

## Features

- Low  $R_{DS(ON)}$ :
  - $65m\Omega$  @  $V_{GS} = -10V$
  - $115m\Omega$  @  $V_{GS} = -4.5V$
- Low Input/Output Leakage
- **Lead Free By Design/RoHS Compliant (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**
- **"Green" Device (Note 4)**

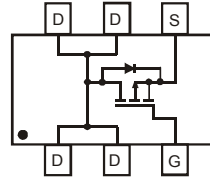
## Mechanical Data

- Case: SOT-26
- Case Material - Molded Plastic. UL Flammability Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020D
- Terminals: Finish - Matte Tin Solderable per MIL-STD-202, Method 208
- Terminal Connections: See Diagram
- Marking Information: See Page 4
- Ordering Information: See page 4
- Weight: 0.008 grams (approximate)



TOP VIEW

SOT-26


 TOP VIEW  
Internal Schematic

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

| Characteristic                    | Symbol    | Value        | Unit |
|-----------------------------------|-----------|--------------|------|
| Drain-Source Voltage              | $V_{DSS}$ | -30          | V    |
| Gate-Source Voltage               | $V_{GSS}$ | $\pm 20$     | V    |
| Drain Current (Note 1) Continuous | $I_D$     | -4.0<br>-3.0 | A    |
|                                   |           |              |      |
| Pulsed Drain Current (Note 2)     | $I_{DM}$  | -14          | A    |

## Thermal Characteristics

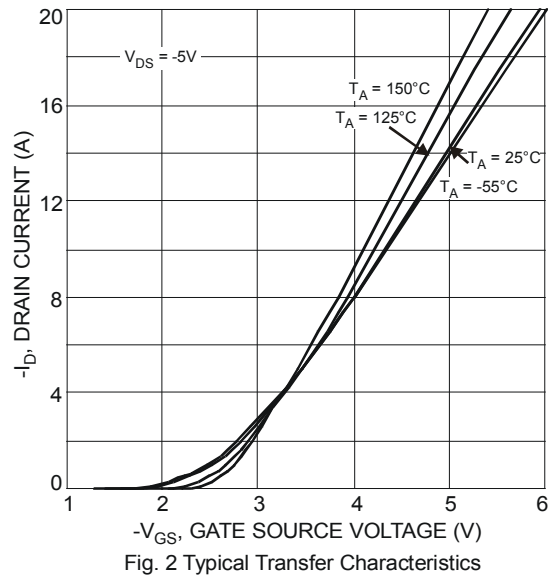
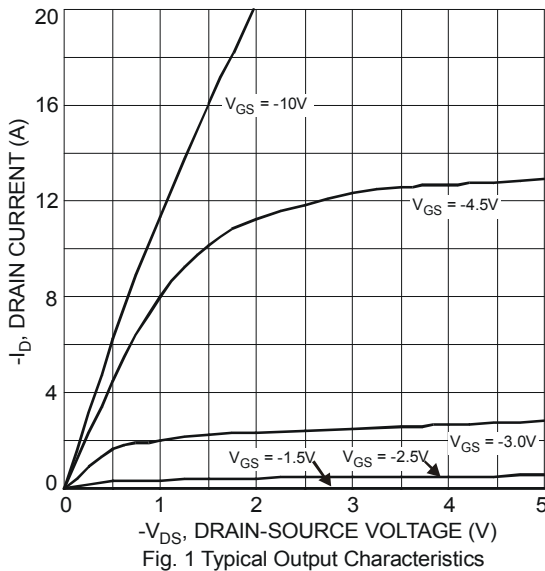
| Characteristic   | Symbol          | Value       | Unit         |
|--|-----------------|-------------|--------------|
| Total Power Dissipation (Note 1)                               | $P_D$           | 1.25        | W            |
| Thermal Resistance, Junction to Ambient (Note 1); Steady-State | $R_{\theta JA}$ | 100         | $^\circ C/W$ |
| Operating and Storage Temperature Range                        | $T_J, T_{STG}$  | -55 to +150 | $^\circ C$   |

