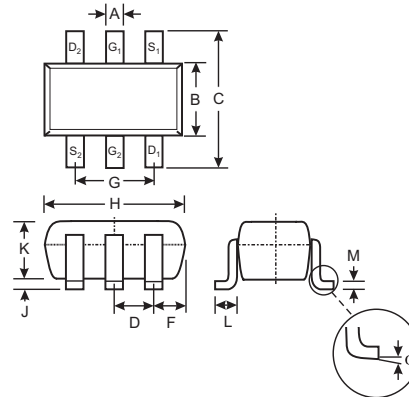


### Features

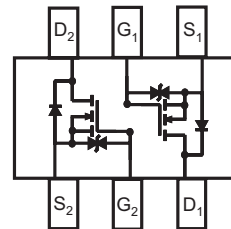
- Dual N-Channel MOSFET
- Low On-Resistance
- Very Low Gate Threshold Voltage
- Low Input Capacitance
- Fast Switching Speed
- Low Input/Output Leakage
- Ultra-Small Surface Mount Package
- **Lead Free By Design/RoHS Compliant (Note 2)**
- **ESD Protected Up To 2kV**
- "Green" Device (Note 4)
- **Qualified to AEC-Q101 Standards for High Reliability**



| SOT-363              |              |      |
|----------------------|--------------|------|
| Dim                  | Min          | Max  |
| A                    | 0.10         | 0.30 |
| B                    | 1.15         | 1.35 |
| C                    | 2.00         | 2.20 |
| D                    | 0.65 Nominal |      |
| F                    | 0.30         | 0.40 |
| H                    | 1.80         | 2.20 |
| J                    | —            | 0.10 |
| K                    | 0.90         | 1.00 |
| L                    | 0.25         | 0.40 |
| M                    | 0.10         | 0.25 |
| $\alpha$             | 0°           | 8°   |
| All Dimensions in mm |              |      |

### Mechanical Data

- Case: SOT-363
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020C
- Terminals Connections: See Diagram
- Terminals: Finish - Matte Tin annealed over Alloy 42 leadframe. Solderable per MIL-STD-202, Method 208
- Marking: See Page 2
- Ordering & Date Code Information: See Page 2
- Weight: 0.006 grams (approximate)



ESD protected up to 2kV

### Maximum Ratings @ $T_A = 25^\circ\text{C}$ unless otherwise specified

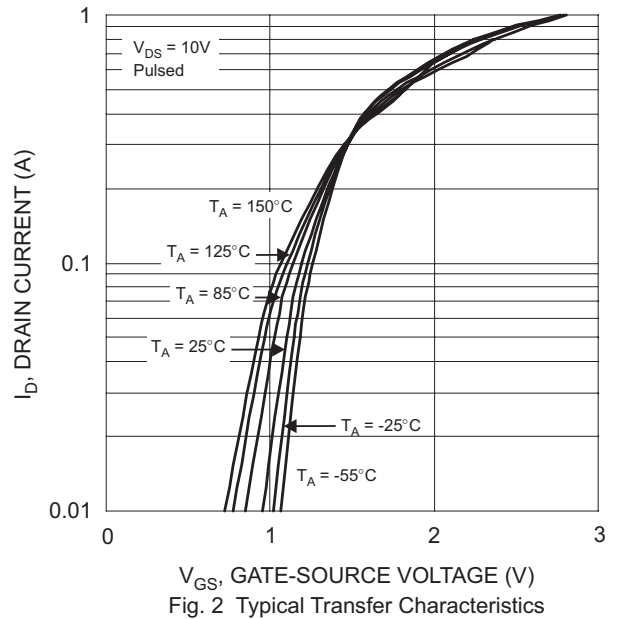
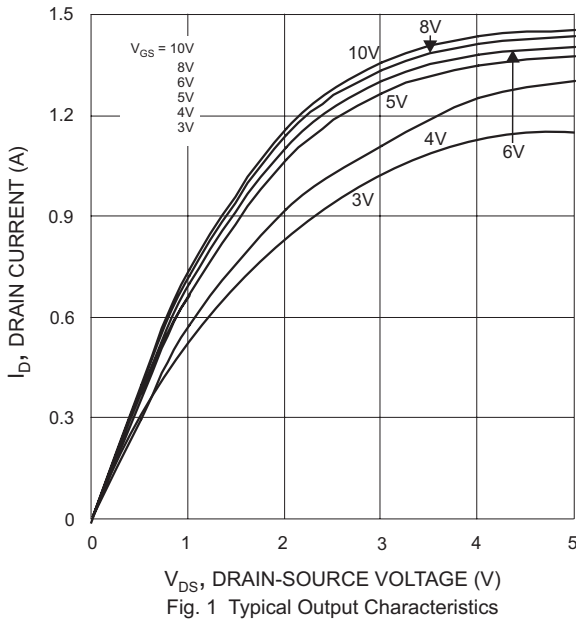
| Characteristic                          | Symbol          | Value       | Units              |
|---|-----------------|-------------|--------------------|
| Drain-Source Voltage                    | $V_{DSS}$       | 50          | V                  |
| Gate-Source Voltage                     | $V_{GSS}$       | $\pm 20$    | V                  |
| Drain Current (Note 1)                  | $I_D$           | 305         | mA                 |
|   |                 | 800         |                    |
| Total Power Dissipation (Note 1)        | $P_d$           | 200         | mW                 |
| Thermal Resistance, Junction to Ambient | $R_{\theta JA}$ | 625         | $^\circ\text{C/W}$ |
| Operating and Storage Temperature Range | $T_j, T_{STG}$  | -65 to +150 | $^\circ\text{C}$   |

