J110

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 Ω
- Fast Switching $t_{d(on)} + t_r$ = 8.0 ns (Typ)
- Low Noise $\overline{en}$ = 6.0 nV/$\sqrt{Hz}$ @ 10 Hz (Typ)
- Pb−Free Packages are Available*

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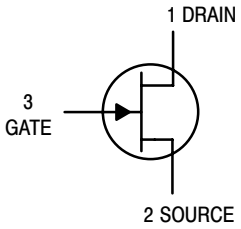
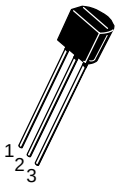
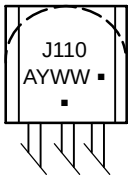


MARKING DIAGRAM



CASE 29
TO−92 (TO−226)
STYLE 5



J110 = Device Code
A = Assembly Location
Y = Year
WW = Work Week
▪ = Pb−Free Package
(Note: Microdot may be in either location)

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	P_D	 310 2.82	 mW mW/°C
Operating Junction Temp Range	T_J	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.

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.

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

Characteristic		Symbol	Min	Max	Unit
STATIC CHARACTERISTICS					
Gate−Source Breakdown Voltage	(I_G = −1.0 μAdc)	$V_{(BR)GSS}$	−25	−	Vdc
Gate Reverse Current	(V_{GS} = −15 Vdc, V_{DS} = 0) (V_{GS} = −15 Vdc, V_{DS} = 0, T_A = 100°C)	I_{GSS}	− −	−3.0 −200	nAdc
Gate−Source Cutoff Voltage	(V_{DS} = 5.0 Vdc, I_D = 1.0 μAdc)	$V_{GS(off)}$	−0.5	−4.0	Vdc
Drain Source On−Resistance	(V_{DS} ≤ 0.1 V, V_{GS} = 0 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−Capacitance (V_{DS} = V_{GS} = 0, f = 1.0 MHz)		$C_{dg(on)}$ + $C_{sg(on)}$	−	85	pF
Drain−Gate Off−Capacitance	(V_{GS} = −10 Vdc, f = 1.0 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 μs, Duty Cycle = 3.0%.

