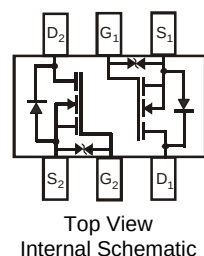


## Features

- Dual N-Channel MOSFET
- Low On-Resistance
- Low Gate Threshold Voltage
- Low Input Capacitance
- Fast Switching Speed
- Small Surface Mount Package
- **ESD Protected Gate, 1KV (HBM)**
- **Lead Free/RoHS Compliant (Note 1)**
- **Qualified to AEC-Q101 Standards for High Reliability**

## Mechanical Data

- Case: SOT363
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish annealed over Alloy 42 leadframe (Lead Free Plating). Solderable per MIL-STD-202, Method 208
- Terminal Connections: See Diagram
- Weight: 0.006 grams (approximate)

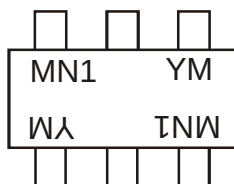


## Ordering Information (Note 2)

| Part Number  | Case   | Packaging        |
|--------------|--------|------------------|
| DMN66D0LDW-7 | SOT363 | 3000/Tape & Reel |

Notes: 1. No purposefully added lead.  
2. For packaging details, go to our website at <http://www.diodes.com>.

## Marking Information



MN1 = Product Type Marking Code  
YM = Date Code Marking  
Y = Year (ex: U = 2007)  
M = Month (ex: 9 = September)

### Date Code Key

| Year | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|------|------|------|------|------|------|------|------|------|------|------|------|
| Code | U    | V    | W    | X    | Y    | Z    | A    | B    | C    | D    | E    |

| 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   |

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

| Characteristic               | Symbol           | Value              | Units |
|------------------------------|------------------|--------------------|-------|
| Drain-Source Voltage         | V <sub>DSS</sub> | 60                 | V     |
| Gate-Source Voltage (Note 3) | V <sub>GSS</sub> | ±20                | V     |
| Drain Current (Note 3)       | I <sub>D</sub>   | 115<br>73<br>800   | mA    |
|                              |                  | Continuous         |       |
|                              |                  | Continuous @ 100°C |       |
|                              |                  | Pulsed             |       |

**Thermal Characteristics** @T<sub>A</sub> = 25°C unless otherwise specified

| Characteristic                                | Symbol                            | Value       | Units |
|-----------------------------------------------|-----------------------------------|-------------|-------|
| Total Power Dissipation                       | P <sub>D</sub>                    | 250         | mW    |
| Derating above T <sub>A</sub> = 25°C (Note 3) |                                   | 1.6         | mW/°C |
| Thermal Resistance, Junction to Ambient       | R <sub>θJA</sub>                  | 500         | °C/W  |
| Operating and Storage Temperature Range       | T <sub>J</sub> , T <sub>STG</sub> | -55 to +150 | °C    |

