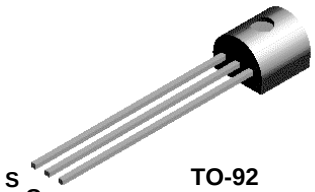
FAIRCHILD
SEMICONDUCTOR TM

BF244A
BF244B
BF244C



TO-92

N-Channel RF Amplifier

This device is designed for RF amplifier and mixer applications operating up to 450 MHz, and for analog switching requiring low capacitance. Sourced from Process 50.

Absolute Maximum Ratings*

TA = 25°C unless otherwise noted

Symbol	Parameter	Value	Units
V_{DG}	Drain-Gate Voltage	30	V
V_{GS}	Gate-Source Voltage	- 30	V
I_D	Drain Current	50	mA
I_{GF}	Forward Gate Current	10	mA
T_{stg}	Storage Temperature Range	-55 to +150	°C

*These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

NOTES:
1) These ratings are based on a maximum junction temperature of 150 degrees C.
2) These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.

Thermal Characteristics

TA = 25°C unless otherwise noted

Symbol	Characteristic	Max	Units
		BF244A / BF244B / BF244C	
P_D	Total Device Dissipation Derate above 25°C	350 2.8	mW mW/°C
$R_{\theta JC}$	Thermal Resistance, Junction to Case	125	°C/W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	357	°C/W

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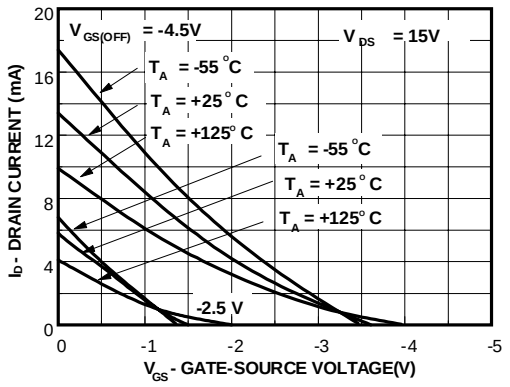
N-Channel RF Amplifier
(continued)

Electrical Characteristics
TA = 25°C unless otherwise noted

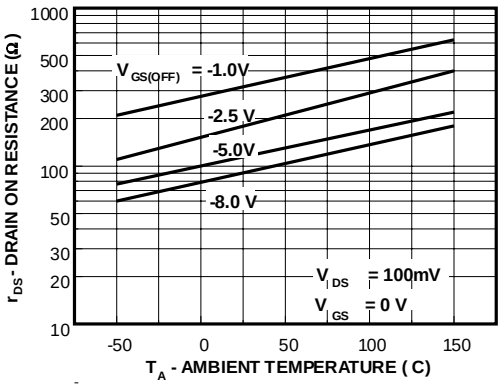
Symbol	Parameter	Test Conditions		Min	Typ	Max	Units
OFF CHARACTERISTICS							
$V_{(BR)GSS}$	Gate-Source Breakdown Voltage	I_G = 1.0 μA, V_{DS} = 0		30			V
I_{GSS}	Gate Reverse Current	V_{GS} = - 20 V, V_{DS} = 0				5.0	nA
$V_{GS(off)}$	Gate-Source Cutoff Voltage	V_{DS} = 15 V, I_D = 10 nA		- 0.5		- 8.0	V
V_{GS}	Gate-Source Voltage	V_{DS} = 15 V, I_D = 200 μA	**244A**	- 0.4		- 2.2	V
			244B	- 1.6		- 3.8	V
			244C	- 3.2		- 7.5	V
ON CHARACTERISTICS							
I_{DSS}	Zero-Gate Voltage Drain Current	V_{DS} = 15 V, V_{GS} = 0	**244A**	2.0		6.5	mA
			244B	6.0		15	mA
			244C	12		25	mA
SMALL SIGNAL CHARACTERISTICS							
y_{fs}	Forward Transfer Admittance	V_{DS} = 15 V, V_{GS} = 0, f = 1.0 kHz		3.0		6.5	mmhos
		V_{DS} = 15 V, V_{GS} = 0, f = 200 MHz			5.6		mmhos
y_{os}	Output Admittance	V_{DS} = 15 V, V_{GS} = 0, f = 1.0 kHz			40		μmhos
y_{rs}	Reverse Transfer Admittance	V_{DS} = 15 V, V_{GS} = 0, f = 200 MHz			1.0		μmhos
C_{iss}	Input Capacitance	V_{DS} = 20 V, V_{GS} = - 1.0 V			3.0		pF
C_{rss}	Reverse Transfer Capacitance	V_{DS} = 20 V, V_{GS} = - 1.0 V, f = 1.0 MHz			0.7		pF
C_{oss}	Output Capacitance	V_{DS} = 20 V, V_{GS} = - 1.0 V, f = 1.0 MHz			0.9		pF
NF	Noise Figure	V_{DS} = 15 V, V_{GS} = 0, R_G = 1.0 kΩ, f = 100 MHz			1.5		dB
$F(Y_{fs})$	Cut-Off Frequency	V_{DS} = 15 V, V_{GS} = 0			700		MHz

