



# THE DATASHEET OF MSB30TM



**3A SURFACE MOUNT FAST RECOVERY BRIDGE RECTIFIER**
**Product Summary**

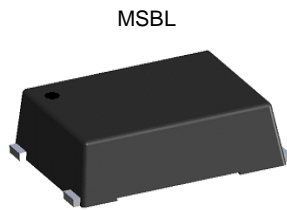
V <sub>RRM</sub> (V)	I <sub>F</sub> (A)	V <sub>F</sub> Max (V)	I <sub>R</sub> Max (μA)
1000	3	1.3	5

**General Description**

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

**Mechanical Data**

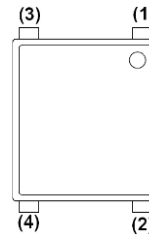
- Package: MSBL
- Package Material: Plastic Material, UL Flammability Classification 94V-0 (No Br, Sb, Cl)
- Terminals: Finish – Matte Tin Plated Leads, Solderable per MIL-STD-202, Method 208
- Polarity Indicator: Symbol Molded on Body.
- Weight: 0.216 grams (Approximate)



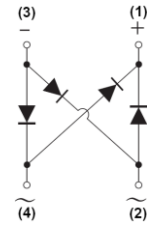
Top View

**Features**

- Glass Passivated Die Construction
- Rating to 1000V PRV
- Compact, Thin Profile Package Design
- Ideal for SMT Manufacturing
- Reliable Robust Construction
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **For automotive applications requiring specific change control (i.e. parts qualified to AEC-Q100/101/104/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please [contact us](mailto:contact@diodes.com) or your local Diodes representative. <https://www.diodes.com/quality/product-definitions/>**



Pin Diagram

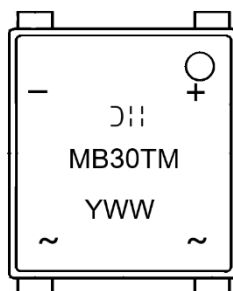


Internal Schematic

**Ordering Information** (Note 4)

Part Number	Package	Packing	
		Qty.	Carrier
MSB30TM	MSBL	2500pcs	Tape & Reel

- Notes:
1. EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant. All applicable RoHS exemptions applied.
  2. See <https://www.diodes.com/quality/lead-free/> 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 <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

**Marking Information**


MSB30TM = Product Type Marking Code  
 = Manufacturer's Code Marking  
 YWW = Date Code Marking  
 Y = Last Digit of Year (ex: 2 = 2022)  
 WW = Week Code (01 to 53)

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

Characteristic	Symbol	Value	Unit
Maximum Repetitive Peak Reverse Voltage	V <sub>RRM</sub>	1000	V
Maximum DC Blocking Voltage	V <sub>DC</sub>	1000	V
Maximum Average Rectified Output Current With Heatsink T <sub>C</sub> = +130°C	I <sub>F(AV)</sub>	3	A
Peak Forward Surge Current 8.3ms Single Half Sine Wave Superimposed on Rated Load T <sub>J</sub> = +25°C	I <sub>FSM</sub>	100	A
I <sup>2</sup> t Rating for Fusing (t = 8.3ms )	I <sup>2</sup> t	41.5	A <sup>2</sup> s
Operating Temperature Range	T <sub>J</sub>	-55 to +150	°C
Storage Temperature Range	T <sub>STG</sub>	-55 to +150	°C

### Electrical Characteristics

Characteristic	Test Conditions	Symbol	Typ	Max	Unit
Forward Voltage	I <sub>F</sub> = 3A T <sub>J</sub> = +25°C	V <sub>F</sub>	—	1.3	V
Leakage Current	V <sub>R</sub> = 1000V T <sub>J</sub> = +25°C T <sub>J</sub> = +125°C	I <sub>R</sub>	—	5 500	μA
Reverse Recovery Time	I <sub>F</sub> = 0.5A, I <sub>rr</sub> = 0.25A, I <sub>R</sub> = 1.0A	t <sub>rr</sub>	—	500	ns
Typical Total Junction Capacitance (Note 5)		C <sub>T</sub>	45	—	pF

### Thermal Characteristics

Characteristic	Symbol	Typ	Unit
Typical Thermal Resistance (Note 6)	R <sub>θJC</sub>	2	°C/W
	R <sub>θJL</sub>	10	
	R <sub>θJA</sub>	25	

Notes: 5. Measured at 1.0MHz and applied reverse voltage of 4.0V DC.  
6. Thermal resistance junction to case, lead and ambient. Unit mounted on aluminum plate (120mm x 96mm x 1.45mm).

