N-Channel JFETs

PRODUCT SUMMARY			
$V_{GS(off)}$ (V)	$V_{(BR)GSS}$ Min (V)	g_{fs} Min (mS)	I_{DSS} Min (mA)
–0.3 to –0.9	–25	0.25	0.7

FEATURES

- Low Cutoff Voltage: <0.9 V
- High Input Impedance
- Very Low Noise
- High Gain: A_V = 80 @ 20 μA

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

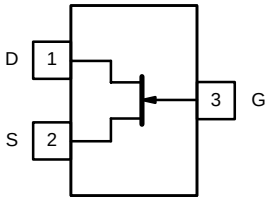
DESCRIPTION

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.

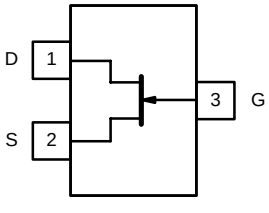
TO-236
(SOT-23)



Top View

SST200 (P0)*
*Marking Code for TO-236

SOT-323
(SC-70 3-LEADS)



Top View

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

ABSOLUTE MAXIMUM RATINGS

Gate-Drain, Gate-Source Voltage . . . . . 40 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)[a] . . . . . 350 mW
SC-70[b] . . . . . 150 mW

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

SPECIFICATIONS (T_A = 25°C UNLESS OTHERWISE NOTED)

Parameter	Symbol	Test Conditions	Limits Min	Limits Typ[a]	Limits Max	Unit
Static						
Gate-Source Breakdown Voltage	$V_{(BR)GSS}$	I_G = –1 µA , V_{DS} = 0 V	–25			V
Gate-Source Cutoff Voltage	$V_{GS(off)}$	V_{DS} = 15 V, I_D = 10 µA	–0.3		–0.9	
Saturation Drain Current[b]	I_{DSS}	V_{DS} = 15 V, V_{GS} = 0 V	0.15		0.7	mA
Gate Reverse Current	I_{GSS}	V_{GS} = –20 V, V_{DS} = 0 V		–2	–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	0.25	0.7		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		$nV/\sqrt{Hz}$

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

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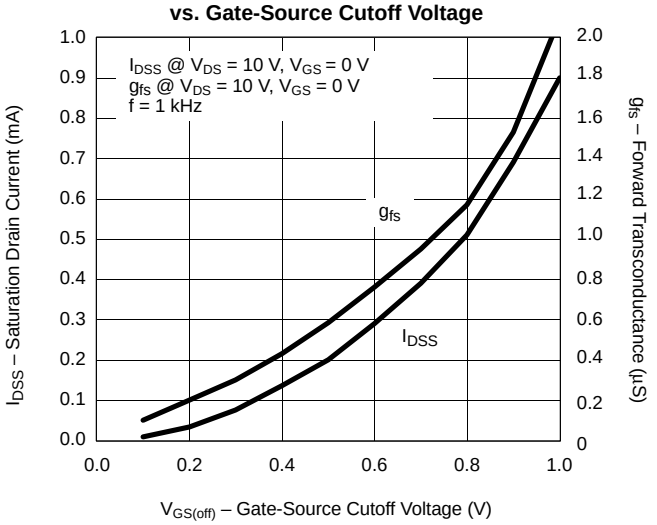
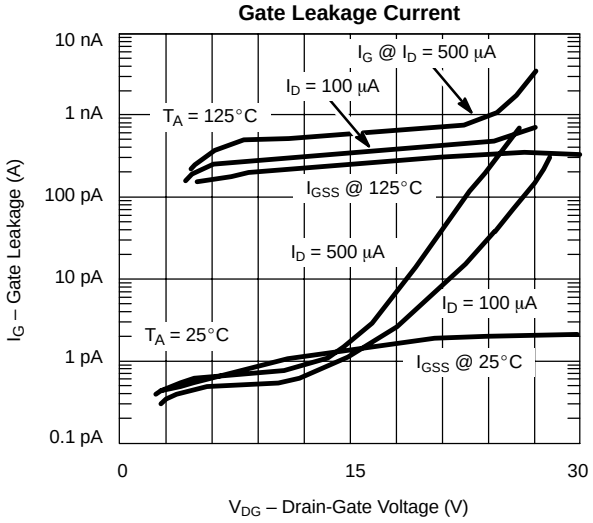
TYPICAL CHARACTERISTICS (T_A = 25°C UNLESS OTHERWISE NOTED)

