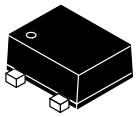
# N-Channel JFET

## 15 V, 16 to 50 mA, 29 mS, MCPH3

# MCH3914



MCPH3
CASE 419AQ

### Features

- | yfs | is Large
- Ciss is Small
- Small Package
- FBET Process
- Pb−Free, Halogen Free/BFR Free and RoHS Compliant

### Specifications

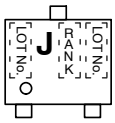
**ABSOLUTE MAXIMUM RATINGS** at $T_A$ = 25°C

| Parameter | Symbol | Conditions | Ratings | Unit |
|---|---|---|---|---|
| Drain−to−Source Voltage | $V_{DSX}$ | | 15 | V |
| Gate−to−Drain Voltage | $V_{GDS}$ | | −15 | V |
| Gate Current | $I_G$ | | 5 | mA |
| Drain Current | $I_D$ | | 50 | mA |
| Allowable Power Dissipation | $P_D$ | When mounted on ceramic substrate (600 $mm^2$ x 0.8 mm) | 300 | mW |
| Junction Temperature | $T_J$ | | 150 | °C |
| Storage Temperature | Tstg | | −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.

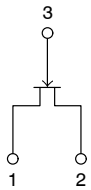
NOTE: This product is designed to “ESD immunity < 200 V*”, so please take care when handling.
* Machine Model

### MARKING DIAGRAM




J = Specific Device Code

### ELECTRICAL CONNECTION




1 : Source
2 : Drain
3 : Gate

### ORDERING INFORMATION

| Device | Package | Shipping† |
|---|---|---|
| MCH3914−7−TL−H | MCPH3 (Pb−Free, Halogen Free) | 3000 / Tape & Reel |
| MCH3914−8−TL−H | | |

†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 | Ratings | | | Unit |
|---|---|---|---|---|---|---|
| | | | Min | Typ | Max | |
| Gate−to−Drain Breakdown Voltage | $V_{(BR)GDS}$ | $I_G$ = −10 μA, $V_{DS}$ = 0 V | −15 | – | – | V |
| Gate−to−Source Leakage Current | $I_{GSS}$ | $V_{GS}$ = −10 V, $V_{DS}$ = 0 V | – | – | −1.0 | nA |
| Cutoff Voltage | $V_{GS}$(off) | $V_{DS}$ = 5 V, $I_D$ = 10 μA | −0.6 | −1.4 | −3.0 | V |
| Zero−Gate Voltage Drain Current | $I_{DSS}$ | $V_{DS}$ = 5 V, $V_{GS}$ = 0 V | 16.0* | – | 50.0* | mA |
| Forward Transfer Admittance | \|yfs\|1 | $V_{DS}$ = 5 V, $I_D$ = 10 mA, f = 1 kHz | 14 | 21 | – | mS |
| | \|yfs\|2 | $V_{DS}$ = 5 V, $V_{GS}$ = 0 V, f = 1 kHz | 14 | 29 | – | mS |
| Input Capacitance | Ciss | $V_{DS}$ = 5 V, $V_{GS}$ = 0 V, f = 1 MHz | – | 4.9 | – | pF |
| Reverse Transfer Capacitance | Crss | | – | 1.4 | – | pF |

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.

* The MCH3914 is classified by $I_{DSS}$ as follows:

| Rank | 7 | 8 | Unit |
|---|---|---|---|
| $I_{DSS}$ | 16.0 to 32.0 | 25.0 to 50.0 | mA |

