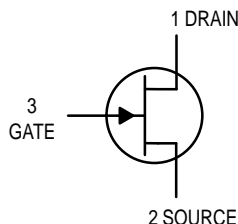


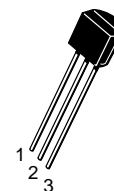
# JFETs — General Purpose

## N-Channel — Depletion



# 2N5458

\*Motorola Preferred Device



CASE 29-04, STYLE 5  
TO-92 (TO-226AA)

### MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Drain-Source Voltage	$V_{DS}$	25	Vdc
Drain-Gate Voltage	$V_{DG}$	25	Vdc
Reverse Gate-Source Voltage	$V_{GSR}$	-25	Vdc
Gate Current	$I_G$	10	mAdc
Total Device Dissipation @ $T_A = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	310 2.82	mW mW/ $^\circ\text{C}$
Junction Temperature Range	$T_J$	125	$^\circ\text{C}$
Storage Channel Temperature Range	$T_{stg}$	-65 to +150	$^\circ\text{C}$

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

Characteristic	Symbol	Min	Typ	Max	Unit
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### OFF CHARACTERISTICS

Gate-Source Breakdown Voltage ( $I_G = -10 \mu\text{Adc}$ , $V_{DS} = 0$ )	$V_{(BR)GSS}$	-25	—	—	Vdc
Gate Reverse Current ( $V_{GS} = -15 \text{Vdc}$ , $V_{DS} = 0$ ) ( $V_{GS} = -15 \text{Vdc}$ , $V_{DS} = 0$ , $T_A = 100^\circ\text{C}$ )	$I_{GSS}$	—	—	-1.0 -200	nAdc
Gate-Source Cutoff Voltage ( $V_{DS} = 15 \text{Vdc}$ , $I_D = 10 \text{nAdc}$ )	$V_{GS(off)}$	-1.0	—	-7.0	Vdc
Gate-Source Voltage ( $V_{DS} = 15 \text{Vdc}$ , $I_D = 200 \mu\text{Adc}$ )	$V_{GS}$	—	-3.5	—	Vdc

### ON CHARACTERISTICS

Zero-Gate-Voltage Drain Current (1) ( $V_{DS} = 15 \text{Vdc}$ , $V_{GS} = 0$ )	$I_{DSS}$	2.0	6.0	9.0	mAdc
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### SMALL-SIGNAL CHARACTERISTICS

Forward Transfer Admittance Common Source (1) ( $V_{DS} = 15 \text{Vdc}$ , $V_{GS} = 0$ , $f = 1.0 \text{kHz}$ )	$ y_{fs} $	1500	—	5500	$\mu\text{mhos}$
Output Admittance Common Source (1) ( $V_{DS} = 15 \text{Vdc}$ , $V_{GS} = 0$ , $f = 1.0 \text{kHz}$ )	$ y_{os} $	—	10	50	$\mu\text{mhos}$
Input Capacitance ( $V_{DS} = 15 \text{Vdc}$ , $V_{GS} = 0$ , $f = 1.0 \text{MHz}$ )	$C_{iss}$	—	4.5	7.0	pF
Reverse Transfer Capacitance ( $V_{DS} = 15 \text{Vdc}$ , $V_{GS} = 0$ , $f = 1.0 \text{MHz}$ )	$C_{rss}$	—	1.5	3.0	pF

1. Pulse Test; Pulse Width  $\leq 630 \text{ms}$ , Duty Cycle  $\leq 10\%$ .

Preferred devices are Motorola recommended choices for future use and best overall value.

