

**GLASS PASSIVATED
SURFACE MOUNT BRIDGE RECTIFIERS**

**REVERSE VOLTAGE – 1000 Volts
FORWARD CURRENT – 3.0 Ampere**

GENERAL DESCRIPTION

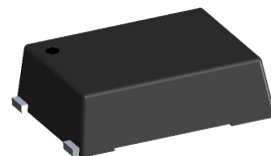
Suitable for AC-to-DC bridge full wave rectification for SMPS, LED lighting, adapter, battery charger, home appliances, office equipment, and telecommunication applications.

FEATURES

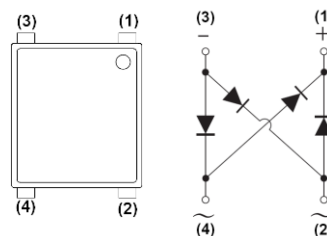
- Rated at 1000V PRV
- Compact, thin profile package design
- Ideal for SMT manufacturing
- Reliable robust construction
- UL recognized file#E364304
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

MECHANICAL DATA

- Molding compound meets UL 94 V-0 flammability rating, Halogen-free, RoHS-compliant, and commercial grade
- Polarity indicator: As marked on body
- Marking : MB30M
- Weight: 216 mg



Pin Assignment



Maximum Ratings & Thermal Characteristics @ T_A = 25°C, unless otherwise specified.

Characteristics	Symbol	Value	Unit
Maximum Repetitive Peak Reverse Voltage	V _{RRM}	1000	V
Maximum DC Blocking Voltage	V _{DC}	1000	V
Maximum Average Forward Rectified Current @T _C = 120°C	I _(AV)	3.0	A
Peak Forward Surge Current 8.3ms single half sine-wave	I _{FSM}	@T _J =25°C 100	A
		@T _J =125°C 80	
Peak Forward Surge Current 1.0ms single half sine-wave	I _{FSM}	@T _J =25°C 200	A
		@T _J =125°C 160	
I ² t Rating for fusing (t = 8.3ms)	I ² t	26.56	A ² S
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

Electrical Characteristics @ T_A = 25°C unless otherwise specified

Characteristics	Test Condition	Symbol	Min	Typ.	Max	Unit
Maximum Forward Voltage	@T _J =25°C @T _J =125°C	IF = 1.5A	V _F	-- 0.80	1.02 --	V
Maximum Forward Voltage	@T _J =25°C @T _J =125°C	IF = 3.0A	V _F	-- 0.88	1.1 --	V
Maximum DC Reverse Current at Rated DC Blocking Voltage	@T _J =25°C @T _J =125°C	VR = 1000V	I _R	--	5 500	uA
Typical junction capacitance per element	(Note 4)	C _J	--	35	--	pF

Thermal Characteristics

Characteristics	Symbol	Min	Typ.	Max	Unit
Typical thermal resistance (Note 5)	R _{θJC}	--	8	--	°C/W
	R _{θJL}	--	15	--	
	R _{θJA}	--	25	--	

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. Measured at 1.0MHz and applied reverse voltage of 4.0V DC.
5. Thermal resistance test performed in accordance with JESD-51. Unit mounted on 15 mm*12 mm*1.6 mm AL pad attach 195 mm*110 mm*10 mm steel plate.

