LINEAR SYSTEMS

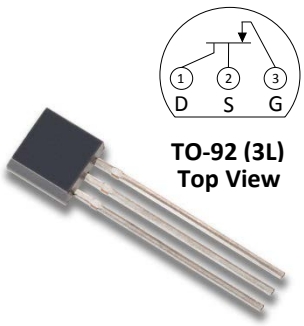
Improved Standard Products®

J/SST201/2/4

High Gain, Single N-Channel JFET Amplifier

General Purpose, Low Noise, Low Cost, Single JFET

Absolute Maximum Ratings @ 25 °C (unless otherwise stated)	
Maximum Temperatures	
Storage Temperature	-65 to +150°C
Junction Operating Temperature	-55 to +150°C
Maximum Power Dissipation	
Continuous Power Dissipation @ +25°C	350mW
Maximum Currents	
Gate Forward Current	$I_{G(F)}$ = 10mA
Maximum Voltages	
Gate to Source	V_{GSS} = 40V
Gate to Drain	V_{GDS} = 40V



TO-92 (3L)
Top View

SOT-23 (3L)
Top View

Features

- Low Cutoff Voltage: J201 <1.5V
- High Input Impedance
- Very Low Noise
- High Gain: AV = 80 @ 20 µA
- Reverse Gate to Source and Drain Voltage ≥| -40V

Benefits

- Low Cost
- Excellent Low Power Supply Operation
- Power Supply: Down to 1.5V
- Low Signal Loss/System Error
- High System Sensitivity
- High Quality Low-Level Signal

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/SST201/2/4 series is a low cost direct replacement for Siliconix J/SST201/2/4 series. Features include low leakage, very low noise, low cutoff voltage ($V_{GS(off)}$ ≤ 1.5V) and high Gain (A_V = 80 V/V) for use with low-level power supplies. The J/SST201/2/4 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 and in die form for automated assembly.

Electrical Characteristics @ 25 °C (unless otherwise stated)

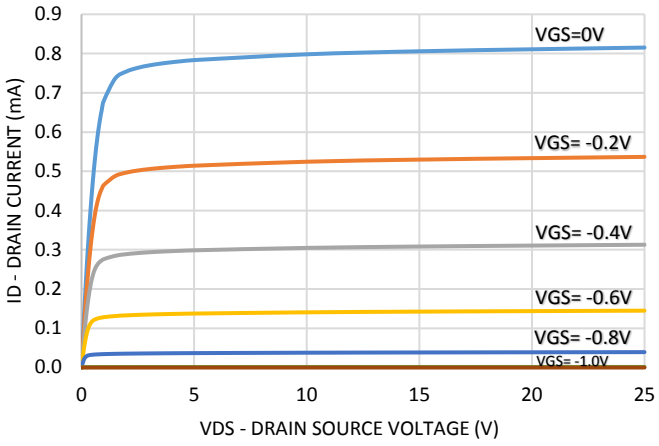
SYMBOL	CHARACTERISTIC		MIN	TYP	MAX	UNITS	CONDITIONS
BV_{GSS}	Gate to Source Breakdown Voltage	J/SST201, 202	-40			V	I_G = -1µA, V_{DS} = 0.0V
		J/SST204	-25				
$V_{GS(off)}$	Gate to Source Cutoff Voltage	J/SST201	-0.3		-1.5		V_{DS} = 15V, I_D = 10nA
		J/SST202	-0.8		-4.0		
		J/SST204	-0.2		2.0		
I_{DSS}	Drain to Source Saturation Current[2]	J/SST201	0.2		1.0	mA	V_{DS} = 15V, V_{GS} = 0.0V
		J/SST202	0.9		4.5		
		J/SST204	0.2		3.0		
I_{GSS}	Gate Reverse Current				-100	pA	V_{GS} = -20V, V_{DS} = 0.0V
I_G	Gate Operating Current			-2			V_{DG} = 10V, I_D = 0.1mA
$I_{D(off)}$	Drain Cutoff Current			2			V_{DS} = 15V, V_{GS} = 5.0V

