

**SURFACE MOUNT FAST SWITCHING DIODE ARRAY**

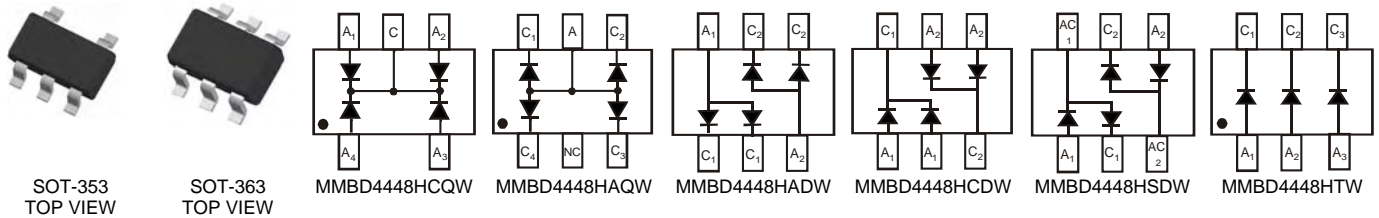
**Features**

- Fast Switching Speed
- Low Forward Voltage: Maximum of 0.72V at 5mA
- Low Reverse Current: Maximum of 100nA at 70V
- Fast Reverse Recovery: Maximum of 4ns
- Low Capacitance: Maximum of 3.5pF
- Small Surface Mount Package
- For General Purpose Switching Applications
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**

**Mechanical Data**

- Case: SOT353 or SOT363
- 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 e3
- Orientation: See Diagrams Below
- Weight: 0.006 grams (approximate)

SOT353/SOT363

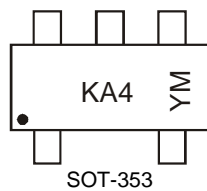


**Ordering Information (Note 4)**

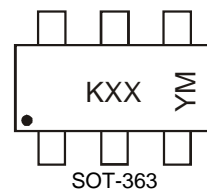
| Part Number       | Qualification | Case   | Packaging        |
|-------------------|---------------|--------|------------------|
| MMBD4448HADW-7-F  | Commercial    | SOT363 | 3000/Tape & Reel |
| MMBD4448HADWQ-7-F | Automotive    | SOT363 | 3000/Tape & Reel |
| MMBD4448HAQW-7-F  | Commercial    | SOT363 | 3000/Tape & Reel |
| MMBD4448HCDW-7-F  | Commercial    | SOT363 | 3000/Tape & Reel |
| MMBD4448HCQW-7-F  | Commercial    | SOT353 | 3000/Tape & Reel |
| MMBD4448HSDW-7-F  | Commercial    | SOT363 | 3000/Tape & Reel |
| MMBD4448HTW-7-F   | Commercial    | SOT363 | 3000/Tape & Reel |

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
  2. See <http://www.diodes.com> for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
  3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
  4. For packaging details, go to our website at <http://www.diodes.com>.

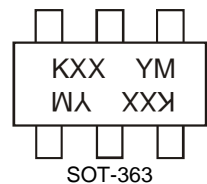
**Marking Information**



KA4 = Product Type Marking Code, KA4 = MMBD4448HCQW  
YM = Date Code Marking  
Y = Year (ex: Z = 2012)  
M = Month (ex: 9 = September)



KXX = Product Type Marking Code, ex. KA5 = MMBD4448HAQW  
KAA = MMBD4448HTW  
YM = Date Code Marking  
Y = Year (ex: Z = 2012)  
M = Month (ex: 9 = September)



KXX = Product Type Marking Code, ex. KA6 = MMBD4448HADW  
KA7 = MMBD4448HCDW  
KAB = MMBD4448HSDW  
YM = Date Code Marking  
Y = Year (ex: Z = 2012)  
M = Month (ex: 9 = September)

**Date Code Key**

| Year | 2000 | 2001 | 2002 | 2003 | ..... | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|------|------|------|------|------|-------|------|------|------|------|------|------|------|------|
| Code | L    | M    | N    | P    | ..... | Z    | A    | B    | C    | D    | E    | F    | G    |

| 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>R</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   |
| Non-Repetitive Peak Forward Surge Current | I <sub>FSM</sub>    | @ t = 1.0μs | 4.0  |
|   |                     | @ t = 1.0s  | 1.0  |

