

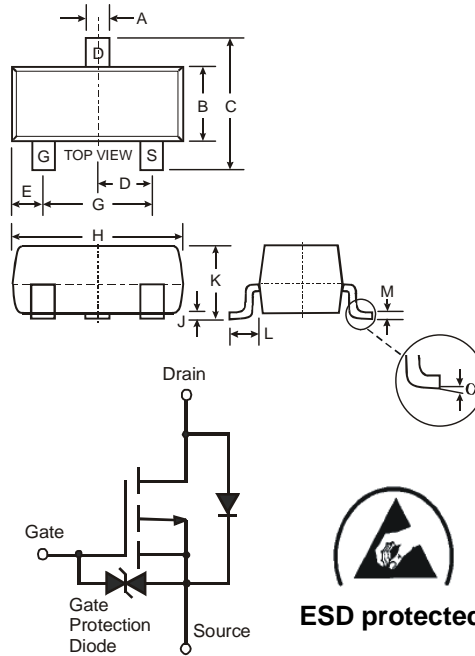
NEW PRODUCT

**Features**

- Low On-Resistance
- Low Gate Threshold Voltage
- Low Input Capacitance
- Fast Switching Speed
- **Lead Free By Design/RoHS Compliant (Note 2)**
- **ESD Protected Gate**
- **"Green" Device (Note 4)**
- **Qualified to AEC-Q101 standards for High Reliability**

**Mechanical Data**

- Case: SC-59
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture sensitivity: Level 1 per J-STD-020C
- Terminals: Finish — Matte Tin annealed over Copper leadframe. Solderable per MIL-STD-202, Method 208
- Terminal Connections: See Diagram
- Marking Information: See Page 4
- Ordering & Date Code Information: See Page 4
- Weight: 0.008 grams (approximate)



| SC-59                |      |      |
|----------------------|------|------|
| Dim                  | Min  | Max  |
| A                    | 0.30 | 0.50 |
| B                    | 1.40 | 1.80 |
| C                    | 2.50 | 3.00 |
| D                    | 0.85 | 1.05 |
| E                    | 0.30 | 0.70 |
| G                    | 1.70 | 2.10 |
| H                    | 2.70 | 3.10 |
| J                    | —    | 0.10 |
| K                    | 1.00 | 1.40 |
| L                    | 0.55 | 0.70 |
| M                    | 0.10 | 0.35 |
| α                    | 0°   | 8°   |
| All Dimensions in mm |      |      |

**Maximum Ratings** @T<sub>A</sub> = 25°C unless otherwise specified

| Characteristic                          | Symbol                            | Value       | Unit |
|---|-----------------------------------|-------------|------|
| Drain-Source Voltage                    | V <sub>DSS</sub>                  | -30         | V    |
| Gate-Source Voltage                     | V <sub>GSS</sub>                  | ±20         | V    |
| Drain Current (Note 1) Steady State     | I <sub>D</sub>                    | -0.7        | A    |
| Pulsed Drain Current (Note 3)           | I <sub>DM</sub>                   | -2.8        | A    |
| Total Power Dissipation (Note 1)        | P <sub>d</sub>                    | 500         | mW   |
| Thermal Resistance, Junction to Ambient | R <sub>θJA</sub>                  | 250         | °C/W |
| Operating and Storage Temperature Range | T <sub>i</sub> , T <sub>STG</sub> | -65 to +150 | °C   |

- Notes:
1. Device mounted on FR-4 PCB.
  2. No purposefully added lead.
  3. Pulse width ≤10μS, Duty Cycle ≤1%.
  4. Diodes Inc.'s "Green" policy can be found on our website at [http://www.diodes.com/products/lead\\_free/index.php](http://www.diodes.com/products/lead_free/index.php).

