

Silicon NPN RF Transistor

DESCRIPTION

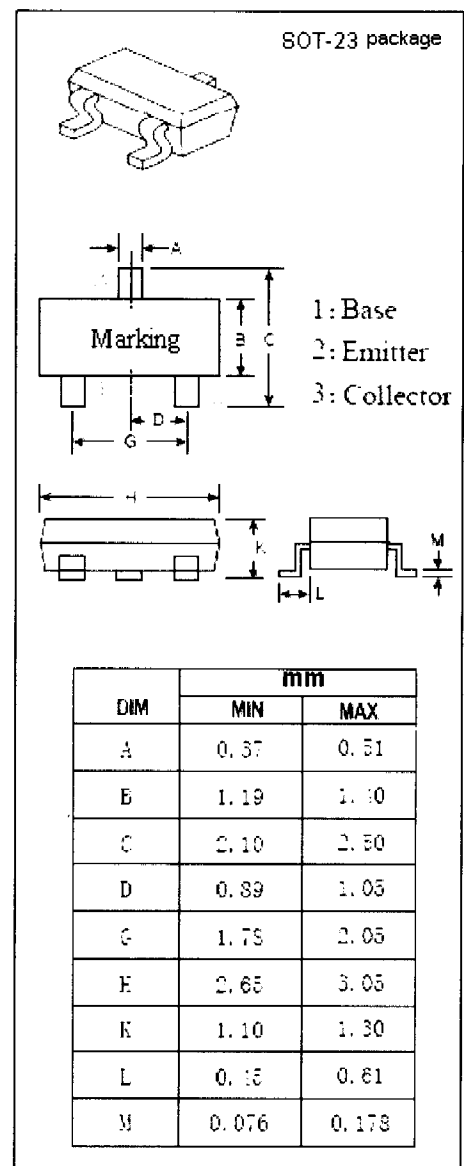
- Low Noise Figure
 NF = 1.3 dB TYP. @ $V_{CE} = 8\text{ V}$, $I_C = 10\text{ mA}$, $f = 900\text{ MHz}$
- High Gain
 $|S_{21e}|^2 = 13.5\text{ dB TYP. @}V_{CE} = 8\text{ V}, I_C = 30\text{ mA}, f = 900\text{ MHz}$

APPLICATIONS

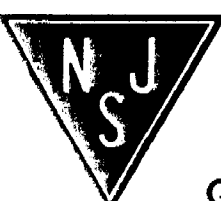
- Designed for use in low noise, high-gain amplifiers and linear broadband amplifiers.

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

SYMBOL	PARAMETER	VALUE	UNIT
V_{CBO}	Collector-Base Voltage	20	V
V_{CES}	Collector-Emitter Voltage	20	V
V_{CEO}	Collector-Emitter Voltage	12	V
V_{EBO}	Emitter-Base Voltage	2	V
I_C	Collector Current-Continuous	80	mA
I_B	Base Current-Continuous	10	mA
P_C	Collector Power Dissipation @ $T_C = 25^\circ\text{C}$	0.6	W
T_J	Junction Temperature	150	$^\circ\text{C}$
T_{stg}	Storage Temperature Range	-65~150	$^\circ\text{C}$



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BFG193

ELECTRICAL CHARACTERISTICS

$T_C=25^\circ\text{C}$ unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	$I_C=1\text{mA}; I_B=0$	12			V
I_{CES}	Collector Cutoff Current	$V_{CE}=20\text{V}; V_{BE}=0$			100	μA
I_{CBO}	Collector Cutoff Current	$V_{CB}=10\text{V}; I_E=0$			0.1	μA
I_{EBO}	Emitter Cutoff Current	$V_{EB}=1\text{V}; I_C=0$			1	μA
h_{FE}	DC Current Gain	$I_C=30\text{mA}; V_{CE}=8\text{V}$	50		200	
f_T	Current-Gain—Bandwidth Product	$I_C=50\text{mA}; V_{CE}=8\text{V}; f=500\text{MHz}$	6	8		GHz
C_{OB}	Output Capacitance	$I_E=0; V_{CB}=10\text{V}; f=1\text{MHz}$		0.6	0.9	pF
PG	Power Gain	$I_C=30\text{mA}; V_{CE}=8\text{V}; f=900\text{MHz}$		15.5		dB
PG	Power Gain	$I_C=30\text{mA}; V_{CE}=8\text{V}; f=1.8\text{GHz}$		10		dB
$ S_{21e} ^2$	Insertion Power Gain	$I_C=30\text{mA}; V_{CE}=8\text{V}; f=900\text{MHz}$		13.5		dB
$ S_{21e} ^2$	Insertion Power Gain	$I_C=30\text{mA}; V_{CE}=8\text{V}; f=1.8\text{GHz}$		8		dB
NF	Noise Figure	$I_C=10\text{mA}; V_{CE}=8\text{V}; f=900\text{MHz}$		1.3		dB
NF	Noise Figure	$I_C=10\text{mA}; V_{CE}=8\text{V}; f=1.8\text{GHz}$		2.1		dB