LITE-ON SEMICONDUCTOR

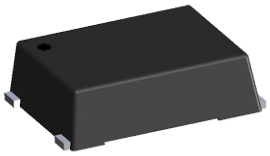
MSB12M

GLASS PASSIVATED
SUFACE MOUNT BRIDGE RECTIFIER

REVERSE VOLTAGE – 1000 Volts
FORWARD CURRENT – 1.2 Amperes

GENERAL DESCRIPTION

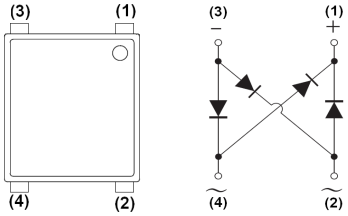
Suitable for AC-to-DC bridge full wave rectification for SMPS, LED lighting, adapter, battery charger, home appliances, office equipment, and telecommunication applications.



FEATURES

- Rated at 1000V PRV.
- Compact, thin profile package design
- Ideal for SMT manufacturing
- Reliable robust construction
- UL recognized filed# E364304

Pin Assignment



MECHANICAL DATA

- Case Material: “Green” molding compound, UL flammability classification 94V-0, (No Br. Sb. Cl.)
- Polarity indicator : As marked on body
- Marking code: MB12M
- Weight : 67mg (Approximate)

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.

ABSOLUTE RATINGS

PARAMETER		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	$I_{(AV)}$	1.2	A
Peak forward surge current 8.3ms single half sine-wave superimposed on rated load.	T_J= 25°C T_J =125°C	I_{FSM}	45 35	A
Peak forward surge current 1ms single half sine-wave superimposed on rated load.	T_J= 25°C T_J =125°C	I_{FSM}	90 70	A
I^2t rating for fusing (t = 8.3ms)		I^2t	8.4	A^2S
Operating and storage temperature range		T_J ,T_{STG}	-55 to +150	°C

STATIC ELECTRICAL CHARACTERISTICS

PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX	UNIT
Forward voltage	I_F = 0.6A	T_J= 25°C T_J =125°C	V_F	-- 0.78	1.1 --	V
	I_F = 1.2A	T_J= 25°C T_J =125°C		-- 0.86	1.2 --	
Leakage current	V_R = 1000V	T_J= 25°C T_J =125°C	I_R	-- --	5.0 500	uA
Typical junction capacitance (Note 1)			C_J	14		pF

THERMAL CHARACTERISTICS

PARAMETER	SYMBOL	TYP.	UNIT
Thermal resistance (Note 2)	$RthJ_C$ $RthJ_L$ $RthJ_A$	10 30 70	°C/W

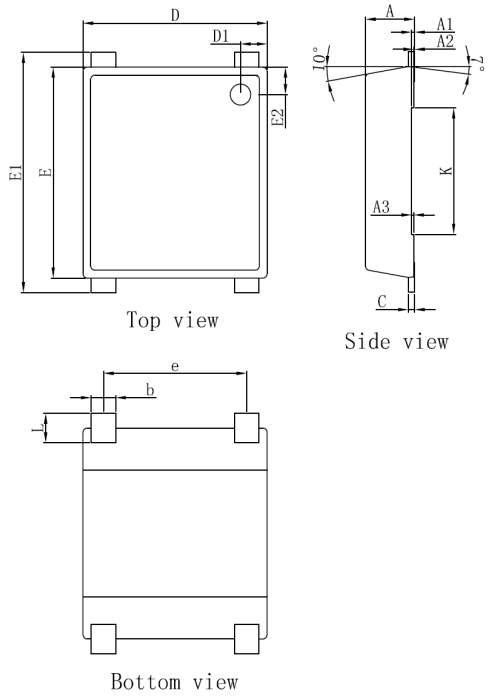
Note :

(1) Measured at 1.0MHz and applied voltage of 4.0VDC.
(2) Thermal resistance test performed in accordance with JESD-51. Unit mounted on glass-epoxy substrate with 1oz/f^2t _ 10 mm * 10 mm copper pad per pin

REV. 5, MAR.-2015, KBDA15

Package Dimension :

