# 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

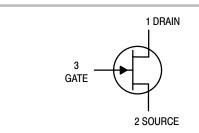
#### **MAXIMUM RATINGS**

Rating	Symbol	Value	Unit
Drain-Source Voltage	V <sub>DS</sub>	25	Vdc
Drain-Gate Voltage	$V_{DG}$	25	Vdc
Reverse Gate–Source Voltage	V <sub>GSR</sub>	-25	Vdc
Gate Current	IG	10	mAdc
Total Device Dissipation  @ T <sub>A</sub> = 25°C  Derate above 25°C	PD	310 2.82	mW mW/°C
Operating Junction Temperature	TJ	135	°C
Storage Temperature Range	T <sub>stg</sub>	-65 to +150	°C

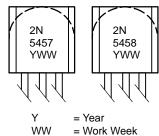


# ON Semiconductor™

# http://onsemi.com







## **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.

# **ELECTRICAL CHARACTERISTICS** ( $T_A = 25^{\circ}C$ unless otherwise noted)

Characteristic		Symbol	Min	Min	Max	Unit
OFF CHARACTERISTICS						
Gate-Source Breakdown Voltage	$(I_G = -10 \mu Adc, V_{DS} = 0)$	V <sub>(BR)</sub> GSS	-25	-25	_	Vdc
Gate Reverse Current	$(V_{GS} = -15 \text{ Vdc}, V_{DS} = 0)$ $(V_{GS} = -15 \text{ Vdc}, V_{DS} = 0, T_A = 100^{\circ}\text{C})$	IGSS	- -		1.0 -200	nAdc
Gate-Source Cutoff Voltage (V <sub>DS</sub> = 15 Vdc, i <sub>D</sub> = 1 nAdc)	2N5457 2N5458	V <sub>GS(off)</sub>	-1.0 -2.0	_ _	-6.0 -7.0	Vdc
Gate–Source Voltage ( $V_{DS}$ = 15 Vdc, $i_D$ = 100 $\mu$ Adc) ( $V_{DS}$ = 15 Vdc, $i_D$ = 200 $\mu$ Adc)	2N5457 2N5458	VGS	<u>-</u> -	-2.5 -3.5	-6.0 -7.0	Vdc
ON CHARACTERISTICS						
Zero-Gate-Voltage Drain Current (Note 1) (VDS = 20 Vdc, VGS = 0)	1.) 2N5638 2N5639	IDSS	1.0 2.0	3.0 6.0	5.0 9.0	mAdc
DYNAMIC CHARACTERISTICS						
Forward Transfer Admittance (Note 1.) (VDS = 15 Vdc, VGS = 0, f = 1 kHz)	2N5638 2N5639	Y <sub>fs</sub>	1000 1500	3000 4000	5000 5500	μmhos
Forward Transfer Admittance (Note 1.)	$(V_{DS} = 15 \text{ Vdc}, V_{GS} = 0, f = 1 \text{ kHz})$	Y <sub>os</sub>	_	10	50	μmhos
Input Capacitance	$(V_{DS} = 15 \text{ Vdc}, V_{GS} = 0, f = 1 \text{ kHz})$	C <sub>iss</sub>	_	4.5	7.0	pF
Reverse Transfer Capacitance	$(V_{DS} = 15 \text{ Vdc}, V_{GS} = 0, f = 1 \text{ kHz})$	C <sub>rss</sub>	_	1.5	3.0	pF

<sup>1.</sup> Pulse Width ≤ 630 ms, Duty Cycle ≤ 10%.

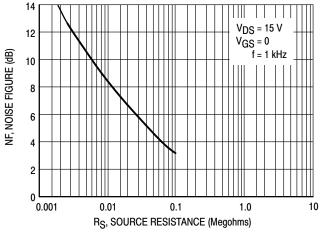


Figure 1. Noise Figure versus Source Resistance

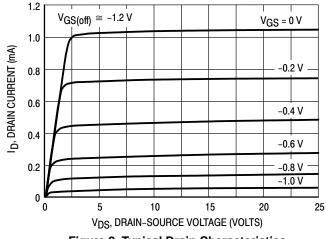


Figure 2. Typical Drain Characteristics

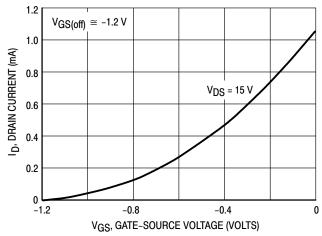
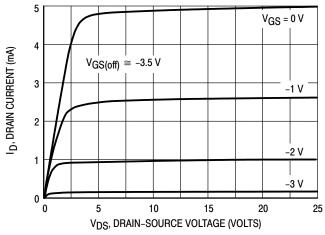


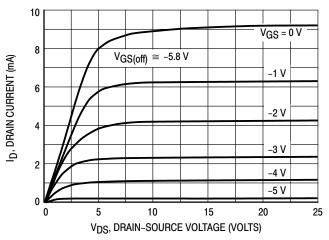
Figure 3. Common Source Transfer Characteristics



 $V_{\text{GS}(\text{off})} \cong -3.5 \text{ V}$   $V_{\text{DS}} = 15 \text{ V}$   $V_{\text{DS}} = 15 \text{ V}$   $V_{\text{DS}} = 15 \text{ V}$   $V_{\text{SS}}, \text{ GATE-SOURCE VOLTAGE (VOLTS)}$ 

Figure 4. Typical Drain Characteristics

Figure 5. Common Source Transfer Characteristics



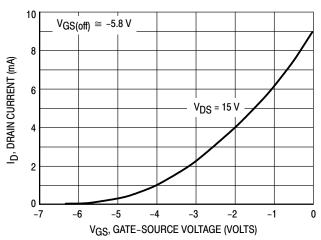


Figure 6. Typical Drain Characteristics

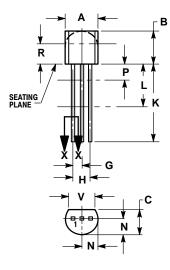
Figure 7. Common Source Transfer Characteristics

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 IDSS units reduces IDSS.

# 2N5457, 2N5458

## PACKAGE DIMENSIONS

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





- DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982. CONTROLLING DIMENSION: INCH.
- CONTOUR OF PACKAGE BEYOND DIMENSION R IS UNCONTROLLED. LEAD DIMENSION IS UNCONTROLLED IN P AND BEYOND DIMENSION K MINIMUM.

	INCHES		MILLIMETERS		
DIM	MIN	MAX	MIN	MAX	
Α	0.175	0.205	4.45	5.20	
В	0.170	0.210	4.32	5.33	
С	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	
Н	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	
Р		0.100		2.54	
R	0.115		2.93		
٧	0.135		3.43		

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