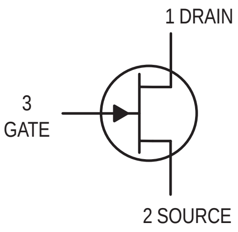
MOTOROLA
SEMICONDUCTOR TECHNICAL DATA

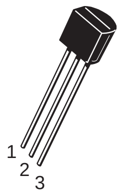
JFETs — General Purpose

N–Channel — Depletion

2N5457

***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°C Derate above 25°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°C unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS					
Gate–Source Breakdown Voltage (I_G = –10 μAdc, V_{DS} = 0)	$V_{(BR)GSS}$	–25	—	—	Vdc
Gate Reverse Current	I_{GSS}				nAdc
(V_{GS} = –15 Vdc, V_{DS} = 0)		—	—	–1.0	
(V_{GS} = –15 Vdc, V_{DS} = 0, T_A = 100°C)		—	—	–200	
Gate–Source Cutoff Voltage (V_{DS} = 15 Vdc, I_D = 10 nAdc)	$V_{GS(off)}$	–0.5	—	–6.0	Vdc
Gate–Source Voltage (V_{DS} = 15 Vdc, I_D = 100 μAdc)	V_{GS}	—	–2.5	—	Vdc
ON CHARACTERISTICS					
Zero–Gate–Voltage Drain Current (1) (V_{DS} = 15 Vdc, V_{GS} = 0)	I_{DSS}	1.0	3.0	5.0	mAdc
SMALL–SIGNAL CHARACTERISTICS					
Forward Transfer Admittance Common Source (1) (V_{DS} = 15 Vdc, V_{GS} = 0, f = 1.0 kHz)	$\lvert y_{fs} \rvert$	1000	—	5000	μmhos
Output Admittance Common Source (1) (V_{DS} = 15 Vdc, V_{GS} = 0, f = 1.0 kHz)	$\lvert y_{os} \rvert$	—	10	50	μmhos
Input Capacitance (V_{DS} = 15 Vdc, V_{GS} = 0, f = 1.0 MHz)	C_{iss}	—	4.5	7.0	pF
Reverse Transfer Capacitance (V_{DS} = 15 Vdc, V_{GS} = 0, f = 1.0 MHz)	C_{rss}	—	1.5	3.0	pF

