

# J109, MMBFJ108

## ELECTRICAL CHARACTERISTICS (T<sub>J</sub> = 25°C unless otherwise noted)

Symbol	Parameter	Test Condition	Min	Max	Unit	
OFF CHARACTERISTICS						
V <sub>(BR)GSS</sub>	Gate–Source Breakdown Voltage	I <sub>G</sub> = -10 μA, V <sub>DS</sub> = 0	-25	–	V	
I <sub>GSS</sub>	Gate Reverse Current	V <sub>GS</sub> = -15 V, V <sub>DS</sub> = 0	–	-3.0	nA	
		V <sub>GS</sub> = -15 V, V <sub>DS</sub> = 0, T <sub>A</sub> = 100°C	–	-200		
V <sub>GS(off)</sub>	Gate–Source Cut–Off Voltage	V <sub>DS</sub> = 15 V, I <sub>D</sub> = 10 nA	MMBFJ108	-3.0	-10.0	V
			J109	-2.0	-6.0	

## ON CHARACTERISTICS

I <sub>DSS</sub>	Zero–Gate Voltage Drain Current (Note 5)	V <sub>DS</sub> = 15 V, V <sub>GS</sub> = 0	MMBFJ108	80	–	mA
			J109	40	–	
r <sub>DS(on)</sub>	Drain–Source On Resistance	V <sub>DS</sub> ≤ 0.1 V, V <sub>GS</sub> = 0	MMBFJ108	–	8.0	Ω
			J109	–	12	

## SMALL SIGNAL CHARACTERISTICS

C <sub>dg(on)</sub> C <sub>sg(off)</sub>	Drain–Gate & Source–Gate On Capacitance	V <sub>DS</sub> = 0, V <sub>GS</sub> = 0, f = 1.0 MHz	–	85	pF
C <sub>dg(off)</sub>	Drain–Gate Off Capacitance	V <sub>DS</sub> = 0, V <sub>GS</sub> = –10 V, f = 1.0 MHz	–	15	pF
C <sub>sg(off)</sub>	Source–Gate Off Capacitance	V <sub>DS</sub> = 0, V <sub>GS</sub> = –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.

