

MB2M THRU MB10M

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MB2M THRU MB10M

0.8A Glass Passivated Single-Phase Bridge Rectifiers-200-1000V

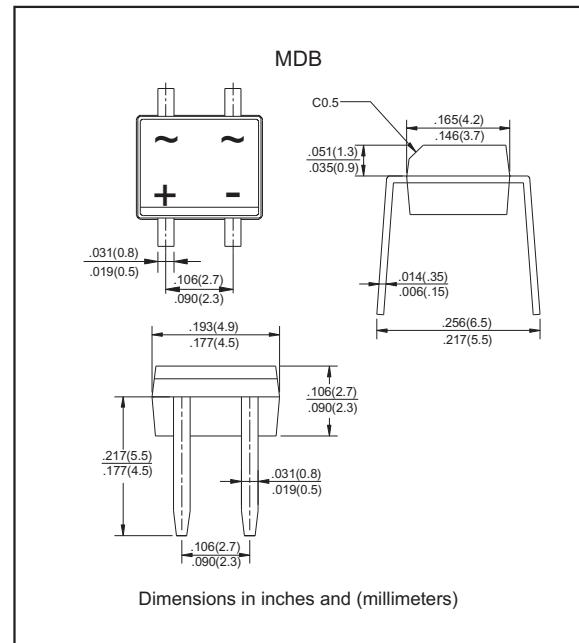
Features

- Surge overload ratings to 30 amperes peak.
- Ideal for printed circuit board.
- Reliable low cost construction utilizing molded plastic technique results in inexpensive product.
- Lead tin plated copper.
- Glass passivated chip junctions.
- Lead-free parts meet RoHS requirements.
- Suffix "-H" indicates Halogen-free parts, ex.MB2M-H.

Mechanical data

- Epoxy:UL94-V0 rated flame retardant
- Case : Molded plastic, MDB
- Terminals : Solder plated, solderable per MIL-STD-750, Method 2026
- Polarity : marked on body
- Mounting Position : Any
- Weight : Approximated 0.13 gram

Package outline



Maximum ratings and Electrical Characteristics (AT $T_A=25^{\circ}\text{C}$ unless otherwise noted)

PARAMETER	CONDITIONS	Symbol	MIN.	TYP.	MAX.	UNIT
Forward rectified current	See Fig.1	I_O			0.8	A
Forward surge current	8.3ms single half sine-wave superimposed on rate load (JEDEC methode)	I_{FSM}			30	A
Reverse current	$V_R = V_{RRM} \quad T_J = 25^{\circ}\text{C}$	I_R			5.0	uA
	$V_R = V_{RRM} \quad T_J = 125^{\circ}\text{C}$				500	
I^2t Rating for fusing	$t < 8.3\text{ms}$	I^2t			3.74	A^2s
Junction Capacitance Per Element	Measured at 1.0MHz and applied reverse voltage of 4.0V DC.	C_J		15		pF
Thermal Resistance	Thermal resistance junction to case	$R_{\theta JC}$		75		$^{\circ}\text{C/W}$
Storage temperature		T_{STG}	-65		+175	$^{\circ}\text{C}$

SYMBOLS	V_{RRM}^{*1} (V)	V_{RMS}^{*2} (V)	V_R^{*3} (V)	V_F^{*4} (V)	Operating temperature T_J ($^{\circ}\text{C}$)
MB2M	200	140	200	1.10	-55 to +150
MB4M	400	280	400		
MB6M	600	420	600		
MB8M	800	560	800		
MB10M	1000	700	1000		

*1 Repetitive peak reverse voltage

*2 RMS voltage

*3 Continuous reverse voltage

*4 Maximum forward voltage@ $I_F=0.8\text{A}$

Rating and characteristic curves (MB2M THRU MB10M)