RATING AND CHARACTERISTIC CURVES
MSB30M

FIG.1-FORWARD CURRENT DERATING CURVE

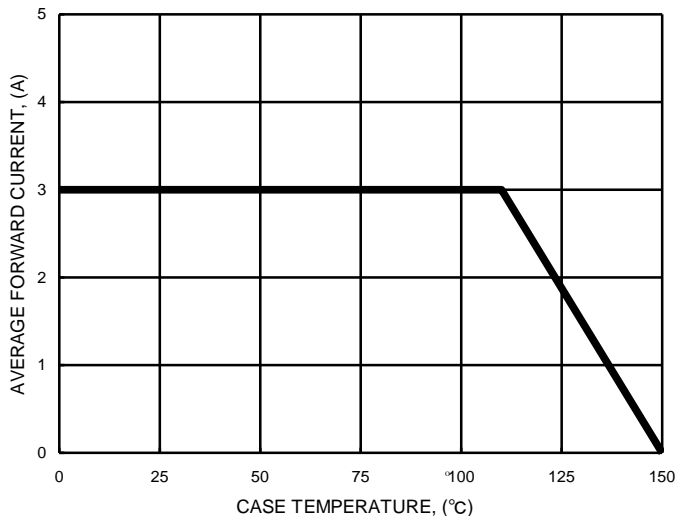


FIG.2- MAXIMUM NON-REPETITIVE SURGE CURRENT

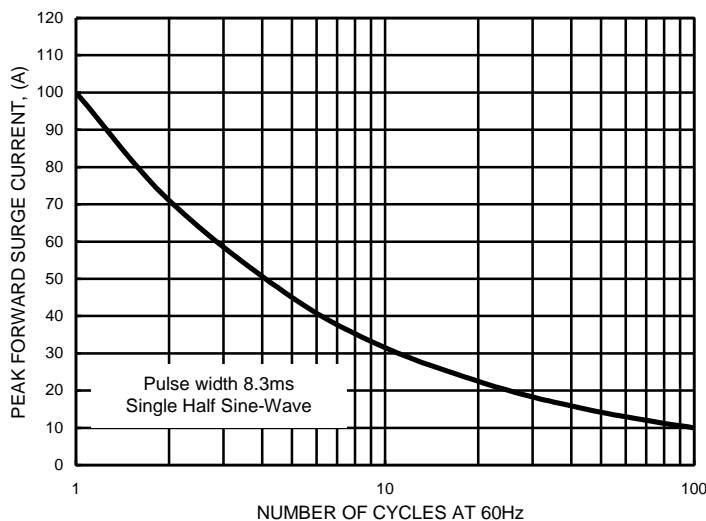


FIG.3- TYPICAL FOWRD CHARACTERISTICS

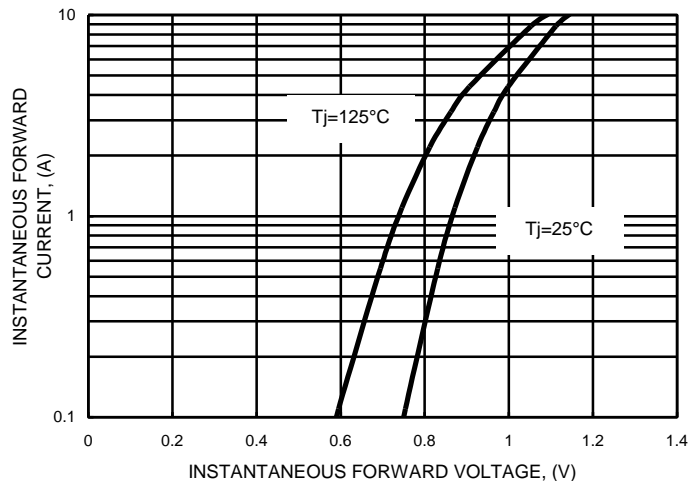


