

N-Channel General-Purpose Amplifier

MMBFJ201, MMBFJ202

Description

This device is designed primarily for low level audio and general-purpose applications with high impedance signal sources. Sourced from process 52.

Applications

• These are Pb-Free Devices

ABSOLUTE MAXIMUM RATINGS ($T_A = 25$ °C unless otherwise noted) (Note 1, 2)

Symbol	Parameter	Value	Unit
V_{DG}	Drain-Gate Voltage	40	V
V _{GS}	Gate-Source Voltage	-40	V
I _{GF}	Forward Gate Current	50	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 $150\,^{\circ}$ C.
- These are steady-state limits. onsemi should be consulted on applications involving pulsed or low-duty-cycle operations.

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

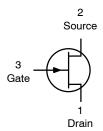
Symbol	Parameter	Max	Unit
P _D	Total Device Dissipation	350	mW
	Derate Above 25°C	2.8	mW/°C
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient	357	°C/W

 Device mounted on FR-4 PCB 36 mm x 18 mm x 1.5 mm; mounting pad for the collector lead minimum 6 cm².

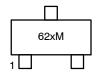




SOT-23 CASE 318BM



MARKING DIAGRAM



62x = Specific Device Code

x = P or Q M = Date Code

ORDERING INFORMATION

See detailed ordering and shipping information on page 4 of this data sheet.

MMBFJ201, MMBFJ202

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

Symbol	Parameter	Test Condition	on	Min	Max	Unit
OFF CHARA	ACTERISTICS					
V _{(BR)GSS}	Gate-Source Breakdown Voltage	$I_G = -1.0 \mu A, V_{DS} = 0$		-40	-	V
I _{GSS}	Gate Reverse Current	$V_{GS} = -20 \text{ V}, V_{DS} = 0$		-	-100	pА
V _{GS} (off)	Gate-Source Cut-Off Voltage	V _{DS} = 20 V, I _D = 10 nA	MMBFJ201	-0.3	-1.5	V
			MMBFJ202	-0.8	-4.0	
ON CHARA	CTERISTICS					
I _{DSS}	Zero-Gate Voltage Drain Current (Note 4)	V _{DS} = 20 V, I _{GS} = 0	MMBFJ201	0.2	1.0	mA
			MMBFJ202	0.9	4.5	
MALL SIG	NAL CHARACTERISTICS					
УFS	Forward Transfer Admittance	V _{DS} = 20 V, f = 1.0 kHz	MMBFJ201	500		μmhos
			MMBFJ202	1000		

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 μs, duty cycle ≤2%.

MMBFJ201, MMBFJ202

TYPICAL PERFORMANCE CHARACTERISTICS

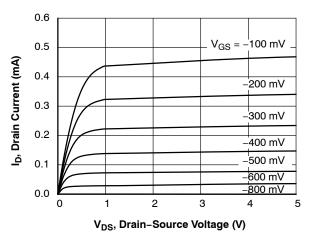


Figure 1. Common Drain-Source (MMBJF201)

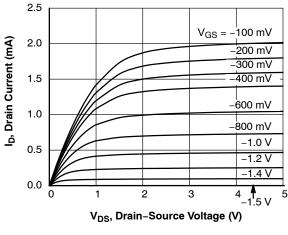


Figure 2. Common Drain-Source (MMBJF202)

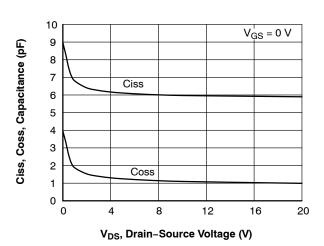


Figure 3. Capacitance vs. Voltage (MMBJF201)

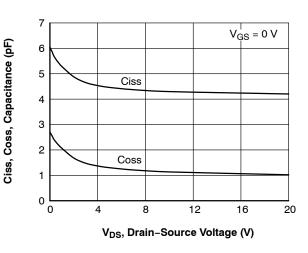


Figure 4. Capacitance vs. Voltage (MMBJF202)

