

n-channel JFETs designed for . . .



Performance Curves NP
See Section 4

■ General Purpose Amplifiers

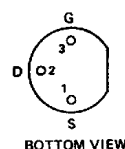
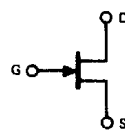
BENEFITS

- High Input Impedance
 $I_G = 35 \text{ pA Typical}$
- Good for Low Power Supply Operation
 $V_{GS(off)} < 1.5 \text{ V (E201)}$

ABSOLUTE MAXIMUM RATINGS (25°C)

Gate-Drain or Gate-Source Voltage (Note 1)	-40 V
Gate Current	50 mA
Total Device Dissipation (25°C Free-Air Temperature)	350 mW
Power Derating (to +125°C)	3.5 mW/°C
Storage Temperature Range	-55 to +125°C
Operating Temperature Range	-55 to +125°C
Lead Temperature (1/16" from case for 10 seconds)	300°C

TO-106
See Section 5



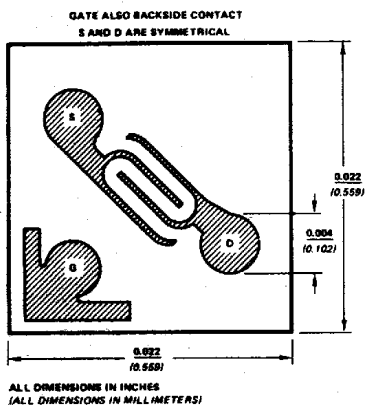
ELECTRICAL CHARACTERISTICS (25°C unless otherwise noted)

Characteristic		E201			E202			E203			Unit	Test Conditions	
		Min	Typ	Max	Min	Typ	Max	Min	Typ	Max			
1	I_{GSS} Gate Reverse Current (Note 2)			-100			-100			-100	pA	$V_{DS} = 0, V_{GS} = -20 \text{ V}$	
2	$V_{GS(off)}$ Gate-Source Cutoff Voltage	-0.3		-1.5	-0.8		-4.0	-2.0		-10.0	V	$V_{DS} = 20 \text{ V}, I_D = 10 \text{ nA}$	
3	BV_{GSS} Gate-Source Breakdown Voltage	-40			-40			-40				$V_{DS} = 0, I_G = -1 \mu\text{A}$	
4	I_{DSS} Saturation Drain Current (Note 3)	0.2		1.0	0.9		4.5	4.0		20	mA	$V_{DS} = 20 \text{ V}, V_{GS} = 0$	
5	I_G Gate Current (Note 2)		-35			-35			-35		pA	$V_{DG} = 20 \text{ V}, I_D = I_{DSS(min)}$	
6	g_{fs} Common-Source Forward Transconductance (Note 3)	500			1,000			1,500			μmho	$V_{DS} = 20 \text{ V}, V_{GS} = 0$	$f = 1 \text{ kHz}$
7	g_{os} Common-Source Output Conductance		1			3.5			10				
8	C_{iss} Common-Source Input Capacitance		5			5			5		pF		$f = 1 \text{ MHz}$
9	C_{rss} Common-Source Reverse Transfer Capacitance		2			2			2				
10	$\bar{e}_n$ Equivalent Short-Circuit Input Noise Voltage		5			5			5		$\frac{nV}{\sqrt{Hz}}$	$V_{DS} = 10 \text{ V}, V_{GS} = 0$	$f = 1 \text{ kHz}$

NOTES:

1. Geometry is symmetrical. Units may be operated with source and drain leads interchanged.
2. Approximately doubles for every 10°C increase in T_A .
3. Pulse test duration - 2 ms.

NP



n-channel JFET designed for . . .

- Small Signal Amplifiers
- Choppers
- Voltage-Controlled Resistors

TYPE	PACKAGE
Single	TO-18
Single	TO-106
Single	Chip



BENEFITS:

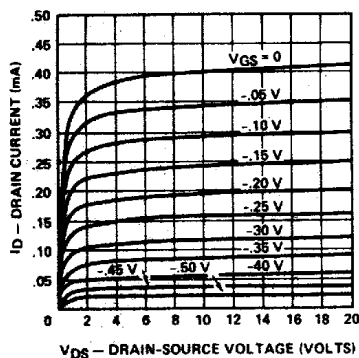
- Low Noise $NF < 1$ dB at 1 kHz
- Operation From Low Power Supply Voltages, $V_{GS(off)} < 1$ V (2N4338)
- High Off-Isolation As a Switch
 $I_{D(off)} < 50$ pA
- High Input Impedance

PRINCIPAL DEVICES

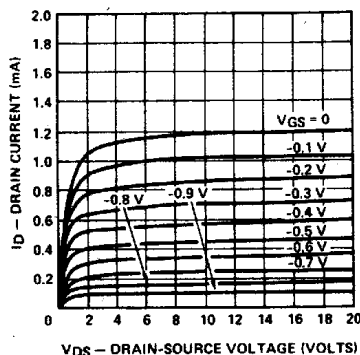
2N3368-70, 2N3436-8, 2N3458-60,
2N4338-41, VCR4N
2N4302-4, E201-4
All of the above

