

# n-channel JFET designed for . . .



U311

- VHF Amplifiers
- Oscillators
- Mixers

**Performance Curves NZA**  
See Section 5

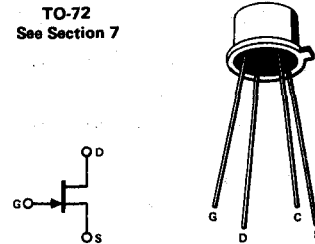
**BENEFITS**

- High Power Gain  
16 dB Typ @ 105 MHz, Common-Gate  
11 dB Typ @ 450 MHz, Common-Gate
- Low Noise Figure  
1.5 dB Typ @ 105 MHz  
2.7 dB Typ @ 450 MHz
- Wide Dynamic Range—Greater than 100 dB

**ABSOLUTE MAXIMUM RATINGS (25°C)**

Gate-Drain or Gate-Source Voltage . . . . . -25 V  
 Gate Current . . . . . 10 mA  
 Total Device Dissipation (Derate 1.7 mW/°C) . . . . . 300 mW  
 Storage Temperature Range . . . . . -65 to +200°C  
 Lead Temperature  
 (1/16" from case for 10 seconds) . . . . . 300°C

TO-72  
See Section 7



**ELECTRICAL CHARACTERISTICS (25°C unless otherwise noted)**

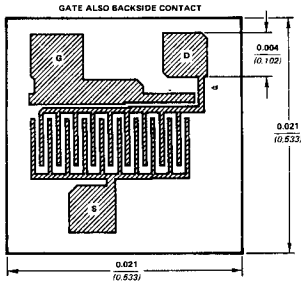
Characteristic		Min	Max	Unit	Test Conditions	
1 2	I <sub>GSS</sub> Gate Reverse Current		-150	pA	V <sub>GS</sub> = -15 V, V <sub>DS</sub> = 0	150°C
			-150	nA		
3 4	BV <sub>GSS</sub> Gate-Source Breakdown Voltage	-25		V	I <sub>G</sub> = -1 μA, V <sub>DS</sub> = 0	
	V <sub>GS(off)</sub> Gate-Source Cutoff Voltage	-1	-6		V <sub>DS</sub> = 10 V, I <sub>D</sub> = 1 nA	
5	I <sub>DSS</sub> Saturation Drain Current (Note 1)	20	60	mA	V <sub>DS</sub> = 10 V, V <sub>GS</sub> = 0	
6	V <sub>GS(f)</sub> Gate-Source Forward Voltage		?	V	I <sub>G</sub> = 1 mA, V <sub>DS</sub> = 0	
7 8	g <sub>fg</sub> Common-Gate Forward Transconductance (Note 1)	10,000	20,000	μmho	V <sub>DS</sub> = 10 V, I <sub>D</sub> = 10 mA	f = 1 kHz
	g <sub>og</sub> Common-Gate Output Conductance		200			
9	C <sub>gd</sub> Gate-Drain Capacitance		2.5	pF	V <sub>DG</sub> = 10 V, I <sub>D</sub> = 5 mA	f = 1 MHz
10	C <sub>gs</sub> Gate-Source Capacitance		5.0			

**NOTE:**  
1. Pulse test duration = 2 ms.

NZA

3

Siliconix



ALL DIMENSIONS IN INCHES  
(ALL DIMENSIONS IN MILLIMETERS)

## n-channel JFET designed for . . .

- VHF/UHF Amplifiers
- Front End High Sensitivity Amplifiers
- Oscillators
- Mixers



### BENEFITS

- Industry Standard
- High Power Gain  
16 dB at 100 MHz, Common Gate  
11 dB at 450 MHz, Common Gate
- Low Noise  
3 dB Noise Figure at 450 MHz
- Wide Dynamic Range  
Greater Than 100 dB
- 75 Ohm Input Match Common Gate

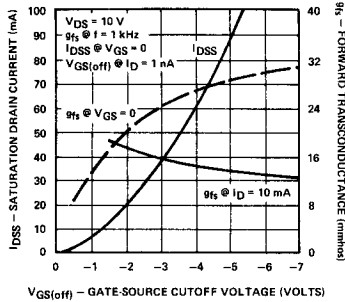
TYPE	PACKAGE
Single	TO-52
Single	TO-72
Single	TO-92
Dual	TO-99
Single	TO-92 Lead-form
Single	Chip
Dual	Chip

### PRINCIPAL DEVICES

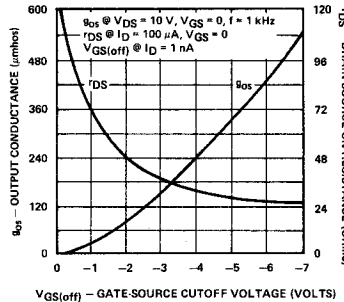
- U308-10
- U311
- J308-10
- U430-1
- K308-18 -310-18
- J308CHP-10CHP,
- U308CHP-10CHP, U311CHP
- U430CHP-1CHP

## PERFORMANCE CURVES (25°C unless otherwise noted)

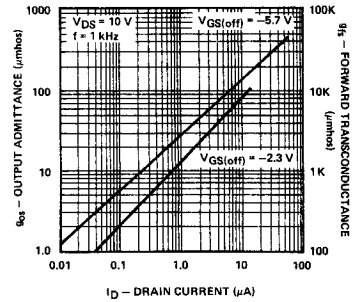
### Drain Current & Transconductance vs Gate-Source Cutoff Voltage



