isc Silicon NPN RF Transistor BFR106

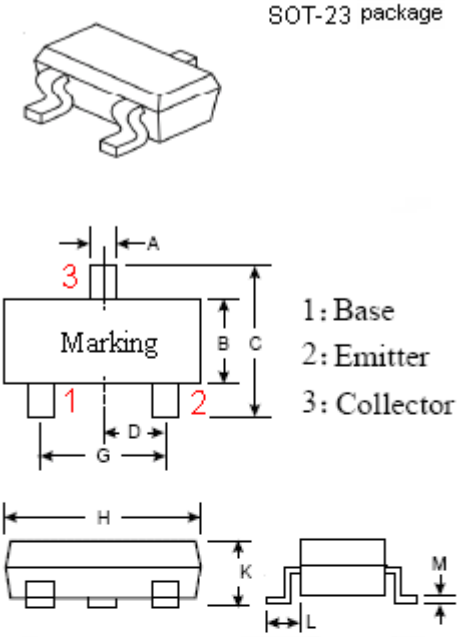
DESCRIPTION

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

APPLICATIONS

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

SOT-23 package



DIM	mm	
	MIN	MAX
A	0.37	0.51
B	1.19	1.40
C	2.10	2.50
D	0.89	1.05
G	1.78	2.05
H	2.65	3.05
K	1.10	1.30
L	0.45	0.61
M	0.076	0.178

ABSOLUTE MAXIMUM RATINGS(T_a=25℃)

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℃	0.7	W
T_J	Junction Temperature	150	℃
T_{stg}	Storage Temperature Range	-65~150	℃

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ELECTRICAL CHARACTERISTICS

T_C=25℃ unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	I_C= 1mA ; I_B= 0	15			V
I_{CES}	Collector Cutoff Current	V_{CE}= 20V; V_{BE}= 0			100	μA
I_{CBO}	Collector Cutoff Current	V_{CB}= 10V; I_E= 0			0.1	μA
I_{EBO}	Emitter Cutoff Current	V_{EB}= 2V; I_C= 0			10	μA
h_{FE}	DC Current Gain	I_C= 70mA ; V_{CE}= 8V	40		220	
f_T	Current-Gain—Bandwidth Product	I_C= 70mA ; V_{CE}= 8V; f= 500MHz	3.5	5		GHz
C_{OB}	Output Capacitance	I_E= 0 ; V_{CB}= 10V; f= 1MHz		0.95	1.5	pF
PG	Power Gain	I_C= 70mA ; V_{CE}= 8V; f= 900MHz		12.5		dB
PG	Power Gain	I_C= 70mA ; V_{CE}= 8V; f= 1.8GHz		7.5		dB
$\lvert S_{21e} \rvert^2$	Insertion Power Gain	I_C= 70mA ; V_{CE}= 8V; f= 900MHz		10.5		dB
$\lvert S_{21e} \rvert^2$	Insertion Power Gain	I_C= 70mA ; V_{CE}= 8V; f= 1.8GHz		5		dB
NF	Noise Figure	I_C= 20mA ; V_{CE}= 8V; f= 900MHz		2.5		dB
NF	Noise Figure	I_C= 20mA ; V_{CE}= 8V; f= 1.8GHz		4		dB

