N-Channel JFETs

J201 SST201
J202 SST202
J204 SST204

PRODUCT SUMMARY				
Part Number	**$V_{GS(off)}$ (V)**	**$V_{(BR)GSS}$ Min (V)**	**g_{fs} Min (mS)**	**I_{DSS} 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_V = 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

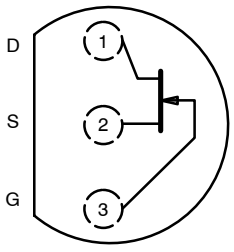
The J/SST201 series features low leakage, very low noise, and low cutoff voltage for use with low-level power supplies. The J/SST201 is excellent for battery powered equipment and low current amplifiers.

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.

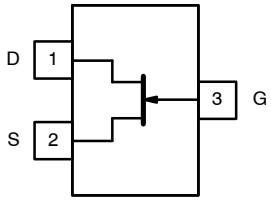
TO-226AA
(TO-92)



Top View

J201
J202
J204

TO-236
(SOT-23)



Top View

SST201 (P1)*
SST202 (P2)*
SST204 (P4)*

*Marking Code for TO-236

ABSOLUTE MAXIMUM RATINGS

Gate-Drain, Gate-Source Voltage . . . . . –40 V
Gate Current . . . . . 50 mA
Lead Temperature ($^1/_{16}$" from case for 10 sec.) . . . . . 300°C
Storage Temperature . . . . . –55 to 150°C
Operating Junction Temperature . . . . . –55 to 150°C
Power Dissipation[a] . . . . . 350 mW

Notes
a. Derate 2.8 mW/°C above 25°C

SPECIFICATIONS (T_A = 25°C UNLESS OTHERWISE NOTED)

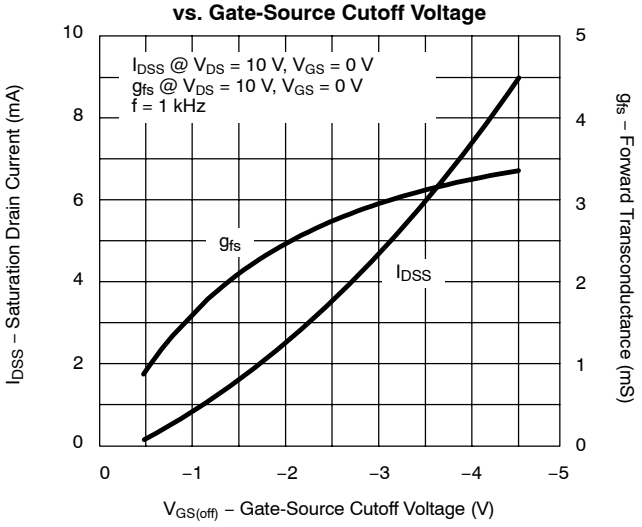
Parameter	Symbol	Test Conditions	Typ[a]	Limits J/SST201 Min	J/SST201 Max	J/SST202 Min	J/SST202 Max	J/SST204[c] Min	J/SST204[c] Max	Unit
Static										
Gate-Source Breakdown Voltage	$V_{(BR)GSS}$	I_G = –1 μA , V_{DS} = 0 V		–40		–40		–25		V
Gate-Source Cutoff Voltage	$V_{GS(off)}$	V_{DS} = 15 V, I_D = 10 nA		–0.3	–1.5	–0.8	–4	–0.3	–2	
Saturation Drain Current[b]	I_{DSS}	V_{DS} = 15 V, V_{GS} = 0 V		0.2	1	0.9	4.5	0.2	3	mA
Gate Reverse Current	I_{GSS}	V_{GS} = –20 V, V_{DS} = 0 V	–2		–100		–100		–100	pA
		T_A = 125°C	–1							nA
Gate Operating Current	I_G	V_{DG} = 10 V, I_D = 0.1 mA	–2							pA
Drain Cutoff Current	$I_{D(off)}$	V_{DS} = 15 V, V_{GS} = –5 V	2							
Gate-Source Forward Voltage	$V_{GS(F)}$	I_G = 1 mA , V_{DS} = 0 V	0.7							V
Dynamic										
Common-Source Forward Transconductance	g_{fs}	V_{DS} = 15 V, V_{GS} = 0 V f = 1 kHz		0.5		1		0.5		mS
Common-Source Input Capacitance	C_{iss}	V_{DS} = 15 V, V_{GS} = 0 V f = 1 MHz	4.5							pF
Common-Source Reverse Transfer Capacitance	C_{rss}		1.3							
Equivalent Input Noise Voltage	$\overline{e}_n$	V_{DS} = 10 V, V_{GS} = 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 and SST204 typical characteristic curves.

