n-channel JFET
designed for . . .

- **VHF/UHF Amplifiers**
- **Mixers**
- **Oscillators**

Siliconix

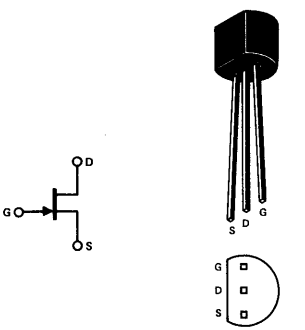
Performance Curves NRL
See Section 4

BENEFITS

- Low Cost
- Automatic Insertion Package

TO-92
See Section 6

Plastic



Bottom View

ABSOLUTE MAXIMUM RATINGS (25°C)

Drain-Gate Voltage . . . . . 25 V
Source-Gate Voltage . . . . . 25 V
Drain-Source Voltage. . . . . 25 V
Forward Gate Current. . . . . 10 mA
Total Device Dissipation at 25°C Ambient
(Derate 3.27 mW/°C). . . . . 360 mW
Operating Temperature Range. . . . . –55 to 135°C
Storage Temperature Range. . . . . –55 to 150°C
Lead Temperature Range
(1/16" from case for 10 seconds) . . . . . 300°C

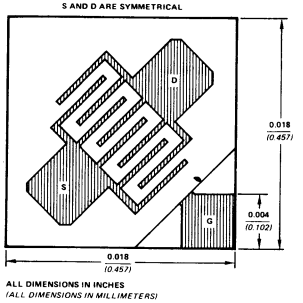
ELECTRICAL CHARACTERISTICS (25°C unless otherwise noted)

		Characteristic		Min	Typ	Max	Unit	Test Conditions	
1	STATIC	I_{GSS}	Gate Reverse Current		–0.01	–100	nA	V_{GS} = –10 V, V_{DS} = 0	
2	STATIC	BV_{GSS}	Gate-Source Breakdown Voltage	–25			V	I_G = –10 μA, V_{DS} = 0	
3	STATIC	$V_{GS(off)}$	Gate-Source Cutoff Voltage	–0.5		–10.0	V	V_{DS} = 10 V, I_D = 1 μA	
4	STATIC	I_{DSS}	Saturation Drain Current	1		25	mA	V_{DS} = 10 V, V_{GS} = 0, (Note 1)	
5	STATIC	g_{fs}	Common-Source Forward Transconductance	1000		7500	μmho	V_{DS} = 10 V, V_{GS} = 0	f = 1 kHz
6	DYN	$Re_{(y_{fs})}$	Common-Source Forward Transconductance	800			μmho	V_{DS} = 10 V, V_{GS} = 0	f = 100 MHz
7	DYN	C_{iss}	Common-Source Input Capacitance		3.5		pF	V_{DS} = 10 V, V_{GS} = 0	f = 1 MHz
8	DYN	C_{rss}	Common-Source Reverse Transfer Capacitance		0.85		pF	V_{DS} = 10 V, V_{GS} = 0	f = 1 MHz

NOTE:
1. Pulse test PW = 300 μs, duty cycle ≤ 3%.

NRL

3



n-channel JFET
designed for . . .

- Small Signal Amplifiers
- VHF Amplifiers
- Oscillators
- Mixers
- Switches

Siliconix

BENEFITS:

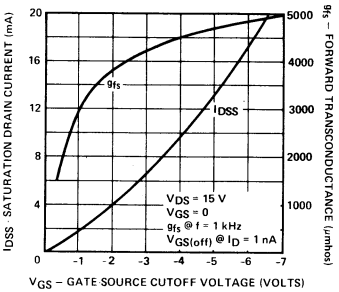
- Wide Input Dynamic Range
  High I_G Breakpoint Voltage
- High Gain
- Low Insertion Loss Switches