- Note:
1. Device mounted on FR-4 PCB.
  2. No purposefully added lead.
  3. Pulse width  $\leq 10\mu\text{s}$ , Duty Cycle  $\leq 1\%$ .
  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** @  $T_A = 25^\circ\text{C}$  unless otherwise specified

| Characteristic   | Symbol       | Min  | Typ | Max | Unit     | Test Condition   |
|--|--------------|------|-----|-----|----------|--|
| <b>OFF CHARACTERISTICS (Note 5)</b>                        |              |      |     |     |          |  |
| Drain-Source Breakdown Voltage                             | $BV_{DSS}$   | 50   | —   | —   | V        | $V_{GS} = 0V, I_D = 10\mu A$   |
| Zero Gate Voltage Drain Current @ $T_C = 25^\circ\text{C}$ | $I_{DSS}$    | —    | —   | 60  | nA       | $V_{DS} = 50V, V_{GS} = 0V$  |
| Gate-Body Leakage  | $I_{GSS}$    | —    | —   | 1   | $\mu A$  | $V_{GS} = \pm 12V, V_{DS} = 0V$<br>$V_{GS} = \pm 10V, V_{DS} = 0V$<br>$V_{GS} = \pm 5V, V_{DS} = 0V$ |
|  |              |      |     | 500 | nA       |  |
| <b>ON CHARACTERISTICS (Note 5)</b>                         |              |      |     |     |          |  |
| Gate Threshold Voltage                                     | $V_{GS(th)}$ | 0.49 | —   | 1.2 | V        | $V_{DS} = V_{GS}, I_D = 250\mu A$  |
| Static Drain-Source On-Resistance                          | $R_{DS(on)}$ | —    | —   | 3.0 | $\Omega$ | $V_{GS} = 1.8V, I_D = 50mA$<br>$V_{GS} = 2.5V, I_D = 50mA$<br>$V_{GS} = 5.0V, I_D = 50mA$            |
|  |              |      |     | 2.5 |          |  |
|  |              |      |     | 2.0 |          |  |
| On-State Drain Current                                     | $I_{D(ON)}$  | 0.5  | 1.4 | —   | A        | $V_{GS} = 10V, V_{DS} = 7.5V$  |
| Forward Transconductance                                   | $ Y_{fs} $   | 200  | —   | —   | mS       | $V_{DS} = 10V, I_D = 0.2A$   |
| Source-Drain Diode Forward Voltage                         | $V_{SD}$     | 0.5  | —   | 1.4 | V        | $V_{GS} = 0V, I_S = 115mA$   |
| <b>DYNAMIC CHARACTERISTICS</b>                             |              |      |     |     |          |  |
| Input Capacitance  | $C_{iss}$    | —    | —   | 50  | pF       | $V_{DS} = 25V, V_{GS} = 0V$<br>$f = 1.0MHz$  |
| Output Capacitance   | $C_{oss}$    | —    | —   | 25  | pF       |  |
| Reverse Transfer Capacitance                               | $C_{rss}$    | —    | —   | 5.0 | pF       |  |