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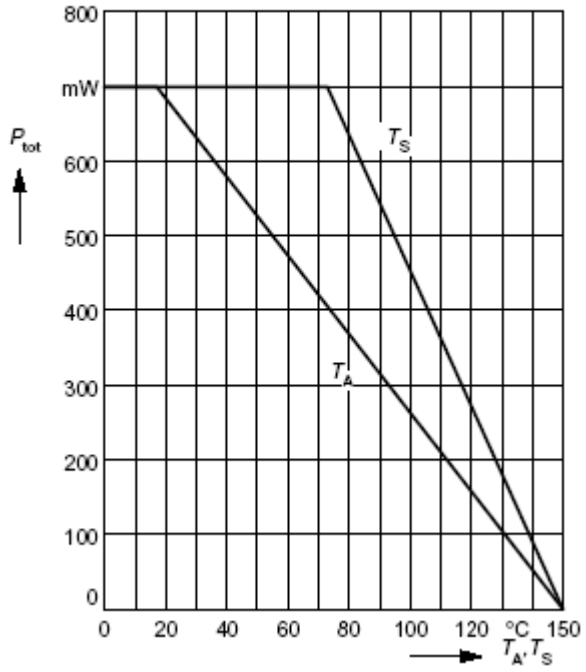
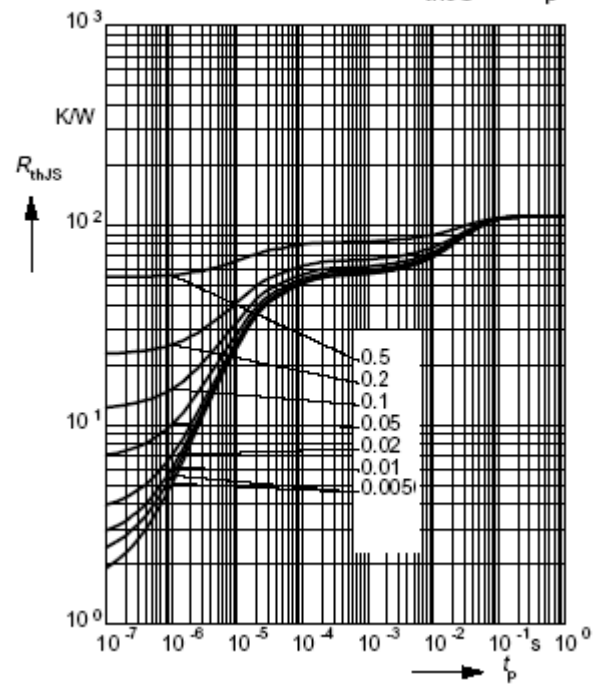
Total power dissipation $P_{tot} = f(T_A^*, T_S)$