## Electrical Characteristics @T<sub>A</sub> = 25°C unless otherwise specified

| Characteristic                      | Symbol              | Min  | Typ          | Max          | Unit | Test Condition   |
|-------------------------------------|---------------------|------|--------------|--------------|------|--|
| <b>OFF CHARACTERISTICS (Note 5)</b> |                     |      |              |              |      |  |
| Drain-Source Breakdown Voltage      | BV <sub>DSS</sub>   | -30  | —            | —            | V    | V <sub>GS</sub> = 0V, I <sub>D</sub> = -250mA  |
| Zero Gate Voltage Drain Current     | I <sub>DSS</sub>    | —    | —            | -10          | μA   | V <sub>DS</sub> = -30V, V <sub>GS</sub> = 0V   |
| Gate-Body Leakage                   | I <sub>GSS</sub>    | —    | —            | ±10          | μA   | V <sub>GS</sub> = ±20V, V <sub>DS</sub> = 0V   |
| <b>ON CHARACTERISTICS (Note 5)</b>  |                     |      |              |              |      |  |
| Gate Threshold Voltage              | V <sub>GS(th)</sub> | -1.0 | —            | -3.0         | V    | V <sub>DS</sub> = -10V, I <sub>D</sub> = -1.0mA  |
| Static Drain-Source On-Resistance   | R <sub>DS(ON)</sub> | —    | 0.20<br>0.35 | 0.25<br>0.45 | Ω    | V <sub>GS</sub> = -10V, I <sub>D</sub> = -0.4A<br>V <sub>GS</sub> = -4.5V, I <sub>D</sub> = -0.4A  |
| Forward Transfer Admittance         | Y <sub>fs</sub>     | —    | 1            | —            | S    | V <sub>DS</sub> = -10V, I <sub>D</sub> = 0.4A  |
| Diode Forward Voltage (Note 5)      | V <sub>SD</sub>     | —    | -0.8         | -1.1         | V    | V <sub>GS</sub> = 0V, I <sub>S</sub> = -0.7A   |
| <b>DYNAMIC CHARACTERISTICS</b>      |                     |      |              |              |      |  |
| Input Capacitance                   | C <sub>iSS</sub>    | —    | 160          | —            | pF   | V <sub>DS</sub> = -10V, V <sub>GS</sub> = 0V<br>f = 1.0MHz   |
| Output Capacitance                  | C <sub>oss</sub>    | —    | 120          | —            | pF   |  |
| Reverse Transfer Capacitance        | C <sub>rSS</sub>    | —    | 50           | —            | pF   |  |
| <b>SWITCHING CHARACTERISTICS</b>    |                     |      |              |              |      |  |
| Turn-On Delay Time                  | t <sub>D(ON)</sub>  | —    | 10           | —            | ns   | V <sub>DD</sub> = -10V, I <sub>D</sub> = -0.4A,<br>V <sub>GS</sub> = -5.0V, R <sub>GEN</sub> = 50Ω |
| Turn-Off Delay Time                 | t <sub>D(OFF)</sub> | —    | 25           | —            | ns   |  |
| Turn-On Rise Time                   | t <sub>r</sub>      | —    | 25           | —            | ns   |  |
| Turn-Off Fall Time                  | t <sub>f</sub>      | —    | 40           | —            | ns   |  |

Notes: 5. Short duration test pulse used to minimize self-heating effect.

