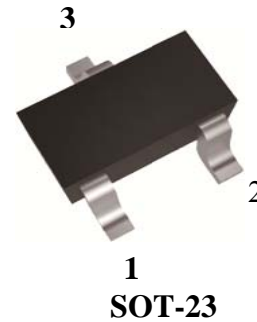


NPN SILICON RF TRANSISTOR

- Ultra high frequency low noise transistor
- Silicon epitaxial bipolar process.
- High power gain, low noise figure,
- high dynamic range and ideal current characteristics,
- SOT-23 chip package, mainly used in VHF, UHF and CATV
- high frequency wideband low noise amplifier.



1: Base 2: Emitter 3: Collector

Feature

High gain: $|S_{21e}|^2$ TYP. Value is 11.5dB @ $V_{CE}=10V$, $I_C=20mA$, $f=1GHz$
 Low noise: NF TYP. Value is 1.3dB @ $V_{CE}=10V$, $I_C=7mA$, $f=1GHz$
 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}	2.5	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 $^\circ C$	$^\circ C$

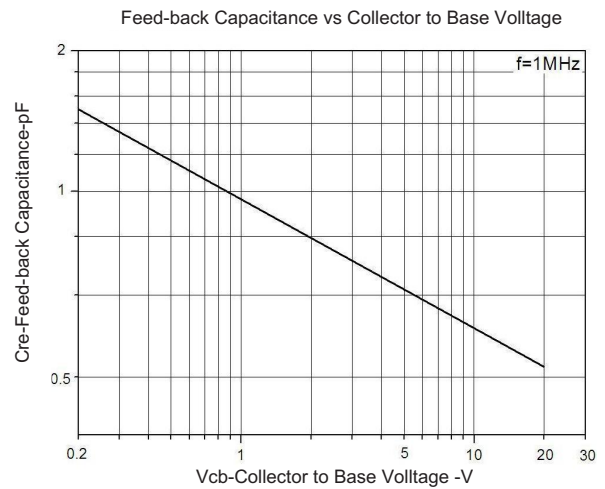
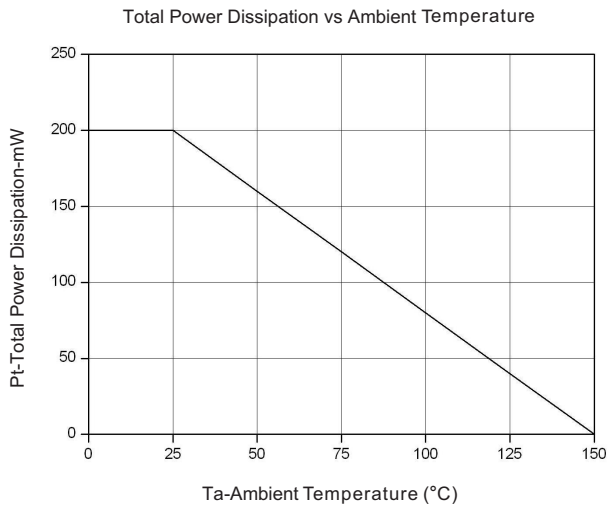
hFE Classification (@ $V_{CE}=10V, I_C=20mA$)