FIG.4- TYPICAL JUNCTION CAPACITANCE

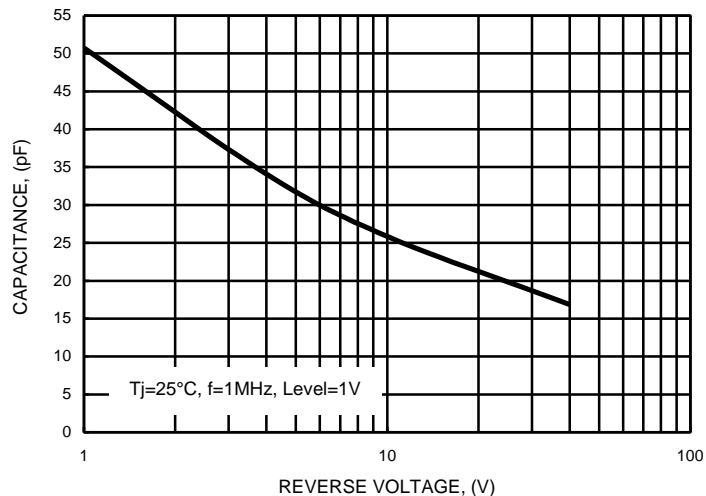


FIG.5- TYPICAL REVERSE CHARACTERISTICS

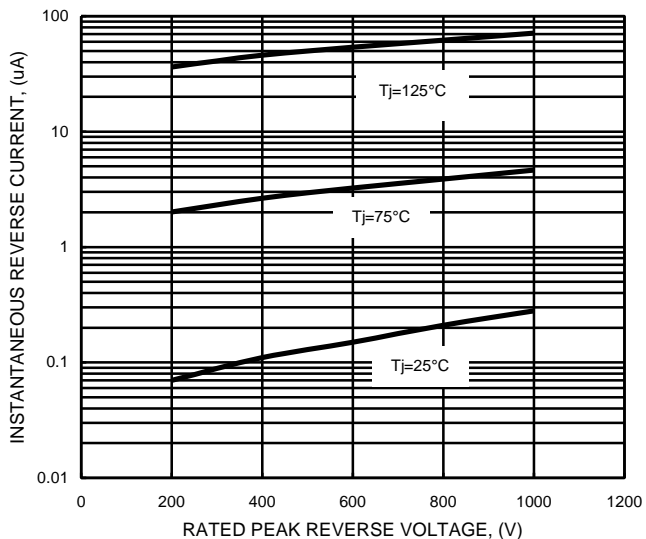
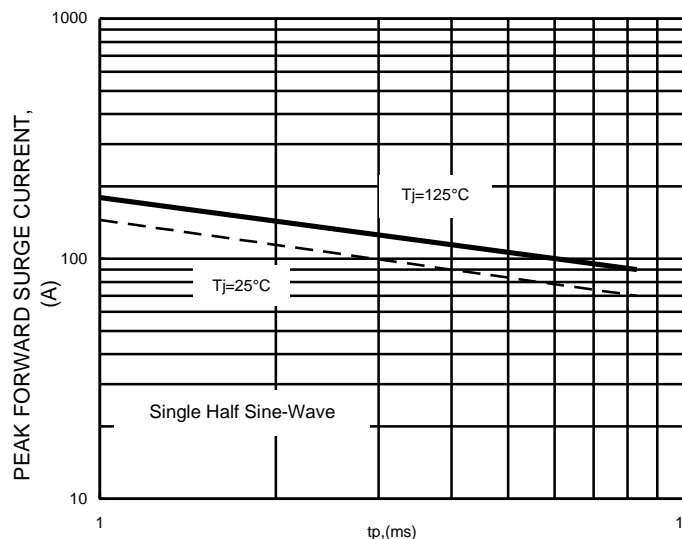


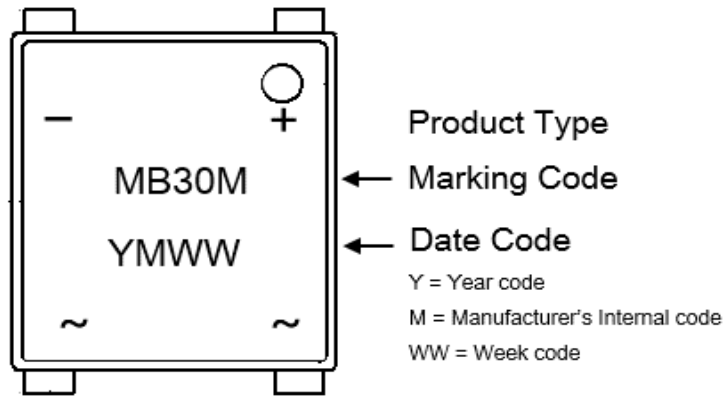
FIG.6- NON-REPETITIVE SURGE CURRENT



Ordering Information :