Electrical Characteristics @ 25 °C (unless otherwise stated) Continued

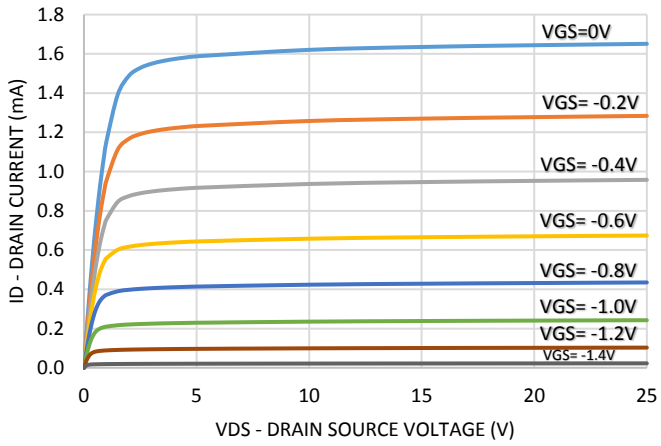
SYMBOL	CHARACTERISTIC		MIN	TYP	MAX	UNITS	CONDITIONS
g_{fs}	Forward Transconductance	J/SST201, 204	0.5			mS	V_{DS} = 15V, V_{GS} = 0.0V, *f* = 1kHz
		J/SST202	1.0				
C_{iss}	Input Capacitance			4.5		pF	V_{DS} = 15V, V_{GS} = 0.0V, *f* = 1MHz
C_{rss}	Reverse Transfer Capacitance			1.3			
e_n	Noise Voltage			4.0		nV/√Hz	V_{DS} = 10V, V_{GS} = 0.0V, *f* = 1kHz

Typical Characteristics

Output Characteristic
J201 - (VGS(off) = -1.1V)



Output Characteristic
J202 - (VGS(off) = -1.75V)



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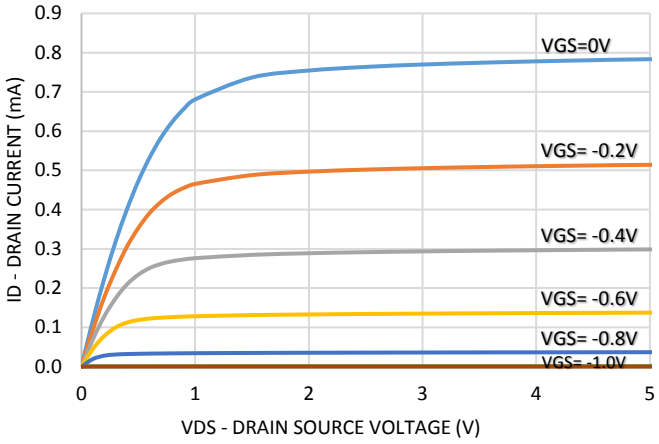

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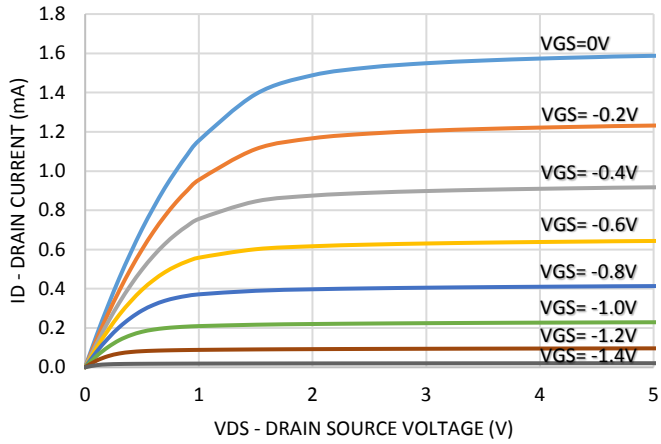
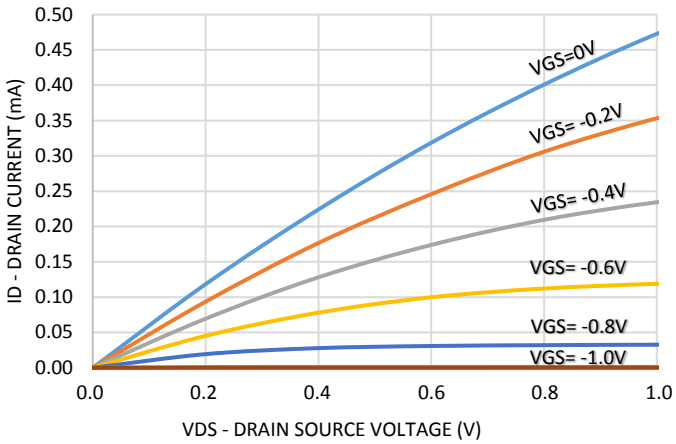