Typical Characteristics

Transfer Characteristics

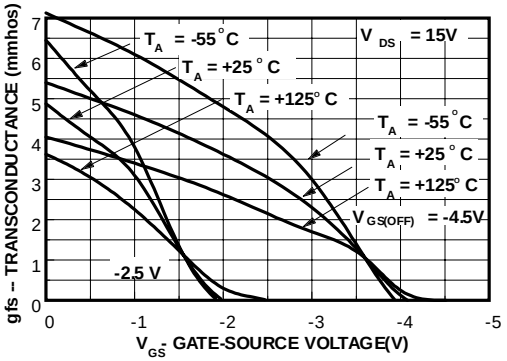


Channel Resistance vs Temperature

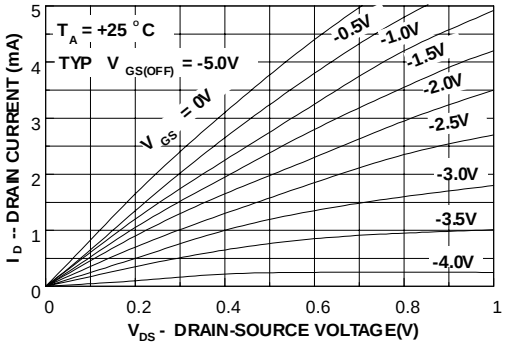


Typical Characteristics (continued)

