

## Features

- Ultra-Small Surface Mount Package
- Fast Switching Speed
- For General Purpose Switching Applications
- High Conductance
- **Lead Free/RoHS Compliant (Note 1)**
- **"Green" Device (Notes 2 and 3)**

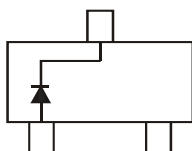
## Mechanical Data

- Case: SOT-523
- 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 Diagrams Below
- Weight: 0.002 grams (approximate)

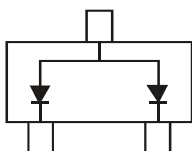
SOT-523



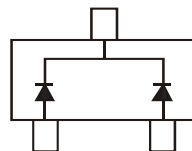
TOP VIEW



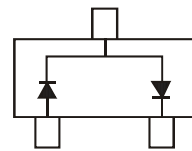
MMBD4448HT Marking: A3



MMBD4448HTA Marking: A6



MMBD4448HTC Marking: A7



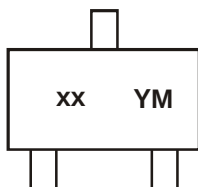
MMBD4448HTS Marking: AB

## Ordering Information (Note 4)

| Part Number     | Case    | Packaging        |
|-----------------|---------|------------------|
| MMBD4448HT-7-F  | SOT-523 | 3000/Tape & Reel |
| MMBD4448HTA-7-F | SOT-523 | 3000/Tape & Reel |
| MMBD4448HTC-7-F | SOT-523 | 3000/Tape & Reel |
| MMBD4448HTS-7-F | SOT-523 | 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



xx = Product Type Marking Code (See Page 1 Diagrams)  
 YM = Date Code Marking  
 Y = Year (ex: N = 2002)  
 M = Month (ex: 9 = September)

### Date Code Key

| Year | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Code | 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<sub>A</sub> = 25°C unless otherwise specified

| Characteristic                            | Symbol              | Value       | Unit |
|-------------------------------------------|---------------------|-------------|------|
| Non-Repetitive Peak Reverse Voltage       | V <sub>RM</sub>     | 100         | V    |
| Peak Repetitive Reverse Voltage           | V <sub>RRM</sub>    | 80          | V    |
| Working Peak Reverse Voltage              | V <sub>RWM</sub>    |             |      |
| DC Blocking Voltage                       | V <sub>R</sub>      |             |      |
| RMS Reverse Voltage                       | V <sub>R(RMS)</sub> | 57          | V    |
| Forward Continuous Current (Note 5)       | I <sub>FM</sub>     | 500         | mA   |
| Average Rectified Output Current (Note 5) | I <sub>O</sub>      | 250         | mA   |
| Non-Repetitive Peak Forward Surge Current | I <sub>FSM</sub>    | 4.0         | A    |
|                                           |                     | 1.0         |      |
|                                           |                     | @ t = 1.0μs |      |
|                                           |                     | @ t = 1.0s  |      |

**Thermal Characteristics**

| Characteristic                                  | Symbol                            | Value       | Unit |
|-------------------------------------------------|-----------------------------------|-------------|------|
| Power Dissipation (Note 5)                      | P <sub>D</sub>                    | 150         | mW   |
| Thermal Resistance Junction to Ambient (Note 5) | R <sub>θJA</sub>                  | 833         | °C/W |
| Operating and Storage Temperature Range         | T <sub>J</sub> , T <sub>STG</sub> | -65 to +150 | °C   |

