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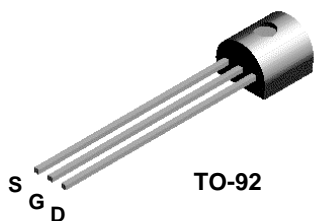
ON Semiconductor®

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**BF244A
BF244B
BF244C**



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 | mW |
| | | 2.8 | mW/°C |
| R _{θJC} | Thermal Resistance, Junction to Case | 125 | °C/W |
| R _{θJA} | Thermal Resistance, Junction to Ambient | 357 | °C/W |

N-Channel RF Amplifier

(continued)

BF244A / BF244B / BF244C

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 | $I_G = 1.0 \mu A, V_{DS} = 0$ | 30 | | | V |
| I_{GSS} | Gate Reverse Current | $V_{GS} = -20 V, V_{DS} = 0$ | | | 5.0 | nA |
| $V_{GSS(off)}$ | Gate-Source Cutoff Voltage | $V_{DS} = 15 V, I_D = 10 nA$ | -0.5 | | -8.0 | V |
| V_{GS} | Gate-Source Voltage | $V_{DS} = 15 V, I_D = 200 \mu A$ | | | | |
| | | 244A | -0.4 | | -2.2 | V |
| | | 244B | -1.6 | | -3.8 | V |
| | | 244C | -3.2 | | -7.5 | V |

ON CHARACTERISTICS

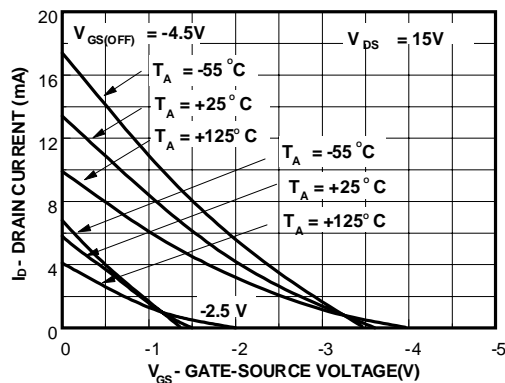
| | | | | | | |
|-----------|---------------------------------|-----------------------------|-----|--|-----|----|
| I_{DSS} | Zero-Gate Voltage Drain Current | $V_{DS} = 15 V, V_{GS} = 0$ | | | | |
| | | 244A | 2.0 | | 6.5 | mA |
| | | 244B | 6.0 | | 15 | mA |
| | | 244C | 12 | | 25 | mA |

SMALL SIGNAL CHARACTERISTICS

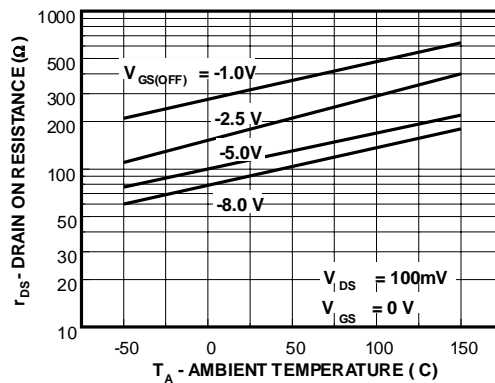
| | | | | | | |
|-------------|------------------------------|--|-----|-----|-----|----------------|
| y_{fs} | Forward Transfer Admittance | $V_{DS} = 15 V, V_{GS} = 0, f = 1.0 kHz$ $V_{DS} = 15 V, V_{GS} = 0, f = 200 MHz$ | 3.0 | 5.6 | 6.5 | mmhos mmhos |
| y_{os} | Output Admittance | $V_{DS} = 15 V, V_{GS} = 0, f = 1.0 kHz$ | | 40 | | $\mu mhos$ |
| y_{rs} | Reverse Transfer Admittance | $V_{DS} = 15 V, V_{GS} = 0, f = 200 MHz$ | | 1.0 | | $\mu mhos$ |
| 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 | $V_{DS} = 15 V, V_{GS} = 0, R_G = 1.0 k\Omega,$ $f = 100 MHz$ | | 1.5 | | dB |
| $F(Y_{fs})$ | Cut-Off Frequency | $V_{DS} = 15 V, V_{GS} = 0$ | | 700 | | MHz |

