



# N-Channel JFETs

<b>J201</b>	<b>SST201</b>
<b>J202</b>	<b>SST202</b>
<b>J204</b>	<b>SST204</b>

PRODUCT SUMMARY				
Part Number	V <sub>GS(off)</sub> (V)	V <sub>(BR)GSS</sub> Min (V)	g <sub>fs</sub> Min (mS)	I <sub>DSS</sub> Min (mA)
J/SST201	-0.3 to -1.5	-40	0.5	0.2
J/SST202	-0.8 to -4	-40	1	0.9
J/SST204	-0.3 to -2	-25	0.5	0.2

### FEATURES

- Low Cutoff Voltage: J201 <1.5 V
- High Input Impedance
- Very Low Noise
- High Gain: A<sub>v</sub> = 80 @ 20 μA

### BENEFITS

- Full Performance from Low Voltage Power Supply: Down to 1.5 V
- Low Signal Loss/System Error
- High System Sensitivity
- High Quality Low-Level Signal Amplification

### APPLICATIONS

- High-Gain, Low-Noise Amplifiers
- Low-Current, Low-Voltage Battery-Powered Amplifiers
- Infrared Detector Amplifiers
- Ultra High Input Impedance Pre-Amplifiers

### DESCRIPTION

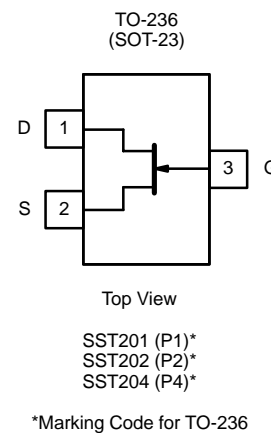
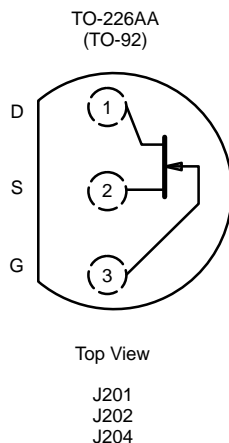
The J/SST201 series features low leakage, very low noise, and low cutoff voltage for use with low-level power supplies. The J/SST201 is excellent for battery powered equipment and low current amplifiers.

The J series, TO-226 (TO-92) plastic package, provides low cost, while the SST series, TO-236 (SOT-23) package, provides surface-mount capability. Both the J and SST series

are available in tape-and-reel for automated assembly (see Packaging Information).

For similar products in TO-206AA (TO-18) packaging, see the 2N4338/4339/4340/4341 data sheet.

For applications information see AN102 and AN106.





### ABSOLUTE MAXIMUM RATINGS

Gate-Drain, Gate-Source Voltage ..... -40 V  
 Gate Current ..... 50 mA  
 Lead Temperature (<sup>1</sup>/<sub>16</sub>" from case for 10 sec.) ..... 300°C  
 Storage Temperature ..... -55 to 150°C

Operating Junction Temperature ..... -55 to 150°C  
 Power Dissipation<sup>a</sup> ..... 350 mW

