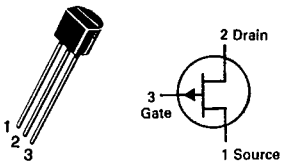
2N5460 thru 2N5465

CASE 29-04, STYLE 7
TO-92 (TO-226AA)



JFET AMPLIFIERS

P-CHANNEL — DEPLETION

MAXIMUM RATINGS

Rating	Symbol	2N5460 2N5461 2N5462	2N5463 2N5464 2N5465	Unit
Drain-Gate Voltage	V_{DG}	40	60	Vdc
Reverse Gate-Source Voltage	V_{GSR}	40	60	Vdc
Forward Gate Current	$I_{G(f)}$	10		mAdc
Total Device Dissipation @ T_A = 25°C Derate above 25°C	P_D	310 2.82		mW mW/°C
Junction Temperature Range	T_J	−65 to +135		°C
Storage Channel Temperature Range	T_{stg}	−65 to +150		°C

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted.)

Characteristic		Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS						
Gate-Source Breakdown Voltage (I_G = 10 μAdc, V_{DS} = 0)	2N5460, 2N5461, 2N5462	$V_{(BR)GSS}$	40	—	—	Vdc
	2N5463, 2N5464, 2N5465		60	—	—	
Gate Reverse Current		I_{GSS}				
(V_{GS} = 20 Vdc, V_{DS} = 0)	2N5460, 2N5461, 2N5462		—	—	5.0	nAdc
(V_{GS} = 30 Vdc, V_{DS} = 0)	2N5463, 2N5464, 2N5465		—	—	5.0	
(V_{GS} = 20 Vdc, V_{DS} = 0, T_A = 100°C)	2N5460, 2N5461, 2N5462		—	—	1.0	μAdc
(V_{GS} = 30 Vdc, V_{DS} = 0, T_A = 100°C)	2N5463, 2N5464, 2N5465		—	—	1.0	
Gate Source Cutoff Voltage (V_{DS} = 15 Vdc, I_D = 1.0 μAdc)	2N5460, 2N5463	$V_{GS(off)}$	0.75	—	6.0	Vdc
	2N5461, 2N5464		1.0	—	7.5	
	2N5462, 2N5465		1.8	—	9.0	
Gate Source Voltage		V_{GS}				Vdc
(V_{DS} = 15 Vdc, I_D = 0.1 mAdc)	2N5460, 2N5463		0.5	—	4.0	
(V_{DS} = 15 Vdc, I_D = 0.2 mAdc)	2N5461, 2N5464		0.8	—	4.5	
(V_{DS} = 15 Vdc, I_D = 0.4 mAdc)	2N5462, 2N5465		1.5	—	6.0	
ON CHARACTERISTICS						
Zero-Gate-Voltage Drain Current (V_{DS} = 15 Vdc, V_{GS} = 0, f = 1.0 kHz)	2N5460, 2N5463	I_{DSS}	−1.0	—	−5.0	mAdc
	2N5461, 2N5464		−2.0	—	−9.0	
	2N5462, 2N5465		−4.0	—	−16	
SMALL-SIGNAL CHARACTERISTICS						
Forward Transfer Admittance (V_{DS} = 15 Vdc, V_{GS} = 0, f = 1.0 kHz)	2N5460, 2N5463	$\|y_{fs}\|$	1000	—	4000	μmhos
	2N5461, 2N5464		1500	—	5000	
	2N5462, 2N5465		2000	—	6000	
Output Admittance (V_{DS} = 15 Vdc, V_{GS} = 0, f = 1.0 kHz)		$\|y_{os}\|$	—	—	75	μmhos
Input Capacitance (V_{DS} = 15 Vdc, V_{GS} = 0, f = 1.0 MHz)		C_{iss}	—	5.0	7.0	pF
Reverse Transfer Capacitance (V_{DS} = 15 Vdc, V_{GS} = 0, f = 1.0 MHz)		C_{rss}	—	1.0	2.0	pF
FUNCTIONAL CHARACTERISTICS						
Noise Figure (V_{DS} = 15 Vdc, V_{GS} = 0, R_G = 1.0 Megohm, f = 100 Hz, BW = 1.0 Hz)		NF	—	1.0	2.5	dB
Equivalent Short-Circuit Input Noise Voltage (V_{DS} = 15 Vdc, V_{GS} = 0, f = 100 Hz, BW = 1.0 Hz)		e_n	—	60	115	$nV/\sqrt{Hz}$

