

Product Summary (@T_A = +25°C)

| V _{RRM} (V) | I _o (A) | V _F (V) | I _R (µA) |
|----------------------|--------------------|--------------------|---------------------|
| 1000 | 0.8 | 1.1 | 5 |

Description and Applications

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

Features and Benefits

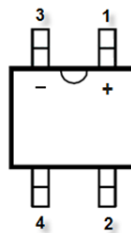
- Glass Passivated Die Construction
- Miniature Package Saves Space on PC Boards
- Reliable Robust Construction
- Ideal for SMT Manufacturing
- Low Forward Voltage Drop
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

Mechanical Data

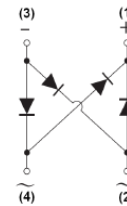
- Case: MBF
- Case Material: Molded Plastic.
UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Lead Free Plating (Matte Tin Finish).
Solderable per MIL-STD-202, Method 208 (e3)
- Polarity: As Marked on Body
- Weight: 0.08 grams (Approximate)



Top View



Pin Diagram



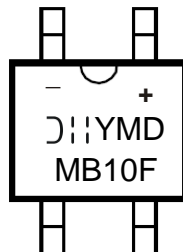
Internal Schematic

Ordering Information (Note 4)

| Part Number | Compliance | Case | Packaging |
|-------------|------------|------|-------------------|
| MB10F-13 | Commercial | MBF | 5,000/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 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



MB10F= Product Type Marking Code
 ⌋⌋⌋ = Manufacturers' Code Marking
 YMD = Date Code Marking
 Y = Last Digit of Year (ex: 7 = 2017)
 M = See Month/Code Table Below
 D = Day 1~9 =1~9; Day 10~31= A~V

| 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°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 | V _{RRM} | 1,000 | V |
| Working Peak Reverse Voltage | V _{RWM} | | |
| DC Blocking Voltage | V _R | | |
| RMS Reverse Voltage | V _{R(RMS)} | 700 | V |
| Average Rectified Output Current (Note 5) | I _O | @ T _A = +125°C | 0.5 |
| | | @ T _A = +110°C | 0.8 |
| Non-Repetitive Peak Forward Surge Current, 8.3ms Single Half Sine-Wave Superimposed on Rated Load | I _{FSM} | 30 | A |
| I ² t Rating for Fusing (1ms < t < 8.3ms) | I ² t | 3.74 | A ² S |

Thermal Characteristics

| Characteristic | Symbol | Value | Unit |
|---|-----------------------------------|-------------|------|
| Typical Thermal Resistance, Junction to Ambient (Note 6) (Per Element) | R _{θJA} | 63 | °C/W |
| Typical Thermal Resistance, Junction to Lead (Per Element) | R _{θJL} | 39 | °C/W |
| Operating and Storage Temperature Range | T _J , T _{STG} | -55 to +150 | °C |

Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

| Characteristic | Symbol | Min | Typ | Max | Unit | Test Condition |
|--|--------------------|-------|-----------|----------|------|---|
| Reverse Breakdown Voltage (Note 7) | V _{(BR)R} | 1,000 | — | — | V | I _R = 5μA |
| Forward Voltage (Per Element) | V _F | — | 0.94 | 1.1 | V | I _F = 0.8A, T _A = +25°C |
| Leakage Current (Note 7) (Per Element) | I _R | — | 0.2 14 | 5 500 | μA | V _R = 1,000V, T _A = +25°C V _R = 1,000V, T _A = +125°C |
| Total Capacitance (Per Element) | C _T | — | 8 | — | pF | V _R = 4V, f = 1.0MHz |

- Notes:
5. Device mounted on FR-4 substrate, 1**1", 2oz, single-sided, PC boards with 0.1**0.15" copper pad.
 6. Device mounted on FR-4 substrate, 1**1", 2oz, single-sided, PC boards with 0.56**0.73" copper pad.
 7. Short duration pulse test used to minimize self-heating effect.

