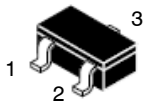
N-Channel JFET

MMBFJ110



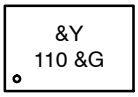
SOT−23/SUPERSOT™ −23,
3 LEAD, 1.4x2.9
CASE 527AG

1. Drain, 2. Source, 3. Gate

Features

- This Device is Designed for Digital Switching Applications where Very Low On Resistance is Mandatory
- Sourced from Process 58
- This is a Pb−Free Device

MARKING DIAGRAM



110 = Specific Device Code
&Y = Year Coding
&G = Weekly Date Code

ORDERING INFORMATION

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

MAXIMUM RATINGS (T_A = 25°C unless otherwise specified) (Notes 1, 2)

Symbol	Parameter	Value	Unit
V_{DG}	Drain−Gate Voltage	25	V
V_{GS}	Gate−Source Voltage	−25	V
I_{GF}	Forward Gate Current	10	mA
T_J	Junction Temperature	150	°C
T_J, T_{STG}	Storage 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.

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

Symbol	Parameter	Max	Unit
P_D	Total Device Dissipation	460	mW
	Derate Above 25°C	3.68	mW/°C
$R_{\theta JA}$	Thermal Resistance, Junction−to−Ambient	270	°C/W

3. Device mounted on FR−4 PCB 36 mm x 18 mm x 1.5 mm; mounting pad for the collector lead minimum 6 cm^2.

© Semiconductor Components Industries, LLC, 2011

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

Symbol	Parameter	Test Condition	Min	Max	Unit
OFF CHARACTERISTICS					
$V_{(BR)GSS}$	Gate−Source Breakdown Voltage	I_G = −10 μA, V_{DS} = 0	−25	–	V
I_{GSS}	Gate Reverse Current	V_{GS} = −15 V, V_{DS} = 0	–	−3.0	nA
		V_{GS} = −15 V, V_{DS} = 0, T_A = 100°C	–	−200	
V_{GS}(off)	Gate−Source Cut−Off Voltage	V_{DS} = 15 V, I_D = 10 nA	−0.5	−4.0	V
ON CHARACTERISTICS					
I_{DSS}	Zero−Gate Voltage Drain Current (Note 4)	V_{DS} = 15 V, V_{GS} = 0	10	–	mA
r_{DS}(on)	Drain−Source On Resistance	V_{DS} ≤ 0.1 V, V_{GS} = 0	–	18	Ω
SMALL SIGNAL CHARACTERISTICS					
C_{dg}(on) C_{sg}(on)	Drain−Gate & Source−Gate On Capacitance	V_{DS} = 0, V_{GS} = 0, f = 1.0 MHz	–	85	pF
C_{dg}(off) C_{sg}(off)	Drain−Gate & Source−Gate Off Capacitance	V_{DS} = 0, V_{GS} = −10 V, f = 1.0 MHz	–	15	pF

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%.

