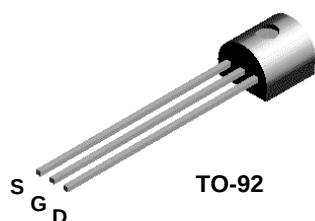


# BF244A BF244B BF244C



## 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 <sub>DG</sub>  | Drain-Gate Voltage        | 30          | V     |
| V <sub>GS</sub>  | Gate-Source Voltage       | - 30        | V     |
| I <sub>D</sub>   | Drain Current             | 50          | mA    |
| I <sub>GF</sub>  | Forward Gate Current      | 10          | mA    |
| T <sub>stg</sub> | 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 <sub>D</sub>   | Total Device Dissipation<br>Derate above 25°C | 350<br>2.8               | mW<br>mW/°C |
| R <sub>θJC</sub> | Thermal Resistance, Junction to Case          | 125                      | °C/W        |
| R <sub>θJA</sub> | 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           | $V_{DS} = 15 V, I_D = 200 \mu A$ | -0.4 |  | -2.2 | V  |
|                |                               | <b>244A</b>                      | -1.6 |  | -3.8 | V  |
|                |                               | <b>244B</b>                      | -3.2 |  | -7.5 | V  |
|                |                               | <b>244C</b>                      |      |  |      |    |

### ON CHARACTERISTICS

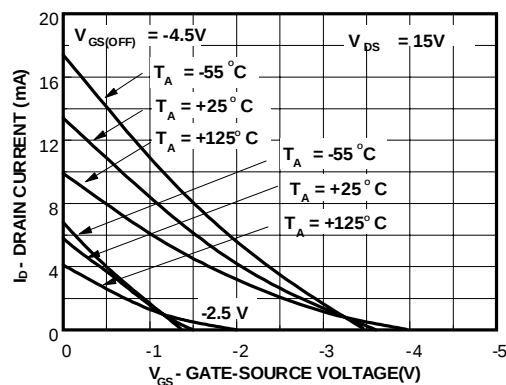
|           |                                 |                             |             |     |     |    |
|-----------|---------------------------------|-----------------------------|-------------|-----|-----|----|
| $I_{DSS}$ | Zero-Gate Voltage Drain Current | $V_{DS} = 15 V, V_{GS} = 0$ | <b>244A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

### SMALL SIGNAL CHARACTERISTICS

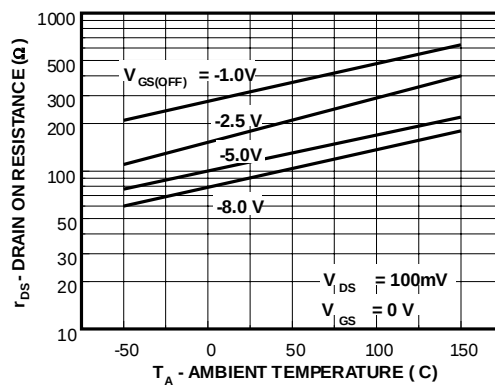
|             |                              |                                                             |     |     |     |            |
|-------------|------------------------------|-------------------------------------------------------------|-----|-----|-----|------------|
| $y_{fs}$    | Forward 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  |     | $\mu mhos$ |
| $y_{rs}$    | 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



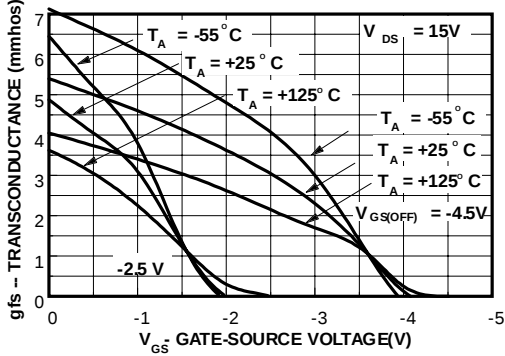
Channel Resistance vs Temperature



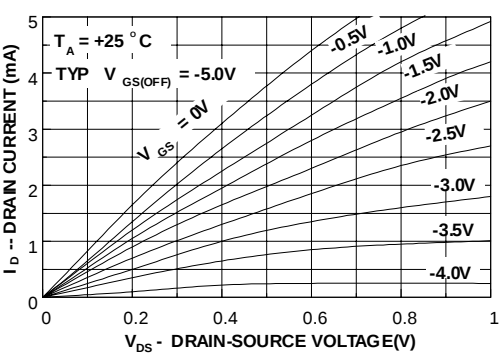
N-Channel RF Amplifier  
(continued)

