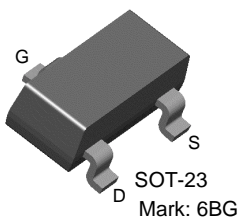


# MMBF4416A

## N-Channel RF Amplifier

- This device is designed for RF amplifiers.
- Sourced from process 50.



### Absolute Maximum Ratings\* $T_a = 25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Value	Units
$V_{DG}$	Drain-Gate Voltage	35	V
$V_{GS}$	Gate-Source Voltage	-35	V
$I_{GF}$	Forward Gate Current	10	mA
$T_J, T_{STG}$	Operating and Storage Junction Temperature Range	- 55 ~ 150	$^\circ\text{C}$

\* 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.

### Electrical Characteristics $T_a=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
<b>Off Characteristics</b>						
$V_{(BR)GSS}$	Gate-Source Breakdown Voltage	$V_{DS} = 0, I_G = 1.0\mu\text{A}$	-35			V
$I_{GSS}$	Gate Reverse Current	$V_{GS} = -20\text{V}, V_{DS} = 0$			-100	pA
$V_{GS(off)}$	Gate Source Cut-off Voltage	$V_{DS} = 15\text{V}, I_D = 1.0\text{nA}$	-2.5		-6.0	V
$V_{GS}$	Gate Source Voltage	$V_{DS} = 15\text{V}, I_D = 500\mu\text{A}$	-1		-5.5	V
<b>On Characteristics</b>						
$I_{DSS}$	Zero-Gate Voltage Drain Current	$V_{GS} = 15\text{V}, V_{GS} = 0$	5		15	mA
$V_{GS(f)}$	Gate-Source Forward Voltage	$V_{DS} = 0, I_G = 1.0\text{mA}$			1	V
<b>Small Signal Characteristics</b>						
$g_{fs}$	Forward Transfer Conductance *	$V_{DS} = 15\text{V}, V_{GS} = 0, f = 1.0\text{kHz}$	4500		7500	$\mu\text{mhos}$
$g_{os}$	Output Conductance *	$V_{DS} = 15\text{V}, V_{GS} = 0, f = 1.0\text{kHz}$			50	$\mu\text{mhos}$
$C_{iss}$	Input Capacitance	$V_{DS} = 15\text{V}, V_{GS} = 0, f = 1.0\text{MHz}$			4.0	pF
$C_{rss}$	Reverse Transfer Capacitance	$V_{DS} = 15\text{V}, V_{GS} = 0, f = 1.0\text{MHz}$			0.8	pF
$C_{oss}$	Output Capacitance	$V_{DS} = 15\text{V}, V_{GS} = 0, f = 1.0\text{MHz}$			2.0	pF
NF	Noise Figure	$V_{DS} = 15\text{V}, V_{GS} = 0, I_D = 5\text{mA}, R_g = 1\text{k}\Omega, f = 400\text{MHz}$			4.0	dB

\* Pulse Test: Pulse Width  $\leq 300\text{ms}$ , Duty Cycle  $\leq 2\%$

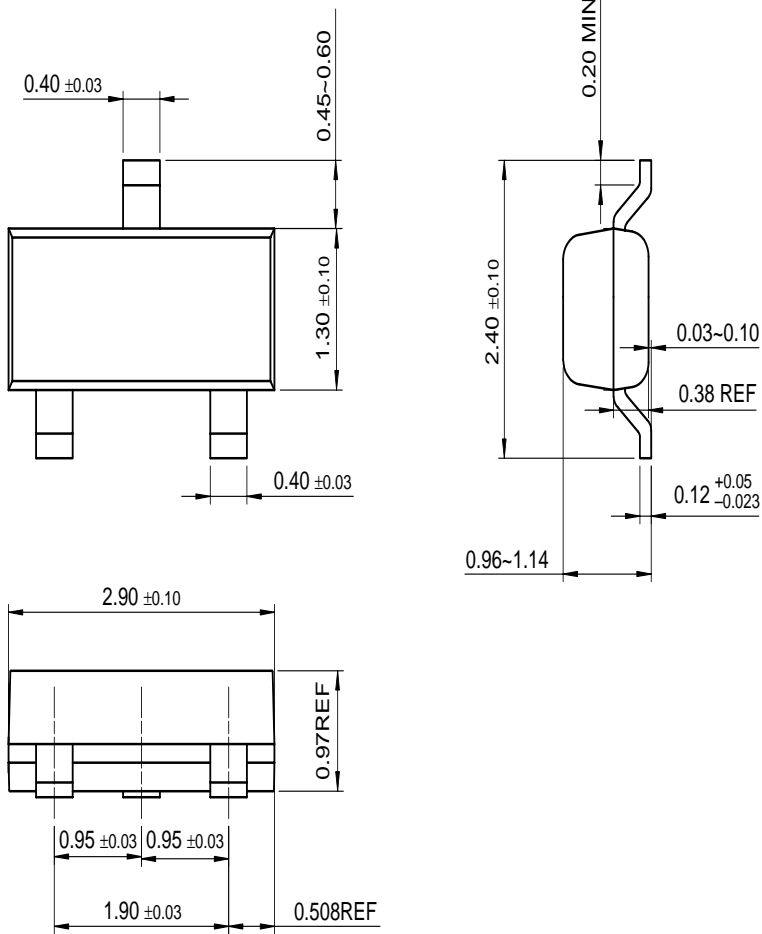
**Thermal Characteristics**  $T_A=25^{\circ}\text{C}$  unless otherwise noted

Symbol	Parameter	Max.	Units
$P_D$	Total Device Dissipation	225	mW
	Derate above $25^{\circ}\text{C}$	1.8	mW/ $^{\circ}\text{C}$
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	556	$^{\circ}\text{C}/\text{W}$

\* Device mounted on FR-4 PCB  $1.6'' \times 1.6'' \times 0.06''$ .

Mechanical Dimensions

SOT-23



Dimensions in Millimeters

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**Definition of Terms**

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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.
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