PERFORMANCE CURVES (25°C unless otherwise noted)

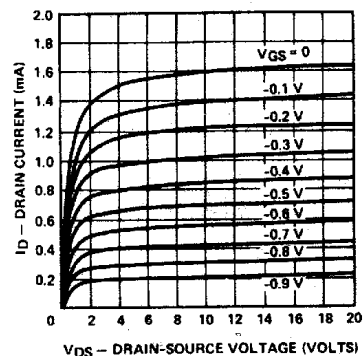
Output Characteristic



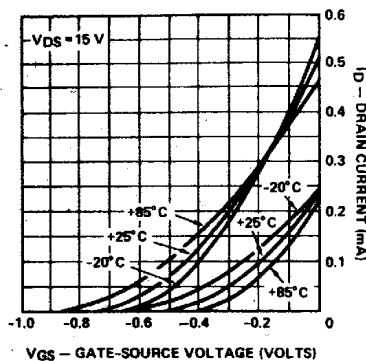
Output Characteristic



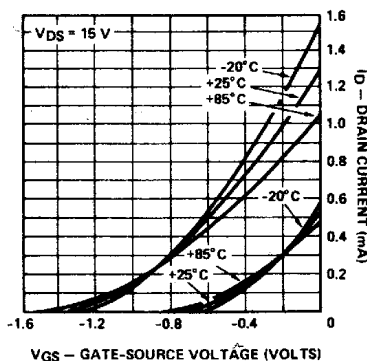
Output Characteristic



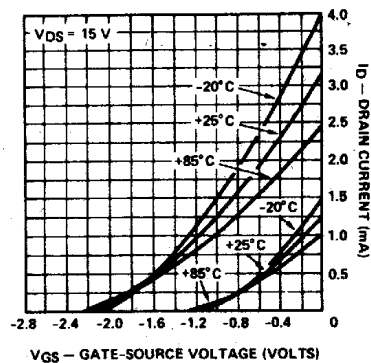
Transfer Characteristics



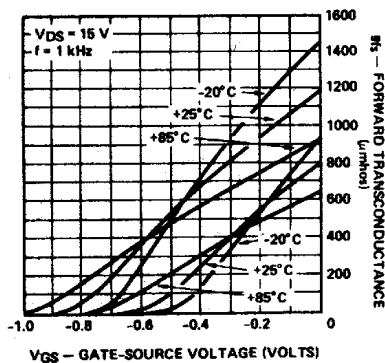
Transfer Characteristics



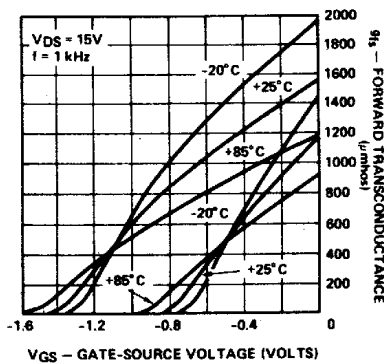
Transfer Characteristics



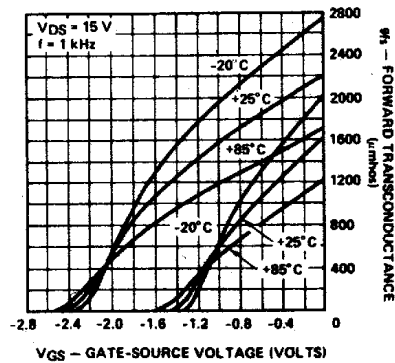
Transconductance Characteristics



Transconductance Characteristics

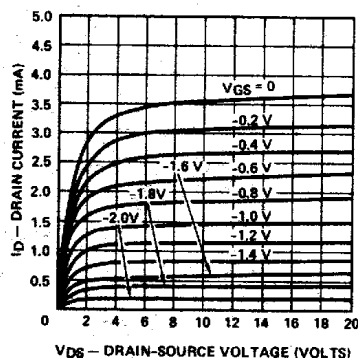


Transconductance Characteristics

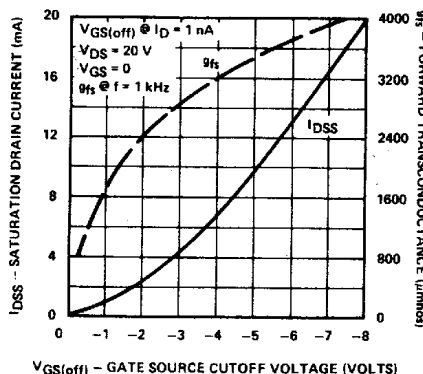


PERFORMANCE CURVES (Cont'd) (25°C unless otherwise noted)

