

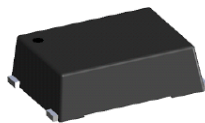
## Product Summary (@T<sub>A</sub> = +25°C)

V <sub>RRM</sub> (V)	I <sub>O</sub> (A)	V <sub>F</sub> (V)	I <sub>R</sub> (μA)
1,000	1.2	1.1	5

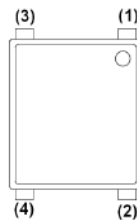
## Description and Applications

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

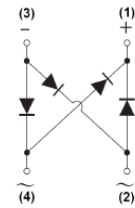
**MSB**



Top View



Pin Diagram



Internal Schematic

## 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)

## Ordering Information (Note 4)

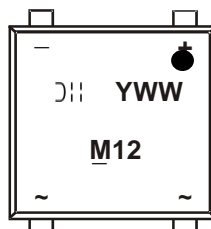
Part Number	Case	Packaging
MSB12M-13	MSB	3,000/Tape & Reel

- 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**

Pin 1



MXX = Product Type Marking Code,  
(XX = 12)

YWW = Manufacturers' Code Marking

Y = Last Digit of Year (ex: 6 = 2016)

WW = Week Code (01 ~ 53)

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

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

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V <sub>RRM</sub> V <sub>RWM</sub> 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>	1.2	A
Non-Repetitive Peak Forward Surge Current, 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I <sub>FSM</sub>	45	A

## Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance, Junction to Ambient (Note 5)	R <sub>θJA</sub>	70	°C/W
Typical Thermal Resistance, Junction to Case	R <sub>θJC</sub>	10	°C/W
Typical Thermal Resistance, Junction to Lead	R <sub>θJL</sub>	30	°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>	—	0.9 1.0	1.1 1.2	V	I <sub>F</sub> = 0.6A I <sub>F</sub> = 1.2A
Leakage Current (Note 6)	I <sub>R</sub>	—	—	5 500	μA	V <sub>R</sub> = 1,000V, T <sub>A</sub> = +25°C V <sub>R</sub> = 1,000V, T <sub>A</sub> = +125°C
Typical Total Capacitance	C <sub>T</sub>	—	30	—	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.

