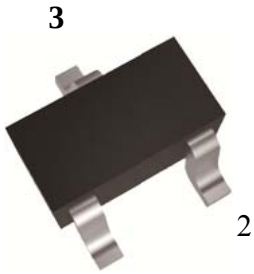
2SC3356

NPN SILICON RF TRANSISTOR

- Ultra high frequency low noise transistor
- Silicon epitaxial bipolar process.
- High power gain, low noise figure,
- high dynamic range and ideal current characteristics,
- SC-59 chip package, mainly used in VHF, UHF and CATV
- high frequency wideband low noise amplifier.



SC-59

1：Base 2：Emitter 3：Collector

Feature

High gain: $\|S_{21e}\|^2$	TYP. Value is 11dB	@ V_{CE}=10V，I_C=20mA，f=1GHz
Low noise: NF	TYP. Value is 1.5dB	@ V_{CE}=10V，I_C=7mA， f=1GHz
f_T (TYP.) :	TYP. Value is 7GHz	@ V_{CE}=10V，I_C=20mA，f=1GHz

Absolute Maximum Ratings T_A=25℃ Unless Otherwise noted

PARAMETER	SYMBLE	MAXIMUM VALUE	UNIT
Collector-base breakdown voltage	V_{CBO}	20	V
Collector-emitter breakdown voltage	V_{CEO}	12	V
Emitter-base breakdown voltage	V_{EBO}	3	V
Collector current	I_C	100	mA
Collector Power Dissipation	P_D	200	mW
Junction Temperature	T_j	150	℃
Storage Temperature	T_{stg}	-65～+150 ℃	T_{stg}

hFE Classification (@VCE=10V,IC=20mA)

Classification	B	D
Marking	R24	R25
hFE	90-140	170-250

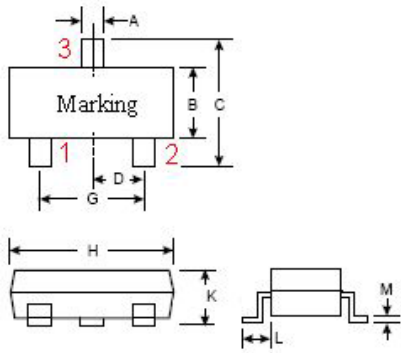
2SC3356

ELECTRICAL CHARACTERISTICS (T_a=25℃ unless otherwise specified)

PARAMETER	SYMBLE	MIN.	TYP.	MAX.	UNIT	TEST CONDITION
Collector-base breakdown voltage	V_{CBO}	20			V	I_C=1.0μA
Collector cut-off current	I_{CBO}			0.1	μA	V_{CB}=10V
Emitter cut-off current	I_{EBO}			0.1	μA	V_{EB}=1V
Transit frequency	f_T	6	7		GHz	V_{CE}=10V, I_C=20mA
Output feedback capacitor	Cre		0.65		pF	VCB=10V,IE=0mA,f=1MHz
Power gain	$\|S_{21e}\|^2$		11		dB	V_{CE}=10V,I_C=20mA,f=1GHz
Noise factor	NF		1.5		dB	V_{CE}=10V,I_C= 7mA,f=1GHz

PACKAGE：SC-59

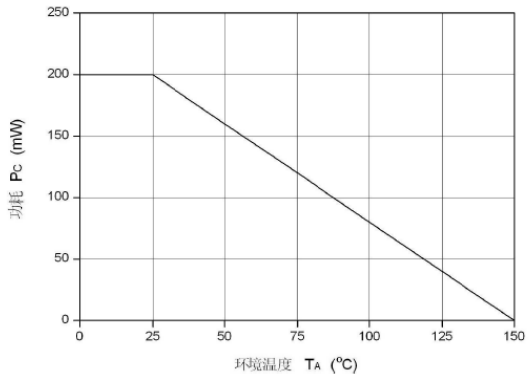
1:（Base） 2:（Emitter） 3:（Collector）



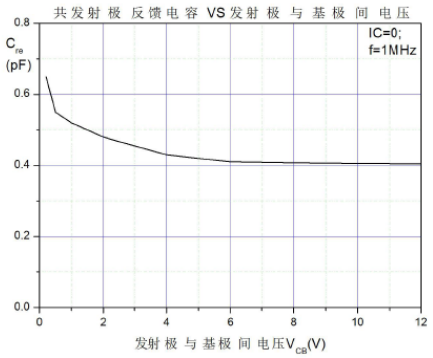
SC-59		
SYMBLE	MIN (mm)	MAX (mm)
A	0.35	0.5
B	1.4	1.7
C	2.7	3.1
D	0.95	
G	1.7	2.1
H	2.7	3.1
K	1	1.3
L	0.5	0.85
M	0.1	0.35