5. Pulse test: pulse width ≤ 300 µs, duty cycle ≤ 2%.

## TYPICAL PERFORMANCE CHARACTERISTICS

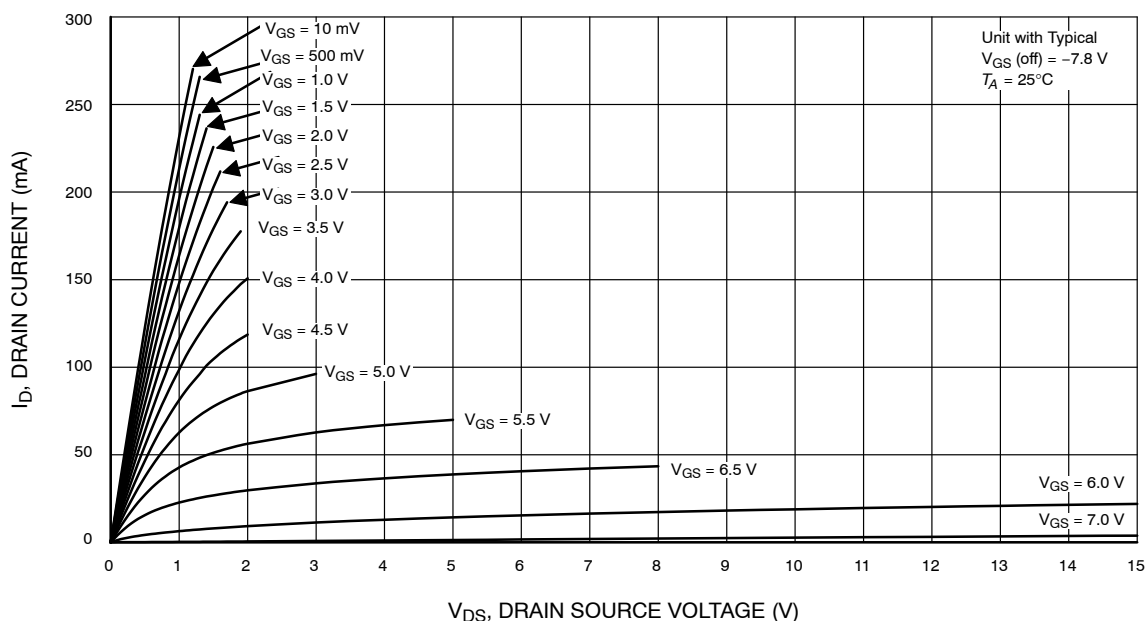


Figure 1. Common Drain–Source, MMBFJ108

# J109, MMBFJ108

## TYPICAL PERFORMANCE CHARACTERISTICS (continued)

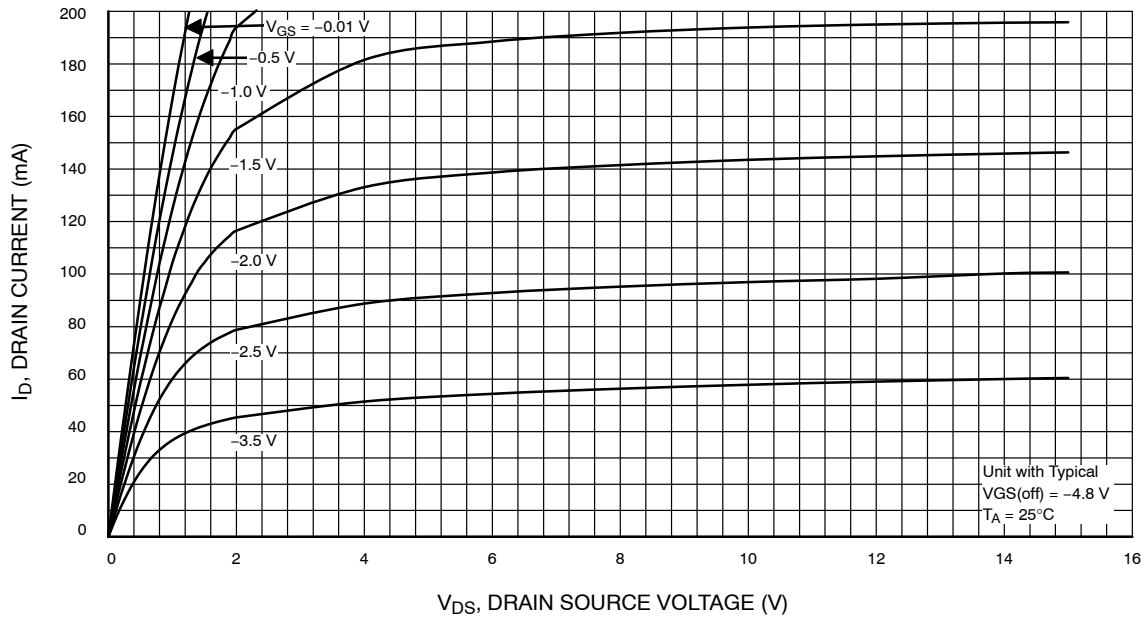


Figure 2. Common Drain-Source, MMBFJ108, J109

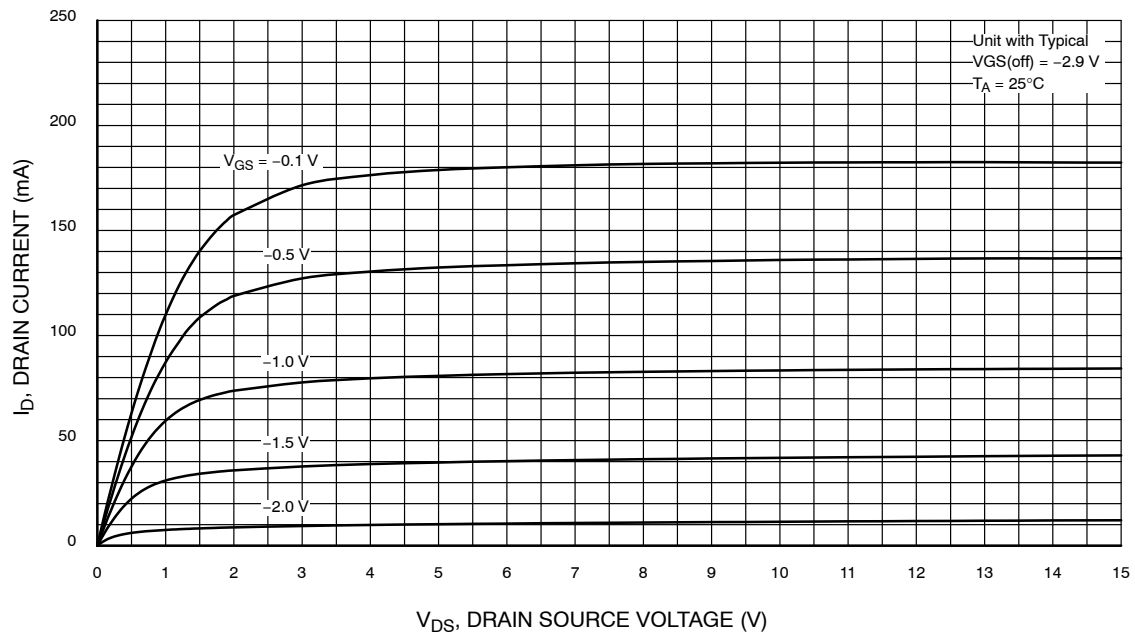


Figure 3. Common Drain-Source, J109