Typical Characteristics Continued

Output Characteristic
J201 - (VGS(off) = -1.1V)



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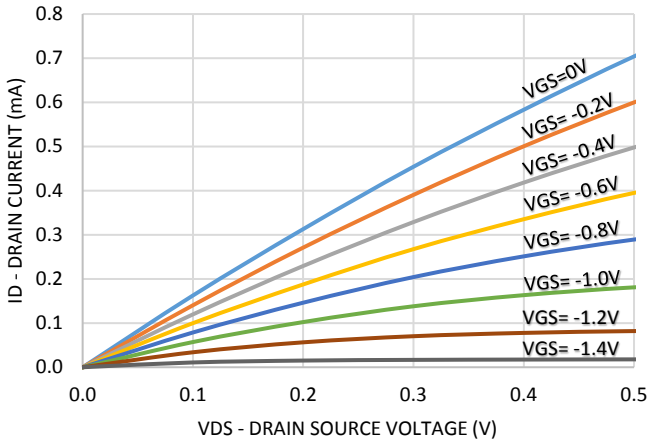
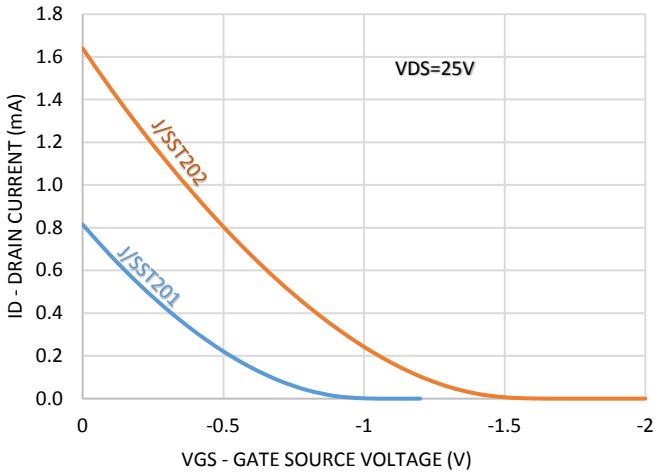
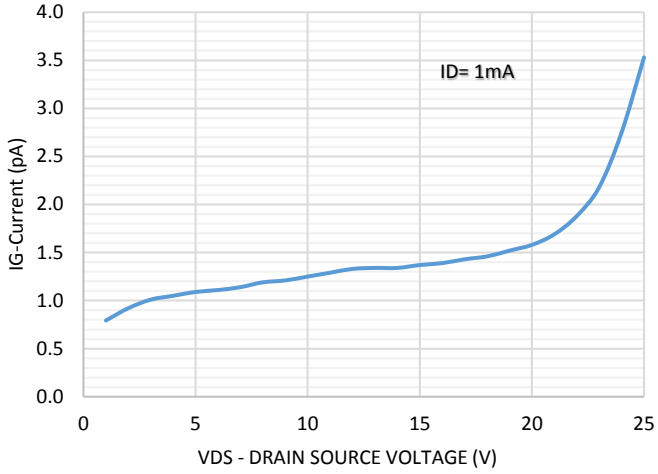