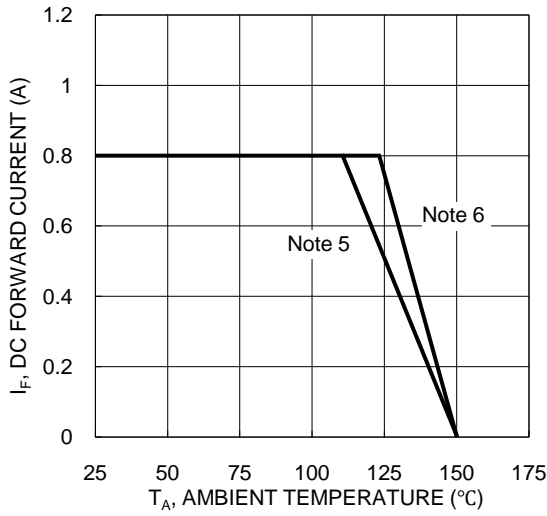


Figure 1. DC Forward Current Derating

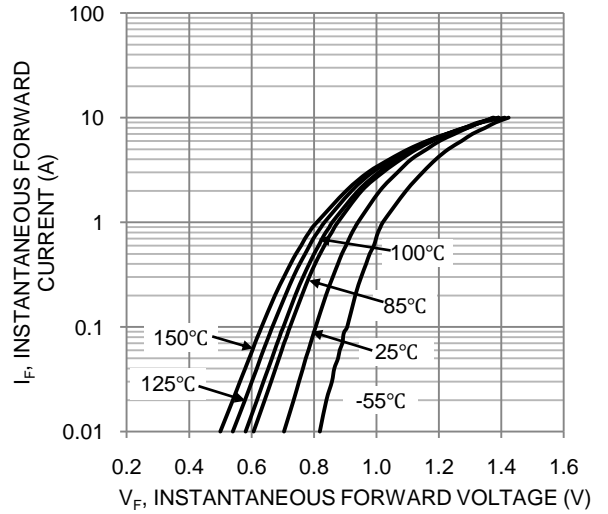


Figure 2. Typical Forward Characteristics (Per Element)

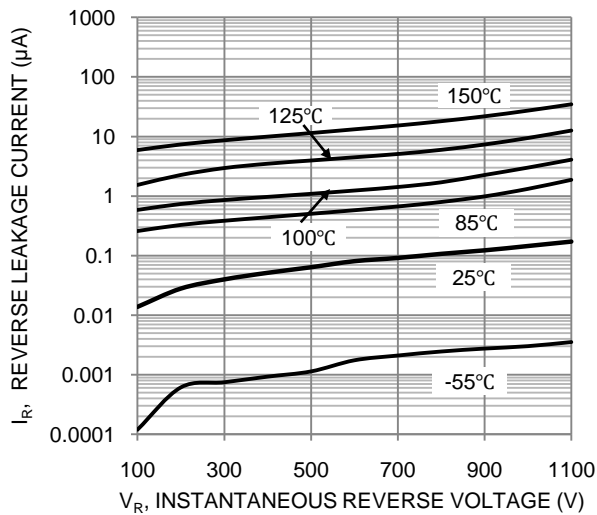


Figure 3. Typical Reverse Characteristics (Per Element)

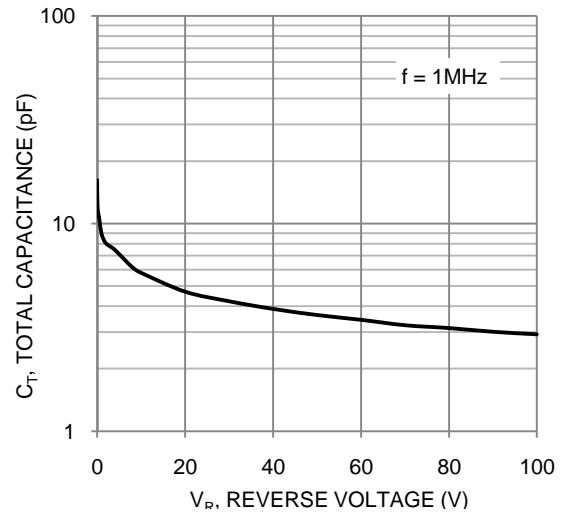


Figure 4. Typical Total Capacitance

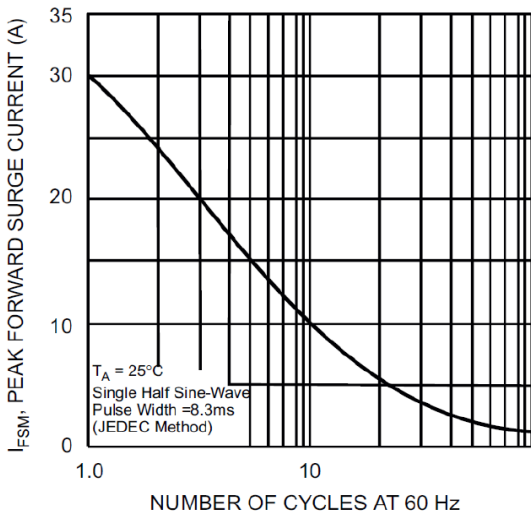


Figure 5. Maximum Peak Forward Surge Current (Per Leg)