Notes  
 a. Derate 2.8 mW/°C above 25°C

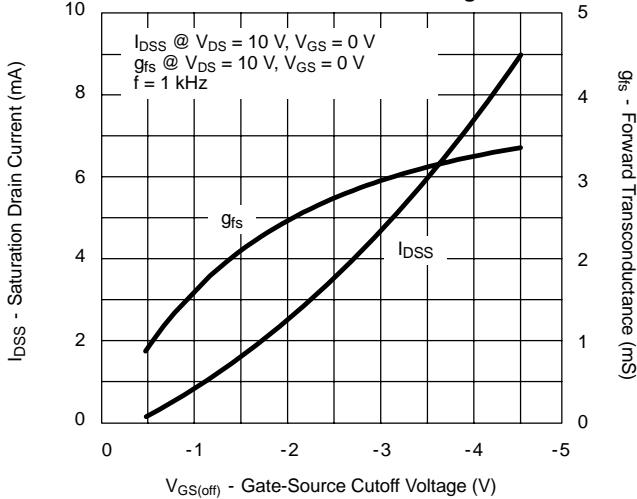
SPECIFICATIONS (T <sub>A</sub> = 25°C UNLESS OTHERWISE NOTED)										
Parameter	Symbol	Test Conditions	Typ <sup>a</sup>	Limits						Unit
				J/SST201		J/SST202		J/SST204 <sup>c</sup>		
				Min	Max	Min	Max	Min	Max	
<b>Static</b>										
Gate-Source Breakdown Voltage	V <sub>(BR)GSS</sub>	I <sub>G</sub> = -1 μA, V <sub>DS</sub> = 0 V		-40		-40		-25		V
Gate-Source Cutoff Voltage	V <sub>GS(off)</sub>	V <sub>DS</sub> = 15 V, I <sub>D</sub> = 10 nA		-0.3	-1.5	-0.8	-4	-0.3	-2	
Saturation Drain Current <sup>b</sup>	I <sub>DSS</sub>	V <sub>DS</sub> = 15 V, V <sub>GS</sub> = 0 V		0.2	1	0.9	4.5	0.2	3	mA
Gate Reverse Current	I <sub>GSS</sub>	V <sub>GS</sub> = -20 V, V <sub>DS</sub> = 0 V T <sub>A</sub> = 125°C	-2		-100		-100		-100	pA
			-1						nA	
Gate Operating Current	I <sub>G</sub>	V <sub>DG</sub> = 10 V, I <sub>D</sub> = 0.1 mA	-2							pA
Drain Cutoff Current	I <sub>D(off)</sub>	V <sub>DS</sub> = 15 V, V <sub>GS</sub> = -5 V	2							
Gate-Source Forward Voltage	V <sub>GS(F)</sub>	I <sub>G</sub> = 1 mA, V <sub>DS</sub> = 0 V	0.7							V
<b>Dynamic</b>										
Common-Source Forward Transconductance	g <sub>fs</sub>	V <sub>DS</sub> = 15 V, V <sub>GS</sub> = 0 V f = 1 kHz		0.5		1		0.5		mS
Common-Source Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> = 15 V, V <sub>GS</sub> = 0 V f = 1 MHz	4.5							pF
Common-Source Reverse Transfer Capacitance	C <sub>rss</sub>		1.3							
Equivalent Input Noise Voltage	e <sub>n</sub>	V <sub>DS</sub> = 10 V, V <sub>GS</sub> = 0 V f = 1 kHz	6							nV/ √Hz

- Notes  
 a. Typical values are for DESIGN AID ONLY, not guaranteed nor subject to production testing.  
 b. Pulse test: PW ≤ 300 μs duty cycle ≤ 3%.  
 c. See 2N/SST5484 Series for J204 typical characteristic curves.

