

# NSVJ5908DSG5

## N-Channel JFET, -15 V, 10 to 32 mA, 35 ms, Dual

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  $|y_{fs}|$
- Small Ciss
- This Small Package Enables Sets to be Smaller and Thinner
- Ultralow Noise Figure
- MCPH5 Package is Pin-compatible with SC-88AFL
- Composite Type with 2 JFET Contained in a MCPH5 Package Currently in Use, Improving the Mounting Efficiency Greatly
- The NSVJ5908DSG5 is Formed with Two Chips, Being Equivalent to the NSVJ3557SA3, Placed in One Package
- 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, Halogen Free/BFR Free and are RoHS Compliant

### 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                    | $V_{DSX}$      | 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 – 1 unit       | $P_D$          | 200         | mW               |
| Total Power Dissipation                    | $P_T$          | 300         | 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.

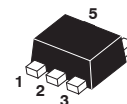
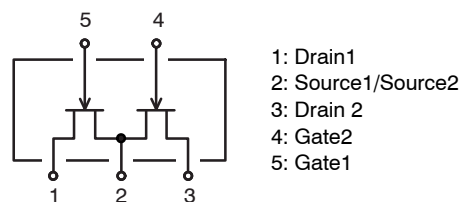


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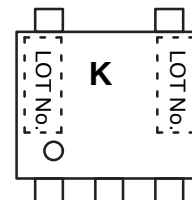
### ELECTRICAL CONNECTION

#### N-Channel



SC-88AFL/MCPH5  
CASE 419AP

### MARKING DIAGRAM



K = Specific Device Code

### ORDERING INFORMATION

See detailed ordering and shipping information on page 2 of this data sheet.

# NSVJ5908DSG5

**Table 1. ELECTRICAL CHARACTERISTICS** ( $T_A = 25^\circ\text{C}$ )

| Parameter                       | Symbol        | Conditions  | Min  | Typ  | Max  | Unit |
|---------------------------------|---------------|---|------|------|------|------|
| Gate-to-Drain Breakdown Voltage | $V_{(BR)GDS}$ | $I_G = -10 \mu\text{A}$ , $V_{DS} = 0 \text{ V}$  | -15  | -    | -    | V    |
| Gate-to-Source Leakage Current  | $I_{GSS}$     | $V_{GS} = -10 \text{ V}$ , $V_{DS} = 0 \text{ V}$   | -    | -    | -1.0 | nA   |
| Cutoff Voltage                  | $V_{GS(off)}$ | $V_{DS} = 5 \text{ V}$ , $I_D = 100 \mu\text{A}$  | -0.3 | -0.7 | -1.5 | V    |
| Zero-Gate Voltage Drain Current | $I_{DSS}$     | $V_{DS} = 5 \text{ V}$ , $V_{GS} = 0 \text{ V}$   | 10   | -    | 32   | mA   |
| Forward Transfer Admittance     | $ y_{fs} $    | $V_{DS} = 5 \text{ V}$ , $V_{GS} = 0 \text{ V}$ , $f = 1 \text{ kHz}$                           | 24   | 35   | -    | mS   |
| Input Capacitance               | $C_{iss}$     | $V_{DS} = 5 \text{ V}$ , $V_{GS} = 0 \text{ V}$ , $f = 1 \text{ MHz}$                           | -    | 10.5 | -    | pF   |
| Reverse Transfer Capacitance    | $C_{rss}$     |   | -    | 3.5  | -    | pF   |
| Noise Figure                    | NF            | $V_{DS} = 5 \text{ V}$ , $R_g = 1 \text{ k}\Omega$ , $I_D = 1 \text{ mA}$ , $f = 1 \text{ kHz}$ | -    | 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.

NOTE: The specifications shown above are for each individual JFET.

## ORDERING INFORMATION

| Device          | Marking | Package Type                                 | Shipping <sup>†</sup> |
|-----------------|---------|--|-----------------------|
| NSVJ5908DSG5T1G | K       | SC-88AFL / MCPH5<br>(Pb-Free / Halogen Free) | 3,000 / Tape & Reel   |

<sup>†</sup>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.