Transfer Characteristics

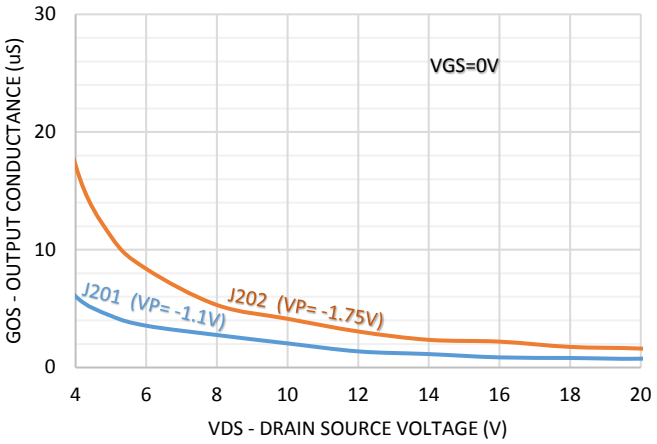


Operating Gate Current

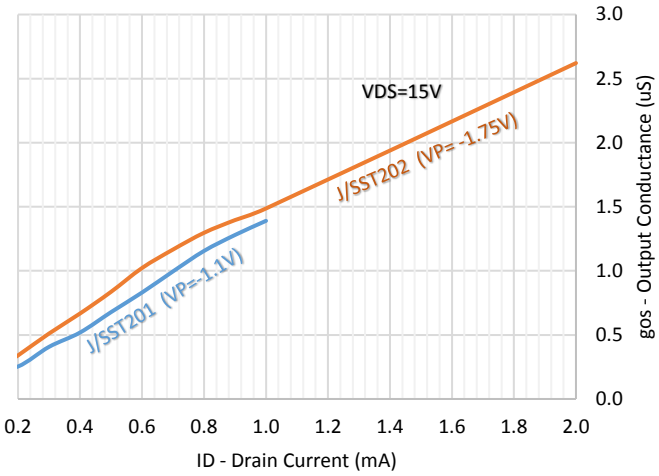


Typical Characteristics Continued

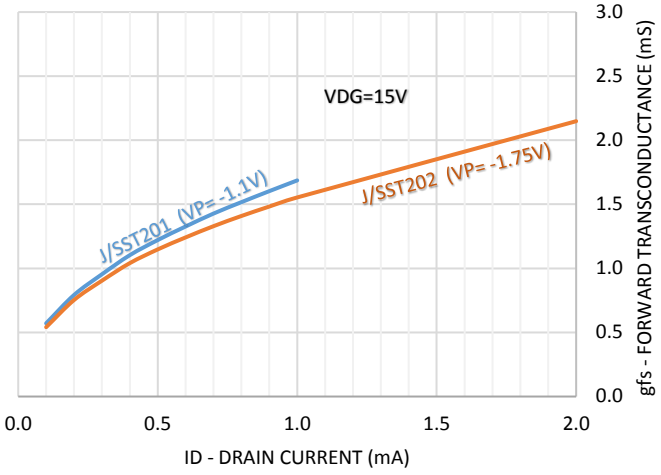
Output Conductance vs Drain Source Voltage