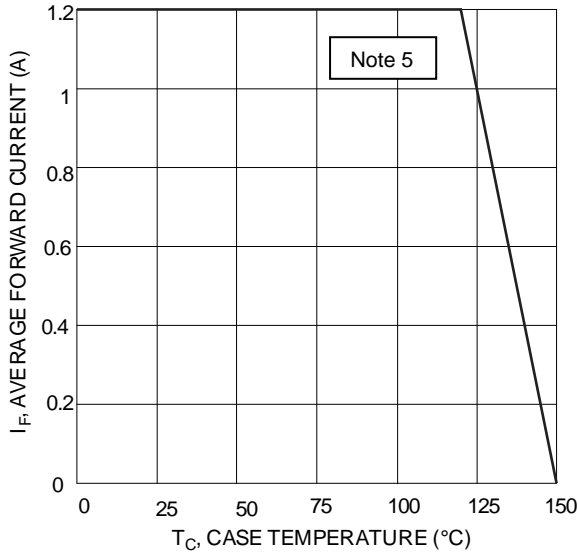


Figure 1 Forward Current Derating Curve

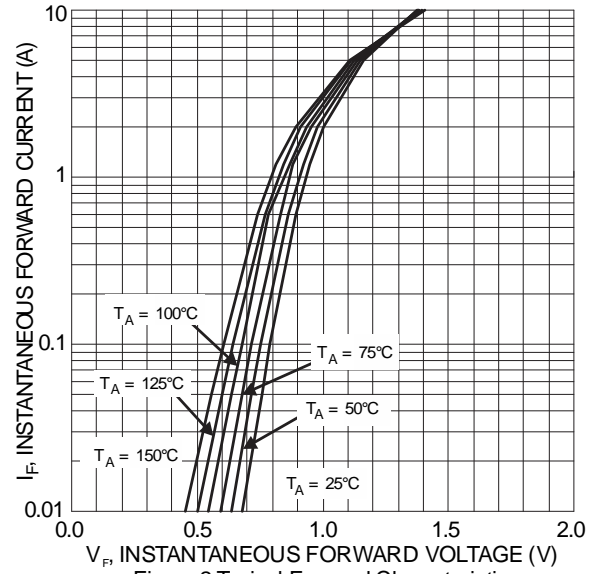


Figure 2 Typical Forward Characteristics

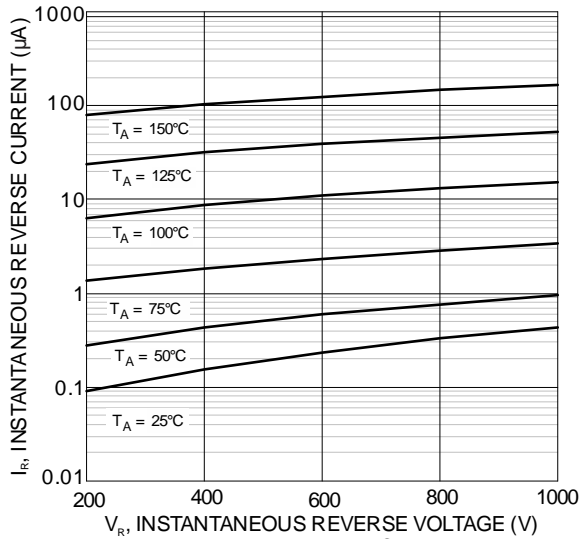


Figure 3 Typical Reverse Characteristics

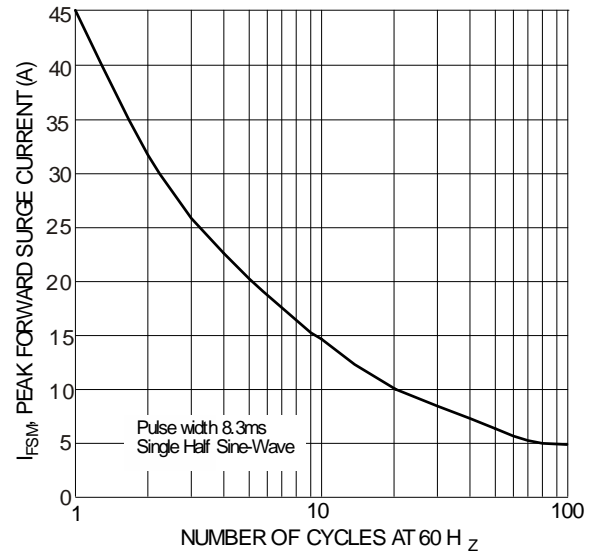


Figure 4 Forward Surge Current Derating Curve

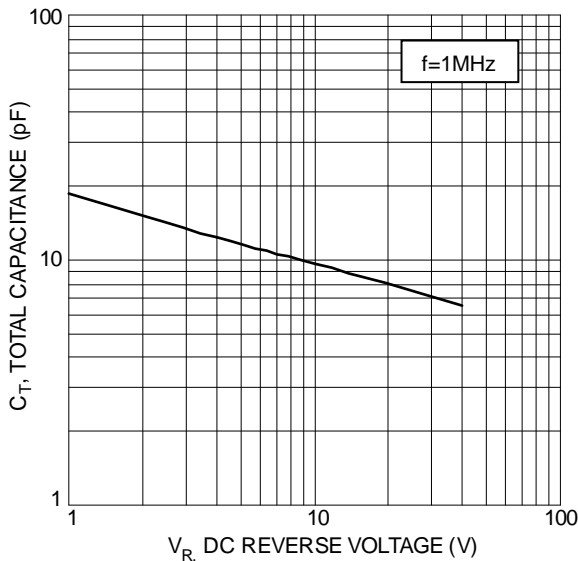
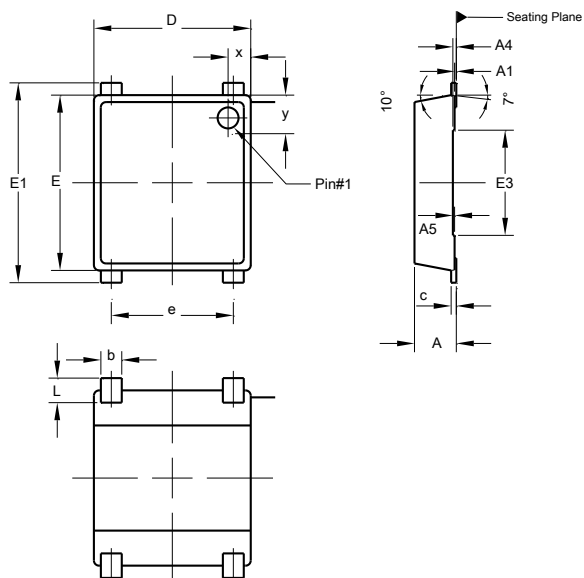


Figure 5 Total Capacitance vs. Reverse Voltage

## Package Outline Dimensions

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

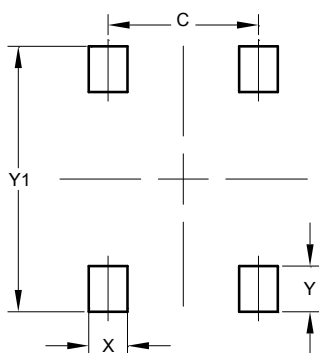


MSB			
Dim	Min	Max	Typ
A	1.10	1.30	1.20
A1	0.00	0.05	0.02
A4	0.05	0.08	-
A5	0.03	0.08	0.05
b	0.55	0.70	0.60
c	0.12	0.18	0.15
D	4.40	4.60	4.50
E	4.90	5.10	5.00
E1	5.60	5.80	5.70
E3	2.95	3.05	3.00
e	3.45	3.55	3.50
L	0.65	0.75	0.70
x	0.60	0.70	0.65
y	0.60	0.70	0.65
All Dimensions in mm			

## 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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