# MMBD4448DW

## SURFACE MOUNT SWITCHING DIODE

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## Features

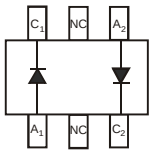
- Fast Switching Speed
- Surface Mount Package Ideally Suited for Automated Insertion
- For General Purpose Switching Applications
- High Conductance
- Ultra Miniature Package
- **Lead Free/RoHS Compliant (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**
- **"Green" Device (Notes 4 and 5)**

## 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-020D
- Terminals: Matte Tin Finish annealed over Alloy 42 leadframe (Lead Free Plating). Solderable per MIL-STD-202, Method 208
- Polarity: See Diagram
- Marking Information: See Page 2
- Ordering Information: See Page 2
- Weight: 0.006 grams (approximate)

SOT-363

TOP VIEW




TOP VIEW
Internal Schematic

## Maximum Ratings @$T_A$ = 25°C unless otherwise specified

| Characteristic | | Symbol | Value | Unit |
|---|---|---|---|---|
| Non-Repetitive Peak Reverse Voltage | | $V_{RM}$ | 100 | V |
| Peak Repetitive Reverse Voltage<br>Working Peak Reverse Voltage<br>DC Blocking Voltage | | $V_{RRM}$<br>$V_{RWM}$<br>$V_R$ | 75 | V |
| RMS Reverse Voltage | | $V_{R(RMS)}$ | 53 | V |
| Forward Continuous Current | (Note 1) | $I_{FM}$ | 500 | mA |
| Average Rectified Output Current | (Note 1) | $I_O$ | 250 | mA |
| Non-Repetitive Peak Forward Surge Current | @ t < 1μs<br>@ t < 1s | $I_{FSM}$ | 4<br>2 | A |

## Thermal Characteristics

| Characteristic | | Symbol | Value | Unit |
|---|---|---|---|---|
| Power Dissipation | (Note 1) | $P_D$ | 200 | mW |
| Thermal Resistance Junction to Ambient Air | (Note 1) | $R_{\theta JA}$ | 625 | °C/W |
| Operating and Storage Temperature Range | | $T_J$ , $T_{STG}$ | -65 to +150 | °C |

## Electrical Characteristics @$T_A$ = 25°C unless otherwise specified

| Characteristic | | Symbol | Min | Max | Unit | Test Condition |
|---|---|---|---|---|---|---|
| Reverse Breakdown Voltage | (Note 2) | $V_{(BR)R}$ | 75 | — | V | $I_R$ = 10μA |
| Forward Voltage | | $V_F$ | 0.62<br>—<br>—<br>— | 0.720<br>0.855<br>1.0<br>1.25 | V | $I_F$ = 5.0mA<br>$I_F$ = 10mA<br>$I_F$ = 50mA<br>$I_F$ = 150mA |
| Reverse Current | (Note 2) | $I_R$ | — | 2.5<br>50<br>30<br>25 | μA<br>μA<br>μA<br>nA | $V_R$ = 75V<br>$V_R$ = 75V, $T_J$ = 150°C<br>$V_R$ = 25V, $T_J$ = 150°C<br>$V_R$ = 20V |
| Total Capacitance | | $C_T$ | — | 4.0 | pF | $V_R$ = 0, f = 1.0MHz |
| Reverse Recovery Time | | $t_{rr}$ | — | 4.0 | ns | $I_F$ = $I_R$ = 10mA,<br>$I_{rr}$ = 0.1 x $I_R$, $R_L$ = 100Ω |

Notes:
1. Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch; pad layout as shown on Diodes Inc. suggested pad layout document AP02001, which can be found on our website at http://www.diodes.com/datasheets/ap02001.pdf.
2. Short duration pulse test used to minimize self-heating.
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.
5. Product manufactured with Date Code UO (week 40, 2007) and newer are built with Green Molding Compound. Product manufactured prior to Date Code UO are built with Non-Green Molding Compound and may contain Halogens or Sb2O3 Fire Retardants.