MSB



MSB			
Dim.	Min.	Typ.	Max.
A	1.10	1.20	1.30
A1	0.05	---	0.08
A2	0.00	0.02	0.05
A3	0.03	0.05	0.08
C	0.12	0.15	0.18
D	4.40	4.5	4.60
D1	0.60	0.65	0.70
E	4.90	5.00	5.10
E1	5.80	5.90	6.10
E2	0.60	0.65	0.70
L	0.70	0.80	1.00
b	0.55	0.60	0.70
e	3.45	3.50	3.55
K	2.95	3.00	3.05
All dimensions in millimeter			

RATING AND CHARACTERISTIC CURVES
MSB12M

LITEON

FIG.1-FORWARD CURRENT DERATING CURVE

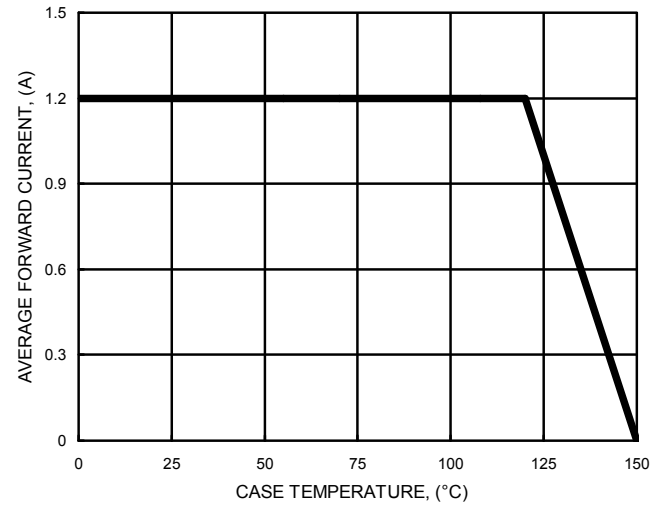


FIG.2- MAXIMUM NON-REPETITIVE SURGE CURRENT

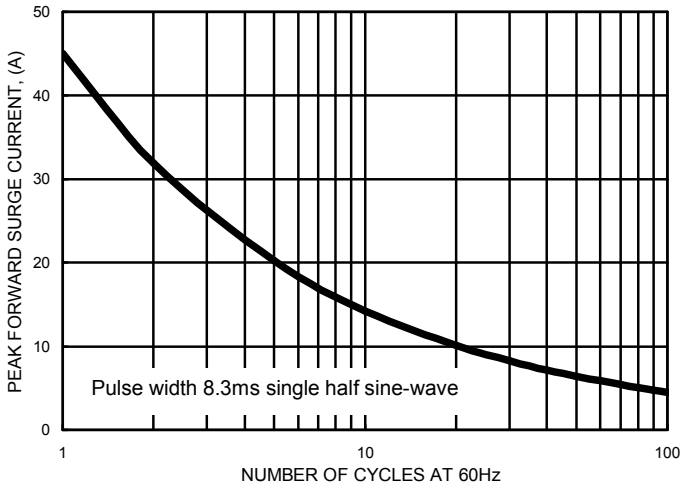


FIG.3- TYPICAL FORWORD CHARACTERISTICS

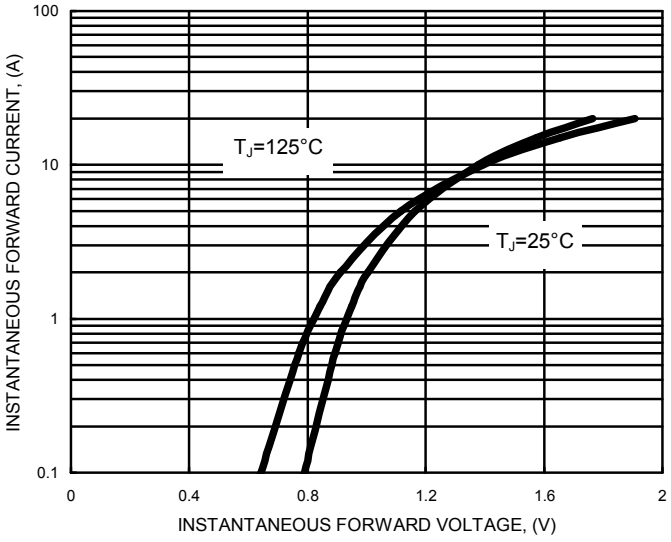


FIG.4- TYPICAL JUNCTION CAPACITANCE

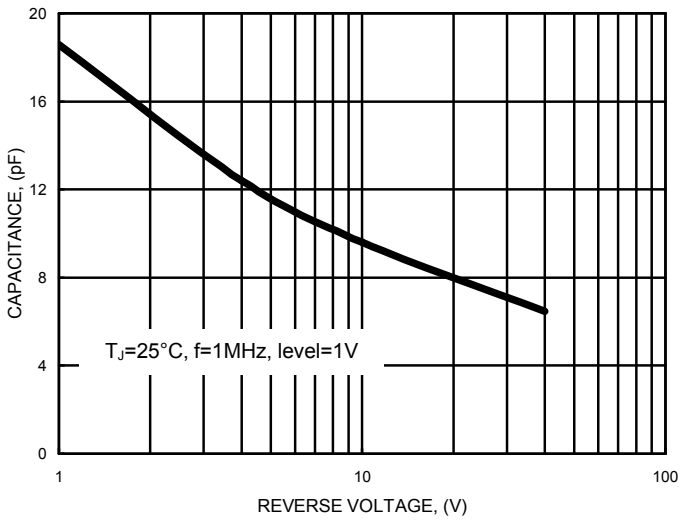
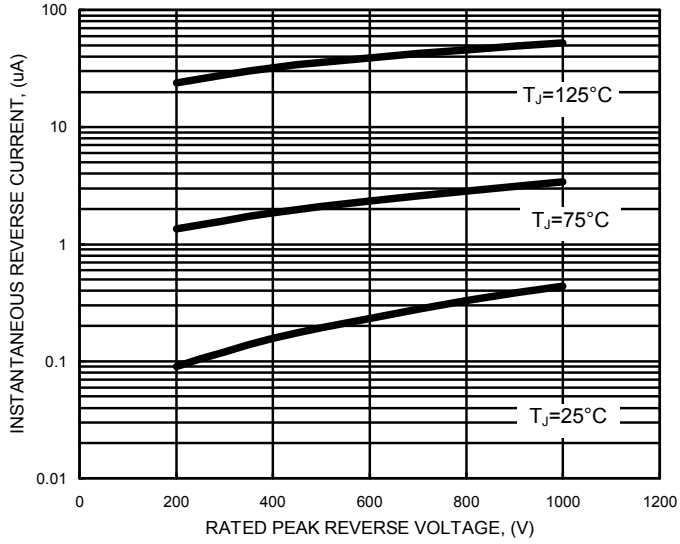