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

| Characteristic                    | Symbol               | Min | Typ             | Max        | Unit | Test Condition                                                                                                                                           |
|-----------------------------------|----------------------|-----|-----------------|------------|------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| OFF CHARACTERISTICS (Note 4)      |                      |     |                 |            |      |                                                                                                                                                          |
| Drain-Source Breakdown Voltage    | BV <sub>DSS</sub>    | 60  | 70              | —          | V    | V <sub>GS</sub> = 0V, I <sub>D</sub> = 10μA                                                                                                              |
| Zero Gate Voltage Drain Current   | I <sub>DSS</sub>     | —   | —               | 1.0<br>500 | μA   | @ T <sub>C</sub> = 25°C<br>@ T <sub>C</sub> = 125°C<br>V <sub>DS</sub> = 60V, V <sub>GS</sub> = 0V                                                       |
| Gate-Body Leakage                 | I <sub>GSS</sub>     | —   | —               | ±5         | μA   | V <sub>GS</sub> = ±20V, V <sub>DS</sub> = 0V                                                                                                             |
| ON CHARACTERISTICS (Note 4)       |                      |     |                 |            |      |                                                                                                                                                          |
| Gate Threshold Voltage            | V <sub>GS(th)</sub>  | 1.2 | —               | 2.0        | V    | V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250μA                                                                                               |
| Static Drain-Source On-Resistance | R <sub>DS (ON)</sub> | —   | 3.5<br>3.0      | 6<br>5     | Ω    | @ T <sub>J</sub> = 25°C<br>@ T <sub>J</sub> = 125°C<br>V <sub>GS</sub> = 5.0V, I <sub>D</sub> = 0.115A<br>V <sub>GS</sub> = 10V, I <sub>D</sub> = 0.115A |
| Forward Transconductance          | g <sub>FS</sub>      | 80  | V <sub>SD</sub> | —          | mS   | V <sub>DS</sub> = 10V, I <sub>D</sub> = 0.115                                                                                                            |
| Diode Forward Voltage             | V <sub>SD</sub>      | —   | 0.8             | 1.2        | V    | V <sub>GS</sub> = 0V, I <sub>S</sub> = 115mA                                                                                                             |
| DYNAMIC CHARACTERISTICS           |                      |     |                 |            |      |                                                                                                                                                          |
| Input Capacitance                 | C <sub>iss</sub>     | —   | 23              | —          | pF   | V <sub>DS</sub> = 25V, V <sub>GS</sub> = 0V, f = 1.0MHz                                                                                                  |
| Output Capacitance                | C <sub>oss</sub>     | —   | 3.4             | —          | pF   |                                                                                                                                                          |
| Reverse Transfer Capacitance      | C <sub>rss</sub>     | —   | 1.4             | —          | pF   |                                                                                                                                                          |
| SWITCHING CHARACTERISTICS         |                      |     |                 |            |      |                                                                                                                                                          |
| Turn-On Delay Time                | t <sub>D(ON)</sub>   | —   | 10              | —          | ns   | V <sub>DD</sub> = 30V, I <sub>D</sub> = 0.115A, R <sub>L</sub> = 150Ω,                                                                                   |
| Turn-Off Delay Time               | t <sub>D(OFF)</sub>  | —   | 33              | —          | ns   | V <sub>GEN</sub> = 10V, R <sub>GEN</sub> = 25Ω                                                                                                           |

- Notes:
- Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch; pad layout as shown on Diodes Inc. suggested pad layout document AP02001, which can be found on our website at <http://www.diodes.com>.
  - Short duration pulse test used to minimize self-heating effect.

