

**Silicon NPN RF Transistor**

**BFQ591**

**DESCRIPTION**

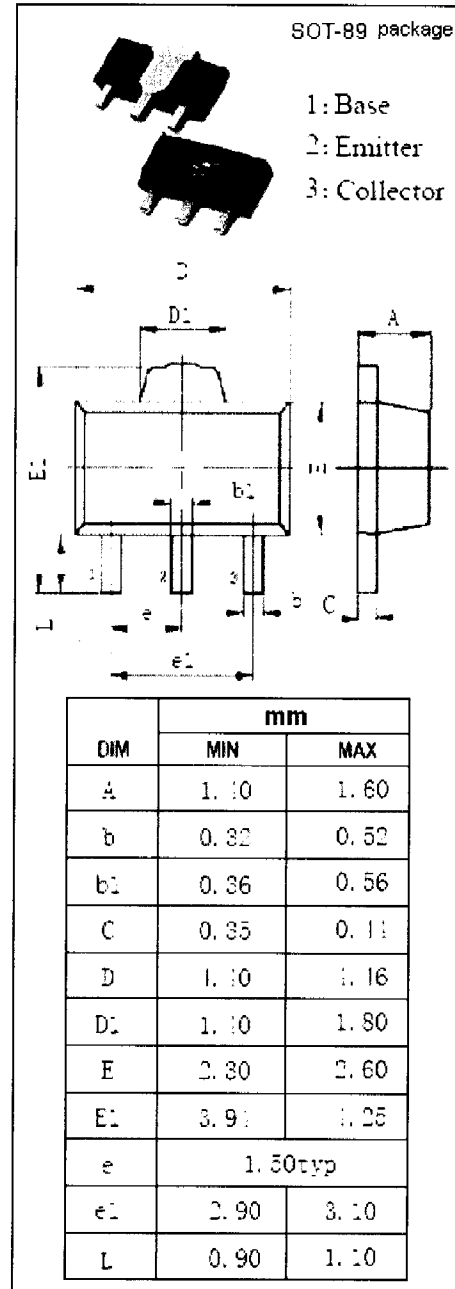
- High Power Gain
- High Current Gain Bandwidth Product
- Low Noise Figure

**APPLICATIONS**

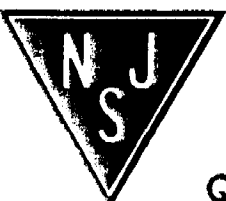
- Designed for use in MATV or CATV amplifiers and RF communications subscribers equipment.

**ABSOLUTE MAXIMUM RATINGS(T<sub>a</sub>=25°C)**

SYMBOL	PARAMETER	VALUE	UNIT
V <sub>CB0</sub>	Collector-Base Voltage	20	V
V <sub>CE0</sub>	Collector-Emitter Voltage	15	V
V <sub>EB0</sub>	Emitter-Base Voltage	3	V
I <sub>c</sub>	Collector Current-Continuous	200	mA
P <sub>c</sub>	Collector Power Dissipation @T <sub>c</sub> =25°C	2.25	W
T <sub>J</sub>	Junction Temperature	175	°C
T <sub>stg</sub>	Storage Temperature Range	-65~150	°C



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## ELECTRICAL CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
$V_{(BR)CES}$	Collector-Emitter Breakdown Voltage	$I_C = 0.1\text{mA}; I_B = 0$	15			V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	$I_C = 0.1\text{mA}; I_E = 0$	20			V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	$I_E = 0.1\text{mA}; I_C = 0$	3			V
$I_{CBO}$	Collector Cutoff Current	$V_{CB} = 10\text{V}; I_E = 0$			0.1	$\mu\text{A}$
$h_{FE}$	DC Current Gain	$I_C = 70\text{mA}; V_{CE} = 8\text{V}$	60		250	
$f_T$	Current-Gain—Bandwidth Product	$I_C = 70\text{mA}; V_{CE} = 12\text{V}; f = 1\text{GHz}$		7		GHz
PG	Power Gain	$I_C = 70\text{mA}; V_{CE} = 12\text{V}; f = 900\text{MHz}$		11		dB
PG	Power Gain	$I_C = 70\text{mA}; V_{CE} = 12\text{V}; f = 2\text{GHz}$		5.5		dB
$C_{re}$	Feedback Capacitance	$I_E = 0; V_{CB} = 12\text{V}; f = 1\text{MHz}$		0.8		pF
$ S_{21e} ^2$	Insertion Power Gain	$I_C = 70\text{mA}; V_{CE} = 12\text{V}; f = 1\text{GHz}$		10		dB
$V_O$	Output Voltage	note		700		mV

Note:  $d_{im} = 60\text{ dB}$  (DIN45004B);  $V_p = V_o$ ;  $V_q = V_o - 6\text{ dB}$ ;  $f_p = 795.25\text{ MHz}$ ;  $f_q = 803.25\text{ MHz}$ ;  $f_r = 803.25\text{ MHz}$ ; measured @  $f_{(p+q+r)} = 793.25\text{ MHz}$ .

