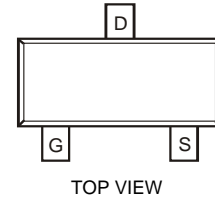
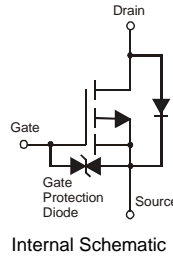


Features

- Low On-Resistance
- Low Input Capacitance
- Fast Switching Speed
- Low Input/Output Leakage
- Lead Free By Design/RoHS Compliant (Note 1)
- ESD Protected Up To 3kV
- "Green" Device (Note 2)
- **Qualified to AEC-Q101 Standards for High Reliability**

Mechanical Data

- Case: SOT-23
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020D
- Terminal Connections: See Diagram Below
- Marking Information: See Page 4
- Ordering Information: See Page 4
- Weight: 0.008 grams (approximate)



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

| Characteristic | | | Symbol | Value | Unit |
|-----------------------------------|--------------|--------------------------|-----------|---------|------|
| Drain-Source Voltage | | | V_{DSS} | -20 | V |
| Gate-Source Voltage | | | V_{GSS} | ± 8 | V |
| Continuous Drain Current (Note 3) | Steady State | $T_A = 25^\circ\text{C}$ | I_D | -3.6 | A |
| | | $T_A = 70^\circ\text{C}$ | | -2.9 | |
| Pulsed Drain Current (Note 4) | | | I_{DM} | -24 | A |

Thermal Characteristics

| Characteristic | | | Symbol | Value | Unit |
|--|--|--|-----------------|-------------|--------------------|
| Power Dissipation (Note 3) | | | P_D | 0.81 | W |
| Thermal Resistance, Junction to Ambient @ $T_A = 25^\circ\text{C}$ | | | $R_{\theta JA}$ | 153.5 | $^\circ\text{C/W}$ |
| Operating and Storage Temperature Range | | | T_J, T_{STG} | -55 to +150 | $^\circ\text{C}$ |

- Notes:
1. No purposefully added lead.
 2. Diodes Inc.'s "Green" policy can be found on our website at http://www.diodes.com/products/lead_free/index.php.
 3. Device mounted on FR-4 PCB with 2 oz. Copper and test pulse width $t \leq 10\text{s}$.
 4. Repetitive rating, pulse width limited by junction temperature.

Electrical Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

| Characteristic | Symbol | Min | Typ | Max | Unit | Test Condition |
|--|--------------|------|------|----------|------------|--|
| OFF CHARACTERISTICS (Note 5) | | | | | | |
| Drain-Source Breakdown Voltage | BV_{DSS} | -20 | - | - | V | $V_{GS} = 0V, I_D = -250\mu A$ |
| Zero Gate Voltage Drain Current $T_J = 25^\circ\text{C}$ | I_{DSS} | - | - | -1.0 | μA | $V_{DS} = -20V, V_{GS} = 0V$ |
| Gate-Source Leakage | I_{GSS} | - | - | ± 10 | μA | $V_{GS} = \pm 8V, V_{DS} = 0V$ |
| ON CHARACTERISTICS (Note 5) | | | | | | |
| Gate Threshold Voltage | $V_{GS(th)}$ | -0.4 | -0.7 | -1.0 | V | $V_{DS} = V_{GS}, I_D = -250\mu A$ |
| Static Drain-Source On-Resistance | $R_{DS(ON)}$ | - | 23 | 35 | m Ω | $V_{GS} = -4.5V, I_D = -4.0A$ |
| | | - | 30 | 45 | | $V_{GS} = -2.5V, I_D = -4.0A$ |
| | | - | 41 | 62 | | $V_{GS} = -1.8V, I_D = -2.0A$ |
| Forward Transfer Admittance | $ Y_{fs} $ | - | 14 | - | S | $V_{DS} = -5V, I_D = -4A$ |
| Diode Forward Voltage | V_{SD} | - | -0.7 | -1.0 | V | $V_{GS} = 0V, I_S = -1A$ |
| DYNAMIC CHARACTERISTICS | | | | | | |
| Input Capacitance | C_{iss} | - | 1610 | - | pF | $V_{DS} = -10V, V_{GS} = 0V$ $f = 1.0\text{MHz}$ |
| Output Capacitance | C_{oss} | - | 157 | - | pF | |
| Reverse Transfer Capacitance | C_{rss} | - | 145 | - | pF | |
| Gate Resistance | R_g | - | 9.45 | - | Ω | $V_{DS} = 0V, V_{GS} = 0V, f = 1\text{MHz}$ |
| Total Gate Charge | Q_g | - | 15.4 | - | nC | $V_{GS} = -4.5V, V_{DS} = -10V,$ $I_D = -4A$ |
| Gate-Source Charge | Q_{gs} | - | 2.5 | - | nC | |
| Gate-Drain Charge | Q_{gd} | - | 3.3 | - | nC | |
| Turn-On Delay Time | $t_{D(on)}$ | - | 16.8 | - | ns | $V_{DS} = -10V, V_{GS} = -4.5V,$ $R_L = 10\Omega, R_G = 6.0\Omega, I_D = -1A$ |
| Turn-On Rise Time | t_r | - | 12.4 | - | ns | |
| Turn-Off Delay Time | $t_{D(off)}$ | - | 94.1 | - | ns | |
| Turn-Off Fall Time | t_f | - | 42.4 | - | ns | |