**Electrical Characteristics** @T<sub>A</sub> = 25°C unless otherwise specified

| Characteristic                     | Symbol             | Min  | Max   | Unit | Test Condition                               |
|------------------------------------|--------------------|------|-------|------|----------------------------------------------|
| Reverse Breakdown Voltage (Note 6) | V <sub>(BR)R</sub> | 80   | —     | V    | I <sub>R</sub> = 2.5μA                       |
| Forward Voltage                    | V <sub>F</sub>     | 0.62 | 0.72  | V    | I <sub>F</sub> = 5.0mA                       |
|                                    |                    | —    | 0.855 |      | I <sub>F</sub> = 10mA                        |
|                                    |                    | —    | 1.0   |      | I <sub>F</sub> = 100mA                       |
|                                    |                    | —    | 1.25  |      | I <sub>F</sub> = 150mA                       |
| Leakage Current (Note 6)           | I <sub>R</sub>     | —    | 100   | nA   | V <sub>R</sub> = 70V                         |
|                                    |                    |      | 50    | μA   | V <sub>R</sub> = 75V, T <sub>J</sub> = 150°C |
|                                    |                    |      | 30    | μA   | V <sub>R</sub> = 25V, T <sub>J</sub> = 150°C |
|                                    |                    |      | 25    | nA   | V <sub>R</sub> = 20V                         |
| Total Capacitance                  | C <sub>T</sub>     | —    | 3.5   | pF   | V <sub>R</sub> = 6V, f = 1.0MHz              |
| Reverse Recovery Time              | t <sub>rr</sub>    | —    | 4.0   | ns   | V <sub>R</sub> = 6V, I <sub>F</sub> = 5mA    |

Notes: 5. Device mounted on FR-4 PC board with recommended pad layout, which can be found on our website at <http://www.diodes.com>.  
 6. Short duration pulse test used to minimize self-heating effect.

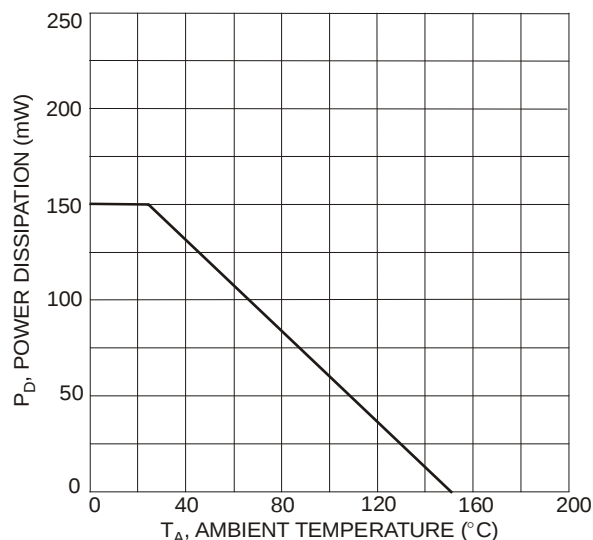


Fig. 1 Power Derating Curve, Total Package (Note 5)

