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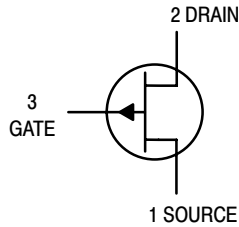
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# JFET Amplifiers

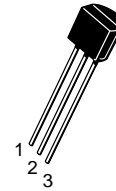
## P-Channel — Depletion



**2N5460**  
**2N5461**  
**2N5462**

### MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Drain–Gate Voltage	$V_{DG}$	40	Vdc
Reverse Gate–Source Voltage	$V_{GSR}$	40	Vdc
Forward Gate Current	$I_{G(f)}$	10	mAdc
Total Device Dissipation @ $T_A = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	350 2.8	mW mW/ $^\circ\text{C}$
Junction Temperature Range	$T_J$	-65 to +135	$^\circ\text{C}$
Storage Channel Temperature Range	$T_{stg}$	-65 to +150	$^\circ\text{C}$



CASE 29-11, STYLE 7  
 TO-92 (TO-226AA)

### ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
<b>OFF CHARACTERISTICS</b>					
Gate–Source Breakdown Voltage ( $I_G = 10 \mu\text{Adc}$ , $V_{DS} = 0$ )	$V_{(BR)GSS}$	40	—	—	Vdc
Gate Reverse Current ( $V_{GS} = 20 \text{ Vdc}$ , $V_{DS} = 0$ )	$I_{GSS}$	—	—	5.0	nAdc
( $V_{GS} = 30 \text{ Vdc}$ , $V_{DS} = 0$ )		—	—	1.0	$\mu\text{Adc}$
( $V_{GS} = 20 \text{ Vdc}$ , $V_{DS} = 0$ , $T_A = 100^\circ\text{C}$ )		—	—	1.0	$\mu\text{Adc}$
( $V_{GS} = 30 \text{ Vdc}$ , $V_{DS} = 0$ , $T_A = 100^\circ\text{C}$ )		—	—	1.0	$\mu\text{Adc}$
Gate–Source Cutoff Voltage ( $V_{DS} = 15 \text{ Vdc}$ , $I_D = 1.0 \mu\text{Adc}$ )	$V_{GS(off)}$	0.75 1.0 1.8	— — —	6.0 7.5 9.0	Vdc
Gate–Source Voltage ( $V_{DS} = 15 \text{ Vdc}$ , $I_D = 0.1 \text{ mAdc}$ )	$V_{GS}$	0.5	—	4.0	Vdc
( $V_{DS} = 15 \text{ Vdc}$ , $I_D = 0.2 \text{ mAdc}$ )		0.8	—	4.5	Vdc
( $V_{DS} = 15 \text{ Vdc}$ , $I_D = 0.4 \text{ mAdc}$ )		1.5	—	6.0	Vdc

## 2N5460 2N5461 2N5462

### ELECTRICAL CHARACTERISTICS (T<sub>A</sub> = 25°C unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
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#### ON CHARACTERISTICS

Zero-Gate-Voltage Drain Current (V <sub>DS</sub> = 15 Vdc, V <sub>GS</sub> = 0, f = 1.0 kHz)	2N5460 2N5461 2N5462	I <sub>DSS</sub>	-1.0 -2.0 -4.0	— — —	-5.0 -9.0 -16	mAdc
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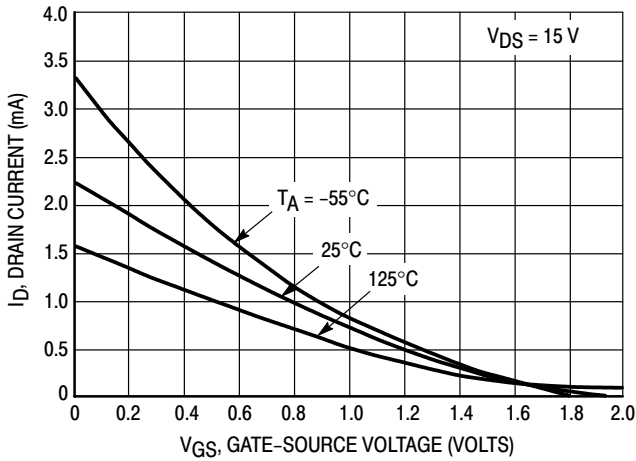
#### SMALL-SIGNAL CHARACTERISTICS

