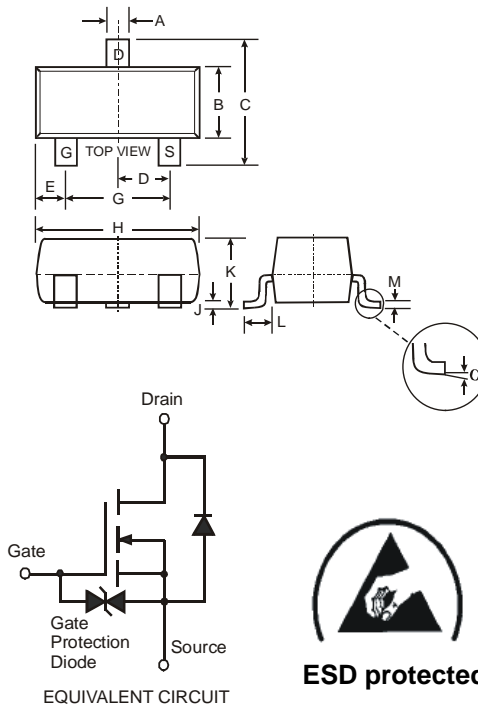


**Features**

- Low On-Resistance
- Ideal for Notebook Computer, Portable Phone, PCMCIA Cards, and Battery Power Circuits
- **Lead Free By Design/RoHS Compliant (Note 2)**
- **Qualified to AEC-Q101 Standards for High Reliability**
- **ESD Protected Gate**
- **"Green" Device (Note 3)**

**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 |
| $\alpha$ | 0°   | 8°   |

All Dimensions in mm

**ESD protected**

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

| Characteristic                          | Symbol                            | Value       | Unit  |
|---|-----------------------------------|-------------|-------|
| Drain-Source Voltage                    | V <sub>DSS</sub>                  | 20          | V     |
| Gate-Source Voltage                     | V <sub>GSS</sub>                  | ±12         | V     |
| Drain Current                           | I <sub>D</sub>                    | 1.2         | A     |
|   |                                   | 4.0         |       |
| Total Power Dissipation                 | 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> | -55 to +150 | °C    |

- Notes:
1. Pulse width ≤300μs, duty cycle ≤2%.
  2. No purposefully added lead.
  3. 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 1)</b>                     |                     |     |     |                |      |   |
| Drain-Source Breakdown Voltage                          | BV <sub>DSS</sub>   | 20  | —   | —              | V    | V <sub>GS</sub> = 0V, I <sub>D</sub> = 250μA  |
| Zero Gate Voltage Drain Current @ T <sub>j</sub> = 25°C | I <sub>DSS</sub>    | —   | —   | 10             | μA   | V <sub>DS</sub> = 24V, V <sub>GS</sub> = 0V   |
| Gate-Body Leakage                                       | I <sub>GSS</sub>    | —   | —   | ±10            | μA   | V <sub>GS</sub> = ±12V, V <sub>DS</sub> = 0V  |
| <b>ON CHARACTERISTICS (Note 1)</b>                      |                     |     |     |                |      |   |
| Gate Threshold Voltage                                  | V <sub>GS(th)</sub> | 0.7 | —   | 1.40           | V    | V <sub>DS</sub> = 10V, I <sub>D</sub> = 1.0mA   |
| Static Drain-Source On-Resistance                       | R <sub>DS(ON)</sub> | —   | —   | 0.100<br>0.160 | Ω    | V <sub>GS</sub> = 4.5V, I <sub>D</sub> = 0.5A<br>V <sub>GS</sub> = 2.5V, I <sub>D</sub> = 0.5A  |
| Forward Transfer Admittance                             | Y <sub>fs</sub>     | —   | 3.3 | —              | S    | V <sub>DS</sub> = 10V, I <sub>D</sub> = 0.5A  |
| Diode Forward Voltage                                   | V <sub>SD</sub>     | —   | 0.8 | 1.1            | V    | V <sub>GS</sub> = 0V, I <sub>S</sub> = 1.0A   |
| <b>DYNAMIC CHARACTERISTICS</b>                          |                     |     |     |                |      |   |
| Input Capacitance                                       | C <sub>iSS</sub>    | —   | 180 | —              | 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>    | —   | 45  | —              | 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> = 0.5A,<br>V <sub>GS</sub> = 5.0V, R <sub>GEN</sub> = 50Ω |
| Turn-Off Delay Time                                     | t <sub>D(OFF)</sub> | —   | 50  | —              | ns   |   |
| Turn-On Rise Time                                       | t <sub>r</sub>      | —   | 15  | —              | ns   |   |
| Turn-Off Fall Time                                      | t <sub>f</sub>      | —   | 45  | —              | ns   |   |

