

**GLASS PASSIVATED
SURFACE MOUNT BRIDGE RECTIFIERS**
**REVERSE VOLTAGE – 1000 Volts
FORWARD CURRENT – 3.0 Ampere**
GENERAL DESCRIPTION

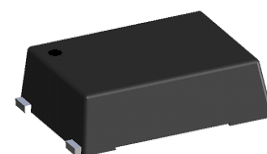
Suitable for AC-to-DC bridge full wave rectification for SMPS, LED lighting, adapter, battery charger, home appliances, office equipment, and telecommunication applications.

FEATURES

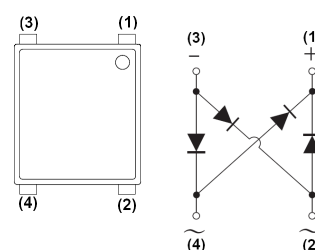
- Rated at 1000V PRV
- Compact, thin profile package design
- Ideal for SMT manufacturing
- Reliable robust construction
- UL recognized file#E364304

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 @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristics	Symbol	Limit	Unit
Maximum Repetitive Peak Reverse Voltage	V_{RRM}	1000	V
Maximum DC Blocking Voltage	V_{DC}	1000	V
Maximum Average Forward Rectified Current @ $T_c = 120^\circ\text{C}$	$I_{(AV)}$	3.0	A
Peak Forward Surge Current 8.3ms single half sine-wave @ $T_J = 25^\circ\text{C}$ @ $T_J = 125^\circ\text{C}$	I_{FSM}	100 80	A
Peak Forward Surge Current 1.0ms single half sine-wave @ $T_J = 25^\circ\text{C}$ @ $T_J = 125^\circ\text{C}$	I_{FSM}	200 160	A
$I^2 t$ Rating for fusing ($1\text{ms} < t < 8.3\text{ms}$)	$I^2 t$	26.56	A^2S
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

Characteristics	Test Condition	Symbol	Min	Typ.	Max	Unit
Maximum Forward Voltage @ $T_J = 25^\circ\text{C}$ @ $T_J = 125^\circ\text{C}$	$I_F = 1.5\text{A}$	V_F	--	--- 0.80	1.02 ---	V
Maximum Forward Voltage @ $T_J = 25^\circ\text{C}$ @ $T_J = 125^\circ\text{C}$	$I_F = 3.0\text{A}$	V_F	--	--- 0.88	1.1 --	V
Maximum DC Reverse Current at Rated DC Blocking Voltage @ $T_J = 25^\circ\text{C}$ @ $T_J = 125^\circ\text{C}$	$V_R = 1000\text{V}$	I_R	--	--	5 500	μA
Typical junction capacitance per element	Note(1)	C_J	--	35	--	pF

Thermal Characteristics

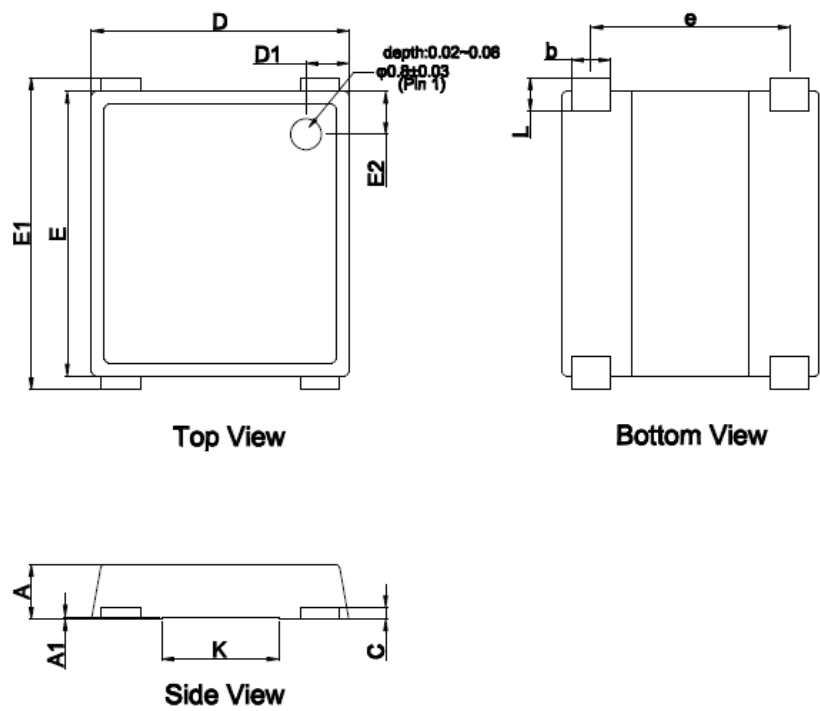
Characteristics	Symbol	Min	Typ.	Max	Unit
Typical thermal resistance (Note 2)	$R_{\theta JC}$	--	8	--	$^\circ\text{C/W}$
	$R_{\theta JL}$	--	15	--	
	$R_{\theta JA}$	--	25	--	

