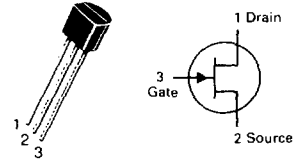


# 2N5457 thru 2N5459\*

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



**JFETs**  
**GENERAL PURPOSE**

**N-CHANNEL — DEPLETION**

\*These are Motorola  
designated preferred devices.

## 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 (at $T_A = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$ )	$P_D$	310 2.82	mW mW/°C
Junction Temperature Range	$T_J$	125	°C
Storage Channel Temperature Range	$T_{stg}$	-65 to +150	°C

## 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 ( $I_G = -10 \mu\text{Adc}$ , $V_{DS} = 0$ )	$V_{(BR)GSS}$	-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 ( $V_{DS} = 15 \text{Vdc}$ , $I_D = 10 \text{nAdc}$ )	$V_{GS(off)}$	2N5457 2N5458 2N5459	-0.5 -1.0 -2.0	— — —	-6.0 -7.0 -8.0	Vdc
Gate Source Voltage ( $V_{DS} = 15 \text{Vdc}$ , $I_D = 100 \mu\text{Adc}$ ) ( $V_{DS} = 15 \text{Vdc}$ , $I_D = 200 \mu\text{Adc}$ ) ( $V_{DS} = 15 \text{Vdc}$ , $I_D = 400 \mu\text{Adc}$ )	$V_{GS}$	2N5457 2N5458 2N5459	— — —	-2.5 -3.5 -4.5	— — —	Vdc
<b>ON CHARACTERISTICS</b>						
Zero-Gate-Voltage Drain Current* ( $V_{DS} = 15 \text{Vdc}$ , $V_{GS} = 0$ )	$I_{DSS}$	2N5457 2N5458 2N5459	1.0 2.0 4.0	3.0 6.0 9.0	5.0 9.0 16	mAdc
<b>SMALL-SIGNAL CHARACTERISTICS</b>						
Forward Transfer Admittance Common Source* ( $V_{DS} = 15 \text{Vdc}$ , $V_{GS} = 0$ , $f = 1.0 \text{kHz}$ )	$ Y_{fs} $	2N5457 2N5458 2N5459	1000 1500 2000	— — —	5000 5500 6000	$\mu\text{mhos}$
Output Admittance Common Source* ( $V_{DS} = 15 \text{Vdc}$ , $V_{GS} = 0$ , $f = 1.0 \text{kHz}$ )	$ 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

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

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FIGURE 1 — NOISE FIGURE versus FREQUENCY

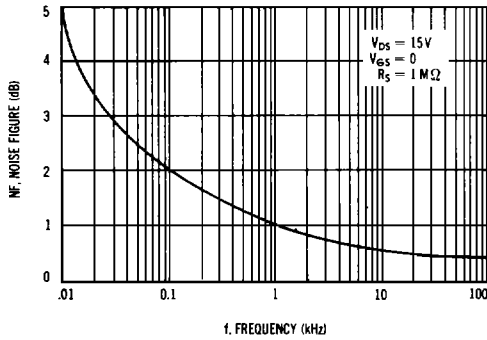


FIGURE 2 — NOISE FIGURE versus SOURCE RESISTANCE

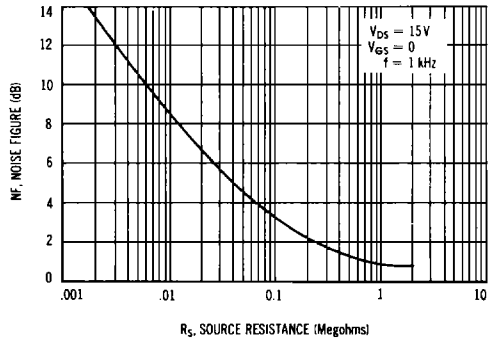


FIGURE 3 — TYPICAL DRAIN CHARACTERISTICS  
 $V_{GS(off)} \approx -1.2$  VOLTS

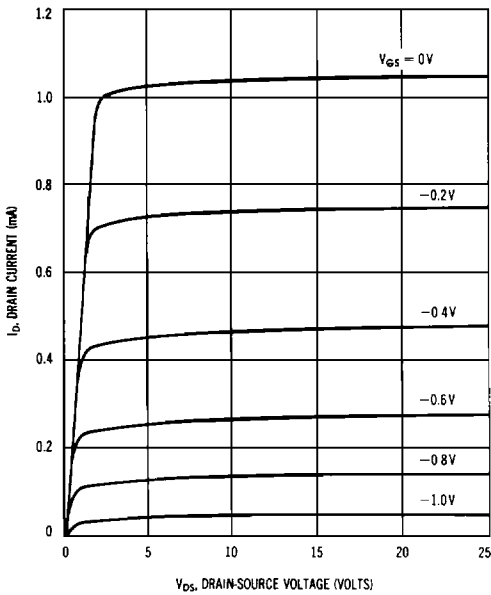
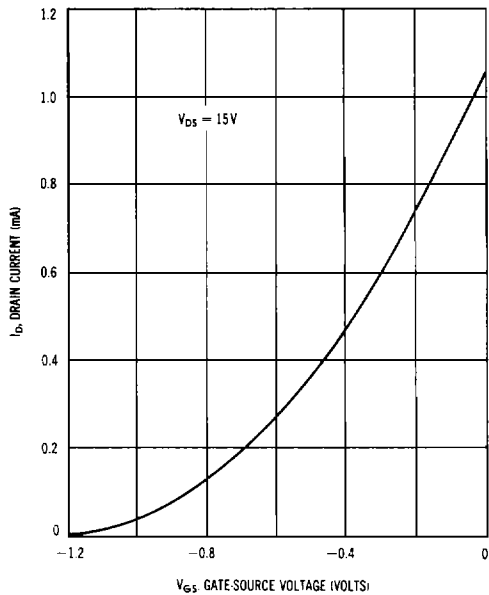


