

**3.0A SURFACE-MOUNT STANDARD RECOVERY BRIDGE RECTIFIER**

**Product Summary** (@  $T_A = +25^\circ\text{C}$ )

$V_{RRM}$ (V)	$I_O$ (A)	$V_F$ (V)	$I_R$ ( $\mu\text{A}$ )
600	3.0	0.92	5

**Features and Benefits**

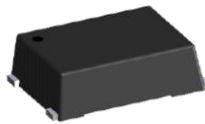
- Glass Passivated Die Construction
- Compact, Thin Profile Package Design
- Low Forward Voltage Drop
- Reliable Robust Construction
- Ideal for SMT Manufacturing
- Rated at 600V PRV
- UL Recognized File #E364304
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" 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](mailto:contact_us) or your local Diodes representative. <https://www.diodes.com/quality/product-definitions/>**

**Description and Applications**

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**

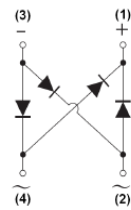
- Package: MSBL
- Package Material: "Green" Molding Compound, UL Flammability Classification 94V-0, (No Br, Sb, Cl) "Halogen-free"
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Lead Free Plating (Matte Tin Finish). Solderable per MIL-STD-202, Method 208 **(e3)**
- Polarity Indicator: Symbol Molded on Body
- Weight: 0.216 grams (Approximate)



Top View



Pin Diagram



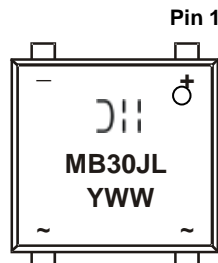
Internal Schematic

**Ordering Information** (Note 4)

Part Number	Package	Packing	
		Qty.	Carrier
MSB30JL-13	MSBL	2500	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**



MB30JL= Product Type Marking Code  
 J = Manufacturers' Code Marking  
 YWW = Date Code Marking  
 Y = Last Digit of Year (ex: 4 = 2024)  
 WW = Week Code (01 to 53)

## Maximum Ratings (@ $T_A = +25^\circ\text{C}$ , 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 Working Peak Reverse Voltage DC Blocking Voltage	$V_{RRM}$ $V_{RWM}$ $V_R$	600	V
RMS Reverse Voltage	$V_{R(RMS)}$	420	V
Average Rectified Output Current @ $T_J = +150^\circ\text{C}$	$I_O$	3.0	A
Non-Repetitive Peak Forward Surge Current, 8.3ms @ $T_A = +25^\circ\text{C}$ Single Half Sine-Wave Superimposed on Rated Load @ $T_A = +125^\circ\text{C}$	$I_{FSM}$	100 80	A
Non-Repetitive Peak Forward Surge Current, 1.0ms @ $T_A = +25^\circ\text{C}$ Single Half Sine-Wave Superimposed on Rated Load @ $T_A = +125^\circ\text{C}$	$I_{FSM}$	200 160	A
$I^2t$ Rating for Fusing 8.3ms	$I^2t$	41.5	$\text{A}^2\text{S}$

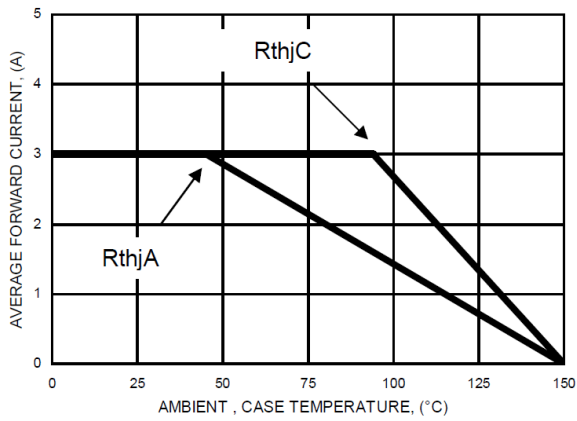
## Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance, Junction to Ambient (Note 5)	$R_{\theta JA}$	22	$^\circ\text{C/W}$
Typical Thermal Resistance, Junction to Case	$R_{\theta JC}$	12	$^\circ\text{C/W}$
Typical Thermal Resistance, Junction to Lead	$R_{\theta JL}$	13	$^\circ\text{C/W}$
Operating and Storage Temperature Range	$T_J, T_{STG}$	-55 to +150	$^\circ\text{C}$

