# **JFET - General Purpose**

# **N-Channel – Depletion**

N-Channel Junction Field Effect Transistors, depletion mode (Type A) designed for general purpose audio amplifiers, analog switches and choppers.

## Features

- N-Channel for Higher Gain
- Drain and Source Interchangeable
- High AC Input Impedance
- High DC Input Resistance
- Low  $R_{DS(on)} < 18 \Omega$
- Fast Switching  $t_{d(on)} + t_r = 8.0$  ns (Typ)
- Low Noise  $\overline{en} = 6.0 \text{ nV} / \sqrt{\text{Hz}} @ 10 \text{ Hz} (\text{Typ})$
- Pb–Free Packages are Available\*

## MAXIMUM RATINGS

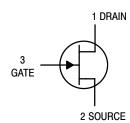
Rating	Symbol	Value	Unit
Gate-Source Voltage	VG <sub>S</sub>	-25	Vdc
Drain-Gate Voltage	V <sub>DG</sub>	-25	Vdc
Gate Current	I <sub>G</sub>	10	mAdc
Total Device Dissipation @ T <sub>A</sub> = 25°C Derate above 25°C	PD	310 2.82	mW mW/°C
Operating Junction Temp Range	TJ	135	°C
Storage Temperature Range	T <sub>stg</sub>	-65 to +150	°C

Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.



# **ON Semiconductor®**

http://onsemi.com



MARKING DIAGRAM



(Note: Microdot may be in either location)

## **ORDERING INFORMATION**

Device	Package	Shipping <sup>†</sup>
J110	TO-92	1000 Units / Box
J110G	TO–92 (Pb–Free)	1000 Units / Box
J110RLRA	TO-92	2000 / Tape & Reel
J110RLRAG	TO–92 (Pb–Free)	2000 / Tape & Reel

<sup>+</sup>For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

**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.

# J110

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

Characteris	lic	Symbol	Min	Max	Unit
STATIC CHARACTERISTICS					
Gate-Source Breakdown Voltage	(I <sub>G</sub> = -1.0 μAdc)	V <sub>(BR)GSS</sub>	-25	-	Vdc
Gate Reverse Current (V	$(V_{GS} = -15 \text{ Vdc}, V_{DS} = 0)$ GS = -15 Vdc, V <sub>DS</sub> = 0, T <sub>A</sub> = 100°C)	I <sub>GSS</sub>		-3.0 -200	nAdc
Gate-Source Cutoff Voltage	$(V_{DS} = 5.0 \text{ Vdc}, I_D = 1.0 \mu \text{Adc})$	V <sub>GS(off)</sub>	-0.5	-4.0	Vdc
Drain Source On–Resistance	$(V_{DS} \le 0.1 \text{ V}, V_{GS} = 0 \text{ V})$	R <sub>DS(on)</sub>	-	18	Ω
Zero-Gate-Voltage Drain Current (Note 1)	(V <sub>DS</sub> = 15 Vdc)	I <sub>DSS</sub>	10	-	mAdc
DYNAMIC CHARACTERISTICS					
Drain–Gate and Source–Gate On–Capacitant ( $V_{DS} = V_{GS} = 0$ , f = 1.0 MHz)	ce	C <sub>dg(on)</sub> + C <sub>sg(on)</sub>	-	85	pF
Drain-Gate Off-Capacitance	$(V_{GS} = -10 \text{ Vdc}, \text{ f} = 1.0 \text{ MHz})$	C <sub>dg(off)</sub>	-	15	pF
Source-Gate Off-Capacitance	(V <sub>GS</sub> = -10 Vdc, f = 1.0 MHz)	C <sub>sg(off)</sub>	-	15	pF

1. Pulse Width = 300  $\mu$ s, Duty Cycle = 3.0%.

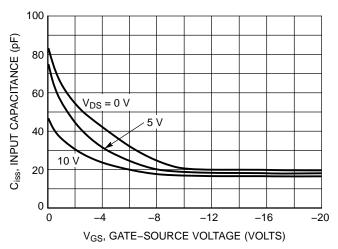
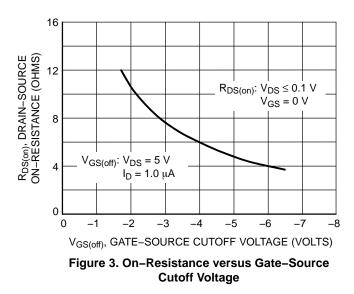


Figure 1. Common Source Input Capacitance versus Gate–Source Voltage



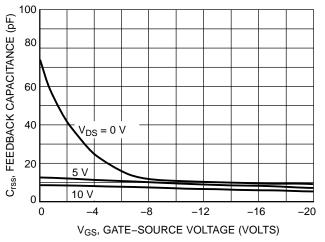
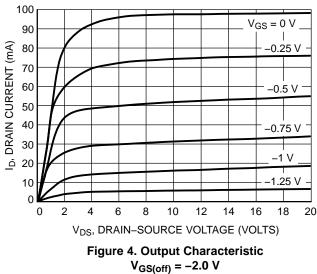
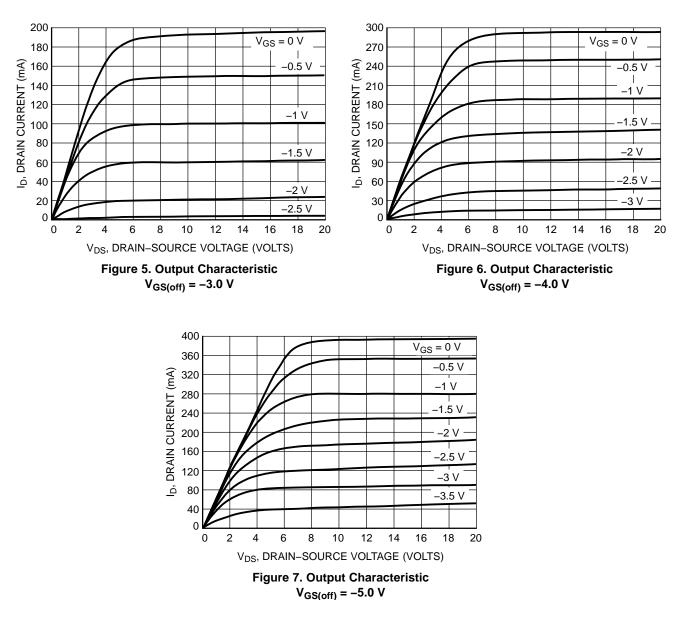


Figure 2. Common Source Reverse Feedback Capacitance versus Gate–Source Voltage



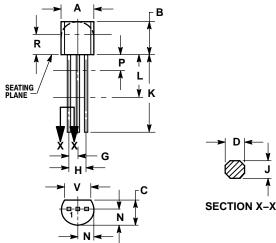
J110



# J110

#### PACKAGE DIMENSIONS

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





NOTES:

- 1. DIMENSIONING AND TOLERANCING PER ANSI V14.5M, 1982. CONTROLLING DIMENSION: INCH. CONTOUR OF PACKAGE BEYOND DIMENSION R
- 2
- 3. IS UNCONTROLLED. LEAD DIMENSION IS UNCONTROLLED IN P AND 4.
- BEYOND DIMENSION K MINIMUM.

	INC	HES	MILLIN	IETERS
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
ſ	0.015	0.020	0.39	0.50
Κ	0.500		12.70	
L	0.250		6.35	
Ν	0.080	0.105	2.04	2.66
Р		0.100		2.54
R	0.115		2.93	
٧	0.135		3.43	

PIN 1 DRAIN SOURCE 2.

3. GATE

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