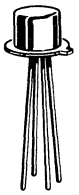
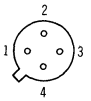
2N5358 (SILICON)
thru
2N5364

Silicon N-channel junction field-effect transistors depletion mode (Type A) devices designed primarily for general-purpose amplifier applications.



CASE 20
(TO-72)



STYLE 3
PIN 1. DRAIN
2. SOURCE
3. GATE
4. CASE LEAD

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Forward Gate Current	$I_{G(f)}$	10	mAdc
Reverse Gate-Source Voltage	$V_{GS(r)}$	40	Vdc
Drain-Gate Voltage	V_{DG}	40	Vdc
Total Device Dissipation @ T_A = 25°C Derate above 25°C	P_D	300 2.0	mW mW/°C
Storage Temperature Range	T_{stg}	-65 to +200	°C
Operating Junction Temperature Range	T_J	-65 to +175	°C

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

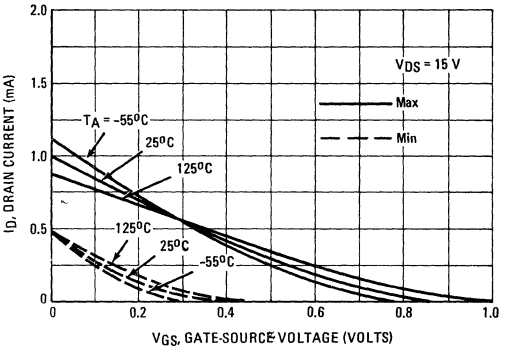
Characteristic		Symbol	Min	Max	Unit
OFF CHARACTERISTICS					
Gate-Source Breakdown Voltage (I_G = 10 μAdc, V_{DS} = 0)		$V_{(BR)GSS}$	40	-	Vdc
Gate-Source Cutoff Voltage (V_{DS} = 15 Vdc, I_D = 100 nAdc)	2N5358	$V_{GS(off)}$	0.5	3.0	Vdc
	2N5359		0.8	4.0	
	2N5360		0.8	4.0	
	2N5361		1.0	6.0	
	2N5362		2.0	7.0	
	2N5363		2.5	8.0	
	2N5364		2.5	8.0	
Gate Reverse Current (V_{GS} = 20 Vdc, V_{DS} = 0)		I_{GSS}	-	0.1	nAdc
(V_{GS} = 20 Vdc, V_{DS} = 0, T_A = 150°C)			-	0.1	μAdc

ELECTRICAL CHARACTERISTICS (continued)

