N-Channel JFET, 15 V, 10 to 32 mA, 38 mS

NSVJ2394SA3



SC−59 / CP3
CASE 318BJ

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

- Large | yfs |
- Small Ciss
- This Small Package Enables Sets to be Smaller and Thinner
- Ultralow 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

Applications

- AM Tuner RF Amplifier
- Low Noise Amplifier

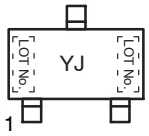
Specifications

ABSOLUTE MAXIMUM RATINGS (at T_A = 25°C)

Parameter	Symbol	Value	Unit
Drain−to−Source Voltage	V_{DSX}	15	V
Gate−to−Drain Voltage	V_{GDS}	−15	V
Gate Current	I_G	10	mA
Drain Current	I_D	50	mA
Allowable Power Dissipation	P_D	200	mW
Operating Junction and Storage Temperature	T_J, T_{STG}	−55 to +150	°C

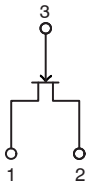
Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

MARKING DIAGRAM



YJ = Specific Device Code

ELECTRICAL CONNECTION



1: Source
2: Drain
3: Gate

N−Channel

ORDERING INFORMATION

Device	Package	Shipping†
NSVJ2394SA3T1G	SC−59/CP3 (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	−15	–	–	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	−0.3	−0.7	−1.5	V
Drain Current	I_{DSS}	V_{DS} = 5 V, V_{GS} = 0 V	10	–	32	mA
Forward Transfer Admittance	| yfs |	V_{DS} = 5 V, V_{GS} = 0 V, f = 1 kHz	20	38	–	mS
Input Capacitance	Ciss	V_{DS} = 5 V, V_{GS} = 0 V, f = 1 MHz	–	10	–	pF
Reverse Transfer Capacitance	Crss		–	2.9	–	pF
Noise Figure	NF	V_{DS} = 5 V, Rg = 1 kΩ, I_D = 1 mA, f = 1 kHz	–	1.0	–	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.

