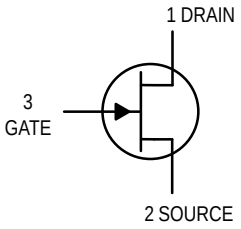
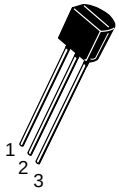
JFETs — General Purpose

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°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 (V_{GS} = –15 Vdc, V_{DS} = 0) (V_{GS} = –15 Vdc, V_{DS} = 0, T_A = 100°C)	I_{GSS}	 — —	 — —	 –1.0 –200	nAdc
Gate–Source Cutoff Voltage (V_{DS} = 15 Vdc, I_D = 10 nAdc)	$V_{GS(off)}$	–1.0	—	-7.0	Vdc
Gate–Source Voltage (V_{DS} = 15 Vdc, I_D = 200 μAdc)	V_{GS}	—	–3.5	—	Vdc
ON CHARACTERISTICS					
Zero–Gate–Voltage Drain Current (1) (V_{DS} = 15 Vdc, V_{GS} = 0)	I_{DSS}	2.0	6.0	9.0	mAdc
SMALL–SIGNAL CHARACTERISTICS					
Forward Transfer Admittance Common Source (1) (V_{DS} = 15 Vdc, V_{GS} = 0, f = 1.0 kHz)	$\lvert y_{fs} \rvert$	1500	—	5500	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