## TYPICAL PERFORMANCE CHARACTERISTICS (continued)

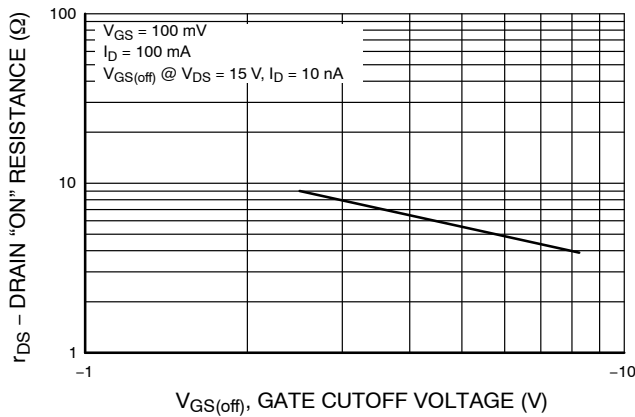


Figure 4. Drain ON Resistance

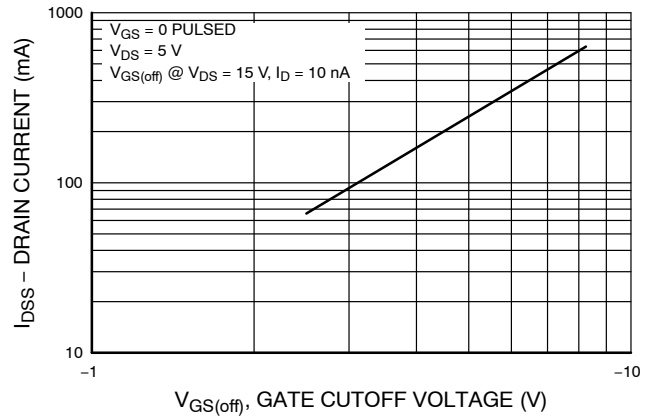


Figure 5. Drain Current vs. Gate-Source Cut-Off Voltage

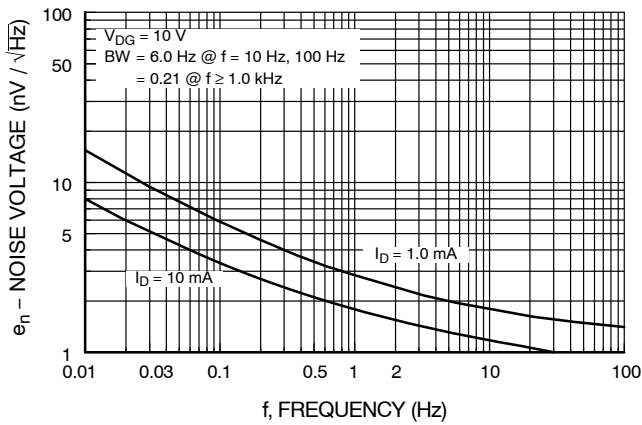


Figure 6. Noise Voltage vs. Frequency

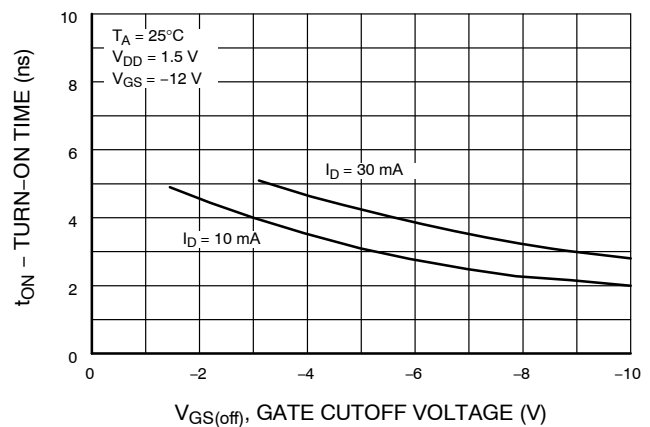


Figure 7. Switching Turn-On Time vs. Gate-Source Cut-Off Voltage