TYPE	PACKAGE
Single	TO-72
Single	TO-92
Single	Chip

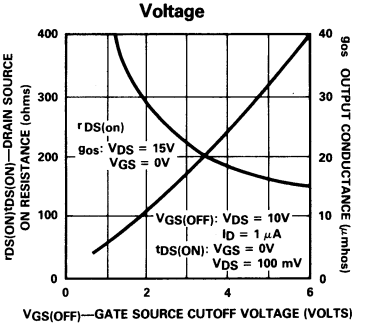
PRINCIPAL DEVICES
2N3821-4, 2N3921-22, 2N4220-2
2N4220A-2A, 2N4223-24
2N3819, 2N5457-9
MPF109, MPF111, MPF102, MPF108, MPF112
All of the above

PERFORMANCE CURVES (25°C unless otherwise noted)

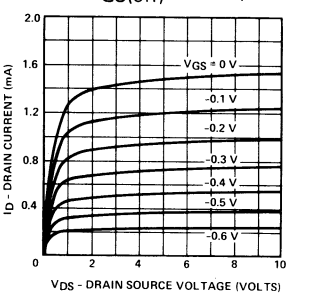
Drain Current & Transconductance vs Gate-Source Cutoff Voltage



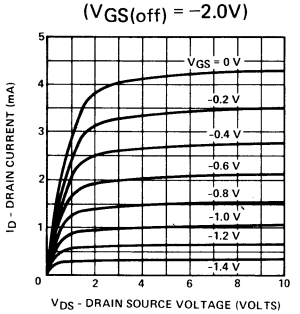
On Resistance & Output Conductance vs Gate-Source Cutoff Voltage



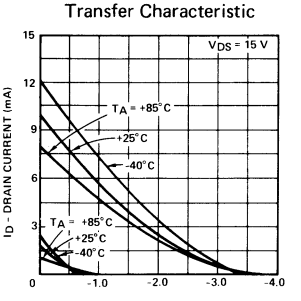
Output Characteristic ($V_{GS(off)}$ = −0.8V)



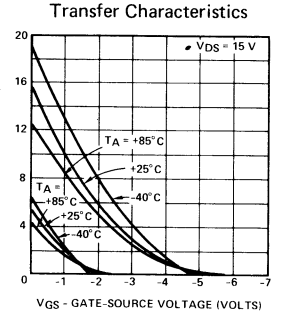
Output Characteristic ($V_{GS(off)}$ = −2.0V)



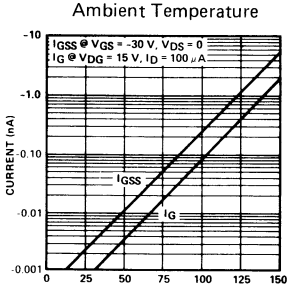
Transfer Characteristic



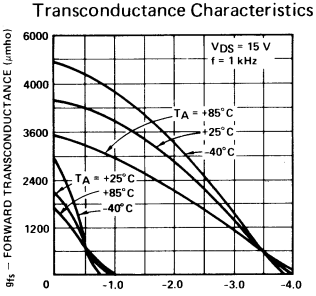
Transfer Characteristics



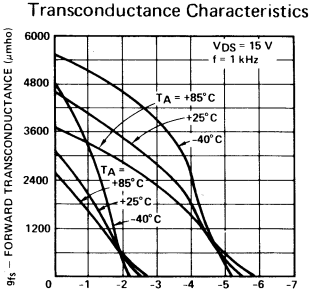
Leakage Currents vs Ambient Temperature



Transconductance Characteristics

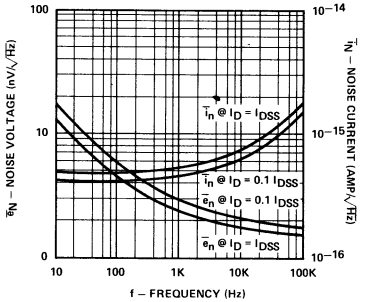


Transconductance Characteristics

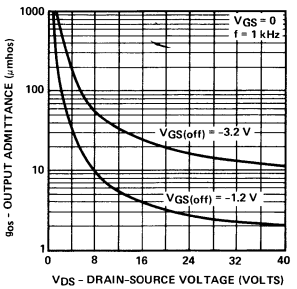


PERFORMANCE CURVES (Con't) (25°C unless otherwise noted)

