Microwave, low noise,sige heterojunction bipolar transistor

Characteristics

- Working Voltage ： 2V or 3V
- Working Temperature：-55℃ to +85℃
- Low Noise Figure and High Gain NF=1.2dB，Ga=17dB(typical) @ V_{CE}=2V, I =25mA，f=2GHz
- Spuer High Power Gain Gmax=20dB(Typ) @ V_{CE}=2V，I_C=25mA，f=2GHz
- High Characteristic Frequency
- Low Cost, Double Emitter, 4-Pin SOT343R Package

Applications

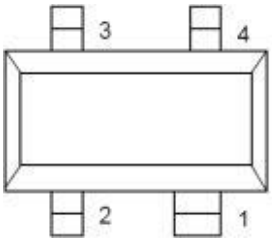
- RF Front End
- Broadband Application: such as cell phone， Cordless telephone
- Radar monitors
- Beeper
- Satellite TV tuner
- High frequency oscillator

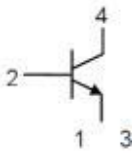
Description

The BFG425W-TOB is a SiGe double poly-silicon NPNHBT (heterojunction bipolar transistor). It features a low noise coefficient, high power gain, high voltage capability, wide dynamic range, and excellent linear characteristics. With a dual-emitter design, it is packaged in a 4-pin SOT343Rformat, primarily intended for high-frequency, low-noise applications.

Package

Pin	Function
1	emitter
2	base
3	emitter
4	collector





Electrical specifications

Absolute maximum ratings

Symbol	Parameter	Max.	Unit
I_C	collector current-continuous	30	mA
P_{tot}	total power consumption	135	mW
T_J	operating junction temperature range	150	℃

Note:

Exceeding the specified "absolute maximum ratings" may cause permanent damage to this product. The stress ratings provided above are for reference only and do not encompass operational functionality. Prolonged operation of the device beyond its absolute maximum ratings may compromise its stability.

Electrical characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{CBO}	collector-base breakdown voltage	I_C=2.5uA，I_E=0	9	-	-	V
BV_{CEO}	collector-emitter breakdown voltage	I_C=1mA，I_B=0	4.5	-	-	V
BV_{EBO}	emitter-base breakdown voltage	I_E=2.5uA，I_C=0	1	-	-	V
I_{CBO}	collector -base cutoff current	I_E=0，V_{CB}=4.5V	-	-	100	nA
H_{FE}	DC current gain	V_{CE}=2V，I_C=25mA	50	100	150	-
f_T	characteristic frequency	V_{CE}=2V，I_C=25mA，f=2GHz	-	25	-	GHz
G_{max}	maximum power gain	V_{CE}=2V，I_C=25mA，f=2GHz	-	20	-	dB
$\|S21\|^2$	insertion power gain	V_{CE}=2V，I_C=25mA，f=2GHz	-	17	-	dB
N_F	noise factor	V_{CE}=2V，f=900MHz，S=Γopt	-	0.8	-	dB
		V_{CE}=2V，f=2GHz，S=Γopt	-	1.2	-	dB
P_{1dB}	nominal power gain compression:1db	I_O=25mA，V_{CE}=2V，f=2GHz，ZS=Z_{Sopt}，Z_L=Z_{Lopt}	-	12	-	dBm