FIG.1-FORWARD CURRENT DERATING CURVE

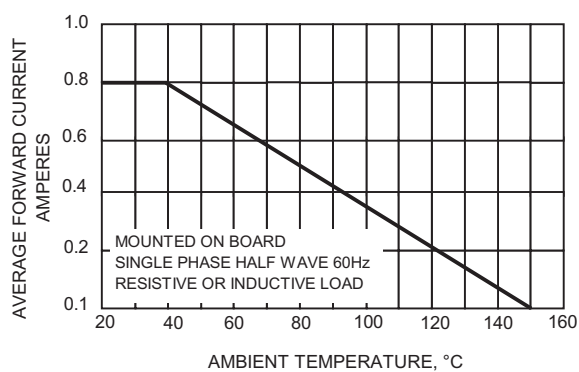


FIG.2-MAXIMUM NON-REPETITIVE SURGE CURRENT

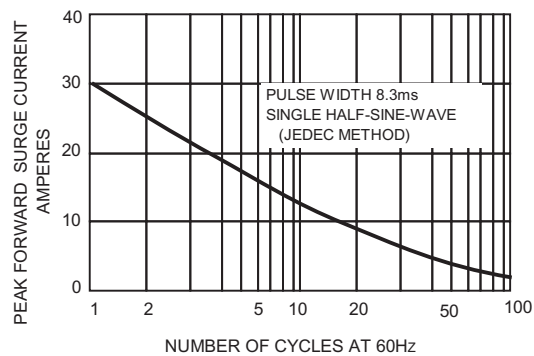


FIG.3-TYPICAL REVERSE CHARACTERISTICS

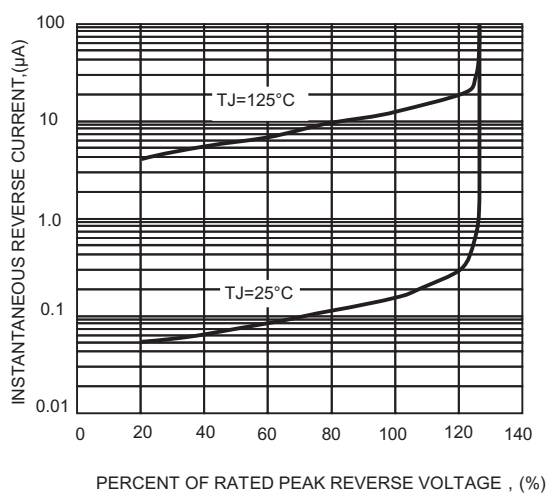


FIG.4-TYPICAL FORWARD CHARACTERISTICS

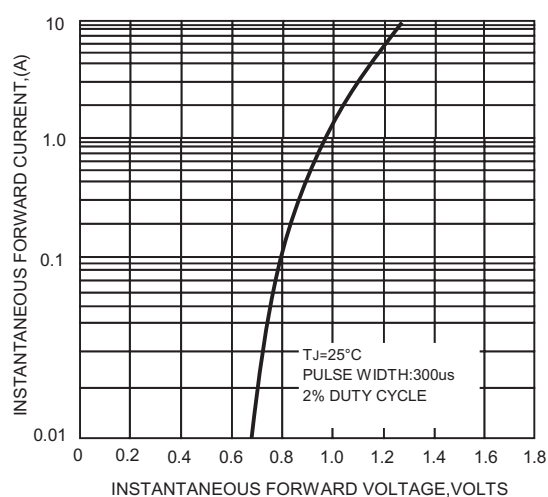
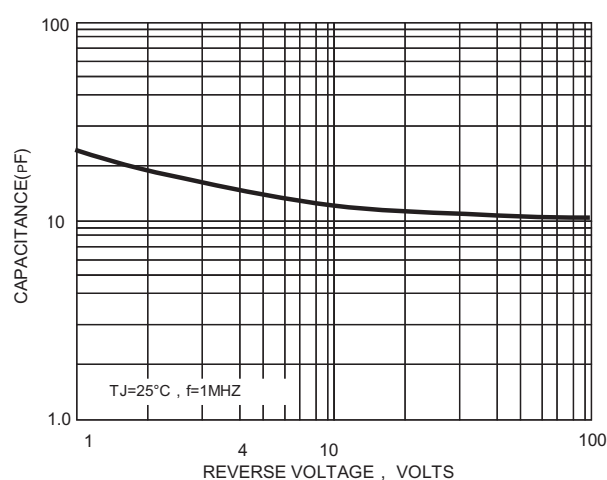
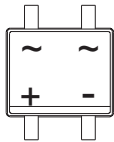
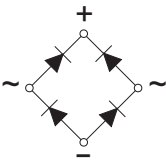