Typical characteristic curves (TA =25℃)

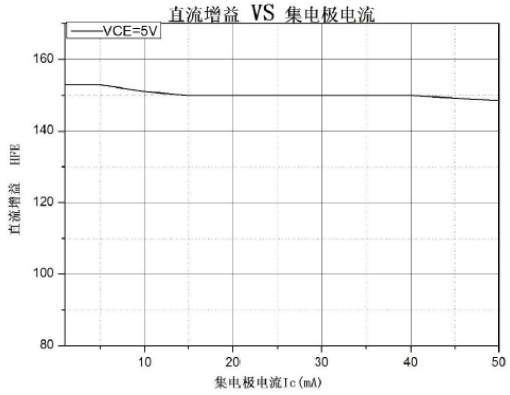
功耗 vs. 环境温度



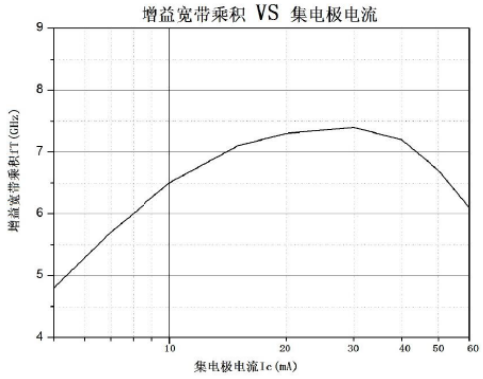
共发射极反馈电容 VS 发射极与基极间电压



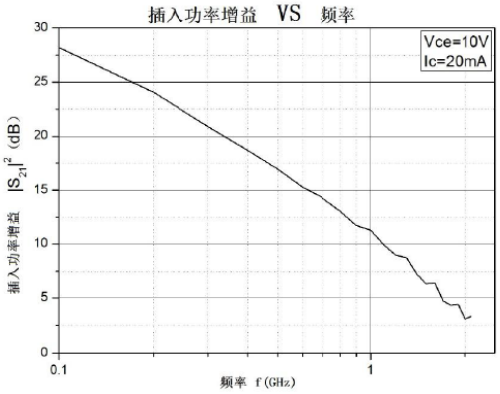
直流增益 VS 集电极电流



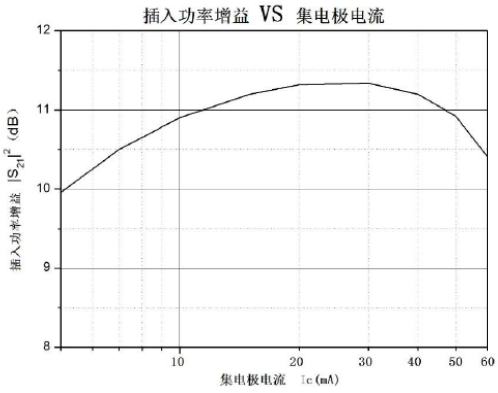
增益宽带乘积 VS 集电极电流



插入功率增益 VS 频率



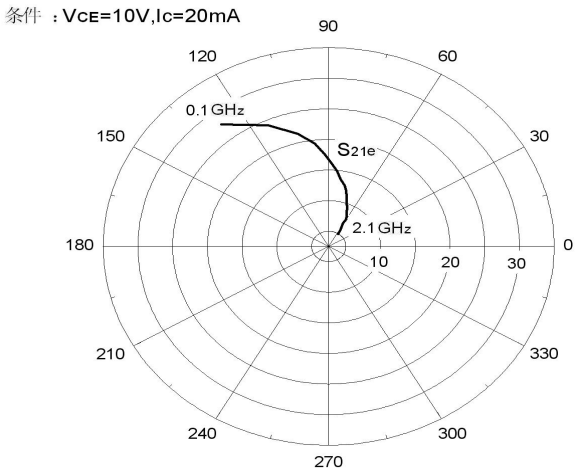
插入功率增益 VS 集电极电流



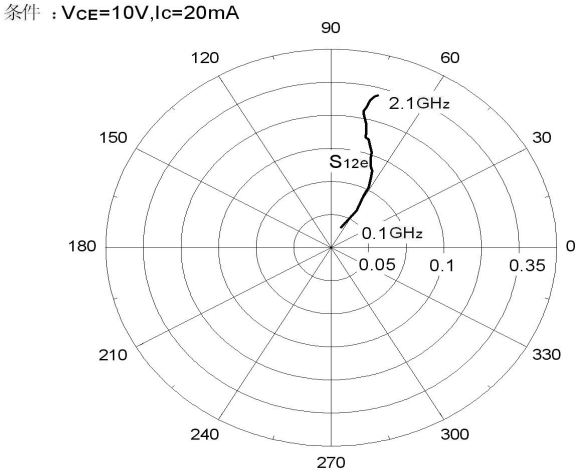
SMITH

TEST CONDITION：V_{CE}=10V, I_C=20mA

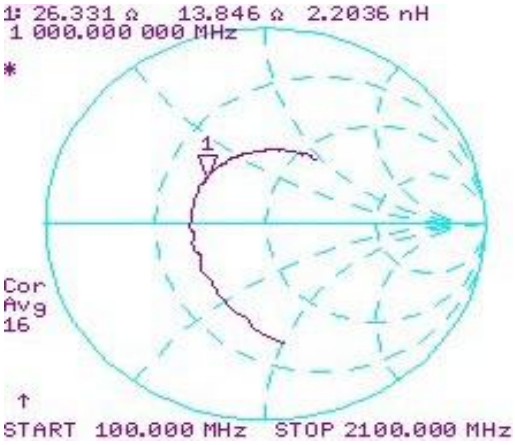
S_{21e} -FREQUENCY



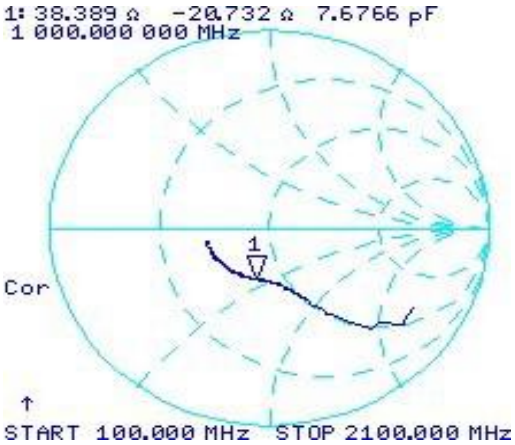
S_{12e} -FREQUENCY



S_{11e} -FREQUENCY



S_{22e} -FREQUENCY



S-PARAMETER

TEST CONDITION：V_{CE}=10V, I_C=20mA, Z_O=50Ω

f	S_{11}		S_{21}		S_{12}		S_{22}	
GHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
0.1	0.489	-98.893	23.831	125.09	0.023	68.817	0.779	-33.934
0.2	0.438	-132.44	15.924	110.4	0.034	63.104	0.489	-51.319
0.3	0.408	-154.95	11.652	100.42	0.045	64.784	0.385	-55.864
0.4	0.397	-171.46	9.125	95.186	0.054	68.843	0.341	-59.586
