

## Features

- Fast Switching Speed
- Surface Mount Package Ideally Suited for Automated Insertion
- For General Purpose Switching Applications
- High Conductance
- Miniature Package
- **Lead Free/RoHS Compliant (Note 1)**
- **Qualified to AEC-Q101 Standards for High Reliability**
- **"Green" Device (Notes 2 and 3)**

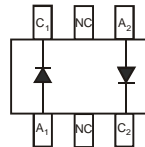
## Mechanical Data

- Case: SOT-363
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish annealed over Alloy 42 leadframe (Lead Free Plating). Solderable per MIL-STD-202, Method 208
- Polarity: See Diagram
- Weight: 0.006 grams (approximate)

SOT-363



Top View



Top View  
Internal Schematic

## Ordering Information (Note 4)

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

- Notes:
1. No purposefully added lead.
  2. Diodes Inc.'s "Green" policy can be found on our website at <http://www.diodes.com>.
  3. 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.
  4. For packaging details, go to our website at <http://www.diodes.com>.

## 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 | 2013 | 2014 | 2015 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Code | L    | M    | N    | P    | R    | S    | T    | 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   |

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

| Characteristic                            | Symbol       | Value                | Unit |   |
|---|--------------|----------------------|------|---|
| Non-Repetitive Peak Reverse Voltage       | $V_{RM}$     | 100                  | V    |   |
| Peak Repetitive Reverse Voltage           | $V_{RRM}$    | 75                   | V    |   |
| Working Peak Reverse Voltage              | $V_{RWM}$    |                      |      |   |
| DC Blocking Voltage                       | $V_R$        |                      |      |   |
| RMS Reverse Voltage                       | $V_{R(RMS)}$ | 53                   | V    |   |
| Forward Continuous Current (Note 5)       | $I_{FM}$     | 500                  | mA   |   |
| Average Rectified Output Current (Note 5) | $I_O$        | 250                  | mA   |   |
| Non-Repetitive Peak Forward Surge Current | $I_{FSM}$    | @ $t < 1\mu\text{s}$ | 4    | A |
|   |              | @ $t < 1\text{s}$    | 1    |   |

**Thermal Characteristics**

| Characteristic                                      | Symbol          | Value       | Unit               |
|---|-----------------|-------------|--------------------|
| Power Dissipation (Note 5)                          | $P_D$           | 200         | mW                 |
| Thermal Resistance Junction to Ambient Air (Note 5) | $R_{\theta JA}$ | 625         | $^\circ\text{C/W}$ |
| Operating and Storage Temperature Range             | $T_J, T_{STG}$  | -65 to +150 | $^\circ\text{C}$   |

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

| Characteristic                     | Symbol      | Min  | Max   | Unit          | Test Condition   |
|------------------------------------|-------------|------|-------|---------------|--|
| Reverse Breakdown Voltage (Note 6) | $V_{(BR)R}$ | 75   | —     | V             | $I_R = 10\mu\text{A}$  |
| Forward Voltage                    | $V_F$       | 0.62 | 0.720 | V             | $I_F = 5.0\text{mA}$<br>$I_F = 10\text{mA}$<br>$I_F = 50\text{mA}$<br>$I_F = 150\text{mA}$   |
|                                    |             | —    | 0.855 |               |  |
|                                    |             | —    | 1.0   |               |  |
|                                    |             | —    | 1.25  |               |  |
| Reverse Current (Note 6)           | $I_R$       | —    | 2.5   | $\mu\text{A}$ | $V_R = 75\text{V}$<br>$V_R = 75\text{V}, T_J = 150^\circ\text{C}$<br>$V_R = 25\text{V}, T_J = 150^\circ\text{C}$<br>$V_R = 20\text{V}$ |
|                                    |             | —    | 50    | $\mu\text{A}$ |  |
|                                    |             | —    | 30    | $\mu\text{A}$ |  |
|                                    |             | —    | 25    | nA            |  |
| Total Capacitance                  | $C_T$       | —    | 4.0   | pF            | $V_R = 0, f = 1.0\text{MHz}$   |
| Reverse Recovery Time              | $t_{rr}$    | —    | 4.0   | ns            | $I_F = I_R = 10\text{mA}$ ,<br>$I_{rr} = 0.1 \times I_R, R_L = 100\Omega$  |

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

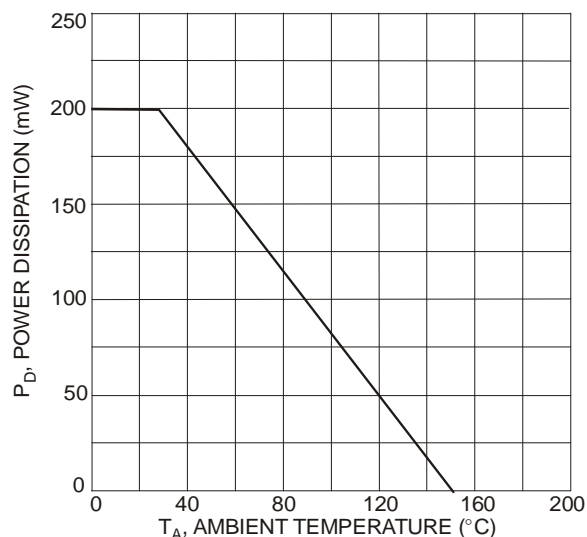


Fig. 1 Power Derating Curve, Total Package (Note 5)

