

Product Summary (@T_A = +25°C)

V _{RRM} (V)	I _O (A)	V _F (V)	I _R (μA)	t _{RR} (ns)
1000	3.0	1.3	5	250

Description and Applications

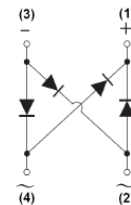
Suitable for AC to DC bridge full wave rectification for SMPS, LED lighting, adapter, battery charger, home appliances, office equipment, and telecommunication applications.



Top View



Pin Diagram



Internal Schematic

Features and Benefits

- Glass Passivated Die Construction
- Filter Rectifier with EMI Design Friendly
- Compact, Thin Profile Package Design
- Reliable Robust Construction
- Rated at 1000V PRV
- **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-Q100/101/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please [contact us](#) or your local Diodes representative. <https://www.diodes.com/quality/product-definitions/>**

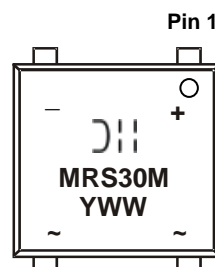
Mechanical Data

- Case: MSBL
- 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: 0.216 grams (Approximate)

Ordering Information (Note 4)

Part Number	Compliance	Case	Packaging
MRS30M-13	Commercial	MSBL	2,500/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


MRS30M= Product Type Marking Code
 ⌋⌋⌋ = Manufacturer's Code Marking
 YWW = Date Code Marking
 Y = Last Digit of Year (ex: 1 = 2021)
 WW = Week Code (01 to 53)

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}	1000	V
Working Peak Reverse Voltage	V _{RWM}		
DC Blocking Voltage	V _R		
Average Rectified Output Current @ T _C = +130°C	I _O	3.0	A
Non-Repetitive Peak Forward Surge Current, 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I _{FSM}	100	A
I ² t Rating for Fusing (1ms < t < 8.3ms)	I ² t	41.5	A ² s

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance, Junction to Ambient (Note 5) (Per Element)	R _{θJA}	25	°C/W
Typical Thermal Resistance, Junction to Case (Note 5) (Per Element)	R _{θJC}	2	°C/W
Typical Thermal Resistance, Junction to Lead (Note 5) (Per Element)	R _{θJL}	10	°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 6)	V _{(BR)R}	1,000	—	—	V	I _R = 5μA
Forward Voltage (Note 7) (Per Element)	V _F	—	— 0.99	1.3 —	V	I _F = 3A, T _A = +25°C I _F = 3A, T _A = +125°C
Leakage Current (Note 6) (Per Element)	I _R	—	— 81	5 —	μA	V _R = 1,000V, T _A = +25°C V _R = 1,000V, T _A = +125°C
Total Capacitance	C _T	—	45	—	pF	V _R = 4V, f = 1.0MHz
Reverse Recovery Time	t _{RR}	—	—	250	ns	I _F = 0.5A, I _{RR} = 0.25A, I _R = 1.0A

Notes: 5. Device mounted on 120mm*96mm*1.45mm Aluminum plate. Test performed in accordance with JESD-51.
6. Short duration pulse test used to minimize self-heating effect.
7. 300μs pulse width, 2% duty cycle.