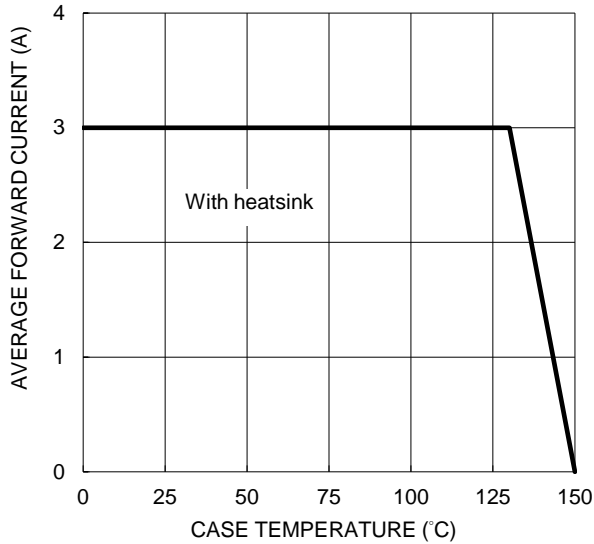


Figure 1. Forward Current Derating Curve

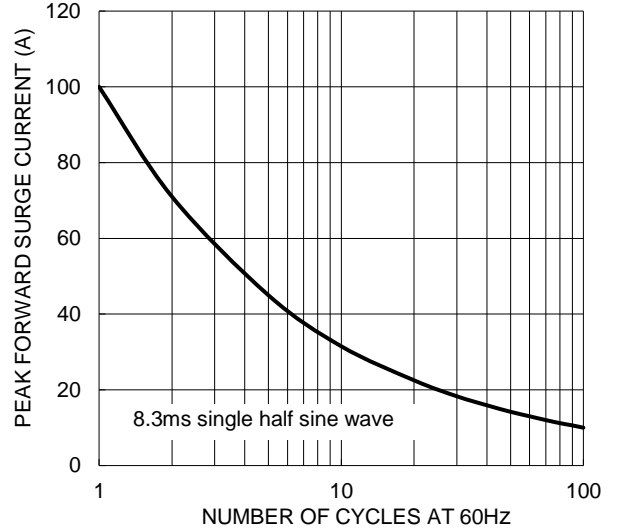


Figure 2. Maximum Non-Repetitive Surge Current

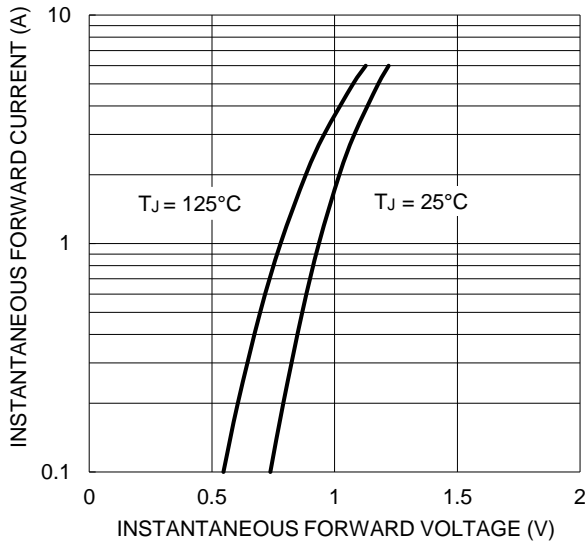


Figure 3. Typical Forward Characteristics

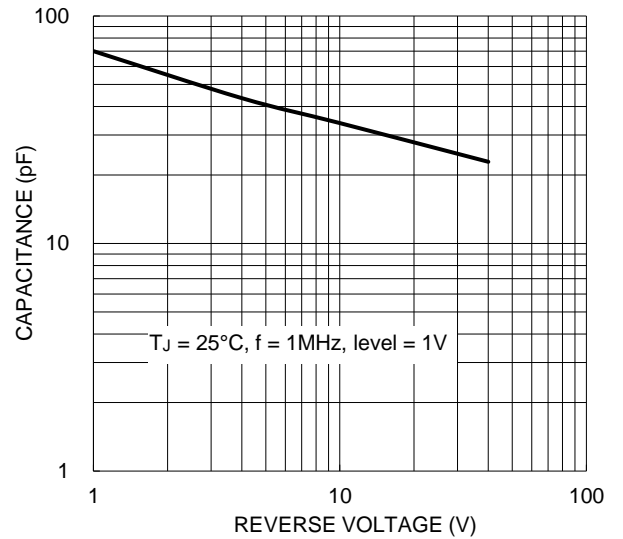


Figure 4. Typical Junction Capacitance

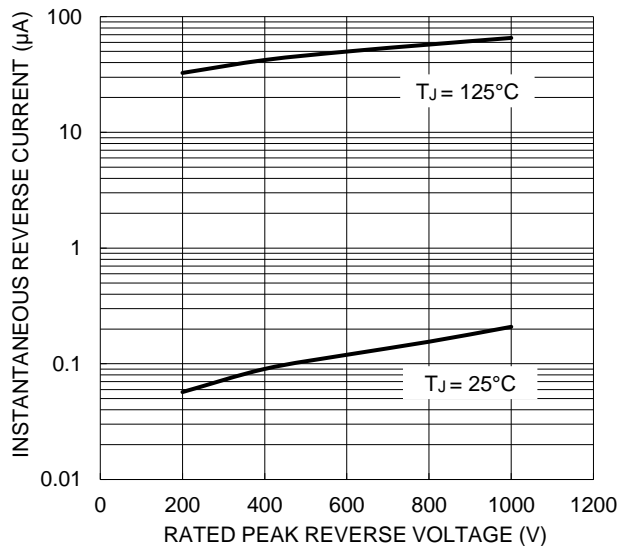
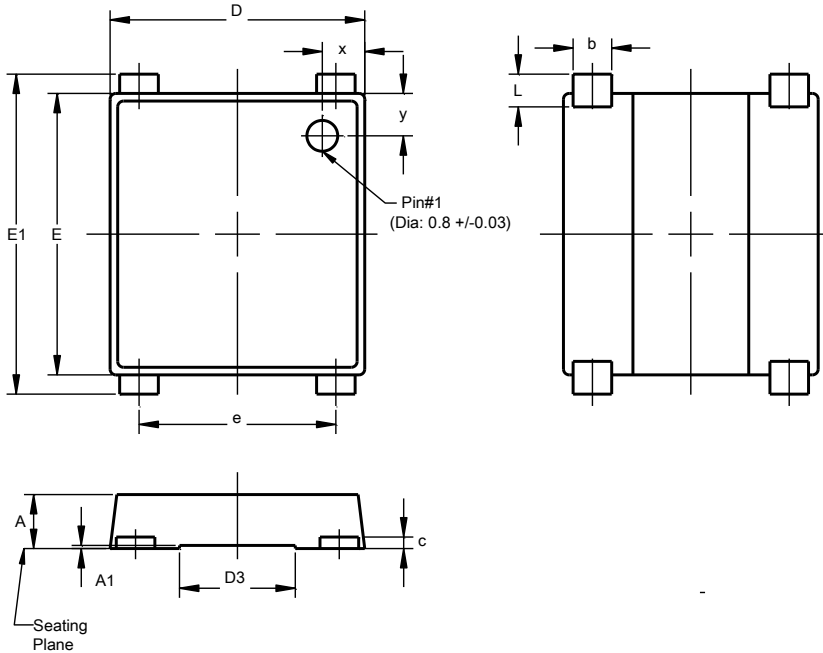


Figure 5. Typical Reverse Characteristics

**Package Outline Dimensions**

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