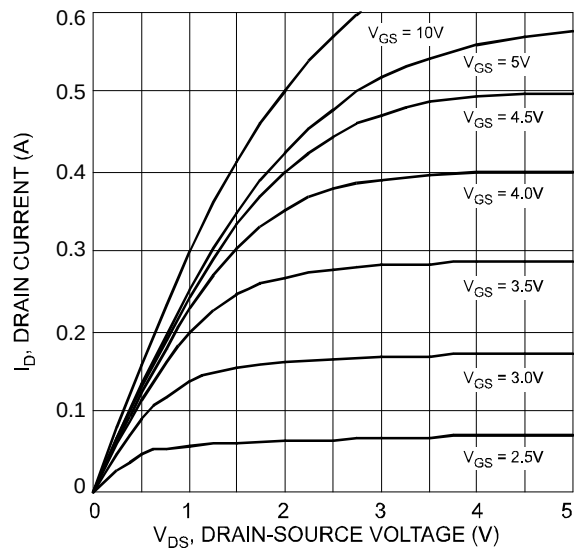


Fig. 1 Typical Output Characteristic

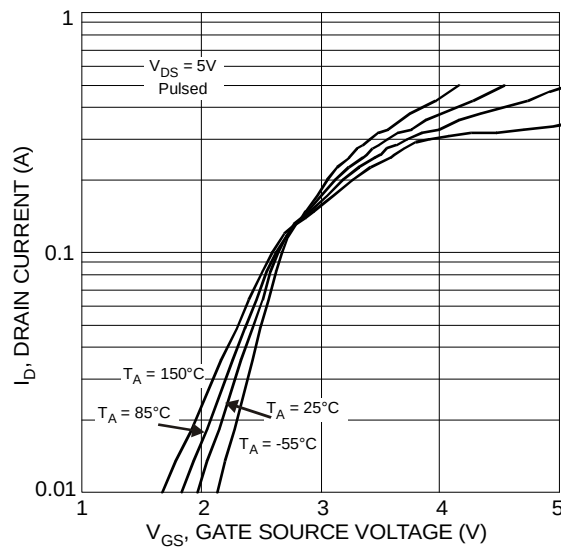


Fig. 2 Typical Transfer Characteristics

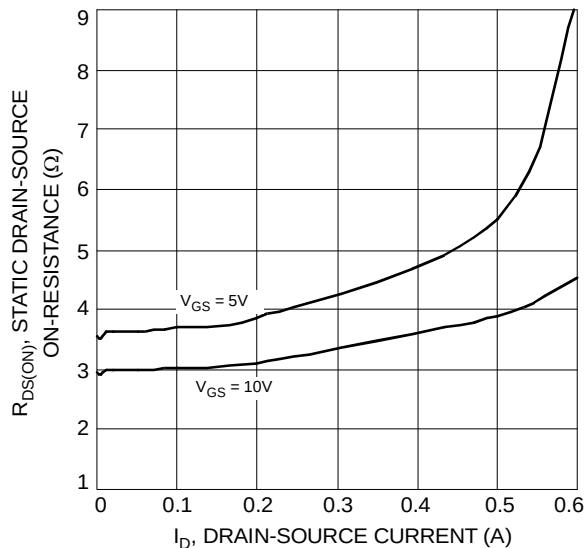


Fig. 3 On-Resistance vs. Drain Current & Gate Voltage

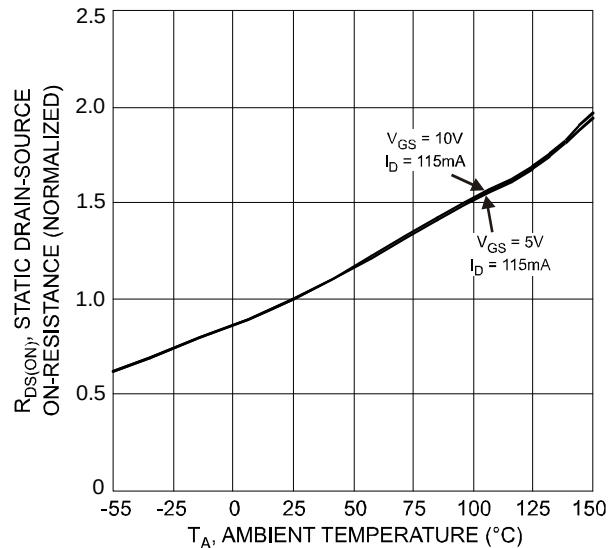


Fig. 4 Normalized Static Drain-Source On-Resistance vs. Ambient Temperature

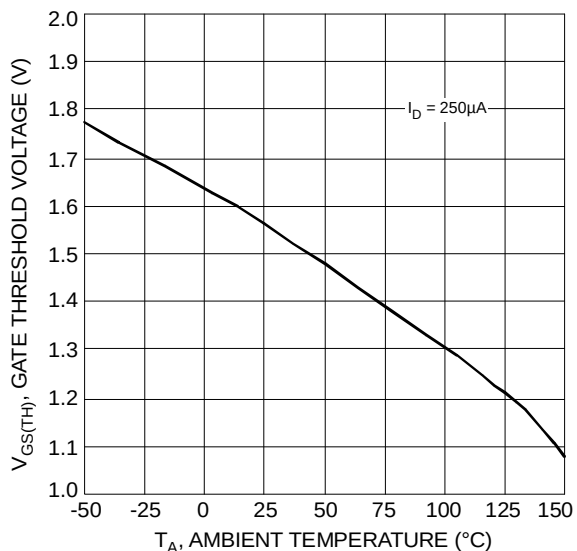


Fig. 5 Gate Threshold Variation vs. Ambient Temperature

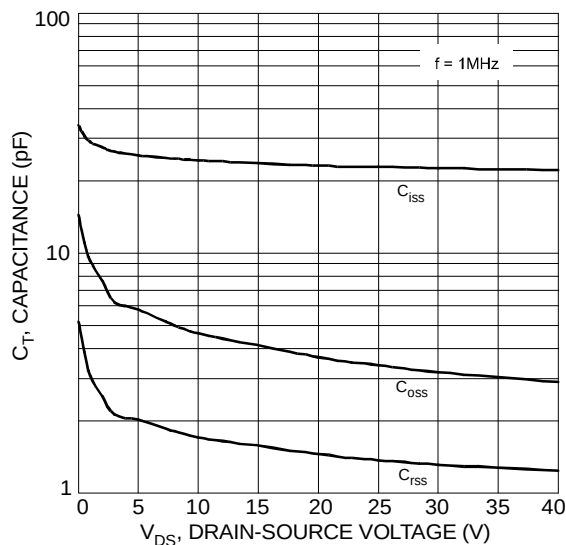


Fig. 6 Typical Total Capacitance

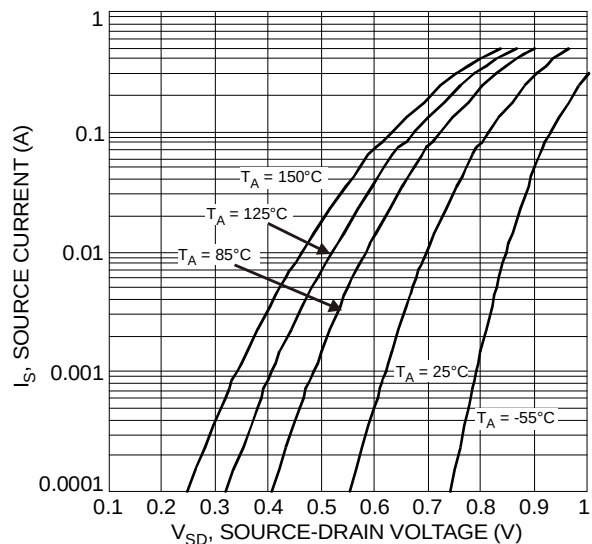
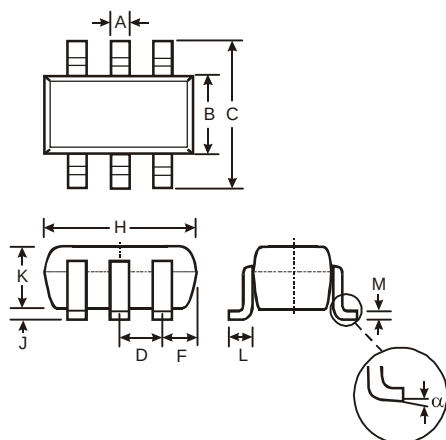


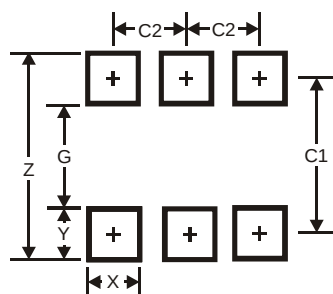
Fig. 7 Reverse Drain Current vs. Source-Drain Voltage

## Package Outline Dimensions



| SOT363               |          |      |
|----------------------|----------|------|
| Dim                  | Min      | Max  |
| A                    | 0.10     | 0.30 |
| B                    | 1.15     | 1.35 |
| C                    | 2.00     | 2.20 |
| D                    | 0.65 Typ |      |
| F                    | 0.40     | 0.45 |
| H                    | 1.80     | 2.20 |
| J                    | 0        | 0.10 |
| K                    | 0.90     | 1.00 |
| L                    | 0.25     | 0.40 |
| M                    | 0.10     | 0.22 |
| $\alpha$             | 0°       | 8°   |
| All Dimensions in mm |          |      |

## Suggested Pad Layout



| Dimensions | Value (in mm) |
|------------|---------------|
| Z          | 2.5           |
| G          | 1.3           |
| X          | 0.42          |
| Y          | 0.6           |
| C1         | 1.9           |
| C2         | 0.65          |

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