FIG.5-TYPICAL JUNCTION CAPACITANCE



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Pinning information

Simplified outline	Symbol
	

Marking

Type number	Marking code
MB2M	MB2M
MB4M	MB4M
MB6M	MB6M
MB8M	MB8M
MB10M	MB10M

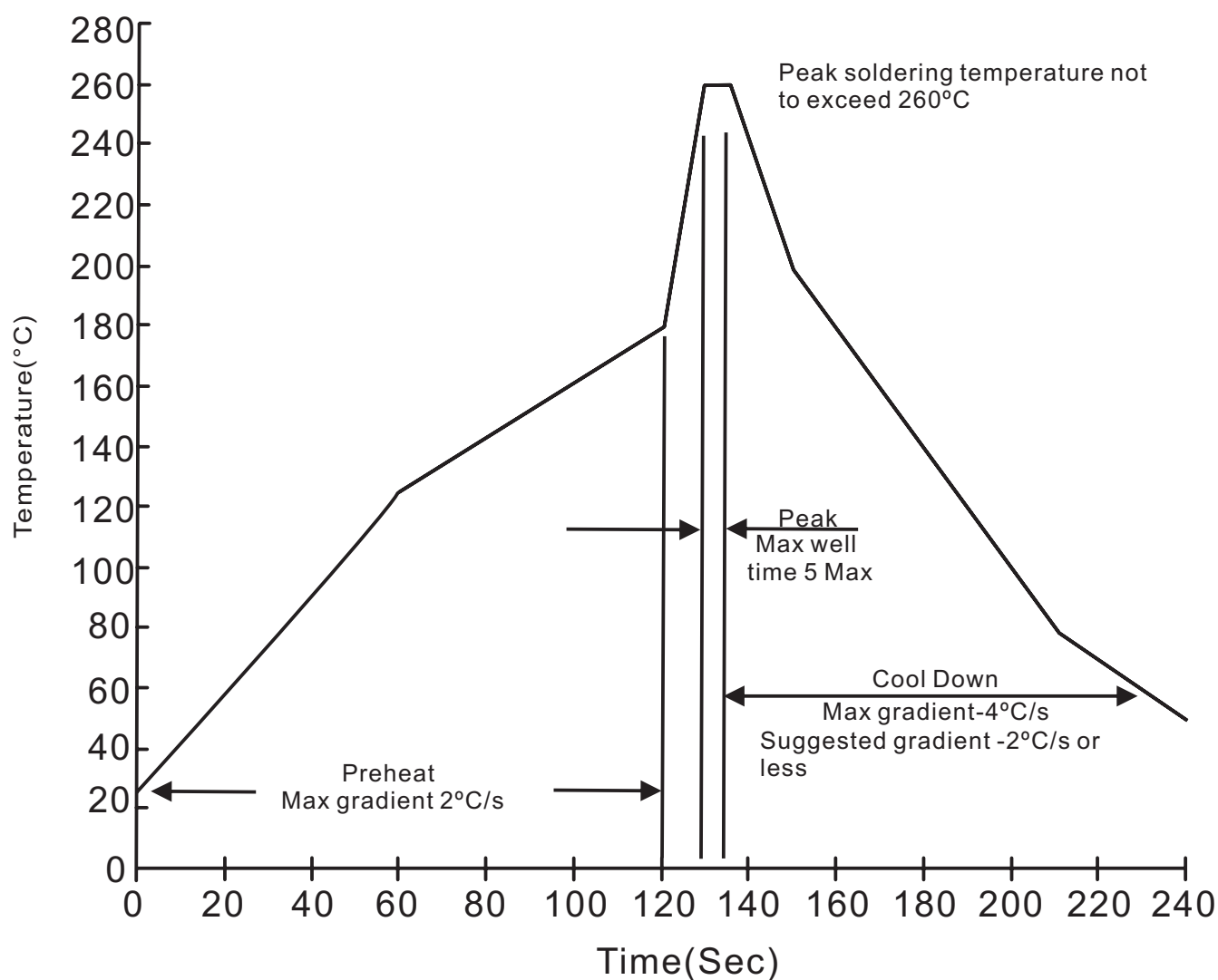
Tube packing

PACKAGE	TUBE (pcs)	TUBE SIZE (m/m)	CARTON SIZE (m/m)	CARTON (pcs)	APPROX. GROSS WEIGHT (kg)
MDB	100	480*8.5*8.1	548*226*100	20,000	5.9

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Suggested thermal profiles for soldering processes

1. Lead free temperature profile wave-soldering



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High reliability test capabilities

Item Test	Conditions	Reference
1. Solder Resistance	at $260 \pm 5^{\circ}\text{C}$ for $10 \pm 2\text{sec.}$ immerse body into solder $1/16" \pm 1/32"$	MIL-STD-750D METHOD-2031
2. Solderability	at $245 \pm 5^{\circ}\text{C}$ for 5 sec.	MIL-STD-202F METHOD-208
3. High Temperature Reverse Bias	$V_R = 80\%$ rate at $T_J = 150^{\circ}\text{C}$ for 168 hrs.	MIL-STD-750D METHOD-1038
4. Forward Operation Life	Rated average rectifier current at $T_A = 25^{\circ}\text{C}$ for 500hrs.	MIL-STD-750D METHOD-1027
5. Intermittent Operation Life	$T_A = 25^{\circ}\text{C}$, $I_F = I_O$ On state: power on for 5 min. off state: power off for 5 min. on and off for 500 cycles.	MIL-STD-750D METHOD-1036
6. Pressure Cooker	$15P_{SIG}$ at $T_A = 121^{\circ}\text{C}$ for 4 hrs.	JESD22-A102
7. Temperature Cycling	-55°C to $+125^{\circ}\text{C}$ dwelled for 30 min. and transferred for 5min. total 10 cycles.	MIL-STD-750D METHOD-1051
8. Thermal Shock	0°C for 5 min. rise to 100°C for 5 min. total 10 cycles.	MIL-STD-750D METHOD-1056
9. Forward Surge	8.3ms single half sine-wave superimposed on rated load, one surge.	MIL-STD-750D METHOD-4066-2
10. Humidity	at $T_A = 85^{\circ}\text{C}$, RH=85% for 1000hrs.	MIL-STD-750D METHOD-1021
11. High Temperature Storage Life	at 175°C for 1000 hrs.	MIL-STD-750D METHOD-1031