DRAIN CURRENT versus GATE SOURCE VOLTAGE

FIGURE 1 — $V_{GS(off)}$ = 2.0 VOLTS

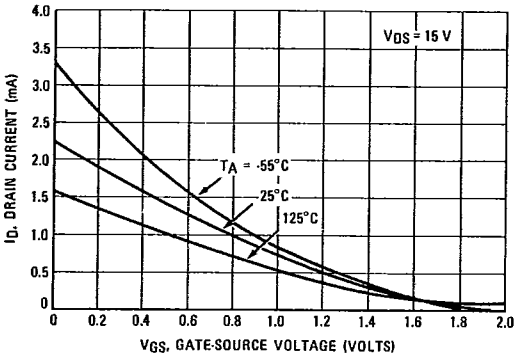


FIGURE 2 — $V_{GS(off)}$ = 4.0 VOLTS

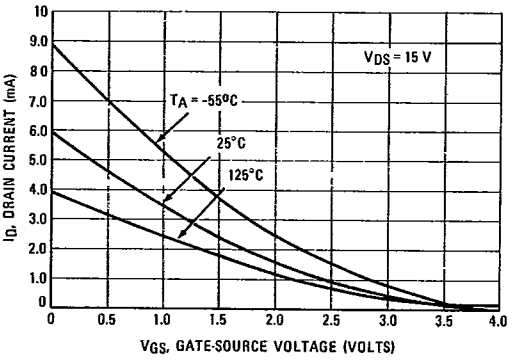
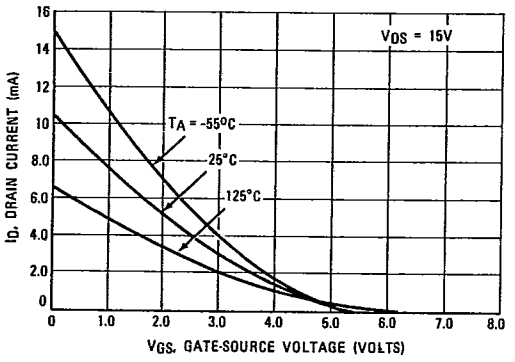