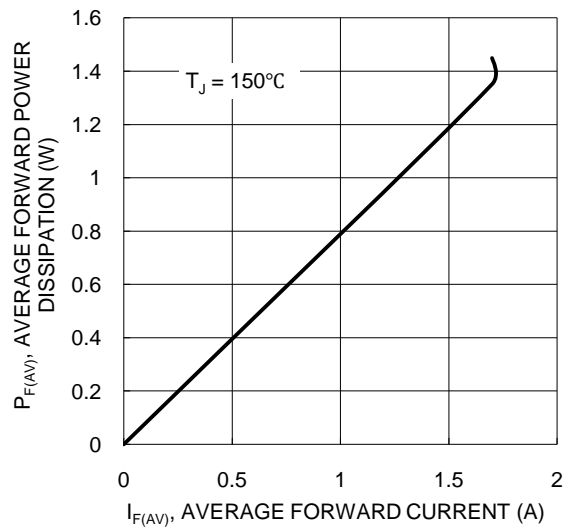
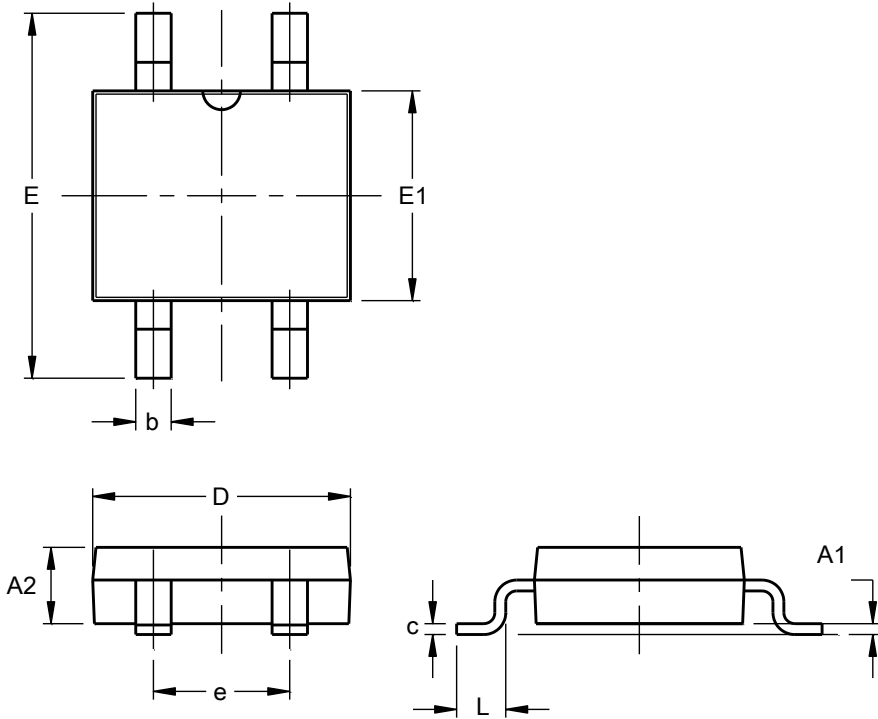


Figure 6. Forward Power Dissipation

Package Outline Dimensions

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

MBF



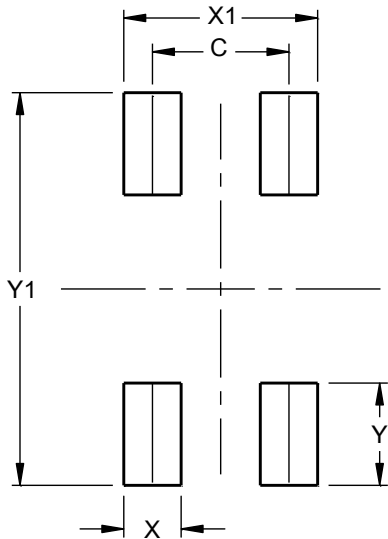
| MBF | | | |
|----------------------|------|------|-----|
| Dim | Min | Max | Typ |
| A1 | -- | 0.20 | -- |
| A2 | 1.20 | 1.60 | -- |
| b | 0.50 | 0.80 | -- |
| c | 0.15 | 0.35 | -- |
| D | 4.50 | 4.95 | -- |
| E | 6.40 | 7.00 | -- |
| E1 | 3.60 | 4.10 | -- |
| e | 2.30 | 2.70 | -- |
| L | 0.70 | 1.10 | -- |
| All Dimensions in mm | | | |

NEW PRODUCT

Suggested Pad Layout

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

MBF



| Dimensions | Value (in mm) |
|------------|---------------|
| C | 2.50 |
| X | 1.050 |
| X1 | 3.55 |
| Y | 1.875 |
| Y1 | 7.20 |

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