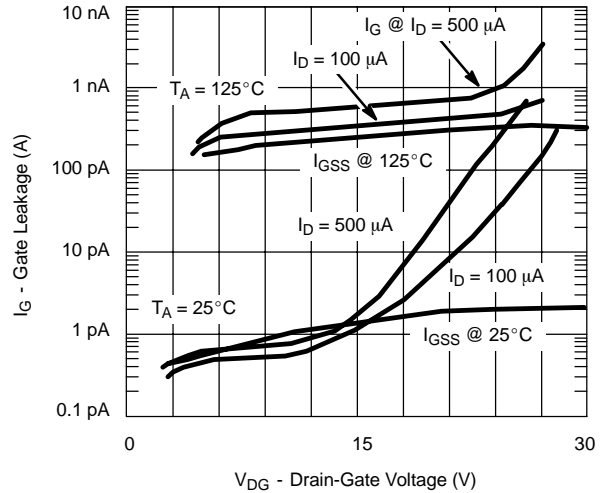
NPA, NH

**TYPICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$  UNLESS OTHERWISE NOTED)**

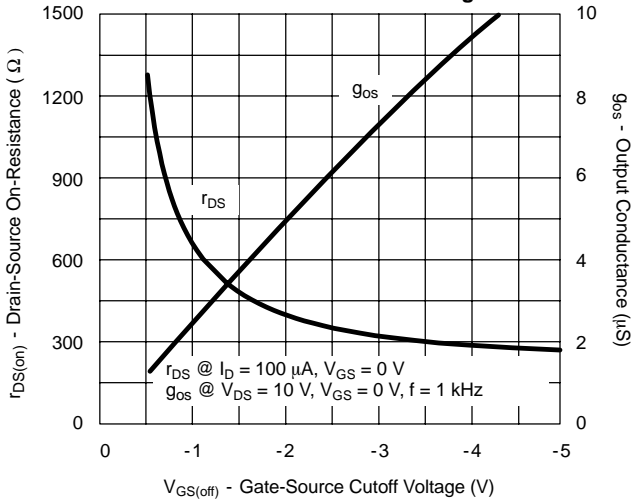
**Drain Current and Transconductance vs. Gate-Source Cutoff Voltage**



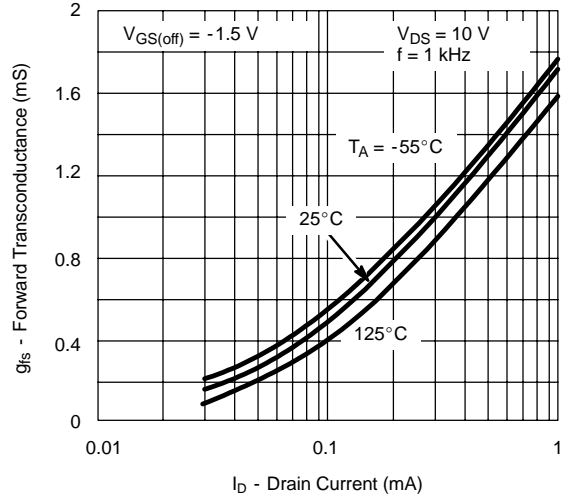
**Gate Leakage Current**



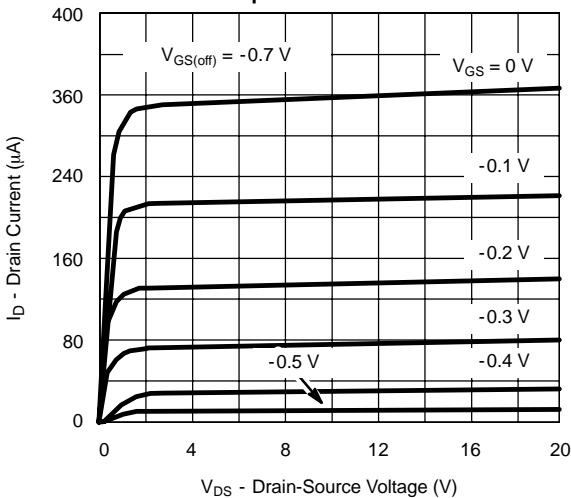
**On-Resistance and Output Conductance vs. Gate-Source Cutoff Voltage**



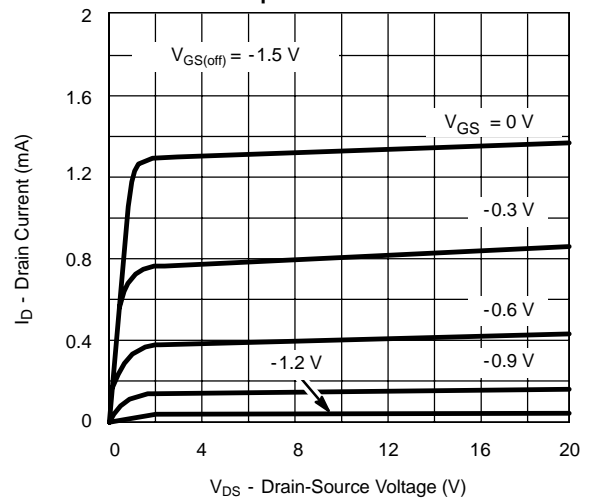
**Common-Source Forward Transconductance vs. Drain Current**



