

N-Channel JFET

–25 V, 20 to 40 mA, 40 mS, Dual

NSVJ6904DSB6

The NSVJ6904DSB6 is a composite type of JFET designed for compact size and high efficiency which can achieve high gain performance. This AEC–Q101 qualified and PPAP capable device is suited for automotive applications.

Features

- Large |yfs|
- Small Ciss
- Ultralow Noise Figure
- CPH6 Package is Pin-Compatible with SC–74
- AEC–Q101 Qualified and PPAP Capable
- Mounting Area is Greatly Reduced by Incorporating Two JFETs of the NSVJ3910SB3 in One Package of CPH6 Compared with Using Two Separate Packages

Typical Applications

- AM Tuner RF Amplification
- Low Noise Amplifier

Specifications

ABSOLUTE MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$)

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 1 unit	P_D	400	mW
Total Power Dissipation	P_T	700	mW
Operating Junction and Storage Temperature	T_J, T_{Stg}	–55 to +150	$^\circ\text{C}$

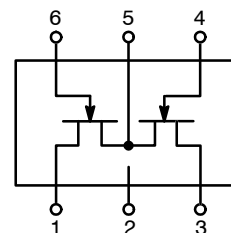
Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.



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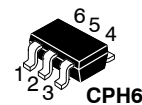
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ELECTRICAL CONNECTION N-Channel

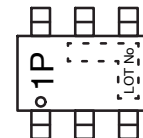


- 1 : Drain 1
- 2 : NC
- 3 : Drain 2
- 4 : Gate 2
- 5 : Source 1 / Source 2
- 6 : Gate 1

MARKING DIAGRAM



CASE 318BD



ORDERING INFORMATION

See detailed ordering, marking and shipping information in the package dimensions section on page 4 of this data sheet.

NSVJ6904DSB6

ELECTRICAL CHARACTERISTICS ($T_J = 25^\circ\text{C}$, (Note 1))

Characteristic	Symbol	Conditions	Min	Typ	Max	Unit
Gate to Drain Breakdown Voltage	$V_{(BR)GDS}$	$I_G = -10\ \mu\text{A}$, $V_{DS} = 0\ \text{V}$	-25	-	-	V
Gate to Source Leakage Current	I_{GSS}	$V_{GS} = -10\ \text{V}$, $V_{DS} = 0\ \text{V}$	-	-	-1.0	nA
Cutoff Voltage	$V_{GS(off)}$	$V_{DS} = 5\ \text{V}$, $I_D = 100\ \mu\text{A}$	-0.6	-1.2	-1.8	V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 5\ \text{V}$, $V_{GS} = 0\ \text{V}$	20	-	40	mA
Forward Transfer Admittance	$ y_{fs} $	$V_{DS} = 5\ \text{V}$, $V_{GS} = 0\ \text{V}$, $f = 1\ \text{kHz}$	30	40	-	mS
Input Capacitance	C_{iss}	$V_{DS} = 5\ \text{V}$, $V_{GS} = 0\ \text{V}$, $f = 1\ \text{MHz}$	-	6.0	-	pF
Reverse Transfer Capacitance	C_{rss}		-	2.3	-	pF
Noise Figure	NF	$V_{DS} = 5\ \text{V}$, $V_{GS} = 0\ \text{V}$, $f = 100\ \text{MHz}$	-	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.