TYPICAL PERFORMANCE CHARACTERISTICS

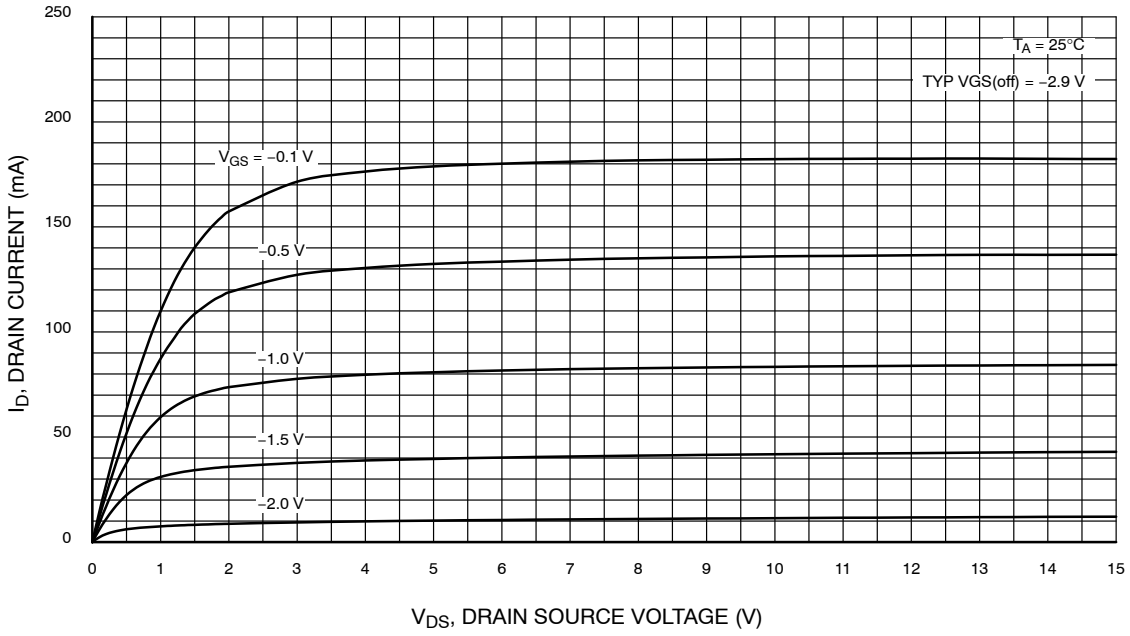


Figure 1. Common Drain−Source

Share Feedback
Your Opinion Matters

TYPICAL PERFORMANCE CHARACTERISTICS (continued)