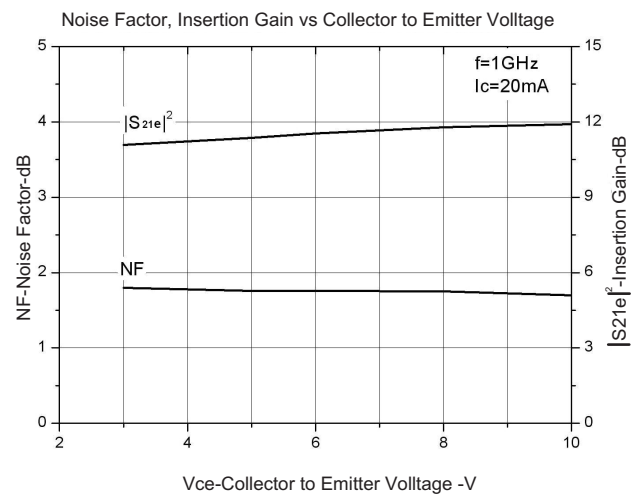
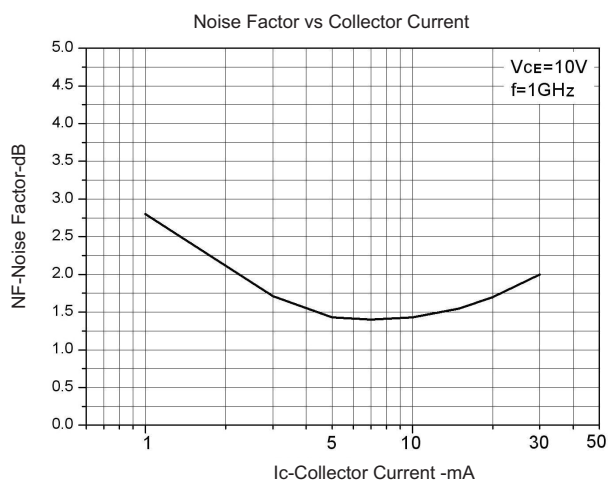
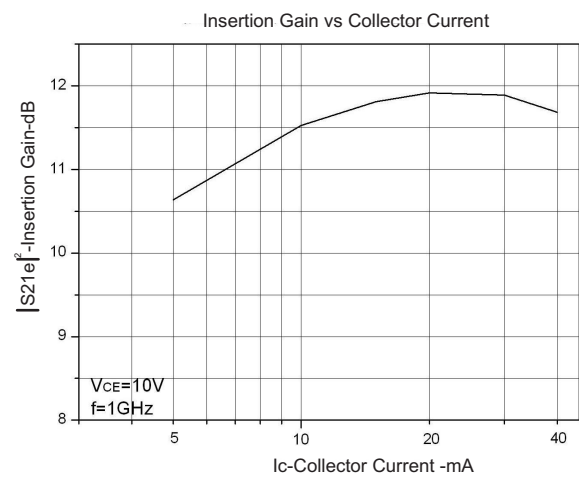
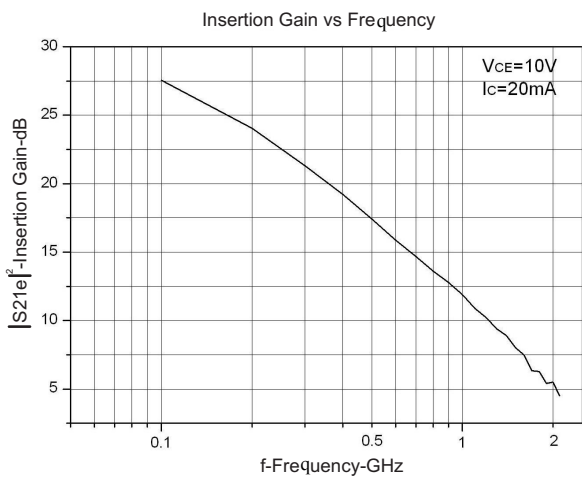
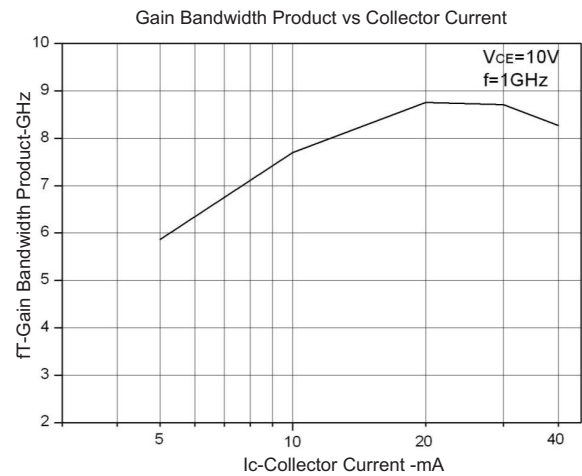
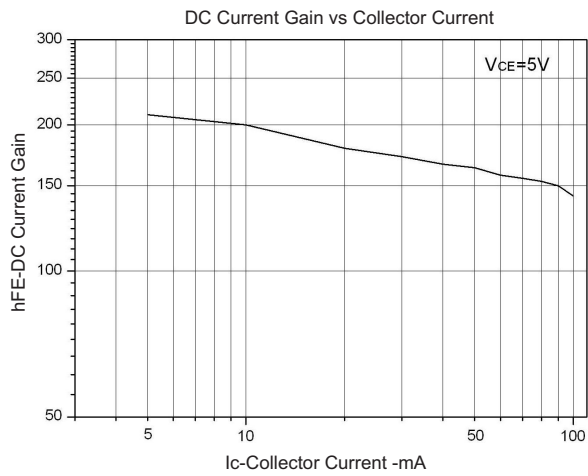
Classification	B	C	D
Marking	R24	R25	
hFE	90-140	120-180	170-250