1. The specifications shown above are for each individual JFET.

CHARACTERISTICS

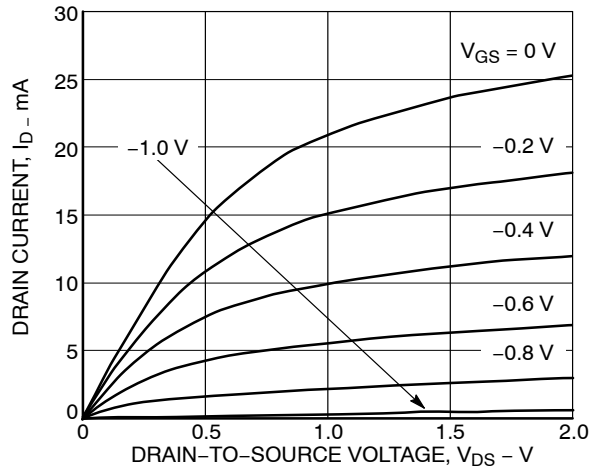


Figure 1. $I_D - V_{DS}$

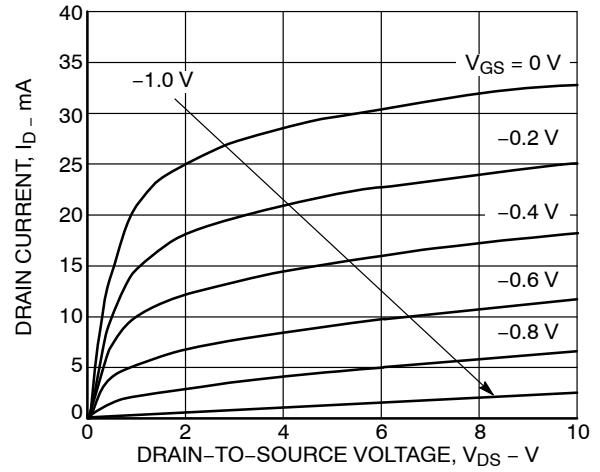


Figure 2. $I_D - V_{DS}$

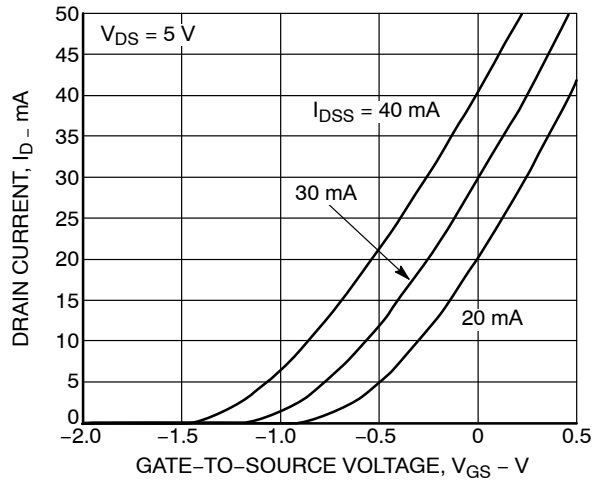


Figure 3. $I_D - V_{GS}$

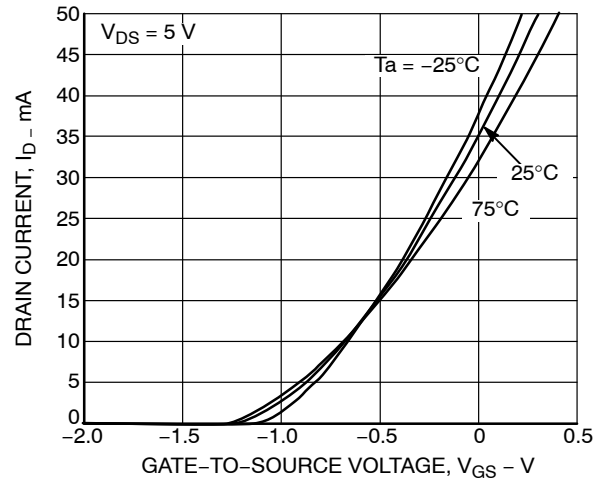


Figure 4. $I_D - V_{GS}$