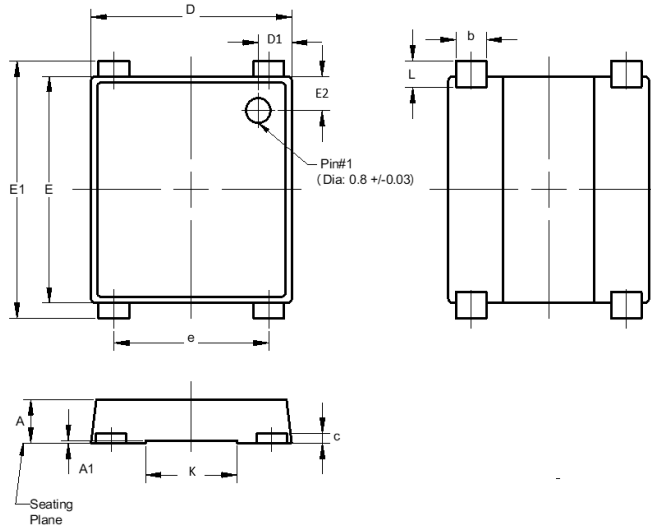
Part Number	Package	Packing	
		Qty.	Carrier
MSB30M_HF	MSBL	2500pcs	Tape & Reel

Marking Information :



MECHANICAL INFORMATION
MSB30M

Package Dimension

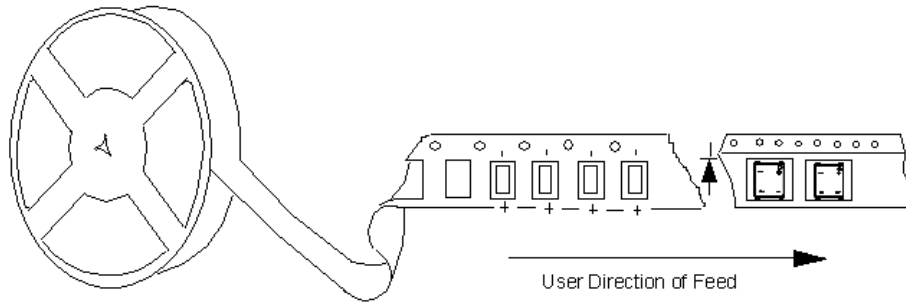


MSBL		
Dim	Min	Max
A	1.30	1.50
A1	0.04	0.08
C	0.27	0.40
D	6.50	6.70
D1	0.95	1.25
E	7.20	7.40
E1	7.90	8.60
E2	0.95	1.25
L	0.65	1.05
b	0.95	1.15
e	5.00	5.20
K	2.90	3.10
All Dimensions in mm		

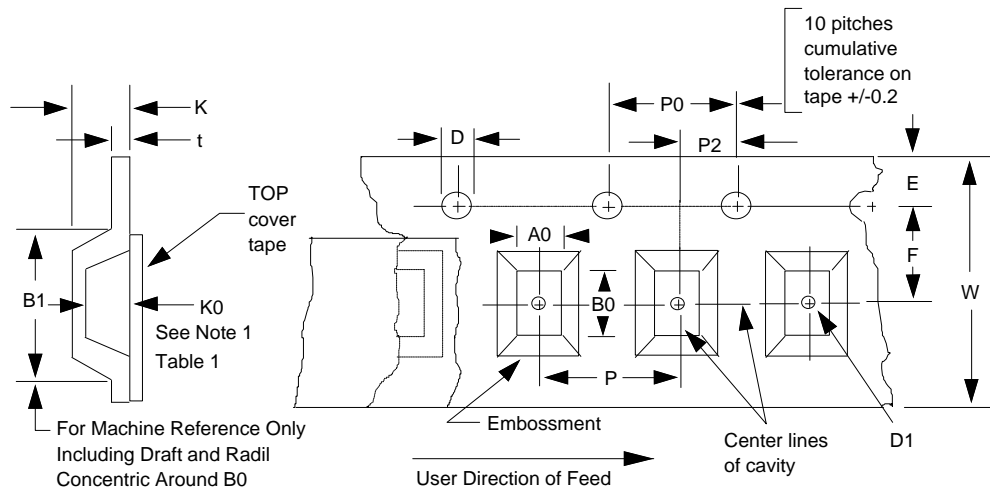
Packaging Information

DEVICE	Q'TY/REEL (PCS)	REEL DIA. (mm)	Liner (mm)	CARTON SIZE (mm)	Q'TY/CARTON (PCS)	MOQ
MSB30M	2500	330	1300x200	355x245x350	25K	25K