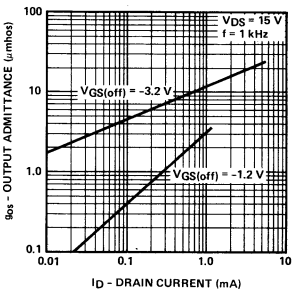
Equivalent Input Noise Voltage and Noise Current vs Frequency



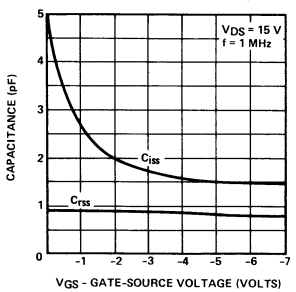
Common-Source Output Admittance vs Drain-Source Voltage



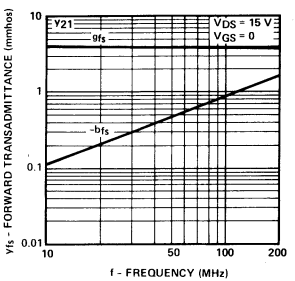
Common-Source Output Admittance vs Drain Current



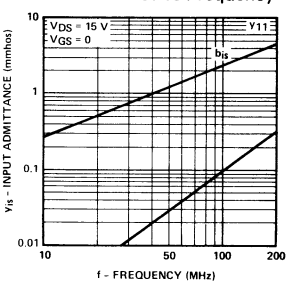
Common-Source Capacitances vs Gate-Source Voltage



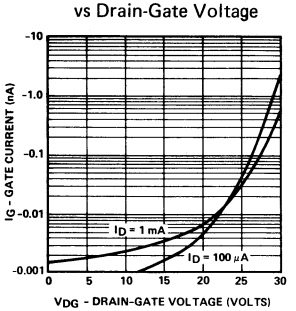
Common-Source Forward Transadmittance vs Frequency



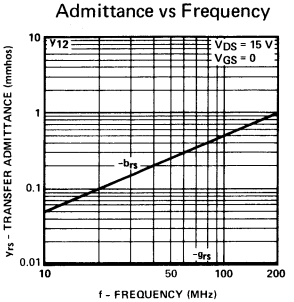
Common-Source Input Admittance vs Frequency



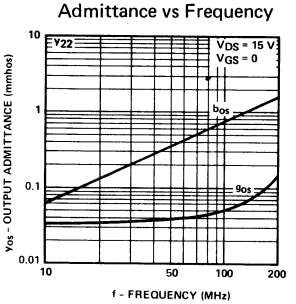
Gate Operating Current vs Drain-Gate Voltage



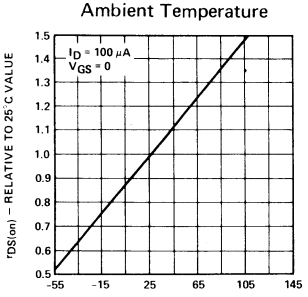
Common-Source Reverse Transfer Admittance vs Frequency



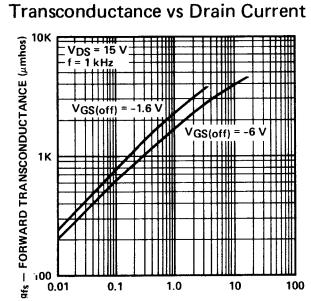
Common-Source Output Admittance vs Frequency



'ON' Resistance vs Ambient Temperature



Common-Source Forward Transconductance vs Drain Current



Drain Current and Transconductance vs Ambient Temperature