Purchase information

Product	Standard package
BFG425W-TOB	3K / Disk

Typical characteristics

Fig 1：S_{11}（V_{CE}=2V，I_C=25mV）

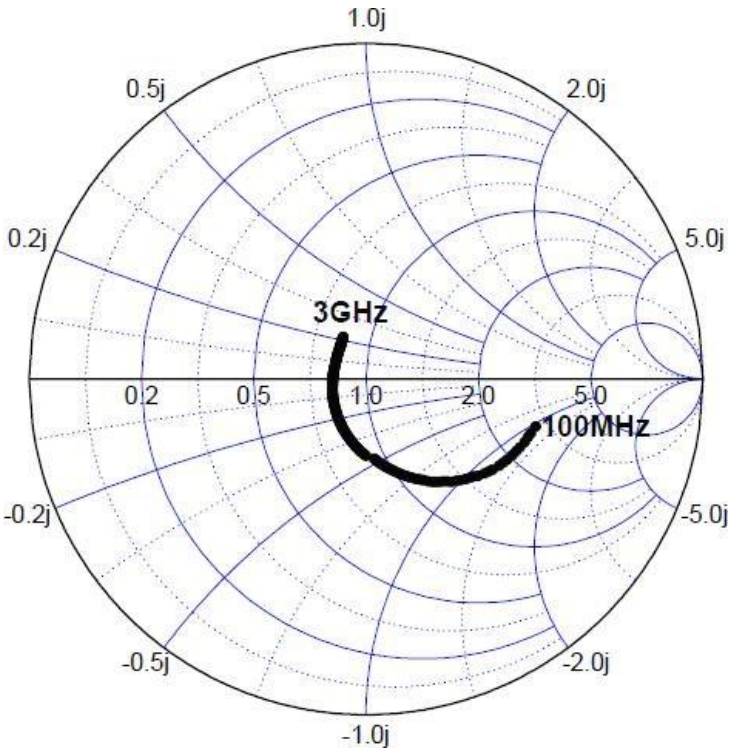


Fig 2：S_{21}（V_{CE}=2V，I_C=25mV）

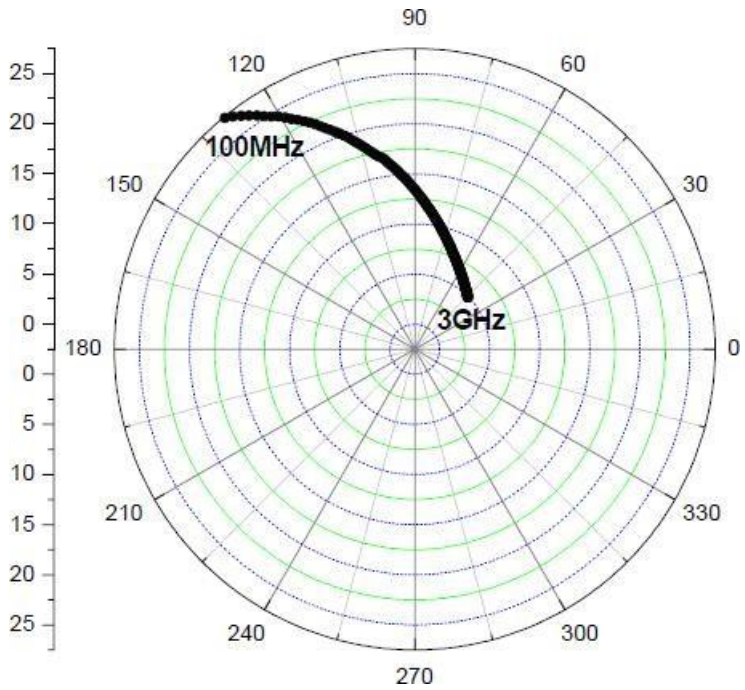


Fig 3：S_{12}（V_{CE}=2V，I_C=25mV）