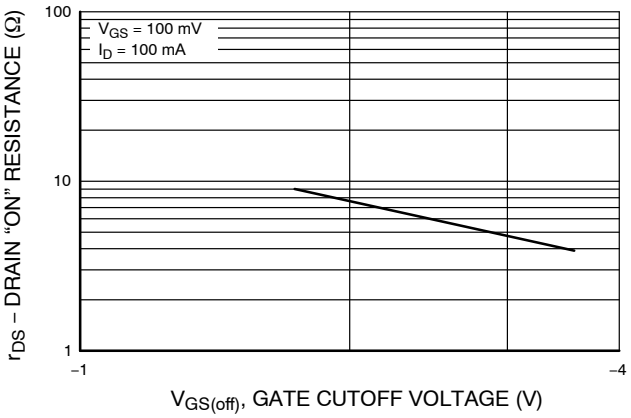


Figure 2. Drain ON Resistance

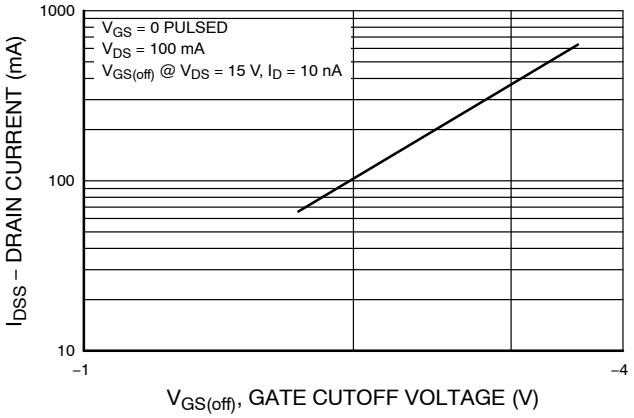


Figure 3. Drain Current vs. Gate−Source Cut−Off Voltage

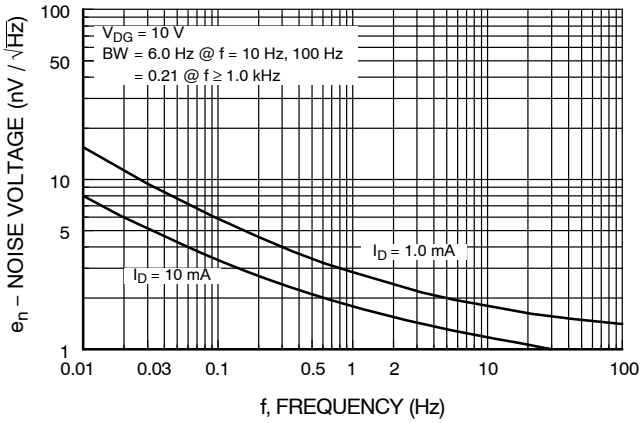


Figure 4. Noise Voltage vs. Frequency

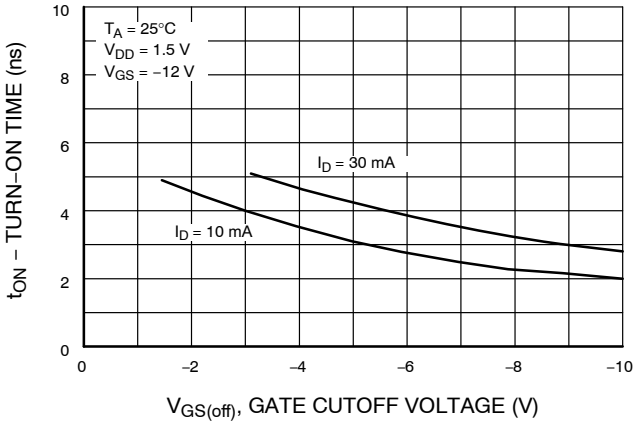


Figure 5. Switching Turn−On Time vs. Gate−Source Cut−Off Voltage

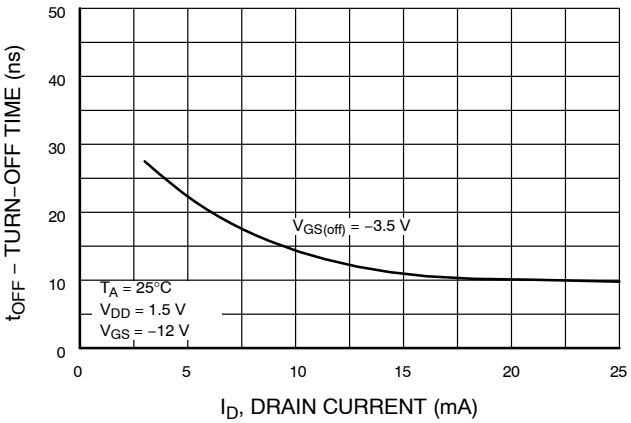


Figure 6. Switching Turn−On Time vs. Drain Current

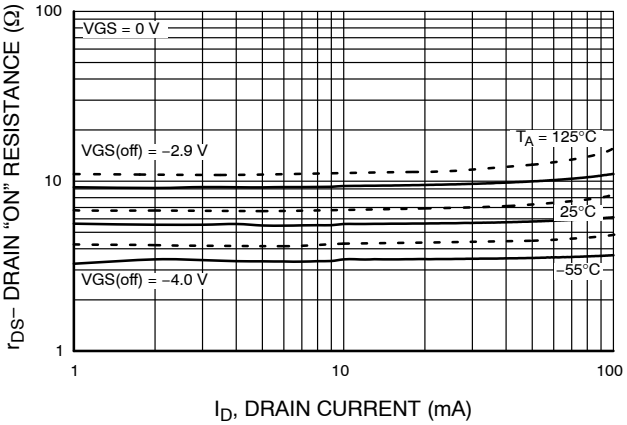


Figure 7. On Resistance vs. Drain Current

Share Feedback
Your Opinion Matters

TYPICAL PERFORMANCE CHARACTERISTICS (continued)

