

J/SST201 Series

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 μ A

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

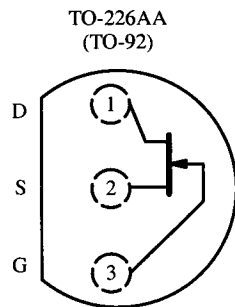
- High-Gain, Low-Noise Amplifiers
- Low-Current, Low-Voltage Battery-Powered Amplifiers
- Infrared Detector Amplifiers
- Ultra High Input Impedance Pre-Amplifiers

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.

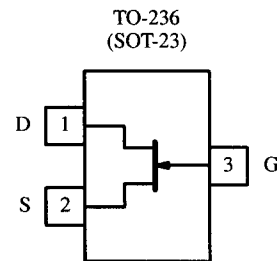
For similar products in TO-206AA (TO-18) packaging, see the 2N4338/4339/4340/4341 data sheet.

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).



Top View

J201
 J202
 J204



Top View

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

*Marking Code for TO-236

Updates to this data sheet may be obtained via facsimile by calling Siliconix FaxBack, 1-408-970-5600. Please request FaxBack document #70233. Applications information may also be obtained via FaxBack, request document #70595 and document #70599.

J/SST201 Series

Absolute Maximum Ratings

Gate-Drain, Gate-Source Voltage	-40 V	Operating Junction Temperature	-55 to 150°C
Gate Current	50 mA	Power Dissipation ^a	350 mW
Lead Temperature (1/16" from case for 10 sec.)	300°C	Notes	
Storage Temperature	-55 to 150°C	a. Derate 2.8 mW/°C above 25°C	