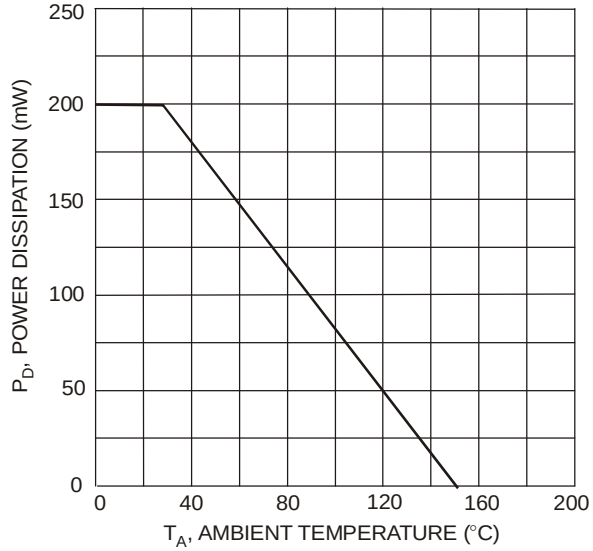



Fig. 1 Power Derating Curve, Total Package

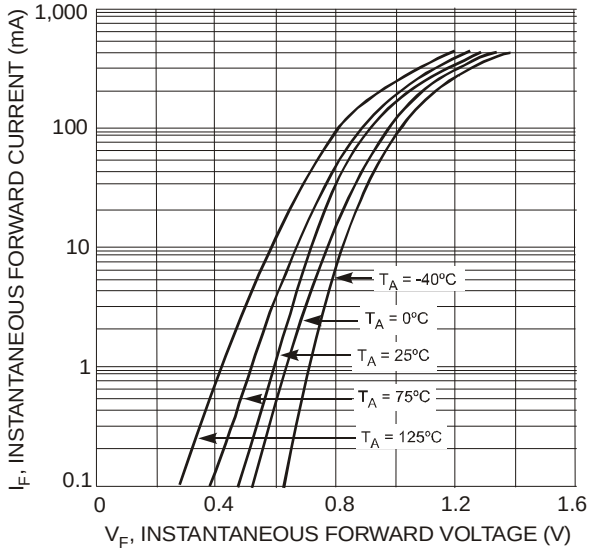



Fig. 2 Typical Forward Characteristics, Per Elelment

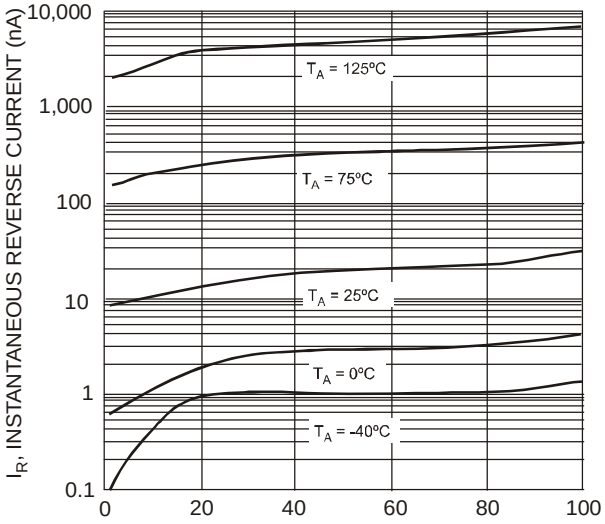



Fig. 3 Typical Reverse Characteristics, Per Element

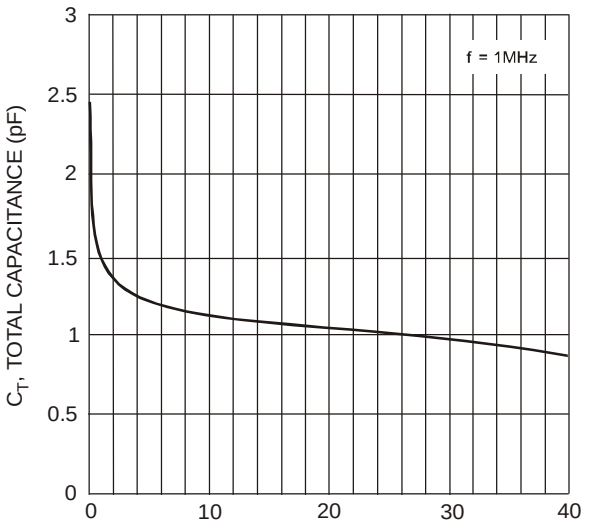


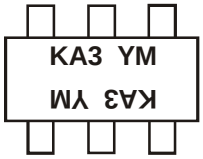

Fig. 4 Total Capacitance vs. Reverse Voltage, Per Element

## Ordering Information (Note 6)

| Part Number | Case | Packaging |
|---|---|---|
| MMBD4448DW-7-F | SOT-363 | 3000/Tape & Reel |

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

## Marking Information



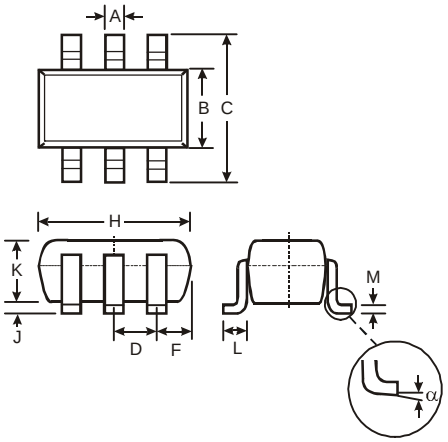

KA3 = Product Type Marking Code
YM = Date Code Marking
Y = Year (ex: N = 2002)
M = Month (ex: 9 = September)

Date Code Key

| Year | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Code | L | M | N | P | R | S | T | U | V | W | X | Y | Z |

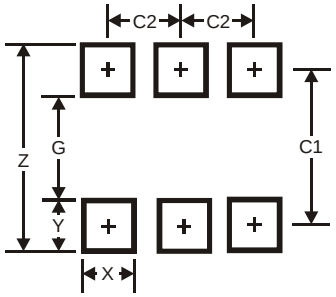
| Month | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Code | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | O | N | D |

## Package Outline Dimensions




| SOT-363 | | |
|---|---|---|
| **Dim** | **Min** | **Max** |
| **A** | 0.10 | 0.30 |
| **B** | 1.15 | 1.35 |
| **C** | 2.00 | 2.20 |
| **D** | 0.65 Typ | |
| **F** | 0.40 | 0.45 |
| **H** | 1.80 | 2.20 |
| **J** | 0 | 0.10 |
| **K** | 0.90 | 1.00 |
| **L** | 0.25 | 0.40 |
| **M** | 0.10 | 0.22 |
| **α** | 0° | 8° |
| **All Dimensions in mm** | | |

## Suggested Pad Layout




| Dimensions | Value (in mm) |
|---|---|
| **Z** | 2.5 |
| **G** | 1.3 |
| **X** | 0.42 |
| **Y** | 0.6 |
| **C1** | 1.9 |
| **C2** | 0.65 |