

Features

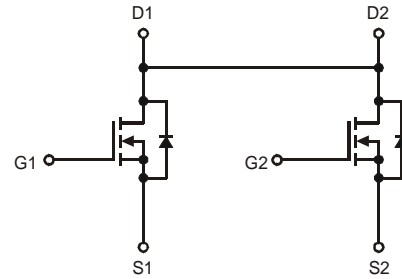
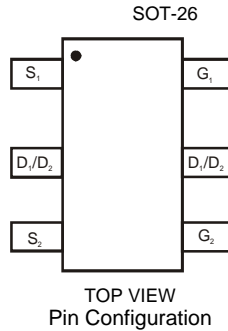
- Low Gate Charge
- Low $R_{DS(ON)}$:
 - $28m\Omega$ @ $V_{GS} = 4.5V$
 - $32m\Omega$ @ $V_{GS} = 2.5V$
 - $40m\Omega$ @ $V_{GS} = 1.8V$
- Low Input/Output Leakage
- **Lead Free By Design/RoHS Compliant (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**
- **"Green" Device (Note 4)**

Mechanical Data

- Case: SOT-26
- Case Material - Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020D
- 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 Information: See Page 4
- Weight: 0.008 grams (approximate)



TOP VIEW



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

| Characteristic | Symbol | Value | Unit |
|-----------------------------------|-----------|--------------------|------|
| Drain-Source Voltage | V_{DSS} | 20 | V |
| Gate-Source Voltage | V_{GSS} | ± 8 | V |
| Drain Current (Note 1) Continuous | I_D | $T_A = 25^\circ C$ | 4.2 |
| | | $T_A = 70^\circ C$ | 3.2 |
| Pulsed Drain Current (Note 2) | I_{DM} | 30 | A |

Thermal Characteristics @ $T_A = 25^\circ C$ unless otherwise specified

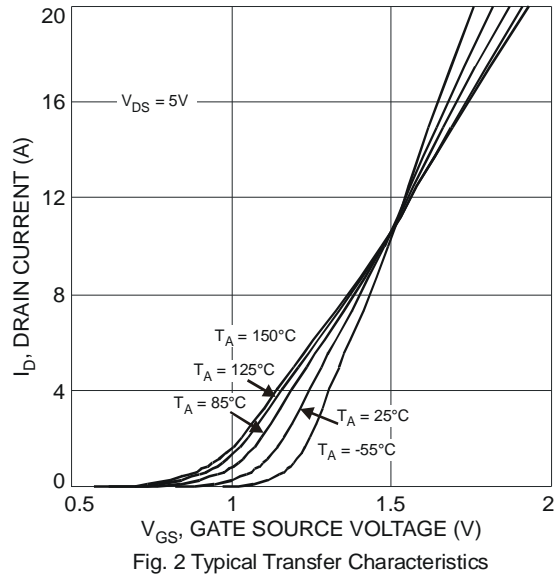
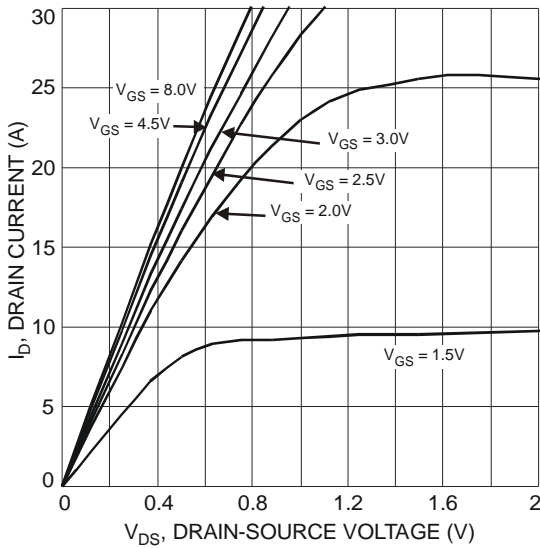
| Characteristic | Symbol | Value | Unit |
|---|-----------------|-------------|--------------|
| Total Power Dissipation (Note 1) | P_D | 0.98 | W |
| Thermal Resistance, Junction to Ambient (Note 1) $t \leq 10s$ | $R_{\theta JA}$ | 128 | $^\circ C/W$ |
| Operating and Storage Temperature Range | T_J, T_{STG} | -55 to +150 | $^\circ C$ |

- Notes:
1. Device mounted on 1"x1", FR-4 PC board with 2 oz. Copper 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.