**Thermal Characteristics**

| Characteristic                                      | Symbol                            | Value       | Unit |
|---|-----------------------------------|-------------|------|
| Power Dissipation (Note 5)                          | P <sub>D</sub>                    | 200         | mW   |
| Thermal Resistance Junction to Ambient Air (Note 5) | R <sub>θJA</sub>                  | 625         | °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> = 100μA                        |
| 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                        |
| Reverse 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 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 effect.

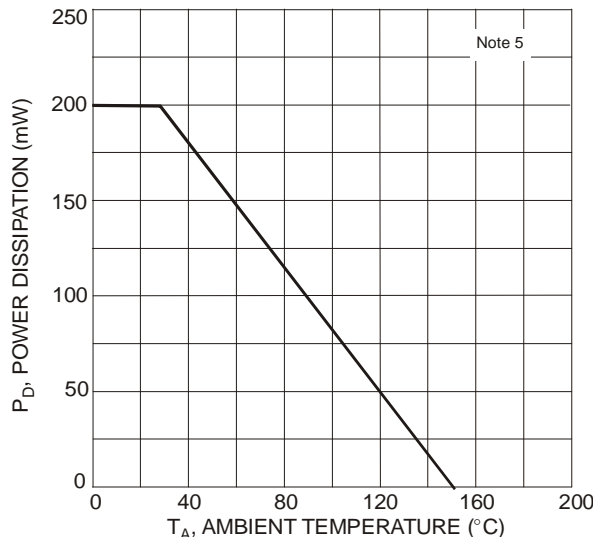


Figure 1 Power Derating Curve, Total Package