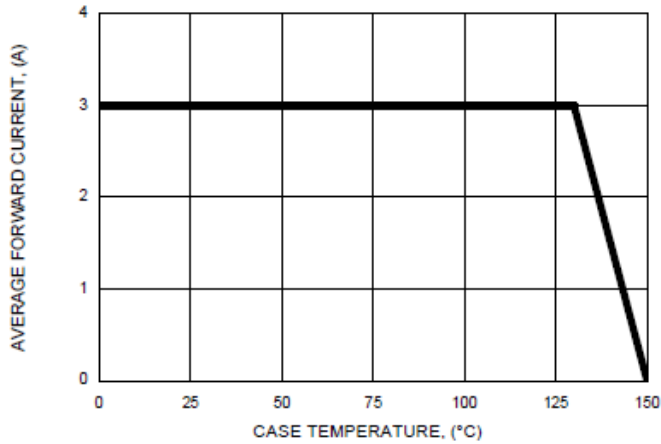


FIG.1- FORWARD CURRENT DERATING CURVE

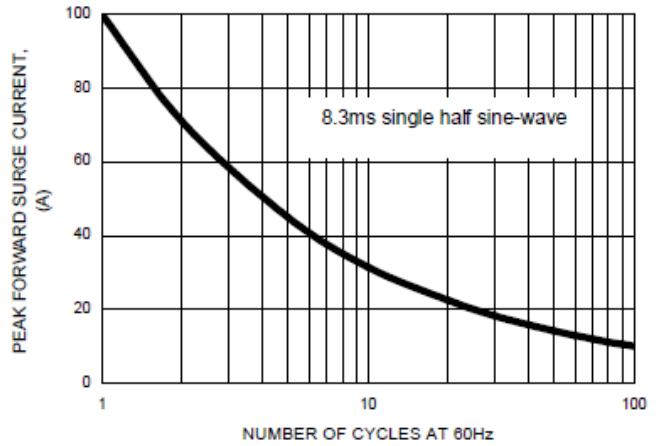


FIG.2- MAXIMUM NON-REPETITIVE SURGE CURRENT

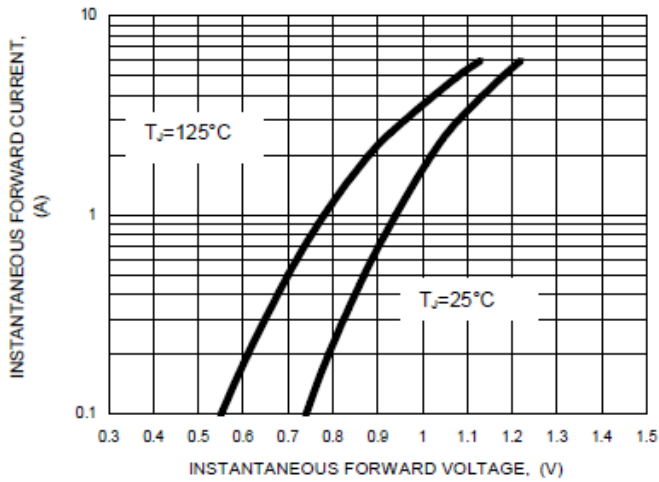


FIG.3- TYPICAL FORWARD CHARACTERISTICS

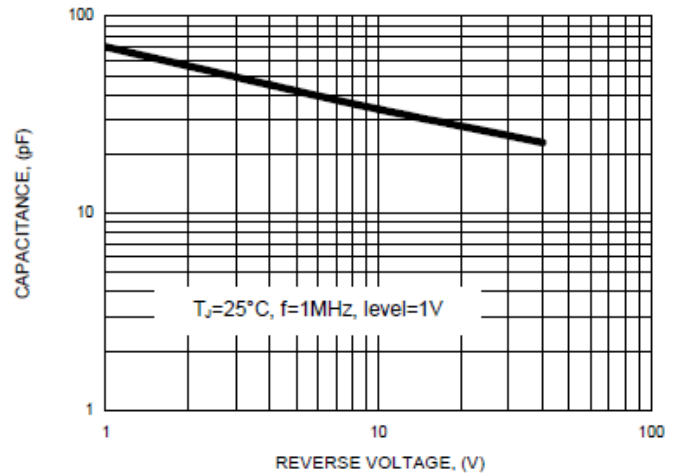


FIG.4- TYPICAL JUNCTION CAPACITANCE

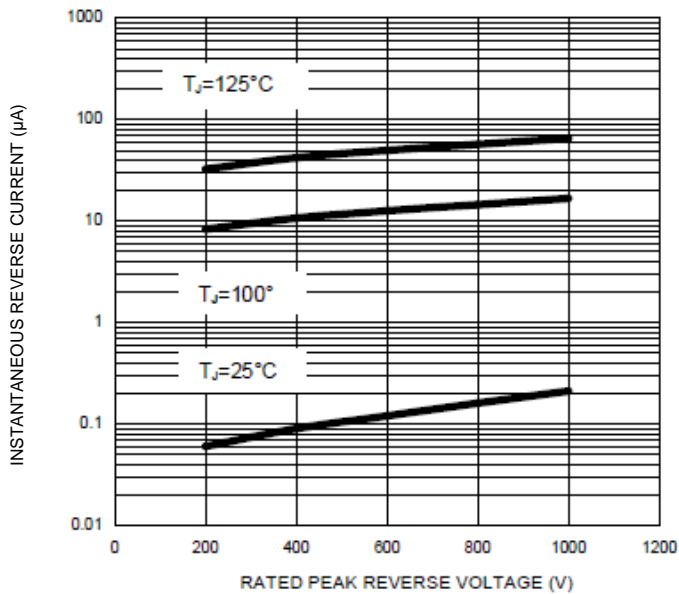
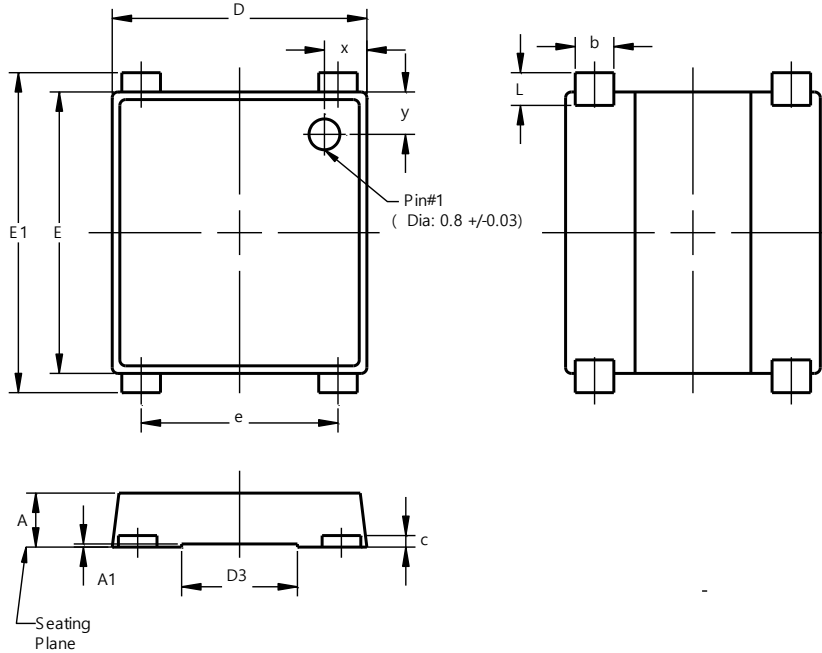


FIG.5- TYPICAL REVERSE CHARACTERISTICS

Package Outline Dimensions

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

MSBL

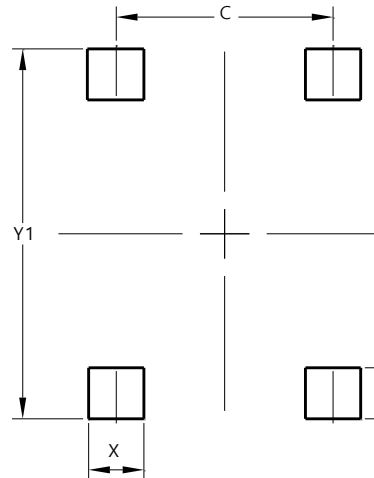


MSBL			
Dim	Min	Max	Typ
A	1.30	1.50	1.40
A1	0.04	0.08	0.06
b	0.95	1.15	1.00
c	0.27	0.40	0.30
D	6.50	6.70	6.60
D3	2.90	3.10	3.00
E	7.20	7.40	7.30
E1	7.90	8.60	8.30
e	5.00	5.20	5.10
L	0.65	1.05	0.85
x	0.95	1.25	1.10
y	0.95	1.25	1.10
All Dimensions in mm			

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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