Specifications^a

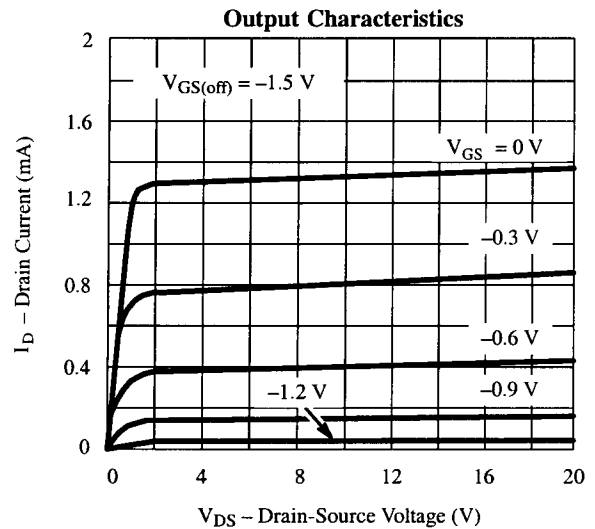
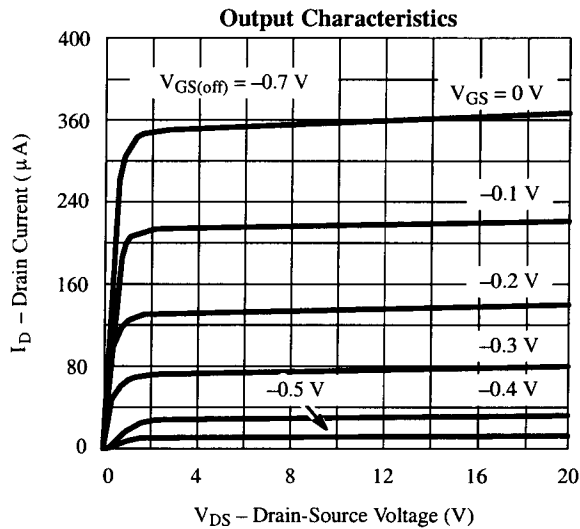
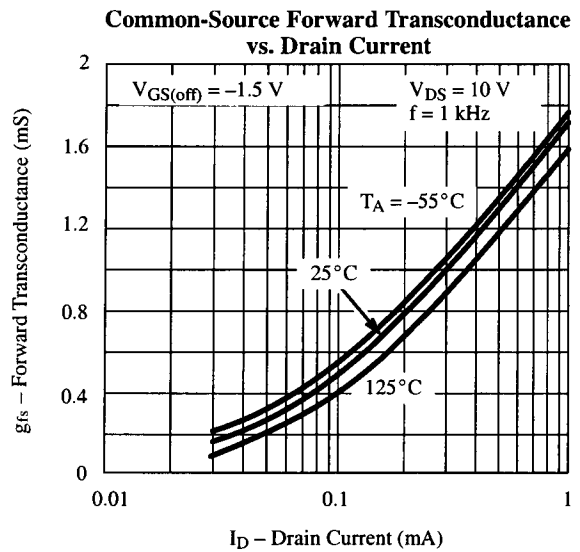
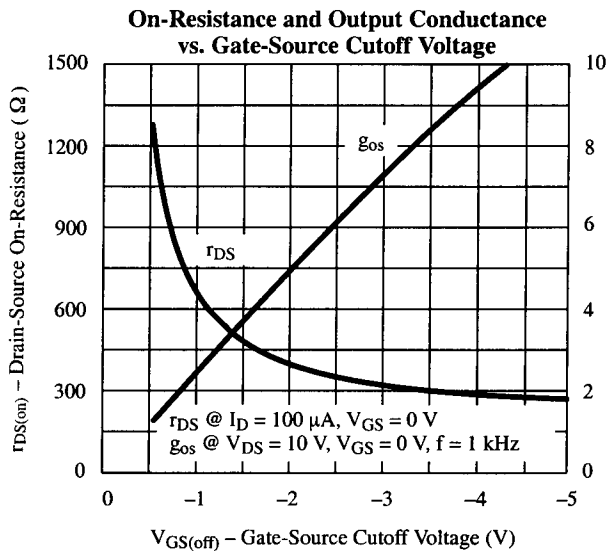
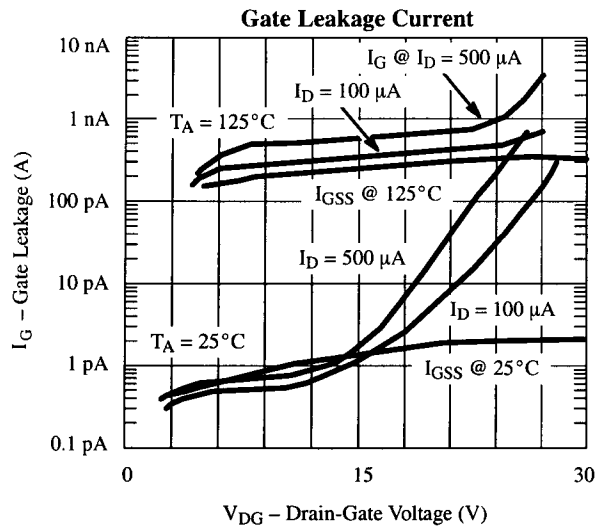
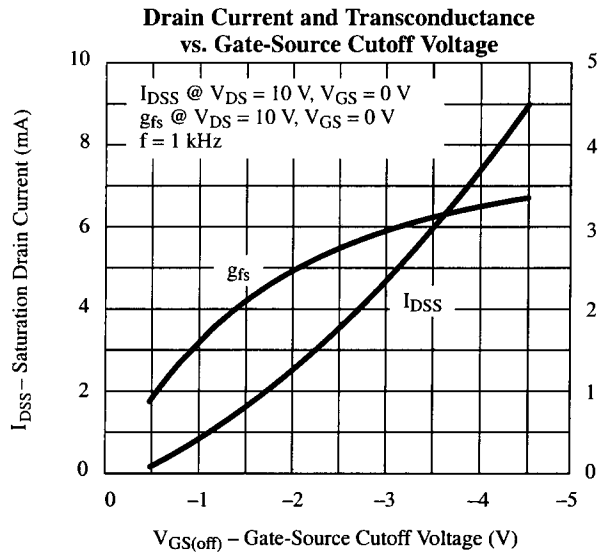
Parameter	Symbol	Test Conditions	Typ ^b	Limits						Unit
				J/SST201		J/SST202		J/SST204 ^d		
				Min	Max	Min	Max	Min	Max	
Static										
Gate-Source Breakdown Voltage	V _{(BR)GSS}	I _G = -1 μA, V _{DS} = 0 V		-40		-40		-25		V
Gate-Source Cutoff Voltage	V _{GS(off)}	V _{DS} = 15 V, I _D = 10 nA		-0.3	-1.5	-0.8	-4	-0.3	-2	
Saturation Drain Current ^c	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	e _n	V _{DS} = 10 V, V _{GS} = 0 V f = 1 kHz	6							nV/ √Hz

Notes

- T_A = 25°C unless otherwise noted.
- Typical values are for DESIGN AID ONLY, not guaranteed nor subject to production testing.
- Pulse test: PW ≤ 300 μs duty cycle ≤ 3%.
- See 2N/SST5484 Series for J204 typical characteristic curves.