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

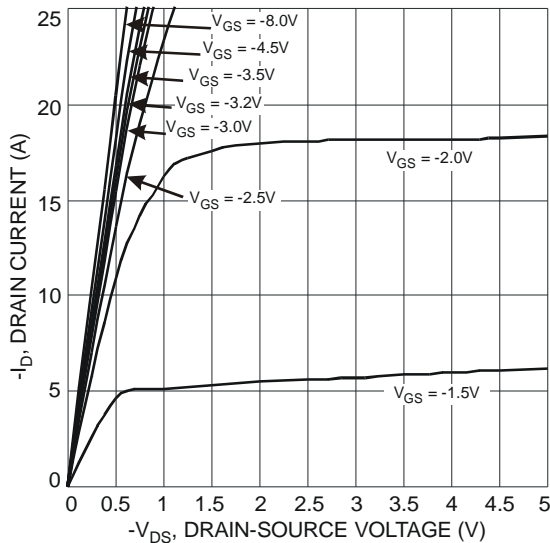


Fig. 1 Typical Output Characteristic

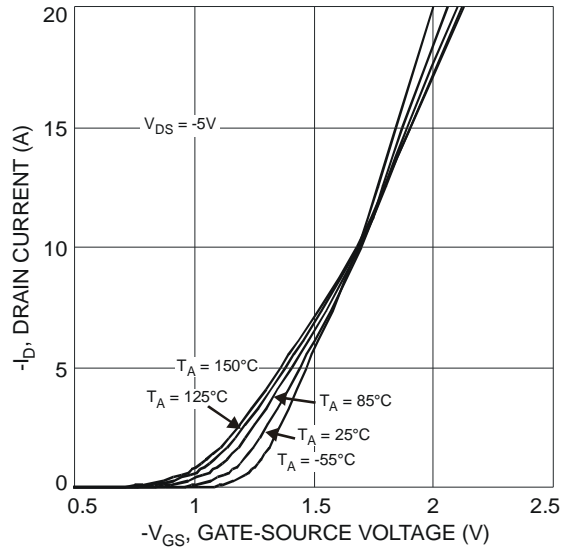


Fig. 2 Typical Transfer Characteristic

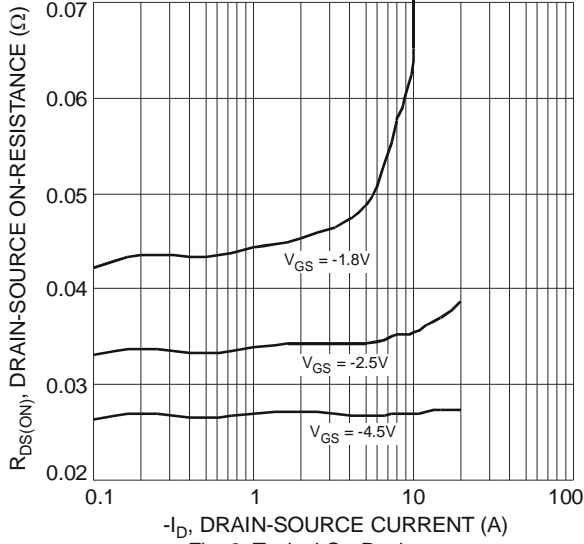


Fig. 3 Typical On-Resistance vs. Drain Current and Gate Voltage

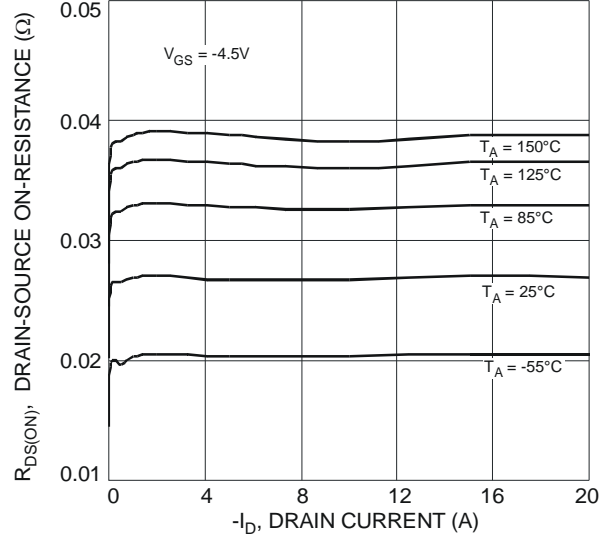


Fig. 4 Typical On-Resistance vs. Drain Current and Temperature

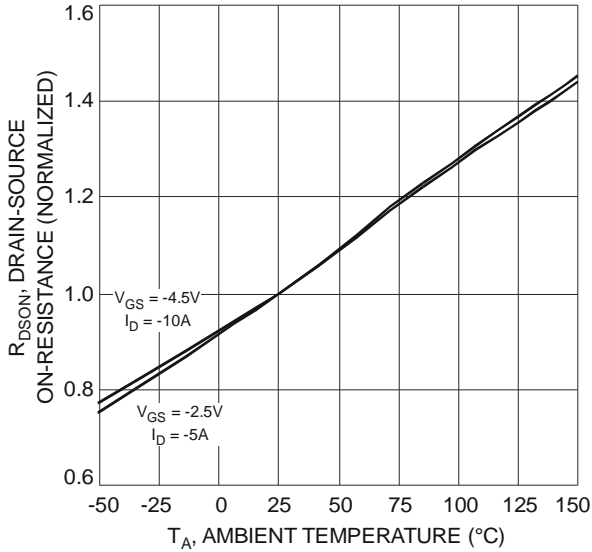


Fig. 5 On-Resistance Variation with Temperature

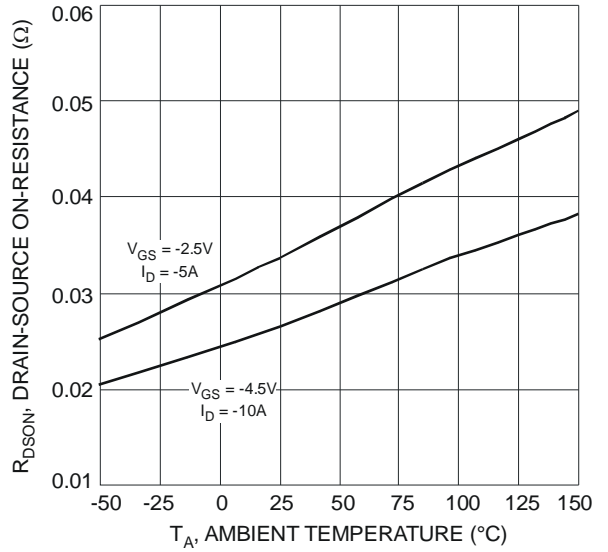


Fig. 6 On-Resistance Variation with Temperature

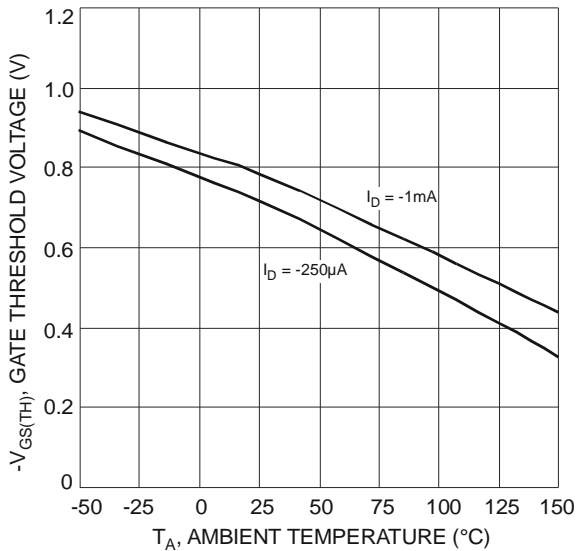


