

International
IOR Rectifier

Bulletin I2715 rev. E 08/97

MB & JB SERIES

SINGLE PHASE BRIDGE

Power Modules

Features

- Universal, 3 way terminals:
push-on, wrap around or solder
- High thermal conductivity package,
electrically insulated case
- Center hole fixing
- Excellent power/volume ratio
- UL E 62320 approved 

10 A
25 A
35 A

Description

A range of extremely compact, encapsulated single phase bridge rectifiers offering efficient and reliable operation. They are intended for use in general purpose and instrumentation applications.

Major Ratings and Characteristics

Parameters	100JB-L	26MB-A 250JB-L	36MB-A 35MB-A	Units
I_O	10	25	35	A
@ T_C	65	65	60	°C
I_{FSM} @ 50Hz	148	400	475	A
@ 60Hz	155	420	500	A
I^2t @ 50Hz	110	790	1130	A ² s
@ 60Hz	100	725	1030	A ² s
V_{RRM} range	50 to 1600			V
T_J	-40 to 150			°C



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ELECTRICAL SPECIFICATIONS

Voltage Ratings

Typenumber	Voltage Code	V_{RRM} , maximum repetitive peak reverse voltage V	V_{RSM} , maximum non-repetitive peak rev. voltage V	I_{RRM} max. @ T_J max. mA
100JB..L 26MB..A 250JB..L 36MB..A 35MB..A	5	50	75	2
	10	100	150	
	20	200	275	
	40	400	500	
	60	600	725	
	80	800	900	
	100	1000	1100	
	120	1200	1300	
	140	1400	1500	
	160	1600	1700	

Forward Conduction

Parameters	100JB-L 250JB-L	26MB-A 35MB-A	36MB-A 35MB-A	Units	Conditions
I_O Maximum DC output current @ Case temperature	10	25	35	A	Resistive or inductive load
	8	20	28	A	Capacitive load
	65	65	60	°C	
I_{FSM} Maximum peak, one-cycle non-repetitive forward current	148	400	475	A	t = 10ms No voltage reappplied
	155	420	500		t = 8.3ms 100% V_{RRM} reappplied
	125	335	400		t = 10ms 100% V_{RRM} reappplied
	130	350	420		t = 8.3ms 100% V_{RRM} reappplied
I^2t Maximum I^2t for fusing	110	790	1130	A ² s	t = 10ms No voltage reappplied
	100	725	1030		t = 8.3ms 100% V_{RRM} reappplied
	78	560	800		t = 10ms 100% V_{RRM} reappplied
	71	512	730		t = 8.3ms 100% V_{RRM} reappplied
$I^2\sqrt{t}$ Maximum $I^2\sqrt{t}$ for fusing	1.1	5.6	11.3	KA ² √s	I^2t for time $t_x = I^2\sqrt{t} \times \sqrt{t_x}$; 0.1 ≤ t_x ≤ 10ms, $V_{RRM} = 0V$
$V_{F(TO)1}$ Low-level of threshold voltage	1.00	0.76	0.79	V	(16.7% $\times \pi \times I_{F(AV)} < I < \pi \times I_{F(AV)}$), @ T_J max.
$V_{F(TO)2}$ High-level of threshold voltage	1.17	0.92	0.96		($I > \pi \times I_{F(AV)}$), @ T_J max.
r_{t1} Low-level forward slope resistance	15.4	6.8	5.8	mΩ	(16.7% $\times \pi \times I_{F(AV)} < I < \pi \times I_{F(AV)}$), @ T_J max.
r_{t2} High-level forward slope resistance	10.8	5.0	4.5		($I > \pi \times I_{F(AV)}$), @ T_J max.
V_{FM} Maximum forward voltage drop	1.3	1.11	1.14	V	$T_J = 25^\circ\text{C}$, $I_{FM} = I_{Favg(arm)} \times \pi$, $t_p = 400\mu\text{s}$
I_{RRM} Max. DC reverse current	10	10	10	μA	$T_J = 25^\circ\text{C}$, per diode at V_{RRM}
V_{INS} RMS isolation voltage base plate	2700	2700	2700	V	f = 50 Hz, t = 1s

