

## N-Channel JFETs

<b>PRODUCT SUMMARY</b>			
$V_{GS(off)}$ (V)	$V_{(BR)GSS}$ Min (V)	$g_{fs}$ Min (mS)	$I_{DSS}$ Min (mA)
-0.3 to -0.9	-25	0.25	0.15

### FEATURES

- Low Cutoff Voltage: <math><0.9\text{ V}</math>
- High Input Impedance
- Very Low Noise
- High Gain:  $A_V = 80 @ 20\ \mu\text{A}$

### BENEFITS

- High Quality Low-Level Signal Amplification
- Low Signal Loss/System Error
- High System Sensitivity

### APPLICATIONS

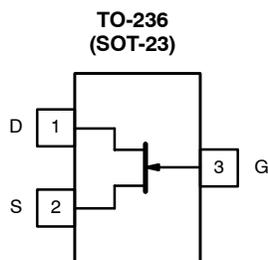
- Mini-Microphones
- Hearing Aids
- High-Gain, Low-Noise Amplifiers
- Low-Current, Low-Voltage Battery-Powered Amplifiers
- Ultra High Input Impedance Pre-Amplifiers

### DESCRIPTION

The SST200/200A features low leakage, very low noise and low cutoff voltage for use with low-level power supplies. The SST200/200A is excellent for battery powered equipment and low current amplifiers such as mini-microphones.

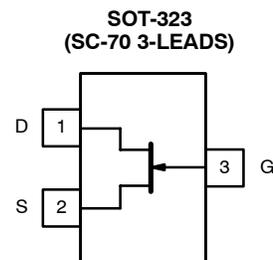
The TO-236 (SOT-23) and SOT-323 (SC-70 3-leads) packages, provide surface-mount capability and is available in tape-and-reel for automated assembly.

For applications information see AN102 and AN106.



Top View

SST200 (S2)\*  
\*Marking Code for TO-236



Top View

SST200A (C)\*  
\*Marking Code for SOT-323



### ABSOLUTE MAXIMUM RATINGS

Gate-Drain, Gate-Source Voltage	-25 V
Gate Current	10 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	
To-236 (SOT-23) <sup>a</sup>	350 mW
SC-70 <sup>b</sup>	150 mW

**Notes**

- a. Derate 2.8 mW/°C above 25°C
- b. Derate 1.2 mW/°C above 25°C

SPECIFICATIONS (T <sub>A</sub> = 25°C UNLESS OTHERWISE NOTED)						
Parameter	Symbol	Test Conditions	Limits			Unit
			Min	Typ <sup>a</sup>	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	-25			V
Gate-Source Cutoff Voltage	V <sub>GS(off)</sub>	V <sub>DS</sub> = 15 V, I <sub>D</sub> = 1.0 μA	-0.3		-0.9	
Saturation Drain Current <sup>b</sup>	I <sub>DSS</sub>	V <sub>DS</sub> = 15 V, V <sub>GS</sub> = 0 V	0.15		0.7	mA
Gate Reverse Current	I <sub>GSS</sub>	V <sub>GS</sub> = -20 V, V <sub>DS</sub> = 0 V		-2	-100	pA
		T <sub>A</sub> = 125°C		-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	0.25	0.7		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	$\bar{e}_n$	V <sub>DS</sub> = 10 V, V <sub>GS</sub> = 0 V f = 1 kHz		6		nV/ √Hz

**Notes**

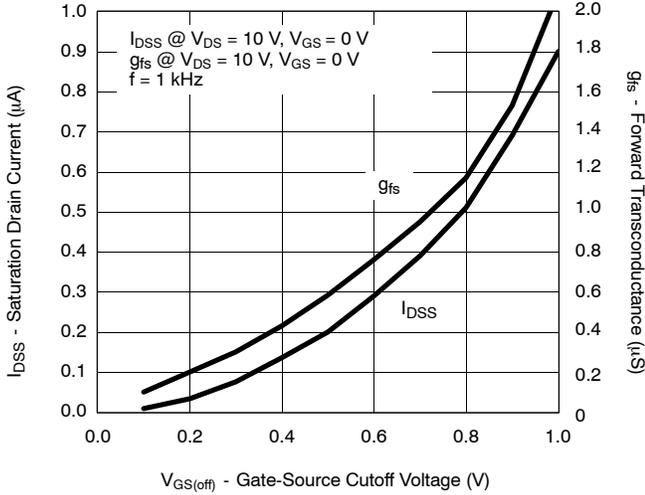
- a. Typical values are for DESIGN AID ONLY, not guaranteed nor subject to production testing.
- b. Pulse test: PW ≤ 300 μs duty cycle ≤ 3%.