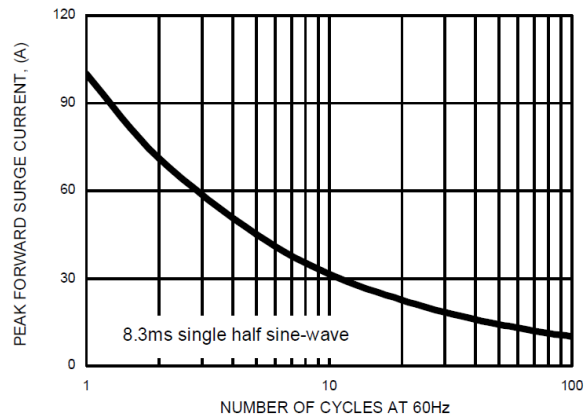
## Electrical Characteristics (@ $T_A = +25^\circ\text{C}$ , unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 6)	$V_{(BR)R}$	600	—	—	V	$I_R = 5\mu\text{A}$
Forward Voltage	$V_F$	—	0.83 0.69	0.92 —	V	$I_F = 1.5\text{A}, T_A = +25^\circ\text{C}$ $I_F = 1.5\text{A}, T_A = +125^\circ\text{C}$
Leakage Current (Note 6)	$I_R$	—	0.15 30	5 500	$\mu\text{A}$	$V_R = 600\text{V}, T_A = +25^\circ\text{C}$ $V_R = 600\text{V}, T_A = +125^\circ\text{C}$
Typical Total Capacitance (Note 7)	$C_T$	—	46	—	pF	$V_R = 4\text{V}, f = 1.0\text{MHz}$

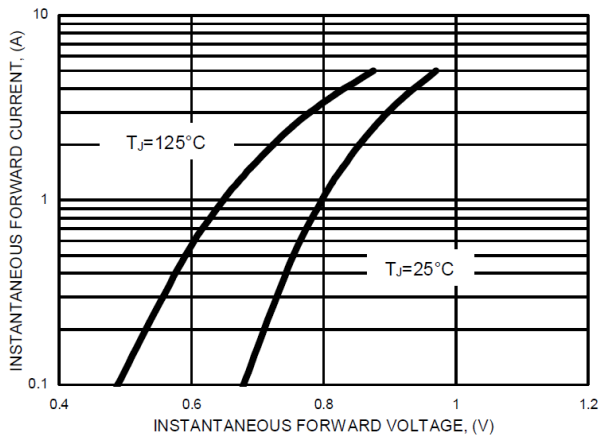
Notes: 5. Device mounted on glass-epoxy substrate with 1 oz 30mm x 30mm Cu pad per pin.  
6. Short duration pulse test used to minimize self-heating effect.  
7. Measured at 1.0MHz and applied reverse voltage of 4.0V DC.



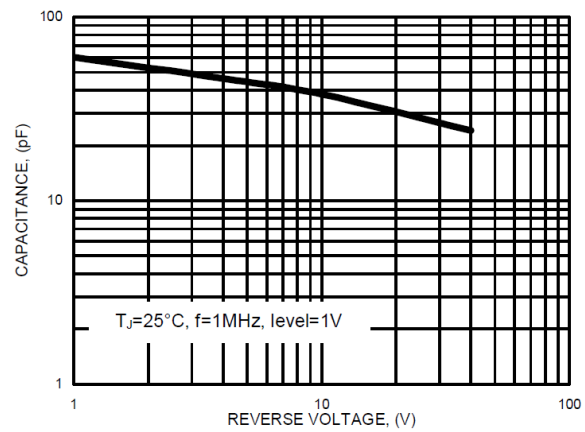
**FIG.1- FORWARD CURRENT DERATING CURVE**