**Output Characteristics**

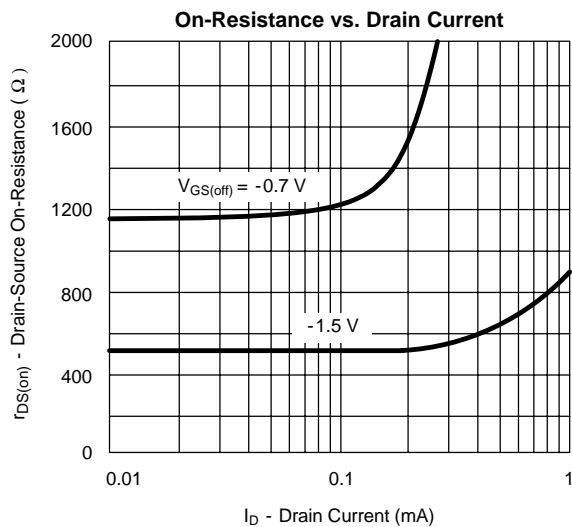
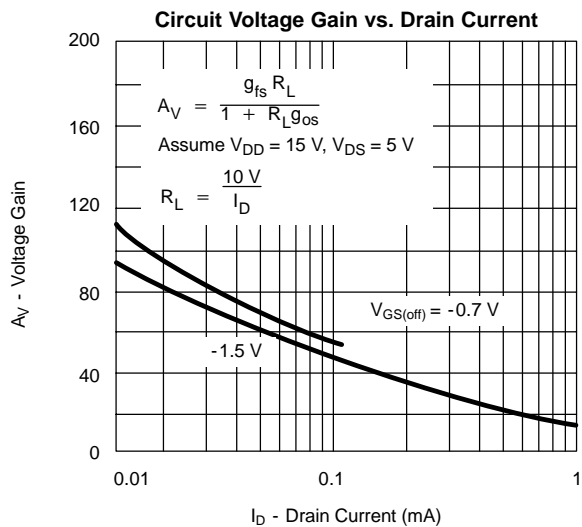
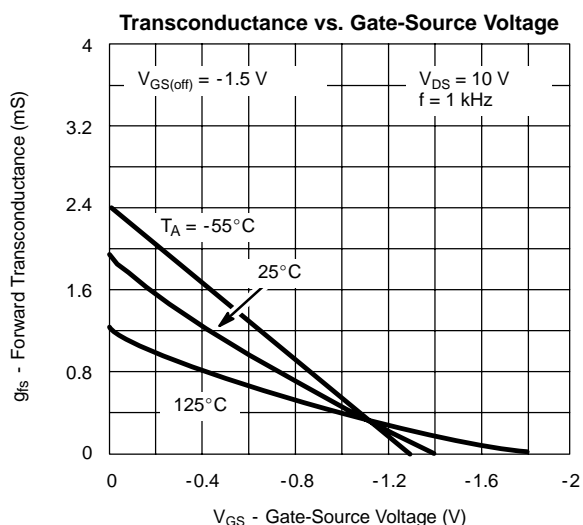