Characteristic		Symbol	Min	Max	Unit
ON CHARACTERISTICS					
Zero-Gate Voltage Drain Current (V_{DS} = 15 Vdc, V_{GS} = 0)	2N5358	I_{DSS}	0.5	1.0	mAdc
	2N5359		0.8	1.6	
	2N5360		1.5	3.0	
	2N5361		2.5	5.0	
	2N5362		4.0	8.0	
	2N5363		7.0	14	
	2N5364		9.0	18	
Gate-Source Voltage (V_{DS} = 15 Vdc, I_D = 50 μAdc)	2N5358	V_{GS}	0.3	1.5	Vdc
(V_{DS} = 15 Vdc, I_D = 80 μAdc)	2N5359		0.4	2.0	
(V_{DS} = 15 Vdc, I_D = 150 μAdc)	2N5360		0.5	2.5	
(V_{DS} = 15 Vdc, I_D = 250 μAdc)	2N5361		1.0	5.0	
(V_{DS} = 15 Vdc, I_D = 400 μAdc)	2N5362		1.3	5.0	
(V_{DS} = 15 Vdc, I_D = 700 μAdc)	2N5363		2.0	6.0	
(V_{DS} = 15 Vdc, I_D = 900 μAdc)	2N5364		2.0	6.0	
SMALL-SIGNAL CHARACTERISTICS					
Forward Transadmittance (V_{DS} = 15 Vdc, V_{GS} = 0, f = 1.0 kHz)	2N5358	$\|y_{fs}\|$	1000	3000	μmhos
	2N5359		1200	3600	
	2N5360		1400	4200	
	2N5361		1500	4500	
	2N5362		2000	5500	
	2N5363		2500	6000	
	2N5364		2700	6500	
Forward Transconductance (V_{DS} = 15 Vdc, V_{GS} = 0 Vdc, f = 100 MHz)	2N5358	$Re(y_{fs})$	800	-	μmhos
	2N5359		900	-	
	2N5360		1400	-	
	2N5361		1700	-	
	2N5362		1900	-	
	2N5363		2100	-	
	2N5364		2200	-	
Output Admittance (V_{DS} = 15 Vdc, V_{GS} = 0, f = 1.0 kHz)	2N5358, 2N5359	$\|y_{os}\|$	-	10	μmhos
	2N5360, 2N5361			20	
	2N5362, 2N5363			40	
	2N5364			60	
Input Capacitance (V_{DS} = 15 Vdc, V_{GS} = 0, f = 1.0 MHz)		C_{iss}	-	6.0	pF
Reverse Transfer Capacitance (V_{DS} = 15 Vdc, V_{GS} = 0, f = 1.0 MHz)		C_{rss}	-	2.0	pF
Common-Source Noise Figure (V_{DS} = 15 Vdc, V_{GS} = 0, R_G = 1.0 Megohm, f = 100 Hz, BW = 1.0 Hz)		NF	-	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	-	115	$nV/\sqrt{Hz}$