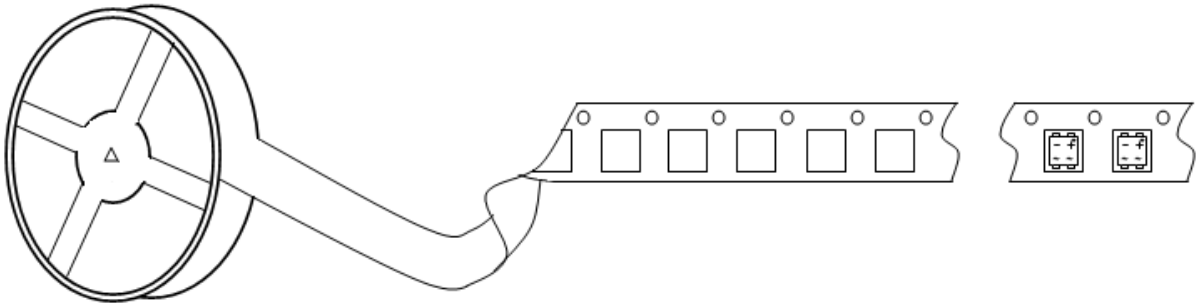
FIG.5- TYPICAL REVERSE CHARACTERISTICS



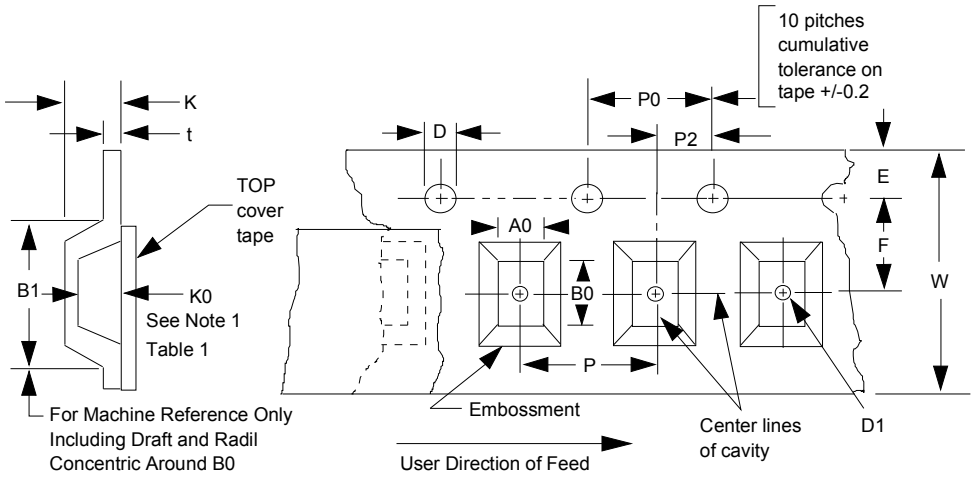
PACKING INFORMATION
MSB12M

Packaging Information :

DEVICE	Q'TY/REEL (PCS)	REEL DIA. (mm)	BOX SIZE (mm)	Q'TY/BOX (PCS)	CARTON SIZE (mm)	Q'TY/CARTON (PCS)	MOQ
MSB12M	3000	330	334x334x21	3000	365x365x355	36K	36K



Embossed Carrier Dimension :



UNIT: mm

TAPE SIZE	D	E	PO	t (MAX)	A0	B0	K0
12mm	1.55+0.10/-0.0	1.75+/-0.10	4.0+/-0.10	0.4	4.8+/-0.1	6.0+/-0.1	1.5+/-0.1
	B1 (MAX)	D1 (MIN)	F	K (MAX)	P2	W	P
	8.2	1.5	5.5+/-0.1	2.2	2.0+/-0.05	12.0+/-.30	8.0+/-0.1

Typical IR Reflow Soldering Thermal Profile :

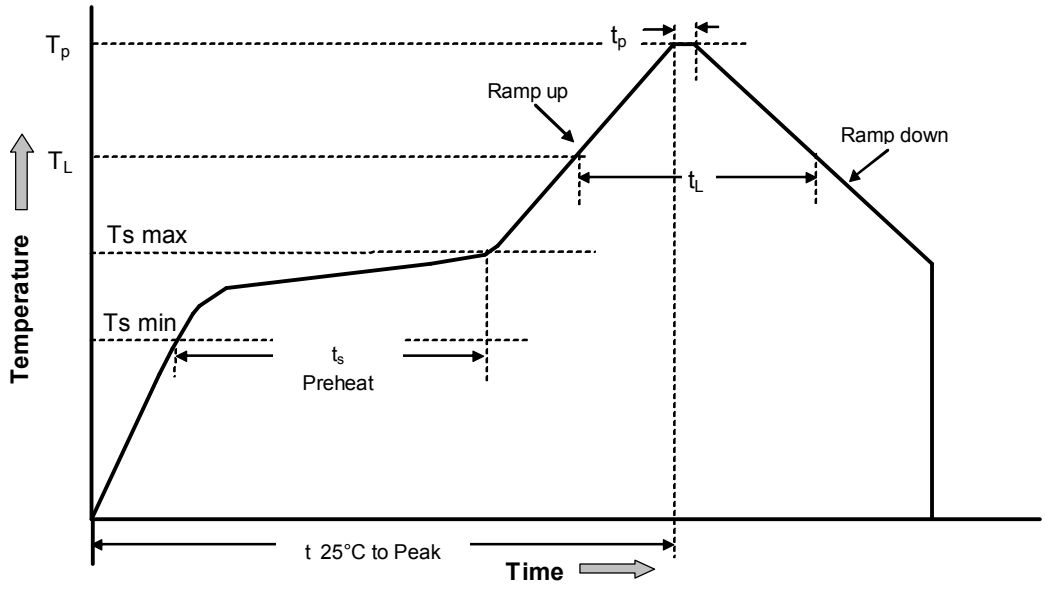


Table 1- Reflow profile

Reflow condition	Sn-Pb assembly	Pb-free assembly
Average ramp-up rate (Liquidus Temperautre (TL) to Peak)	3 °C/second max.	3 °C/second max.
Preheat --Tempautre Min, Ts (Min) --Temperature Max, Ts (Max) --Time (min to max, ts)	 100 °C 150 °C 60-120 seconds	 150 °C 200 °C 60-180 seconds
Ts(max) to TL - Ramp-up Rate		3 °C/second max.
Time maintained above: --Temperature(TL) --Time(tL)	 183 °C 60-150 seconds	 217 °C 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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