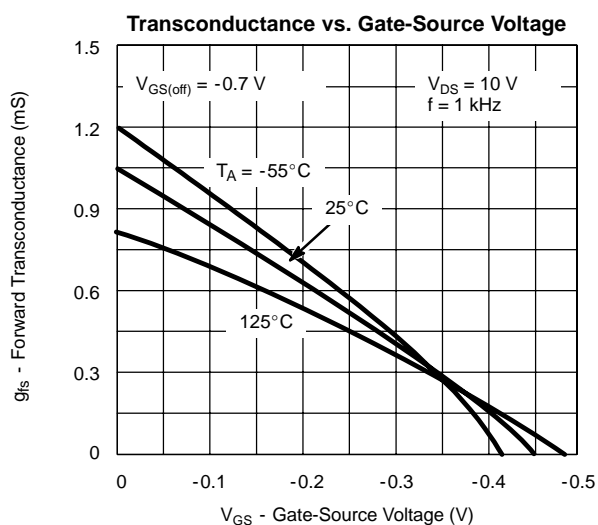
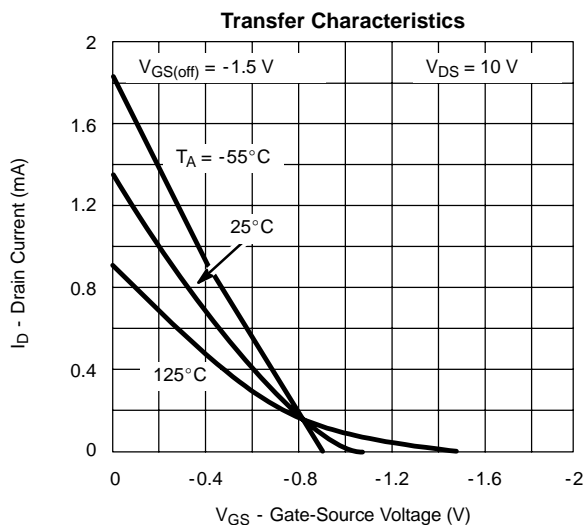
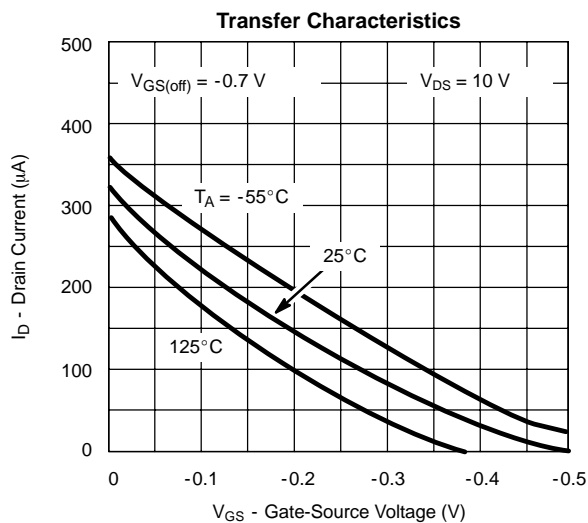