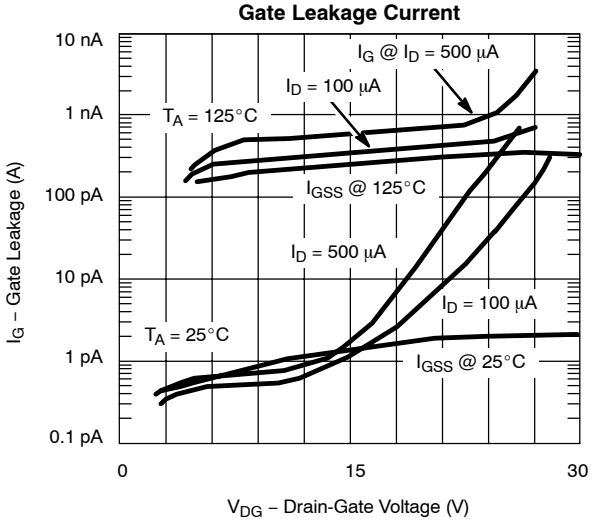
NPA, NH

TYPICAL CHARACTERISTICS (T_A = 25°C UNLESS OTHERWISE NOTED)

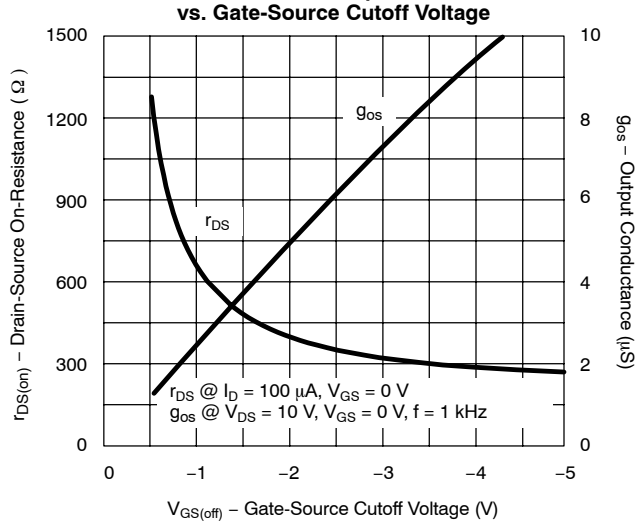
Drain Current and Transconductance vs. Gate-Source Cutoff Voltage



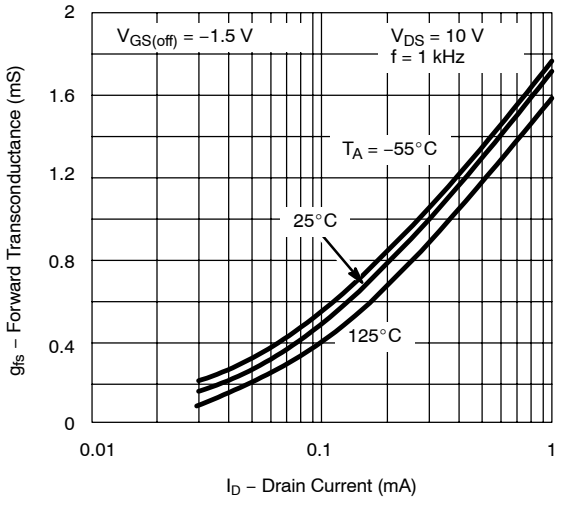
Gate Leakage Current



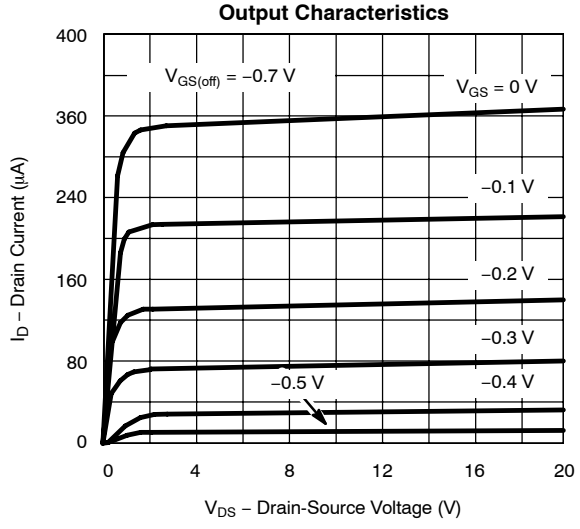
On-Resistance and Output Conductance vs. Gate-Source Cutoff Voltage