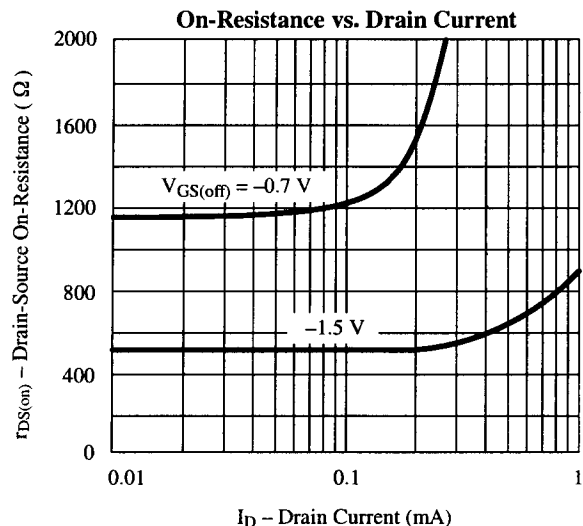
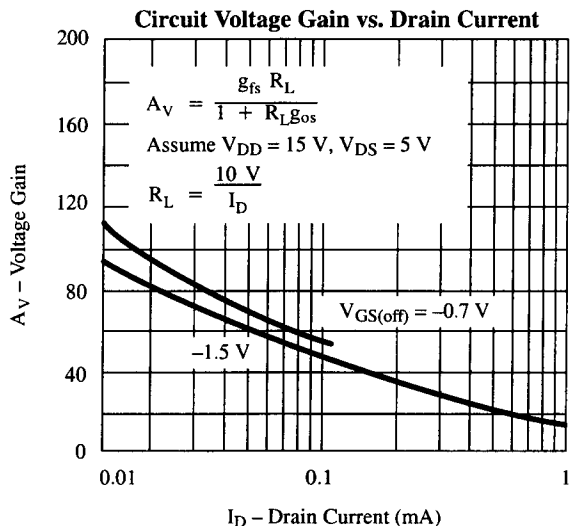
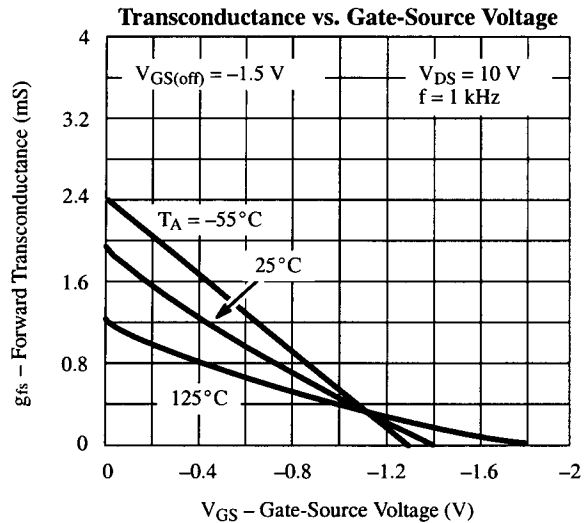
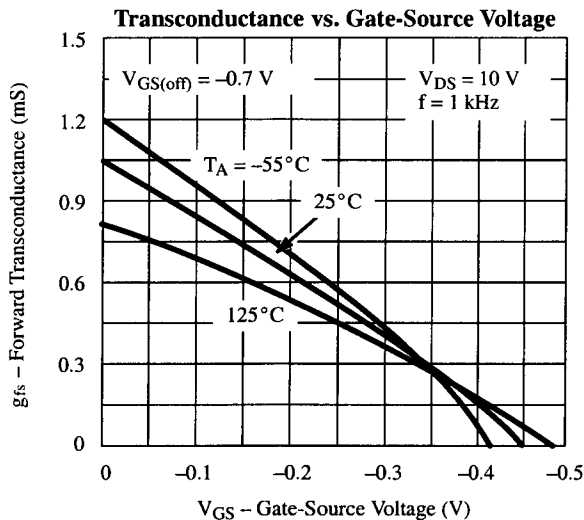
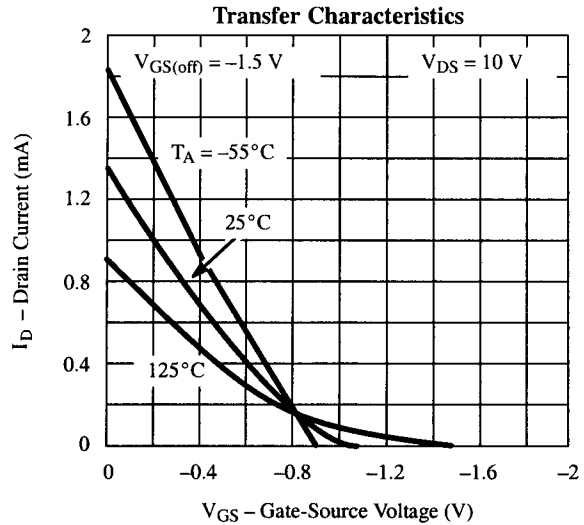
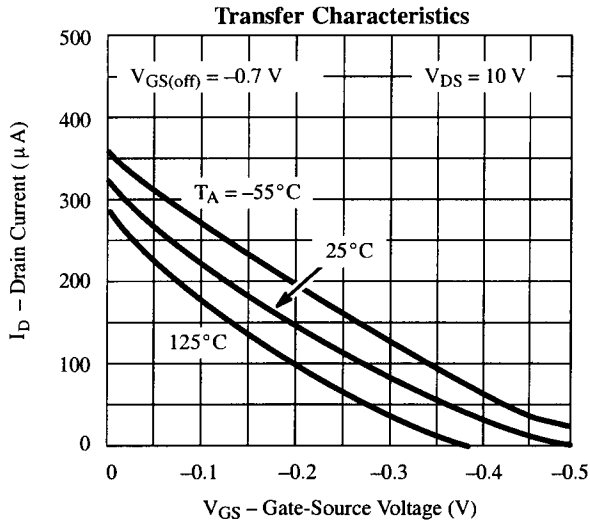
NPA
NH