- Notes:
1. Device mounted on 1"x1", FR-4 PC board on 0.1in.<sup>2</sup> pads on 2 oz. Copper pads and test pulse width  $t \leq 10s$ .
  2. Repetitive Rating, pulse width limited by junction temperature.
  3. No purposefully added lead.
  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>STATIC PARAMETERS</b>                   |              |      |            |           |               |   |
| Drain-Source Breakdown Voltage             | $BV_{DSS}$   | -30  | —          | —         | V             | $I_D = -250\mu\text{A}, V_{GS} = 0\text{V}$   |
| Zero Gate Voltage Drain Current            | $I_{DSS}$    | —    | —          | -1        | $\mu\text{A}$ | $V_{DS} = -30\text{V}, V_{GS} = 0\text{V}$<br>$T_J = 25^\circ\text{C}$  |
| Gate-Body Leakage Current                  | $I_{GSS}$    | —    | —          | $\pm 100$ | nA            | $V_{DS} = 0\text{V}, V_{GS} = \pm 20\text{V}$   |
| Gate Threshold Voltage                     | $V_{GS(th)}$ | -1.0 | —          | -2.1      | V             | $V_{DS} = V_{GS}, I_D = -250\mu\text{A}$  |
| On State Drain Current (Note 5)            | $I_{D(ON)}$  | -15  | —          | —         | A             | $V_{GS} = -4.5\text{V}, V_{DS} = -5\text{V}$  |
| Static Drain-Source On-Resistance (Note 5) | $R_{DS(ON)}$ | —    | 56<br>98   | 65<br>115 | m $\Omega$    | $V_{GS} = -10\text{V}, I_D = -4.0\text{A}$<br>$V_{GS} = -4.5\text{V}, I_D = -3.0\text{A}$   |
| Forward Transconductance (Note 5)          | $g_{FS}$     | —    | 5.3        | —         | S             | $V_{DS} = -10\text{V}, I_D = -4.0\text{A}$  |
| Diode Forward Voltage (Note 5)             | $V_{SD}$     | —    | 0.79       | -1.2      | V             | $I_S = -1.7\text{A}, V_{GS} = 0\text{V}$  |
| <b>DYNAMIC PARAMETERS (Note 6)</b>         |              |      |            |           |               |   |
| Input Capacitance                          | $C_{iss}$    | —    | 336        | —         | pF            | $V_{DS} = -25\text{V}, V_{GS} = 0\text{V}$<br>$f = 1.0\text{MHz}$   |
| Output Capacitance                         | $C_{oss}$    | —    | 70         | —         | pF            |   |
| Reverse Transfer Capacitance               | $C_{rss}$    | —    | 49         | —         | pF            | $V_{DS} = 0\text{V}, V_{GS} = 0\text{V}, f = 1.0\text{MHz}$   |
| Gate Resistance                            | $R_G$        | —    | 4.6        | —         | $\Omega$      |   |
| <b>SWITCHING CHARACTERISTICS</b>           |              |      |            |           |               |   |
| Total Gate Charge                          | $Q_g$        | —    | 4.0<br>7.8 | —         | nC            | $V_{DS} = -15\text{V}, V_{GS} = -4.5\text{V}, I_D = -5.0\text{A}$<br>$V_{DS} = -15\text{V}, V_{GS} = -10\text{V}, I_D = -5.0\text{A}$ |
| Gate-Source Charge                         | $Q_{gs}$     | —    | 1.0        | —         |               | $V_{DS} = -15\text{V}, V_{GS} = -4.5\text{V}, I_D = -5.0\text{A}$   |
| Gate-Drain Charge                          | $Q_{gd}$     | —    | 2.5        | —         |               | $V_{DS} = -15\text{V}, V_{GS} = -4.5\text{V}, I_D = -5.0\text{A}$   |
| Turn-On Delay Time                         | $t_{d(on)}$  | —    | 6.0        | —         | ns            | $V_{DS} = -15\text{V}, V_{GS} = -10\text{V},$<br>$I_D = -1.0\text{A}, R_G = 6.0\Omega$  |
| Rise Time                                  | $t_r$        | —    | 5.0        | —         |               |   |
| Turn-Off Delay Time                        | $t_{d(off)}$ | —    | 17.6       | —         |               |   |
| Fall Time                                  | $t_f$        | —    | 9.5        | —         |               |   |

Notes: 5. Test pulse width  $t = 300\mu\text{s}$ .  
6. Guaranteed by design. Not subject to production testing.



