

# 2N5457, 2N5458

2N5457 and 2N5458 are Preferred Devices

## JFETs - General Purpose

### N-Channel – Depletion

N-Channel Junction Field Effect Transistors, depletion mode (Type A) designed for audio and switching applications.

- N-Channel for Higher Gain
- Drain and Source Interchangeable
- High AC Input Impedance
- High DC Input Resistance
- Low Transfer and Input Capacitance
- Low Cross-Modulation and Intermodulation Distortion
- Unibloc Plastic Encapsulated Package

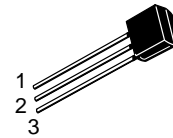
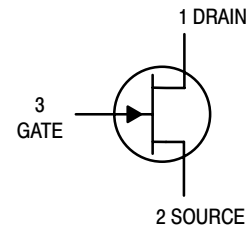
#### MAXIMUM RATINGS

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/ $^\circ\text{C}$
Operating Junction Temperature	$T_J$	135	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	-65 to +150	$^\circ\text{C}$



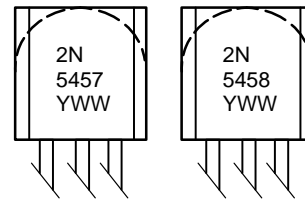
**ON Semiconductor™**

<http://onsemi.com>



TO-92  
CASE 29  
STYLE 5

#### MARKING DIAGRAMS



Y = Year  
WW = Work Week

#### ORDERING INFORMATION

Device	Package	Shipping
2N5457	TO-92	5000 Units/Box
2N5458	TO-92	5000 Units/Box

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

# 2N5457, 2N5458

## ELECTRICAL CHARACTERISTICS (T<sub>A</sub> = 25°C unless otherwise noted)

Characteristic	Symbol	Min	Min	Max	Unit
<b>OFF CHARACTERISTICS</b>					
Gate-Source Breakdown Voltage (I <sub>G</sub> = -10 μAdc, V <sub>DS</sub> = 0)	V <sub>(BR)GSS</sub>	-25	-25	-	Vdc
Gate Reverse Current (V <sub>GS</sub> = -15 Vdc, V <sub>DS</sub> = 0) (V <sub>GS</sub> = -15 Vdc, V <sub>DS</sub> = 0, T <sub>A</sub> = 100°C)	I <sub>GSS</sub>	-	-	1.0 -200	nAdc
Gate-Source Cutoff Voltage (V <sub>DS</sub> = 15 Vdc, i <sub>D</sub> = 1 nAdc)	V <sub>GS(off)</sub>	-1.0 -2.0	-	-6.0 -7.0	Vdc
Gate-Source Voltage (V <sub>DS</sub> = 15 Vdc, i <sub>D</sub> = 100 μAdc) (V <sub>DS</sub> = 15 Vdc, i <sub>D</sub> = 200 μAdc)	V <sub>GS</sub>	-	-2.5 -3.5	-6.0 -7.0	Vdc

## ON CHARACTERISTICS

Zero-Gate-Voltage Drain Current (Note 1.) (V <sub>DS</sub> = 20 Vdc, V <sub>GS</sub> = 0)	2N5638 2N5639	I <sub>DSS</sub>	1.0 2.0	3.0 6.0	5.0 9.0	mAdc
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## DYNAMIC CHARACTERISTICS

Forward Transfer Admittance (Note 1.) (V <sub>DS</sub> = 15 Vdc, V <sub>GS</sub> = 0, f = 1 kHz)	2N5638 2N5639	Y <sub>fs</sub>	1000 1500	3000 4000	5000 5500	μmhos
Forward Transfer Admittance (Note 1.) (V <sub>DS</sub> = 15 Vdc, V <sub>GS</sub> = 0, f = 1 kHz)		Y <sub>os</sub>	-	10	50	μmhos
Input Capacitance (V <sub>DS</sub> = 15 Vdc, V <sub>GS</sub> = 0, f = 1 kHz)		C <sub>iss</sub>	-	4.5	7.0	pF
Reverse Transfer Capacitance (V <sub>DS</sub> = 15 Vdc, V <sub>GS</sub> = 0, f = 1 kHz)		C <sub>rss</sub>	-	1.5	3.0	pF