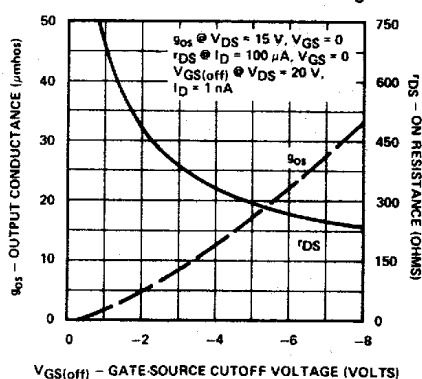
Output Characteristic



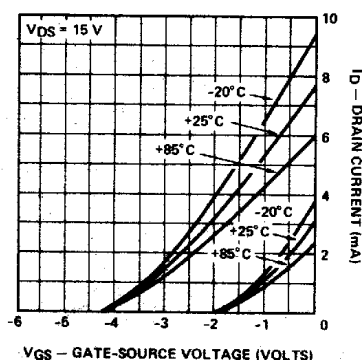
Drain Current and Transconductance vs Gate-Source Cutoff Voltage



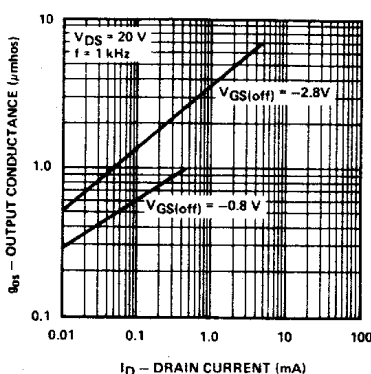
ON Resistance & Output Conductance vs Gate-Source Cutoff Voltage



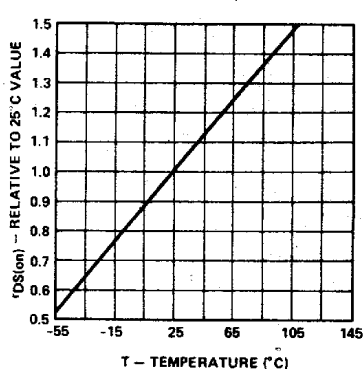
Transfer Characteristics



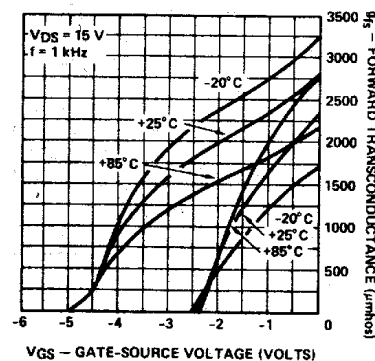
Common-Source Output Conductance vs Drain Current



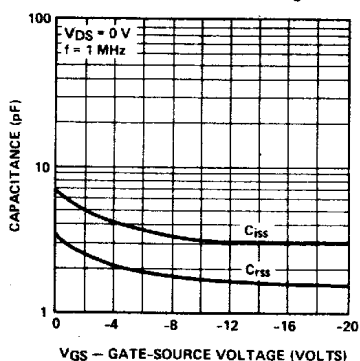
ON Resistance vs Ambient Temperature



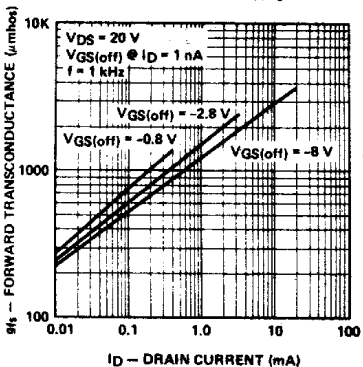
Transconductance Characteristics



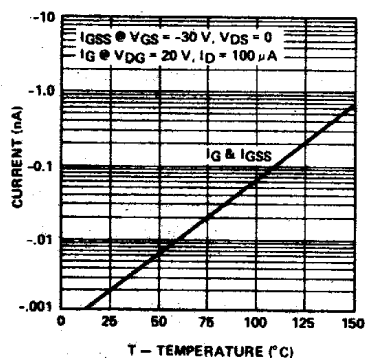
Common-Source Capacitances vs Gate-Source Voltage



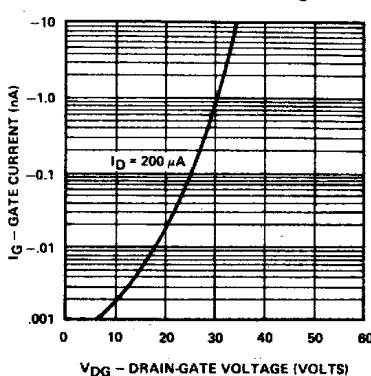
Common-Source Forward Transconductance vs Drain Current



Gate Currents vs Ambient Temperature



Gate Operating Current vs Drain-Gate Voltage



Equivalent Input Noise Voltage and Noise Current vs Frequency