DRAIN CURRENT versus GATE SOURCE VOLTAGE

FIGURE 1 – 2N5358



FORWARD TRANSFER ADMITTANCE versus DRAIN CURRENT

FIGURE 2 – 2N5358

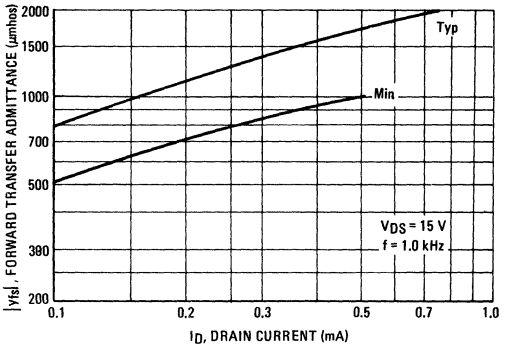


FIGURE 3 – 2N5359

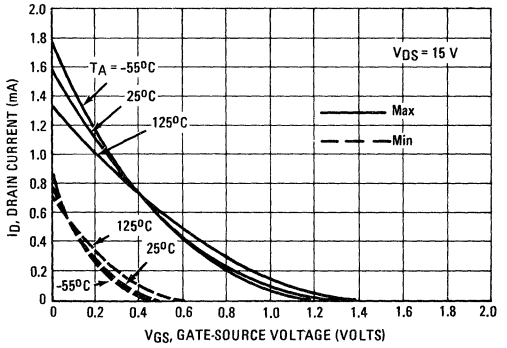


FIGURE 4 – 2N5359

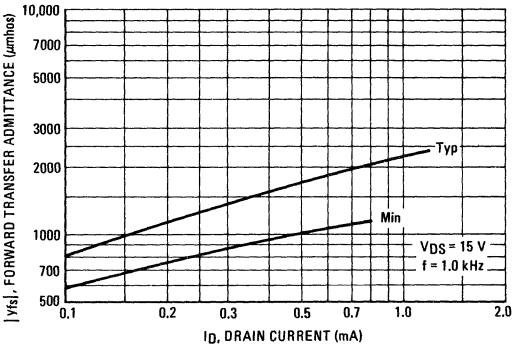


FIGURE 5 – 2N5360

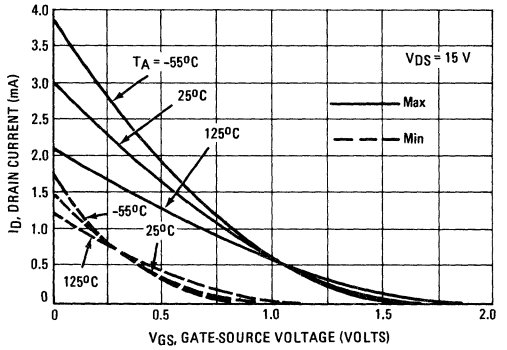
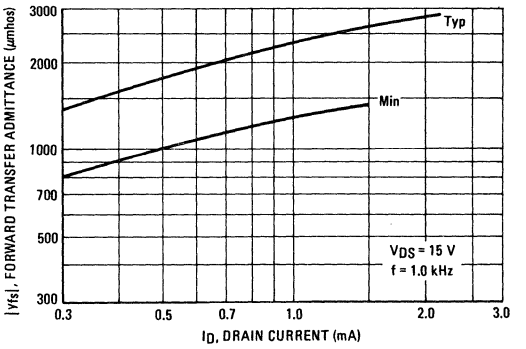
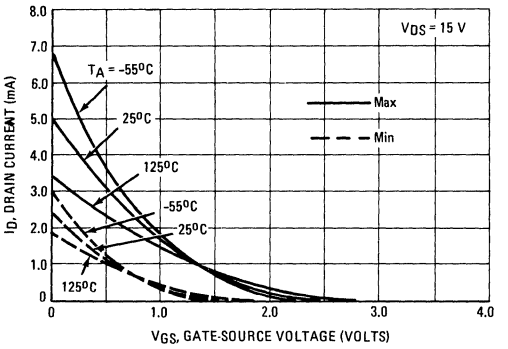