Typical Characteristics

Transfer Characteristics

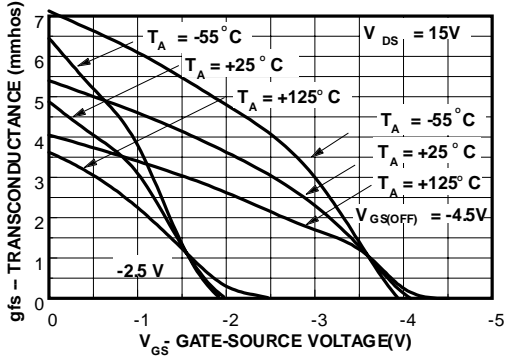


Channel Resistance vs Temperature

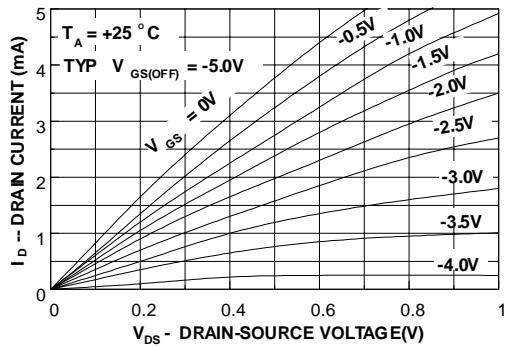


Typical Characteristics (continued)