Typical Characteristics (25°C Unless Noted)

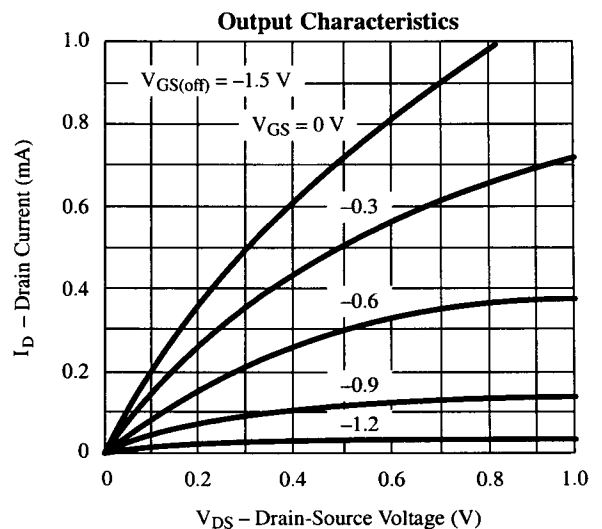
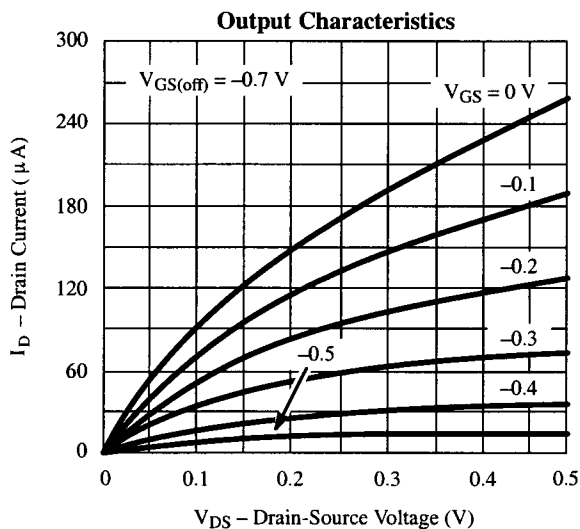
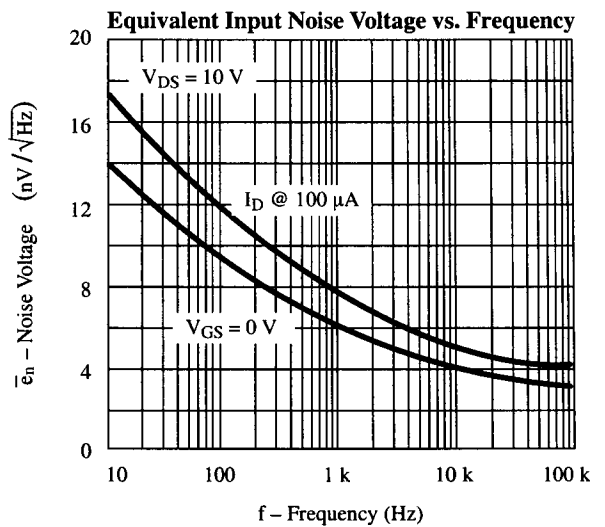
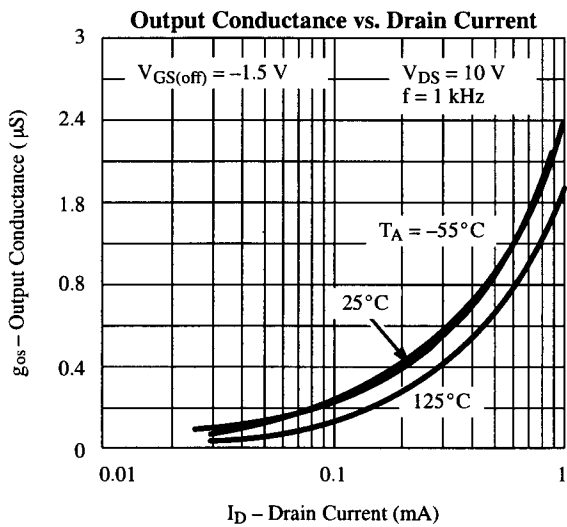
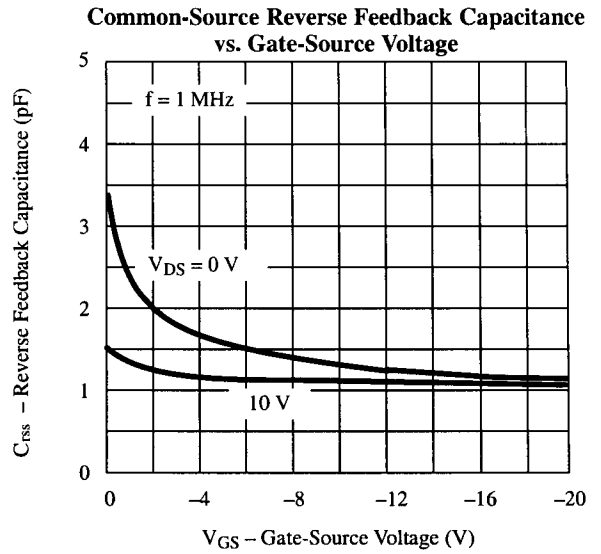
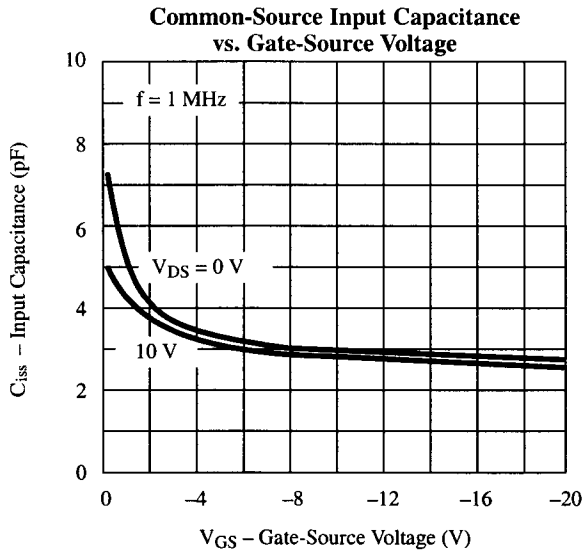