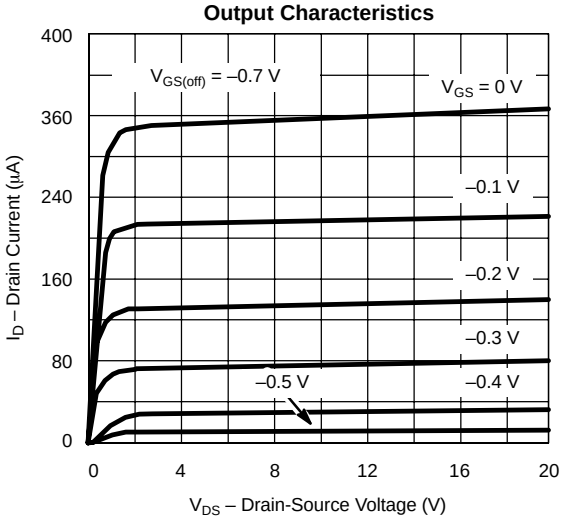
Drain Current and Transconductance vs. Gate-Source Cutoff Voltage



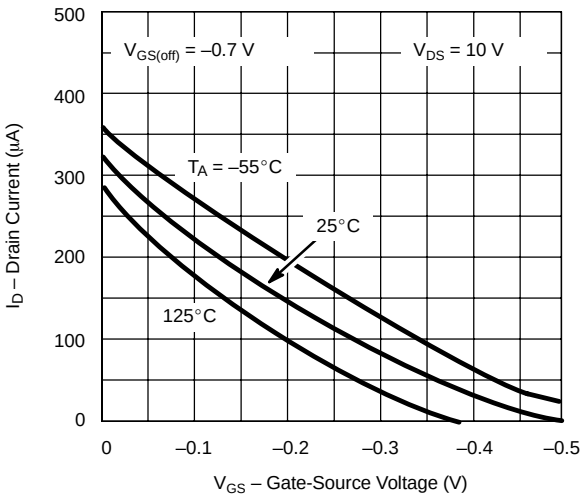
Gate Leakage Current



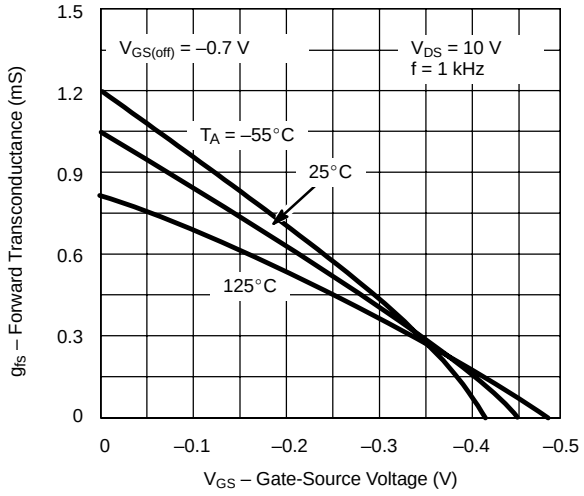
Output Characteristics



Transfer Characteristics

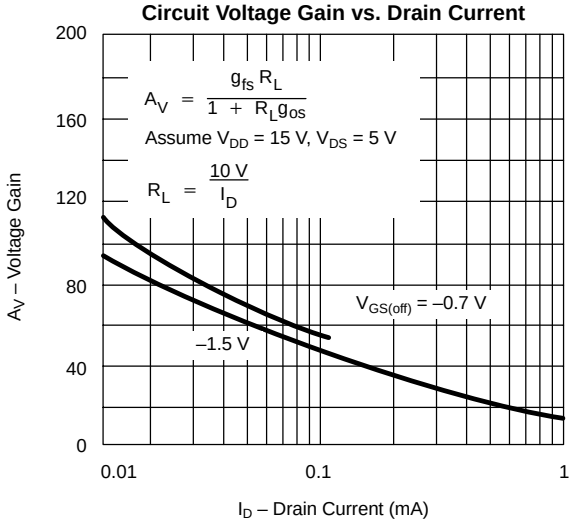


Transconductance vs. Gate-Source Voltage

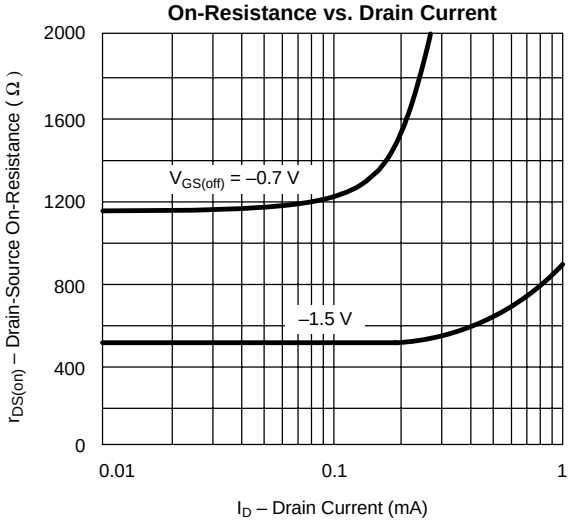