TYPICAL CHARACTERISTICS

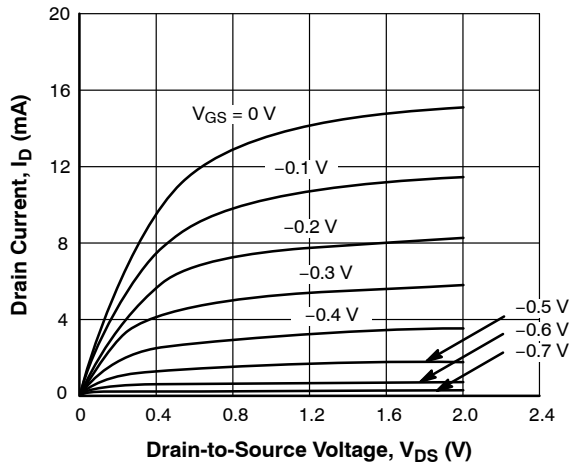


Figure 1.  $I_D$  vs.  $V_{DS}$

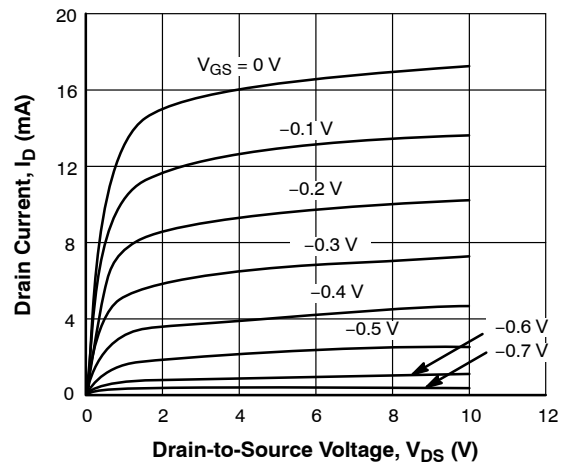


Figure 2.  $I_D$  vs.  $V_{DS}$

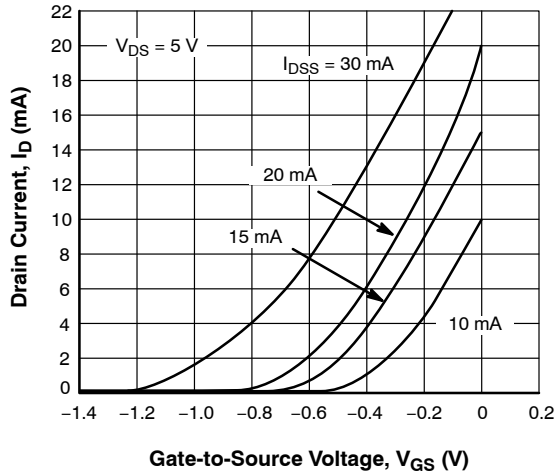


Figure 3.  $I_D$  vs.  $V_{GS}$

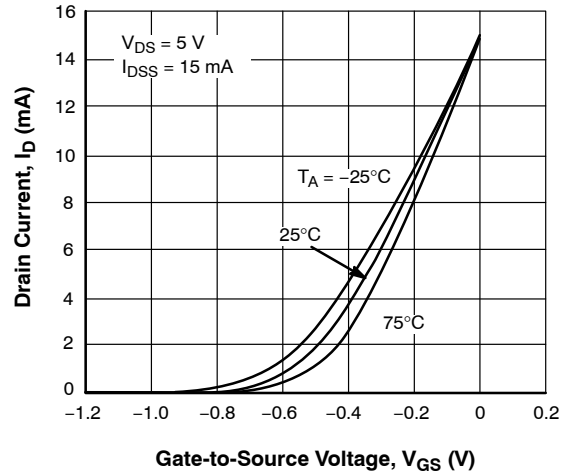


Figure 4.  $I_D$  vs.  $V_{GS}$

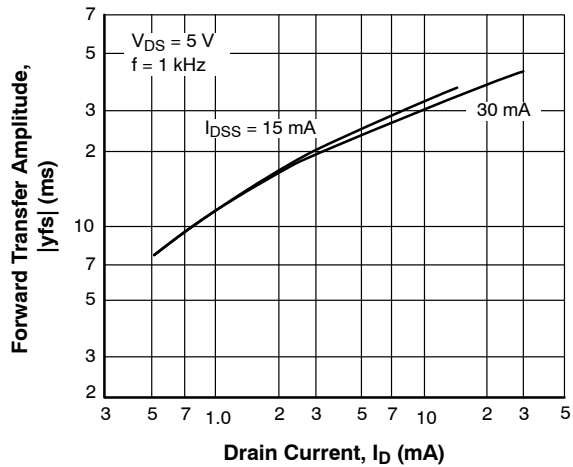


Figure 5.  $|y_{fs}|$  vs.  $I_D$

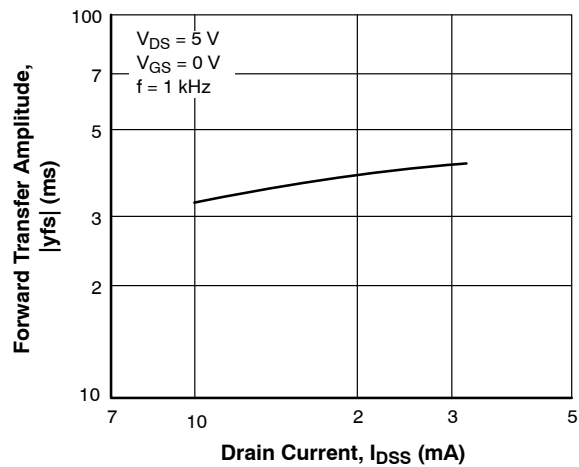