## TYPICAL CHARACTERISTICS

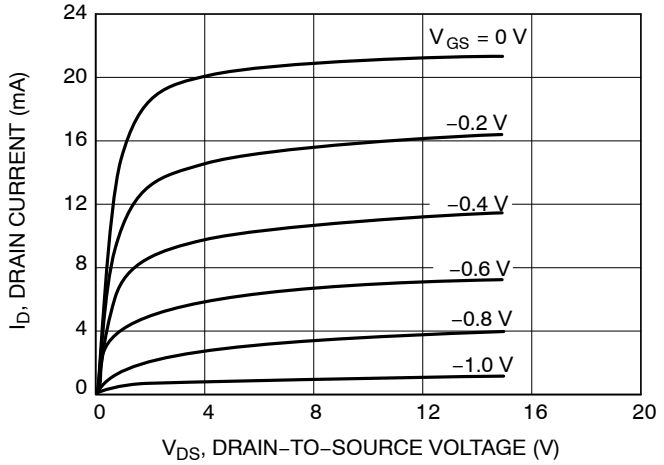


**Figure 1. $I_D$ – $V_{DS}$**

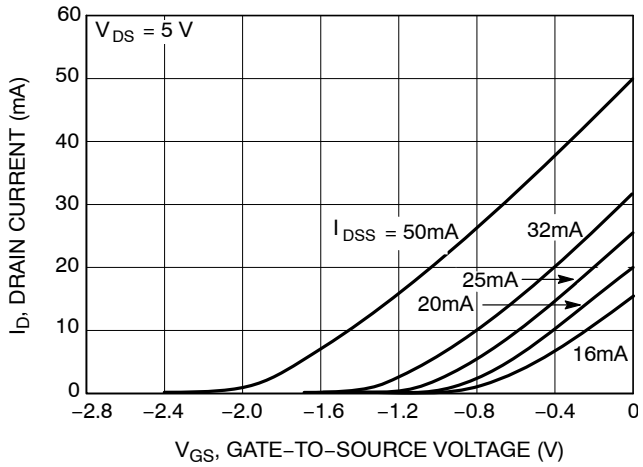


**Figure 2. $I_D$ – $V_{GS}$**

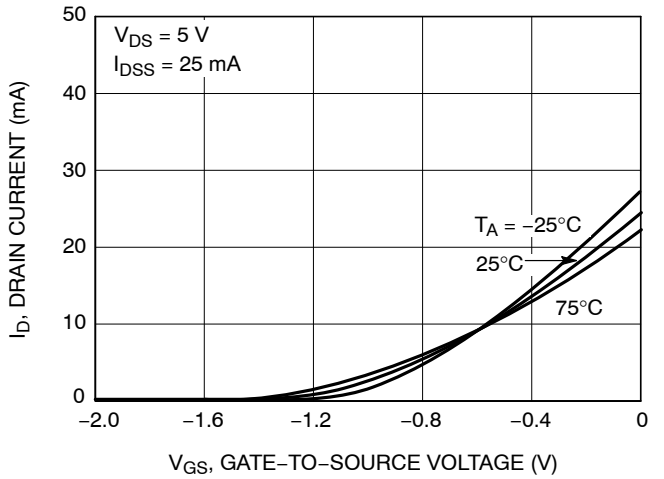


**Figure 3. $I_D$ – $V_{GS}$**

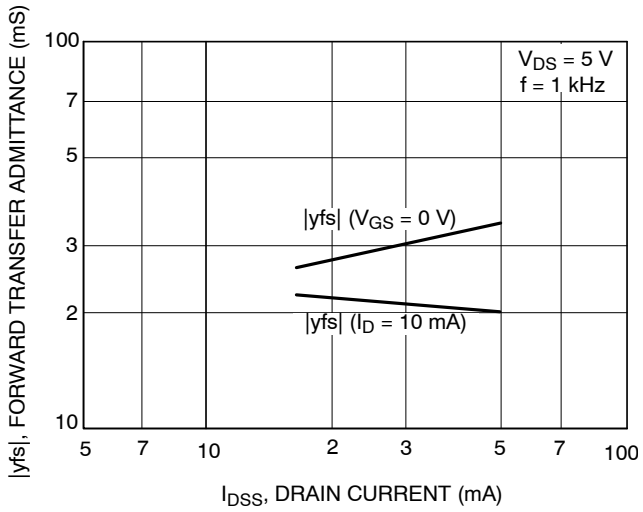


