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

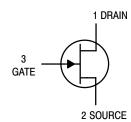
Rating	Symbol	Value	Unit
Gate-Source Voltage	VG _S	-25	Vdc
Drain-Gate Voltage	V _{DG}	-25	Vdc
Gate Current	I _G	10	mAdc
Total Device Dissipation @ T _A = 25°C Derate above 25°C	PD	310 2.82	mW mW/°C
Operating Junction Temp Range	TJ	135	°C
Storage Temperature Range	T _{stg}	-65 to +150	°C

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 [†]
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

⁺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_A = 25°C unless otherwise noted)

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

1. Pulse Width = 300 μ s, Duty Cycle = 3.0%.

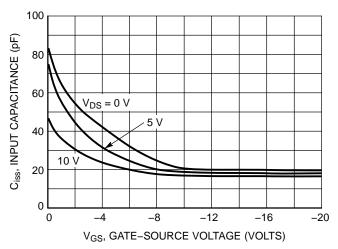
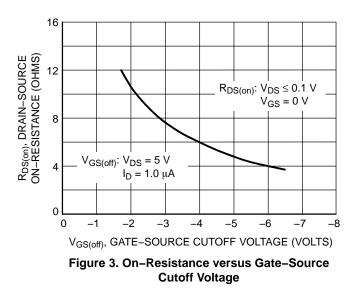


Figure 1. Common Source Input Capacitance versus Gate–Source Voltage



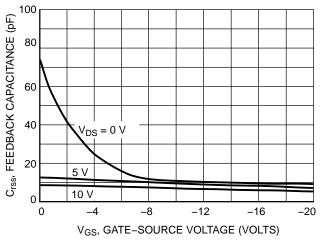
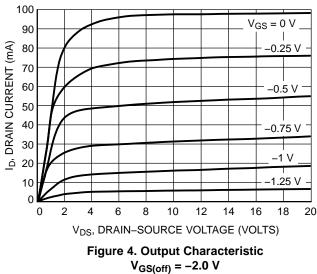
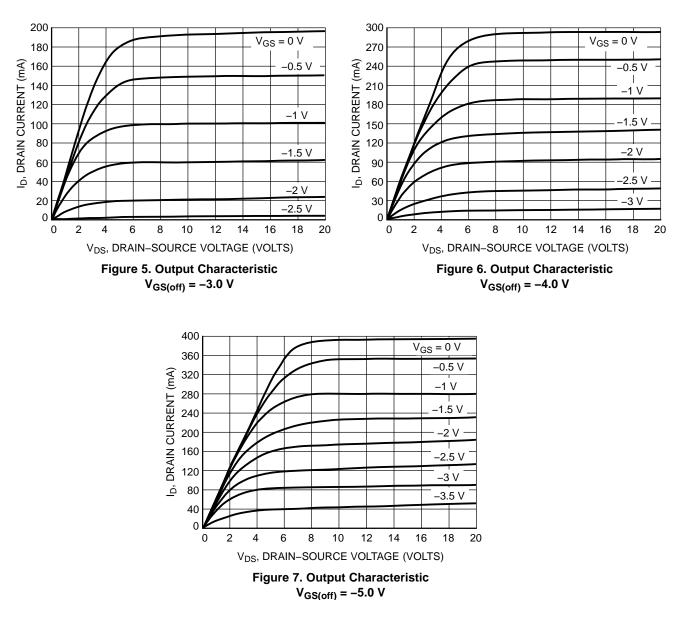


Figure 2. Common Source Reverse Feedback Capacitance versus Gate–Source Voltage



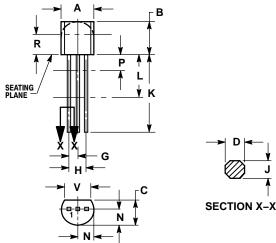
J110



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

ON Semiconductor and 💷 are registered trademarks of Semiconductor Components Industries, LLC (SCILLC). SCILLC reserves the right to make changes without further notice to any products herein. SCILLC makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does SCILLC assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. "Typical" parameters which may be provided in SCILLC data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. SCILLC does not convey any license under its patent rights nor the rights of others. SCILLC products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the SCILLC product could create a situation where personal injury or death may occur. Should Buyer purchase or use SCILLC products for any such unintended or unauthorized application, Buyer shall indemnify and hold SCILLC and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that SCILLC was negligent regarding the design or manufacture of the part. SCILLC is an Equal Opportunity/Affirmative Action Employer. This literature is subject to all applicable copyright laws and is not for resale in any manner.

PUBLICATION ORDERING INFORMATION

LITERATURE FULFILLMENT:

Literature Distribution Center for ON Semiconductor P.O. Box 61312, Phoenix, Arizona 85082-1312 USA Phone: 480–829–7710 or 800–344–3860 Toll Free USA/Canada Fax: 480–829–7709 or 800–344–3867 Toll Free USA/Canada Email: orderlit@onsemi.com

N. American Technical Support: 800-282-9855 Toll Free USA/Canada

Japan: ON Semiconductor, Japan Customer Focus Center 2-9-1 Kamimeguro, Meguro-ku, Tokyo, Japan 153-0051 Phone: 81-3-5773-3850

ON Semiconductor Website: http://onsemi.com

Order Literature: http://www.onsemi.com/litorder

For additional information, please contact your local Sales Representative.