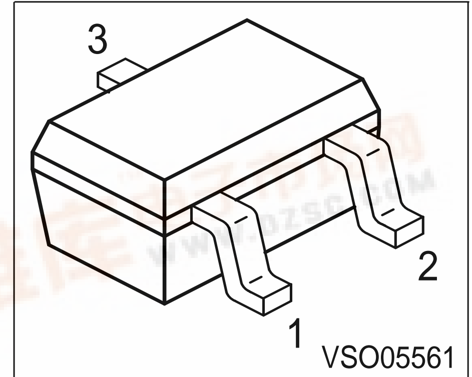
查询BFR180W供应商 捷多邦，专业PCB打样工厂，24小时加急出货

NPN Silicon RF Transistor

- For low-power amplifiers in mobile communication systems (pager) at collector currents from 0.2 mA to 2.5 mA
- f_T = 7 GHz
  F = 2.1 dB at 900 MHz



ESD: **E**lectro**s**tatic **d**ischarge sensitive device, observe handling precaution!

Type	Marking	Pin Configuration			Package
BFR180W	RDs	1 = B	2 = E	3 = C	SOT323

Maximum Ratings

Parameter	Symbol	Value	Unit
Collector-emitter voltage	V_{CEO}	8	V
Collector-emitter voltage	V_{CES}	10	
Collector-base voltage	V_{CBO}	10	
Emitter-base voltage	V_{EBO}	2	
Collector current	I_C	4	mA
Base current	I_B	0.5	
Total power dissipation, $T_S \leq$ 126 °C [1]	P_{tot}	30	mW
Junction temperature	T_j	150	°C
Ambient temperature	T_A	-65 ... 150	
Storage temperature	T_{stg}	-65 ... 150	

Thermal Resistance

Junction - soldering point [2]	R_{thJS}	≤ 790	K/W

[1] T_S is measured on the collector lead at the soldering point to the pcb

[2] For calculation of R_{thJA} please refer to Application Note Thermal Resistance

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Electrical Characteristics at T_A = 25°C, unless otherwise specified.

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
DC characteristics					
Collector-emitter breakdown voltage I_C = 1 mA, I_B = 0	$V_{(BR)CEO}$	8	-	-	V
Collector-emitter cutoff current V_{CE} = 10 V, V_{BE} = 0	I_{CES}	-	-	100	µA
Collector-base cutoff current V_{CB} = 8 V, I_E = 0	I_{CBO}	-	-	100	nA
Emitter-base cutoff current V_{EB} = 1 V, I_C = 0	I_{EBO}	-	-	1	µA
DC current gain I_C = 1 mA, V_{CE} = 5 V	h_{FE}	30	100	200	-

Electrical Characteristics at T_A = 25°C, unless otherwise specified.

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
AC characteristics (verified by random sampling)					
Transition frequency I_C = 3 mA, V_{CE} = 5 V, f = 500 MHz	f_T	5	7	-	GHz
Collector-base capacitance V_{CB} = 5 V, f = 1 MHz	C_{cb}	-	0.3	0.45	pF
Collector-emitter capacitance V_{CE} = 5 V, f = 1 MHz	C_{ce}	-	0.22	-	
Emitter-base capacitance V_{EB} = 0.5 V, f = 1 MHz	C_{eb}	-	0.1	-	
Noise figure I_C = 1 mA, V_{CE} = 5 V, $Z_S = Z_{Sopt}$, f = 900 MHz f = 1.8 GHz	F	 - -	 2.1 2.25	 - -	dB
Power gain, maximum stable 1) I_C = 1 mA, V_{CE} = 5 V, $Z_S = Z_{Sopt}$, $Z_L = Z_{Lopt}$, f = 900 MHz f = 1.8 GHz	G_{ms}	 - -	 13.5 10.5	 - -	
Transducer gain I_C = 1 mA, V_{CE} = 5 V, $Z_S = Z_L = 50\Omega$, f = 900 MHz f = 1.8 GHz	$\|S_{21e}\|^2$	 - -	 8.5 6	 - -	