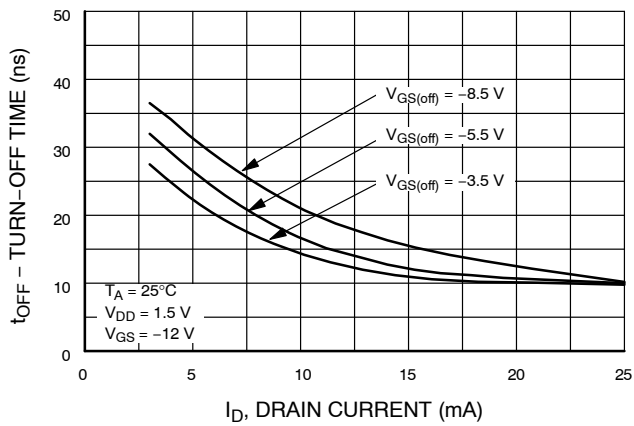


Figure 8. Switching Turn-Off Time vs. Drain Current

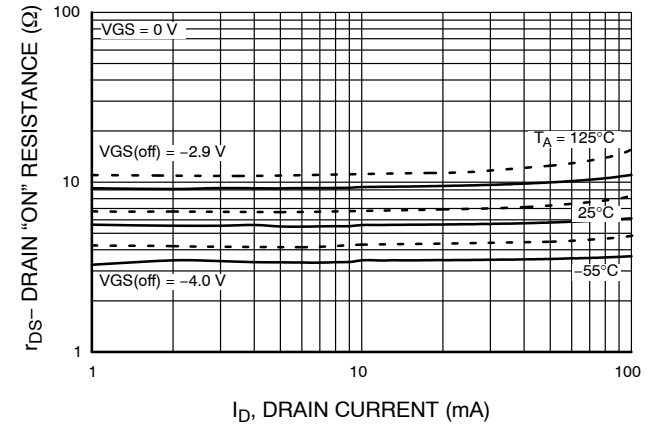


Figure 9. On Resistance vs. Drain Current

# J109, MMBFJ108

## TYPICAL PERFORMANCE CHARACTERISTICS (continued)

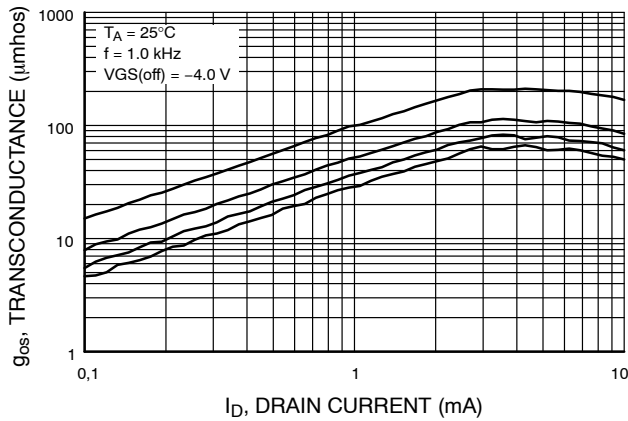


Figure 10. Output Conductance vs. Drain Current

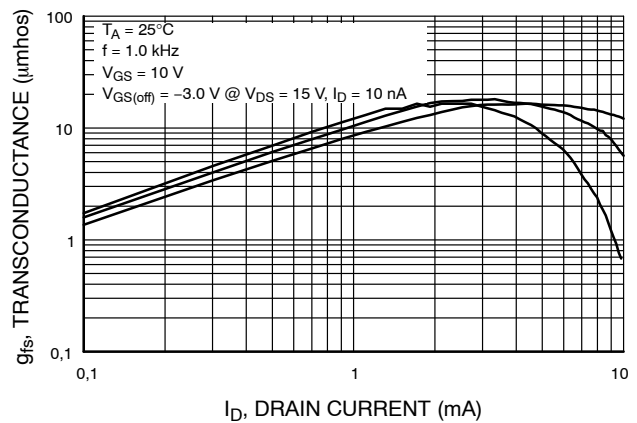


Figure 11. Output Conductance vs. Drain Current