FIGURE 4 — COMMON SOURCE TRANSFER CHARACTERISTICS  
 $V_{GS(off)} \approx -1.2$  VOLTS



2N5457 thru 2N5459

FIGURE 5 — TYPICAL DRAIN CHARACTERISTICS  
 $V_{GS(off)} \approx -3.5$  VOLTS

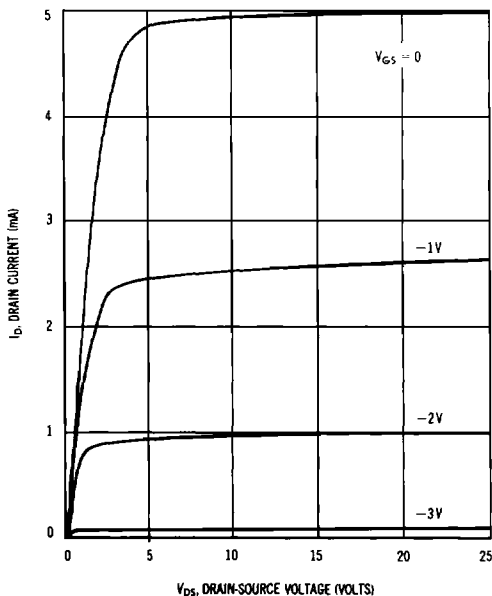


FIGURE 6 — COMMON SOURCE TRANSFER CHARACTERISTICS  
 $V_{GS(off)} \approx -3.5$  VOLTS

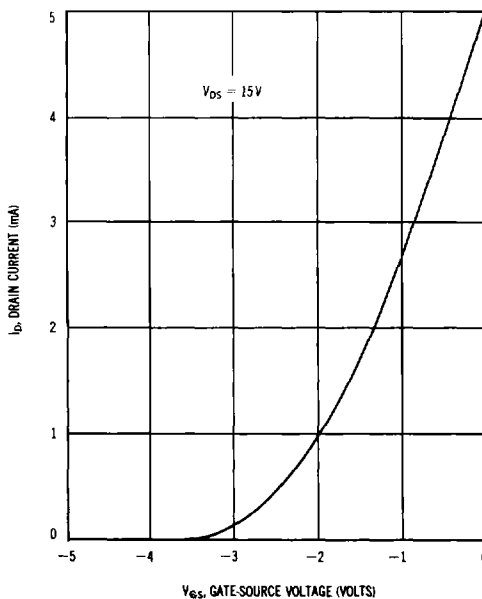


FIGURE 7 — TYPICAL DRAIN CHARACTERISTICS  
 $V_{GS(off)} \approx -5.8$  VOLTS

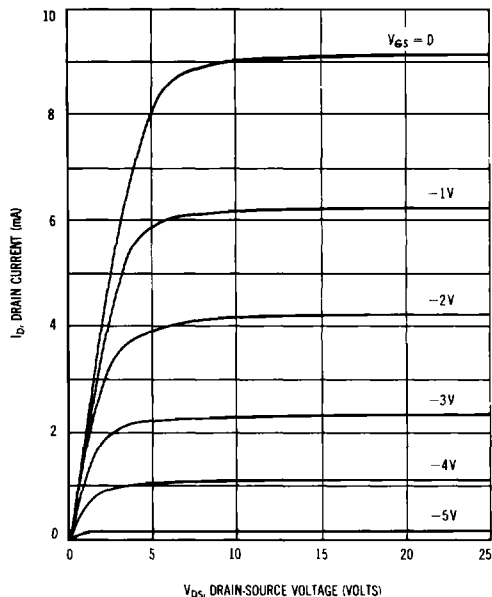
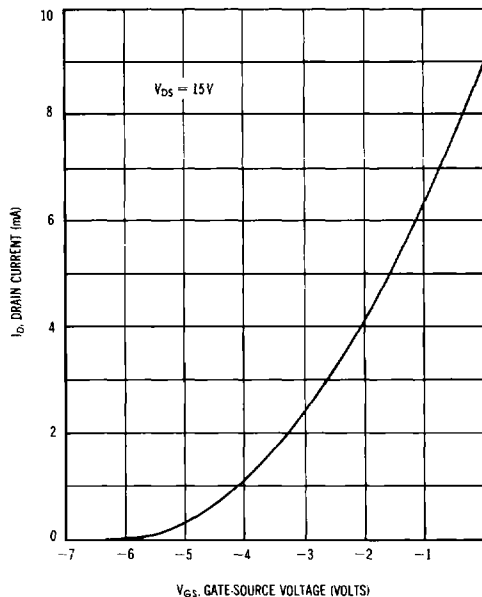


FIGURE 8 — COMMON SOURCE TRANSFER CHARACTERISTICS  
 $V_{GS(off)} \approx -5.8$  VOLTS



NOTES: 1. 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  $I_{DSS}$  (See Figure 10).

2. Figures 8, 9, 10: Data taken in a standard printed circuit with a TO-18 type socket mounting and 1/4" lead length.