Electrical Characteristics @T_A = 25°C unless otherwise specified

| Characteristic | Symbol | Min | Typ | Max | Unit | Test Condition |
|--|---------------------|-----|----------------|----------------|------|---|
| STATIC CHARACTERISTICS | | | | | | |
| Drain-Source Breakdown Voltage | BV _{DSS} | 20 | — | — | V | I _D = 250μA, V _{GS} = 0V |
| Zero Gate Voltage Drain Current | I _{DSS} | — | — | 1 | μA | V _{DS} = 20V, V _{GS} = 0V |
| Gate-Body Leakage Current | I _{GSS} | — | — | ±100 | nA | V _{DS} = 0V, V _{GS} = ±8V |
| Gate Threshold Voltage | V _{GS(th)} | 0.5 | — | 0.9 | V | V _{DS} = V _{GS} , I _D = 250μA |
| Static Drain-Source On-Resistance (Note 5) | R _{DS(on)} | — | 22 25 31 | 28 32 40 | mΩ | V _{GS} = 4.5V, I _D = 8.2A V _{GS} = 2.5V, I _D = 3.3A V _{GS} = 1.8V, I _D = 2.0A |
| Forward Transfer Admittance | Y _{FS} | — | 7 | — | S | V _{DS} = 10V, I _D = 4A |
| Diode Forward Voltage (Note 5) | V _{SD} | — | 0.7 | 0.9 | V | I _S = 2.25A, V _{GS} = 0V |
| DYNAMIC CHARACTERISTICS (Note 6) | | | | | | |
| Input Capacitance | C _{iss} | — | 856 | — | pF | V _{DS} = 10V, V _{GS} = 0V f = 1.0MHz |
| Output Capacitance | C _{oss} | — | 83 | — | pF | |
| Reverse Transfer Capacitance | C _{rss} | — | 78 | — | pF | |
| Gate Resisitance | R _G | — | 1.32 | — | Ω | V _{GS} = 0V, V _{DS} = 0V, f = 1MHz |
| SWITCHING CHARACTERISTICS | | | | | | |
| Total Gate Charge | Q _g | — | 8.3 | — | nC | V _{GS} = 4.5V, V _{DS} = 10V, I _D = 8.2A |
| Gate-Source Charge | Q _{gs} | — | 1.3 | — | nC | |
| Gate-Drain Charge | Q _{gd} | — | 3.1 | — | nC | |
| Turn-On Delay Time | t _{D(on)} | — | 8.4 | — | ns | V _{DD} = 10V, V _{GS} = 4.5V, R _L = 10Ω, R _G = 6Ω |
| Turn-On Rise Time | t _r | — | 8.2 | — | ns | |
| Turn-Off Delay Time | t _{D(off)} | — | 40.4 | — | ns | |
| Turn-Off Fall Time | t _f | — | 8.9 | — | ns | |

Notes: 5. Test pulse width t = 300ms.
6. Guaranteed by design. Not subject to production testing.



