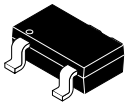
N-Channel JFET, -25 V, 20 to 40 mA, 40 mS

NSVJ3910SB3



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Automotive JFET designed for compact and efficient designs and including high gain performance. AEC−Q101 qualified JFET and PPAP capable suitable for automotive applications.

Features

- High Forward Transfer Admittance
- High Breakdown Voltage
- Low Input Capacitance
- Low Noise Figure
- NSV Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC−Q101 Qualified and PPAP Capable
- These Devices are Pb−Free and are RoHS Compliant

Typical Applications

- Low Noise Amplifier for Automotive AM Radio

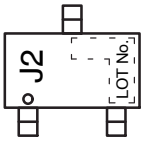
Specifications

ABSOLUTE MAXIMUM RATINGS (at T_A = 25°C)

Parameter	Symbol	Value	Unit
Drain−to−Source Voltage	V_{DSX}	25	V
Gate−to−Drain Voltage	V_{GDS}	−25	V
Gate Current	I_G	10	mA
Drain Current	I_D	50	mA
Allowable Power Dissipation	P_D	400	mW
Operating Junction and Storage Temperature	T_J, T_{STG}	−55 to +150	°C

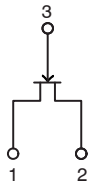
Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

MARKING DIAGRAM



J2 = Specific Device Code

ELECTRICAL CONNECTION



1: Source
2: Drain
3: Gate

N−Channel

ORDERING INFORMATION

Device	Package	Shipping†
NSVJ3910SB3T1G	CPH3 (Pb−Free)	3000 / Tape & Reel

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specification Brochure, BRD8011/D.

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ELECTRICAL CHARACTERISTICS (at T_A = 25°C)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Gate-to-Drain Breakdown Voltage	$V_{(BR)GDS}$	I_G = −10 μA, V_{DS} = 0 V	−25	–	–	V
Gate Cutoff Current	I_{GSS}	V_{GS} = −10 V, V_{DS} = 0 V	–	–	−1.0	nA
Cutoff Voltage	$V_{GS(off)}$	V_{DS} = 5 V, I_D = 100 μA	−0.6	−1.2	−1.8	V
Drain Current	I_{DSS}	V_{DS} = 5 V, V_{GS} = 0 V	20	–	40	mA
Forward Transfer Admittance	| yfs |	V_{DS} = 5 V, V_{GS} = 0 V, f = 1 kHz	30	40	–	mS
Input Capacitance	Ciss	V_{DS} = 5 V, V_{GS} = 0 V, f = 1 MHz	–	6.0	–	pF
Reverse Transfer Capacitance	Crss		–	2.3	–	pF
Noise Figure	NF	V_{DS} = 5 V, V_{GS} = 0 V, f = 100 MHz	–	2.1	2.8	dB