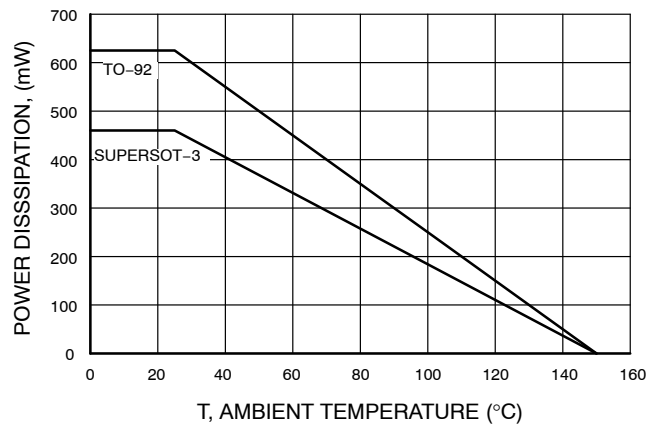


Figure 12. Power Dissipation vs. Ambient Temperature

## ORDERING INFORMATION

Part Number	Top Mark	Package	Shipping <sup>†</sup>
J109	J109	TO-92 3L (Pb-Free)	10000 Units / Bulk
J109-D26Z	J109	TO-92 3L (Pb-Free)	2000 / Tape & Reel
MMBFJ108	I8	SSOT 3L (Pb-Free)	3000 / Tape & Reel

<sup>†</sup>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.