Forward Transfer Admittance (V <sub>DS</sub> = 15 Vdc, V <sub>GS</sub> = 0, f = 1.0 kHz)	2N5460 2N5461 2N5462	y <sub>fs</sub>	1000 1500 2000	— — —	4000 5000 6000	μmhos
Output Admittance (V <sub>DS</sub> = 15 Vdc, V <sub>GS</sub> = 0, f = 1.0 kHz)		y <sub>os</sub>	—	—	75	μmhos
Input Capacitance (V <sub>DS</sub> = 15 Vdc, V <sub>GS</sub> = 0, f = 1.0 MHz)		C <sub>iSS</sub>	—	5.0	7.0	pF
Reverse Transfer Capacitance (V <sub>DS</sub> = 15 Vdc, V <sub>GS</sub> = 0, f = 1.0 MHz)		C <sub>rSS</sub>	—	1.0	2.0	pF

#### FUNCTIONAL CHARACTERISTICS

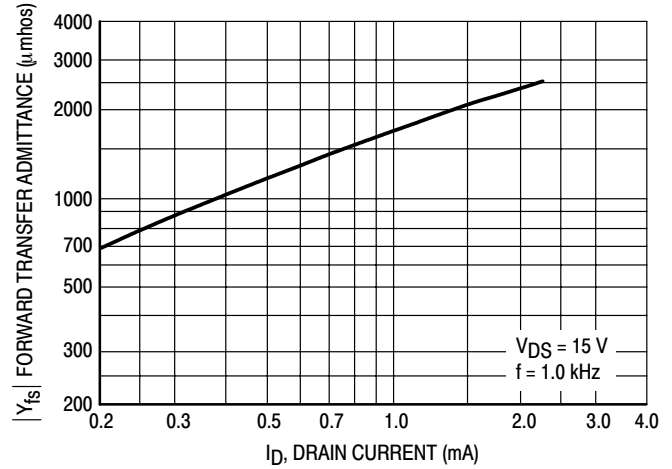
Equivalent Short-Circuit Input Noise Voltage (V <sub>DS</sub> = 15 Vdc, V <sub>GS</sub> = 0, f = 100 Hz, BW = 1.0 Hz)		e <sub>n</sub>	—	60	115	nV/√Hz
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**DRAIN CURRENT versus GATE SOURCE VOLTAGE**

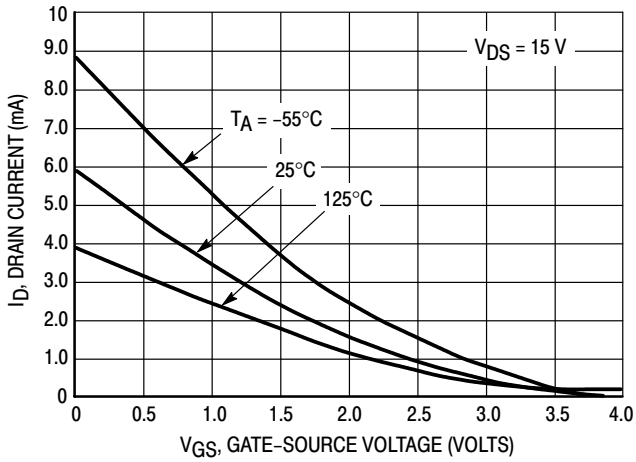


**Figure 1.  $V_{GS(off)} = 2.0$  Volts**

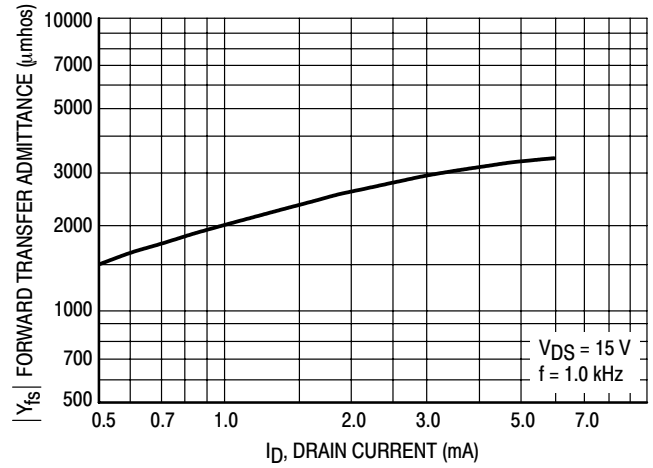
**FORWARD TRANSFER ADMITTANCE versus DRAIN CURRENT**