[1] $G_{ms} = |S_{21} / S_{12}|$

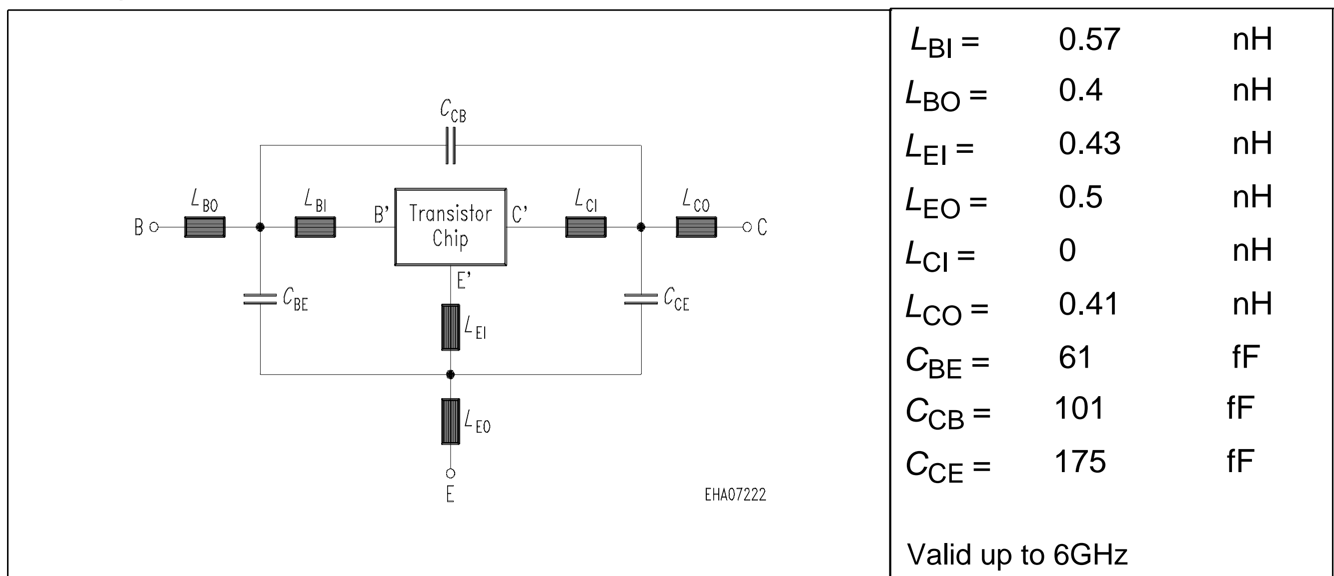
SPICE Parameters (Gummel-Poon Model, Berkley-SPICE 2G.6 Syntax) :

Transistor Chip Data

IS =	0.18519	fA	BF =	94.687	-	NF =	1.0236	-
VAF =	26.867	V	IKF =	0.025252	A	ISE =	130.93	fA
NE =	1.9818	-	BR =	20.325	-	NR =	0.93013	-
VAR =	3.2134	V	IKR =	0.012138	A	ISC =	6.1852	fA
NC =	1.6195	-	RB =	1.4255	Ω	IRB =	0.01	mA
RBM =	60	Ω	RE =	3.7045	Ω	RC =	0.56	Ω
CJE =	3.2473	fF	VJE =	1.1812	V	MJE =	0.41827	-
TF =	14.866	ps	XTF =	0.3062	-	VTF =	0.22023	V
ITF =	1.0202	mA	PTF =	0	deg	CJC =	183.69	fF
VJC =	1.1812	V	MJC =	0.30423	-	XCJC =	0.08334	-
TR =	2.2648	ns	CJS =	0	fF	VJS =	0.75	V
MJS =	0	-	XTB =	0	-	EG =	1.11	eV
XTI =	3	-	FC =	0.87906	-	TNOM	300	K

All parameters are ready to use, no scalling is necessary.
Extracted on behalf of Infineon Technologies AG by:
Institut für Mobil-und Satellitentechnik (IMST)

Package Equivalent Circuit:

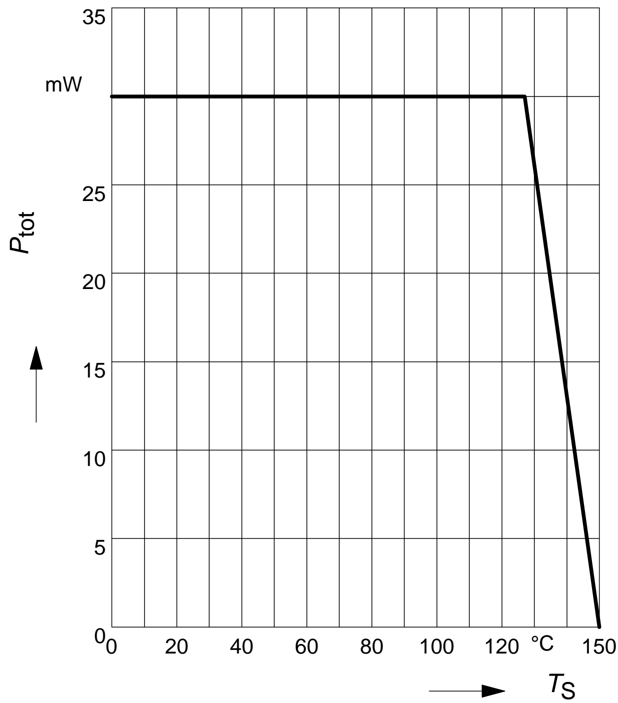


L_{BI} =	0.57	nH
L_{BO} =	0.4	nH
L_{EI} =	0.43	nH
L_{EO} =	0.5	nH
L_{CI} =	0	nH
L_{CO} =	0.41	nH
C_{BE} =	61	fF
C_{CB} =	101	fF
C_{CE} =	175	fF

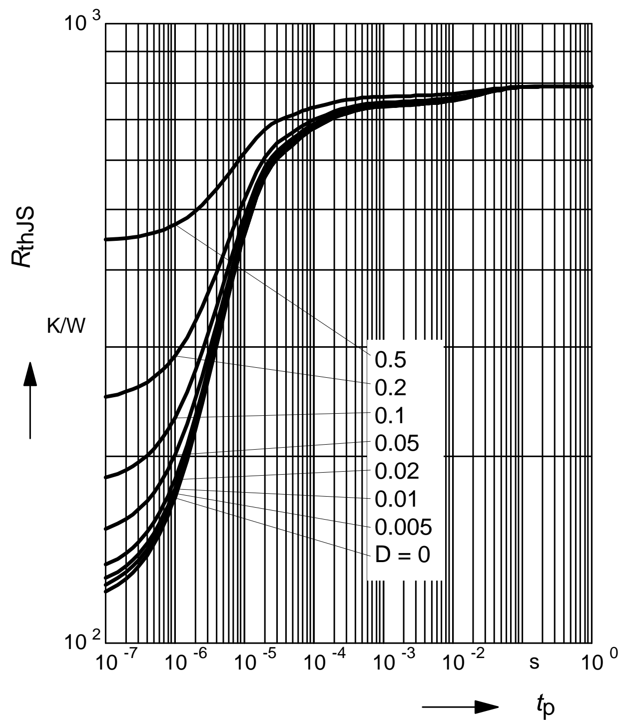
Valid up to 6GHz

For examples and ready to use parameters please contact your local Infineon Technologies distributor or sales office to obtain a Infineon Technologies CD-ROM or see Internet: http://www.infineon.com/products/discrete/index.htm