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

TYPICAL CHARACTERISTICS

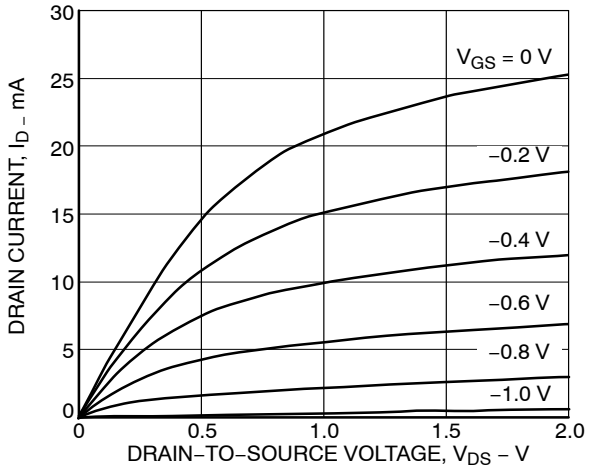

Figure 1. I_D – V_{DS}

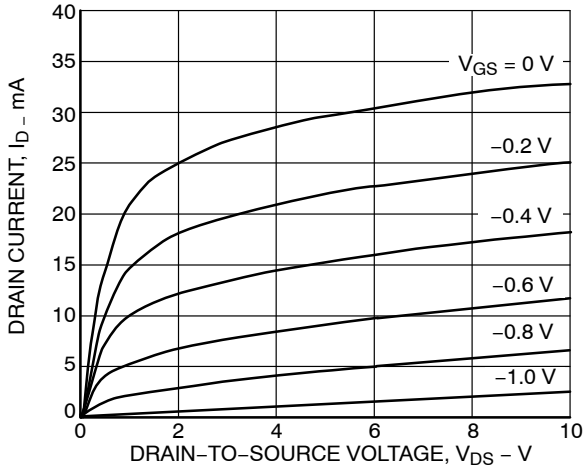

Figure 2. I_D – V_{DS}

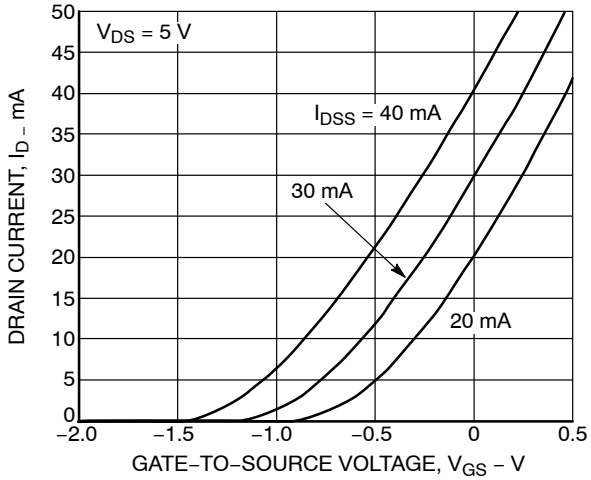

Figure 3. I_D – V_{GS}

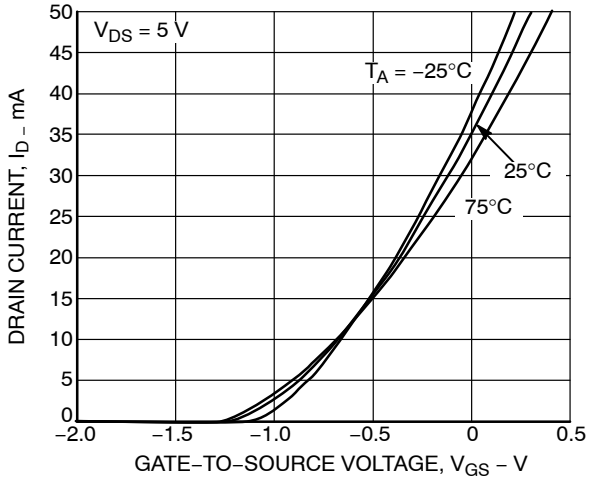

Figure 4. I_D – V_{GS}

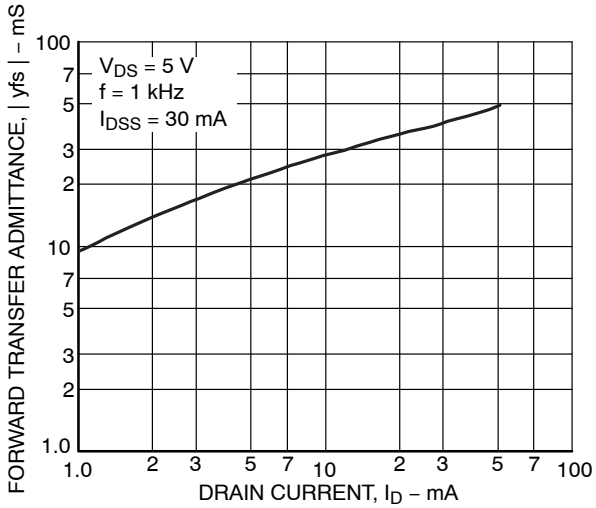

Figure 5. | yfs | – I_D

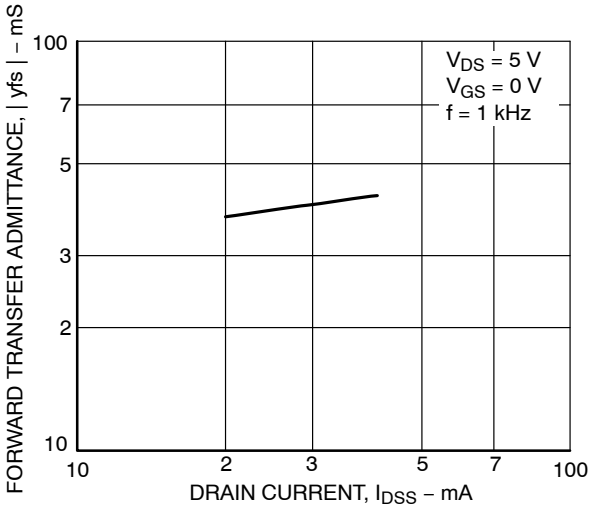

Figure 6. | yfs | – I_{DSS}

TYPICAL CHARACTERISTICS (CONTINUED)