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TYPICAL CHARACTERISTICS

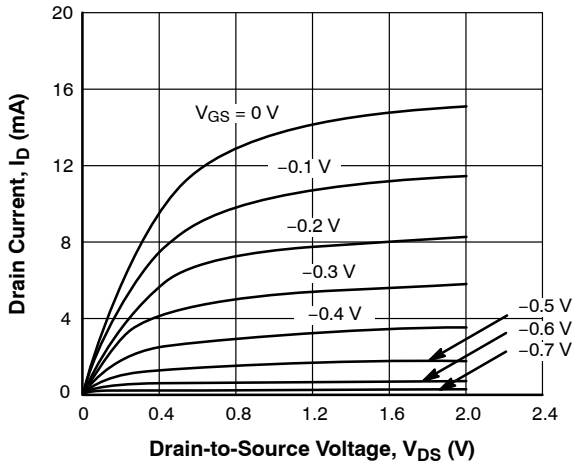

Figure 1. I_D – V_{DS}

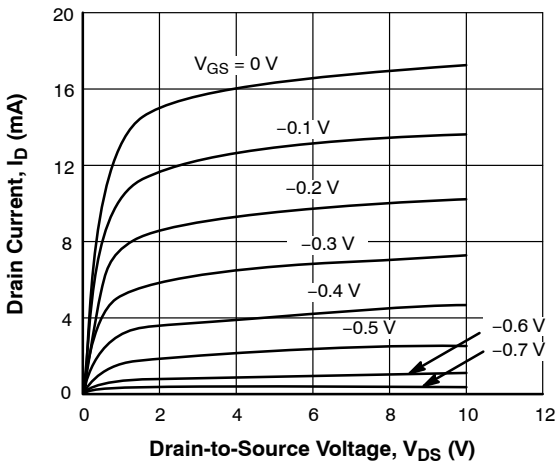

Figure 2. I_D – V_{DS}

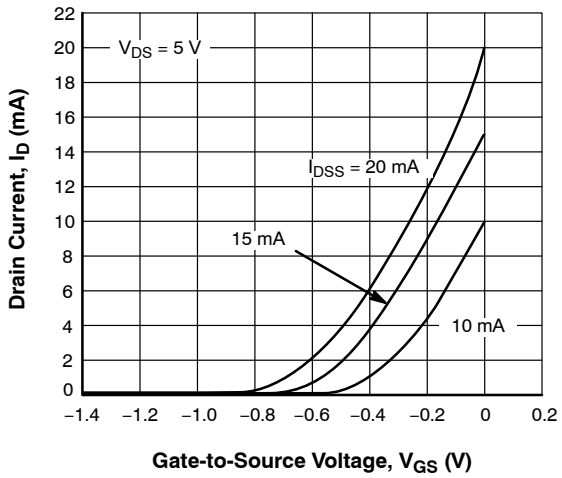

Figure 3. I_D – V_{GS}

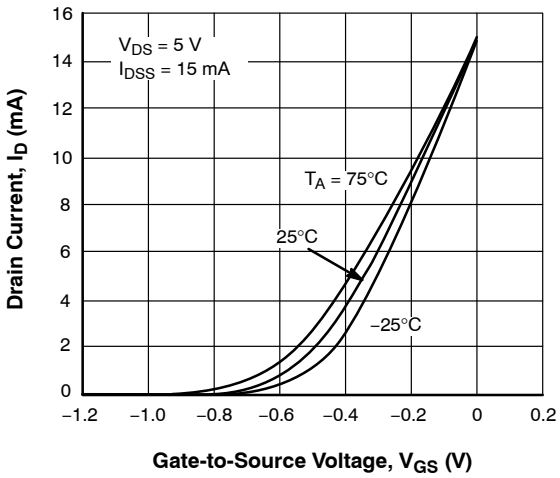

Figure 4. I_D – V_{GS}

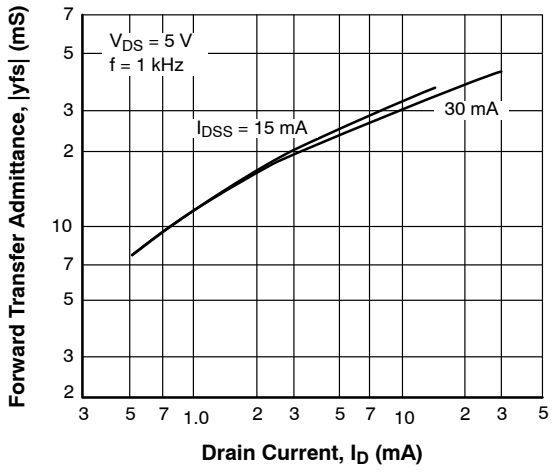

Figure 5. |yfs| – I_D

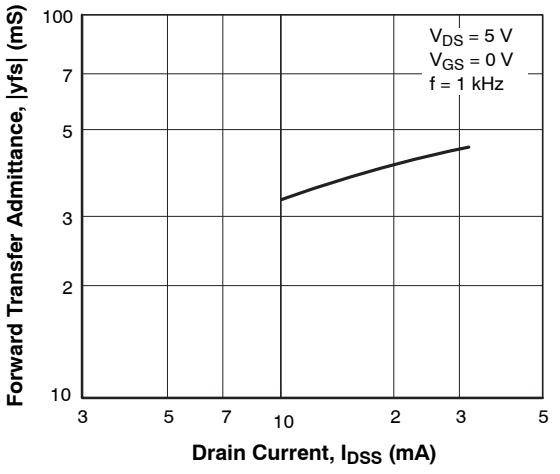

Figure 6. |yfs| – I_{DSS}

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TYPICAL CHARACTERISTICS (CONTINUED)