FIGURE 6 – 2N5360



DRAIN CURRENT versus GATE SOURCE VOLTAGE
FIGURE 7 – 2N5361



FORWARD TRANSFER ADMITTANCE versus DRAIN CURRENT
FIGURE 8 – 2N5361

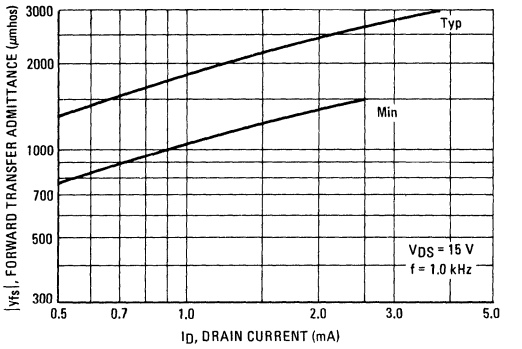


FIGURE 9 – 2N5362

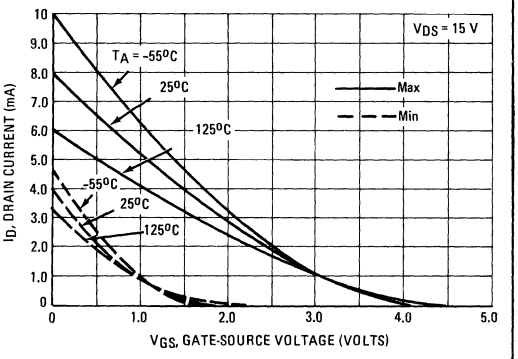


FIGURE 10 – 2N5362

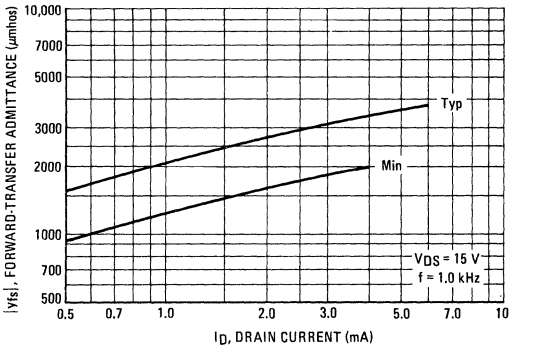


FIGURE 11 – 2N5363

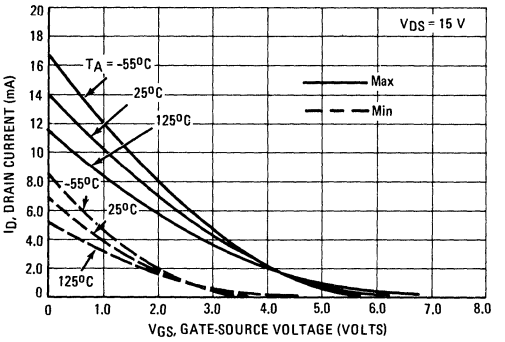
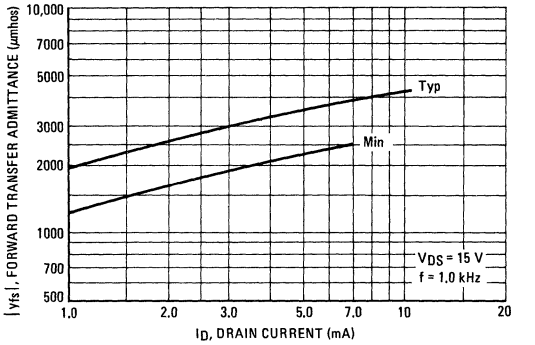
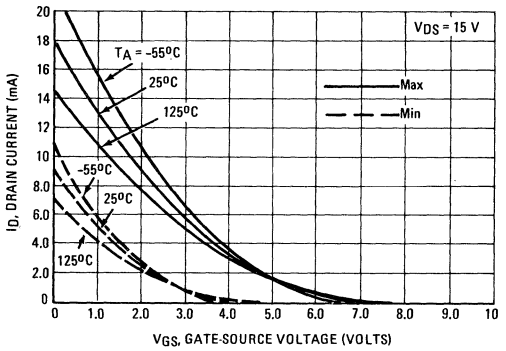


