

## Product Summary (@T<sub>A</sub> = +25°C)

| V <sub>RRM</sub> (V) | I <sub>O</sub> (A) | V <sub>F</sub> (V) | I <sub>R</sub> (μA) |
|----------------------|--------------------|--------------------|---------------------|
| 1,000                | 1.0                | 1.05               | 5                   |

## Description and Applications

Suitable for AC to DC bridge full-wave rectification for SMPS, LED lighting, adapters, battery chargers, home appliances, office equipment and telecommunication applications.

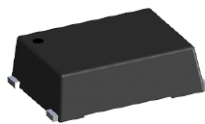
## Features and Benefits

- Glass Passivated Die Construction
- Compact, Thin Profile Package Design
- Reliable Robust Construction
- Ideal for SMT Manufacturing
- **Lead Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

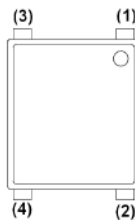
## Mechanical Data

- Case: MSB
- Case Material: Molded Plastic; UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish – Matte Tin Annealed over Copper Leadframe; Solderable per MIL-STD-202, Method 208 (e3)
- Polarity: As Marked on Body
- Weight: 0.09 grams (Approximate)

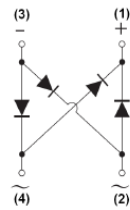
MSB



Top View



Pin Diagram



Internal Schematic

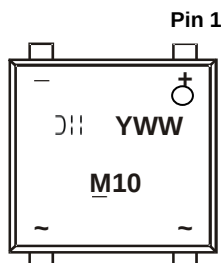
## Ordering Information (Note 4)

| Part Number | Case | Packaging         |
|-------------|------|-------------------|
| MSB10M-13   | MSB  | 3,000/Tape & Reel |

- Notes:
1. EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant. All applicable RoHS exemptions applied.
  2. See [http://www.diodes.com/quality/lead\\_free.html](http://www.diodes.com/quality/lead_free.html) 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/products/packages.html>.

## Marking Information

MSB



M10 = Product Type Marking Code  
 D = Manufacturers' Code Marking  
 YWW = Date Code Marking  
 Y = Last Digit of Year (ex: 6 = 2016)  
 WW = Week Code (01 to 53)

**Maximum Ratings** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Single phase, half wave, 60Hz, resistive or inductive load.  
For capacitive load, derate current by 20%.

| Characteristic                                                                                       | Symbol                                                 | Value | Unit |
|------------------------------------------------------------------------------------------------------|--------------------------------------------------------|-------|------|
| Peak Repetitive Reverse Voltage<br>Working Peak Reverse Voltage<br>DC Blocking Voltage               | V <sub>RRM</sub><br>V <sub>RWM</sub><br>V <sub>R</sub> | 1,000 | V    |
| RMS Reverse Voltage                                                                                  | V <sub>R(RMS)</sub>                                    | 700   | V    |
| Average Rectified Output Current @ T <sub>C</sub> = +120°C                                           | I <sub>O</sub>                                         | 1.0   | A    |
| Non-Repetitive Peak Forward Surge Current, 8.3ms<br>Single Half Sine-Wave Superimposed on Rated Load | I <sub>FSM</sub>                                       | 35    | A    |

**Thermal Characteristics**

| Characteristic                                           | Symbol                            | Value       | Unit |
|----------------------------------------------------------|-----------------------------------|-------------|------|
| Typical Thermal Resistance, Junction to Ambient (Note 5) | R <sub>θJA</sub>                  | 80          | °C/W |
| Typical Thermal Resistance, Junction to Case             | R <sub>θJC</sub>                  | 12          | °C/W |
| Typical Thermal Resistance, Junction to Lead             | R <sub>θJL</sub>                  | 40          | °C/W |
| Operating and Storage Temperature Range                  | T <sub>J</sub> , T <sub>STG</sub> | -55 to +150 | °C   |

**Electrical Characteristics** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

| Characteristic                     | Symbol             | Min   | Typ          | Max          | Unit | Test Condition                                                                                      |
|------------------------------------|--------------------|-------|--------------|--------------|------|-----------------------------------------------------------------------------------------------------|
| Reverse Breakdown Voltage (Note 6) | V <sub>(BR)R</sub> | 1,000 | —            | —            | V    | I <sub>R</sub> = 5μA                                                                                |
| Forward Voltage                    | V <sub>F</sub>     | —     | 0.90<br>0.96 | 1.02<br>1.05 | V    | I <sub>F</sub> = 0.5A<br>I <sub>F</sub> = 1A                                                        |
| Leakage Current (Note 6)           | I <sub>R</sub>     | —     | —            | 5<br>500     | μA   | V <sub>R</sub> = 1,000V, T <sub>A</sub> = +25°C<br>V <sub>R</sub> = 1,000V, T <sub>A</sub> = +125°C |
| Total Capacitance                  | C <sub>T</sub>     | —     | 10           | —            | pF   | V <sub>R</sub> = 4V, f = 1.0MHz                                                                     |

Notes: 5. Device mounted on glass-epoxy substrate with 1 oz 20mm x 20mm Cu pad per pin.  
6. Short duration pulse test used to minimize self-heating effect.