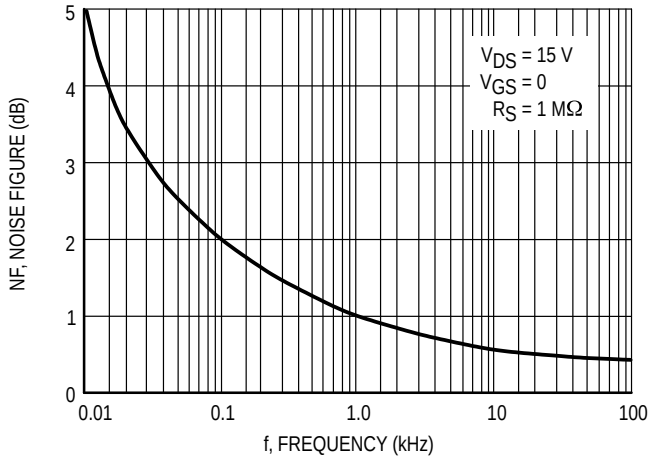


Figure 1. Noise Figure versus Frequency

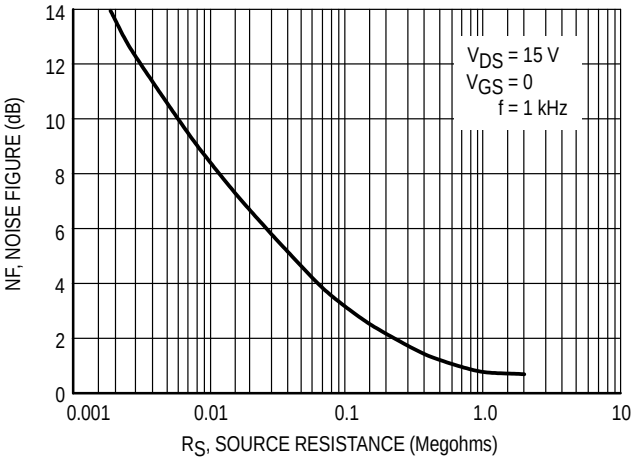


Figure 2. Noise Figure versus Source Resistance

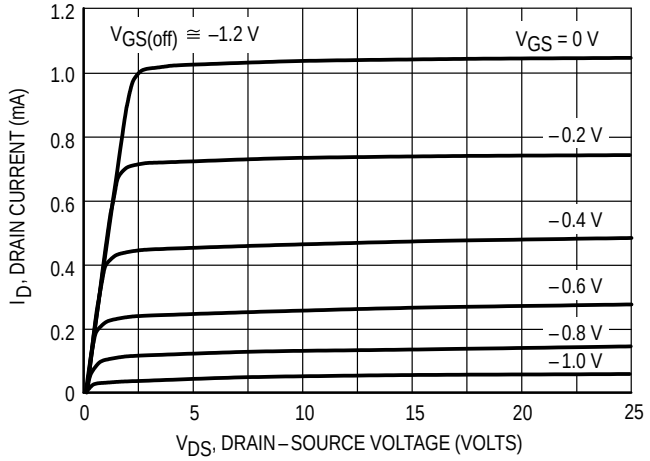


Figure 3. Typical Drain Characteristics

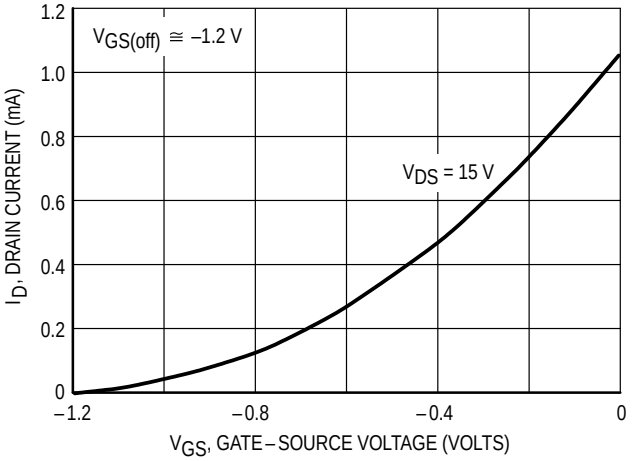


Figure 4. Common Source Transfer Characteristics

TYPICAL CHARACTERISTICS

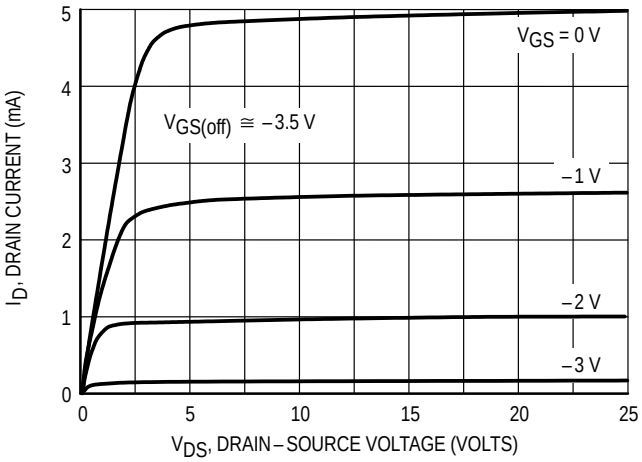


Figure 5. Typical Drain Characteristics

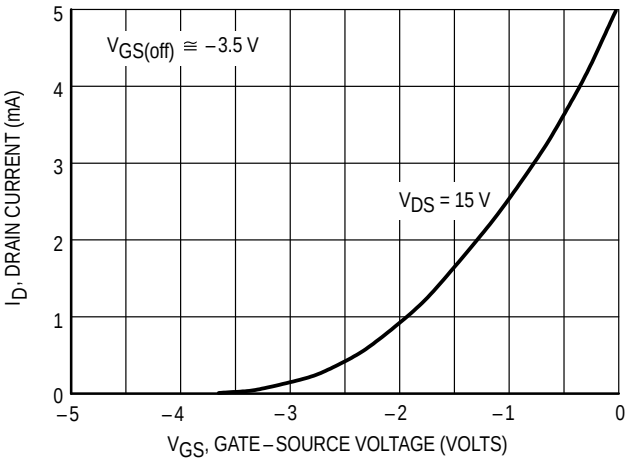


Figure 6. Common Source Transfer Characteristics

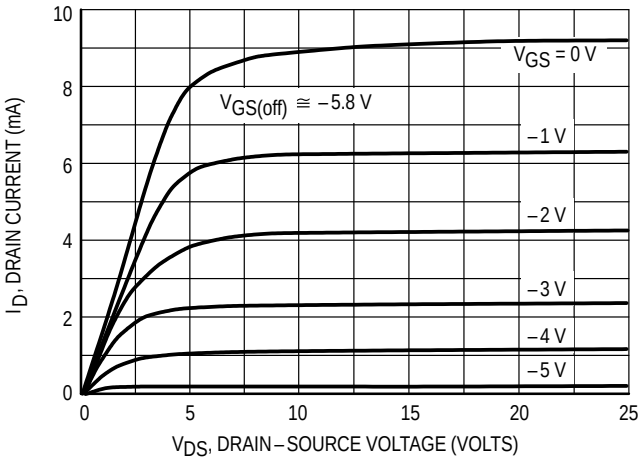


Figure 7. Typical Drain Characteristics

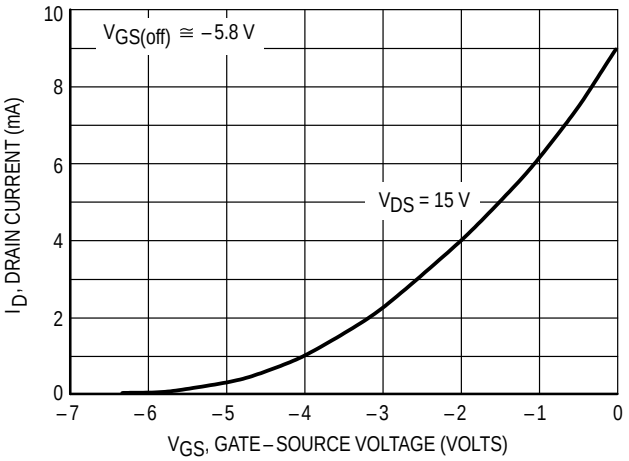
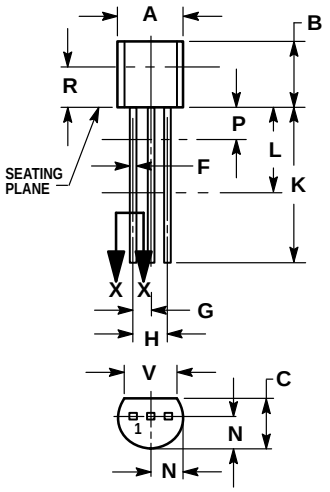
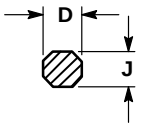


Figure 8. Common Source Transfer Characteristics

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}.

PACKAGE DIMENSIONS





SECTION X–X

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.

	INCHES		MILLIMETERS	
DIM	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	—

CASE 029–04
(TO–226AA)
ISSUE AD

STYLE 5:
PIN 1. DRAIN
2. SOURCE
3. GATE

How to reach us:
USA/EUROPE: Motorola Literature Distribution;
P.O. Box 20912; Phoenix, Arizona 85036. 1–800–441–2447

MFAX: RMFAX0@email.sps.mot.com – TOUCHTONE (602) 244–6609
INTERNET: http://Design–NET.com

JAPAN: Nippon Motorola Ltd.; Tatsumi–SPD–JLDC, Toshikatsu Otsuki,
6F Seibu–Butsuryu–Center, 3–14–2 Tatsumi Koto–Ku, Tokyo 135, Japan. 03–3521–8315

HONG KONG: Motorola Semiconductors H.K. Ltd.; 8B Tai Ping Industrial Park,
51 Ting Kok Road, Tai Po, N.T., Hong Kong. 852–26629298