2N5457, 2N5458

Preferred Device

JFETs - General Purpose

N−Channel − Depletion

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

Features

- 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
- Pb−Free Packages are Available*

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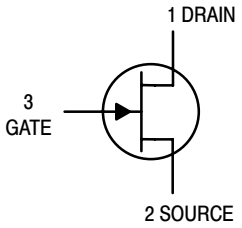
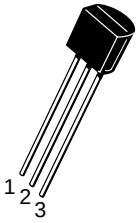


MAXIMUM RATINGS

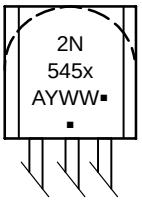
Rating	Symbol	Value	Unit
Drain−Source Voltage	V_{DS}	25	Vdc
Drain−Gate Voltage	V_{DG}	25	Vdc
Reverse Gate−Source Voltage	V_{GSR}	−25	Vdc
Gate Current	I_G	10	mAdc
Total Device Dissipation @ T_A = 25°C Derate above 25°C	P_D	310 2.82	mW mW/°C
Operating Junction Temperature	T_J	135	°C
Storage Temperature Range	T_{stg}	−65 to +150	°C

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

MARKING DIAGRAM



TO−92
CASE 29
STYLE 5



2N545x = Device Code
x = 7 or 8
A = Assembly Location
Y = Year
WW = Work Week
▪ = Pb−Free Package
(Note: Microdot may be in either location)

ORDERING INFORMATION

Device	Package	Shipping
2N5457	TO−92	1000 Units/Box
2N5457G	TO−92 (Pb−Free)	1000 Units/Box
2N5458	TO−92	1000 Units/Box
2N5458G	TO−92 (Pb−Free)	1000 Units/Box

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

*For additional information on our Pb−Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

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)		I_{GSS}	−	−	-1.0	nAdc
(V_{GS} = −15 Vdc, V_{DS} = 0, T_A = 100°C)			−	−	−200	
Gate−Source Cutoff Voltage (V_{DS} = 15 Vdc, i_D = 10 nAdc)	2N5457	$V_{GS(off)}$	−0.5	−	−6.0	Vdc
	2N5458		−1.0	−	−7.0	
Gate−Source Voltage (V_{DS} = 15 Vdc, i_D = 100 μAdc)	2N5457	V_{GS}	−	−2.5	−	Vdc
(V_{DS} = 15 Vdc, i_D = 200 μAdc)	2N5458		−	−3.5	−	
ON CHARACTERISTICS						
Zero−Gate−Voltage Drain Current (Note 1)	2N5457	I_{DSS}	1.0	3.0	5.0	mAdc
(V_{DS} = 15 Vdc, V_{GS} = 0)	2N5458		2.0	6.0	9.0	
DYNAMIC CHARACTERISTICS						
Forward Transfer Admittance (Note 1)	2N5457	$\|Y_{fs}\|$	1000	3000	5000	μmhos
(V_{DS} = 15 Vdc, V_{GS} = 0, f = 1 kHz)	2N5458		1500	4000	5500	
Output Admittance Common Source (Note 1) (V_{DS} = 15 Vdc, V_{GS} = 0, f = 1 kHz)		$\|Y_{os}\|$	−	10	50	μmhos
Input Capacitance (V_{DS} = 15 Vdc, V_{GS} = 0, f = 1 kHz)		C_{iss}	−	4.5	7.0	pF
Reverse Transfer Capacitance (V_{DS} = 15 Vdc, V_{GS} = 0, f = 1 kHz)		C_{rss}	−	1.5	3.0	pF