1. Pulse Test; Pulse Width ≤ 630 ms, Duty Cycle ≤ 10%.

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

TYPICAL CHARACTERISTICS

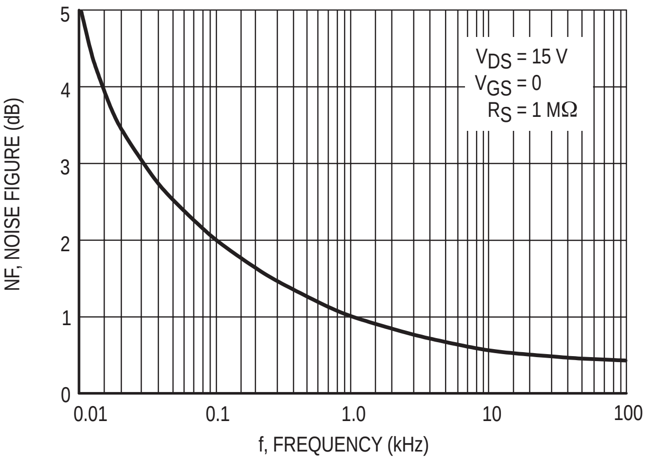


Figure 1. Noise Figure versus Frequency

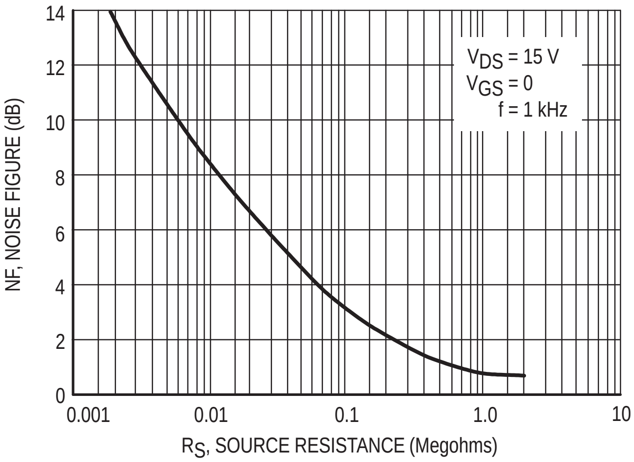


Figure 2. Noise Figure versus Source Resistance

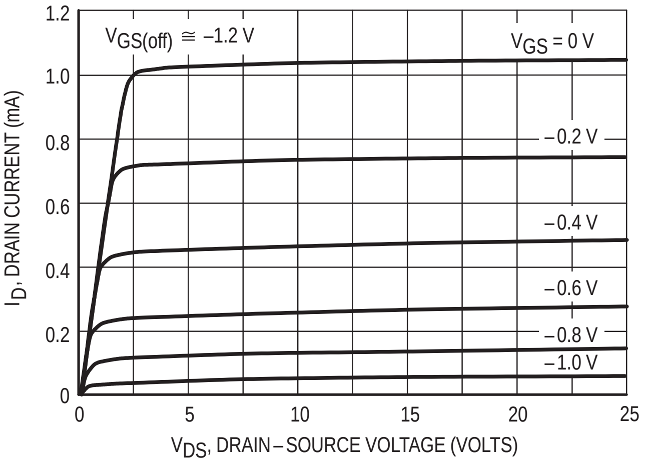


Figure 3. Typical Drain Characteristics

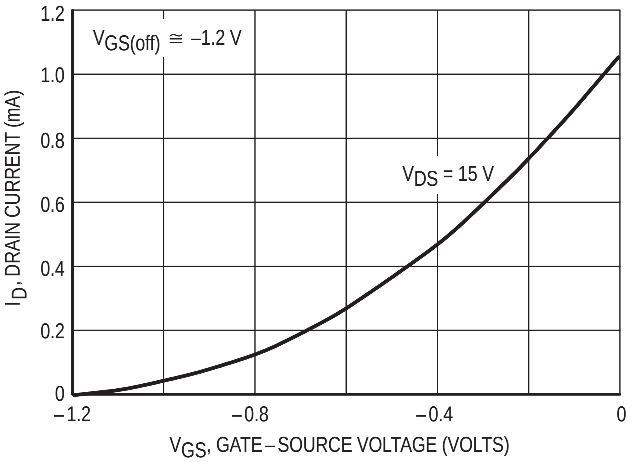


Figure 4. Common Source Transfer Characteristics

TYPICAL CHARACTERISTICS

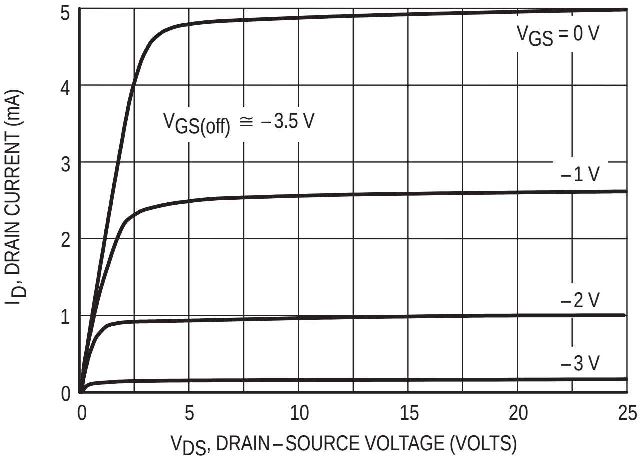


Figure 5. Typical Drain Characteristics

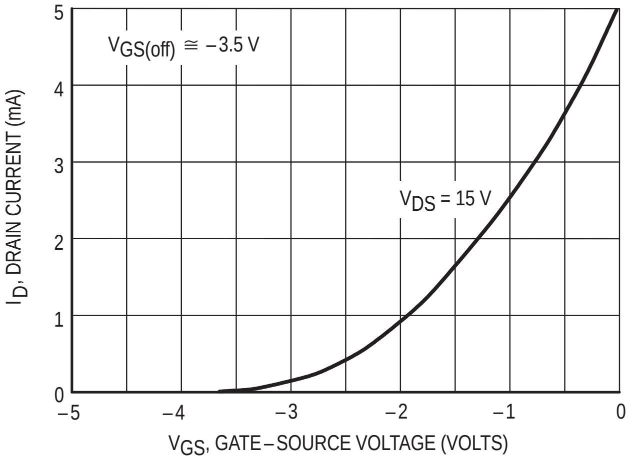


Figure 6. Common Source Transfer Characteristics

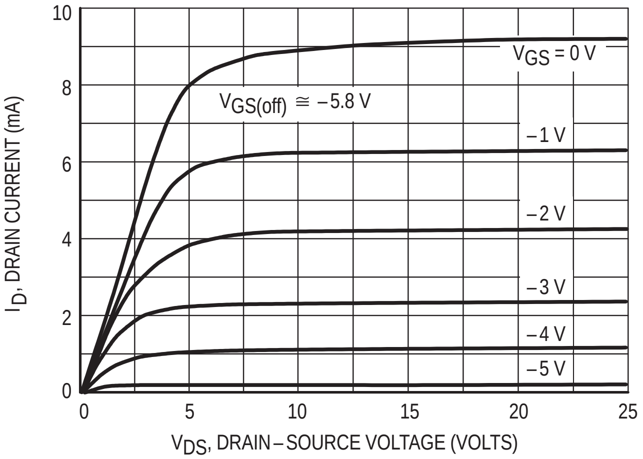


Figure 7. Typical Drain Characteristics

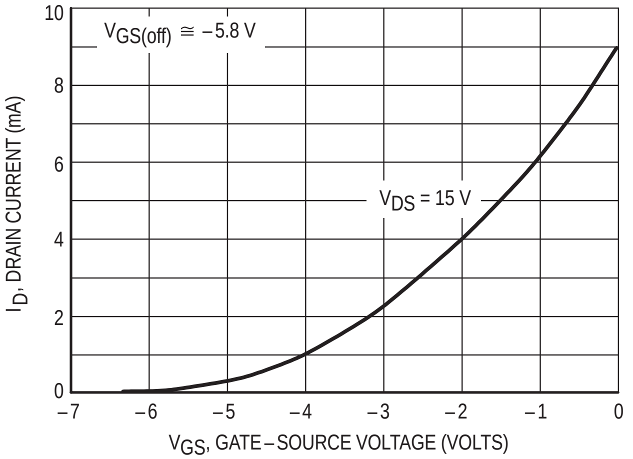


Figure 8. Common Source Transfer Characteristics

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}.