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

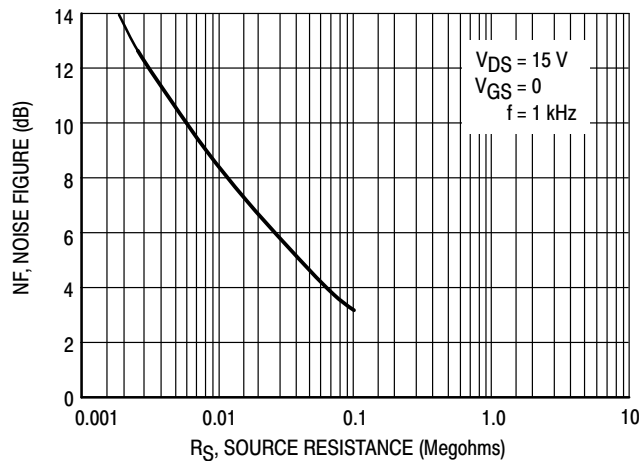


Figure 1. Noise Figure versus Source Resistance

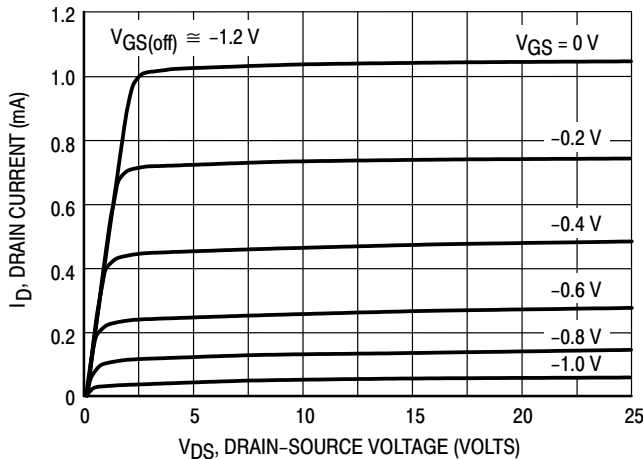


Figure 2. Typical Drain Characteristics

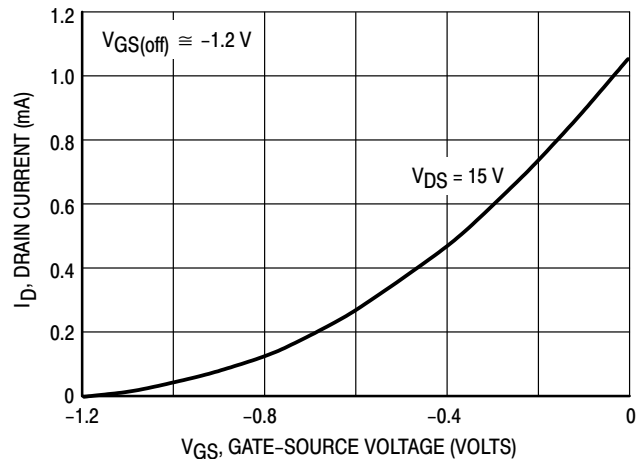
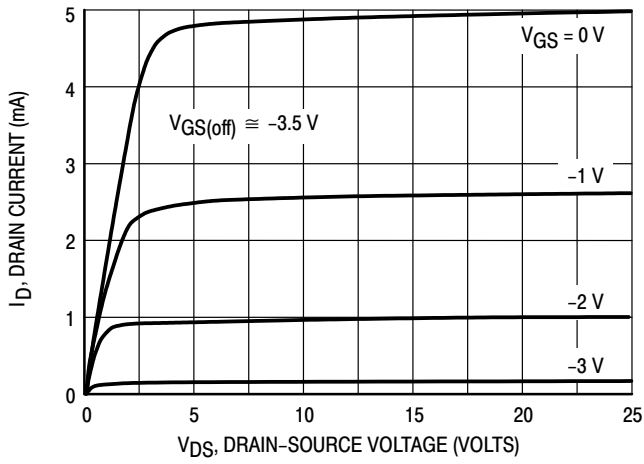
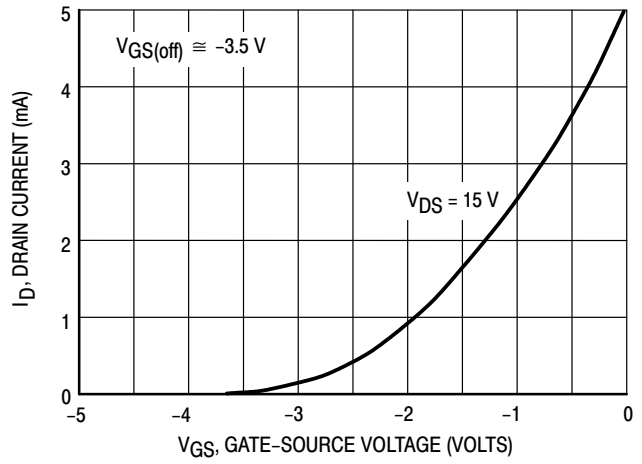