Figure 6.  $|y_{fs}|$  vs.  $I_{DSS}$

TYPICAL CHARACTERISTICS

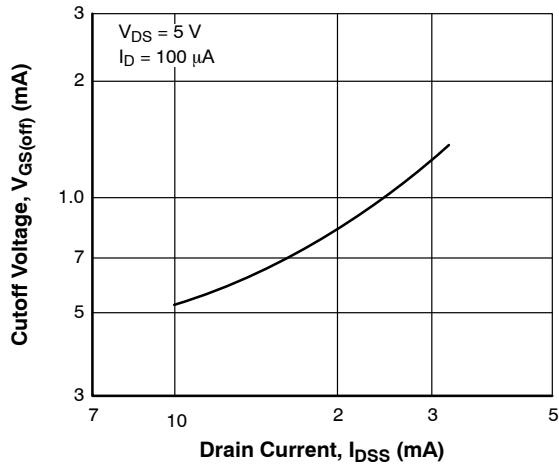


Figure 7.  $V_{GS(off)}$  vs.  $I_{DSS}$

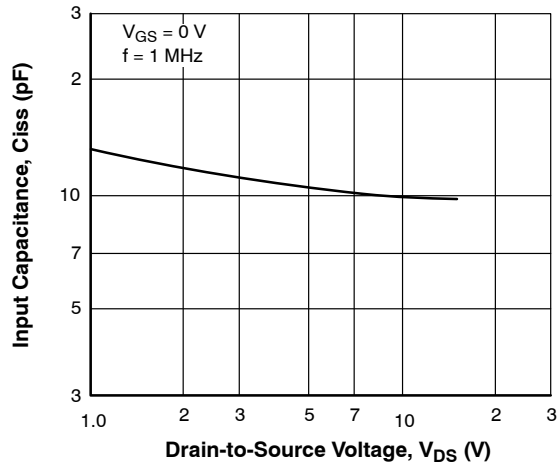


Figure 8.  $C_{iss}$  vs.  $V_{DS}$

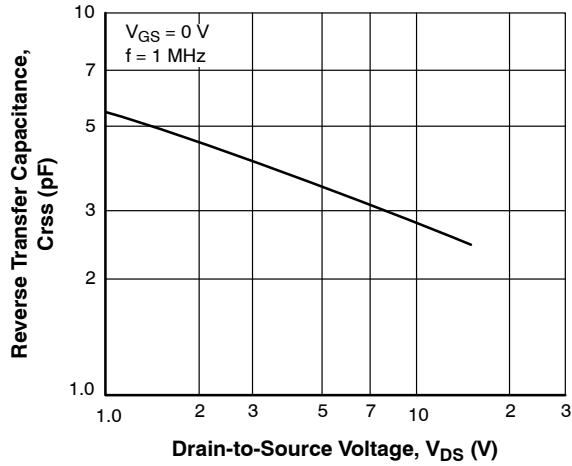


Figure 9.  $C_{rss}$  vs.  $V_{DS}$

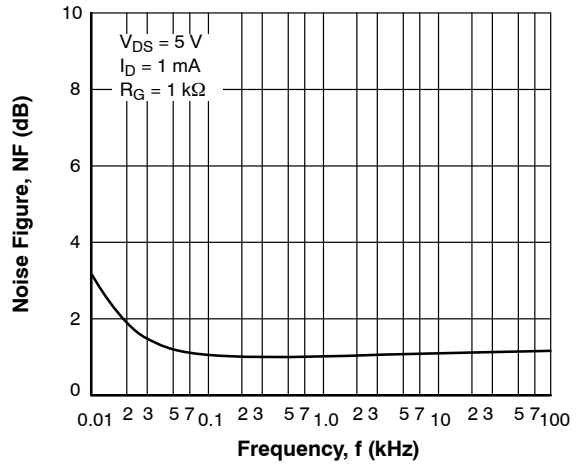


Figure 10. NF vs.  $f$

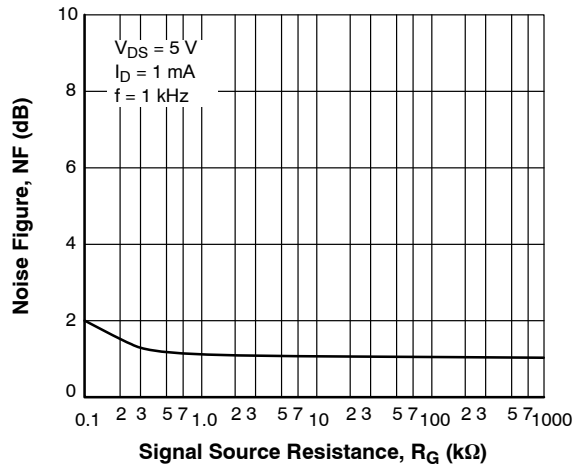


Figure 11. NF vs.  $R_G$

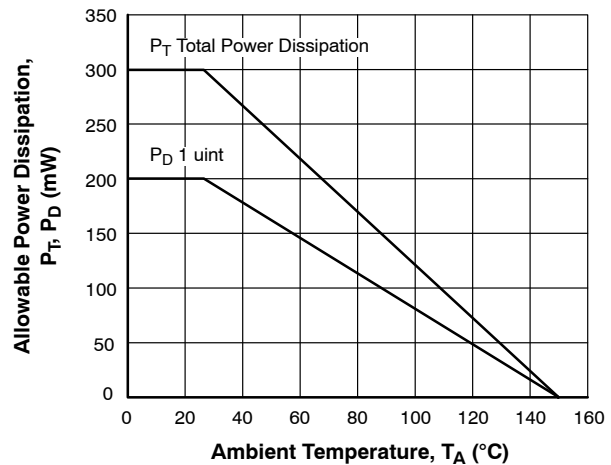
