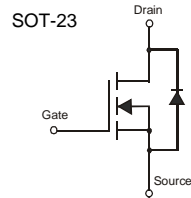


Features

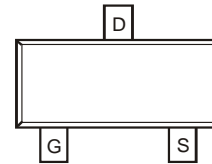
- Low On-Resistance:
 $R_{DS(ON)} < 38m\Omega$ @ $V_{GS} = 10V, I_D = 5.8A$
 $R_{DS(ON)} < 64m\Omega$ @ $V_{GS} = 4.5V, I_D = 5.0A$
- Low Gate Threshold Voltage
- Low Input Capacitance
- Fast Switching Speed
- Low Input/Output Leakage
- Lead Free By Design/RoHS Compliant (Note 2)**
- "Green" Device (Note 3)**
- Qualified to AEC-Q101 Standards for High Reliability**



TOP VIEW



Equivalent Circuit



TOP VIEW

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
- Terminals: Finish – Matte Tin annealed over Copper leadframe. Solderable per MIL-STD-202, Method 208
- Terminal Connections: See Diagram
- Marking Information: See Page 3
- Ordering Information: See Page 3
- Weight: 0.008 grams (approximate)

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} | ± 20 | V |
| Drain Current (Note 1) | I_D | $T_A = 25^\circ C$ | 5.8 |
| | | $T_A = 70^\circ C$ | 4.9 |
| Drain Current (Note 1) | I_{DM} | 20 | A |
| Body-Diode Continuous Current (Note 1) | I_S | 2.0 | A |

Thermal Characteristics

| Characteristic | Symbol | Value | Unit |
|---|-----------------|-------------|--------------|
| Total Power Dissipation (Note 1) | P_D | 1.4 | W |
| Thermal Resistance, Junction to Ambient @ $T_A = 25^\circ C$ (Note 1) | $R_{\theta JA}$ | 90 | $^\circ C/W$ |
| Operating and Storage Temperature Range | T_J, T_{STG} | -55 to +150 | $^\circ C$ |

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

| Characteristic | Symbol | Min | Typ | Max | Unit | Test Condition |
|-------------------------------------|--------------|-----|------|-----------------------|-----------|--|
| OFF CHARACTERISTICS (Note 4) | | | | | | |
| Drain-Source Breakdown Voltage | BV_{DSS} | 30 | — | — | V | $V_{GS} = 0V, I_D = 250\mu A$ |
| Zero Gate Voltage Drain Current | I_{DSS} | — | — | 800 | nA | $V_{DS} = 28V, V_{GS} = 0V$ |
| Gate-Body Leakage | I_{GSS} | — | — | ± 80 ± 800 | nA | $V_{GS} = \pm 12V, V_{DS} = 0V$ $V_{GS} = \pm 20V, V_{DS} = 0V$ |
| ON CHARACTERISTICS (Note 4) | | | | | | |
| Gate Threshold Voltage | $V_{GS(th)}$ | 1.3 | 1.9 | 2.2 | V | $V_{DS} = V_{GS}, I_D = 250\mu A$ |
| Static Drain-Source On-Resistance | $R_{DS(ON)}$ | — | 33 | 38 | $m\Omega$ | $V_{GS} = 10V, I_D = 5.8A$ $V_{GS} = 4.5V, I_D = 5.0A$ |
| | | — | 54 | 64 | | |
| Forward Transconductance | $ Y_{fs} $ | — | 5 | — | S | $V_{DS} = 5V, I_D = 3.1A$ |
| Source-Drain Diode Forward Voltage | V_{SD} | — | 0.78 | 1.16 | V | $V_{GS} = 0V, I_S = 2.0A$ |
| DYNAMIC CHARACTERISTICS | | | | | | |
| Input Capacitance | C_{iss} | — | 424 | — | pF | $V_{DS} = 5V, V_{GS} = 0V$ $f = 1.0MHz$ |
| Output Capacitance | C_{oss} | — | 115 | — | pF | |
| Reverse Transfer Capacitance | C_{rss} | — | 81 | — | pF | |

- Notes:
- Device mounted on FR-4 PCB. $t \leq 5$ sec.
 - No purposefully added lead.
 - Diodes Inc.'s "Green" policy can be found on our website at http://www.diodes.com/products/lead_free/index.php.
 - Short duration pulse test used to minimize self-heating effect.