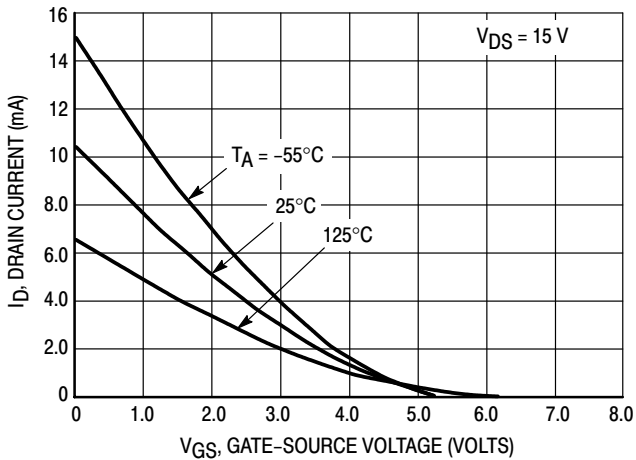
**Figure 4.  $V_{GS(off)} = 2.0$  Volts**



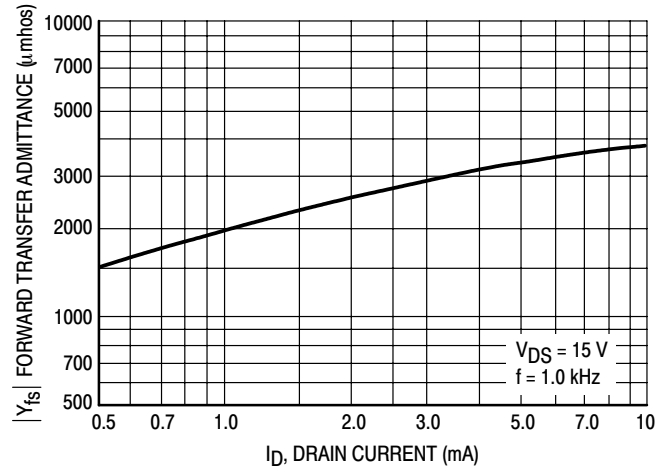
**Figure 2.  $V_{GS(off)} = 4.0$  Volts**