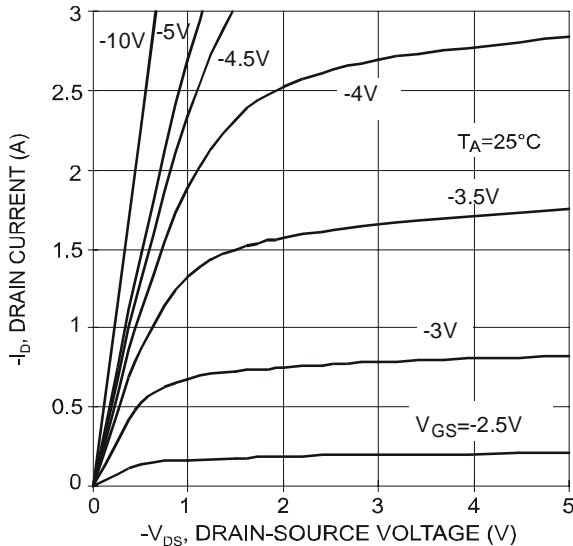


Fig. 1 Typical Output Characteristics

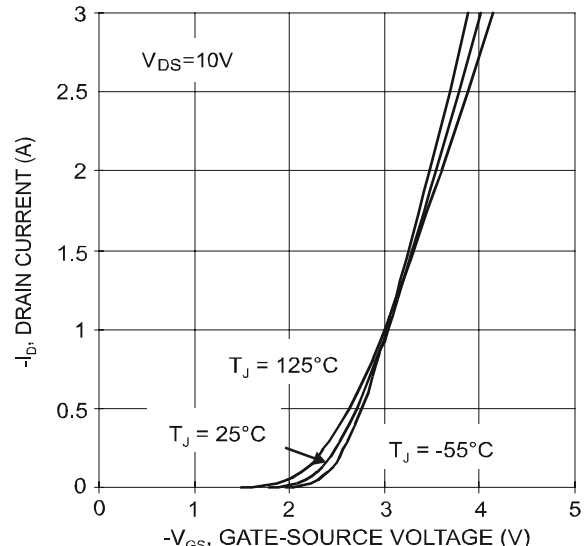


Fig. 2 Typical Transfer Characteristics

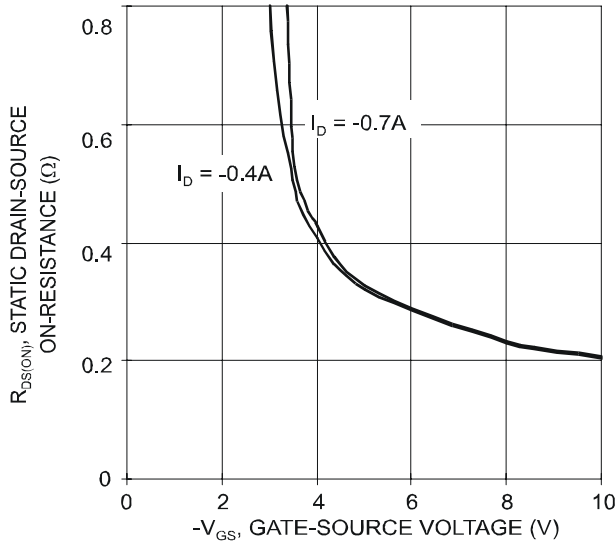


Fig. 3 On-Resistance vs. Gate Voltage

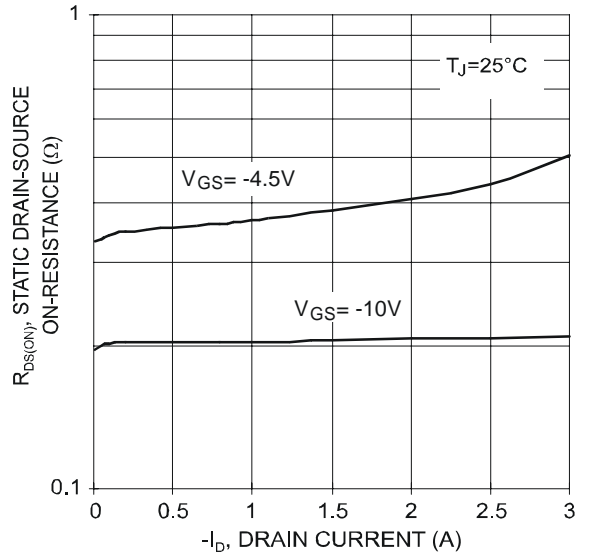


Fig. 4 On-Resistance vs. Drain Current

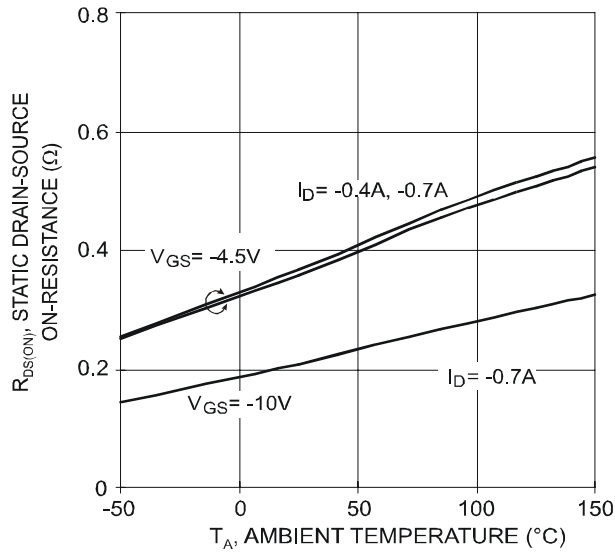


Fig. 5 On-Resistance Variation with Temperature

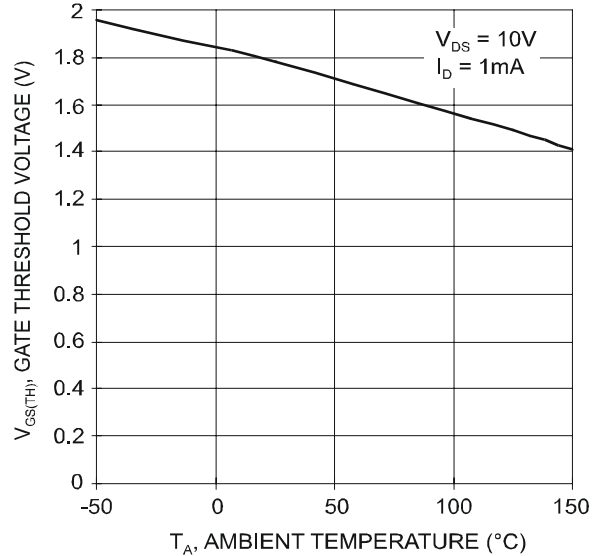


Fig. 6 Gate-Source Threshold Voltage with Temperature

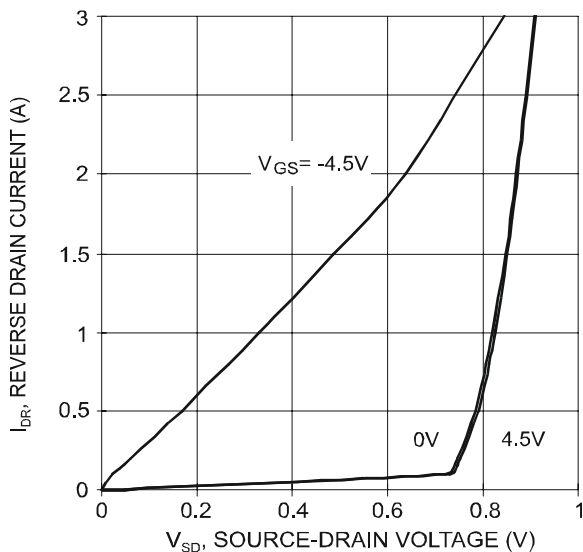


Fig. 7 Reverse Drain Current vs. Source-Drain Voltage

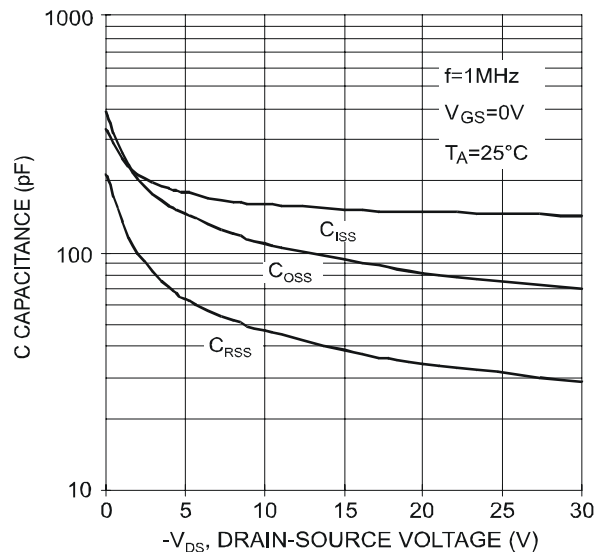


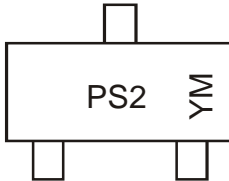
Fig. 8: Typical Junction Capacitance

## Ordering Information (Note 6)

| Device      | Packaging | Shipping         |
|-------------|-----------|------------------|
| DMP3030SN-7 | SC-59     | 3000/Tape & Reel |

Notes: 6. For Packaging Details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

## Marking Information



PS2 = Product Type Marking Code  
 YM = Date Code Marking  
 Y = Year ex: T = 2006  
 M = Month ex: 9 = September

### Date Code Key

| Year | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 |
|------|------|------|------|------|------|------|------|
| Code | T    | U    | V    | W    | X    | Y    | Z    |

| Month | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Code  | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | O   | N   | D   |

### IMPORTANT NOTICE

Diodes Incorporated and its subsidiaries reserve the right to make modifications, enhancements, improvements, corrections or other changes without further notice to any product herein. Diodes Incorporated does not assume any liability arising out of the application or use of any product described herein; neither does it convey any license under its patent rights, nor the rights of others. The user of products in such applications shall assume all risks of such use and will agree to hold Diodes Incorporated and all the companies whose products are represented on our website, harmless against all damages.

### LIFE SUPPORT

Diodes Incorporated products are not authorized for use as critical components in life support devices or systems without the expressed written approval of the President of Diodes Incorporated.