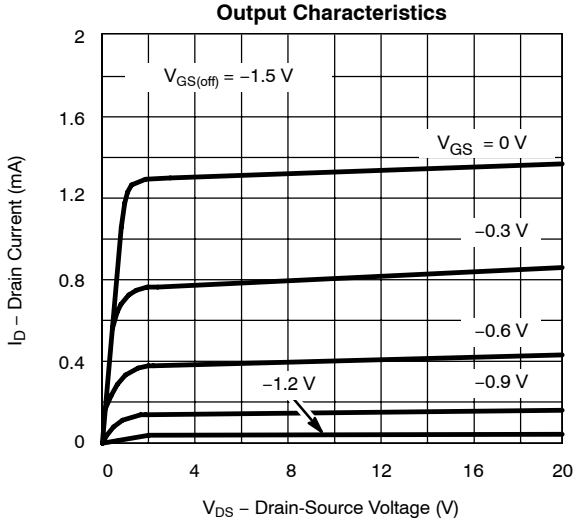
Common-Source Forward Transconductance vs. Drain Current



Output Characteristics

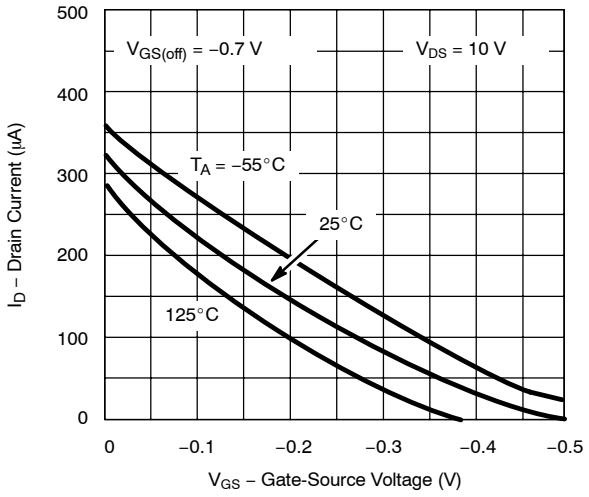


Output Characteristics

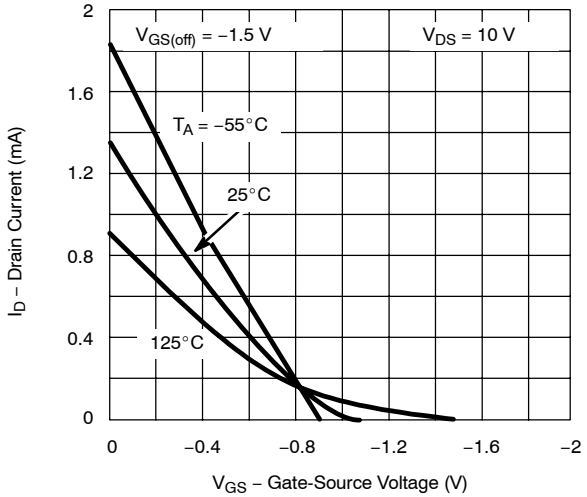


TYPICAL CHARACTERISTICS (T_A = 25°C UNLESS OTHERWISE NOTED)

