4A SURFACE-MOUNT STANDARD RECOVERY BRIDGE RECTIFIER

Product Summary

V_{RRM} (V)	I_F (A)	V_F Max (V) @ I_F = 2A	I_R Max (µA)
600 800 1000	4	1.0	5

Features

- Glass Passivated Die Construction
- Compact, Thin Profile Package Design
- Reliable Robust Construction
- Ideal for SMT Manufacturing
- Rated at 1000V PRV
- UL Recognized File # E364304
- **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 or your local Diodes representative. https://www.diodes.com/quality/product-definitions/**

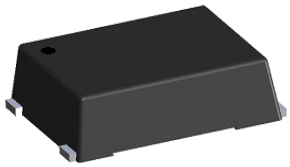
General Description

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

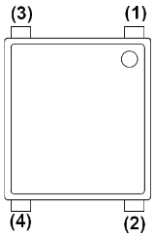
Mechanical Data

- Package: MSBL
- Package Material: Plastic Material, UL Flammability Classification 94V-0 (No Br. Sb, Cl)
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish – Matte Tin Plated Leads, Solderable per MIL-STD-202, Method 208 e3
- Polarity Indicator: Symbol Molded on Body
- Weight: 0.216 grams (Approximate)

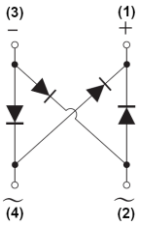
MSBL



Top View



Pin Diagram



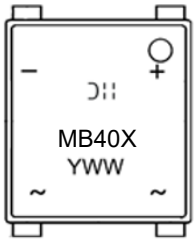
Internal Schematic

Ordering Information (Note 4)

Orderable Part Number	Package	Packing	
		Qty.	Carrier
MSB40J-13	MSBL	2500pcs	Tape & Reel
MSB40K-13	MSBL	2500pcs	Tape & Reel
MSB40M-13	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



MB40X = Product Type Marking Code
X = J or K or M
YWW = Date Code Marking
Y = Last Digit of Year (ex: 6 = 2026)
WW = Week Code (01 to 53)

Maximum Ratings (@T_A = +25°C, unless otherwise specified.)

Characteristic		Symbol	MSB40J	MSB40K	MSB40M	Unit
Maximum Repetitive Peak Reverse Voltage		V_{RRM}	600	800	1000	V
Maximum DC Blocking Voltage		V_{DC}	600	800	1000	V
Maximum Average Rectified Output Current	With Heatsink	$I_{F(AV)}$	4			A
Peak Forward Surge Current 8.3ms Single Half Sine Wave Superimposed on Rated Load	T_J = +25°C	I_{FSM}	110			A
I^2t Rating for Fusing (t = 8.3ms)		I^2t	50.2			A^2s
Operating Temperature Range		T_J	-55 to +150			°C
Storage Temperature Range		T_{STG}	-55 to +150			°C

Electrical Characteristics

Characteristic	Test Conditions		Symbol	Typ	Max	Unit
Forward Voltage (Note 5)	I_F = 2A	T_J = +25°C	V_F	—	1.0	V
	I_F = 4A	T_J = +25°C		—	1.1	
Leakage Current	V_R at Rated	T_J = +25°C T_J = +125°C	I_R	— —	5 500	μA
Typical Total Junction Capacitance (Note 6)			C_T	31	—	pF

Thermal Characteristics

Characteristic	Symbol	Typ	Unit
Typical Thermal Resistance (Without Heatsink)	$R_{\theta JC}$ $R_{\theta JL}$ $R_{\theta JA}$	18 14 77	°C/W
Typical Thermal Resistance (Note 7)	$R_{\theta JC}$ $R_{\theta JL}$ $R_{\theta JA}$	6 7 21	°C/W

Notes: 5. Perform static test after the temperature of oven is steady for 20 minutes.
6. Measured at 1.0MHz and applied reverse voltage of 4.0V DC.
7. Device mounted on 100mm x 100mm x 1.6mm Cu heatsink.