0.5	0.389	176.38	7.415	90.551	0.063	69.348	0.322	-64.204
0.6	0.385	166.02	6.210	86.541	0.072	69.538	0.307	-69.234
0.7	0.385	155.83	5.428	81.876	0.085	70.365	0.300	-73.989
0.8	0.385	147.46	4.804	79.163	0.093	73.409	0.291	-79.682
0.9	0.381	138.57	4.363	74.446	0.103	74.625	0.289	-86.291
1	0.386	130.99	3.937	73.747	0.112	73.927	0.298	-91.441
1.1	0.387	123.16	3.502	68.595	0.129	75.811	0.293	-97.627
1.2	0.386	115.67	3.234	66.693	0.131	77.445	0.285	-103.42
1.3	0.380	108.43	2.953	61.401	0.148	79.305	0.288	-109.02
1.4	0.389	101.42	2.790	61.265	0.162	77.522	0.286	-116.56
1.5	0.381	95.493	2.515	57.529	0.177	83.458	0.286	-121.33
1.6	0.394	87.672	2.369	58.402	0.191	78.236	0.286	-130.15
1.7	0.390	82.66	2.074	53.892	0.209	80.619	0.284	-133.64
1.8	0.406	75.112	2.064	53.987	0.241	79.213	0.283	-142.73
1.9	0.403	69.877	1.863	52.695	0.240	81.056	0.272	-147.52
2	0.421	61.117	1.888	53.693	0.281	74.881	0.283	-157.12
2.1	0.439	56.501	1.678	54.163	0.301	75.462	0.283	-163.67