TYPICAL CHARACTERISTICS (T_A = 25°C UNLESS OTHERWISE NOTED)

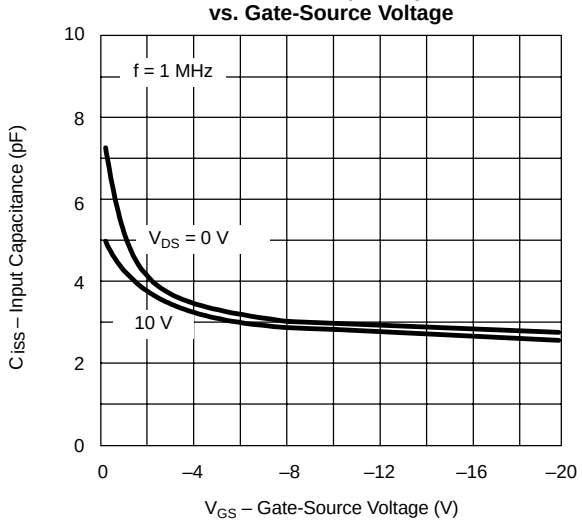
Circuit Voltage Gain vs. Drain Current



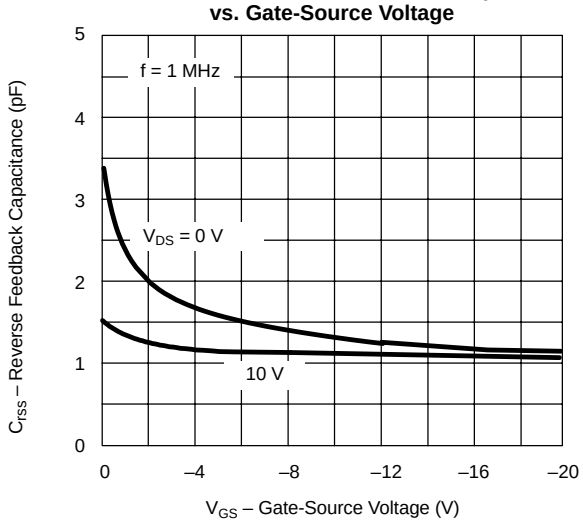
On-Resistance vs. Drain Current



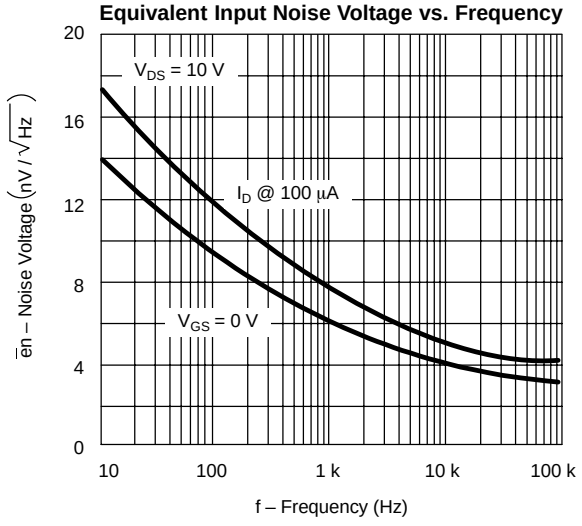
Common-Source Input Capacitance vs. Gate-Source Voltage



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



Equivalent Input Noise Voltage vs. Frequency



Output Characteristics