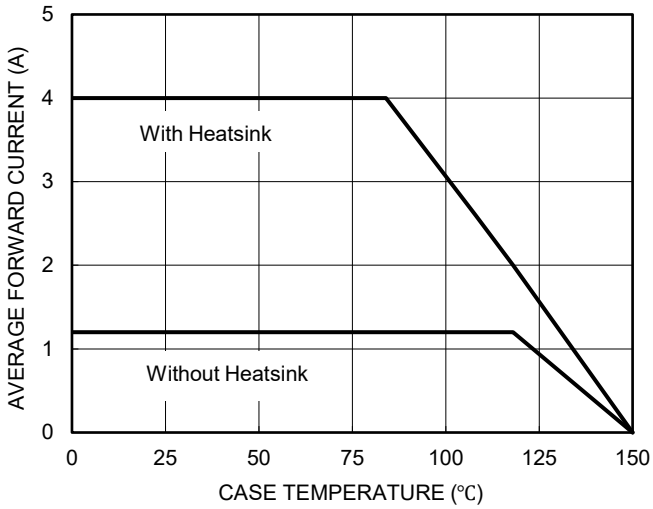


Figure 1. Forward Current Derating Curve

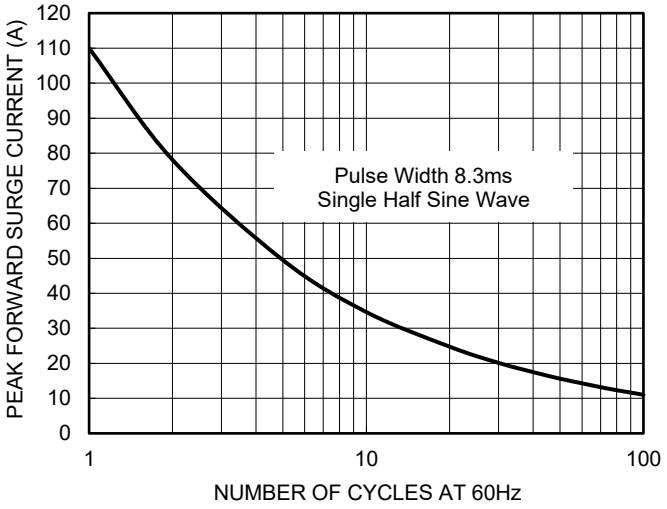


Figure 2. Maximum Non-Repetitive Surge Current

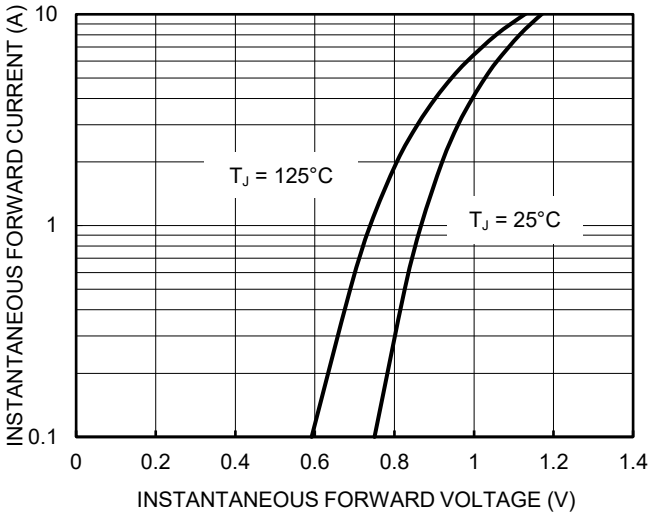


Figure 3. Typical Forward Characteristics

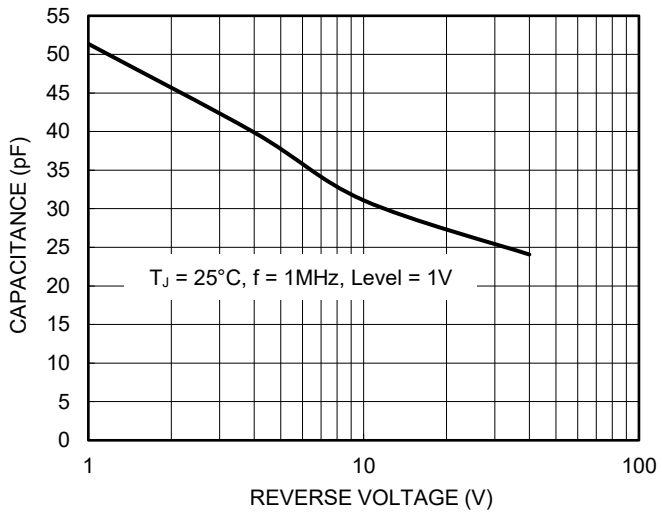


Figure 4. Typical Junction Capacitance

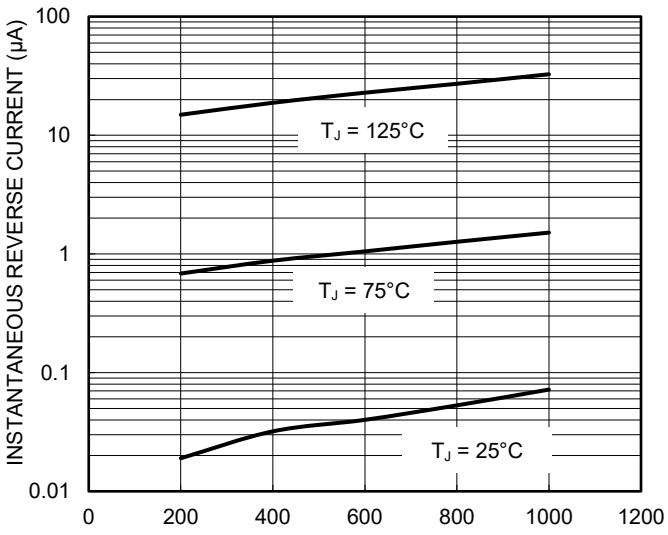


Figure 5. Typical Reverse Characteristics

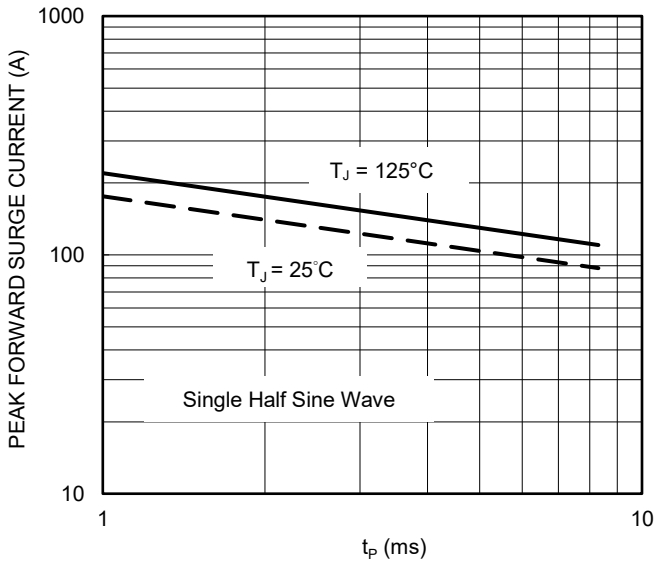
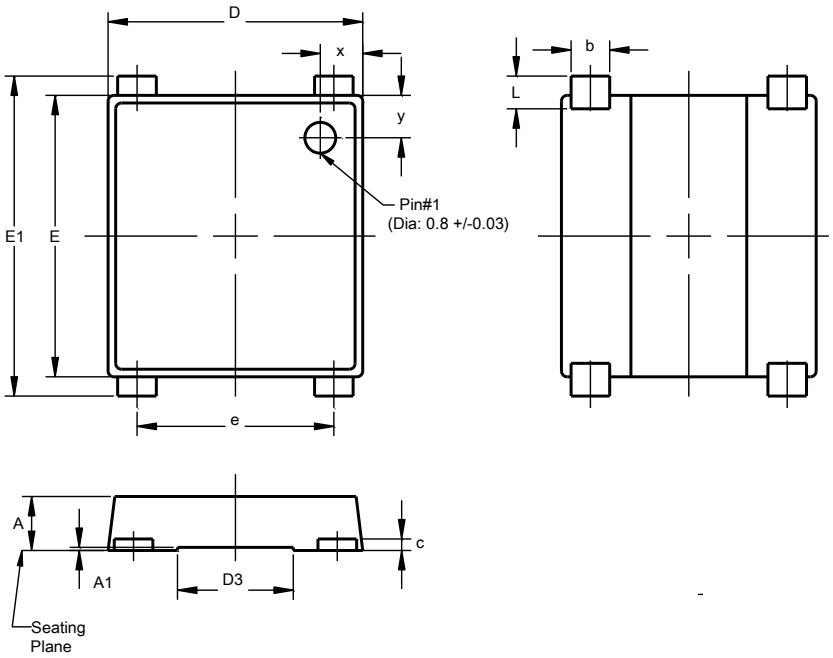