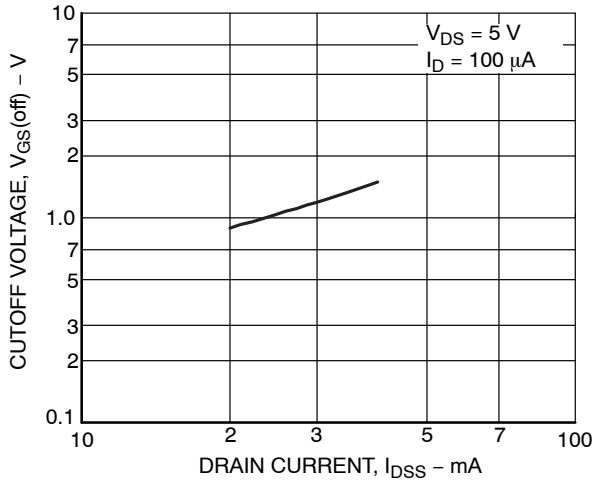

Figure 7. V_{GS}(off) – I_{DSS}

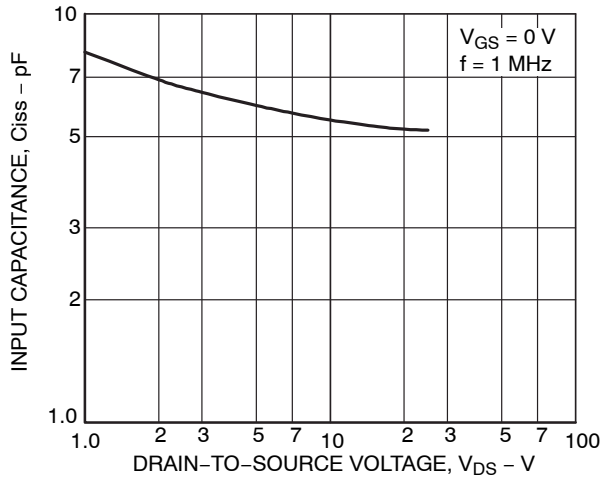

Figure 8. Ciss – V_{DS}

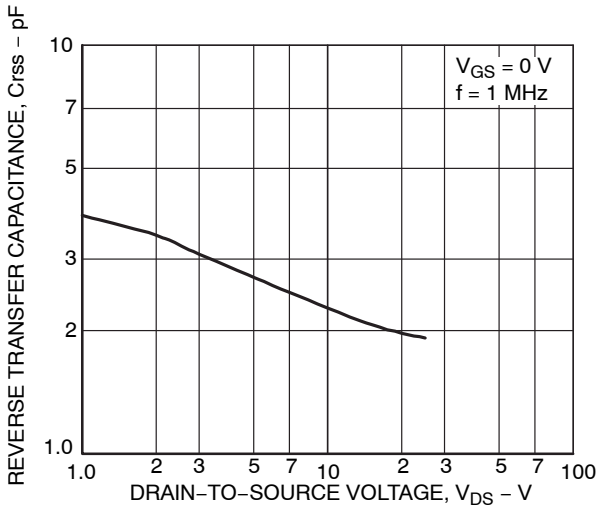

Figure 9. Crss – V_{DS}

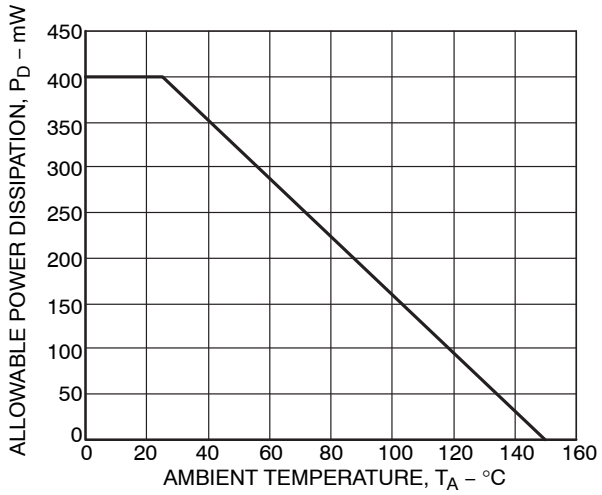

Figure 10. P_D – T_A