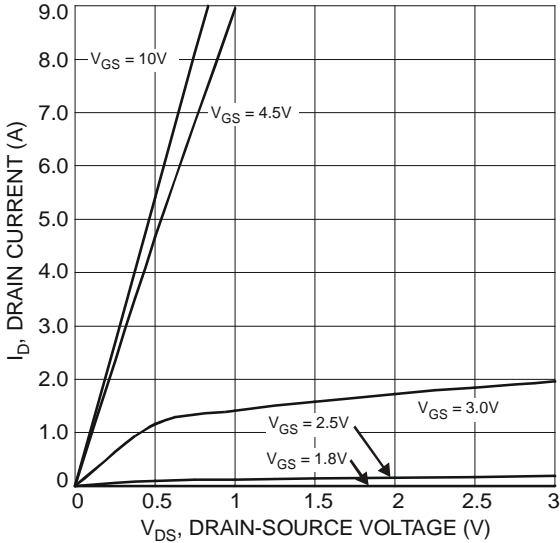


Fig. 1 Typical Output Characteristics

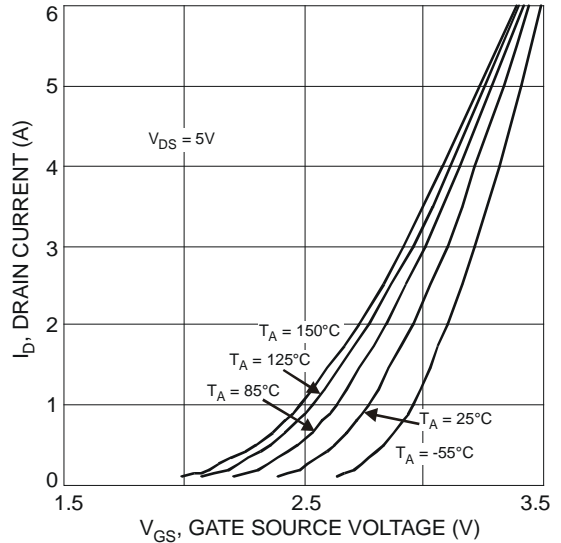


Fig. 2 Typical Transfer Characteristics

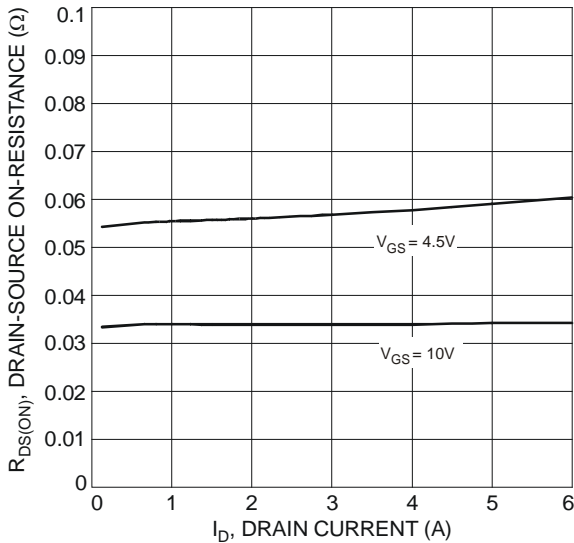


Fig. 3 Typical On-Resistance vs. Drain Current and Gate Voltage

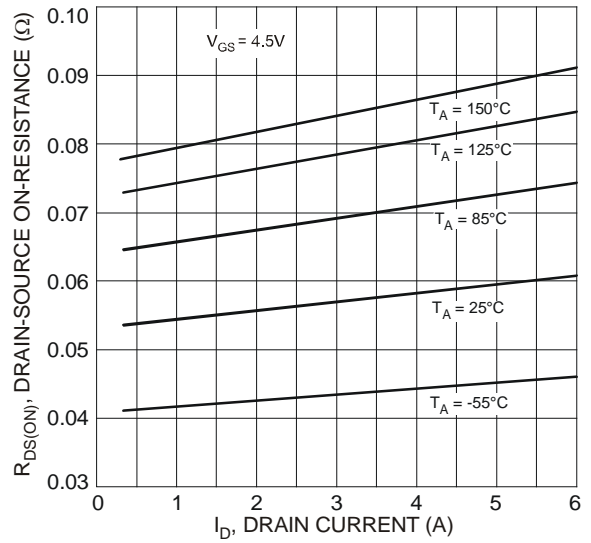


Fig. 4 Typical Drain-Source On-Resistance vs. Drain Current and Temperature

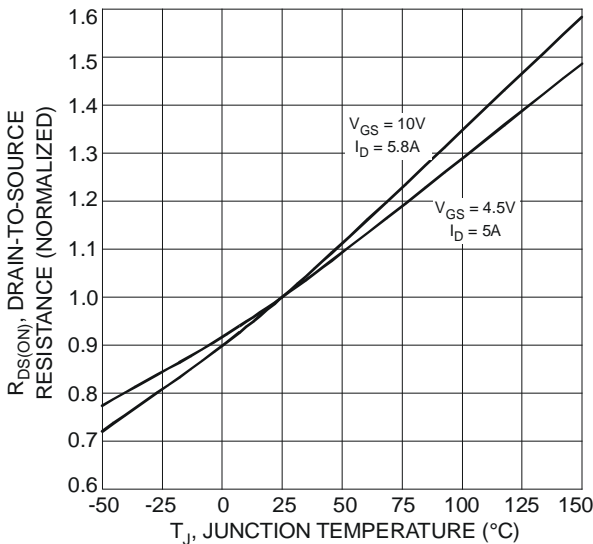


Fig. 5 On-Resistance Variation with Temperature

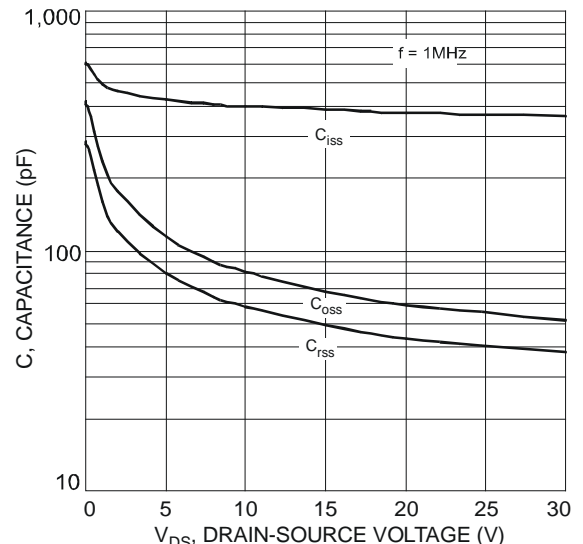


Fig. 6 Typical Capacitance

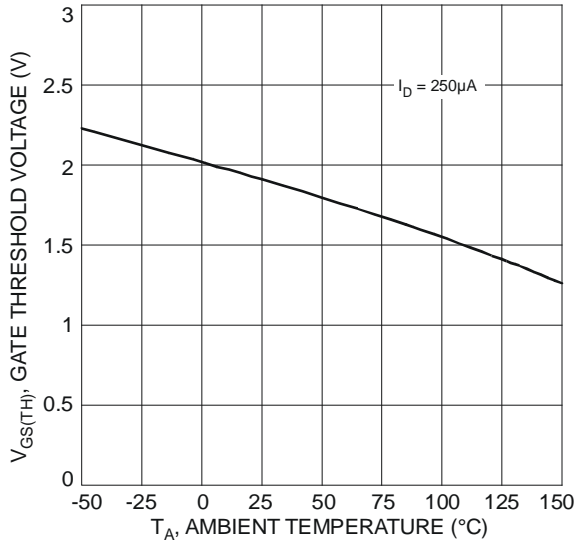


Fig. 7 Gate Threshold Variation vs. Ambient Temperature