Total power dissipation $P_{tot} = f(T_S)$

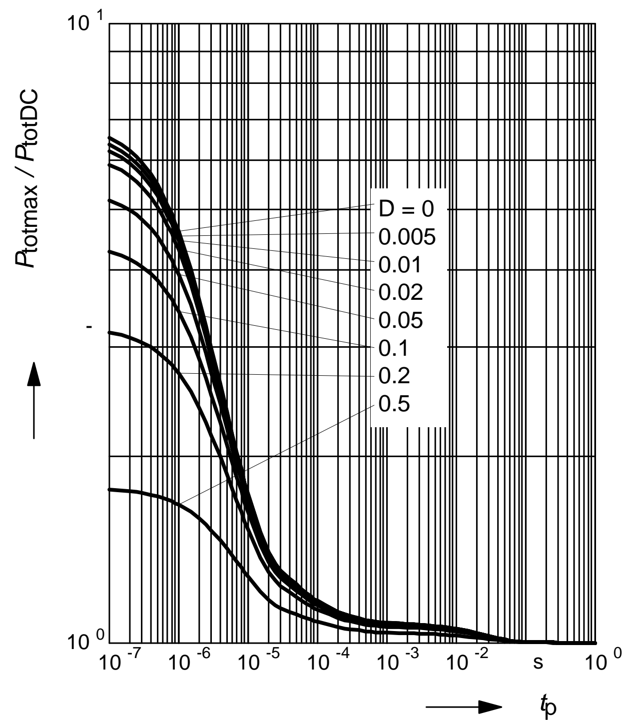


Permissible Pulse Load $R_{thJS} = f(t_p)$



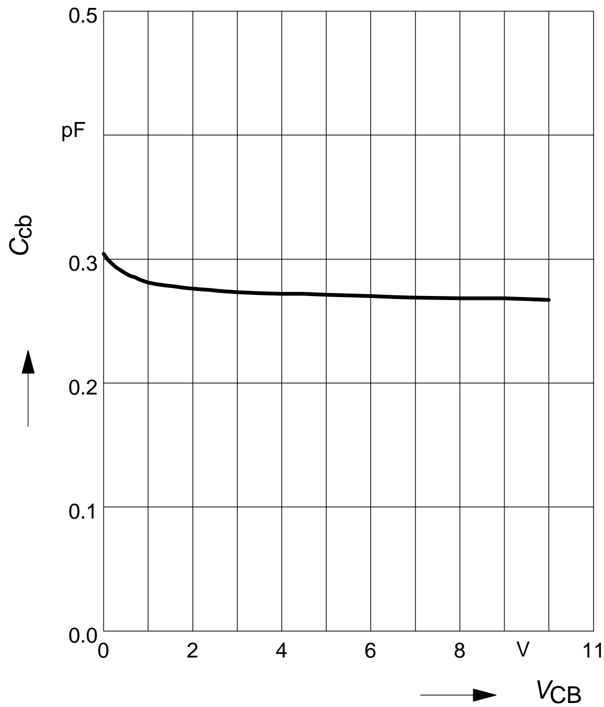
Permissible Pulse Load

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



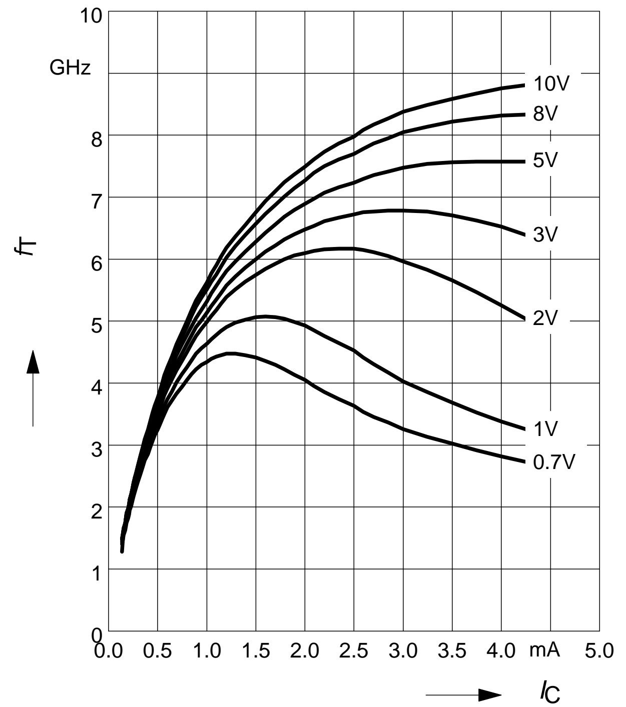
Collector-base capacitance $C_{cb} = f(V_{CB})$