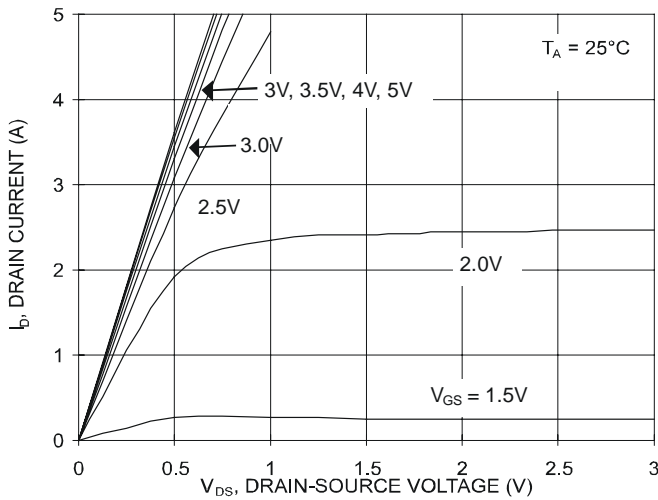


Fig. 1 Typical Output Characteristics

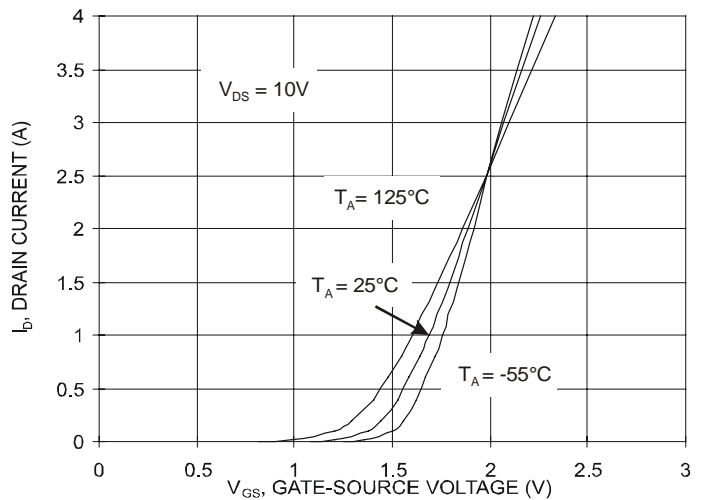


Fig. 2 Typical Transfer Characteristics

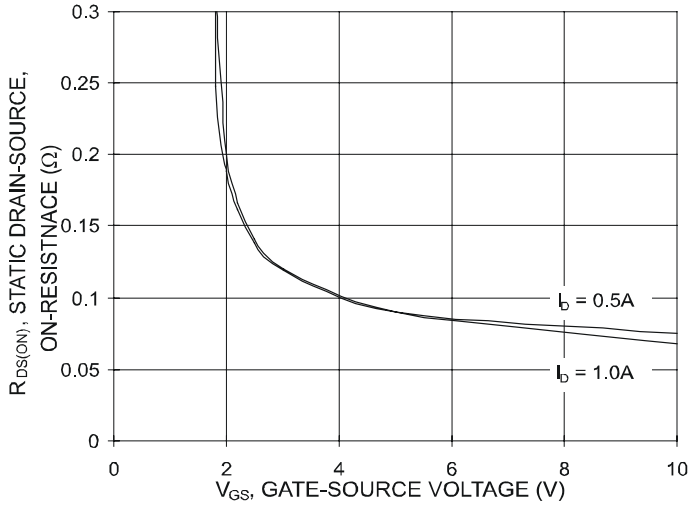


Fig. 3 On-Resistance vs. Gate Voltage

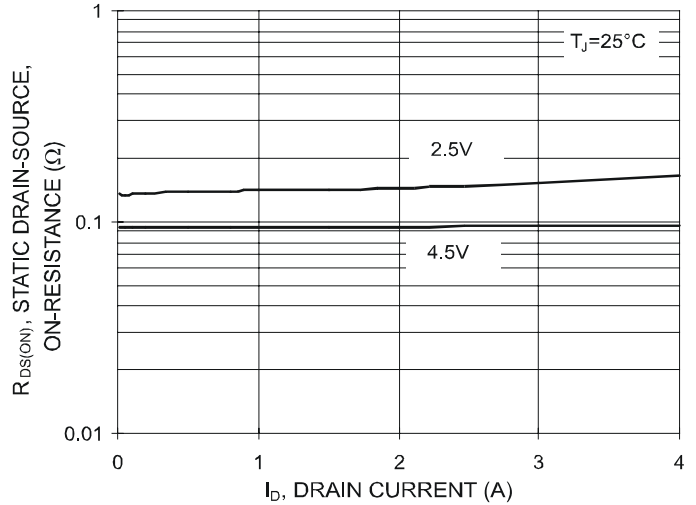


Fig. 4 On-Resistance vs. Drain Current

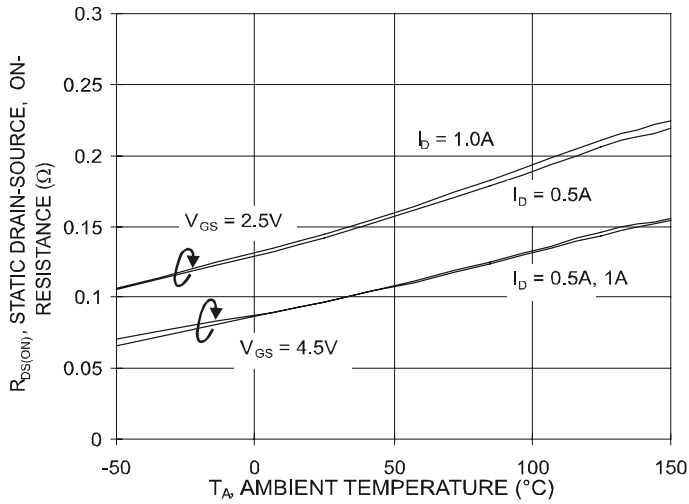


Fig. 5 On-Resistance Variation with Temperature

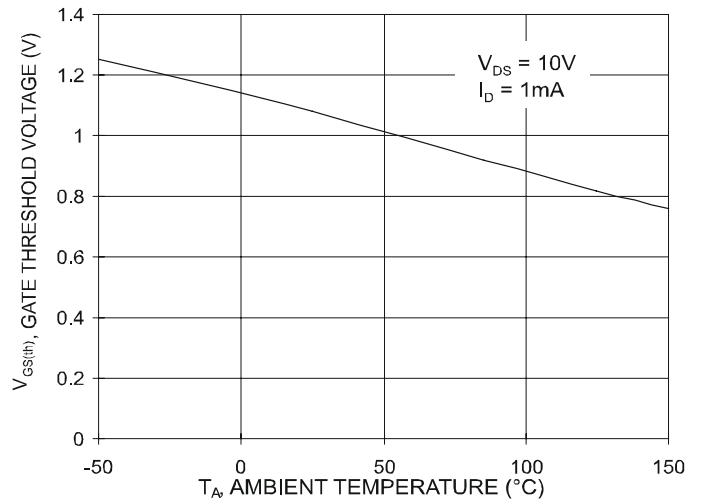


Fig. 6 Gate Threshold Voltage vs Temperature

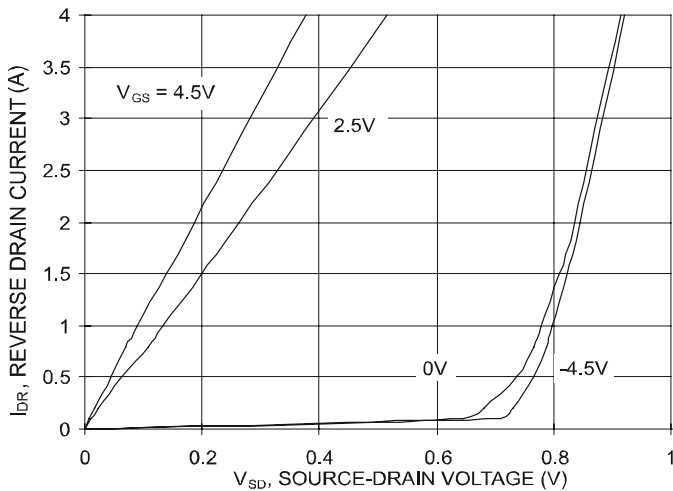


