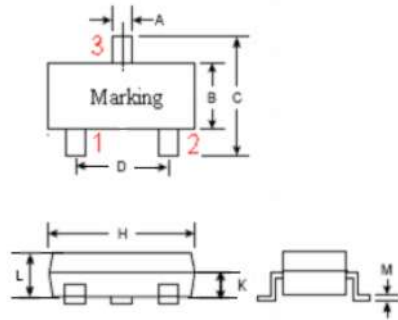


## NPN SILICON RF TRANSISTOR

### Description

Ultra high frequency low noise transistor, planar NPN silicon Epitaxial bipolar process. With high power gain, low noise figure, large dynamic range and ideal current characteristics, the use of SOT-323 ultra compact chip package, mainly used in the VHF, UHF and CATV high frequency wideband low-noise amplifier



SYMBLE	MIN (mm)	MAX (mm)
A	0.20	0.40
B	1.242	1.318
C	2.06	2.21
D	1.262	1.338
H	2.082	2.158
K	0.505	0.555
L	0.80	0.90
M	0.10	0.25

**PACKAGE:** SOT-323 1; ( Base ) 2; ( Emitter ) 3; ( Collector )

### Feature

High gain:  $|S_{21e}|_2$  TYP. Value is 13dB @  $V_{CE}=8V$ ,  $I_C=40mA$ ,  $f=0.9GHz$   
 Low noise: NF TYP. Value is 1.8dB @  $V_{CE}=10V$ ,  $I_C=10mA$ ,  $f=0.9GHz$   
 $f_T$  (TYP.): TYP. Value is 9GHz @  $V_{CE}=8V$ ,  $I_C=40mA$ ,  $f=1GHz$

### 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	$V_{CEO}$	10	V
Emitter-base breakdown voltage	$V_{EBO}$	2	V
Collector current	$I_C$	70	mA
Collector Power Dissipation	PD	150	mW
Junction Temperature	$T_j$	150	$^\circ C$
Storage Temperature	$T_{stg}$	-65 ~ +150	$^\circ C$

### hFE Classification

Classification	A	B	C	D	E
Marking	N2				
hFE	60~100	90~140	130~180	170~250	250~300

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

PARAMETER	SYMBLE	MIN.	TYP.	MAX.	UNIT	TEST CONDITION
Collector-base breakdown voltage	$V_{CBO}$	20			V	$I_C=1.0\mu\text{A}$
Collector cut-off current	$I_{CBO}$			0.1	$\mu\text{A}$	$V_{CB}=10\text{V}$
Emitter cut-off current	$I_{EBO}$			0.1	$\mu\text{A}$	$V_{EB}=1\text{V}$
DC current gain	$h_{FE}^*$	50	150	300		$V_{CE}=6\text{V}, I_C=20\text{mA}$
Transit frequency	$f_T$		9		GHz	$V_{CE}=6\text{V}, I_C=20\text{mA}, f=1\text{GHz}$
Output feedback capacitance	$C_{re}$		0.65		pF	$V_{CB}=8\text{V}, I_E=0\text{mA}, f=1\text{MHz}$
Power gain	$ S_{21e} _2$		13		dB	$V_{CE}=6\text{V}, I_C=20\text{mA}, f=0.9\text{GHz}$
Noise factor	NF		1.6	1.8	dB	$V_{CE}=6\text{V}, I_C=5\text{mA}, f=0.9\text{GHz}$
			1.8	2.0		$V_{CE}=6\text{V}, I_C=20\text{mA}, f=0.9\text{GHz}$

## TYPICAL CHARACTERISTICS