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



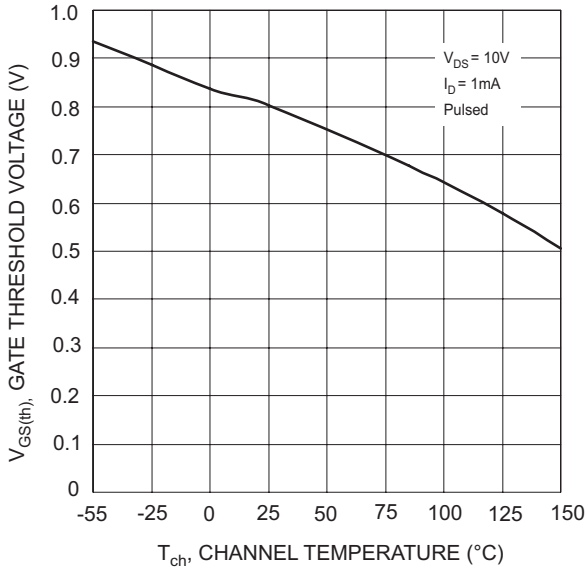


Fig. 3 Gate Threshold Voltage vs. Channel Temperature

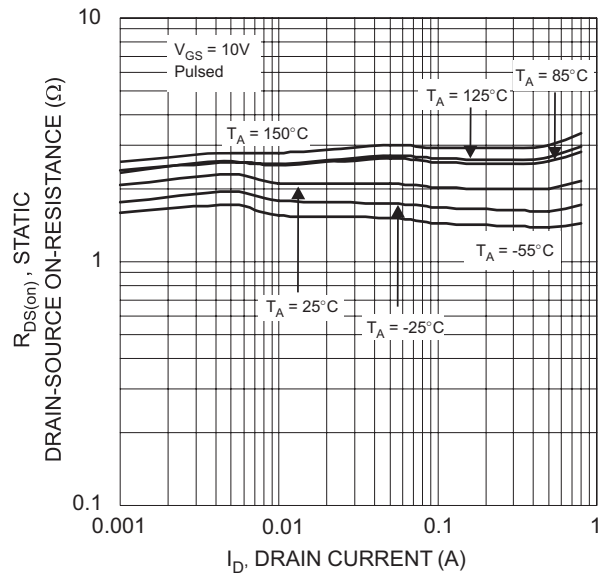


Fig. 4 Static Drain-Source On-Resistance vs. Drain Current

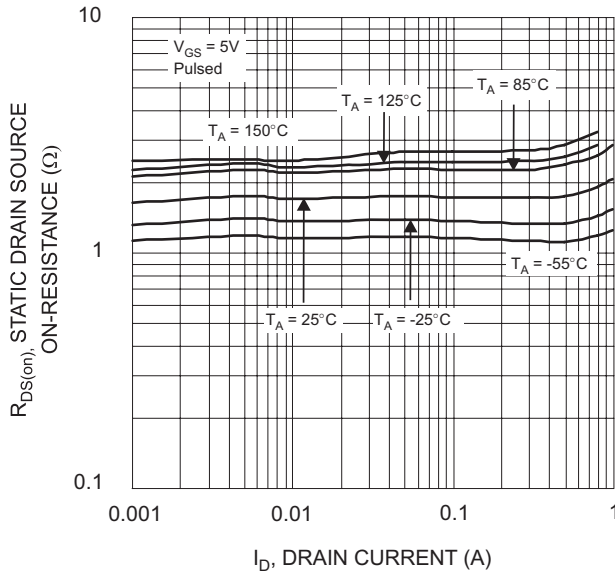


Fig. 5 Static Drain-Source On-Resistance vs. Drain Current

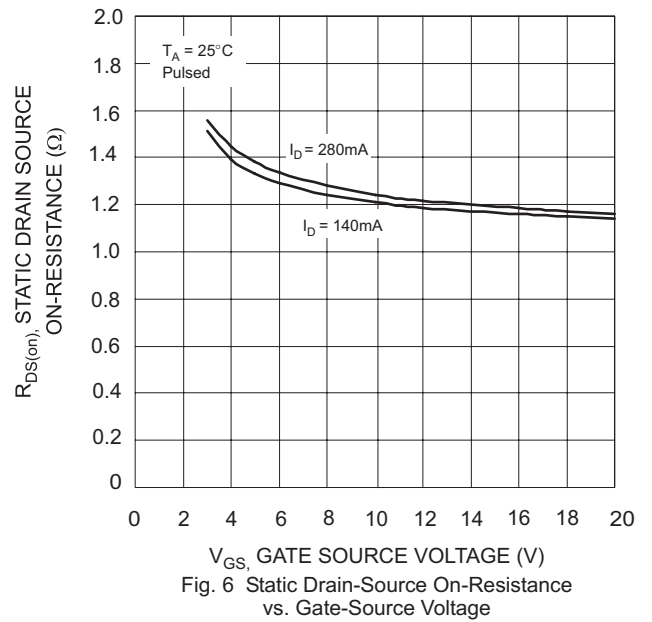


Fig. 6 Static Drain-Source On-Resistance vs. Gate-Source Voltage

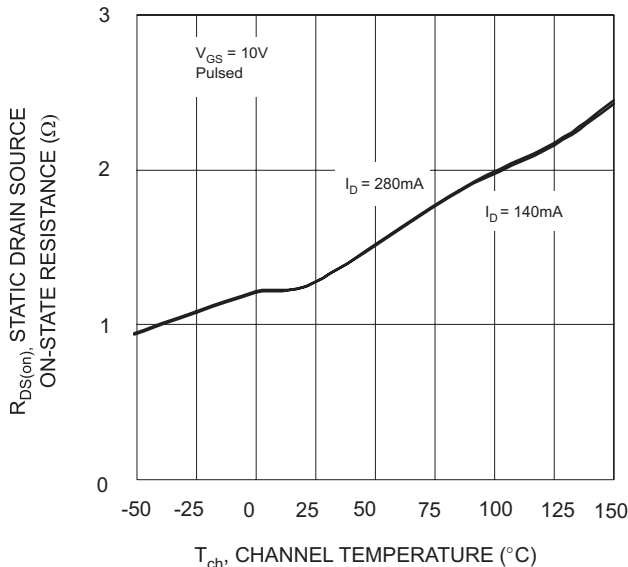


Fig. 7 Static Drain-Source On-State Resistance vs. Channel Temperature