Fig. 7 Reverse Drain Current vs Source-Drain Voltage

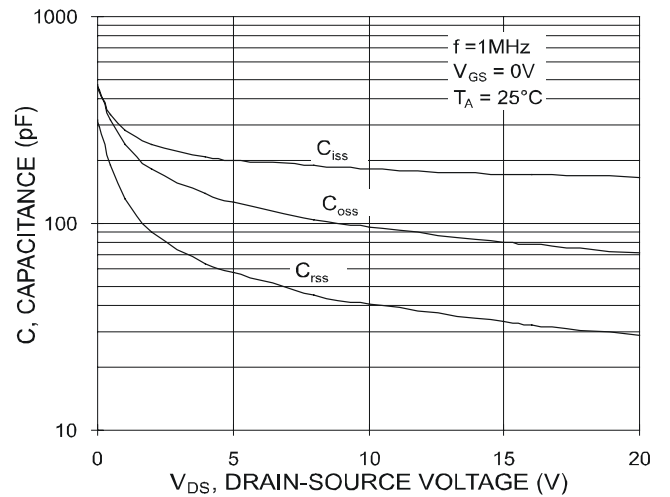


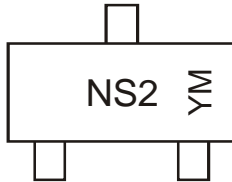
Fig. 8: Typical Junction Capacitance

## Ordering Information (Note 4)

| Device      | Packaging | Shipping         |
|-------------|-----------|------------------|
| DMN2114SN-7 | SC-59     | 3000/Tape & Reel |

Notes: 4. For Packaging Details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

## Marking Information



NS2 = 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.