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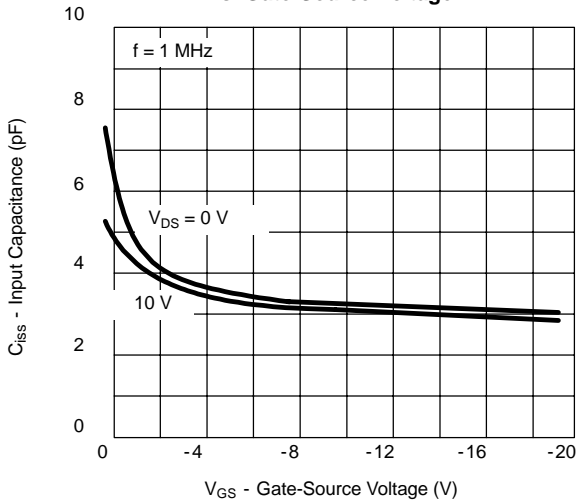


#### TYPICAL CHARACTERISTICS (T<sub>A</sub> = 25°C UNLESS OTHERWISE NOTED)

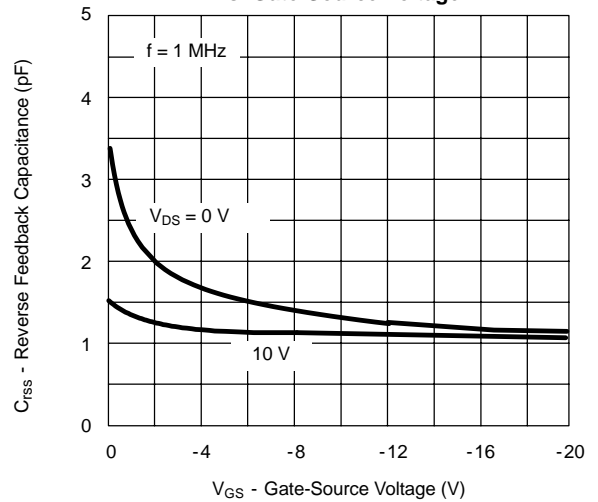


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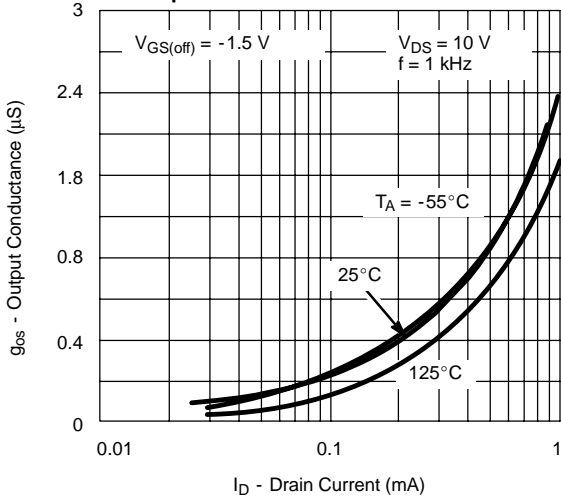
Common-Source Input Capacitance vs. Gate-Source Voltage



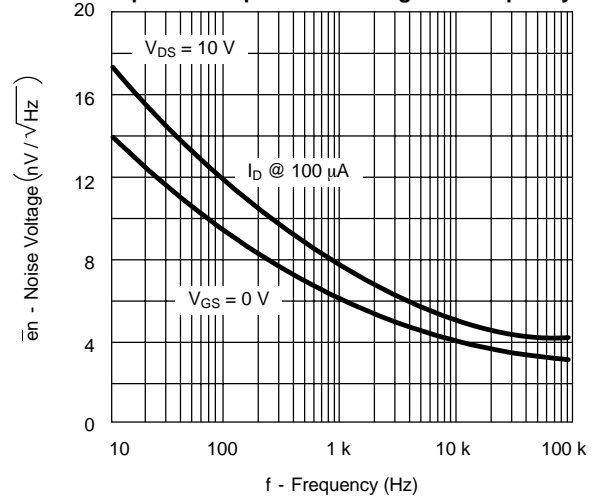
Common-Source Reverse Feedback Capacitance vs. Gate-Source Voltage



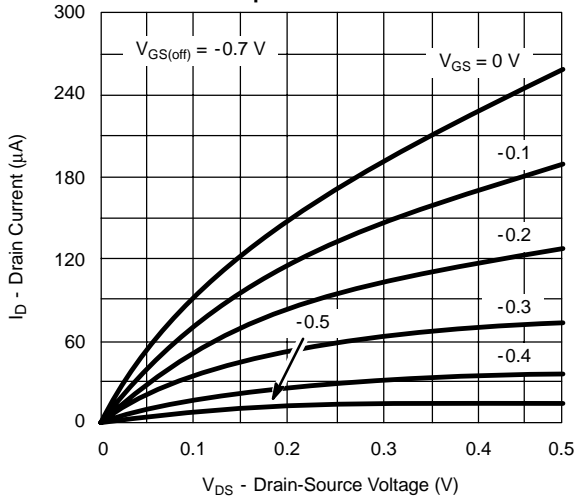
Output Conductance vs. Drain Current



Equivalent Input Noise Voltage vs. Frequency



Output Characteristics



Output Characteristics