Fig. 7 Gate Threshold Variation vs. Ambient Temperature

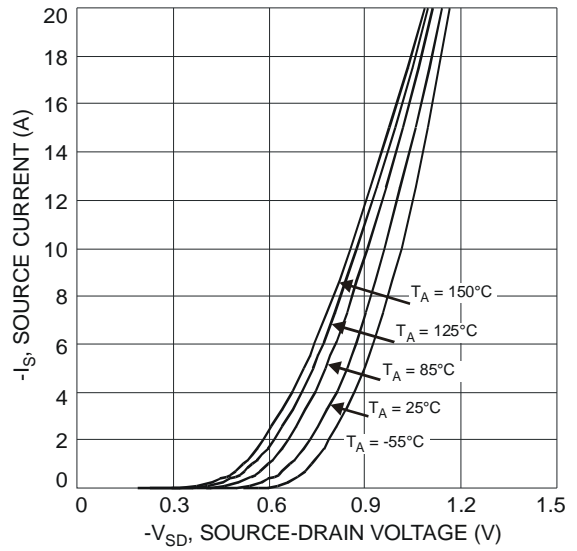


Fig. 8 Diode Forward Voltage vs. Current

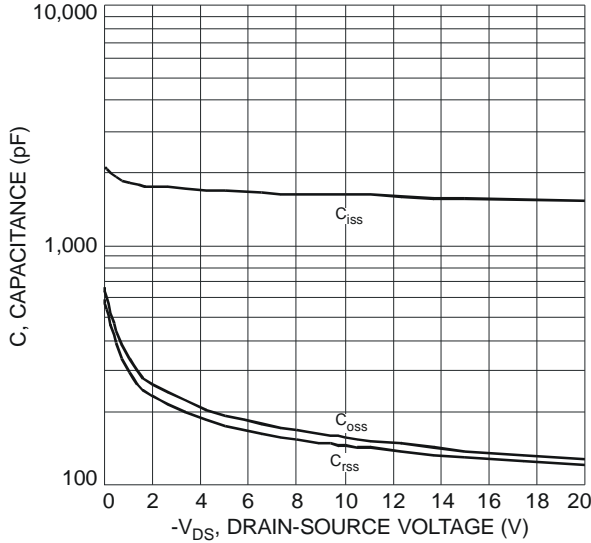


Fig. 9 Typical Total Capacitance

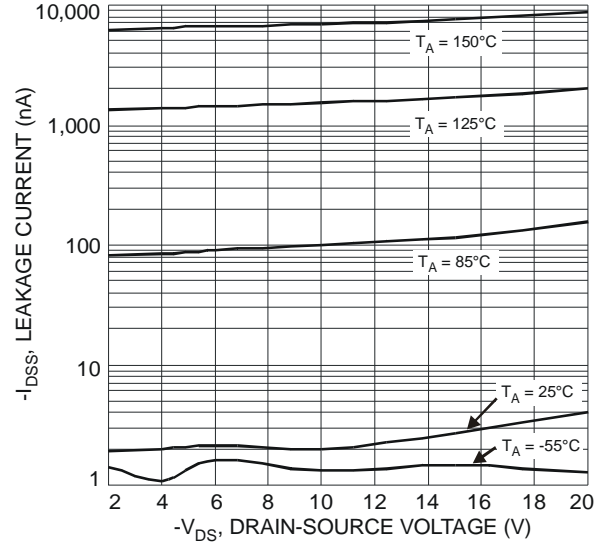


Fig. 10 Typical Leakage Current vs. Drain-Source Voltage

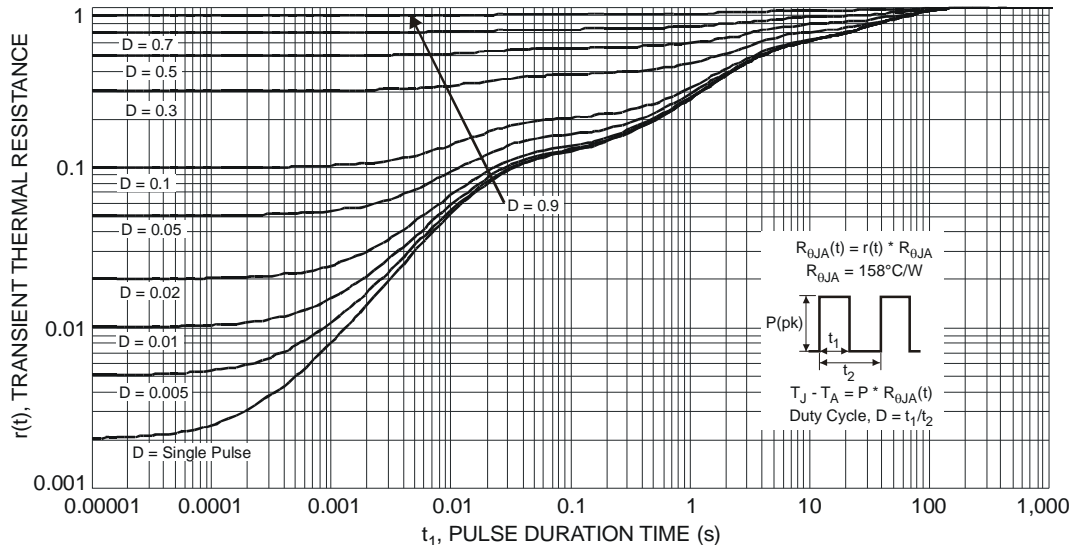


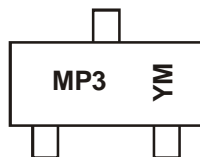
Fig. 11 Transient Thermal Response

Ordering Information (Note 6)

| Part Number | Case | Packaging |
|-------------|--------|-----------------------|
| DMP2035U-7 | SOT-23 | 3000 / 7" Tape & Reel |

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