**MSBL**

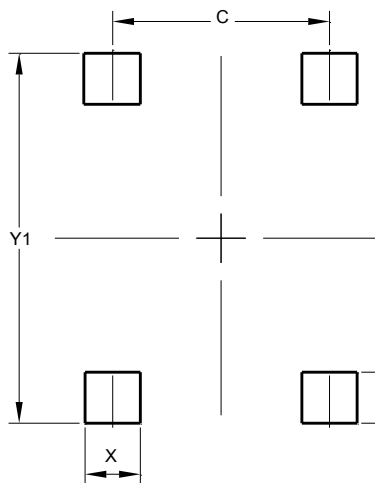


MSBL			
Dim	Min	Max	Typ
A	1.30	1.50	1.40
A1	0.04	0.08	0.06
b	0.95	1.15	1.00
c	0.27	0.40	0.30
D	6.50	6.70	6.60
D3	2.90	3.10	3.00
E	7.20	7.40	7.30
E1	7.90	8.60	8.30
e	5.00	5.20	5.10
L	0.65	1.05	0.85
x	0.95	1.25	1.10
y	0.95	1.25	1.10
<b>All Dimensions in mm</b>			

**Suggested Pad Layout**

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

**MSBL**



Dimensions	Value (in mm)
C	5.10
X	1.30
Y	1.20
Y1	8.70

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