FIGURE 12 – 2N5363



DRAIN CURRENT versus
GATE-SOURCE VOLTAGE
FIGURE 13 – 2N5364



FORWARD TRANSFER ADMITTANCE
versus DRAIN CURRENT
FIGURE 14 – 2N5364

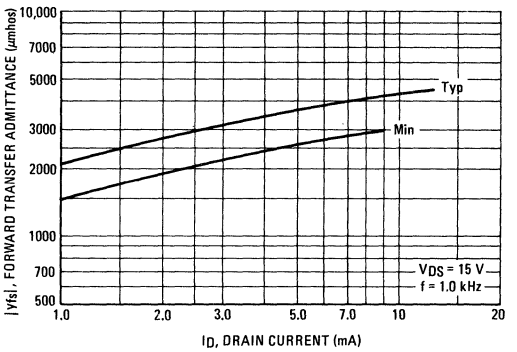


FIGURE 15 – TYPICAL DRAIN CURRENT
TEMPERATURE COEFFICIENT versus DRAIN CURRENT

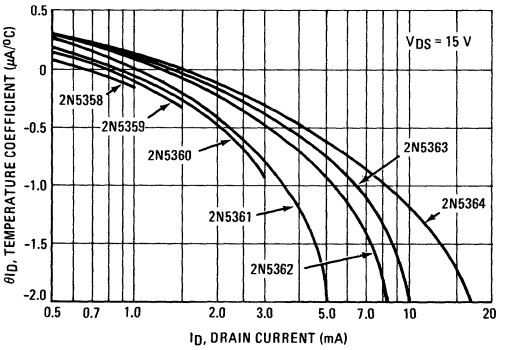


FIGURE 16 – TYPICAL FORWARD TRANSADMITTANCE
TEMPERATURE COEFFICIENT versus DRAIN CURRENT

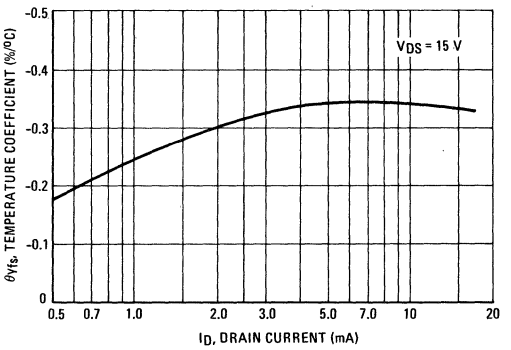


FIGURE 17 – TYPICAL OUTPUT RESISTANCE
versus DRAIN CURRENT

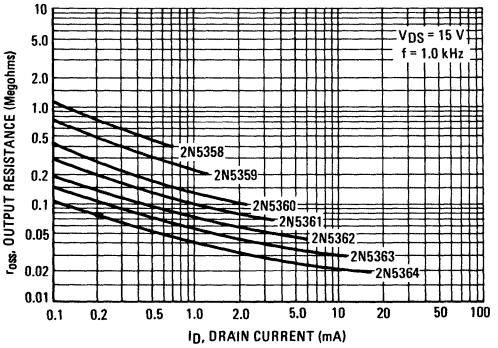


FIGURE 18 – TYPICAL CAPACITANCE
versus VOLTAGE

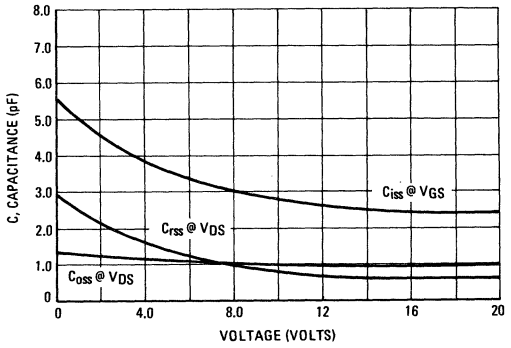


FIGURE 19 – TYPICAL NOISE FIGURE versus FREQUENCY

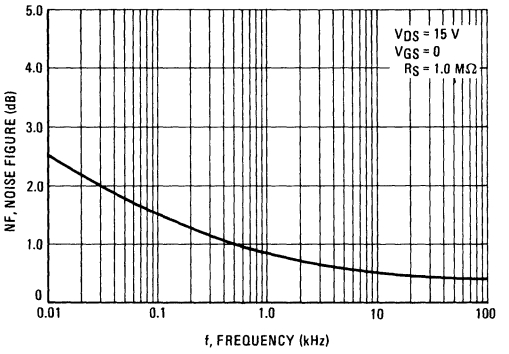


FIGURE 20 – TYPICAL NOISE FIGURE versus SOURCE RESISTANCE

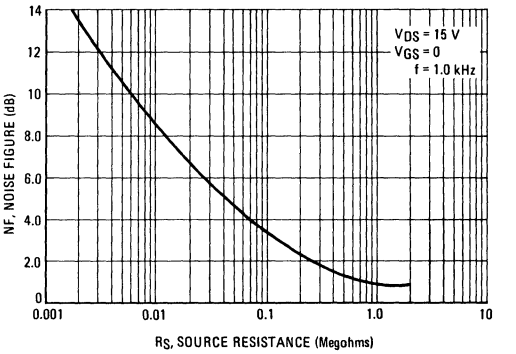
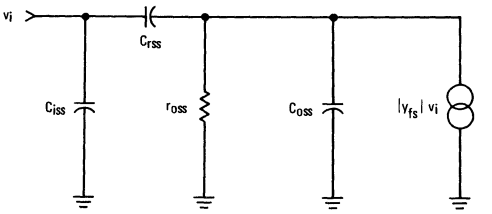


FIGURE 21 – EQUIVALENT LOW FREQUENCY CIRCUIT



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