Polar Units



Embossed Carrier Dimension



TAPE SIZE	D	E	PO	t (MAX)	A0	B0	K0
16	1.5+0.10/-0.0	1.75+/-0.10	4.0+/-0.10	0.4	7.0+/-0.1	8.7+/-0.1	1.7+/-0.1
	B1 (MAX)	B2 (MAX)	F	K (MAX)	P2	W	P
	8.2	1.5	7.5+/-0.1	2.2	2.0+/-0.05	16.0+/-0.30	12.0+/-0.1

Unit:mm

Typical IR Reflow Soldering Thermal Profile

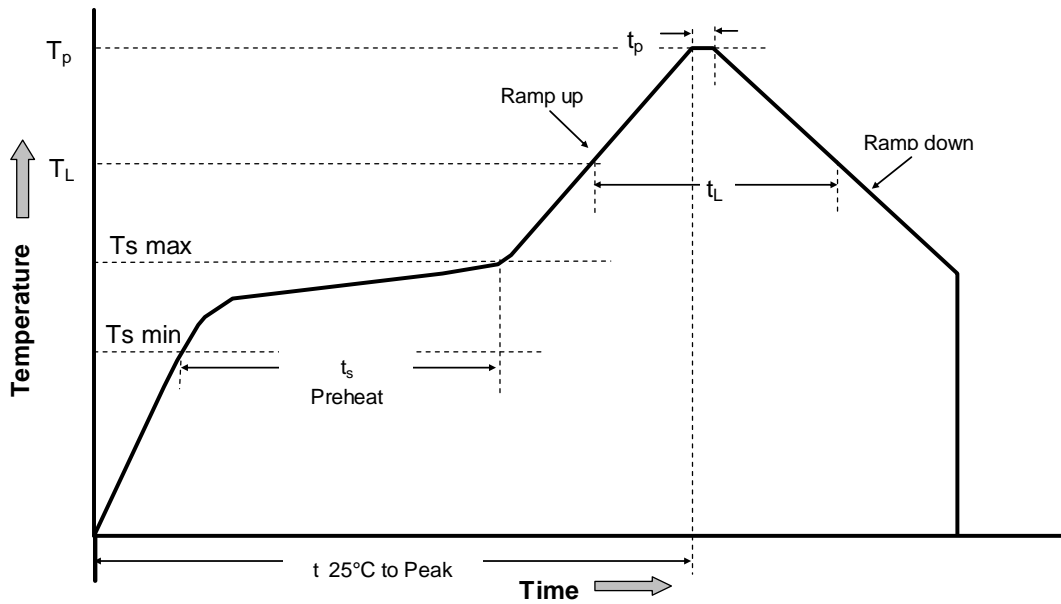


Table 1- Reflow profile

Reflow condition	Sn-Pb assembly	Pb-free assembly
Average ramp-up rate (Liquidus Temperature (TL) to Peak)	3 °C/second max.	3 °C/second max.
Preheat		
--Temperature Min, Ts (Min)	100 °C	150 °C
--Temperature Max, Ts (Max)	150 °C	200 °C
--Time (min to max, ts)	60-120 seconds	60-180 seconds
Ts(max) to TL		3 °C/second max.
- Ramp-up Rate		
Time maintained above:		
--Temperature(TL)	183 °C	217 °C
--Time(tL)	60-150 seconds	60-150 seconds
Peak Temperature (Tp)	240 +0/-5 °C	260 +0/-5 °C
Time within 5 °C of actual Peak Temperature(tp)	10-30 seconds	20-40 seconds
Ramp-down Rate	6 °C/second max.	6 °C/second max.
Time 25 °C to Peak Temperature.	6 minutes max.	8 minutes max.

Note: All temperatures refer to topside of the package, measured on the package body surface

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