RECOMMENDED SOLDERING FOOTPRINT

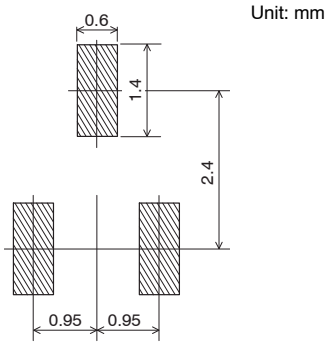

Figure 11. Recommended Soldering Footprint

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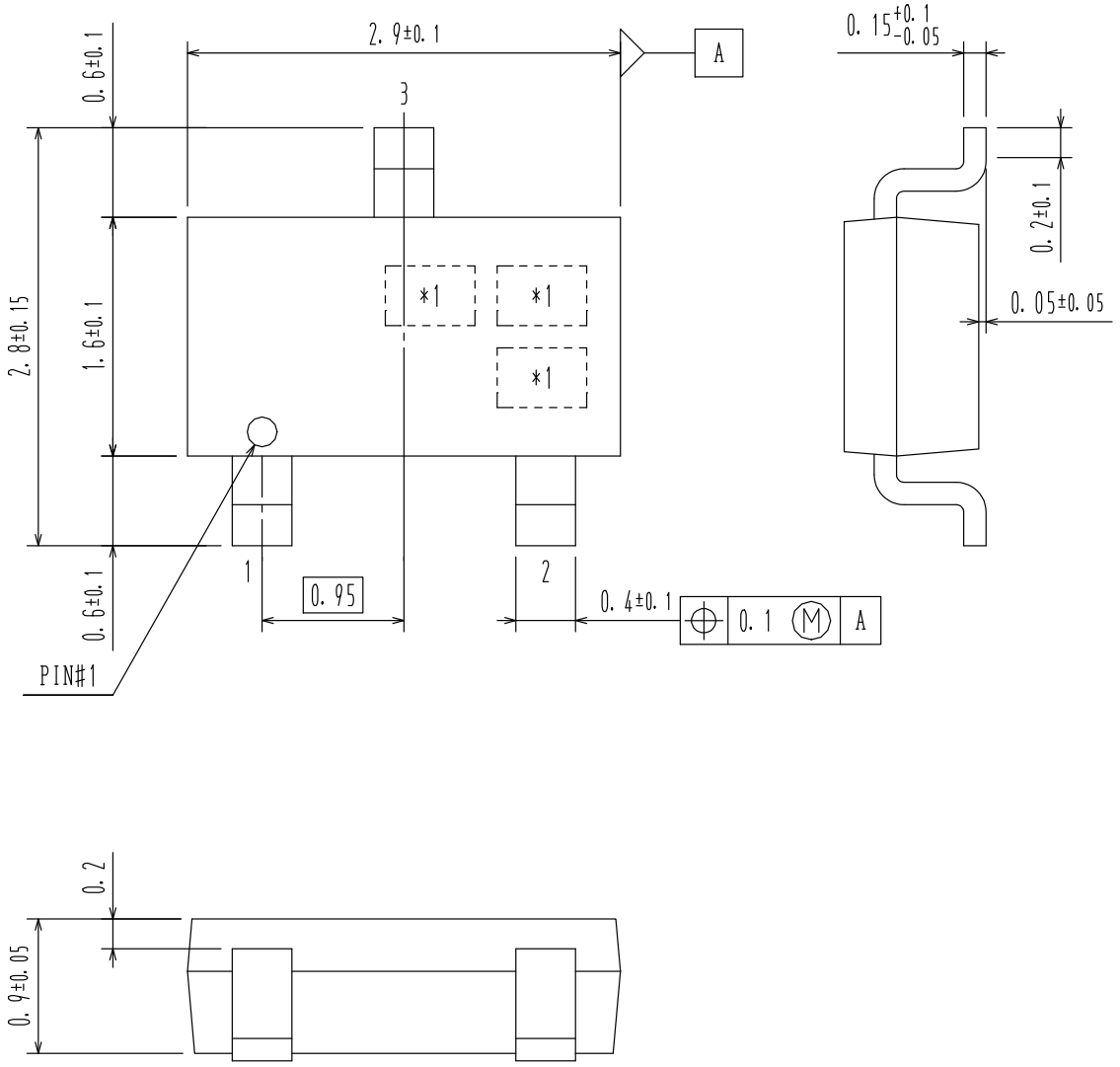

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