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

TYPICAL CHARACTERISTICS
For 2N5457 Only

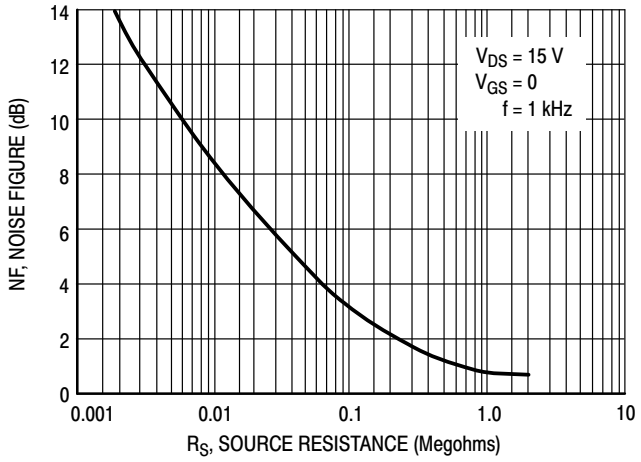


Figure 1. Noise Figure versus Source Resistance

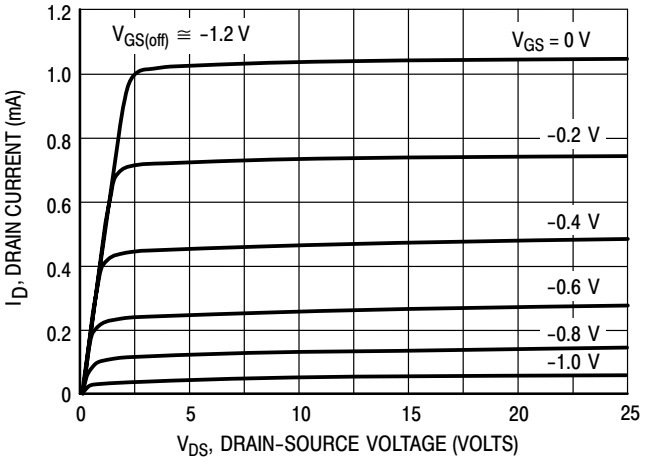


Figure 2. Typical Drain Characteristics

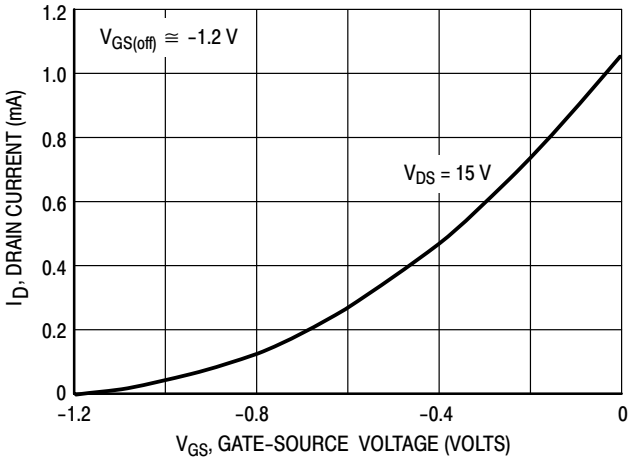


Figure 3. Common Source Transfer Characteristics

TYPICAL CHARACTERISTICS
For 2N5457 Only

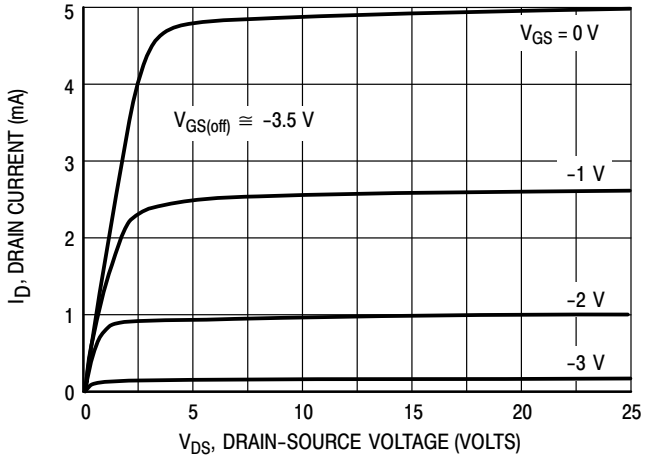


Figure 4. Typical Drain Characteristics

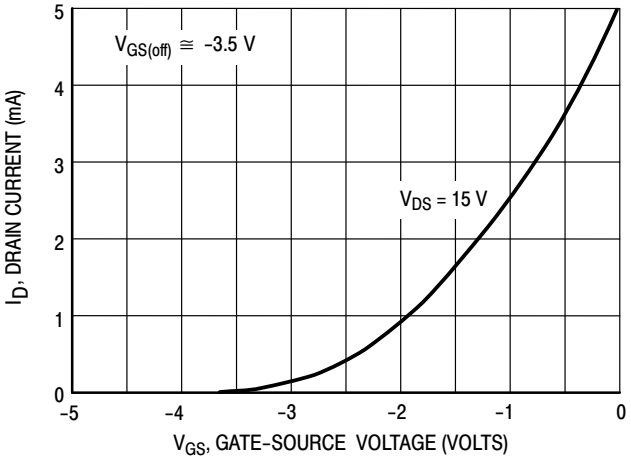


Figure 5. Common Source Transfer Characteristics