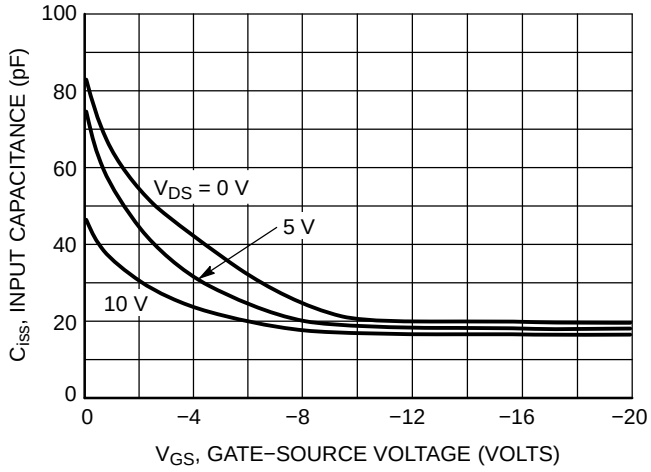


Figure 1. Common Source Input Capacitance versus Gate−Source Voltage

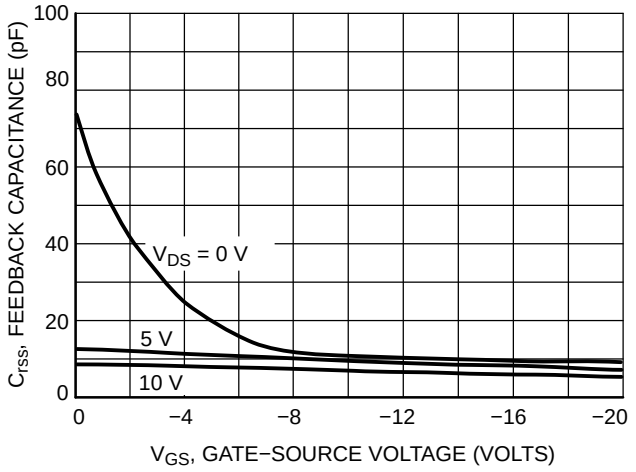


Figure 2. Common Source Reverse Feedback Capacitance versus Gate−Source Voltage

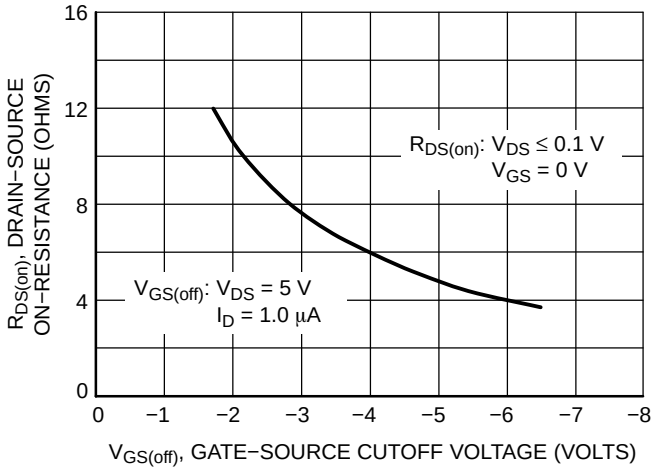


Figure 3. On−Resistance versus Gate−Source Cutoff Voltage

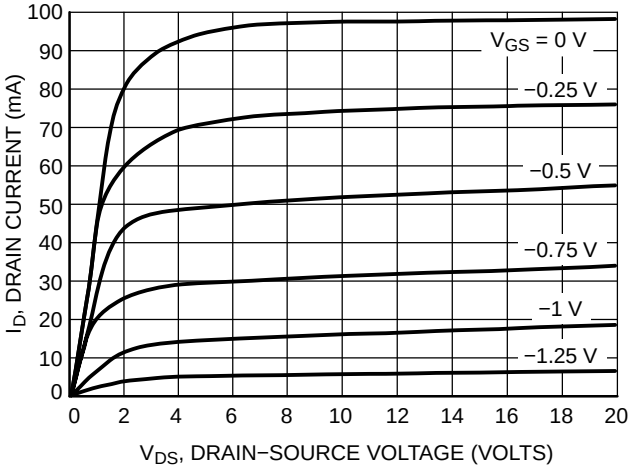


Figure 4. Output Characteristic $V_{GS(off)}$ = −2.0 V

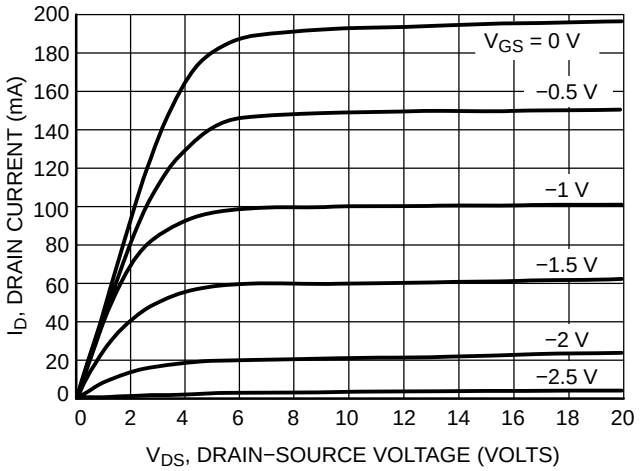


Figure 5. Output Characteristic
$V_{GS(off)}$ = −3.0 V

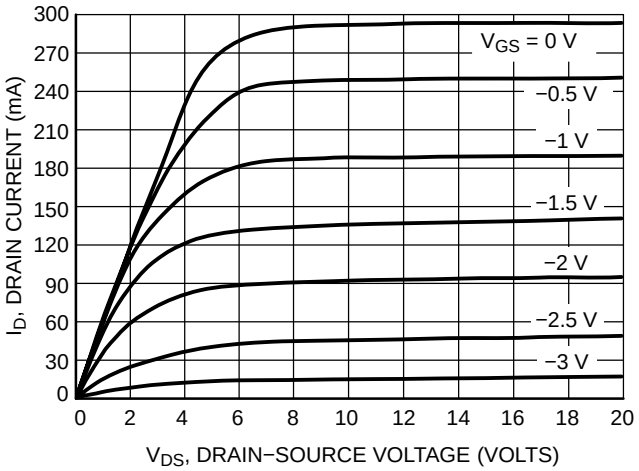


Figure 6. Output Characteristic
$V_{GS(off)}$ = −4.0 V

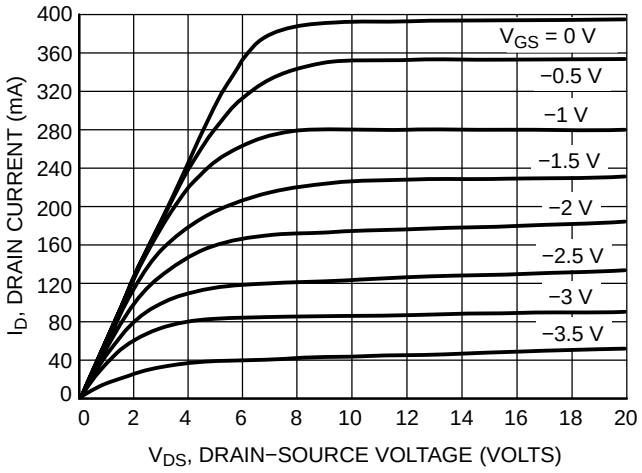
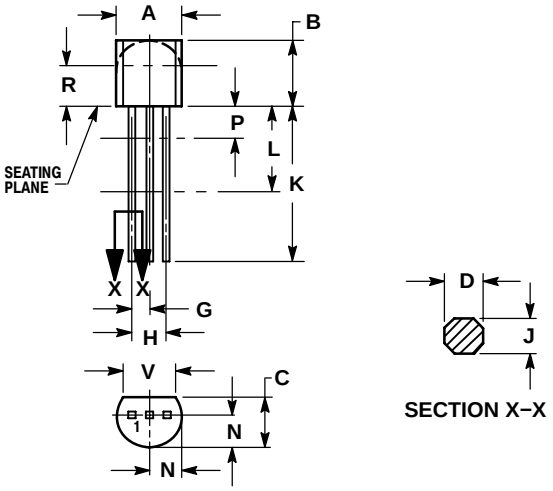


Figure 7. Output Characteristic
$V_{GS(off)}$ = −5.0 V

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	---

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

PUBLICATION ORDERING INFORMATION

LITERATURE FULFILLMENT:
Literature Distribution Center for ON Semiconductor
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For additional information, please contact your local Sales Representative.

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