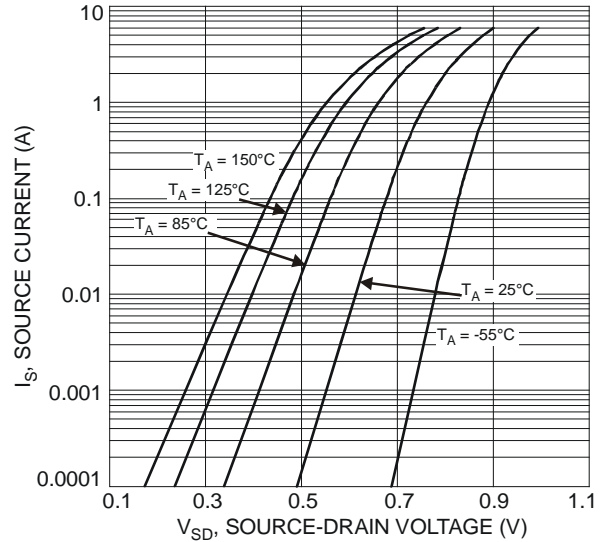


Fig. 8 Diode Forward Voltage vs. Current

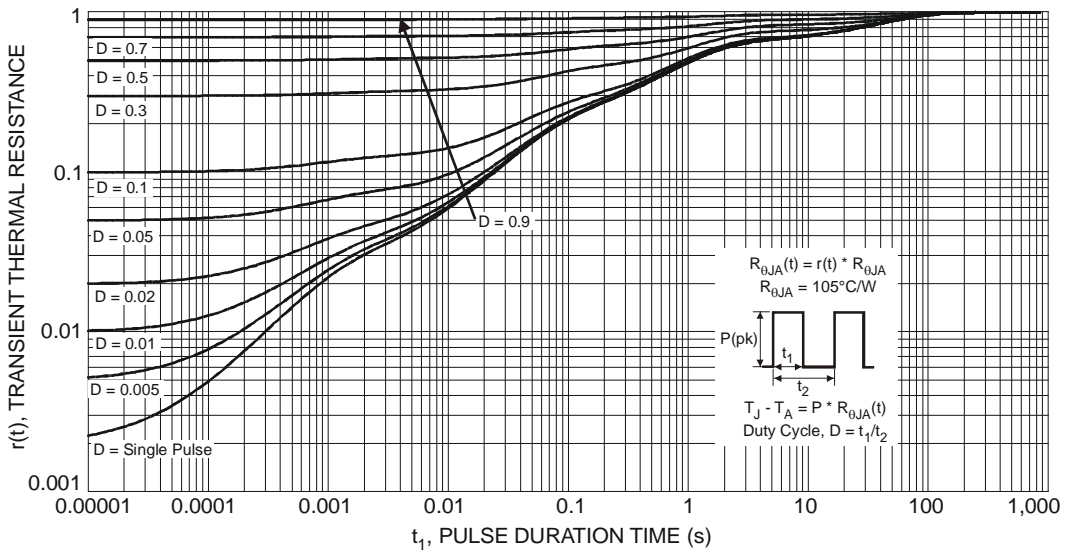


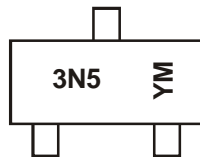
Fig. 9 Transient Thermal Response

Ordering Information (Note 5)

| Part Number | Case | Packaging |
|-------------|--------|------------------|
| DMN3051L-7 | SOT-23 | 3000/Tape & Reel |

Notes: 5. For packaging details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

Marking Information



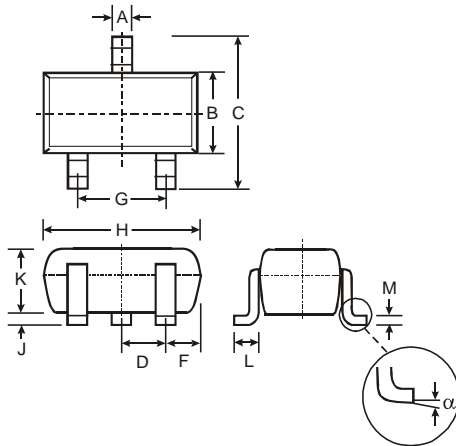
3N5 = Product Type Marking Code
 YM = Date Code Marking
 Y = Year ex: U = 2007
 M = Month ex: 9 = September

Date Code Key

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

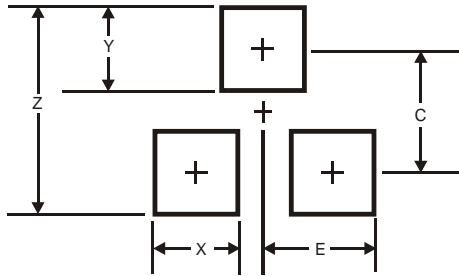
| Month | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Code | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | O | N | D |

Package Outline Dimensions



| SOT-23 | | |
|----------------------|-------|-------|
| Dim | Min | Max |
| A | 0.37 | 0.51 |
| B | 1.20 | 1.40 |
| C | 2.30 | 2.50 |
| D | 0.89 | 1.03 |
| F | 0.45 | 0.60 |
| G | 1.78 | 2.05 |
| H | 2.80 | 3.00 |
| J | 0.013 | 0.10 |
| K | 0.903 | 1.10 |
| L | 0.45 | 0.61 |
| M | 0.085 | 0.180 |
| 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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