f = 1MHz



Transition frequency $f_T = f(I_C)$

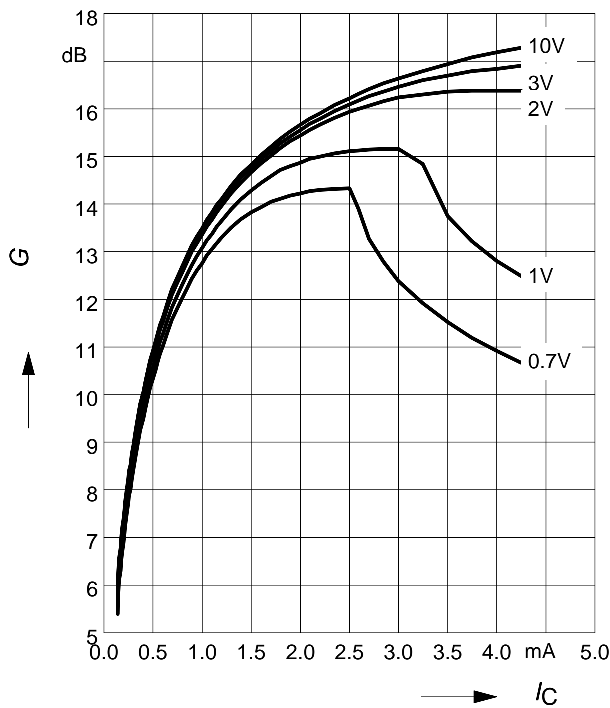
V_{CE} = Parameter



Power Gain G_{ma}, $G_{ms} = f(I_C)$

f = 0.9GHz

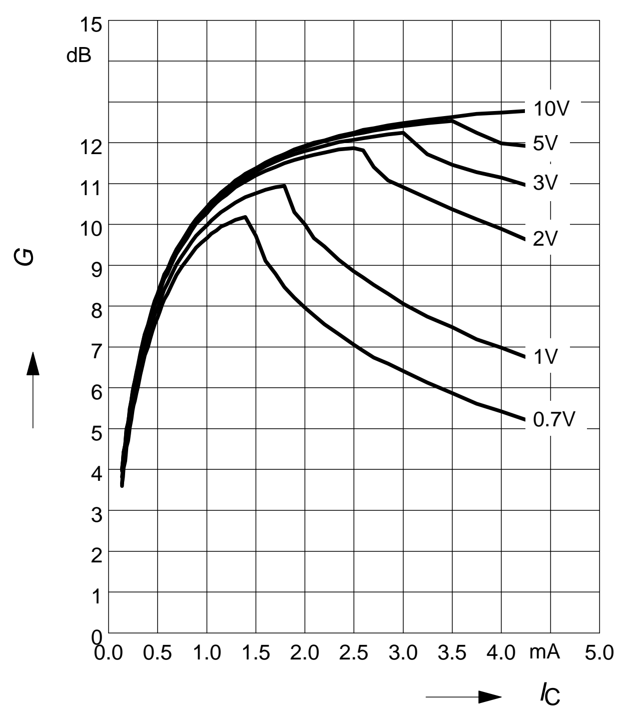
V_{CE} = Parameter



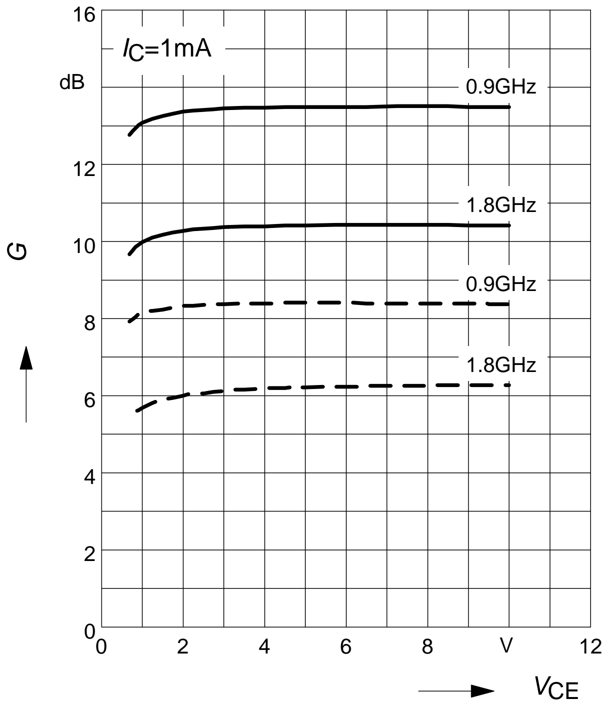
Power Gain G_{ma}, $G_{ms} = f(I_C)$

f = 1.8GHz

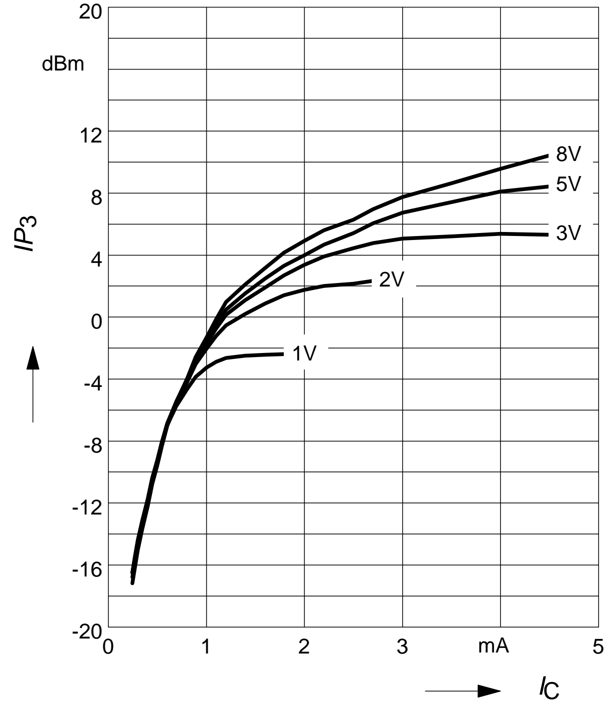
V_{CE} = Parameter