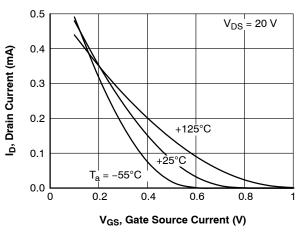


Figure 5. Transfer Characteristics (MMBFJ201)

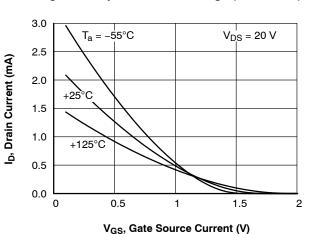


Figure 6. Transfer Characteristics (MMBFJ202)

MMBFJ201, MMBFJ202

TYPICAL PERFORMANCE CHARACTERISTICS (continued)

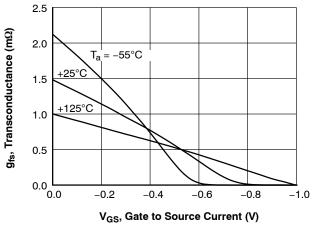


Figure 7. Transfer Characteristics (MMBFJ201)

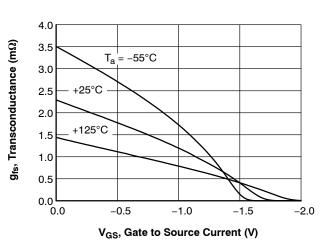


Figure 8. Transfer Characteristics (MMBFJ202)

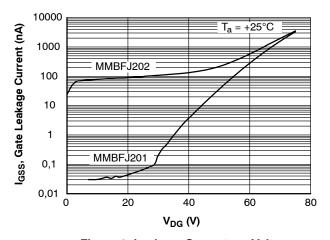


Figure 9. Leakage Current vs. Voltage

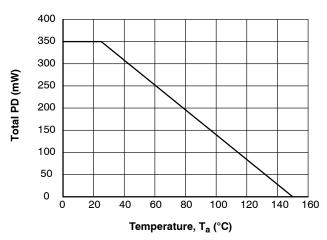


Figure 10. Total PD vs. Temperature

ORDERING INFORMATION

Part Number	Top Mark	Package	Shipping [†]
MMBFJ201	62P	SOT-23 (Pb-Free)	3000 / Tape & Reel
MMBFJ202	62Q	SOT-23 (TO-236) (Pb-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 Specifications Brochure, BRD8011/D.

onsemi, Onsemi, and other names, marks, and brands are registered and/or common law trademarks of Semiconductor Components Industries, LLC dba "onsemi" or its affiliates and/or subsidiaries in the United States and/or other countries. onsemi owns the rights to a number of patents, trademarks, copyrights, trade secrets, and other intellectual property. A listing of onsemi's product/patent coverage may be accessed at www.onsemi.com/site/pdf/Patent-Marking.pdf. Onsemi reserves the right to make changes at any time to any products or information herein, without notice. The information herein is provided "as-is" and onsemi makes no warranty, representation or guarantee regarding the accuracy of the information, product features, availability, functionality, or suitability of its products for any particular purpose, nor does onsemi assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. Buyer is responsible for its products and applications using onsemi products, including compliance with all laws, regulations and safety requirements or standards, regardless of any support or applications information provided by onsemi. "Typical" parameters which may be provided in onsemi data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. onsemi does not convey any license under any of its intellectual property rights nor the rights of others. onsemi products are not designed, intended, or authorized for use as a critical component in life support systems or any FDA class 3 medical devices with a same or similar classification in a foreign jurisdiction or any devices intended for implantation in the human body. Should Buyer purchase

ADDITIONAL INFORMATION

TECHNICAL PUBLICATIONS:

 $\textbf{Technical Library:} \ \underline{www.onsemi.com/design/resources/technical-documentation}$

onsemi Website: www.onsemi.com

ONLINE SUPPORT: www.onsemi.com/support

For additional information, please contact your local Sales Representative at

www.onsemi.com/support/sales