Typical Characteristics (continued)

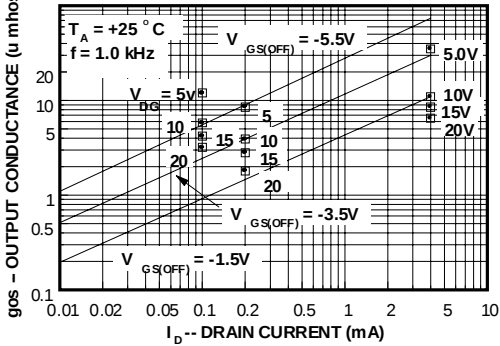
Transconductance  
Characteristics



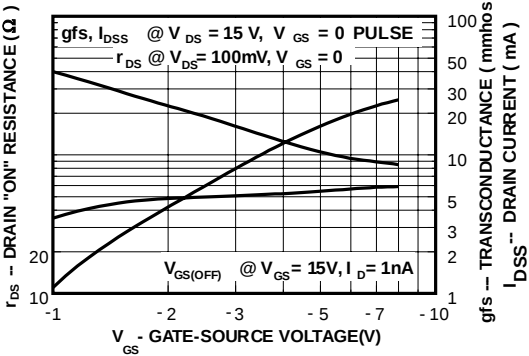
Common Drain-Source  
Characteristics



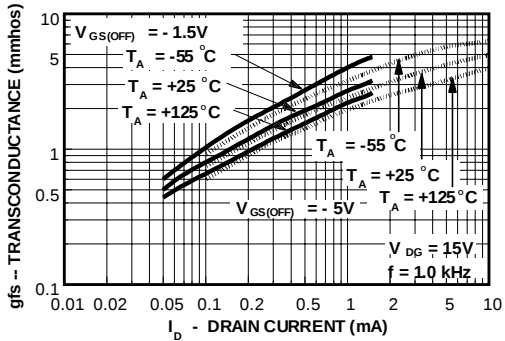
Output Conductance vs  
Drain Current



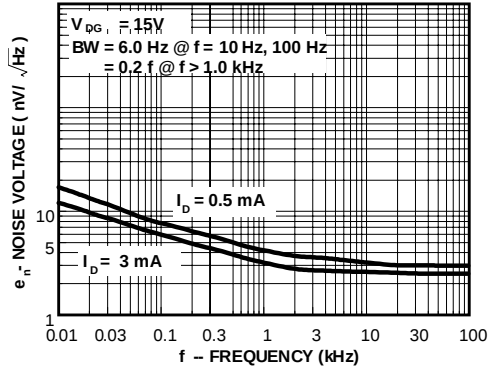
Transconductance  
Parameter Interactions



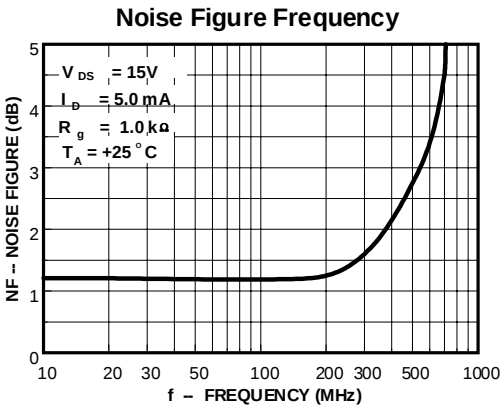
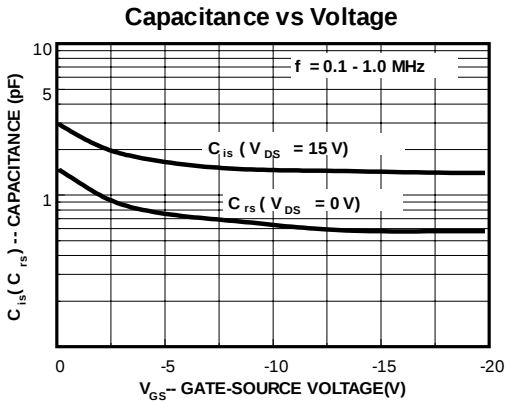
Transconductance vs  
Drain Current