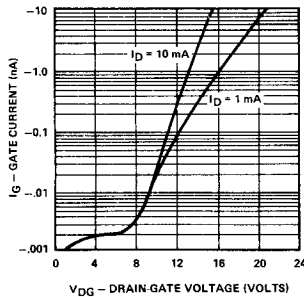
### ON Resistance & Output Conductance vs Gate-Source Cutoff Voltage



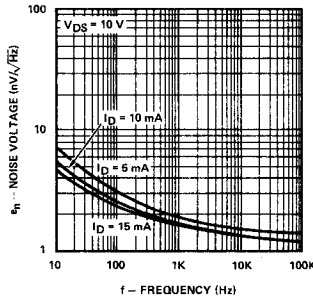
### Common-Source Output Conductance vs Drain Current



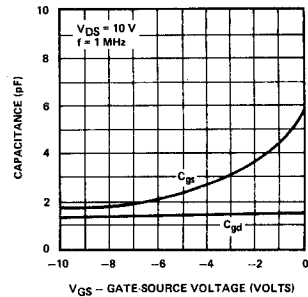
### Gate Operating Current vs Drain-Gate Voltage



### Equivalent Input Noise Voltage vs Frequency

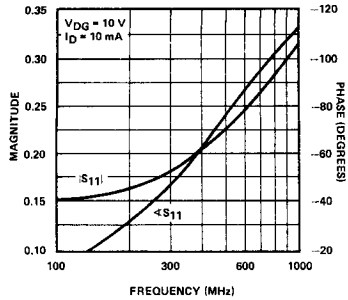


### Junction Capacitance vs Gate-Source Voltage

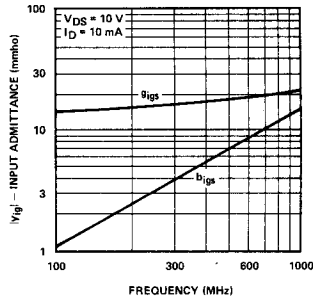


PERFORMANCE CURVES (Con't) (25°C unless otherwise noted)

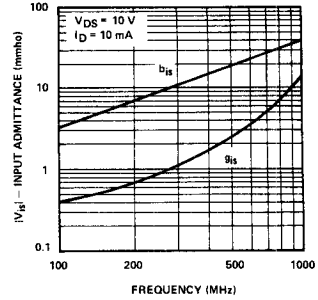
Forward Reflection Coefficient  
Common Gate



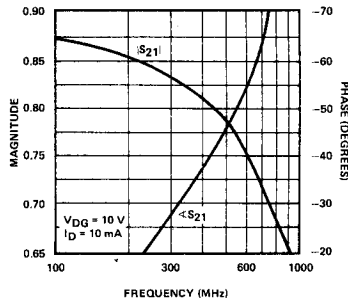
Input Admittance Common Gate



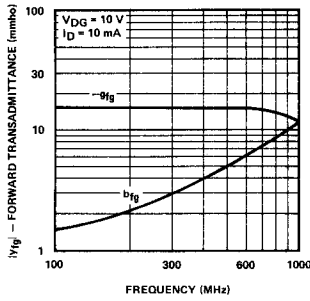
Input Admittance Common Source



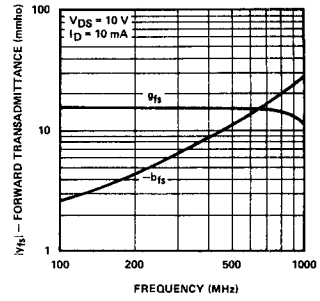
Forward Transmission Coefficient  
Common Gate



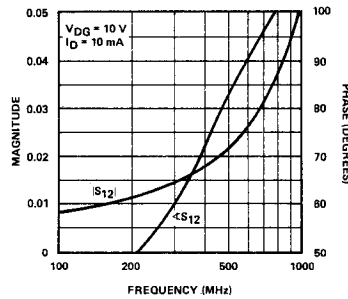
Forward Transfer Admittance  
Common Gate



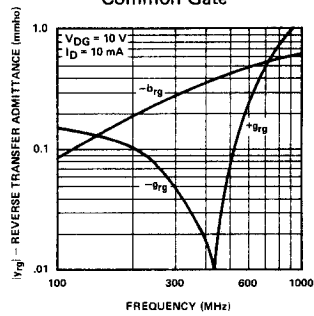
Forward Transfer Admittance  
Common Source



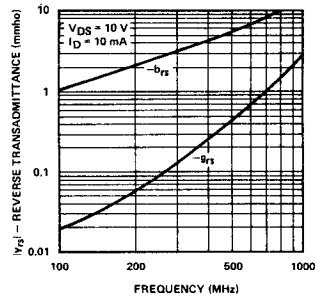
Reverse Transmission Coefficient  
Common Gate



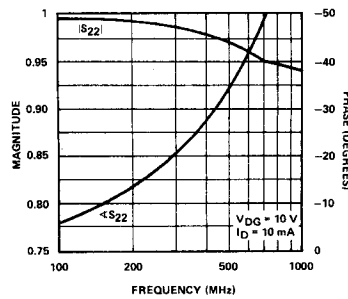
Reverse Transfer Admittance  
Common Gate



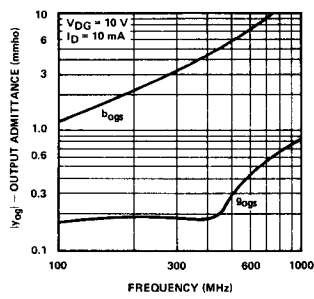
Reverse Transfer Admittance  
Common Source



Reverse Reflection Coefficient  
Common Gate



Output Admittance Common Gate



Output Admittance Common Source