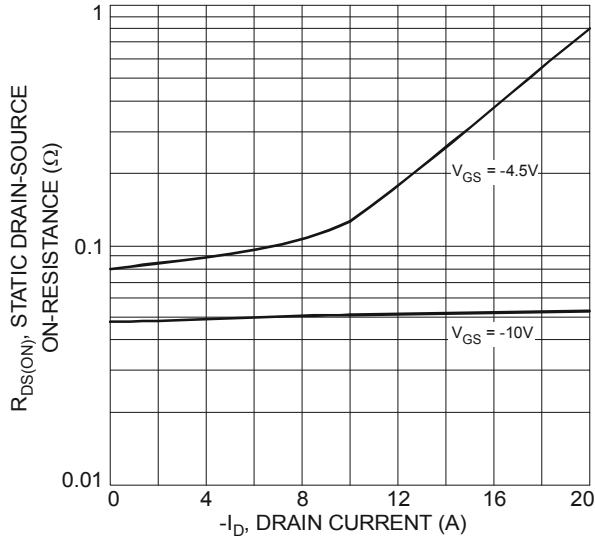


Fig. 3 Typical On-Resistance vs. Drain Current and Gate Voltage

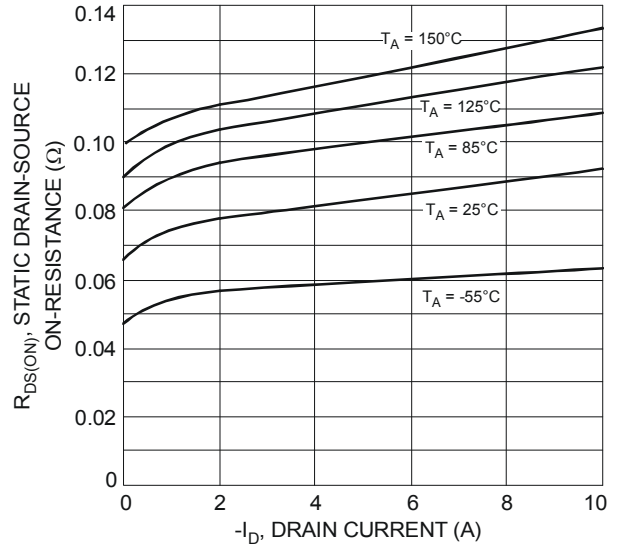


Fig. 4 Typical On-Resistance vs. Drain Current and Temperature

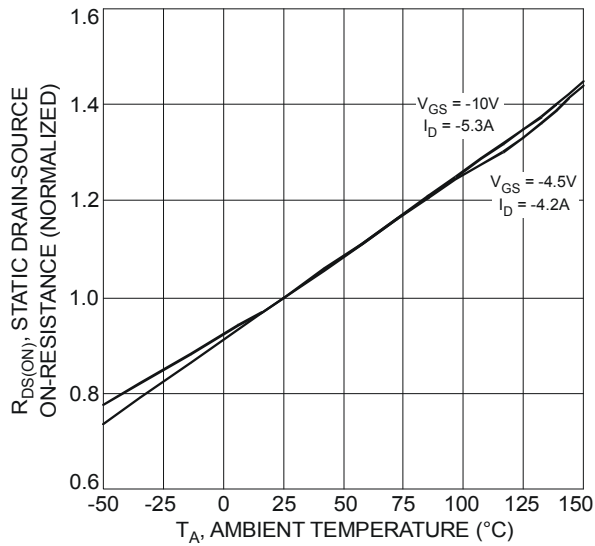


Fig. 5 On-Resistance Variation with Temperature

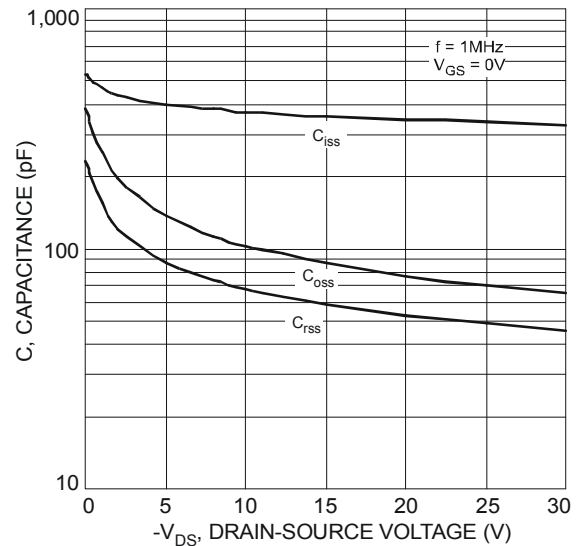


Fig. 6 Typical Capacitance

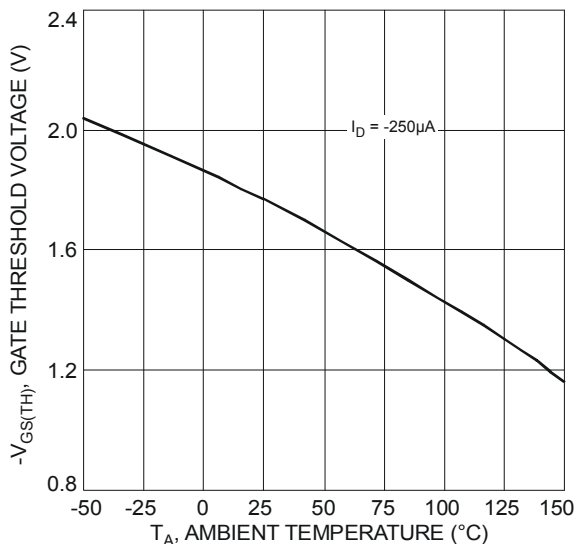


Fig. 7 Gate Threshold Variation vs. Ambient Temperature

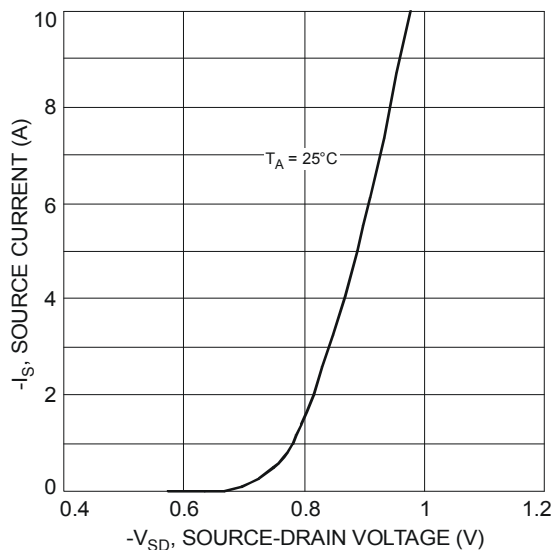


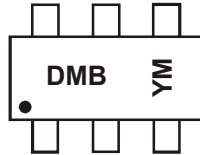
Fig. 8 Diode Forward Voltage vs. Current

**Ordering Information** (Note 7)

| Part Number  | Case   | Packaging        |
|--------------|--------|------------------|
| DMP3098LDM-7 | SOT-26 | 3000/Tape & Reel |

Notes: 7. For packaging details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

**Marking Information**



DMB = Product Type Marking Code  
 YM = Date Code Marking  
 Y = Year (ex: V = 2008)  
 M = Month (ex: 9 = September)

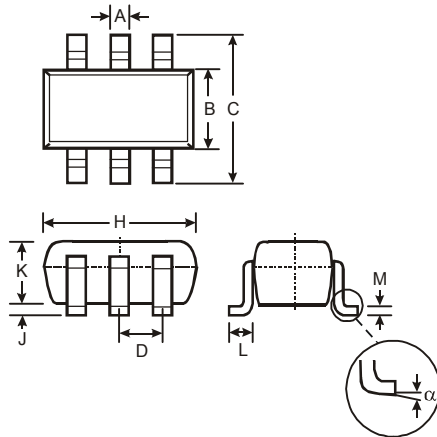
Date Code Key

| Year | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |
|------|------|------|------|------|------|------|------|------|
| Code | V    | W    | X    | Y    | Z    | A    | B    | C    |