**Figure 5.  $V_{GS(off)} = 4.0$  Volts**



**Figure 3.  $V_{GS(off)} = 5.0$  Volts**



**Figure 6.  $V_{GS(off)} = 5.0$  Volts**

2N5460 2N5461 2N5462

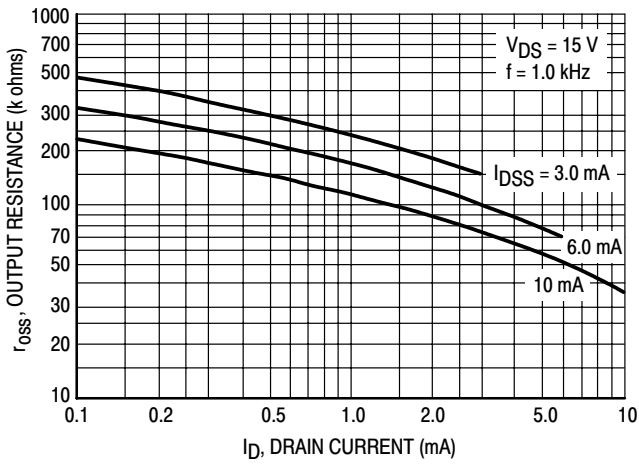


Figure 7. Output Resistance versus Drain Current

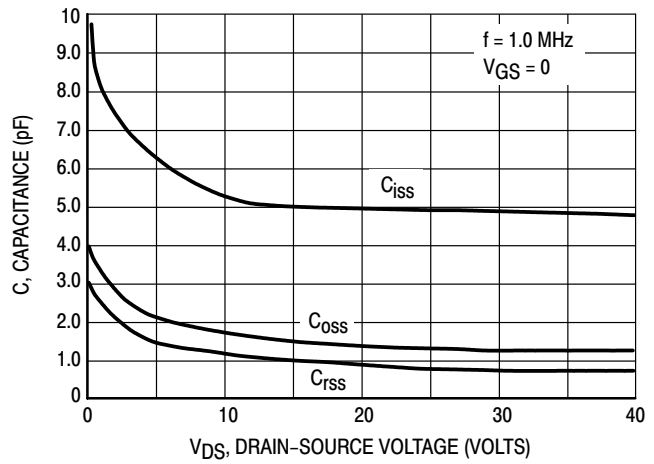


Figure 8. Capacitance versus Drain-Source Voltage

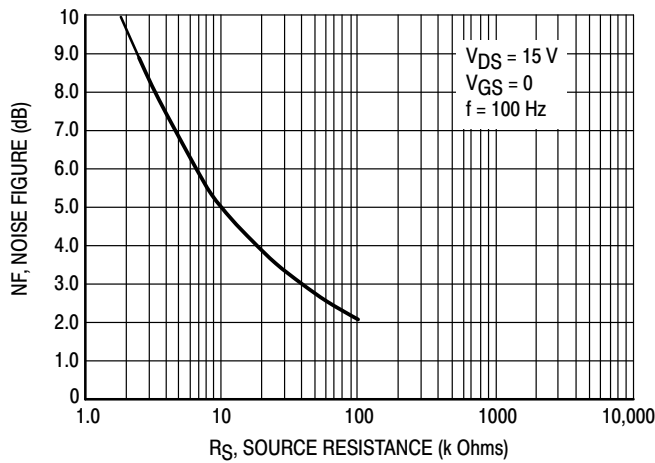
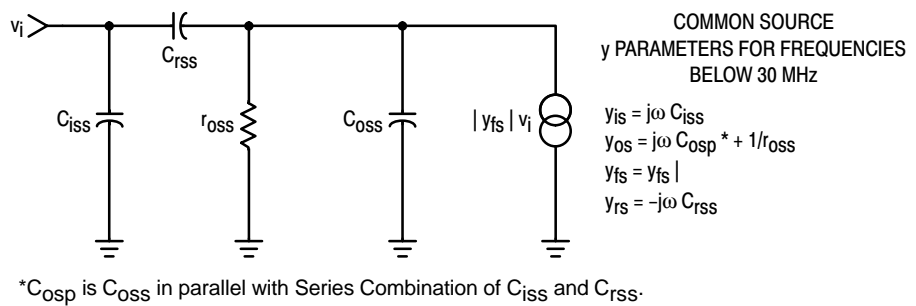


Figure 9. Noise Figure versus Source Resistance



NOTE:

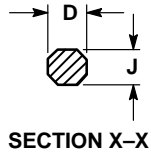
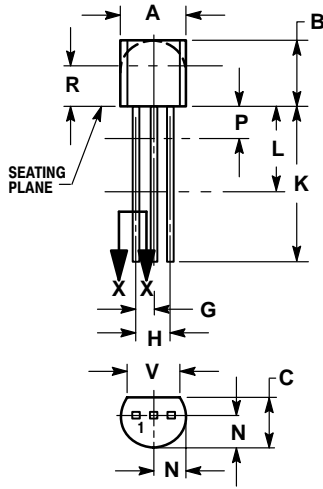
- Graphical data is presented for dc conditions. Tabular data is given for pulsed conditions (Pulse Width = 630 ms, Duty Cycle = 10%).

Figure 10. Equivalent Low Frequency Circuit

# 2N5460 2N5461 2N5462

## PACKAGE DIMENSIONS

TO-92 (TO-226AA)  
CASE 29-11  
ISSUE AL



STYLE 7:  
PIN 1. SOURCE  
2. DRAIN  
3. GATE

NOTES:


1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. CONTOUR OF PACKAGE BEYOND DIMENSION R IS UNCONTROLLED.
4. LEAD DIMENSION IS UNCONTROLLED IN P AND BEYOND DIMENSION K MINIMUM.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.175	0.205	4.45	5.20
B	0.170	0.210	4.32	5.33
C	0.125	0.165	3.18	4.19
D	0.016	0.021	0.407	0.533
G	0.045	0.055	1.15	1.39
H	0.095	0.105	2.42	2.66
J	0.015	0.020	0.39	0.50
K	0.500	---	12.70	---
L	0.250	---	6.35	---
N	0.080	0.105	2.04	2.66
P	---	0.100	---	2.54
R	0.115	---	2.93	---
V	0.135	---	3.43	---

## Notes

## Notes



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