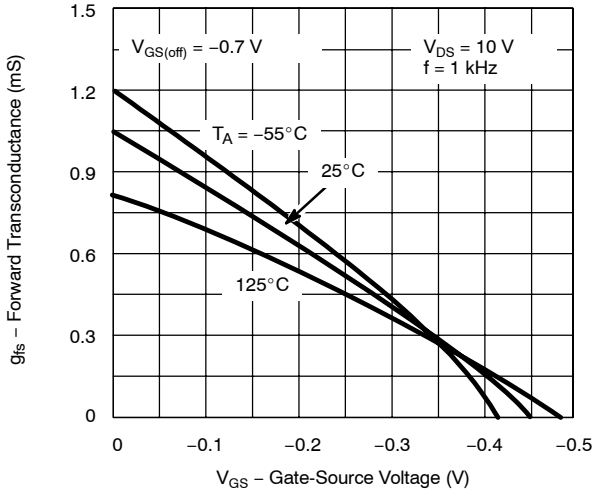
Transfer Characteristics



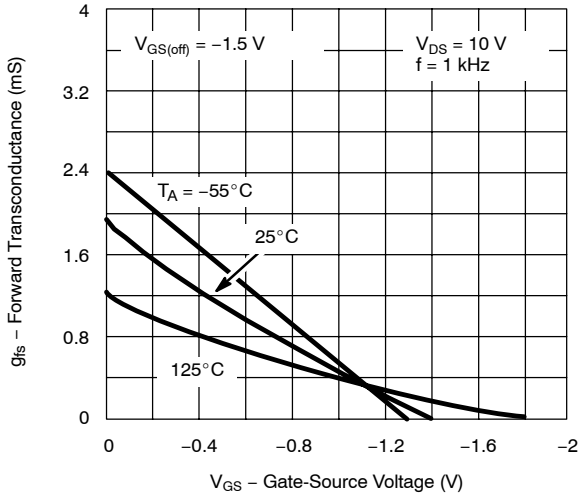
Transfer Characteristics



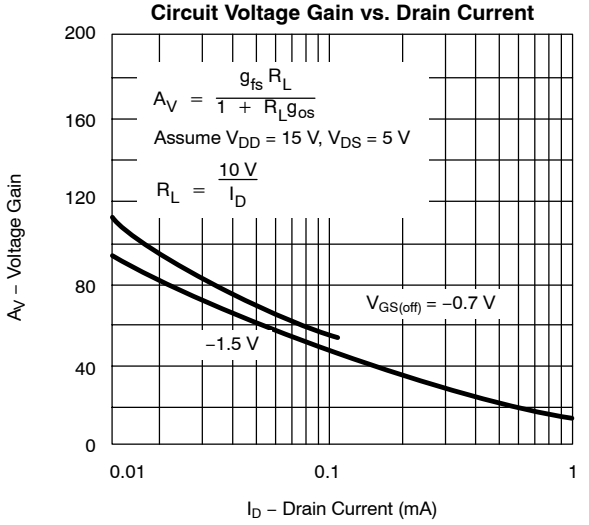
Transconductance vs. Gate-Source Voltage



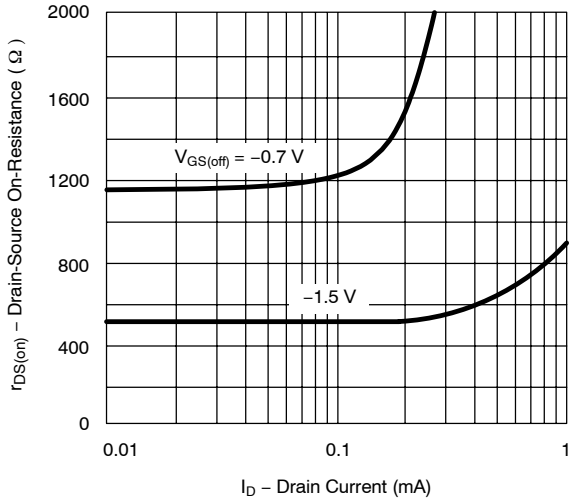
Transconductance vs. Gate-Source Voltage