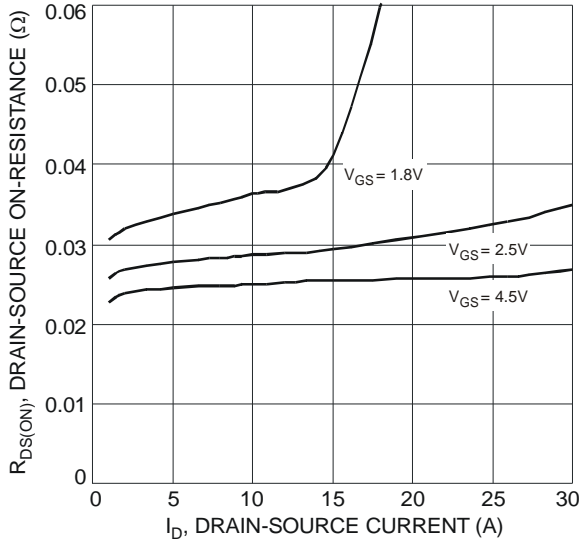


Fig. 3 Typical On-Resistance vs. Drain Current and Gate Voltage

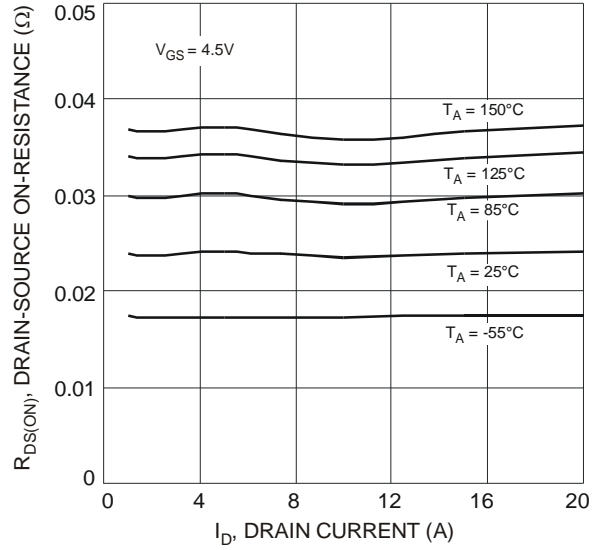


Fig. 4 Typical Drain-Source On-Resistance vs. Drain Current and Temperature

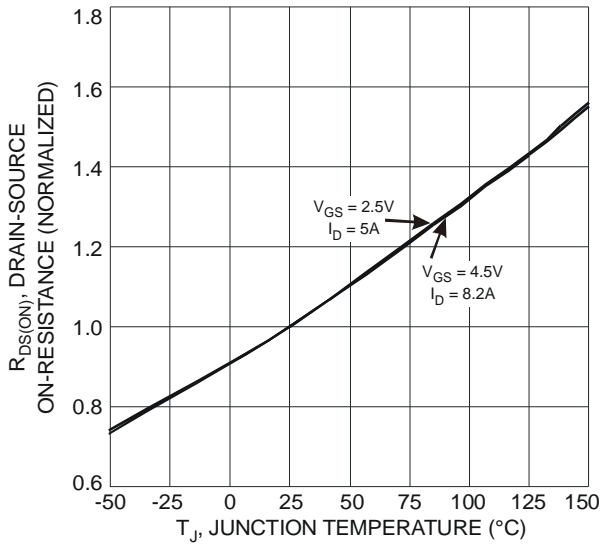


Fig. 5 On-Resistance Variation with Temperature

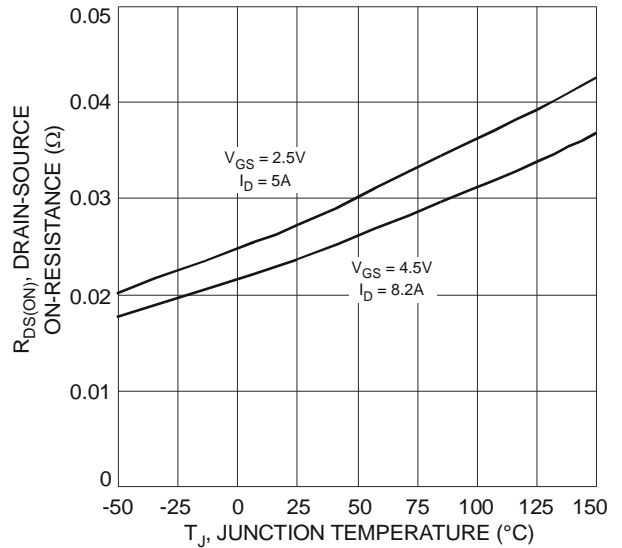


Fig. 6 On-Resistance Variation with Temperature

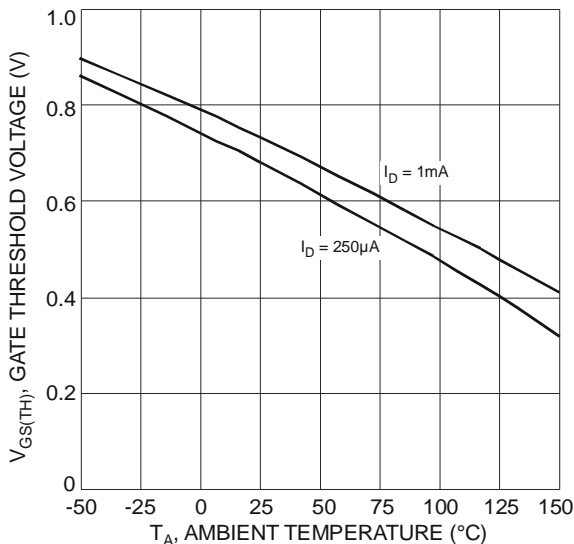


Fig. 7 Gate Threshold Variation vs. Ambient Temperature

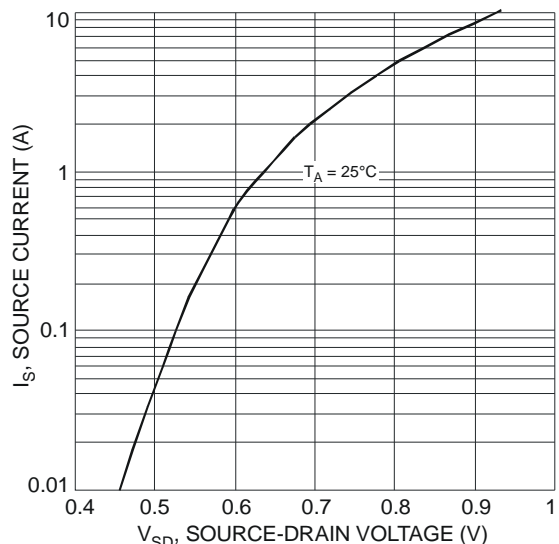