TYPICAL CHARACTERISTICS

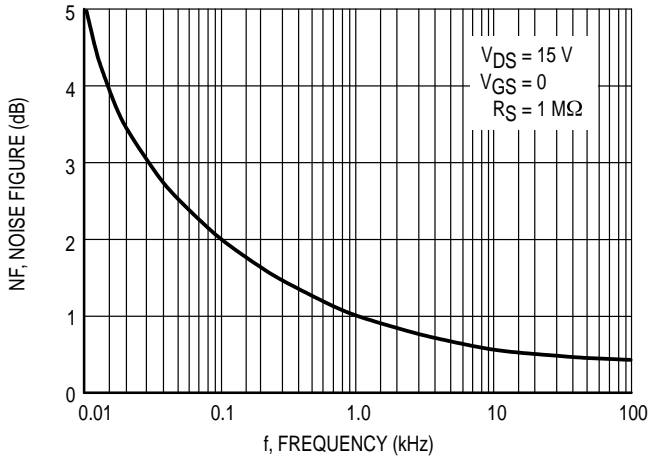


Figure 1. Noise Figure versus Frequency

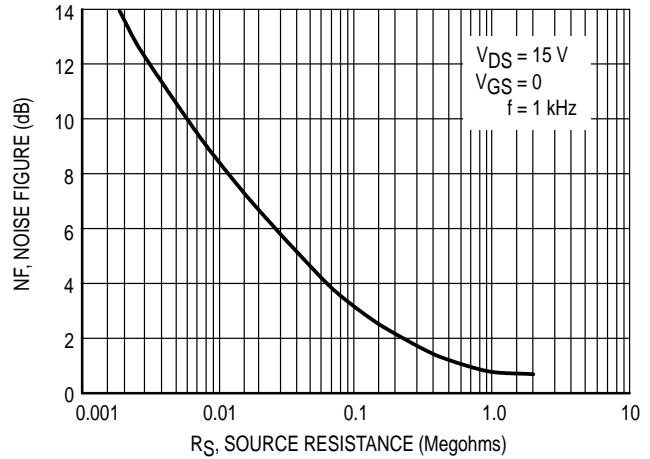


Figure 2. Noise Figure versus Source Resistance

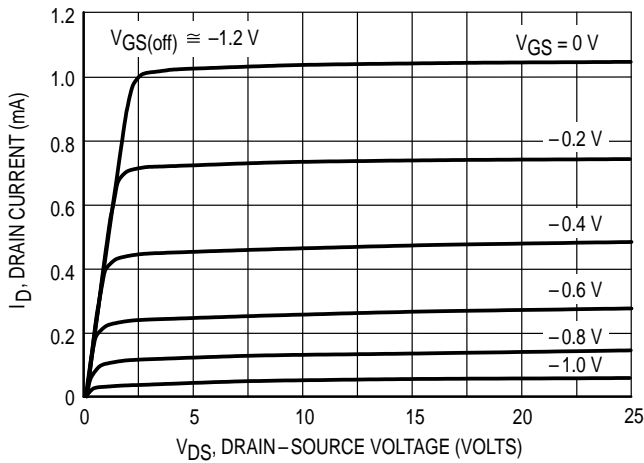


Figure 3. Typical Drain Characteristics

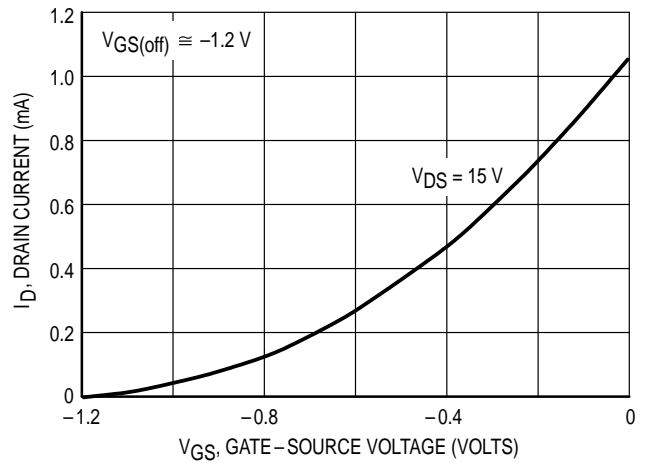


Figure 4. Common Source Transfer Characteristics

TYPICAL CHARACTERISTICS

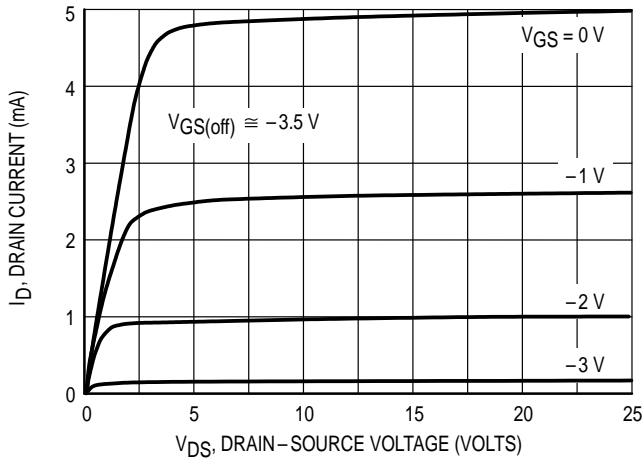


Figure 5. Typical Drain Characteristics

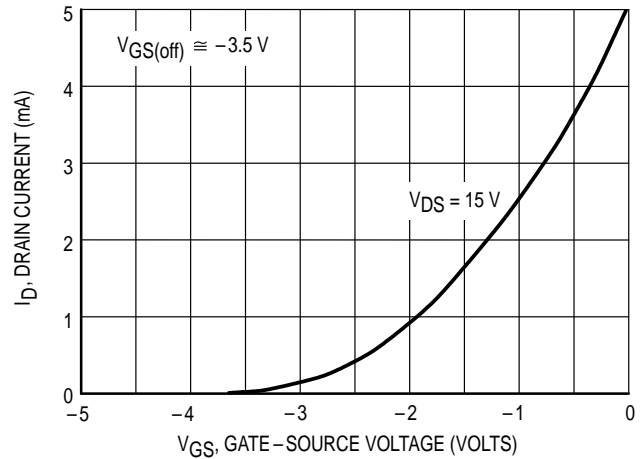


Figure 6. Common Source Transfer Characteristics

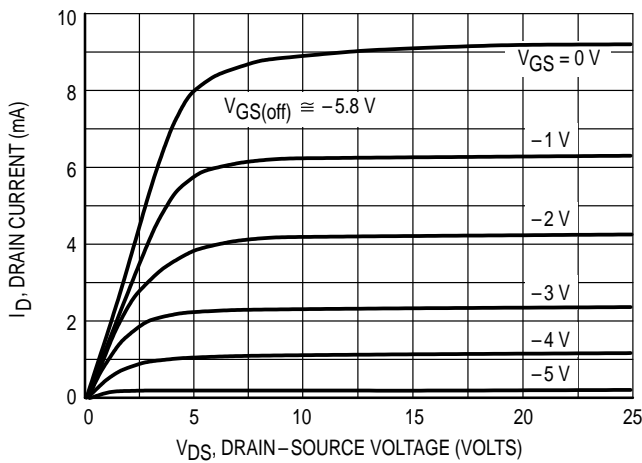


Figure 7. Typical Drain Characteristics

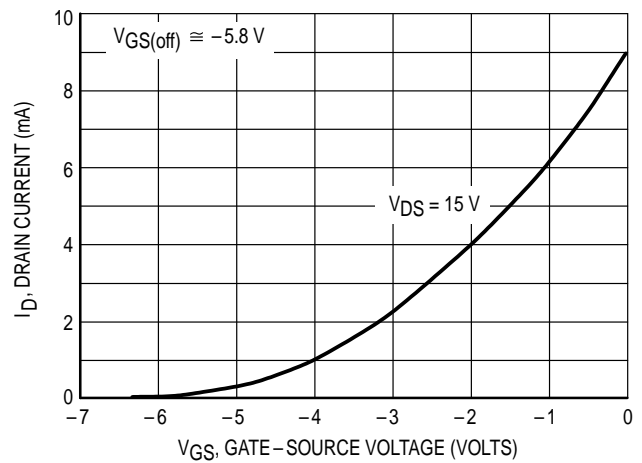
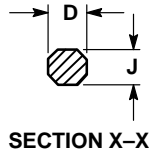
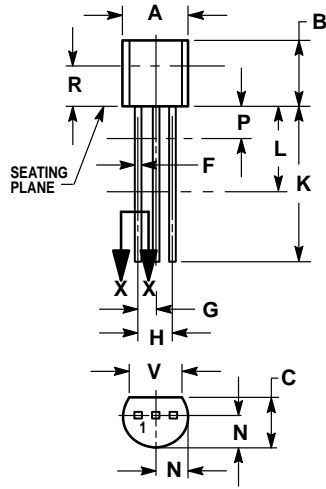


Figure 8. Common Source Transfer Characteristics

Note: Graphical data is presented for dc conditions. Tabular data is given for pulsed conditions (Pulse Width = 630 ms, Duty Cycle = 10%). Under dc conditions, self heating in higher  $I_{DSS}$  units reduces  $I_{DSS}$ .

PACKAGE DIMENSIONS



CASE 029-04  
(TO-226AA)  
ISSUE AD

NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. CONTOUR OF PACKAGE BEYOND DIMENSION R IS UNCONTROLLED.
4. DIMENSION F APPLIES BETWEEN P AND L. DIMENSION D AND J APPLY BETWEEN L AND K. MINIMUM 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	0.022	0.41	0.55
F	0.016	0.019	0.41	0.48
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	—

STYLE 5:

1. DRAIN
2. SOURCE
3. GATE

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