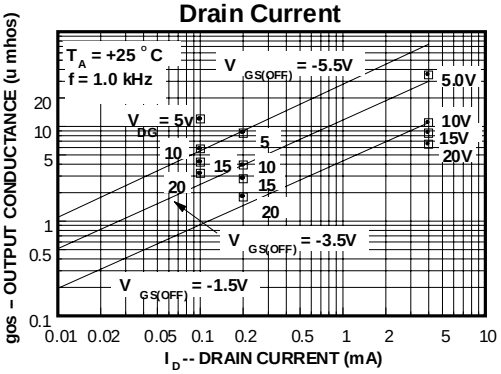
Transconductance Characteristics



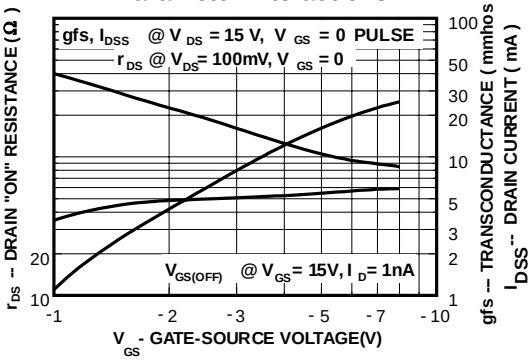
Common Drain-Source Characteristics



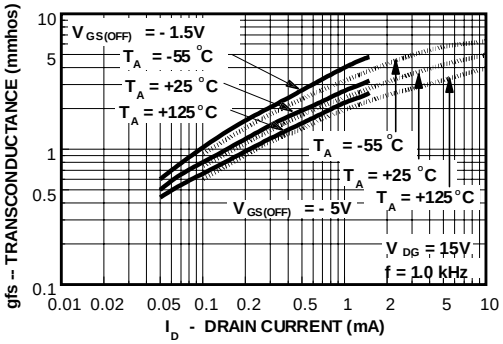
Output Conductance vs Drain Current



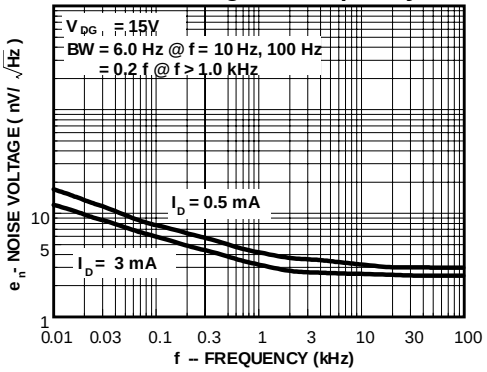
Transconductance Parameter Interactions



Transconductance vs Drain Current

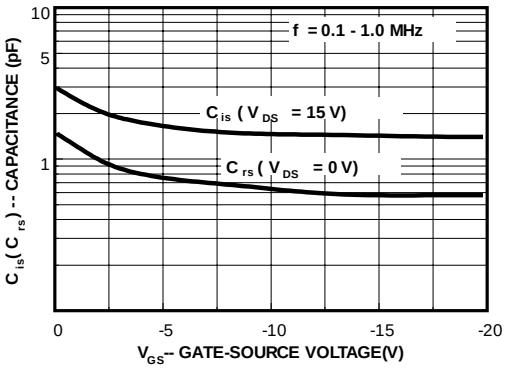


Noise Voltage vs Frequency

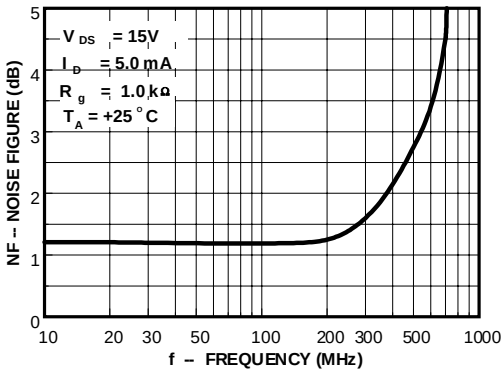


Typical Characteristics (continued)