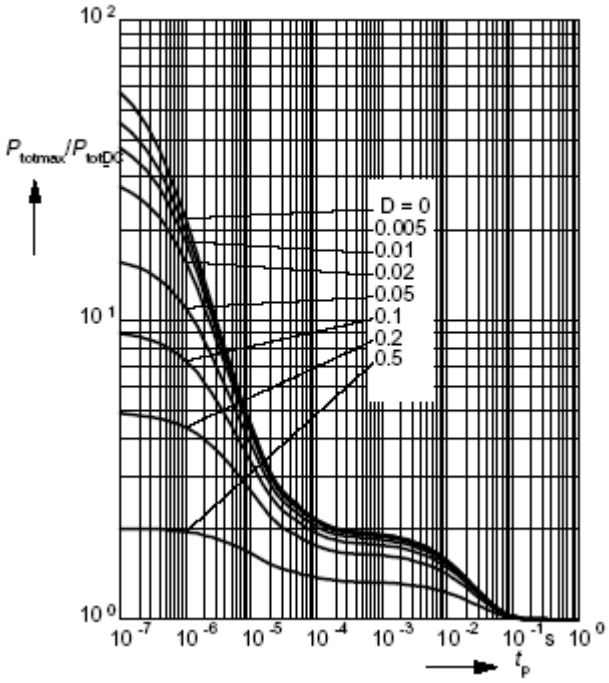
* Package mounted on epoxy



Permissible Pulse Load $R_{thJS} = f(t_p)$



Permissible Pulse Load $P_{totmax}/P_{totDC} = f(t_p)$



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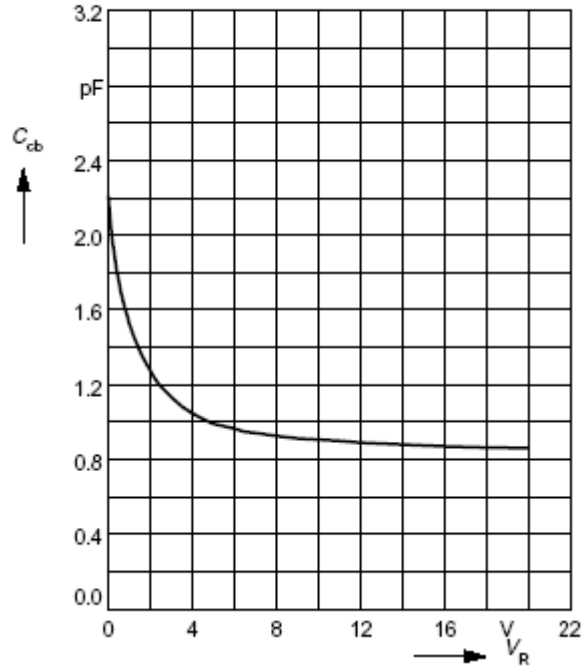
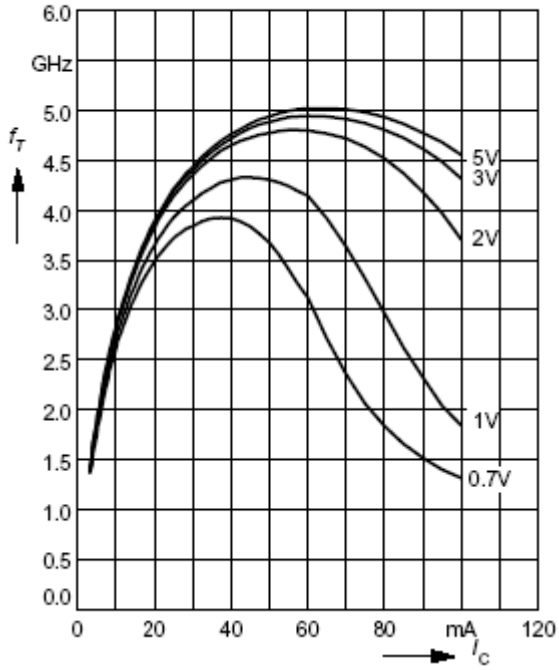
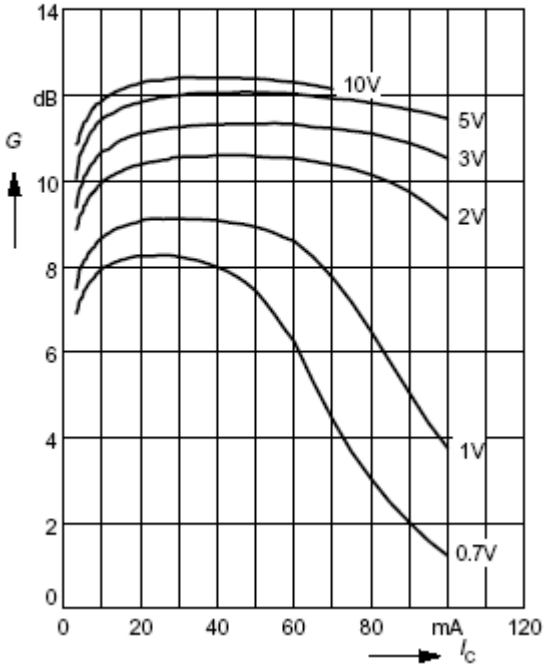
Collector-base capacitance $C_{cb} = f(V_{CB})$
$V_{BE} = v_{be} = 0$, $f = 1$MHz



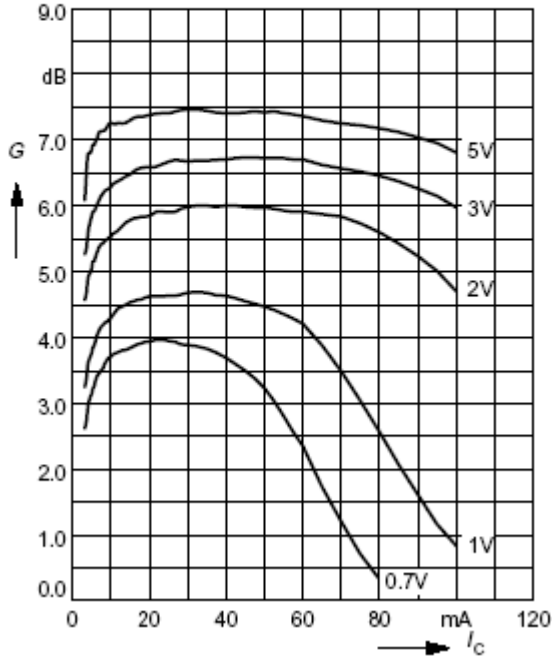
Transition frequency $f_T = f(I_C)$
V_{CE} = Parameter