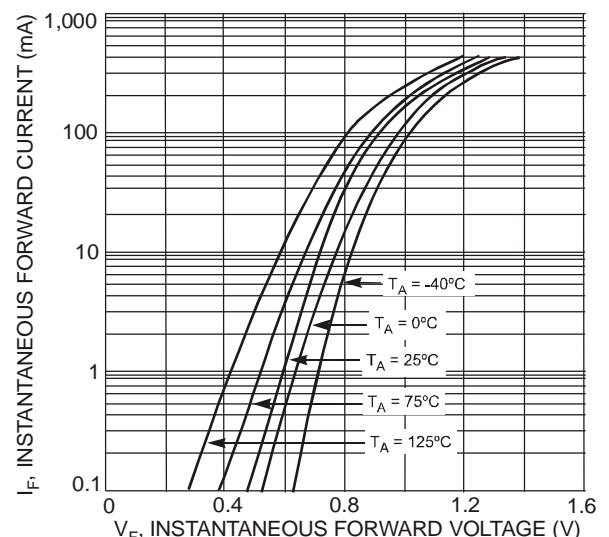


Fig. 2 Typical Forward Characteristics, Per Element

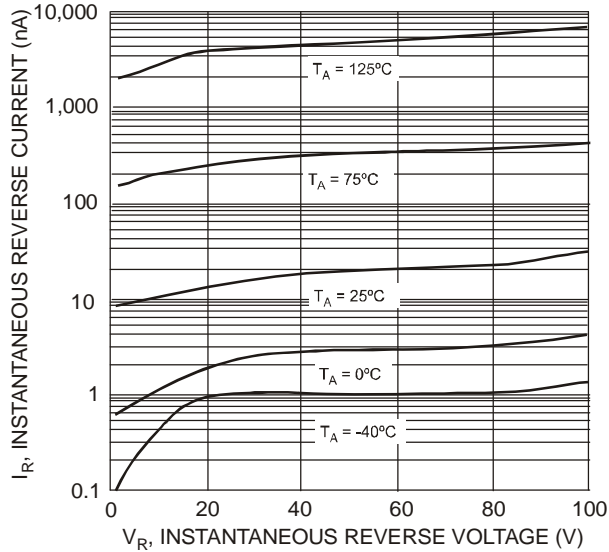


Fig. 3 Typical Reverse Characteristics, Per Element

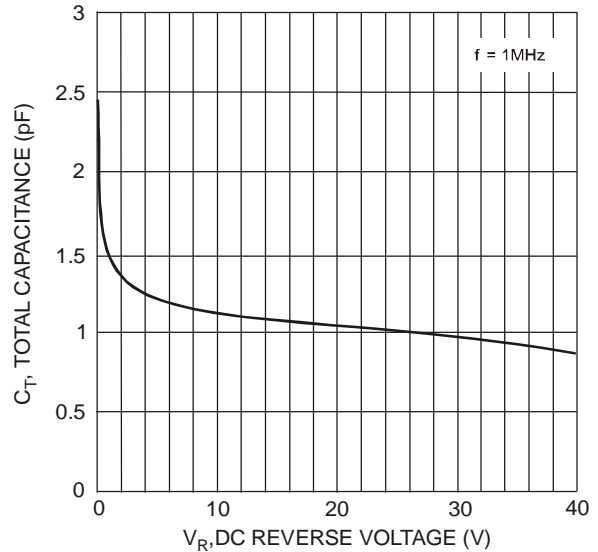
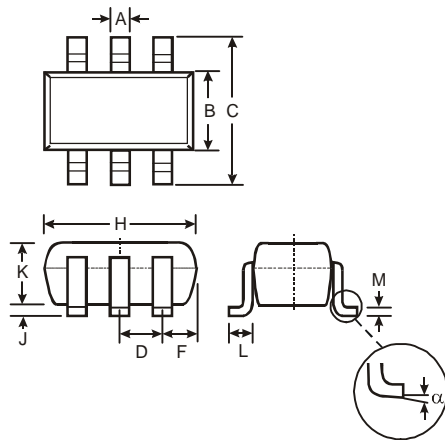


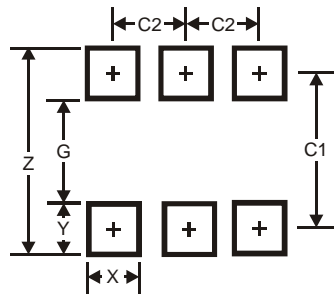
Fig. 4 Total Capacitance vs. Reverse Voltage, Per Element

**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 |
| $\alpha$             | 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          |

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