Figure 3. Common Source Transfer Characteristics

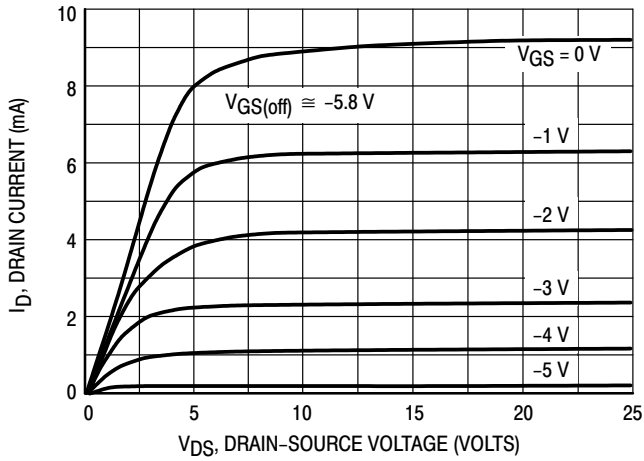
## 2N5457, 2N5458



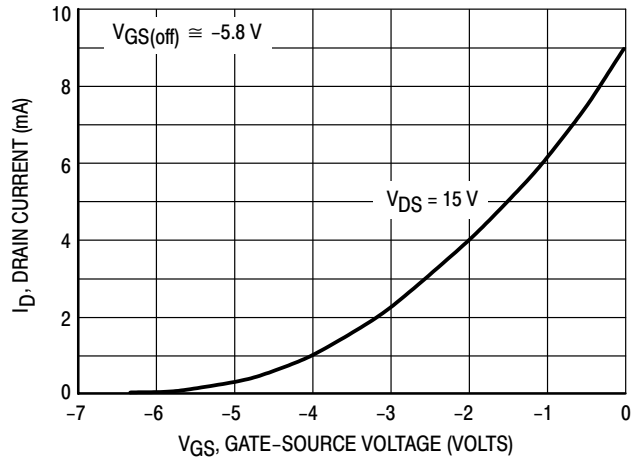
**Figure 4. Typical Drain Characteristics**



**Figure 5. Common Source Transfer Characteristics**



**Figure 6. Typical Drain Characteristics**



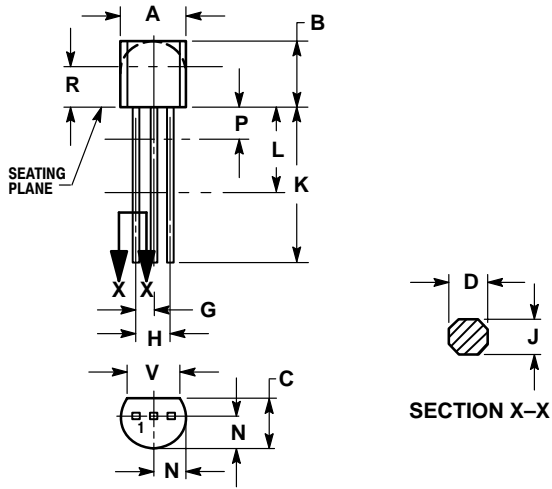
**Figure 7. Common Source Transfer Characteristics**

NOTE: 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  $I_{DSS}$ .

# 2N5457, 2N5458

## PACKAGE DIMENSIONS


### TO-92 (TO-226) CASE 29-11 ISSUE AL



#### NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. CONTOUR OF PACKAGE BEYOND DIMENSION R IS UNCONTROLLED.
4. 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	0.021	0.407	0.533
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	---

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