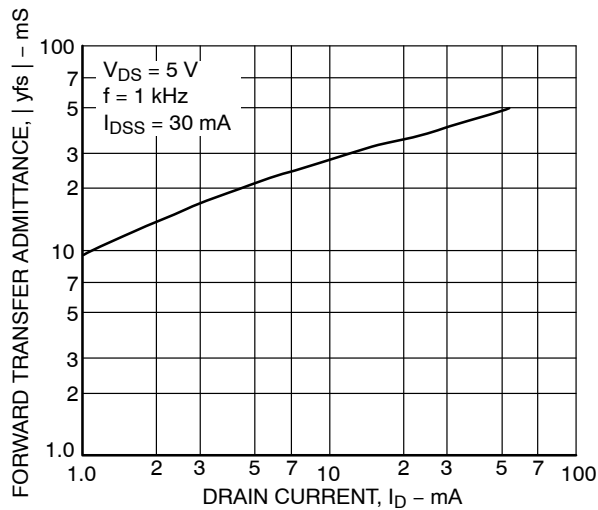


Figure 5. $|y_{fs}| - I_D$

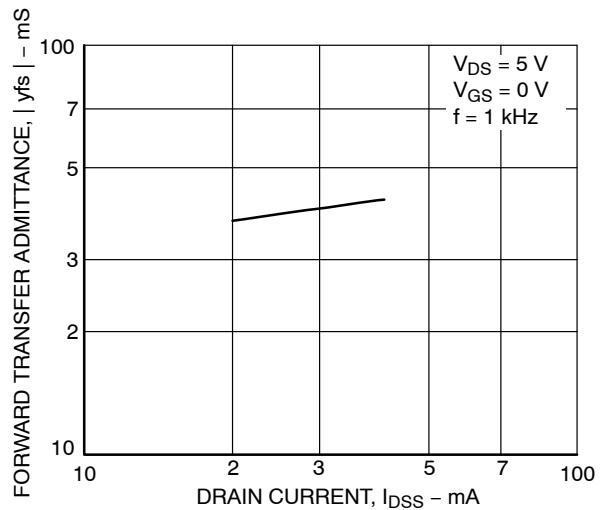


Figure 6. $|y_{fs}| - I_{DSS}$

CHARACTERISTICS

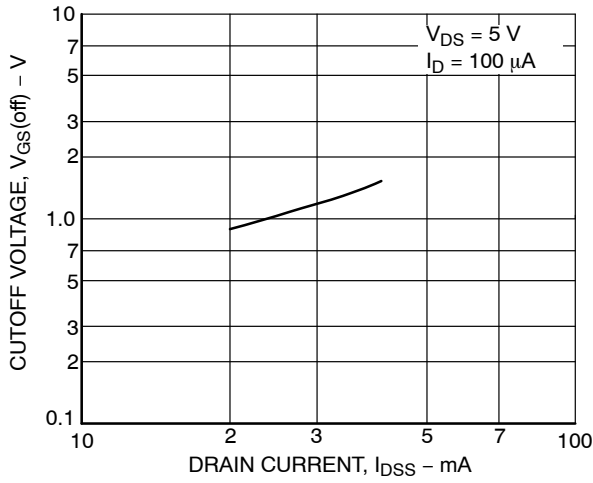


Figure 7. $V_{GS(off)} - I_{DSS}$

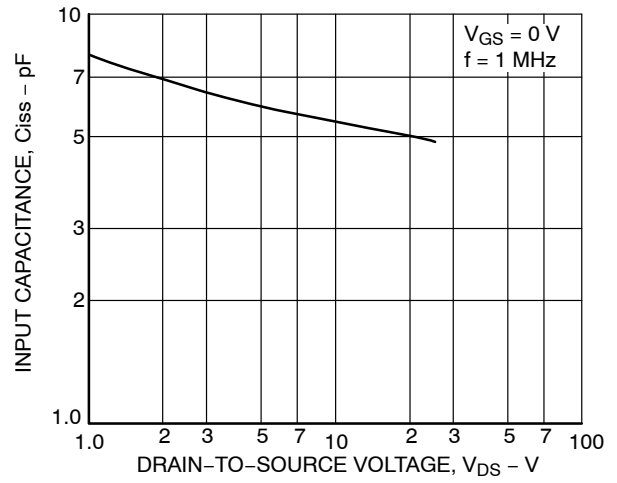


Figure 8. $C_{iss} - V_{GS}$

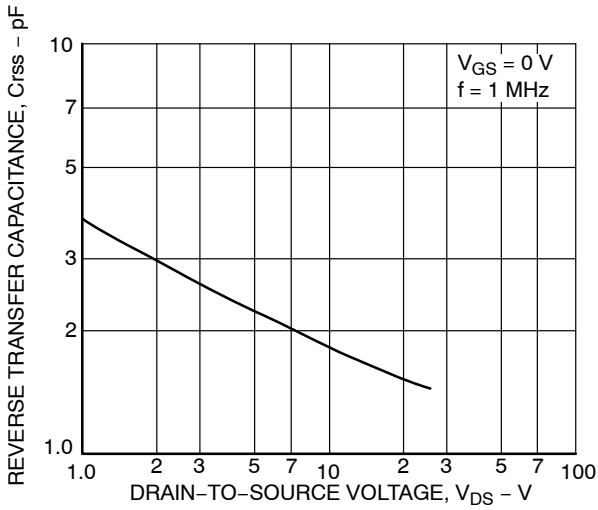


Figure 9. $C_{rss} - V_{DS}$