ELECTRICAL CHARACTERISTICS ($T_a=25^{\circ}\text{C}$ unless otherwise specified)

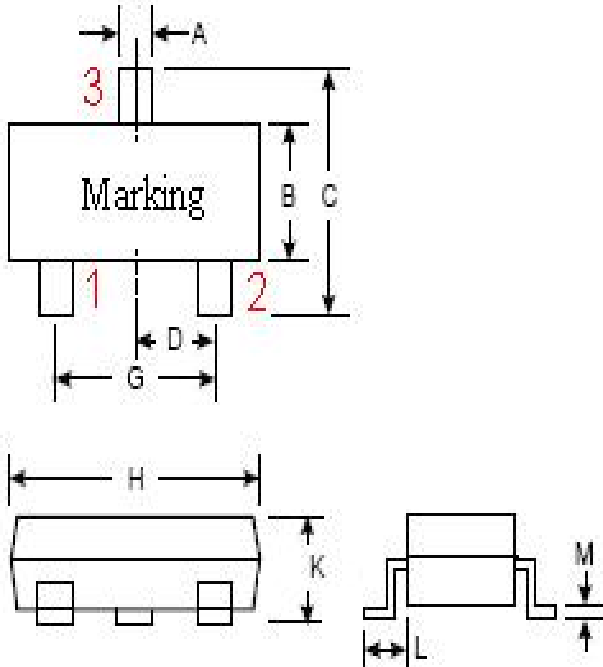
PARAMETER	SYMBLE	MIN.	TYP.	MAX.	UNIT	TEST CONDITION
Collector-base breakdown voltage	VCBO	20			v	$I_C=1.0\mu\text{A}$
Collector cut-off current	ICBO			0.1	μA	$V_{CB}=10\text{V}$
Emitter cut-off current	IEBO			0.1	μA	$V_{EB}=1\text{V}$
Transit frequency	f_r	5	7		GHz	$V_{CE}=10\text{V}, I_C=20\text{mA}$
Output feedback capacitor	Cre		0.65		pF	$V_{CB}=10\text{V}, I_E=0\text{mA}, f=1\text{MHz}$
Power gain	$ S_{21e} _2$	11	11.5		dB	$V_{CE}=10\text{V}, I_C=20\text{mA}, f=1\text{GHz}$
Noise factor	NF		1.3	1.8	dB	$V_{CE}=10\text{V}, I_C=7\text{mA}, f=1\text{GHz}$

Typical characteristic curves ($T_A = 25^{\circ}\text{C}$)





PACKAGE OUTLINE



SOT-23		
Symbols	Min (mm)	Max (mm)
A	0.3	0.5
B	1.2	1.4
C	2.25	2.55
D	0.95	
G	1.8	2
H	2.8	3
K	0.9	1.15
L	0.55	
M	0.08	0.15