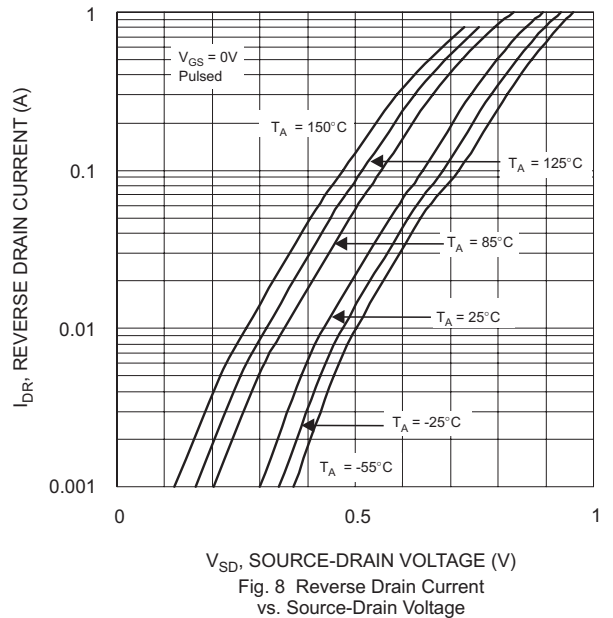
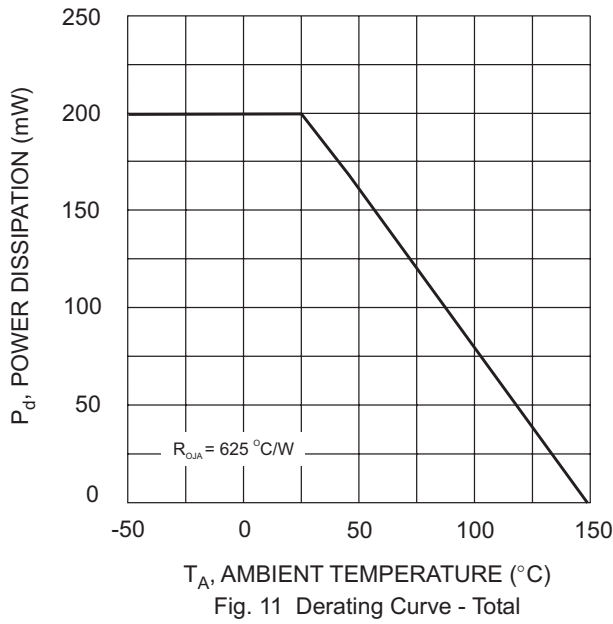
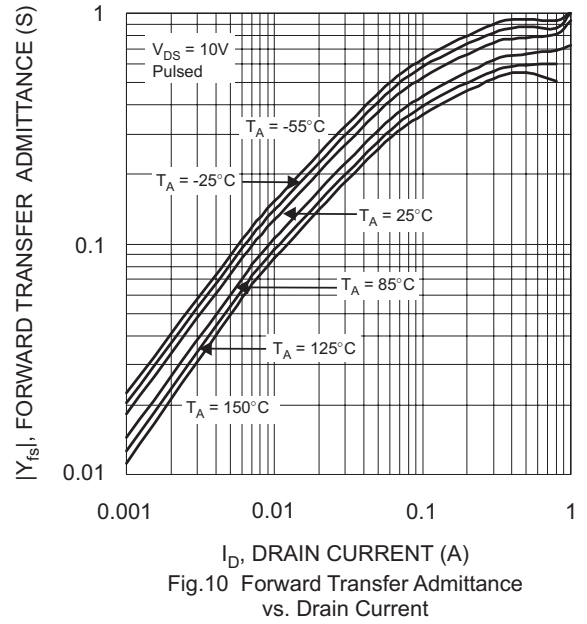
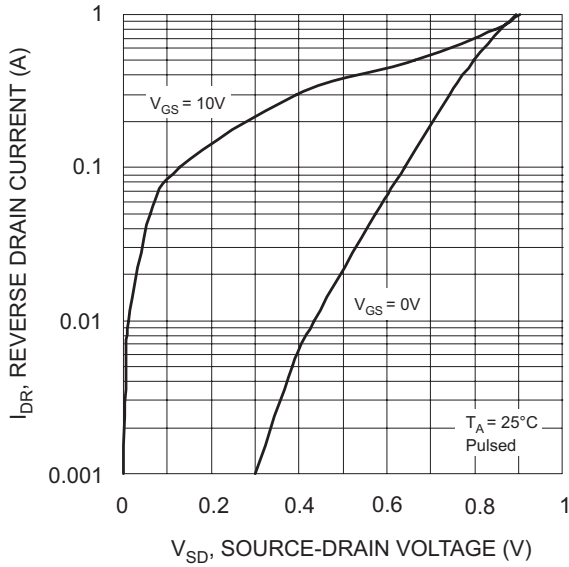


Fig. 8 Reverse Drain Current vs. Source-Drain Voltage

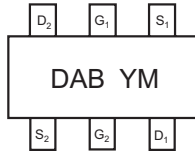


**Ordering Information** (Note 6)

| Device       | Packaging | Shipping         |
|--------------|-----------|------------------|
| DMN5L06DWK-7 | SOT-363   | 3000/Tape & Reel |

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

**Marking Information**



DAB = Marking Code  
 YM = Date Code Marking  
 Y = Year ex: T = 2006  
 M = Month ex: 9 = September

Date Code Key

|             |             |  |  |             |  |  |             |  |  |             |  |  |
|-------------|-------------|--|--|-------------|--|--|-------------|--|--|-------------|--|--|
| <b>Year</b> | <b>2006</b> |  |  | <b>2007</b> |  |  | <b>2008</b> |  |  | <b>2009</b> |  |  |
| <b>Code</b> | T           |  |  | U           |  |  | V           |  |  | W           |  |  |

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

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