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# MECHANICAL CASE OUTLINE

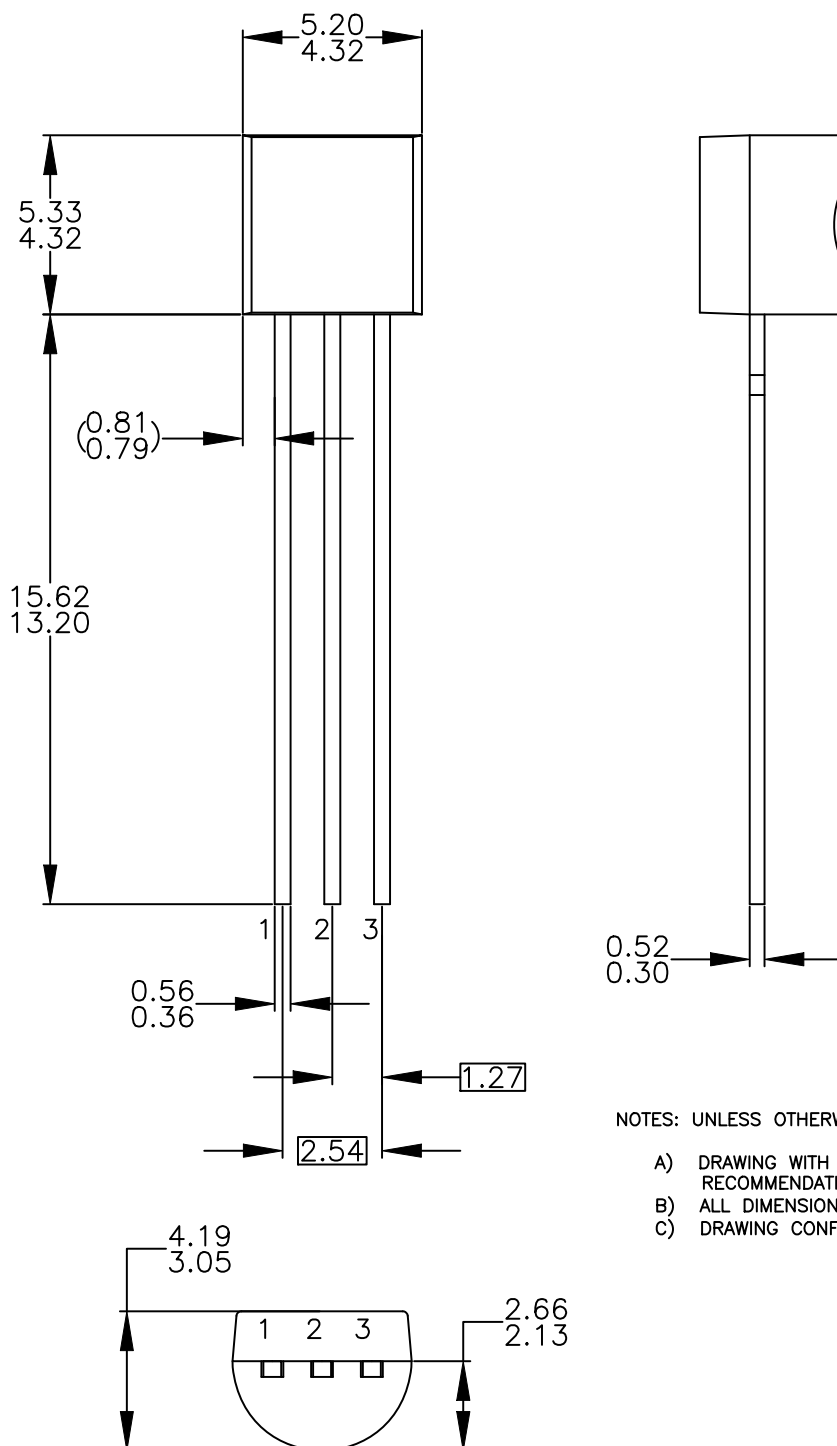
## PACKAGE DIMENSIONS

ON Semiconductor®



TO-92 3 4.825x4.76  
CASE 135AN  
ISSUE O

DATE 31 JUL 2016



NOTES: UNLESS OTHERWISE SPECIFIED

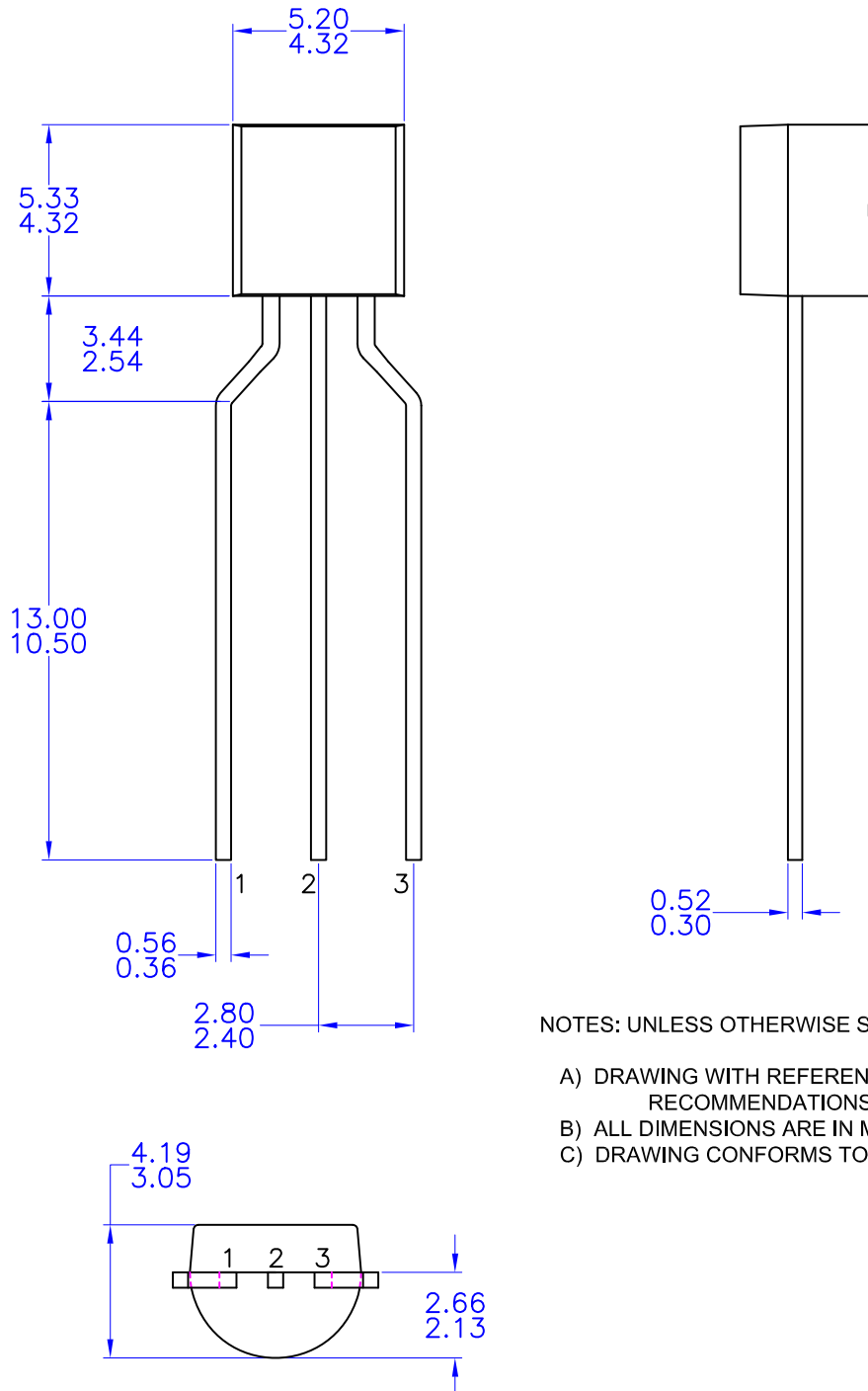
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**TO-92 3 4.83x4.76 LEADFORMED**  
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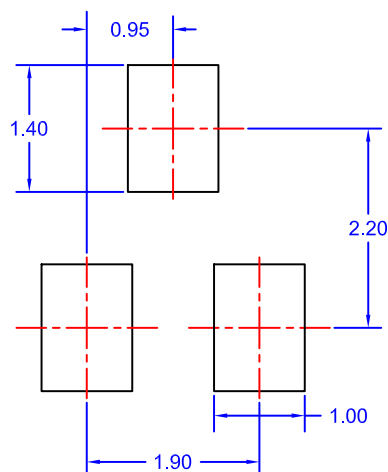