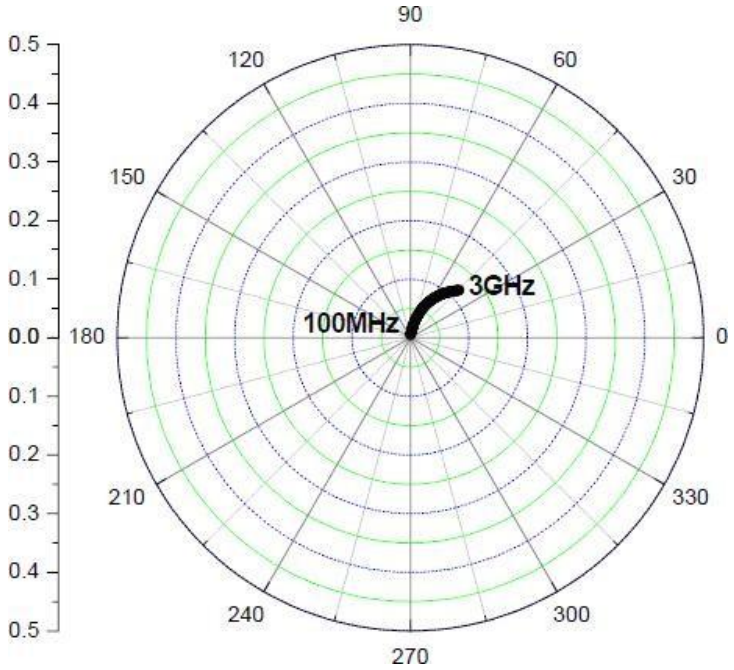
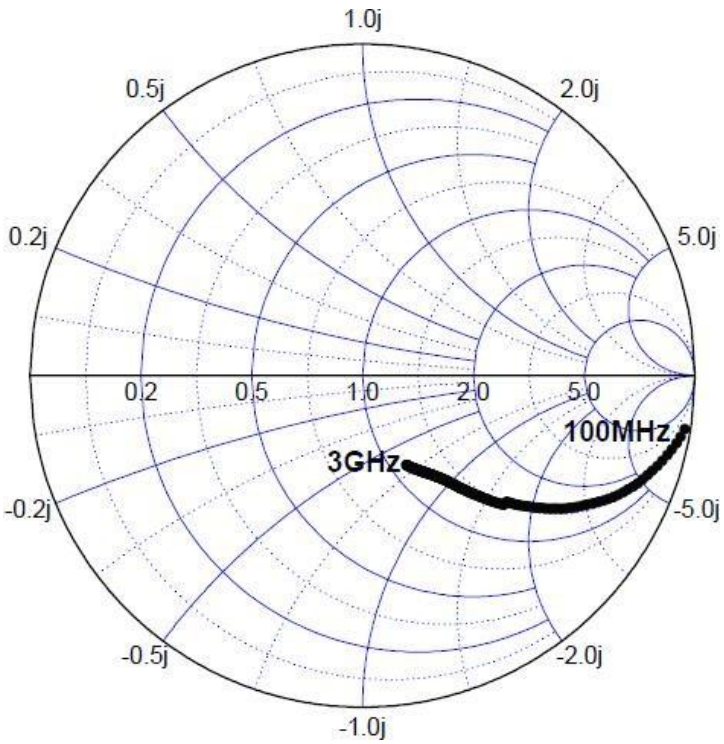
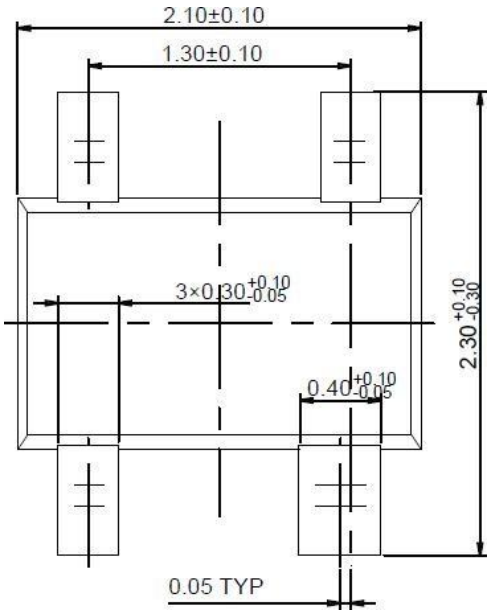


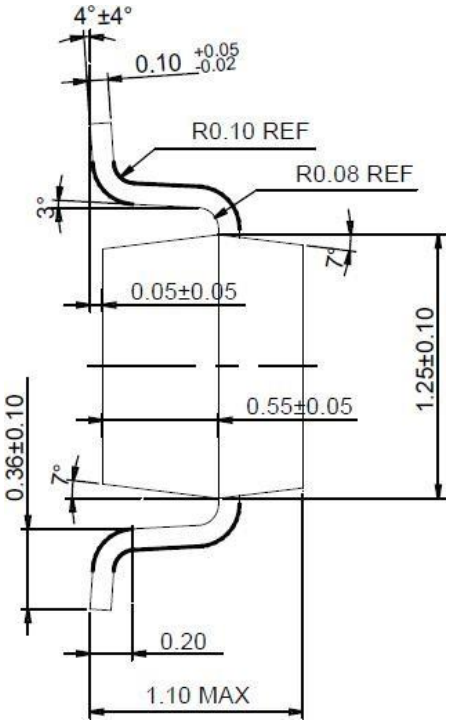
Fig 4：S_{22}（V_{CE}=2V，I_C=25mV）



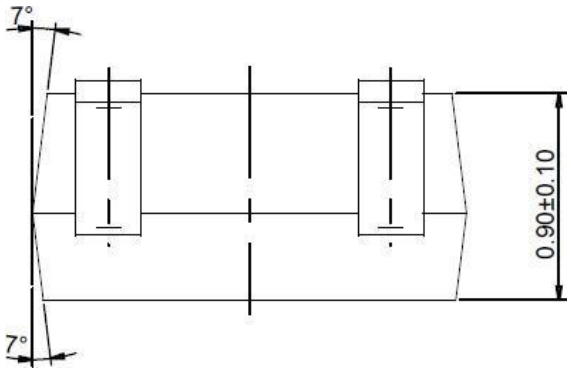
4-PIN SOT343R Packaging diagram



Top View



Rear View



Side View