New Jersey Semi-Conductor Products, Inc.

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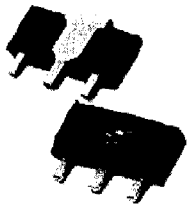
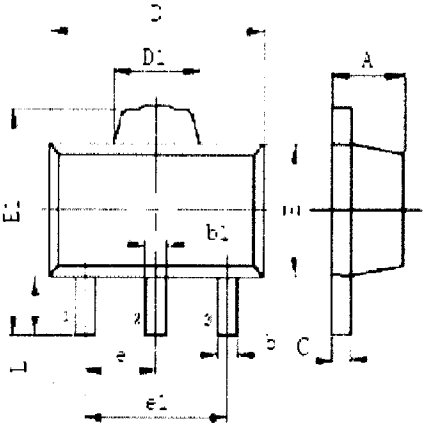
Silicon NPN RF Transistor — BFQ591

SOT-89 package



1: Base
2: Emitter
3: Collector



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_a=25℃)

SYMBOL	PARAMETER	VALUE	UNIT
V_{CBO}	Collector-Base Voltage	20	V
V_{CEO}	Collector-Emitter Voltage	15	V
V_{EBO}	Emitter-Base Voltage	3	V
I_C	Collector Current-Continuous	200	mA
P_C	Collector Power Dissipation @T_C=25℃	2.25	W
T_J	Junction Temperature	175	℃
T_{stg}	Storage Temperature Range	-65~150	℃

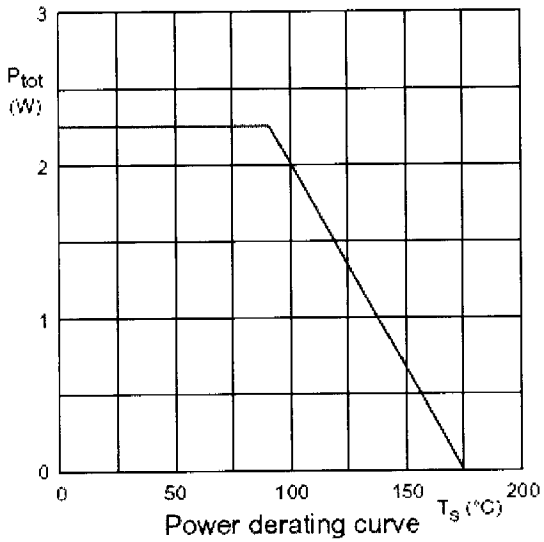
DIM	mm MIN	MAX
A	1.40	1.60
b	0.32	0.52
b1	0.36	0.56
C	0.35	0.44
D	4.40	4.16
D1	1.40	1.80
E	2.30	2.60
E1	3.94	4.25
e	1.50typ	
e1	2.90	3.10
L	0.90	1.10

ELECTRICAL CHARACTERISTICS

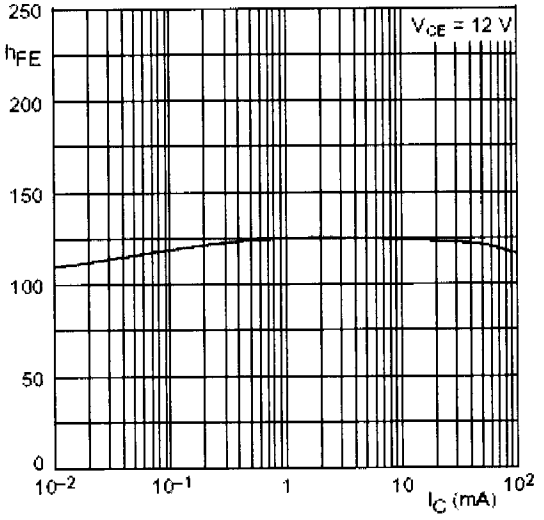
T_C=25℃ unless otherwise specified

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

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



Power derating curve



DC current gain as a function of collector current; typical values