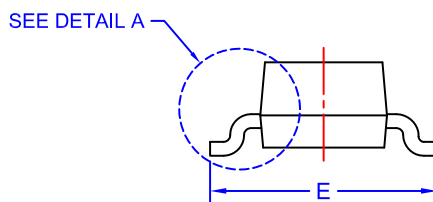
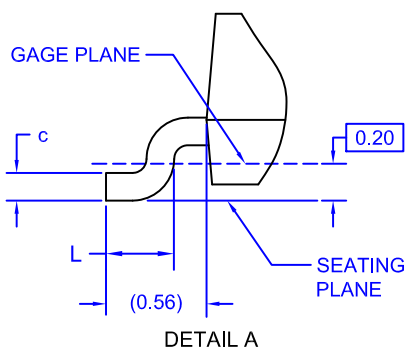
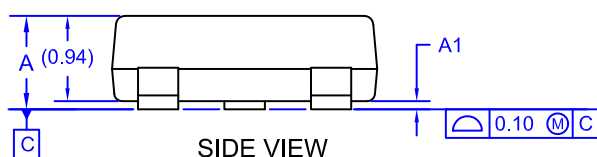
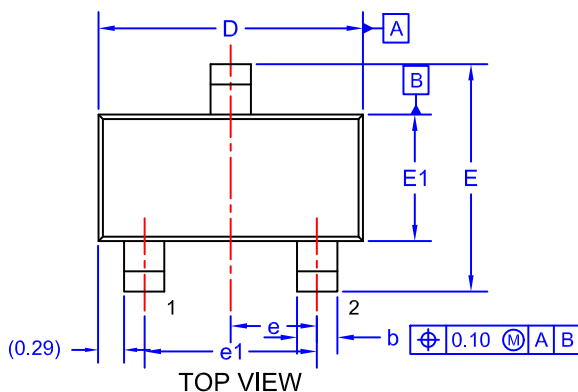


### SOT-23/SUPERSOT™ –23, 3 LEAD, 1.4x2.9

#### CASE 527AG

#### ISSUE A

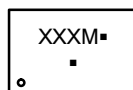
DATE 09 DEC 2019



#### 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.

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