Note :

- (1) Measured at 1.0MHz and applied reverse voltage of 4.0V DC.
- (2) 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

REV.2, Jul-2017, KBDA41

Package Dimension



MSBL			
Dim.	Min.	Typ.	Max.
A	1.30	1.40	1.50
A1	0.04	0.06	0.08
C	0.27	0.30	0.40
D	6.50	6.60	6.70
D1	0.95	1.10	1.25
E	7.20	7.30	7.40
E1	8.20	8.50	8.80
E2	0.95	1.10	1.25
L	0.90	1.10	1.15
b	0.95	1.00	1.15
e	5.00	5.10	5.20
K	2.90	3.00	3.10
All dimensions in millimeter			

RATING AND CHARACTERISTIC CURVES MSB30M



FIG.1-FORWARD CURRENT DERATING CURVE

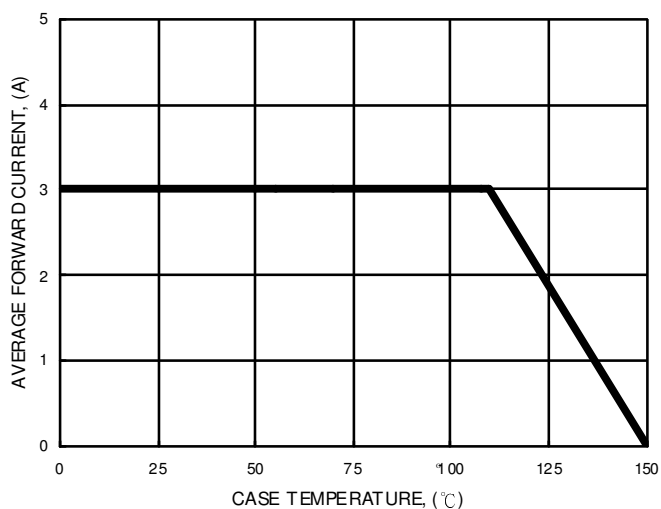


FIG.2- MAXIMUM NON-REPETITIVE SURGE CURRENT

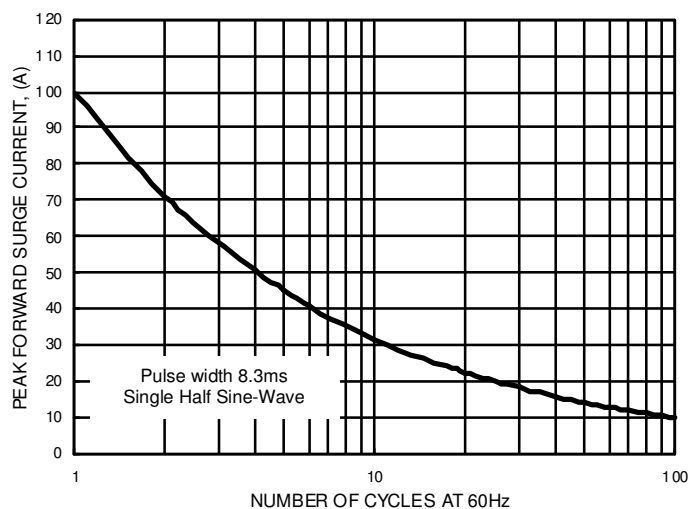


FIG.3- TYPICAL FORWARD CHARACTERISTICS

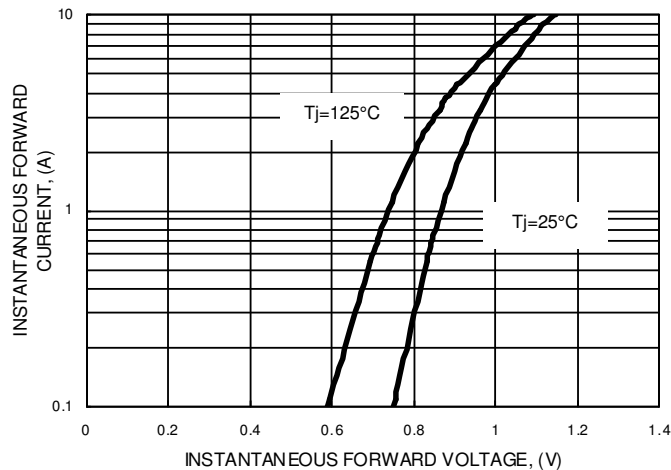


FIG.4- TYPICAL JUNCTION CAPACITANCE

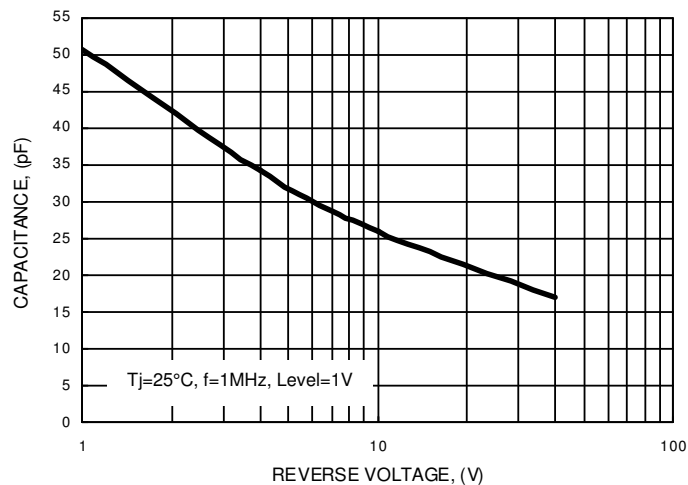


FIG.5- TYPICAL REVERSE CHARACTERISTICS

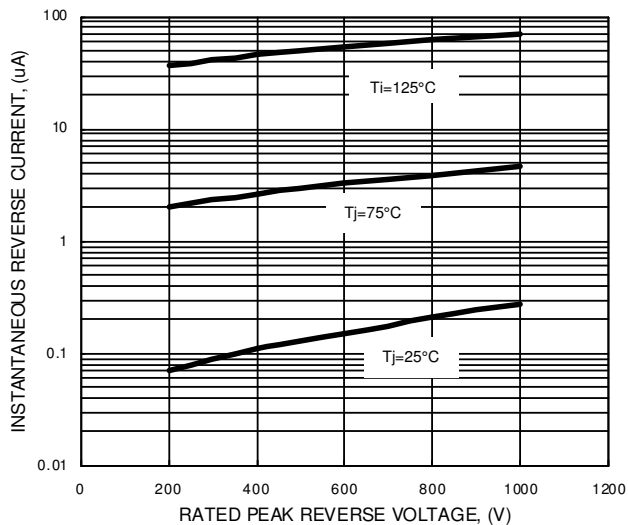
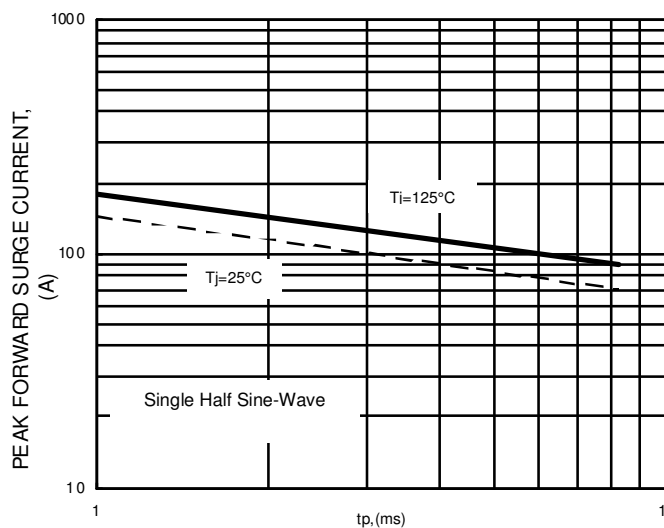


