120	82~180	120~270

Ordering Information

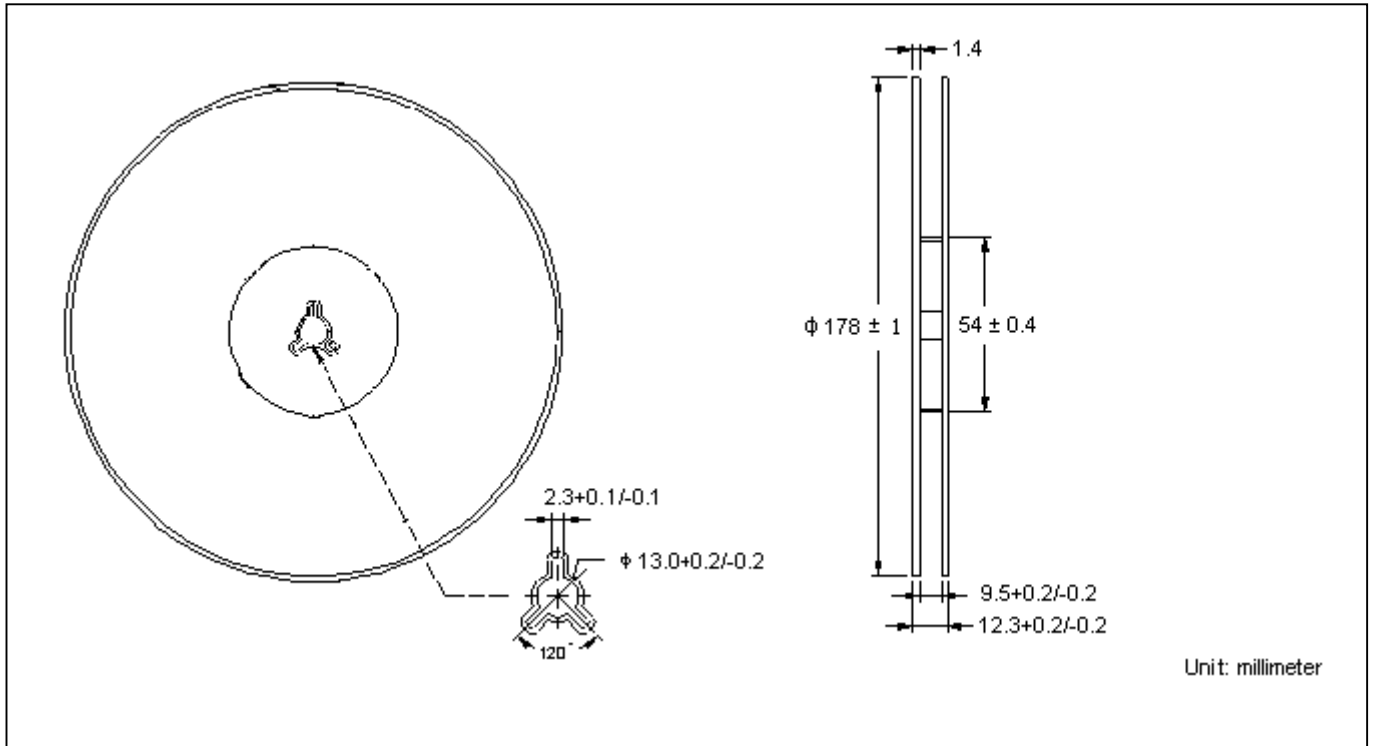
Device	Package	Shipping	Marking
BTC4082S3	SOT-323 (Pb-free)	3000 pcs / Tape & Reel	3E