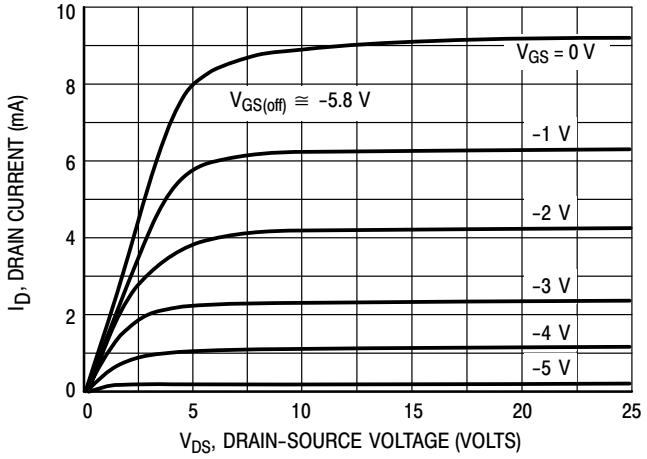


Figure 6. Typical Drain Characteristics

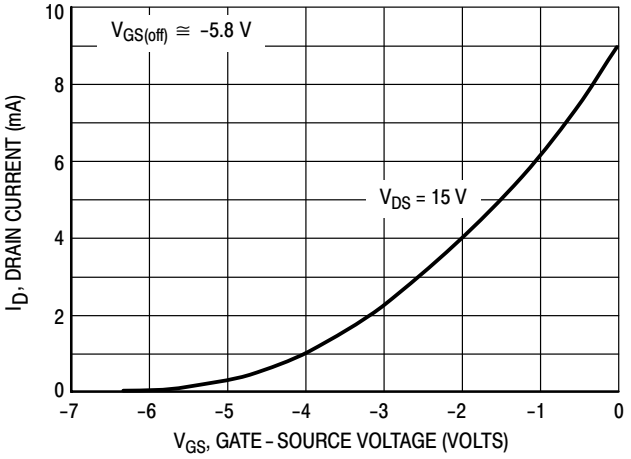
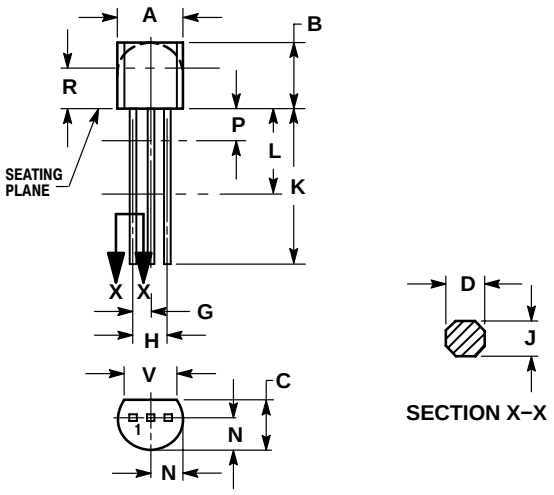


Figure 7. Common Source Transfer Characteristics

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}.

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.

	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	0.021	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	---

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

PUBLICATION ORDERING INFORMATION

LITERATURE FULFILLMENT:
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