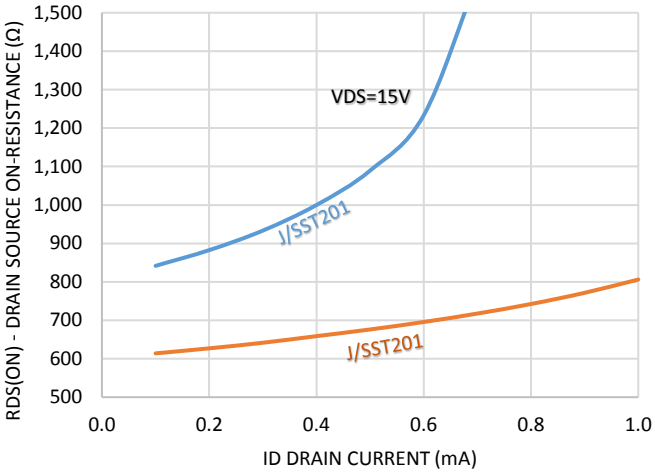
Output Conductance vs. Drain Current



Forward Transconductance vs. Drain Current

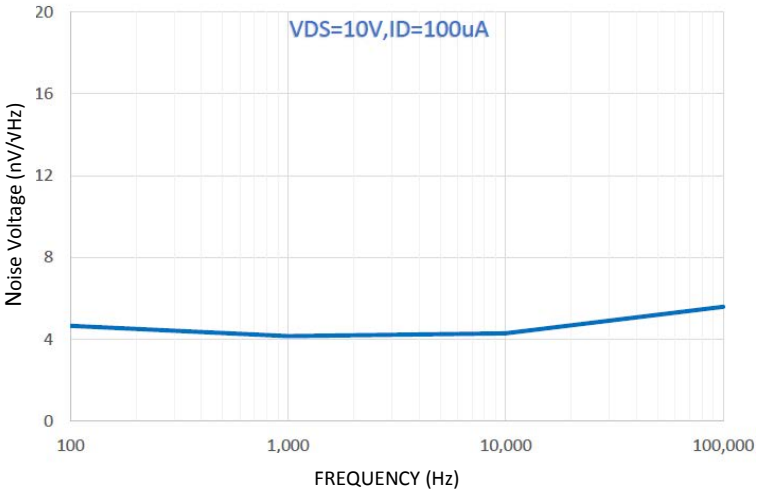


RDS - ID

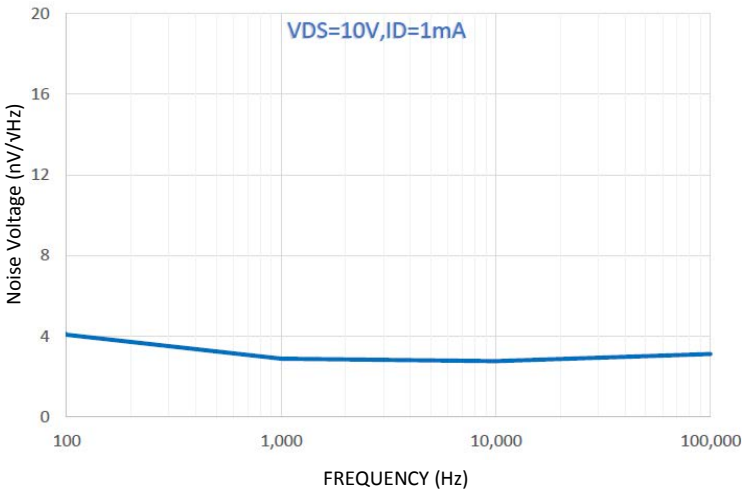


Typical Characteristics Continued

Input Noise Voltage vs Frequency

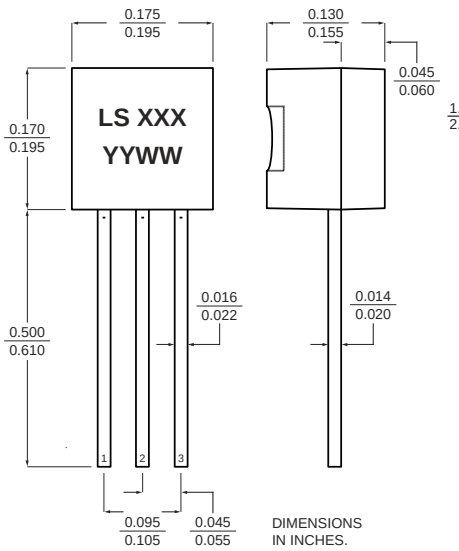


Input Noise Voltage vs Frequency

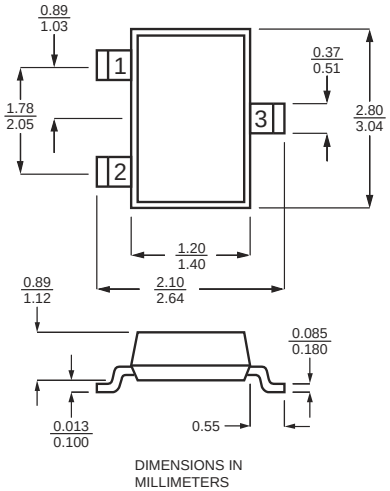


Package Dimensions

TO-92 3 Lead



SOT-23 3 Lead



Ordering Information

STANDARD PART CALL-OUT
J201 TO-92 3L RoHS
J202 TO-92 3L RoHS
J204 TO-92 3L RoHS
SST201 SOT-23 3L RoHS
SST202 SOT-23 3L RoHS
SST204 SOT-23 3L RoHS
CUSTOM PART CALL-OUT
(CUSTOM PARTS INCLUDE SEL + 4 DIGIT NUMERIC CODE)
J201 TO-92 3L RoHS SELXXXX
J202 TO-92 3L RoHS SELXXXX
J204 TO-92 3L RoHS SELXXXX
SST201 SOT-23 3L RoHS SELXXXX
SST202 SOT-23 3L RoHS SELXXXX
SST204 SOT-23 3L RoHS SELXXXX

Notes

1. Absolute maximum ratings are limiting values above which serviceability may be impaired.
2. Pulse Test: PW ≤ 300µs, Duty Cycle ≤ 3%
3. All characteristics MIN/TYP/MAX numbers are absolute values. Negative values indicate electrical polarity only.
4. When ordering include the full Linear Systems part number and package type. Linear Systems creates custom parts on a case by case basis. To learn whether Linear Systems can meet your requirements, please send your drawing along with a detailed description of the device specifications to sales@linearsystems.com. One of our qualified representatives will contact you.
5. All standard parts are RoHS compliant. Contact the factory for availability of non-RoHS parts.
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