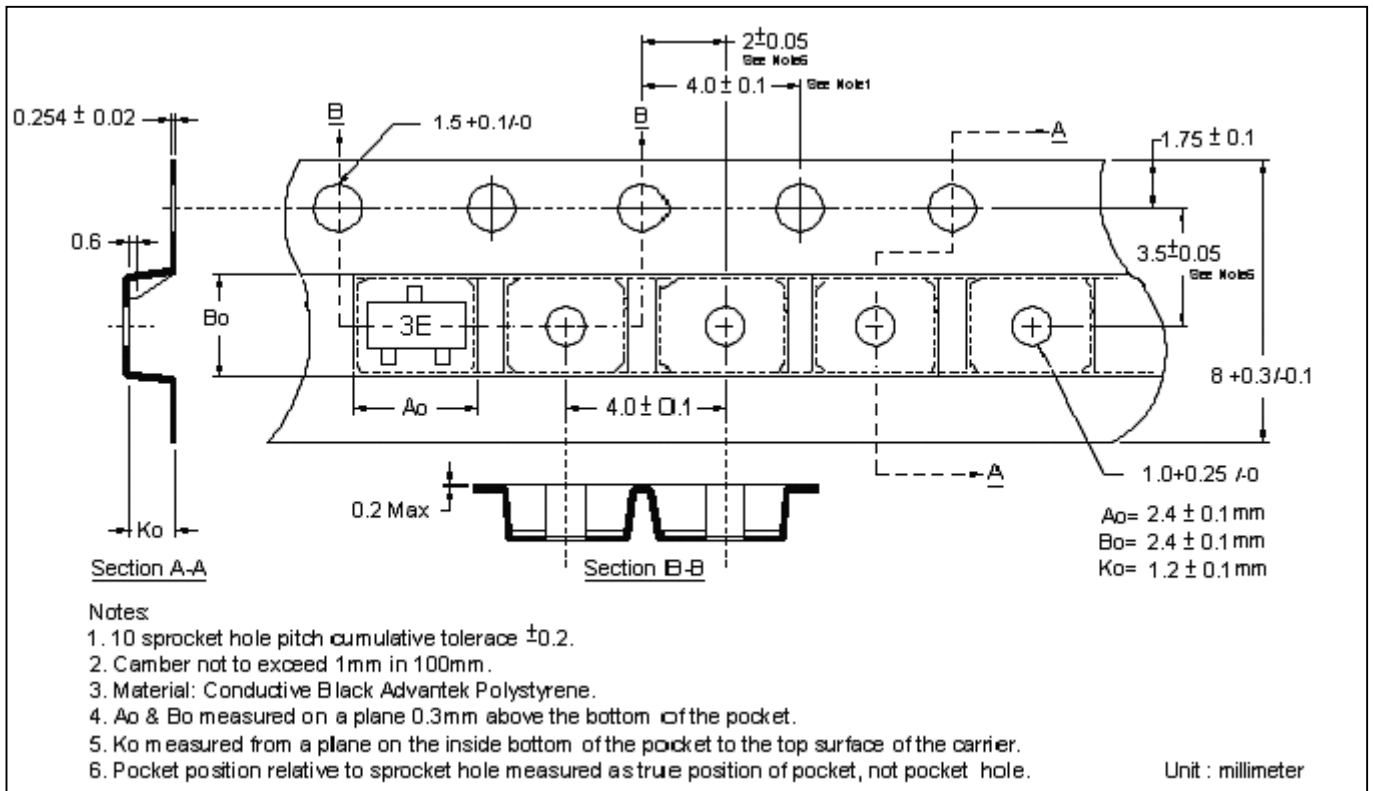
### Characteristic Curves



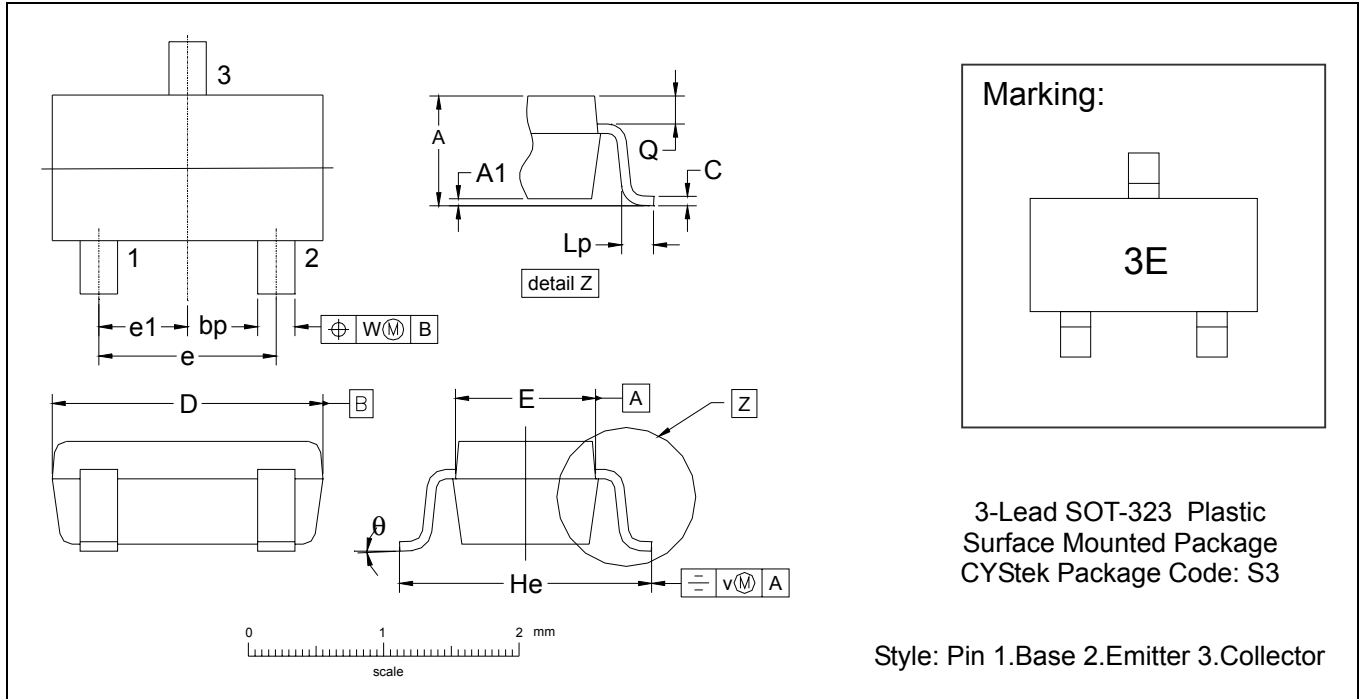
**Reel Dimension**



**Carrier Tape Dimension**



**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: 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

**Important Notice:**

- All rights are reserved. Reproduction in whole or in part is prohibited without the prior written approval of CYStek.
- CYStek reserves the right to make changes to its products without notice.
- CYStek **semiconductor products are not warranted to be suitable for use in Life-Support Applications, or systems.**
- CYStek assumes no liability for any consequence of customer product design, infringement of patents, or application assistance.