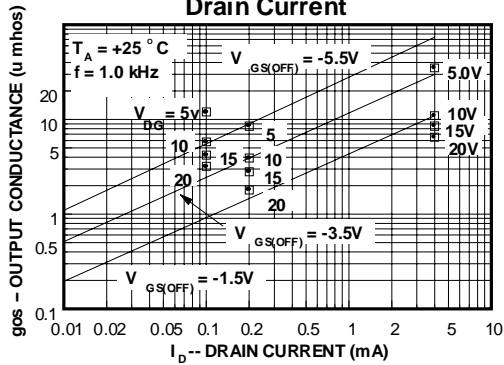
Transconductance Characteristics



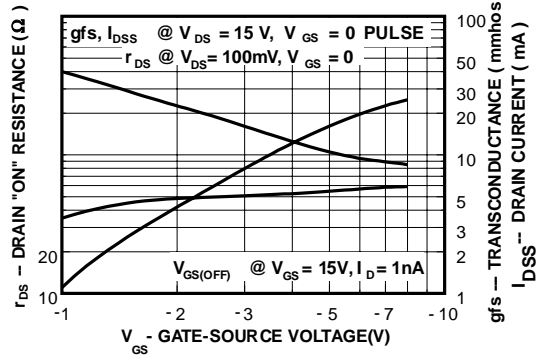
Common Drain-Source Characteristics



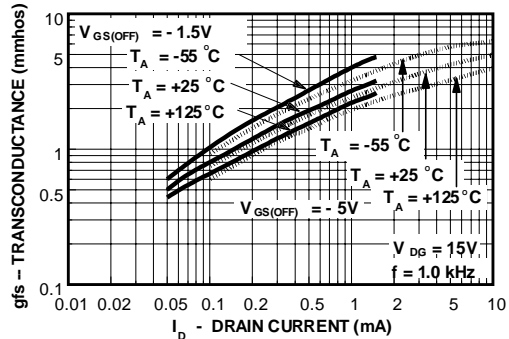
Output Conductance vs Drain Current



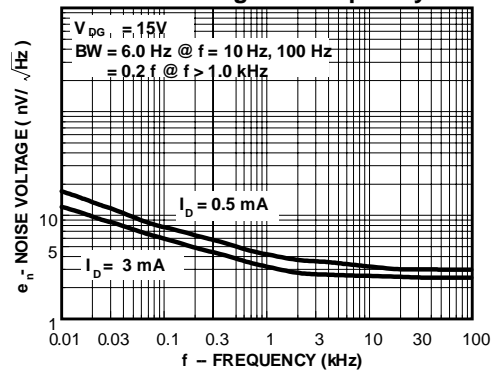
Transconductance Parameter Interactions



Transconductance vs Drain Current



Noise Voltage vs Frequency



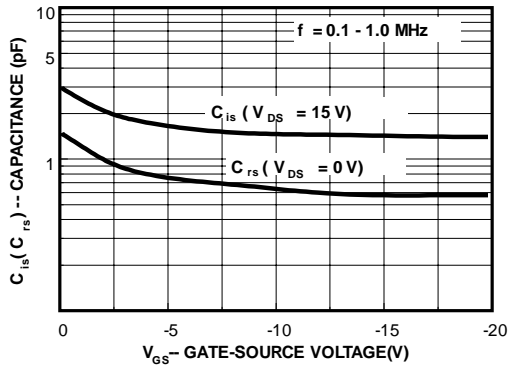
N-Channel RF Amplifier

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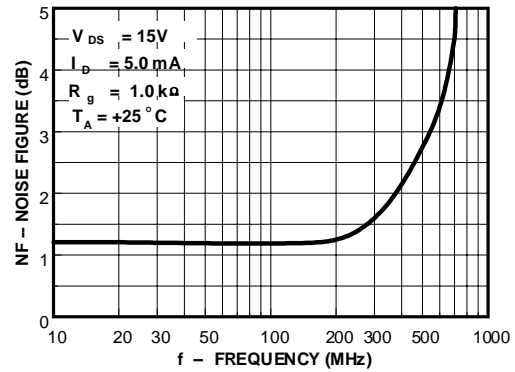
BF244A / BF244B / BF244C

Typical Characteristics (continued)