Figure 6. Non-Repetitive Surge Current

Package Outline Dimensions

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

MSBL

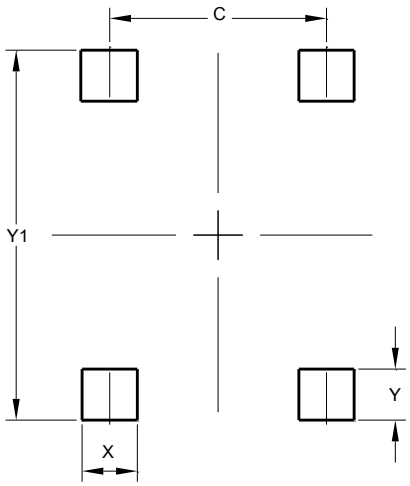


MSBL			
Dim	Min	Max	Typ
A	1.30	1.50	1.40
A1	0.04	0.08	0.06
b	0.95	1.15	1.00
c	0.27	0.40	0.30
D	6.50	6.70	6.60
D3	2.90	3.10	3.00
E	7.20	7.40	7.30
E1	7.90	8.60	8.30
e	5.00	5.20	5.10
L	0.65	1.05	0.85
x	0.95	1.25	1.10
y	0.95	1.25	1.10
All Dimensions in mm			

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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