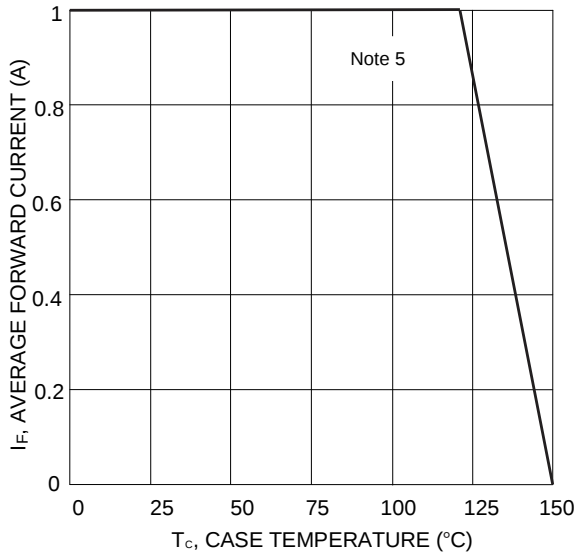


Figure 1 Forward Current Derating Curve

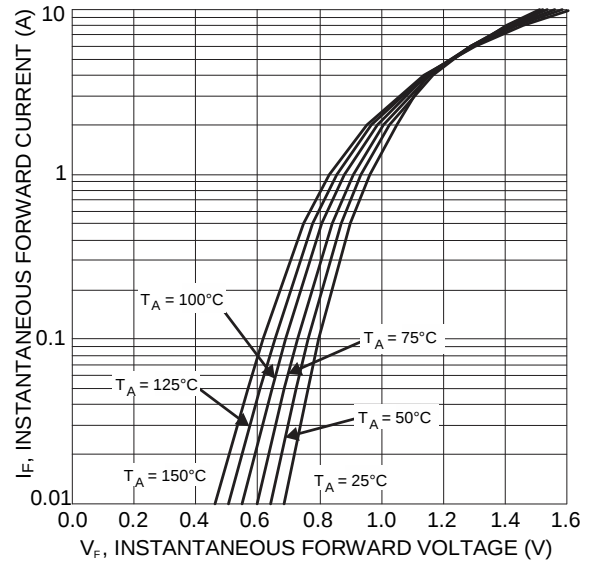


Figure 2 Typical Forward Characteristics

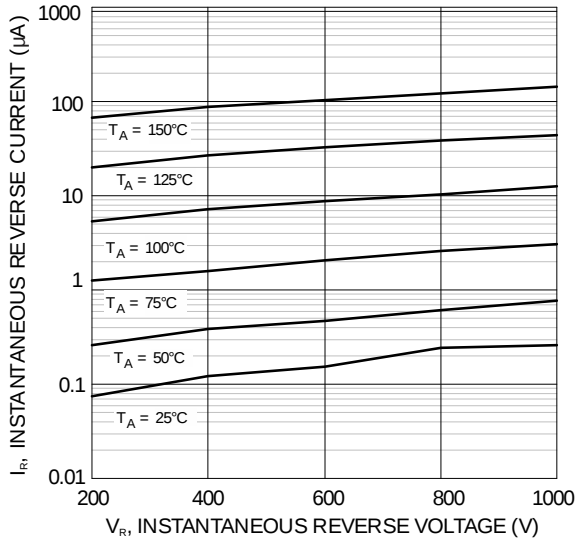


Figure 3 Typical Reverse Characteristics

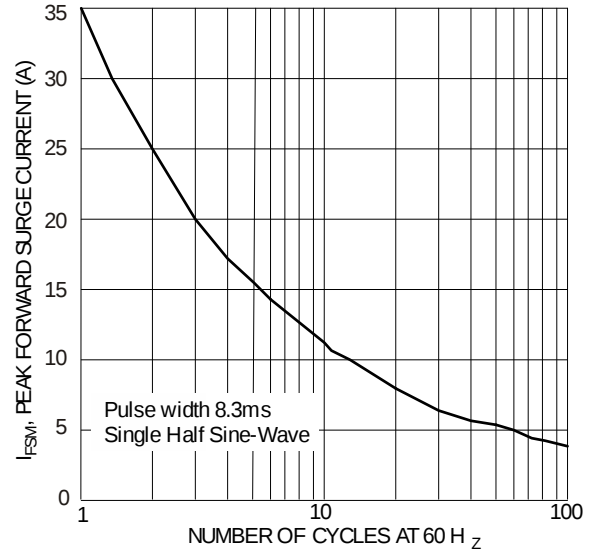


Figure 4 Forward Surge Current Derating Curve

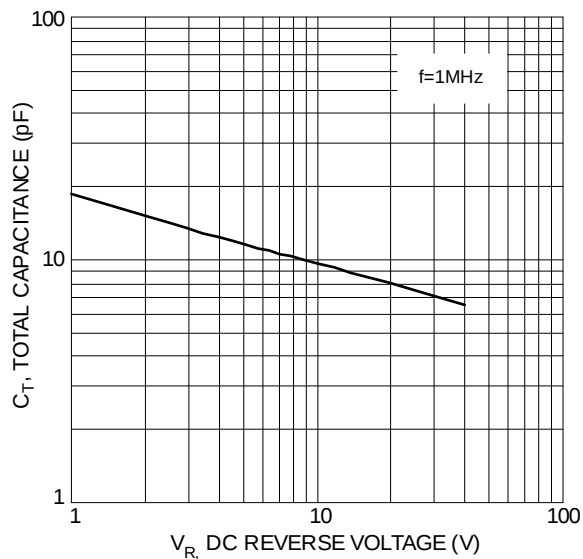
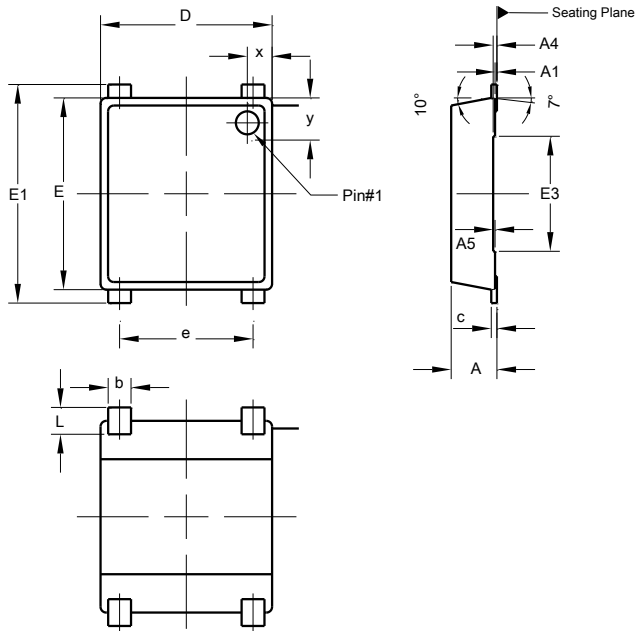


Figure 5 Total Capacitance vs. Reverse Voltage

## Package Outline Dimensions

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

**MSB**

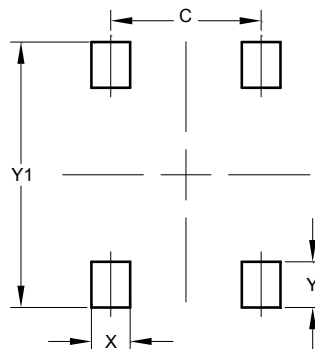


| MSB                  |      |      |      |
|----------------------|------|------|------|
| Dim                  | Min  | Max  | Typ  |
| A                    | 1.10 | 1.30 | 1.20 |
| A1                   | 0.00 | 0.05 | 0.02 |
| A4                   | 0.05 | 0.08 | -    |
| A5                   | 0.03 | 0.08 | 0.05 |
| b                    | 0.55 | 0.70 | 0.60 |
| c                    | 0.12 | 0.18 | 0.15 |
| D                    | 4.40 | 4.60 | 4.50 |
| E                    | 4.90 | 5.10 | 5.00 |
| E1                   | 5.60 | 5.80 | 5.70 |
| E3                   | 2.95 | 3.05 | 3.00 |
| e                    | 3.45 | 3.55 | 3.50 |
| L                    | 0.65 | 0.75 | 0.70 |
| x                    | 0.60 | 0.70 | 0.65 |
| y                    | 0.60 | 0.70 | 0.65 |
| All Dimensions in mm |      |      |      |

## Suggested Pad Layout

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

**MSB**



| Dimensions | Value (in mm) |
|------------|---------------|
| C          | 3.55          |
| X          | 0.90          |
| Y          | 1.05          |
| Y1         | 6.10          |

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