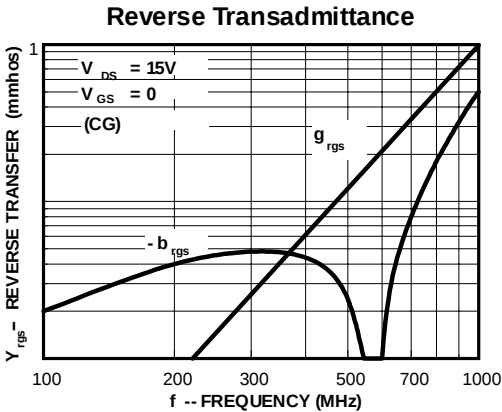
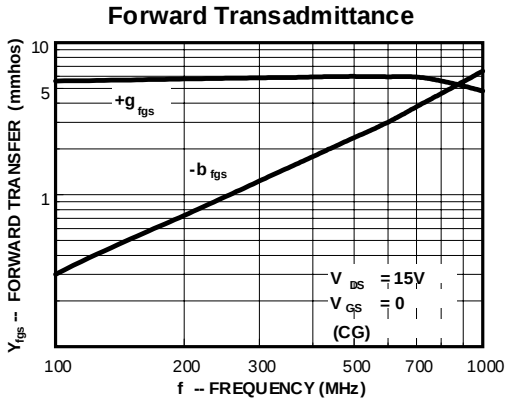
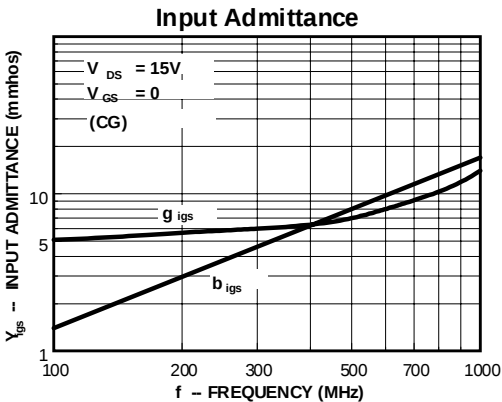
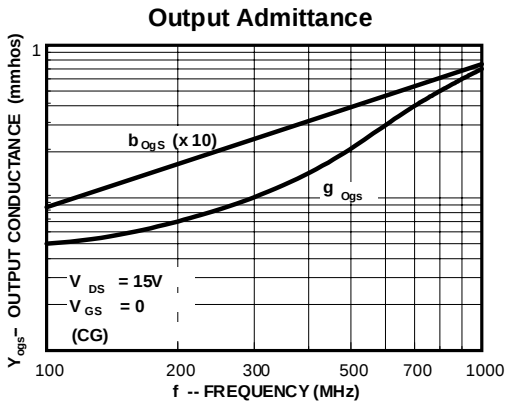
Noise Voltage vs Frequency



Typical Characteristics (continued)