Capacitance vs Voltage

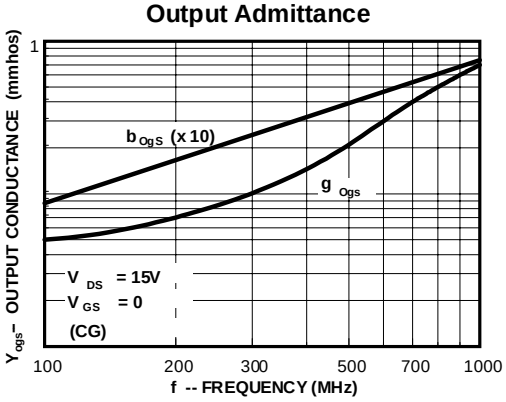


Noise Figure Frequency

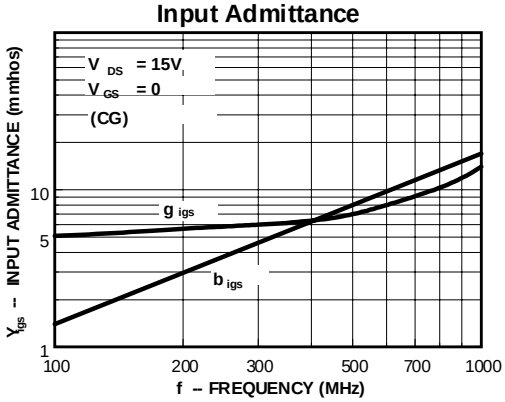


Common Gate Characteristics

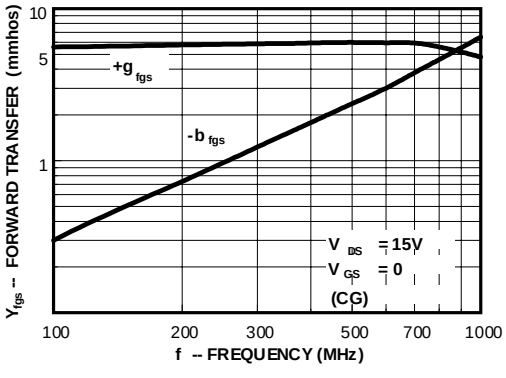
Output Admittance



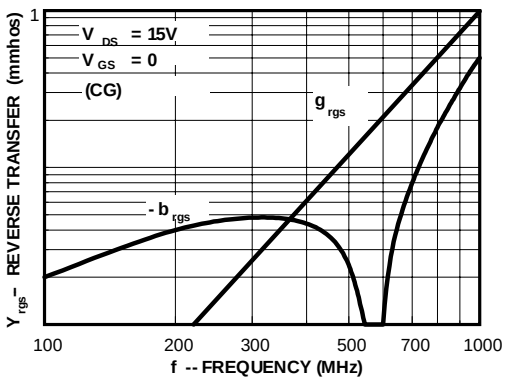
Input Admittance



Forward Transadmittance

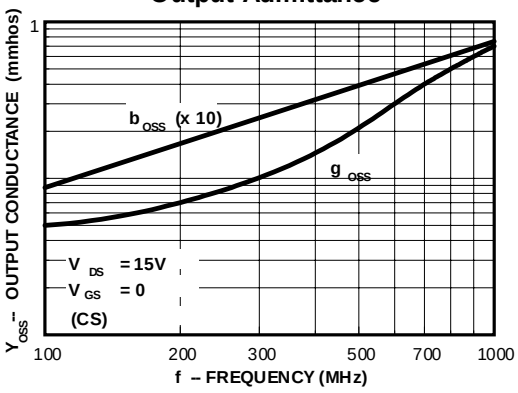


Reverse Transadmittance

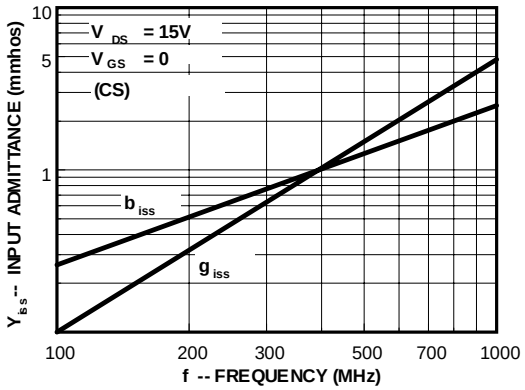


Common Source Characteristics

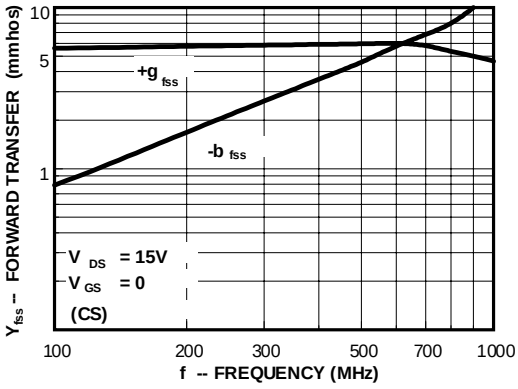
Output Admittance



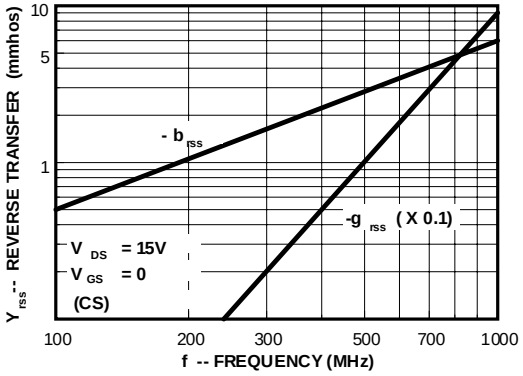
Input Admittance



Forward Transadmittance



Reverse Transadmittance



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Тел: +7 (812) 336 43 04 (многоканальный)
Email: org@lifeelectronics.ru

www.lifeelectronics.ru