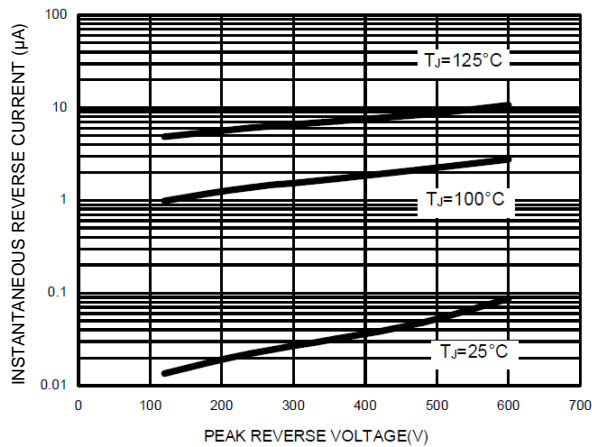
**FIG.2- MAXIMUM NON-REPETITIVE SURGE CURRENT**



**FIG.3- TYPICAL FORWARD CHARACTERISTICS**



**FIG.4- TYPICAL JUNCTION CAPACITANCE**

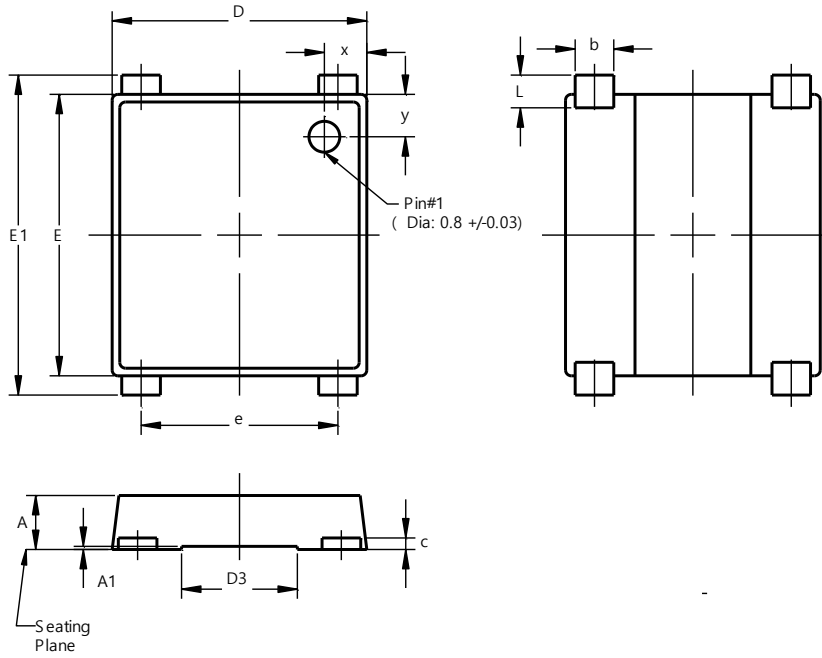


**FIG.5- TYPICAL REVERSE CHARACTERISTICS**

## Package Outline Dimensions

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

**MSBL**

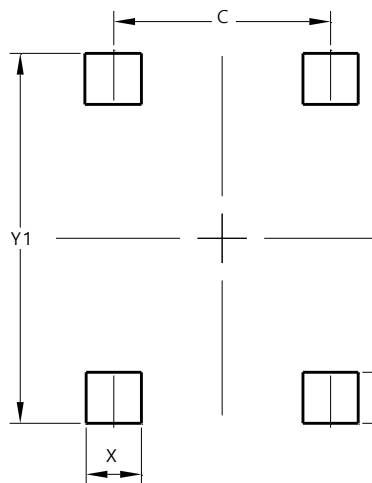


MSBL			
Dim	Min	Max	Typ
A	1.30	1.50	1.40
A1	0.04	0.08	0.06
b	0.95	1.15	1.00
c	0.27	0.40	0.30
D	6.50	6.70	6.60
D3	2.90	3.10	3.00
E	7.20	7.40	7.30
E1	7.90	8.60	8.30
e	5.00	5.20	5.10
L	0.65	1.05	0.85
x	0.95	1.25	1.10
y	0.95	1.25	1.10
All Dimensions in mm			

## 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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