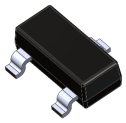
RF Amplifier, N-Channel

MMBF4416A



SOT−23
CASE 318BM

Features

- This Device is Designed for RF Amplifiers
- Sourced from Process 50
- This is a Pb−Free and Halide Free Device

ABSOLUTE MAXIMUM RATINGS

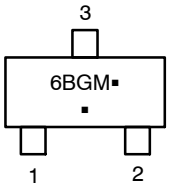
(T_A = 25°C unless otherwise noted.) (Notes 1, 2)

Symbol	Parameter	Value	Unit
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 to +150	°C

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

1. These ratings are based on a maximum junction temperature of 150°C.
2. These are steady−state limits. **onsemi** should be consulted on applications involving pulsed or low−duty−cycle operations.

MARKING DIAGRAM



1: Drain
2: Source
3: Gate

6BG = Specific Device Code
M = Date Code
▪ = Pb−Free Package

ORDERING INFORMATION

Device	Package	Shipping†
MMBF4416A	SOT−23 (Pb−Free/ Halide Free)	3000 / Tape & Reel

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specification Brochure, BRD8011/D.

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THERMAL CHARACTERISTICS

(T_A = 25°C unless otherwise noted.) (Note 3)

Symbol	Parameter	Max	Unit
P_D	Total Device Dissipation Derate above 25°C	225 1.8	mW mW/°C
$R_{\theta JA}$	Thermal Resistance, Junction−to−Ambient	556	°C/W

3. Device mounted on FR−4 PCB 1.6″ × 1.6″ × 0.06″.

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted.)

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
OFF CHARACTERISTICS						
$V_{(BR)GSS}$	Gate−Source Breakdown Voltage	V_{DS} = 0, I_G = 1.0 μA	−35	–	–	V
I_{GSS}	Gate Reverse Current	V_{GS} = −20 V, V_{DS} = 0	–	–	−100	pA
V_{GS}(off)	Gate−Source Cut−off Voltage	V_{DS} = 15 V, I_D = 1.0 nA	−2.5	–	−6.0	V
V_{GS}	Gate−Source Voltage	V_{DS} = 15 V, I_D = 500 μA	−1.0	–	−5.5	V
ON CHARACTERISTICS						
I_{DSS}	Zero−Gate Voltage Drain Current	V_{GS} = 15 V, V_{GS} = 0	5	–	15	mA
V_{GS}(f)	Gate−Source Forward Voltage	V_{DS} = 0, I_G = 1.0 mA	–	–	1	V
SMALL SIGNAL CHARACTERISTICS						
g_{fs}	Forward Transfer Admittance (Note 4)	V_{DS} = 15 V, V_{GS} = 0, f = 1.0 kHz	4500	–	7500	μmhos
g_{os}	Output Admittance (Note 4)	V_{DS} = 15 V, V_{GS} = 0, f = 1.0 kHz	–	–	50	μmhos
C_{iss}	Input Capacitance	V_{DS} = 15 V, V_{GS} = 0, f = 1.0 MHz	–	–	4.0	pF
C_{rss}	Reverse Transfer Capacitance	V_{DS} = 15 V, V_{GS} = 0, f = 1.0 MHz	–	–	0.8	pF
C_{oss}	Output Capacitance	V_{DS} = 15 V, V_{GS} = 0, f = 1.0 MHz	–	–	2.0	pF
NF	Noise Figure	V_{DS} = 15 V, V_{GS} = 0, I_D = 5 mA, R_g = 1 kΩ, f = 400 MHz	–	–	4.0	dB

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

4. Pulse test: pulse width ≤ 300 ms, duty cycle ≤ 2%

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