Fig. 8 Diode Forward Voltage vs. Current

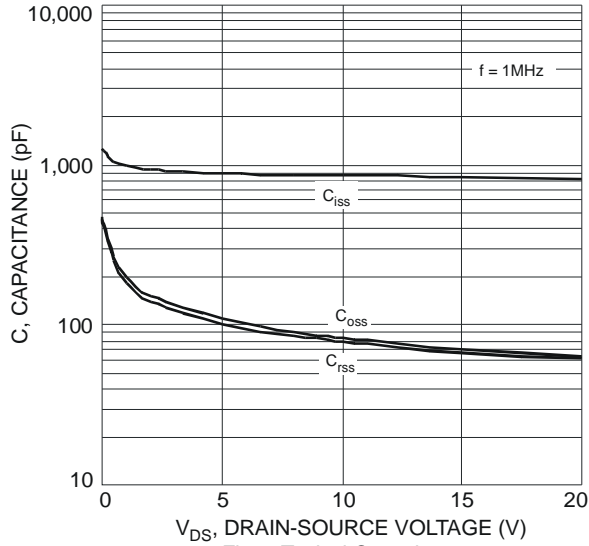


Fig. 9 Typical Capacitance

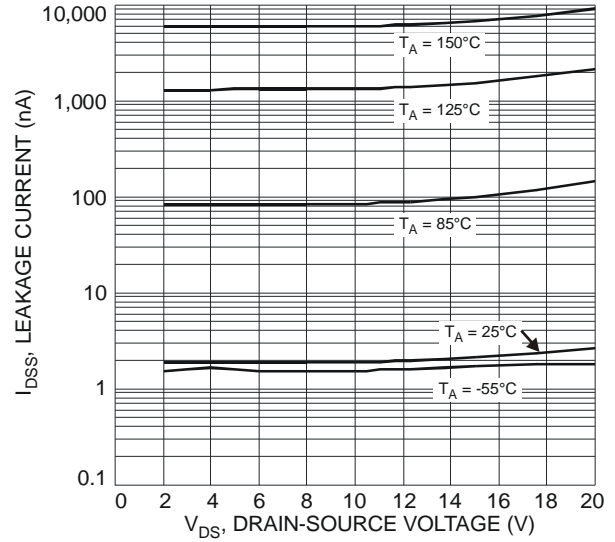


Fig. 10 Typical Drain-Source Leakage Current vs. Drain-Source Voltage

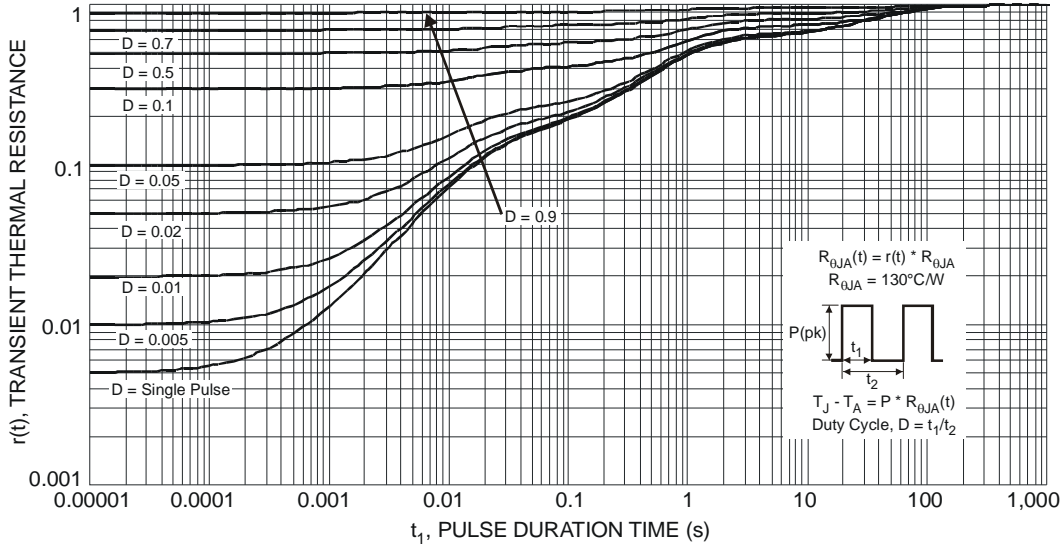


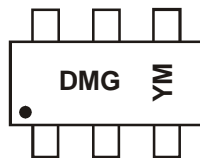
Fig. 11 Transient Thermal Response

Ordering Information (Note 7)

| Part Number | Case | Packaging |
|--------------|--------|------------------|
| DMG9926UDM-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



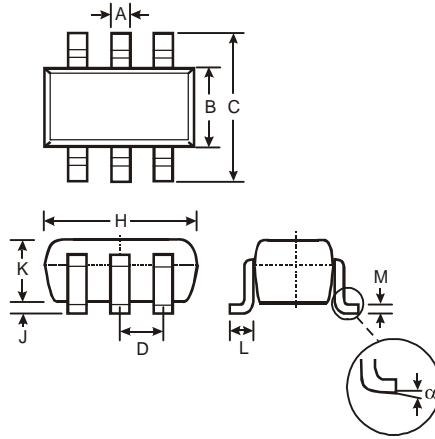
DMG = Product Type Marking Code
 YM = Date Code Marking
 Y = Year (ex: W = 2009)
 M = Month (ex: 9 = September)

Date Code Key

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

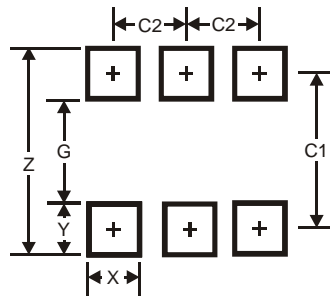
| Month | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Code | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | O | N | D |

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 |
| C1 | 2.40 |
| C2 | 0.95 |

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