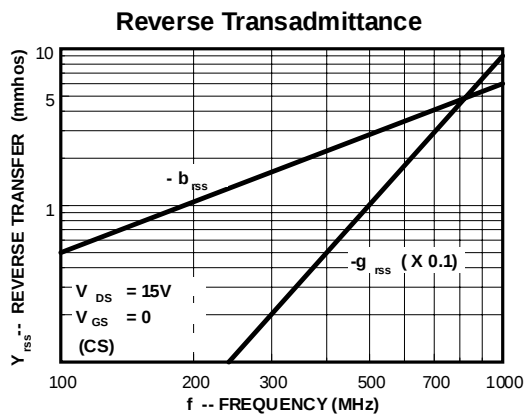
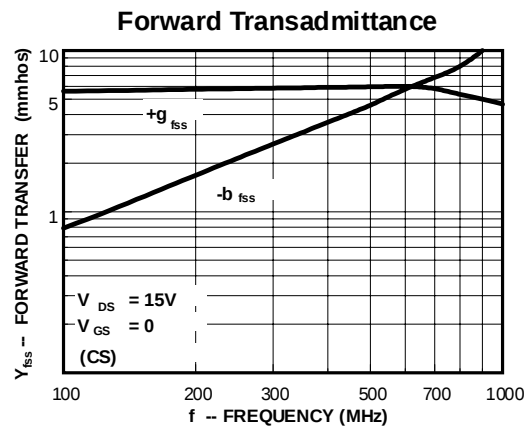
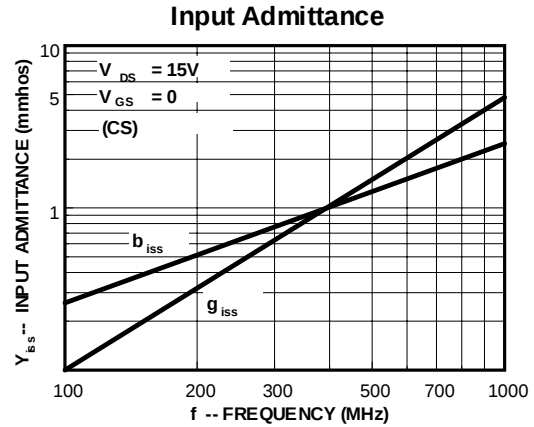
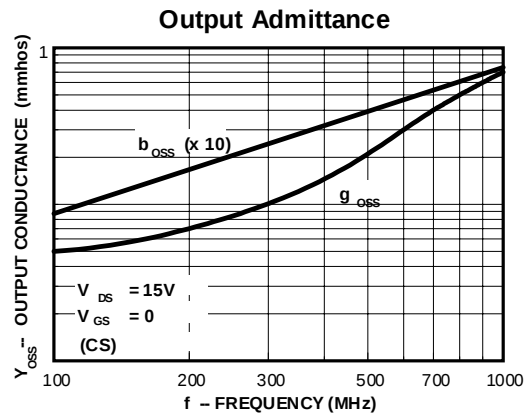
Common Gate Characteristics



# N-Channel RF Amplifier (continued)

BF244A / BF244B / BF244C

## Common Source Characteristics



## TRADEMARKS

The following are registered and unregistered trademarks Fairchild Semiconductor owns or is authorized to use and is not intended to be an exhaustive list of all such trademarks.

|                                  |                                 |                                 |                        |
|----------------------------------|---------------------------------|---------------------------------|------------------------|
| ACE <sup>™</sup>                 | FAST <sup>™</sup>               | PowerTrench <sup>®</sup>        | SyncFET <sup>™</sup>   |
| Bottomless <sup>™</sup>          | GlobalOptoisolator <sup>™</sup> | QFET <sup>™</sup>               | TinyLogic <sup>™</sup> |
| CoolFET <sup>™</sup>             | GTO <sup>™</sup>                | QS <sup>™</sup>                 | UHC <sup>™</sup>       |
| CROSSVOLT <sup>™</sup>           | HiSeC <sup>™</sup>              | QT Optoelectronics <sup>™</sup> | VCX <sup>™</sup>       |
| DOVE <sup>™</sup>                | ISOPLANAR <sup>™</sup>          | Quiet Series <sup>™</sup>       |                        |
| E <sup>2</sup> CMOS <sup>™</sup> | MICROWIRE <sup>™</sup>          | SILENT SWITCHER <sup>®</sup>    |                        |
| EnSigna <sup>™</sup>             | OPTOLOGIC <sup>™</sup>          | SMART START <sup>™</sup>        |                        |
| FACT <sup>™</sup>                | OPTOPLANAR <sup>™</sup>         | SuperSOT <sup>™</sup> -3        |                        |
| FACT Quiet Series <sup>™</sup>   | PACMAN <sup>™</sup>             | SuperSOT <sup>™</sup> -6        |                        |
| FAST <sup>®</sup>                | POP <sup>™</sup>                | SuperSOT <sup>™</sup> -8        |                        |