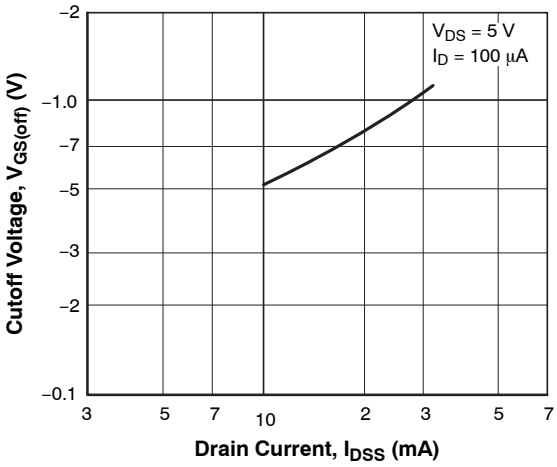

Figure 7. $V_{GS(off)}$ – I_{DSS}

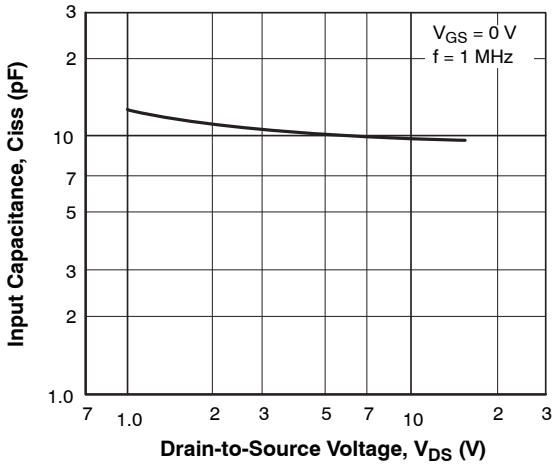

Figure 8. Ciss – V_{DS}

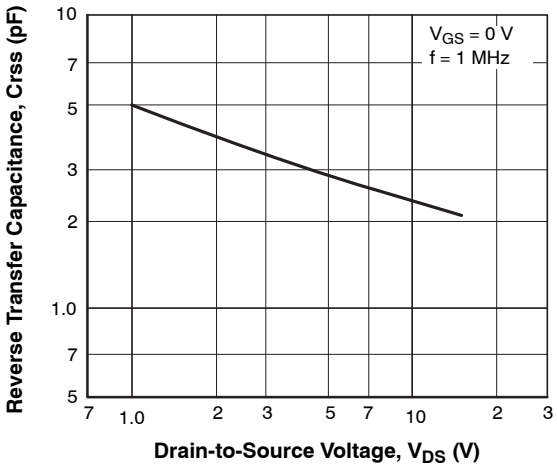

Figure 9. Crss – V_{DS}

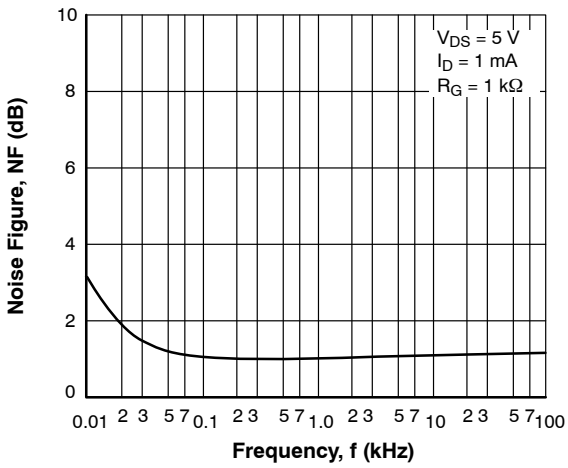

Figure 10. NF – f

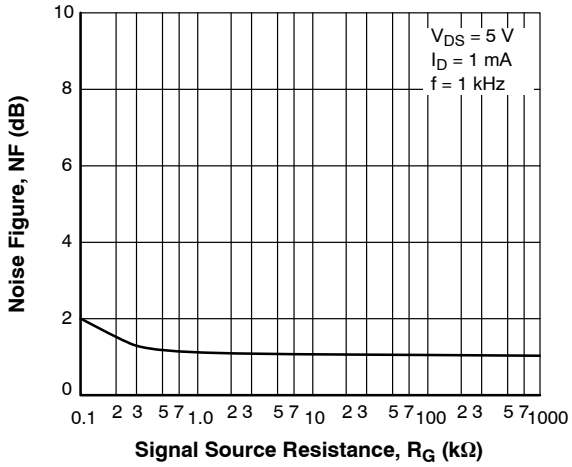

Figure 11. NF – R_G

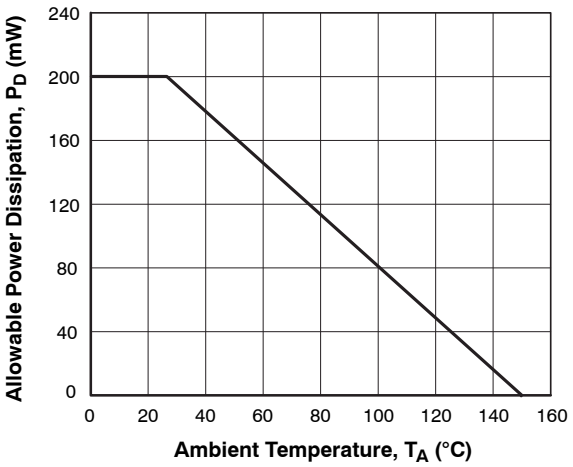

Figure 12. P_D – T_A

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SCALE 2:1

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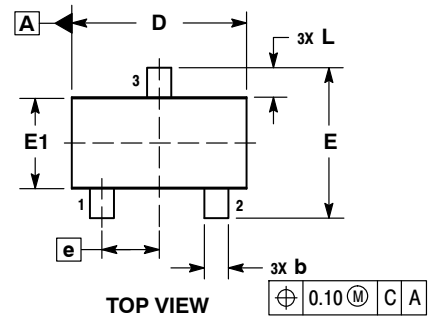
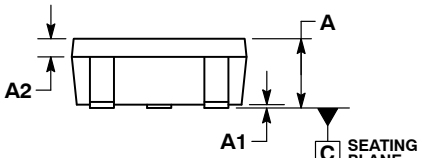
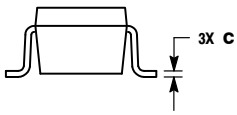


TOP VIEW



SIDE VIEW

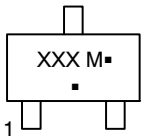


END VIEW

NOTES:
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. DIMENSIONS D AND E1 DO NOT INCLUDE MOLD FLASH, PROTRUSIONS, OR GATE BURRS. MOLD FLASH, PROTRUSIONS, OR GATE BURRS SHALL NOT EXCEED 0.20 PER SIDE.
