

Silicon NPN RF Transistor

BFR106

DESCRIPTION

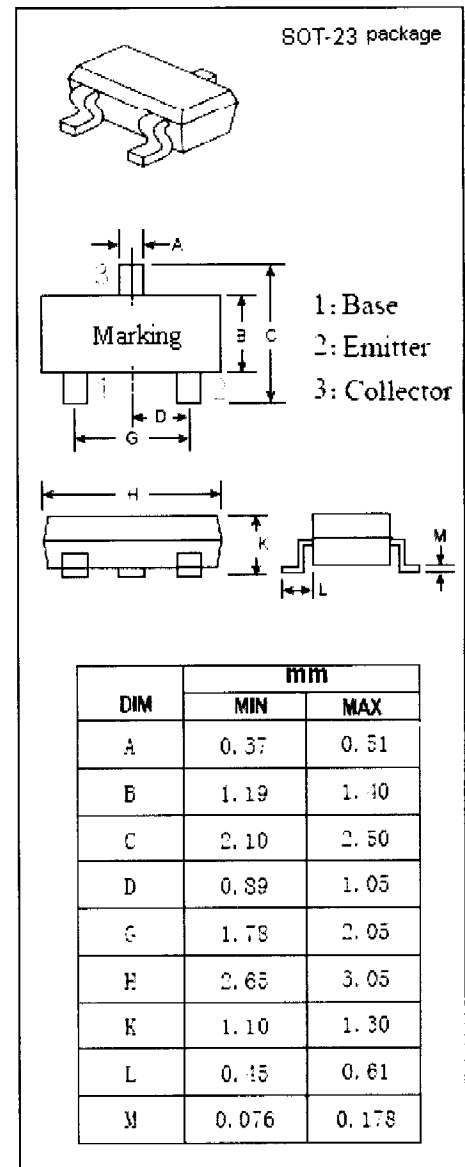
- Low Noise Figure
 NF = 2.5 dB TYP. @ $V_{CE} = 8\text{ V}$, $I_C = 20\text{ mA}$, $f = 900\text{ MHz}$
- High Gain
 $|S_{21e}|^2 = 10.5\text{ dB TYP. @ }V_{CE} = 8\text{ V}, I_C = 70\text{ mA}, f = 900\text{ MHz}$

APPLICATIONS

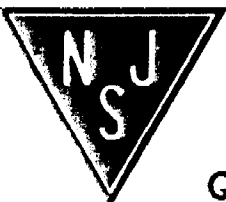
- Designed for use in low noise, high-gain amplifiers and linear broadband amplifiers.

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	15	V
V_{EBO}	Emitter-Base Voltage	3	V
I_C	Collector Current-Continuous	100	mA
I_B	Base Current-Continuous	12	mA
P_C	Collector Power Dissipation @ $T_C=25^\circ\text{C}$	0.7	W
T_J	Junction Temperature	150	$^\circ\text{C}$
T_{stg}	Storage Temperature Range	-65~150	$^\circ\text{C}$



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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	$I_C = 1\text{mA}; I_B = 0$	15			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	$V_{EB} = 2\text{V}; I_C = 0$			10	μA
h_{FE}	DC Current Gain	$I_C = 70\text{mA}; V_{CE} = 8\text{V}$	40		220	
f_T	Current-Gain—Bandwidth Product	$I_C = 70\text{mA}; V_{CE} = 8\text{V}; f = 500\text{MHz}$	3.5	5		GHz
C_{OB}	Output Capacitance	$I_E = 0; V_{CB} = 10\text{V}; f = 1\text{MHz}$		0.95	1.5	pF
PG	Power Gain	$I_C = 70\text{mA}; V_{CE} = 8\text{V}; f = 900\text{MHz}$		12.5		dB
PG	Power Gain	$I_C = 70\text{mA}; V_{CE} = 8\text{V}; f = 1.8\text{GHz}$		7.5		dB
$ S_{21e} ^2$	Insertion Power Gain	$I_C = 70\text{mA}; V_{CE} = 8\text{V}; f = 900\text{MHz}$		10.5		dB
$ S_{21e} ^2$	Insertion Power Gain	$I_C = 70\text{mA}; V_{CE} = 8\text{V}; f = 1.8\text{GHz}$		5		dB
NF	Noise Figure	$I_C = 20\text{mA}; V_{CE} = 8\text{V}; f = 900\text{MHz}$		2.5		dB
NF	Noise Figure	$I_C = 20\text{mA}; V_{CE} = 8\text{V}; f = 1.8\text{GHz}$		4		dB