Circuit Voltage Gain vs. Drain Current

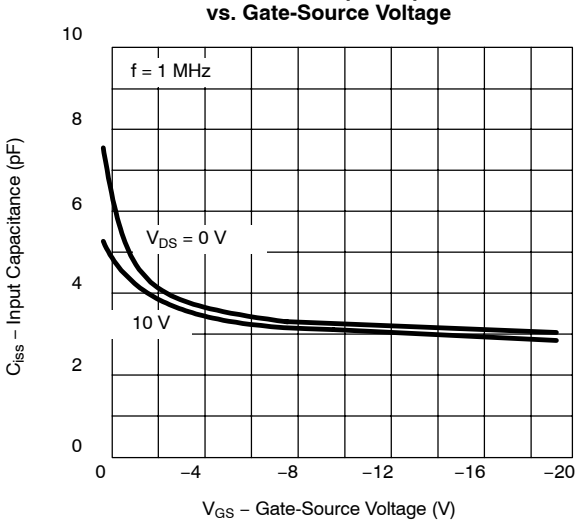


On-Resistance vs. Drain Current

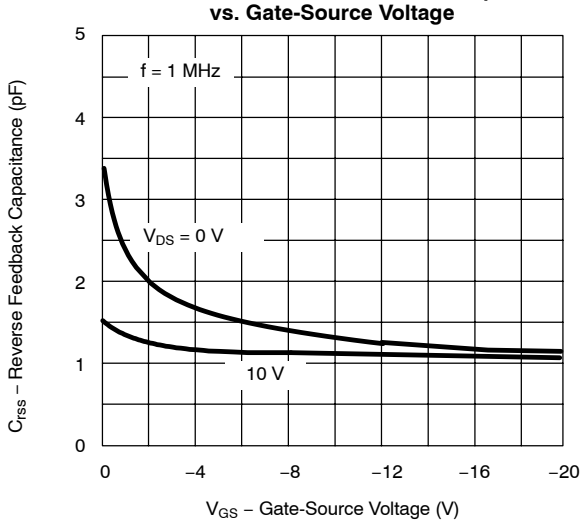


TYPICAL CHARACTERISTICS (T_A = 25°C UNLESS OTHERWISE NOTED)

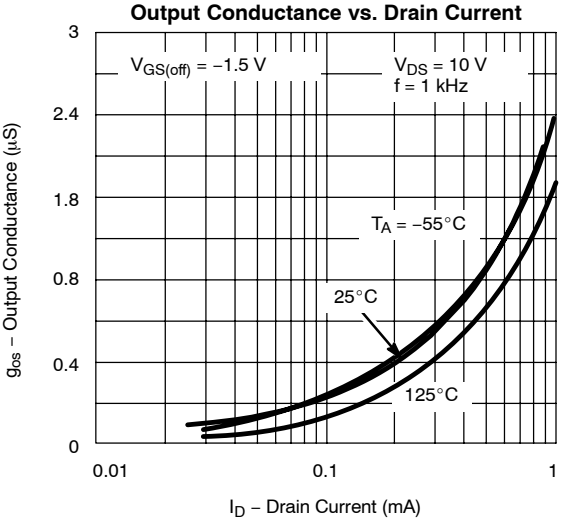
Common-Source Input Capacitance vs. Gate-Source Voltage



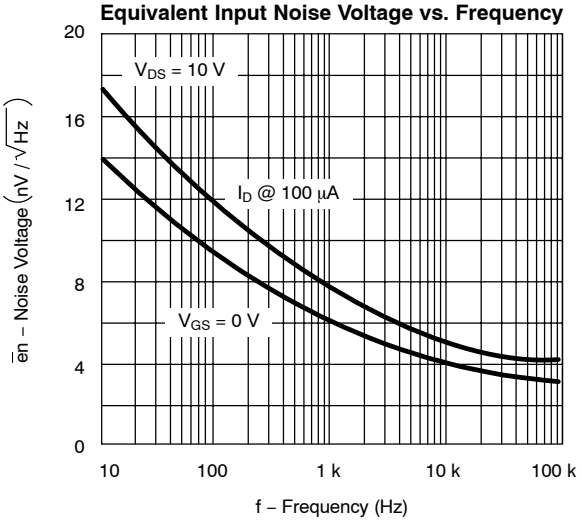
Common-Source Reverse Feedback Capacitance vs. Gate-Source Voltage



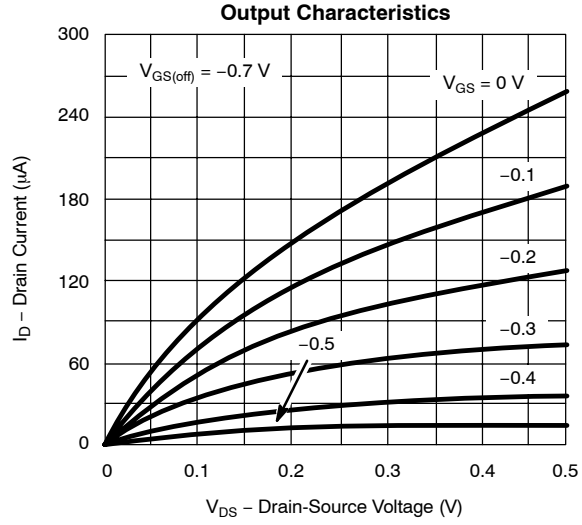
Output Conductance vs. Drain Current



Equivalent Input Noise Voltage vs. Frequency



Output Characteristics



Output Characteristics