**Figure 4. |yfs| – $I_{DSS}$**

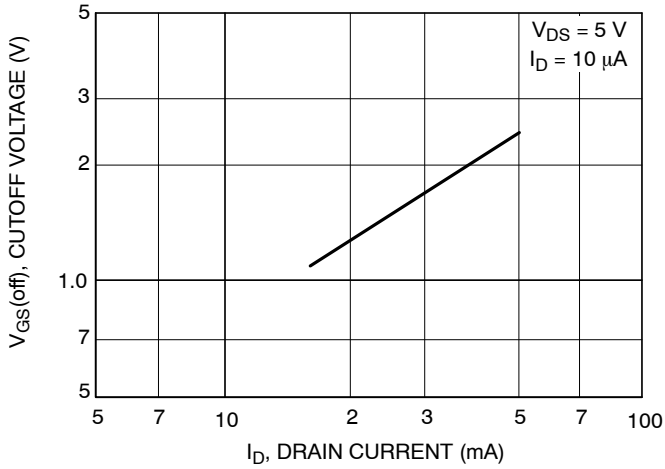


**Figure 5. $V_{GS}$(off) – $I_{DSS}$**

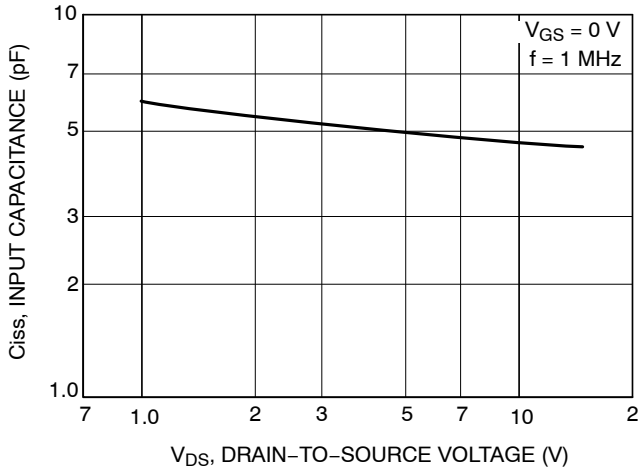


**Figure 6. Ciss – $V_{DS}$**

## TYPICAL CHARACTERISTICS (CONTINUED)

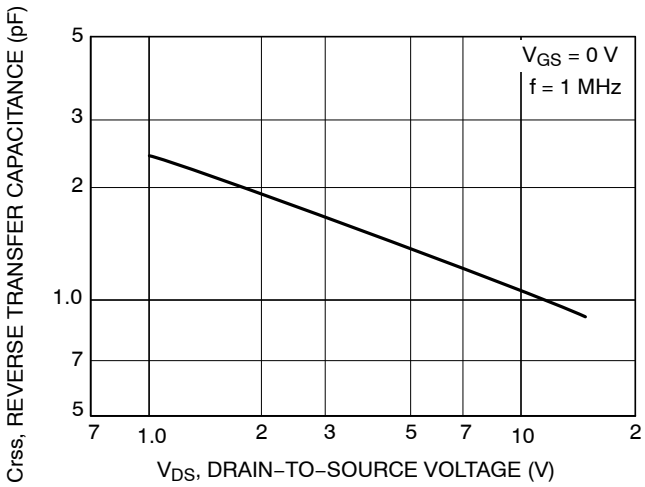


**Figure 7. Crss – $V_{DS}$**

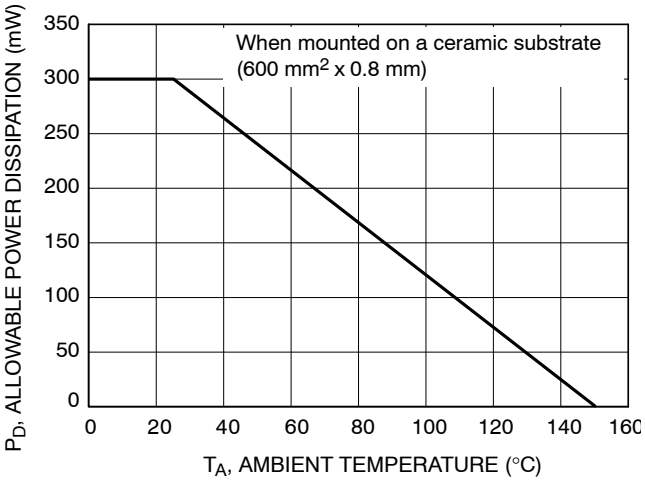