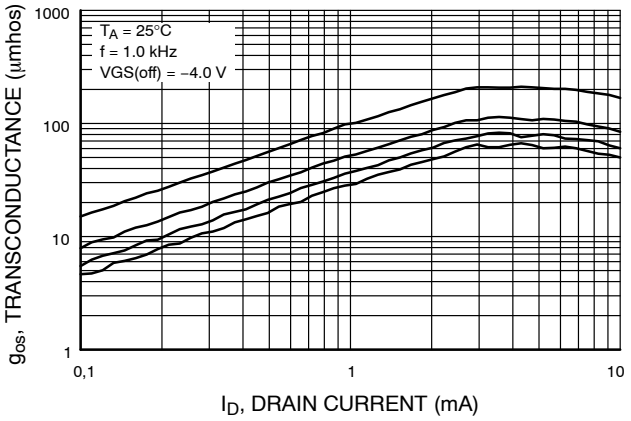


Figure 8. Output Conductance vs. Drain Current

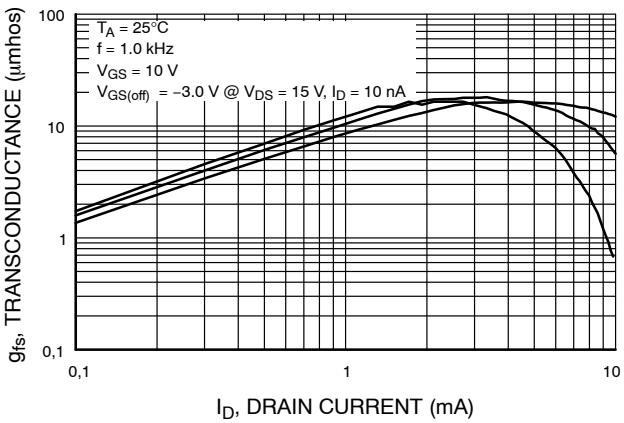


Figure 9. Output Conductance vs. Drain Current

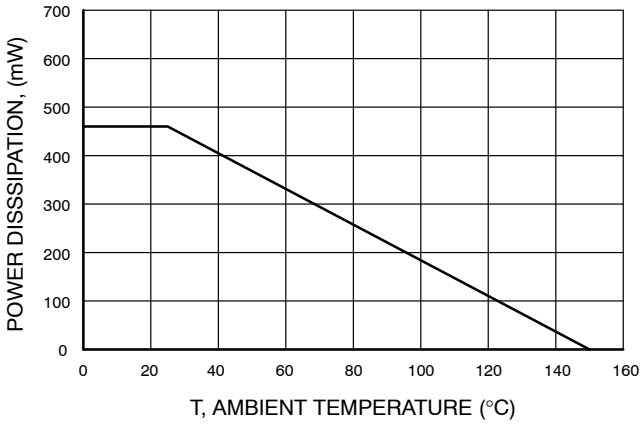


Figure 10. Power Dissipation vs. Ambient Temperature

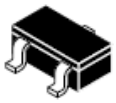
ORDERING INFORMATION

Part Number	Top Mark	Package	Shipping†
MMBFJ110	110	SSOT 3L (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.

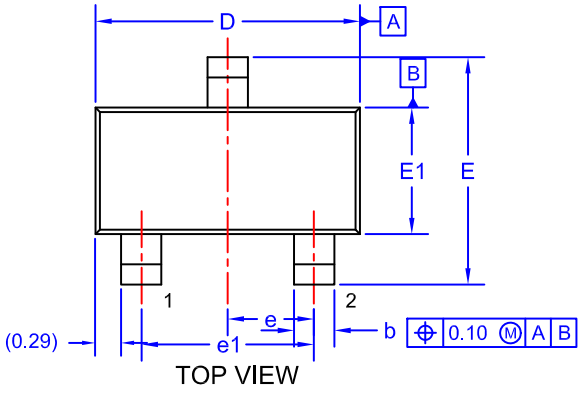
SUPERSOT is a trademark of Semiconductor Components Industries, LLC dba “**onsemi**” or its affiliates and/or subsidiaries in the United States and/or other countries.

