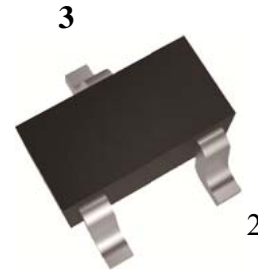


## NPN SILICON RF TRANSISTOR

- 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.



**1**  
**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 $T_A=25^\circ C$ 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	$^\circ C$
Storage Temperature	$T_{stg}$	-65 ~ +150 $^\circ C$	$T_{stg}$

### hFE Classification (@ $V_{CE}=10V, I_C=20mA$ )

Classification	B	C	D
Marking	R24	R25	
hFE	90-140	130-180	170-250

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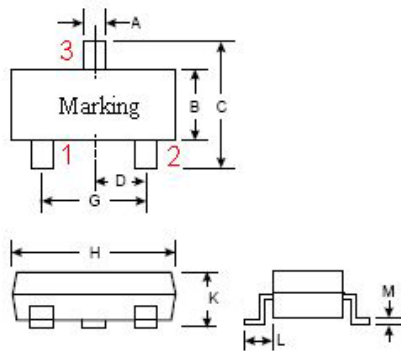
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**ELECTRICAL CHARACTERISTICS (T<sub>a</sub>=25°C unless otherwise specified)**

PARAMETER	SYMBLE	MIN.	TYP.	MAX.	UNIT	TEST CONDITION
Collector-base breakdown voltage	V <sub>CB0</sub>	20			v	I <sub>C</sub> =1.0μA
Collector cut-off current	I <sub>CBO</sub>			0.1	μA	V <sub>CB</sub> =10V
Emitter cut-off current	I <sub>EBO</sub>			0.1	μA	V <sub>EB</sub> =1V
Transit frequency	f <sub>r</sub>	5	7		GHz	V <sub>CE</sub> =10V, I <sub>C</sub> =20mA
Output feedback capacitor	C <sub>re</sub>		0.65		pF	V <sub>CB</sub> =10V, I <sub>E</sub> =0mA, f=1MHz
Power gain	S <sub>21e</sub>   <sup>2</sup>		11		dB	V <sub>CE</sub> =10V, I <sub>C</sub> =20mA, f=1GHz
Noise factor	NF		1.5		dB	V <sub>CE</sub> =10V, I <sub>C</sub> =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

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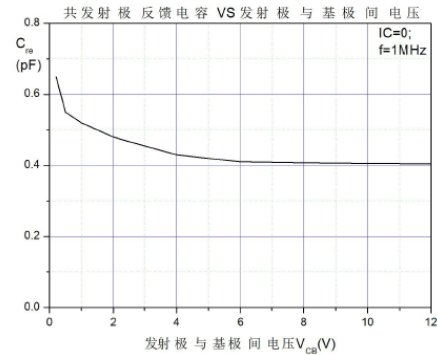
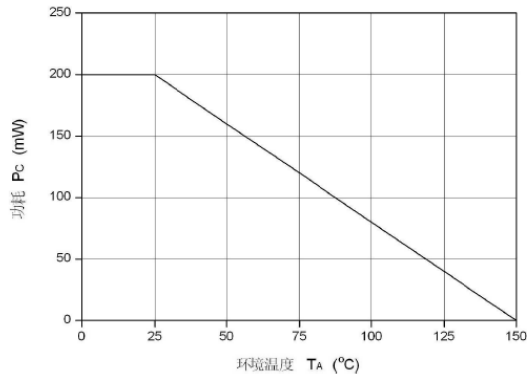
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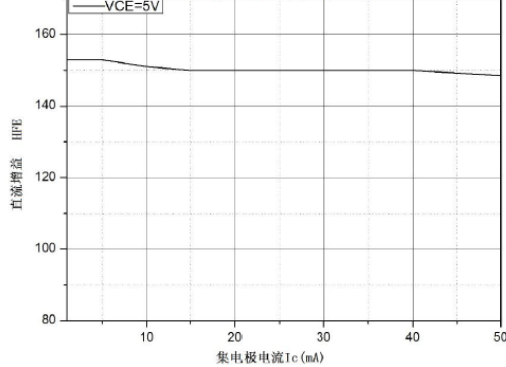
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## Typical characteristic curves (TA = 25°C)

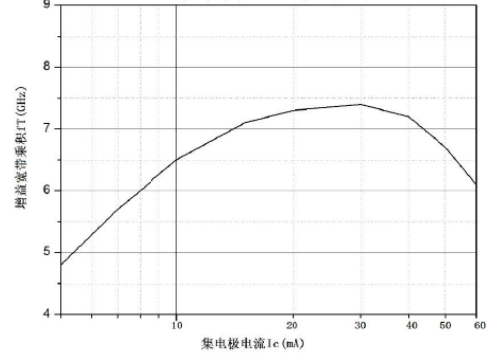
功耗 vs. 环境温度



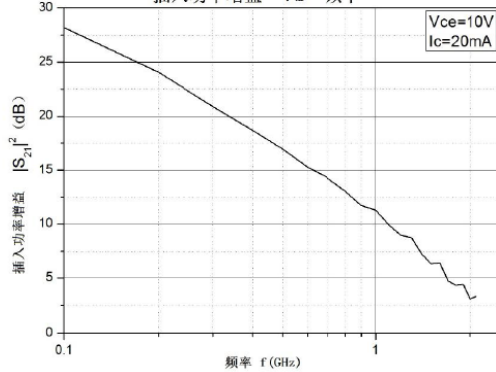
直流增益 VS 集电极电流



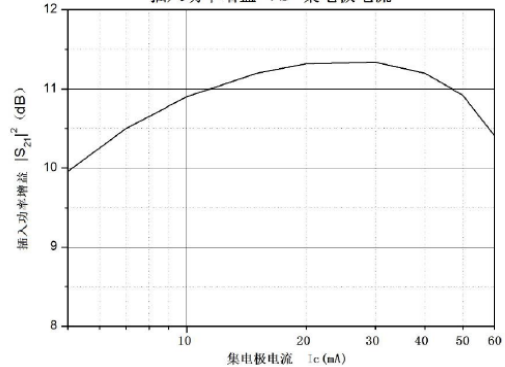
增益宽带乘积 VS 集电极电流



插入功率增益 VS 频率



插入功率增益 VS 集电极电流



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