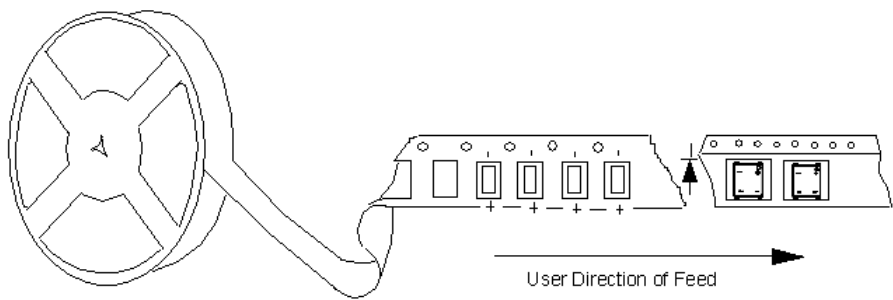
FIG.6- NON-REPETITIVE SURGE CURRENT



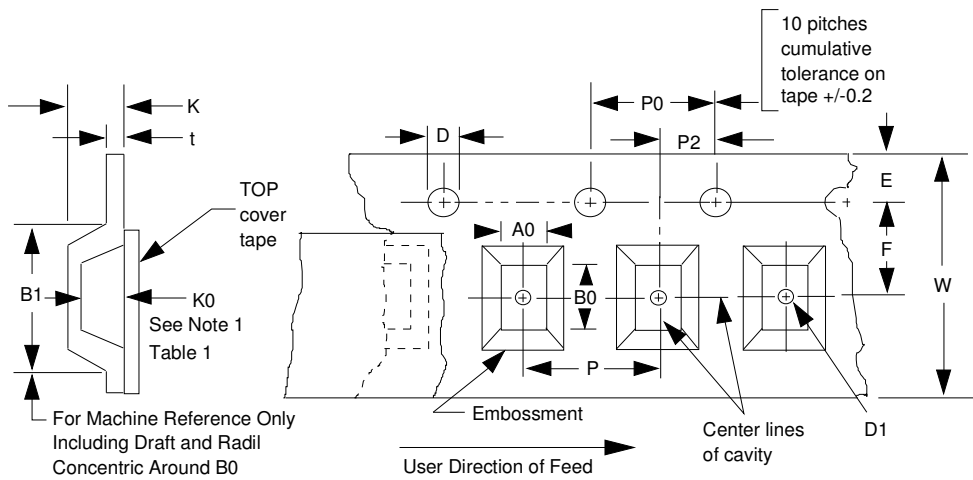
Packaging Information

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

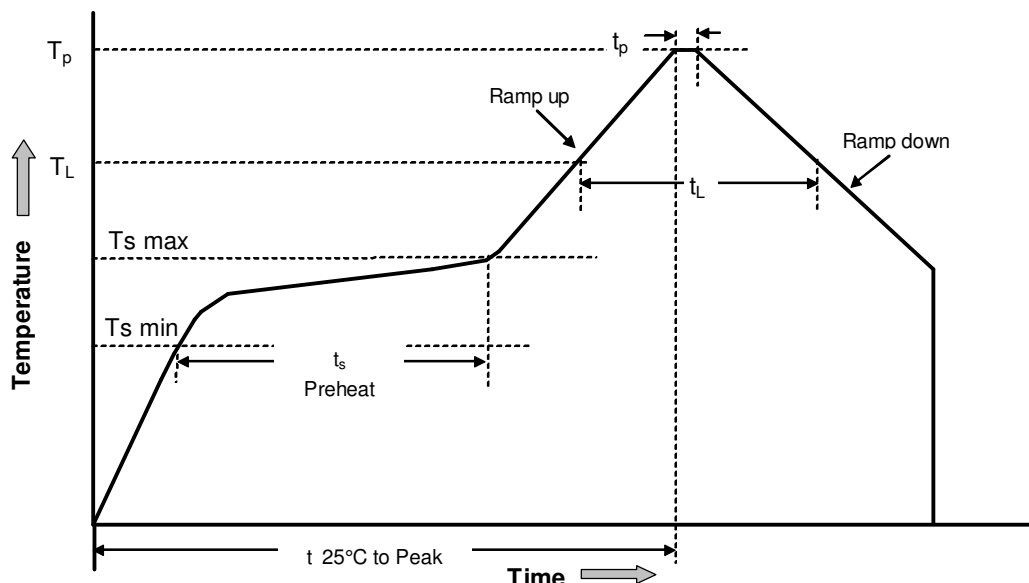


Table 1- Reflow profile

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		
- Ramp-up Rate		3 °C/second max.
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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