Share Feedback
Your Opinion Matters



SOT−23/SUPERSOT™ −23, 3 LEAD, 1.4x2.9
CASE 527AG
ISSUE A

DATE 09 DEC 2019

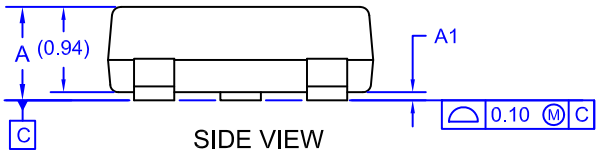


TOP VIEW

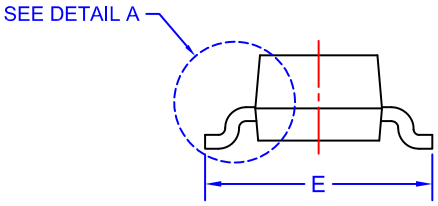
NOTES: UNLESS OTHERWISE SPECIFIED

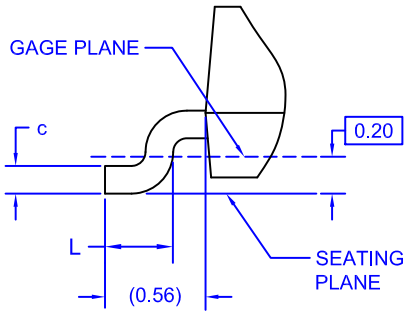
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 2009.
2. ALL DIMENSIONS ARE IN MILLIMETERS.
3. DIMENSIONS ARE EXCLUSIVE OF BURRS, MOLD FLASH AND TIE BAR EXTRUSIONS.

DIM	MIN.	NOM.	MAX.
A	0.85	0.95	1.12
A1	0.00	0.05	0.10
b	0.370	0.435	0.508
c	0.085	0.150	0.180
D	2.80	2.92	3.04
E	2.31	2.51	2.71
E1	1.20	1.40	1.52
e	0.95 BSC		
e1	1.90 BSC		
L	0.33	0.38	0.43

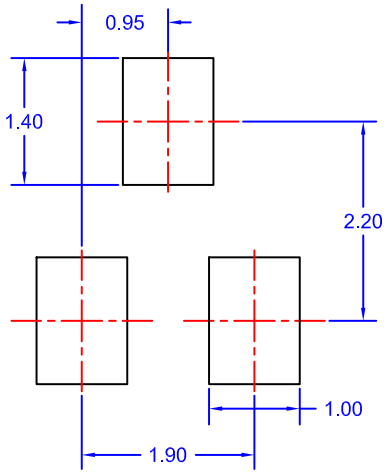


SIDE VIEW





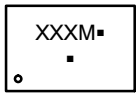
DETAIL A



LAND PATTERN RECOMMENDATION*

*FOR ADDITIONAL INFORMATION ON OUR Pb-FREE STRATEGY AND SOLDERING DETAILS, PLEASE DOWNLOAD THE ON SEMICONDUCTOR SOLDERING AND MOUNTING TECHNIQUES REFERENCE MANUAL, SOLDERRM/D.

GENERIC MARKING DIAGRAM*



XXX = Specific Device Code
M = Month Code
▪ = Pb−Free Package

(Note: Microdot may be in either location)

*This information is generic. Please refer to device data sheet for actual part marking. Pb−Free indicator, “G” or microdot “▪”, may or may not be present. Some products may not follow the Generic Marking.

DOCUMENT NUMBER:	**98AON34319E**	Electronic versions are uncontrolled except when accessed directly from the Document Repository. Printed versions are uncontrolled except when stamped “CONTROLLED COPY” in red.
DESCRIPTION:	**SOT−23/SUPERSOT−23, 3 LEAD, 1.4X2.9**	**PAGE 1 OF 1**

onsemi and onsemi are trademarks of Semiconductor Components Industries, LLC dba **onsemi** or its subsidiaries in the United States and/or other countries. **onsemi** reserves the right to make changes without further notice to any products herein. **onsemi** makes no warranty, representation or guarantee regarding the 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. **onsemi** does not convey any license under its patent rights nor the rights of others.

© Semiconductor Components Industries, LLC, 2008

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 or 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 or use **onsemi** products for any such unintended or unauthorized application, Buyer shall indemnify and hold **onsemi** and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that **onsemi** was negligent regarding the design or manufacture of the part. **onsemi** is an Equal Opportunity/Affirmative Action Employer. This literature is subject to all applicable copyright laws and is not for resale in any manner.

ADDITIONAL INFORMATION

TECHNICAL PUBLICATIONS:
Technical Library: 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