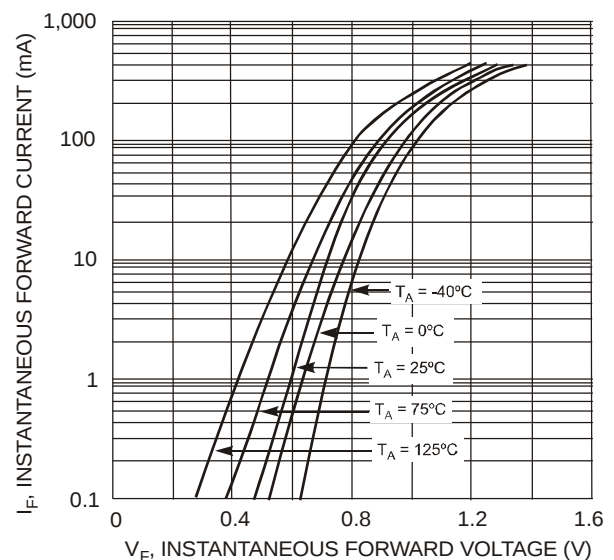


Fig. 2 Typical Forward Characteristics, Per Element

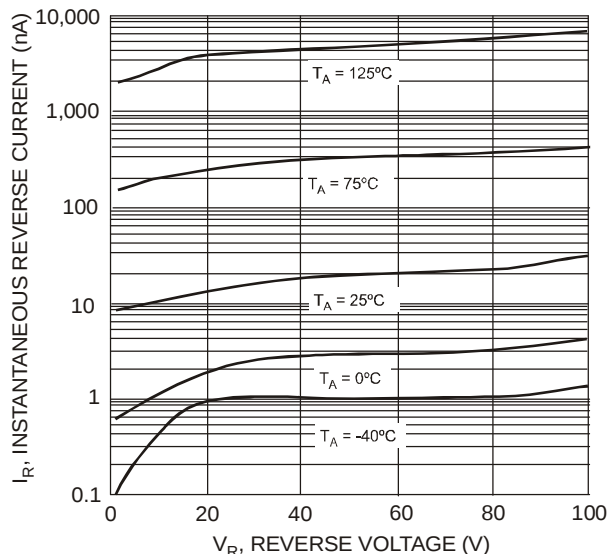


Fig. 3 Typical Reverse Characteristics, Per Element

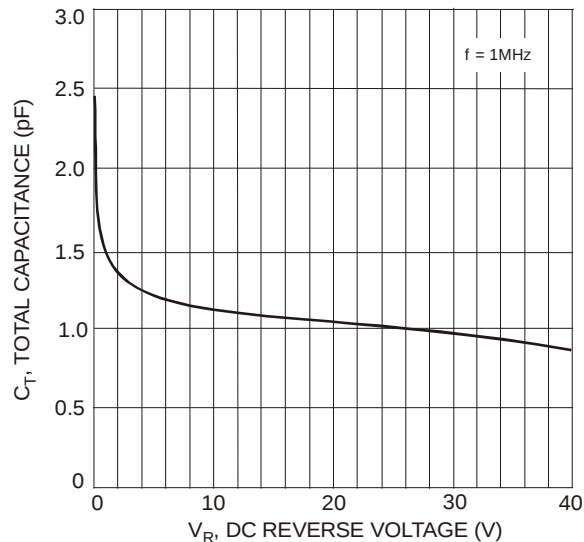
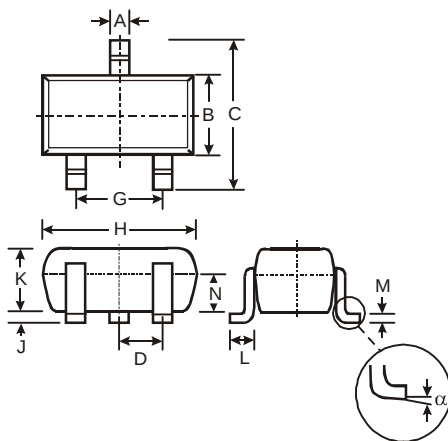


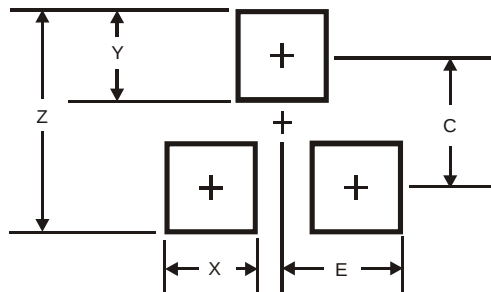
Fig. 4 Total Capacitance vs. Reverse Voltage, Per Element

## Package Outline Dimensions



| SOT-523              |      |      |      |
|----------------------|------|------|------|
| Dim                  | Min  | Max  | Typ  |
| A                    | 0.15 | 0.30 | 0.22 |
| B                    | 0.75 | 0.85 | 0.80 |
| C                    | 1.45 | 1.75 | 1.60 |
| D                    | —    | —    | 0.50 |
| G                    | 0.90 | 1.10 | 1.00 |
| H                    | 1.50 | 1.70 | 1.60 |
| J                    | 0.00 | 0.10 | 0.05 |
| K                    | 0.60 | 0.80 | 0.75 |
| L                    | 0.10 | 0.30 | 0.22 |
| M                    | 0.10 | 0.20 | 0.12 |
| N                    | 0.45 | 0.65 | 0.50 |
| α                    | 0°   | 8°   | —    |
| All Dimensions in mm |      |      |      |

## Suggested Pad Layout



| Dimensions | Value (in mm) |
|------------|---------------|
| Z          | 1.8           |
| X          | 0.4           |
| Y          | 0.51          |
| C          | 1.3           |
| E          | 0.7           |

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