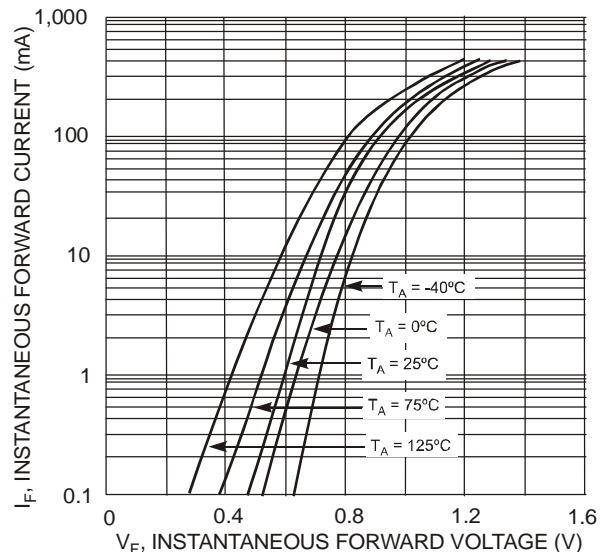


Figure 2 Typical Forward Characteristics

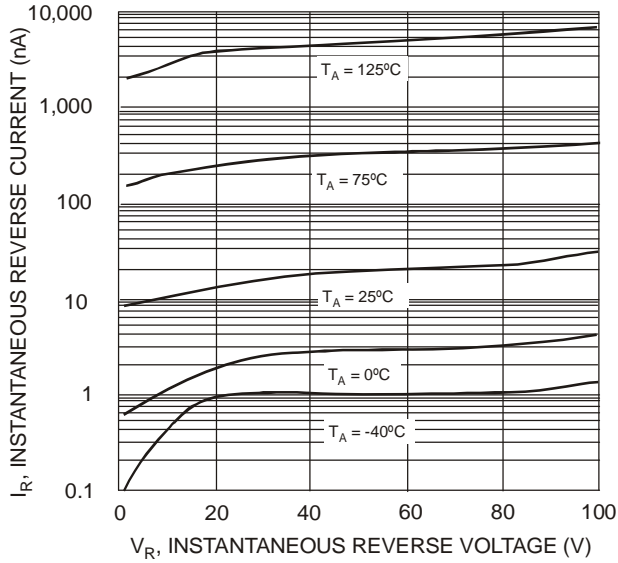


Figure 3 Typical Reverse Characteristics

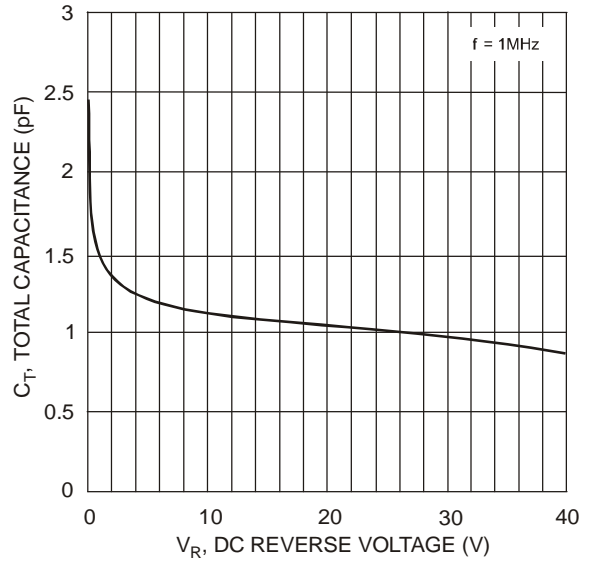


Figure 4 Total Capacitance vs. Reverse Voltage

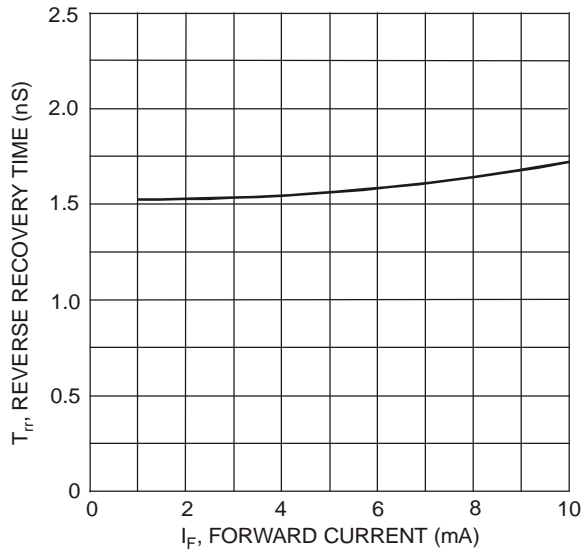


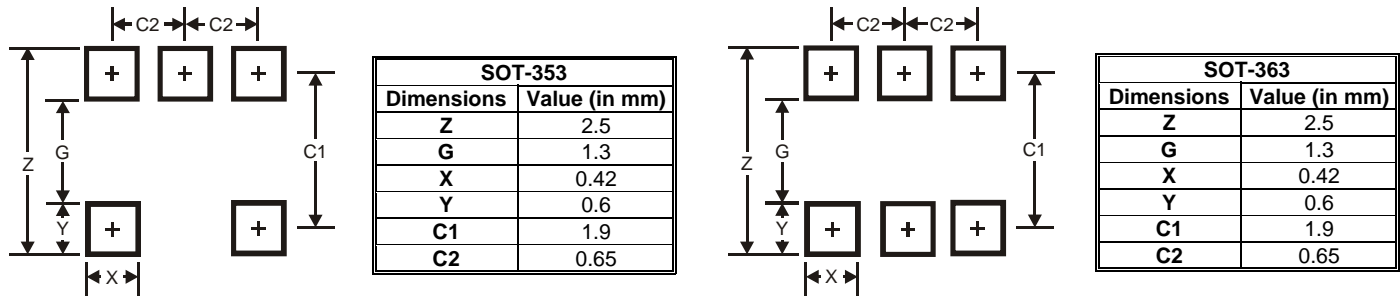
Figure 5 Reverse Recovery Time vs. Forward Current

### Package Outline Dimensions

| SOT-353                     |          |      |
|-----------------------------|----------|------|
| 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°   |
| <b>All Dimensions in mm</b> |          |      |

| 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°   |
| <b>All Dimensions in mm</b> |          |      |

## Suggested Pad Layout



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