Marking Information

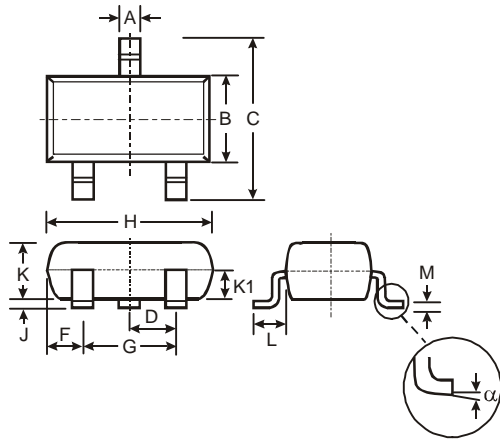


MP3 = Product Type Marking Code
YM = Date Code Marking
Y = Year (ex: W = 2009)
M = Month (ex: 9 = September)

Date Code Key

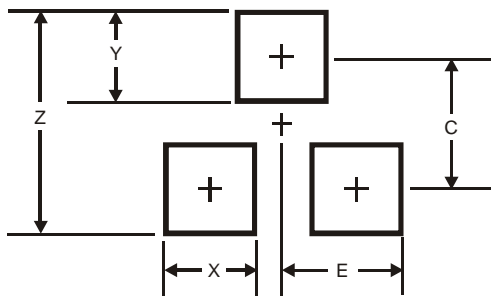
| Year | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | | | | | |
|-------|------|------|------|------|------|------|------|-----|-----|-----|-----|-----|
| Code | W | X | Y | Z | A | B | C | | | | | |
| Month | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
| Code | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | O | N | D |

Package Outline Dimensions



| SOT-23 | | | |
|----------------------|-------|------|-------|
| Dim | Min | Max | Typ |
| A | 0.37 | 0.51 | 0.40 |
| B | 1.20 | 1.40 | 1.30 |
| C | 2.30 | 2.50 | 2.40 |
| D | 0.89 | 1.03 | 0.915 |
| F | 0.45 | 0.60 | 0.535 |
| G | 1.78 | 2.05 | 1.83 |
| H | 2.80 | 3.00 | 2.90 |
| J | 0.013 | 0.10 | 0.05 |
| K | 0.903 | 1.10 | 1.00 |
| K1 | - | - | 0.400 |
| L | 0.45 | 0.61 | 0.55 |
| M | 0.085 | 0.18 | 0.11 |
| α | 0° | 8° | - |
| All Dimensions in mm | | | |

Suggested Pad Layout



| Dimensions | Value (in mm) |
|------------|---------------|
| Z | 2.9 |
| X | 0.8 |
| Y | 0.9 |
| C | 2.0 |
| E | 1.35 |

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