## DISCLAIMER

FAIRCHILD SEMICONDUCTOR RESERVES THE RIGHT TO MAKE CHANGES WITHOUT FURTHER NOTICE TO ANY PRODUCTS HEREIN TO IMPROVE RELIABILITY, FUNCTION OR DESIGN. FAIRCHILD DOES NOT ASSUME ANY LIABILITY ARISING OUT OF THE APPLICATION OR USE OF ANY PRODUCT OR CIRCUIT DESCRIBED HEREIN; NEITHER DOES IT CONVEY ANY LICENSE UNDER ITS PATENT RIGHTS, NOR THE RIGHTS OF OTHERS.

## LIFE SUPPORT POLICY

FAIRCHILD'S PRODUCTS ARE NOT AUTHORIZED FOR USE AS CRITICAL COMPONENTS IN LIFE SUPPORT DEVICES OR SYSTEMS WITHOUT THE EXPRESS WRITTEN APPROVAL OF FAIRCHILD SEMICONDUCTOR CORPORATION. As used herein:

1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body, or (b) support or sustain life, or (c) whose failure to perform when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in significant injury to the user.
2. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.

## PRODUCT STATUS DEFINITIONS

### Definition of Terms

| Datasheet Identification | Product Status         | Definition                                                                                                                                                                                                            |
|--------------------------|------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Advance Information      | Formative or In Design | This datasheet contains the design specifications for product development. Specifications may change in any manner without notice.                                                                                    |
| Preliminary              | First Production       | This datasheet contains preliminary data, and supplementary data will be published at a later date. Fairchild Semiconductor reserves the right to make changes at any time without notice in order to improve design. |
| No Identification Needed | Full Production        | This datasheet contains final specifications. Fairchild Semiconductor reserves the right to make changes at any time without notice in order to improve design.                                                       |
| Obsolete                 | Not In Production      | This datasheet contains specifications on a product that has been discontinued by Fairchild semiconductor. The datasheet is printed for reference information only.                                                   |

Компания «Океан Электроники» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Поставка оригинальных импортных электронных компонентов напрямую с производств Америки, Европы и Азии, а так же с крупнейших складов мира;
- Широкая линейка поставок активных и пассивных импортных электронных компонентов (более 30 млн. наименований);
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Помощь Конструкторского Отдела и консультации квалифицированных инженеров;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Поставка электронных компонентов под контролем ВП;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- При необходимости вся продукция военного и аэрокосмического назначения проходит испытания и сертификацию в лаборатории (по согласованию с заказчиком);
- Поставка специализированных компонентов военного и аэрокосмического уровня качества (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Actel, Aeroflex, Peregrine, VPT, Syfer, Eurofarad, Texas Instruments, MS Kennedy, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Компания «Океан Электроники» является официальным дистрибьютором и эксклюзивным представителем в России одного из крупнейших производителей разъемов военного и аэрокосмического назначения «JONHON», а так же официальным дистрибьютором и эксклюзивным представителем в России производителя высокотехнологичных и надежных решений для передачи СВЧ сигналов «FORSTAR».



## JONHON

«JONHON» (основан в 1970 г.)

Разъемы специального, военного и аэрокосмического назначения:

(Применяются в военной, авиационной, аэрокосмической, морской, железнодорожной, горно- и нефтедобывающей отраслях промышленности)

«FORSTAR» (основан в 1998 г.)

ВЧ соединители, коаксиальные кабели,  
кабельные сборки и микроволновые компоненты:

(Применяются в телекоммуникациях гражданского и специального назначения, в средствах связи, РЛС, а так же военной, авиационной и аэрокосмической отраслях промышленности).



Телефон: 8 (812) 309-75-97 (многоканальный)

Факс: 8 (812) 320-03-32

Электронная почта: [ocean@oceanchips.ru](mailto:ocean@oceanchips.ru)

Web: <http://oceanchips.ru/>

Адрес: 198099, г. Санкт-Петербург, ул. Калинина, д. 2, корп. 4, лит. А