Power Gain G_{ma}, $G_{ms} = f(I_C)$
$f = 0.9$GHz
V_{CE} = Parameter



Power Gain G_{ma}, $G_{ms} = f(I_C)$
$f = 1.8$GHz
V_{CE} = Parameter



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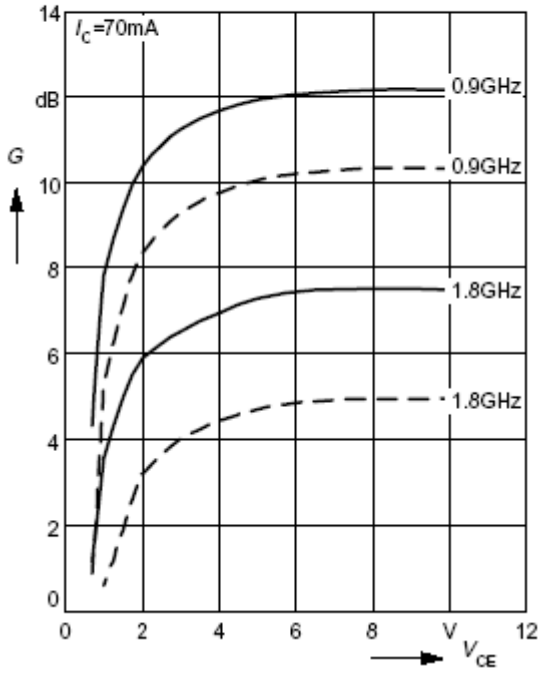
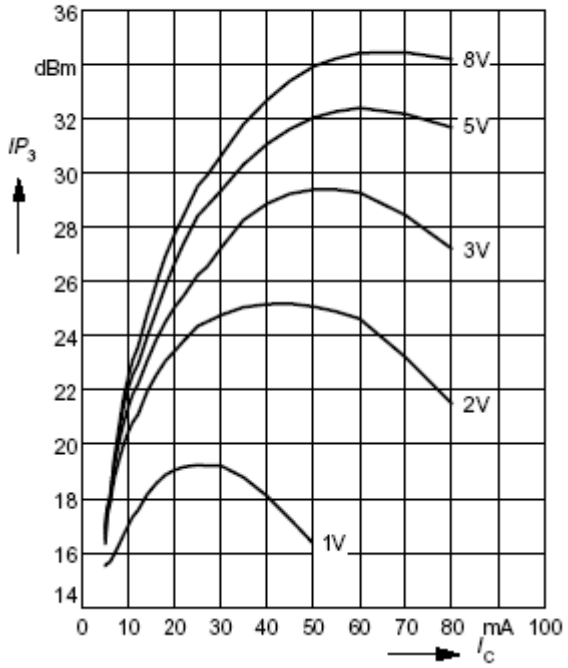
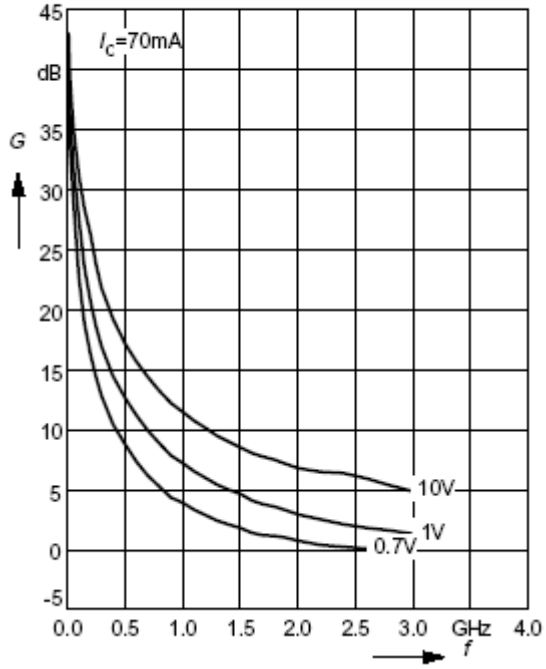
Power Gain G_{ma}, G_{ms} = $f(V_{CE})$:_____
$|S_{21}|^2$ = $f(V_{CE})$:– – – –
f = Parameter



Intermodulation Intercept Point IP_3=$f(I_C)$
(3rd order, Output, Z_S=Z_L=50Ω)
V_{CE} = Parameter, f = 900MHz



Power Gain G_{ma}, G_{ms} = $f(f)$
V_{CE} = Parameter



Power Gain $|S_{21}|^2$= $f(f)$
V_{CE} = Parameter