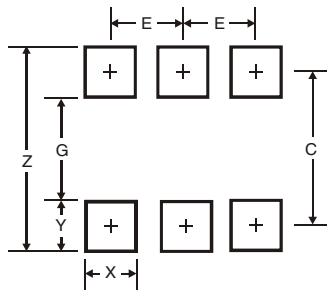
| Month | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Code  | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | O   | N   | D   |

**Package Outline Dimensions**



| SOT-26               |       |      |      |
|----------------------|-------|------|------|
| Dim                  | Min   | Max  | Typ  |
| A                    | 0.35  | 0.50 | 0.38 |
| B                    | 1.50  | 1.70 | 1.60 |
| C                    | 2.70  | 3.00 | 2.80 |
| D                    | —     | —    | 0.95 |
| H                    | 2.90  | 3.10 | 3.00 |
| J                    | 0.013 | 0.10 | 0.05 |
| K                    | 1.00  | 1.30 | 1.10 |
| L                    | 0.35  | 0.55 | 0.40 |
| M                    | 0.10  | 0.20 | 0.15 |
| α                    | 0°    | 8°   | —    |
| All Dimensions in mm |       |      |      |

**Suggested Pad Layout**



| Dimensions | Value (in mm) |
|------------|---------------|
| Z          | 3.20          |
| G          | 1.60          |
| X          | 0.55          |
| Y          | 0.80          |
| C          | 2.40          |
| E          | 0.95          |

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