Capacitance vs Voltage

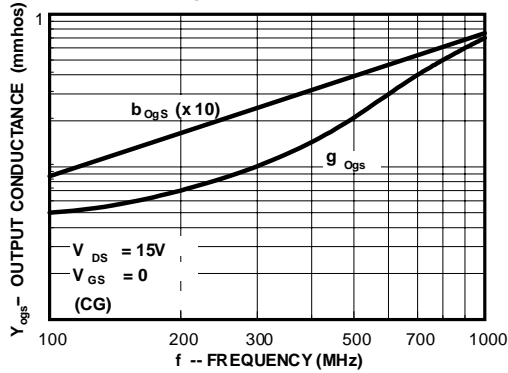


Noise Figure Frequency

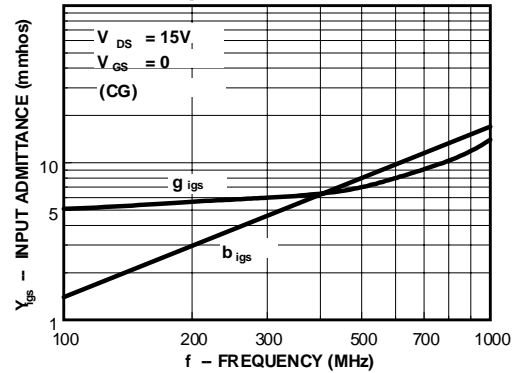


Common Gate Characteristics

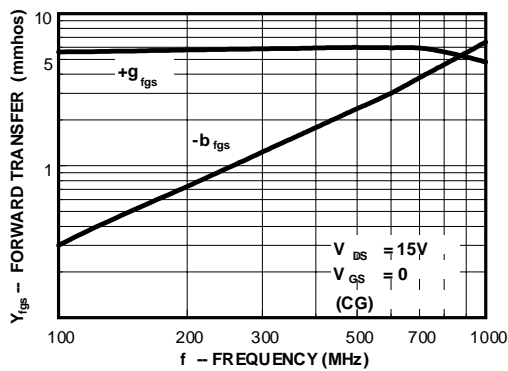
Output Admittance



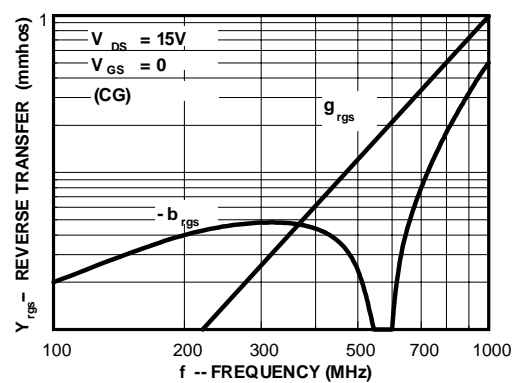
Input Admittance



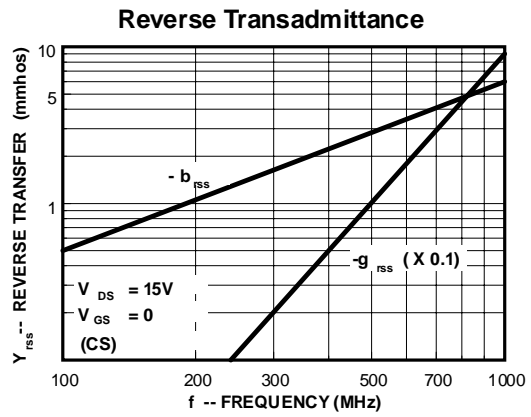
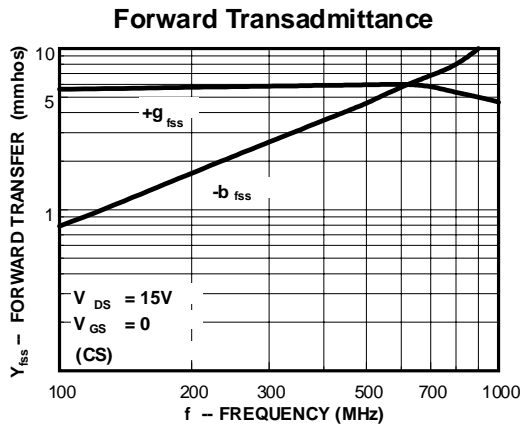
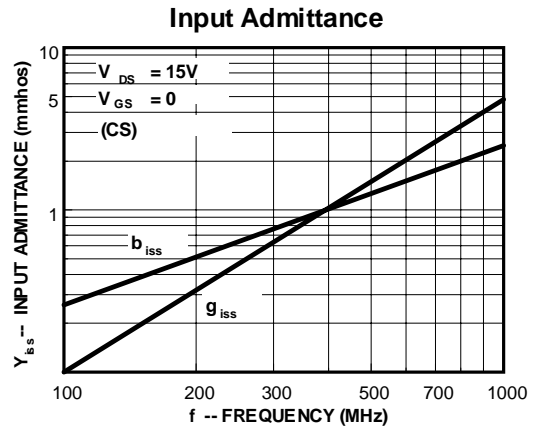
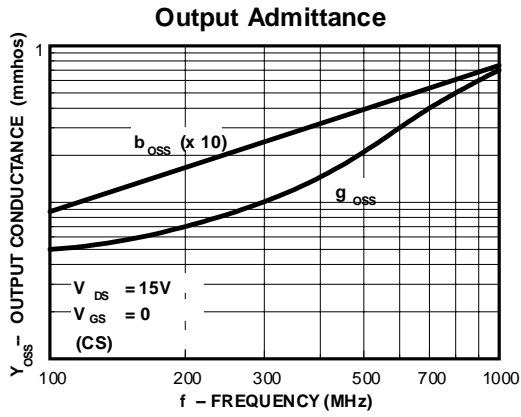
Forward Transadmittance



Reverse Transadmittance



Common Source Characteristics



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