4. DIMENSIONS D AND E1 ARE MEASURED AT THE OUTERMOST EXTREME OF THE PLASTIC BODY.
5. DIMENSIONS b AND c APPLY TO THE FLAT SECTION OF THE LEAD BETWEEN 0.10 AND 0.20 FROM THE TIP.

	MILLIMETERS	
DIM	MIN	MAX
A	0.95	1.35
A1	0.00	0.10
A2	0.20	0.40
b	0.35	0.50
c	0.10	0.20
D	2.75	3.05
E	2.30	2.70
E1	1.35	1.65
e	0.95 BSC	
L	0.35	0.75

GENERIC MARKING DIAGRAM

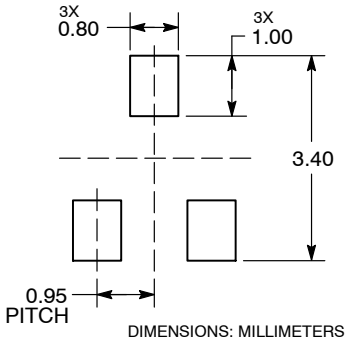


XXX = Specific Device Code
M = Date Code
▪ = Pb−Free Package

(Note: Microdot may be in either location)

*This information is generic. Please refer to device data sheet for actual part marking. Pb−Free indicator, “G” or microdot “ ▪”, may or may not be present.

RECOMMENDED SOLDERING FOOTPRINT*



DIMENSIONS: MILLIMETERS

*For additional information on our Pb−Free strategy and soldering details, please download the **onsemi** Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

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