J/SST201 Series

Typical Characteristics (25°C Unless Noted)



Typical Characteristics (25°C Unless Noted)



J/SST201 Series

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N-Channel JFETs

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J202	SST202
J204	SST204

Product Summary

Part Number	V _{GS(off)} (V)	V _{D(0)} /V _{GS} Min (V)	g _m 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

For applications information see AN102, page 12-6, and AN106, page 12-28.

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
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Applications

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

Description

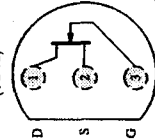
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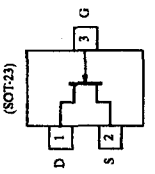
The J series, TO-226 (TO-92) plastic package, provides low cost, while the SST series, TO-236 (SOT-23)

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

TO-206AA (TO-18)



TO-236 (SOT-23)



Top View

Top View

J201
J202
J204

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
Noise
^a Derate 2.8 mW/°C above 25°C

J/SST201 Series

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Specifications^a

Parameter	Symbol	Test Conditions	Typ ^b	Limits						
				J/SST201		J/SST202		J/SST204 ^d		
				Min	Max	Min	Max	Min	Max	Unit
Static										
Gate-Source Breakdown Voltage	V _{DS(VGS)}	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	V
Saturation Drain Current ^c	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 T _A = 125°C	-2	-100		-100		-100		μA
Gate Operating Current	I _G	V _{DS} = 10 V, I _D = 0.1 mA T _A = 125°C	-1							μA
Drain Cutoff Current	I _{D(off)}	V _{DS} = 15 V, V _{GS} = -5 V	2							μA
Gate-Source Forward Voltage	V _{GS(F)}	I _G = 1 mA, V _{DS} = 0 V	0.7							V
Dynamic										
Common-Source Forward Transconductance	g _m	V _{DS} = 15 V, V _{GS} = 0 V f = 1 kHz	4.5			0.5				mS
Common-Source Input Capacitance	C _{in}	V _{DS} = 15 V, V _{GS} = 0 V f = 1 MHz	1.3							pF
Common-Source Reverse Transfer Capacitance	C _{tr}	V _{DS} = 10 V, V _{GS} = 0 V f = 1 MHz	6							pF
Equivalent Input Noise Voltage	e _n	V _{DS} = 10 V, V _{GS} = 0 V f = 1 kHz								nV/√Hz

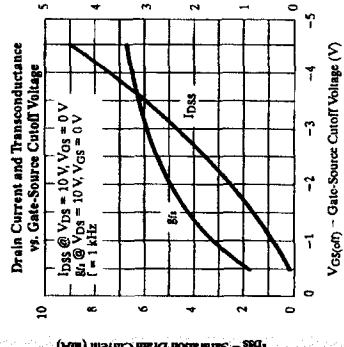
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3: Pulse test: PW ≤ 300 μs duty cycle ≤ 3%.