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

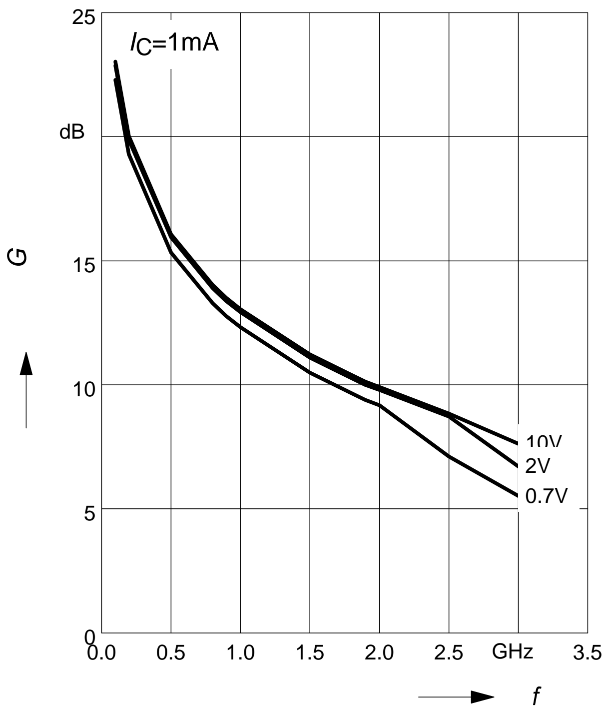


Intermodulation Intercept Point $IP_3=f(I_C)$
(3rd order, Output, $Z_S=Z_L=50\Omega$)
V_{CE} = Parameter, f = 900MHz



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

V_{CE} = Parameter



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

V_{CE} = Parameter