NPA

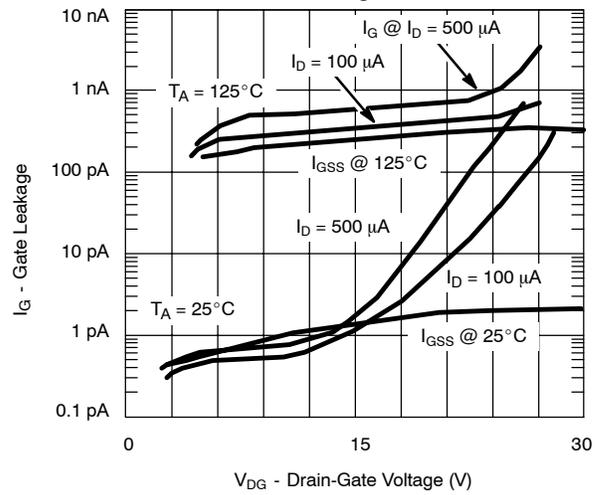


**TYPICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$  UNLESS OTHERWISE NOTED)**

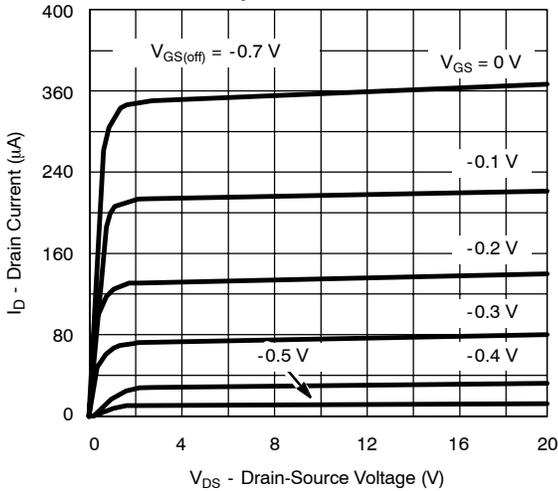
**Drain Current and Transconductance vs. Gate-Source Cutoff Voltage**



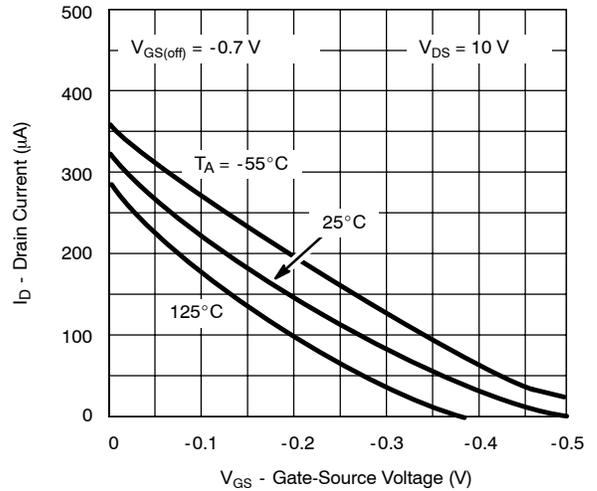
**Gate Leakage Current**



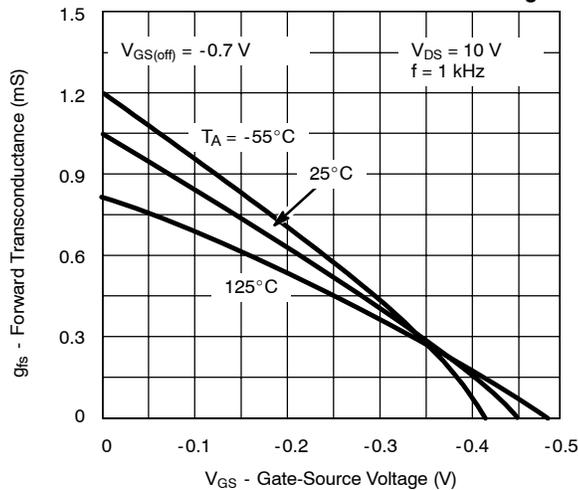
**Output Characteristics**



**Transfer Characteristics**



**Transconductance vs. Gate-Source Voltage**



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