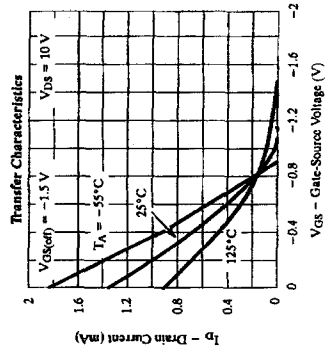
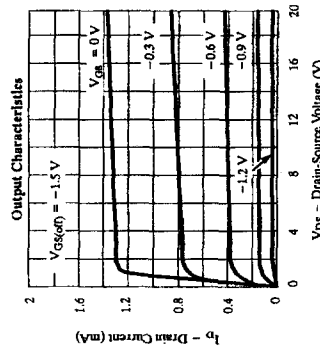
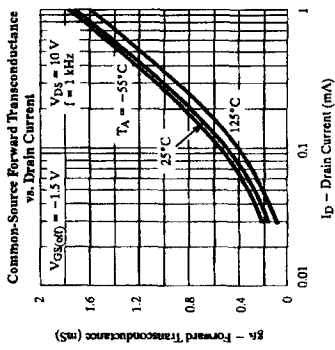
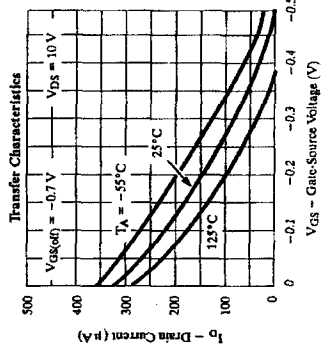
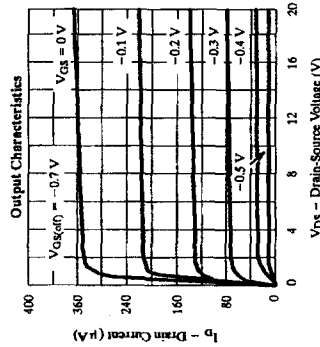
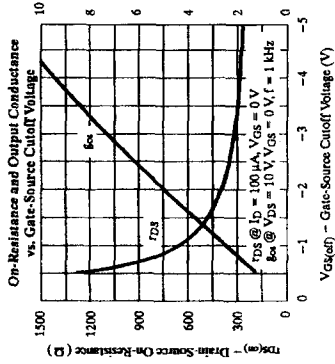
4: See 2N551484 Series for J204 typical characteristic curves.

Typical Characteristics



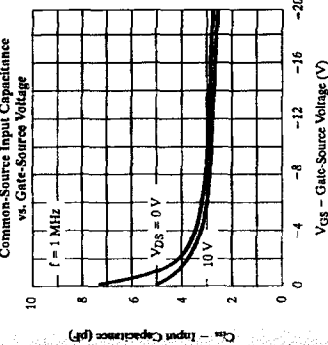
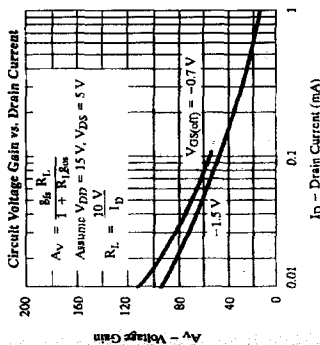
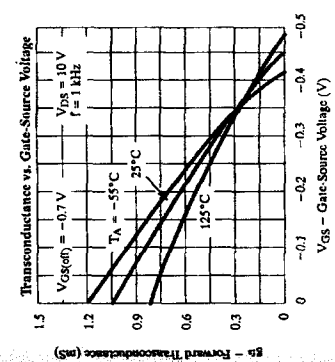
J/SST201 Series

Typical Characteristics (Cont'd)



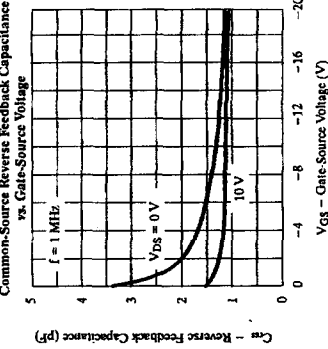
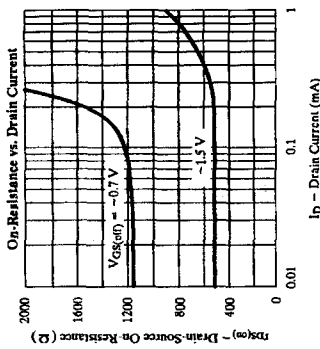
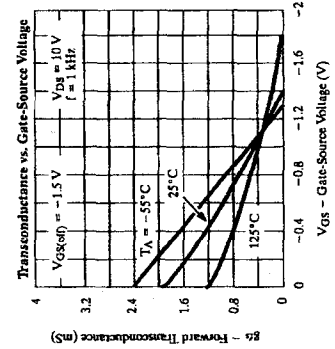
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Typical Characteristics (Cont'd)



J/SST201 Series

Typical Characteristics (Cont'd)



J/SST201 Series

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Typical Characteristics (Cont'd)