FIGURE 3 — $V_{GS(off)}$ = 5.0 VOLTS



FORWARD TRANSFER ADMITTANCE versus DRAIN CURRENT

FIGURE 4 — $V_{GS(off)}$ = 2.0 VOLTS

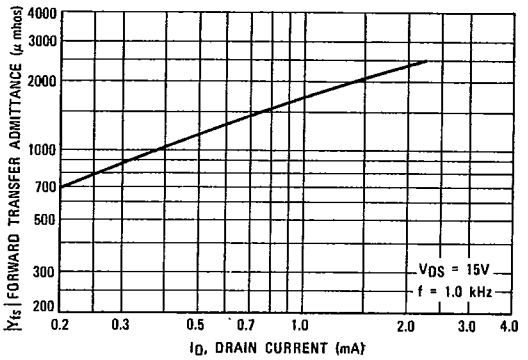


FIGURE 5 — $V_{GS(off)}$ = 4.0 VOLTS

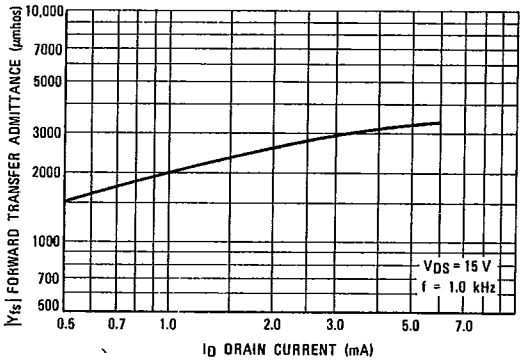


FIGURE 6 — $V_{GS(off)}$ = 5.0 VOLTS

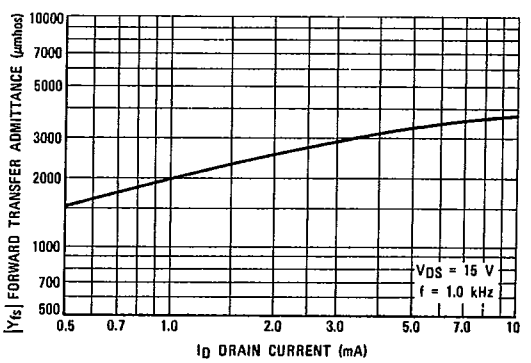


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FIGURE 7 – OUTPUT RESISTANCE VERSUS DRAIN CURRENT

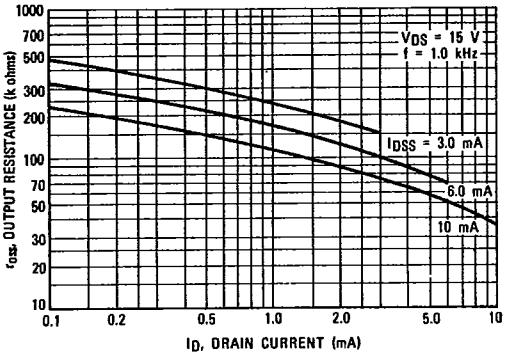


FIGURE 8 – CAPACITANCE VERSUS DRAIN-SOURCE VOLTAGE

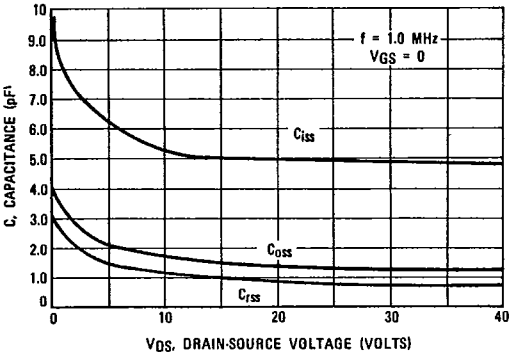


FIGURE 9 – NOISE FIGURE VERSUS FREQUENCY

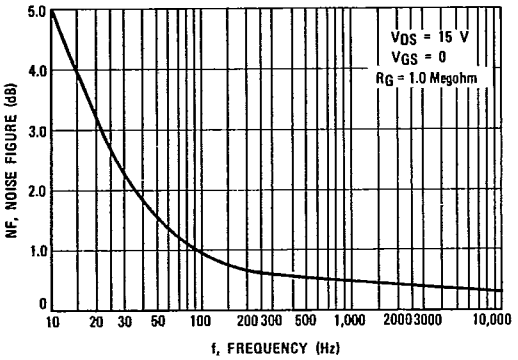


FIGURE 10 – NOISE FIGURE VERSUS SOURCE RESISTANCE

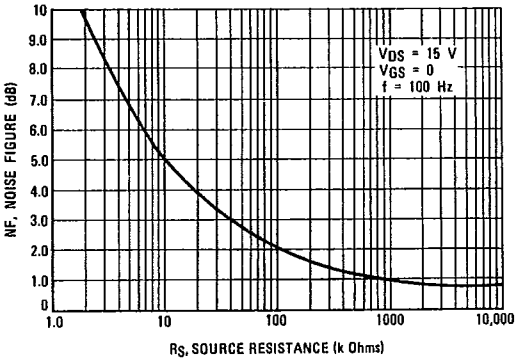
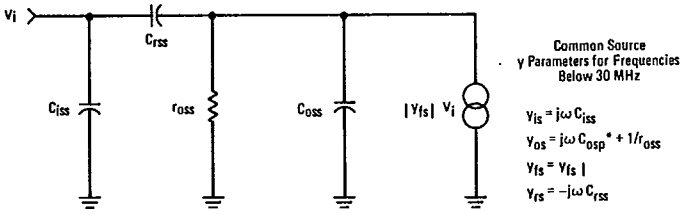


FIGURE 11 – EQUIVALENT LOW FREQUENCY CIRCUIT



Common Source
y Parameters for Frequencies Below 30 MHz

$y_{is} = j\omega C_{iss}$

$y_{os} = j\omega C_{osp}$* + $1/r_{oss}$

$y_{fs} = y_{fs}$ |

$y_{rs} = -j\omega C_{rss}$

*C_{osp} is C_{oss} in parallel with Series Combination of C_{iss} and C_{rss}.

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