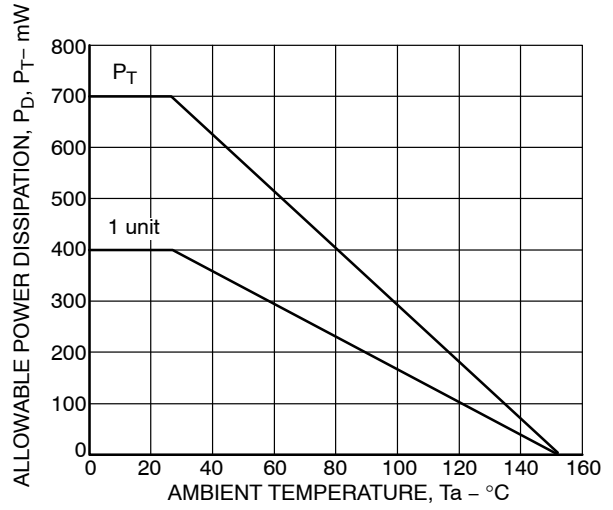


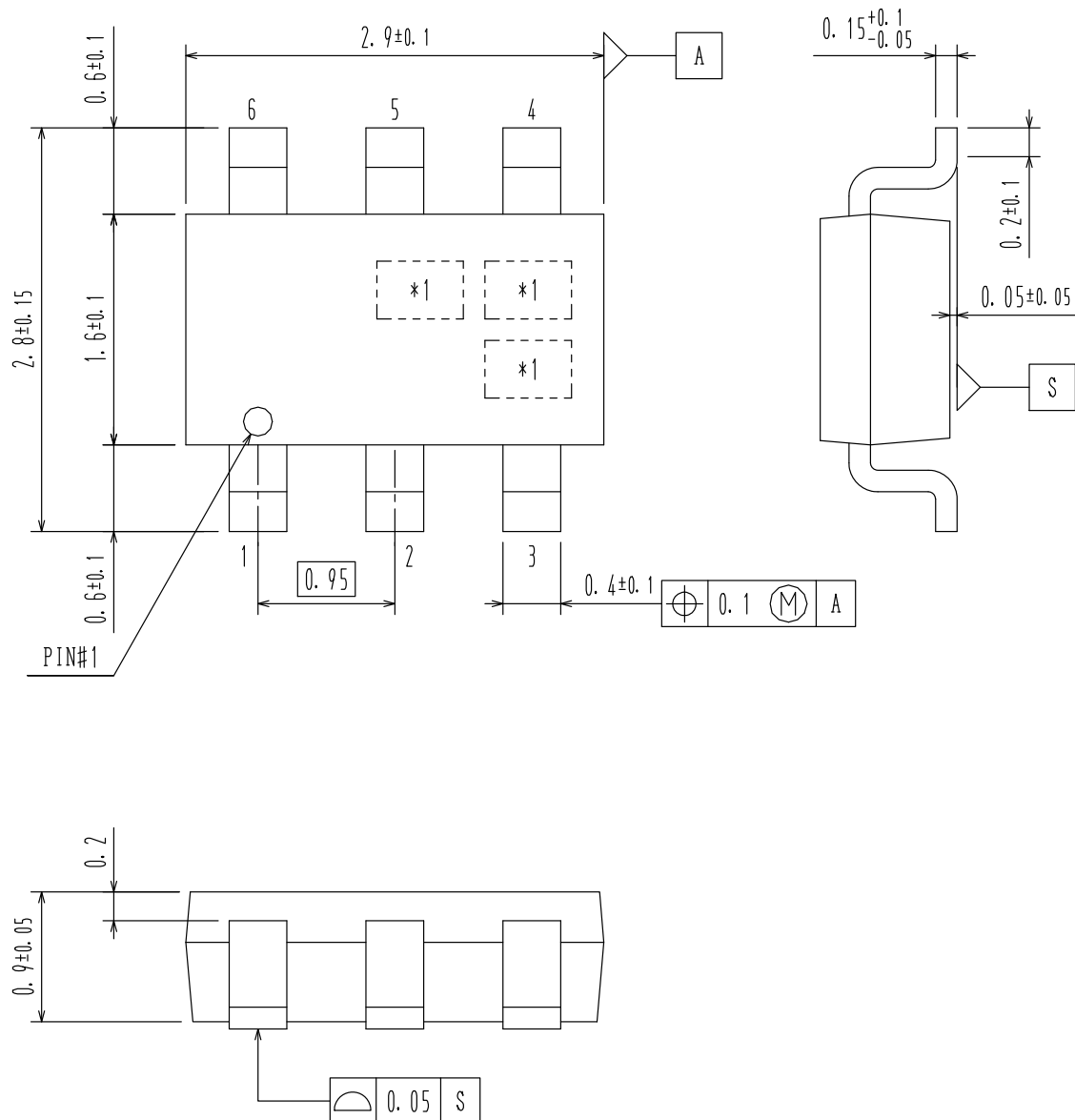
Figure 10. $P_D, P_T - T_a$

ORDERING INFORMATION

Device Order Number	Specific Device Marking	Package Type	Shipping [†]
NSVJ6904DSB6T1G	1P	CPH6 (Pb-Free / Halogen Free)	3,000 / 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.

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