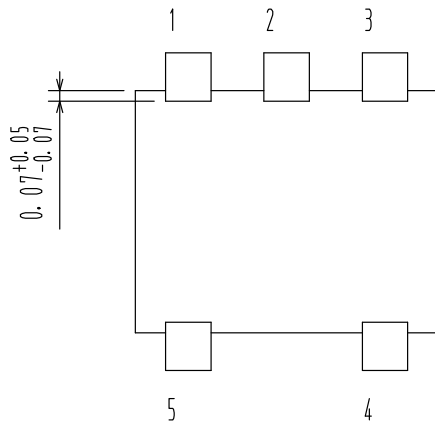
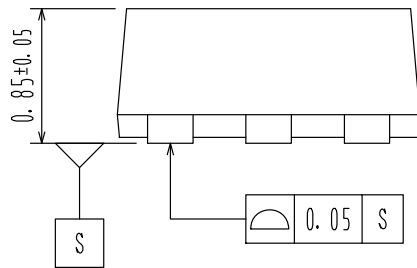
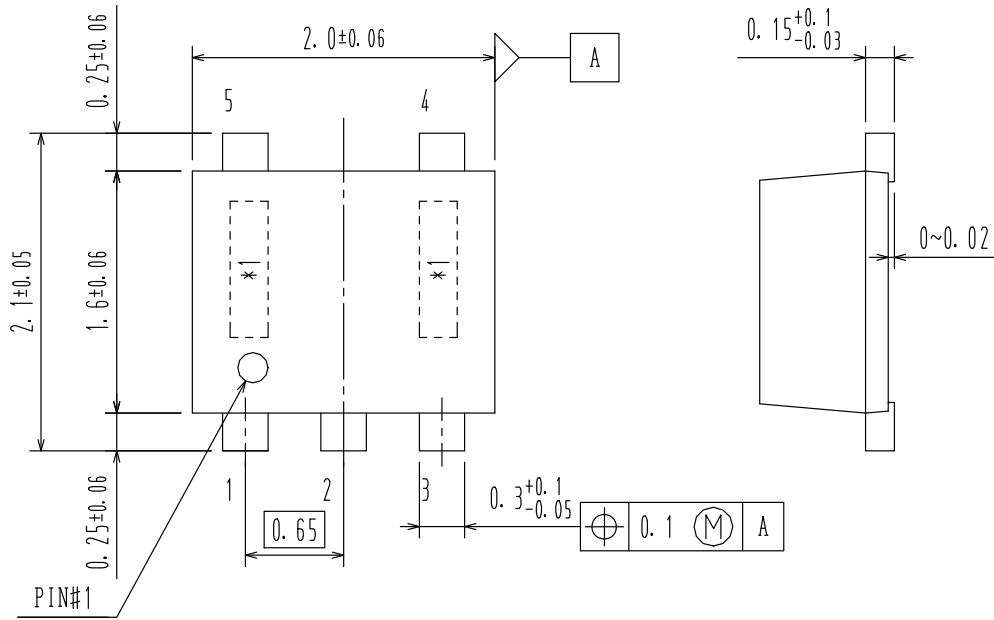


Figure 12.  $P_T$ ,  $P_D$  vs.  $T_A$

**MECHANICAL CASE OUTLINE**  
**PACKAGE DIMENSIONS**

**SC-88AFL/ MCPH5**  
**CASE 419AP**  
**ISSUE O**

DATE 30 NOV 2011



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|-------------------------|-------------------------|---|
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