

## isc Silicon NPN RF Transistor

## BFR193W

## DESCRIPTION

- Low Noise and High Gain  
NF = 1.5 dB TYP  
@ $V_{CE} = 6V$ ,  $I_C = 5\text{ mA}$ ,  $f = 1.0\text{ GHz}$
- Minimum Lot-to-Lot variations for robust device performance and reliable operation
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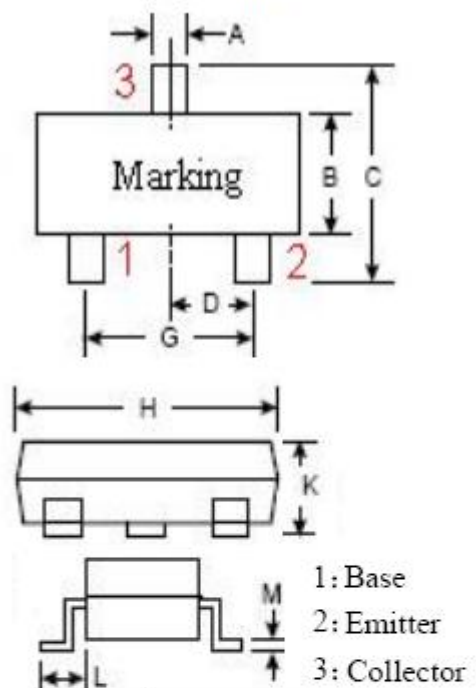
## APPLICATIONS

- Designed for low noise amplifier at VHF, UHF

ABSOLUTE MAXIMUM RATINGS( $T_a=25^\circ\text{C}$ )

SYMBOL	PARAMETER	VALUE	UNIT
$V_{CBO}$	Collector-Base Voltage	20	V
$V_{CEO}$	Collector-Emitter Voltage	12	V
$V_{EBO}$	Emitter-Base Voltage	2.0	V
$I_C$	Collector Current-Continuous	80	mA
$P_C$	Collector Power Dissipation @ $T_c=25^\circ\text{C}$	580	mW
$T_J$	Junction Temperature	-55~150	$^\circ\text{C}$
$T_{stg}$	Storage Temperature Range	-55~150	$^\circ\text{C}$

## SOT-323 Package



DIM	mm	
	MIN	MAX
A	0.200	0.400
B	1.150	1.350
C	2.150	2.450
D	0.650	
G	1.200	1.400
H	2.000	2.200
K	0.900	1.100
L	0.525	
M	0.080	0.150

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## ELECTRICAL CHARACTERISTICS

T<sub>c</sub>=25°C unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
V <sub>(BR)CEO</sub>	Collector-emitter breakdown voltage	I <sub>C</sub> =1mA, I <sub>B</sub> =0	12			V
I <sub>CBO</sub>	Collector Cutoff Current	V <sub>CB</sub> = 10V; I <sub>E</sub> = 0			0.1	μA
I <sub>EBO</sub>	Emitter Cutoff Current	V <sub>EB</sub> = 1V; I <sub>C</sub> = 0			1.0	μA
h <sub>FE</sub>	DC Current Gain	I <sub>C</sub> = 20mA ; V <sub>CE</sub> = 6V	70		140	
f <sub>T</sub>	Current-Gain—Bandwidth Product	I <sub>C</sub> = 20mA ; V <sub>CE</sub> = 6V		8		GHz
C <sub>re</sub>	Feed-Back Capacitance	I <sub>E</sub> = 0 ; V <sub>CB</sub> = 6V; f= 1.0MHz		0.4	0.7	pF
S <sub>21e</sub>   <sup>2</sup>	Insertion Power Gain	I <sub>C</sub> = 20mA ; V <sub>CE</sub> = 6V; f= 1.0GHz		12.5		dB
NF	Noise Figure	I <sub>C</sub> = 5mA ; V <sub>CE</sub> = 6V; f= 1.0GHz		1.5	2	dB

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