**Figure 8. $P_D$ – $T_A$**

## LAND PATTERN EXAMPLE

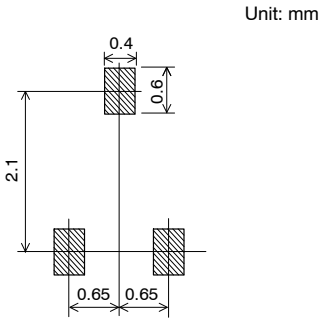


**Figure 9. Land Pattern Example**

**SC−70FL / MCPH3**
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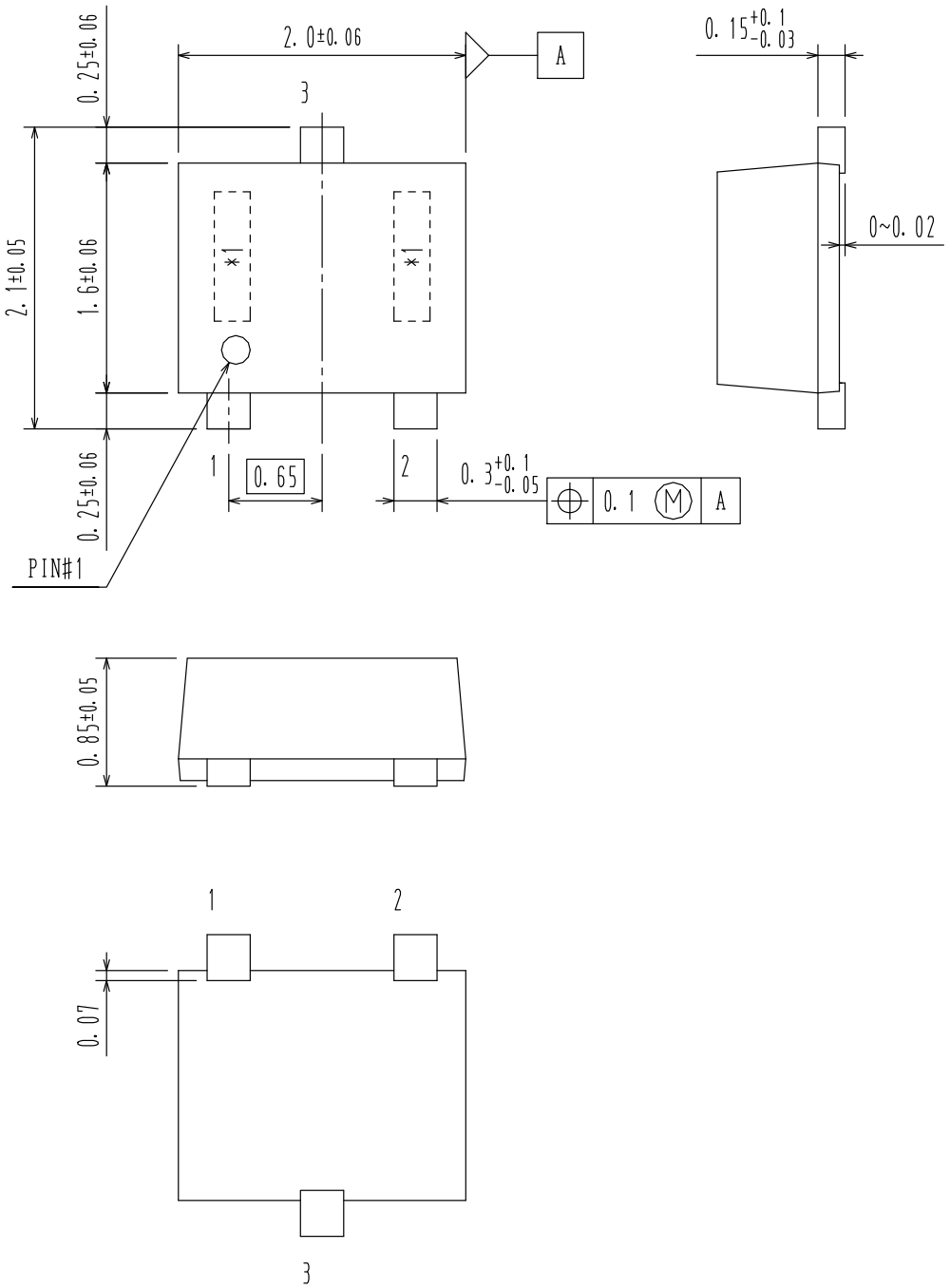
DATE 30 DEC 2011

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