Thermal and Mechanical Specifications

Parameters	100JB-L	26MB-A 250JB-L	36MB-A 35MB-A	Units	Conditions
T_j Junction temperature range	-40 to 150			°C	
T_{stg} Storage temperature range	-40 to 150			°C	
R_{thJC} Max. thermal resistance junction to case	3.5	1.7	1.2	K/W	Per bridge
R_{thCS} Max. thermal resistance, case to heatsink	0.2			K/W	Mounting surface, smooth, flat and greased
wt Approximate weight	20			g	
T Mounting Torque $\pm 10\%$	2.0			Nm	Bridge to heatsink

Ordering Information Table

Device Code			
36	MB	160	A
1	2	3	4
1	Current rating code:		
2	Circuit configuration:		
	JB = Single phase american coding		
	MB = Single phase european coding		
3	Voltage code: MB series = code x 10 = V_{RRM}		
	JB series = code x 100 = V_{RRM}		
4	Diode bridge rectifier:		
	A = 26MB, 36MB, 35MB Series		
	L = 100JB and 250JB Series		

Outline Table

0.8 (.03) 6.3 (.25) 10.5 (.41) 20.3 (.80) 21.5 (0.85) 9.5 (0.37) 28.5 (1.12) 5 (0.20)	Suggested plugging force: 200 N max; axially applied to faston terminals	
Not To Scale		

All dimensions in millimetres (inches)

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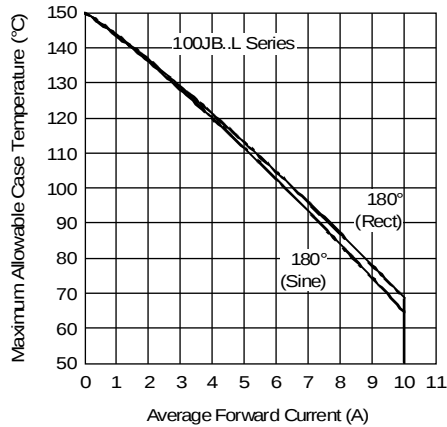


Fig. 1 - Current Ratings Characteristics

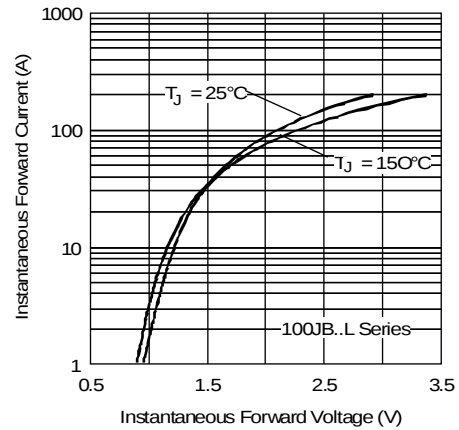


Fig. 2 - Forward Voltage Drop Characteristics

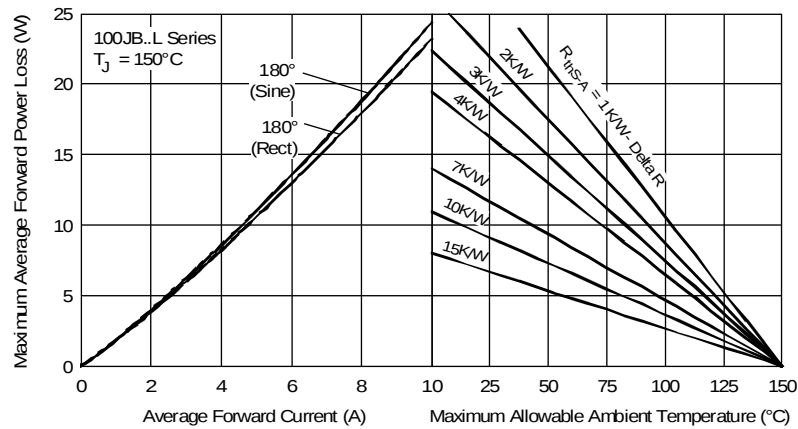


Fig. 3 - Total Power Loss Characteristics

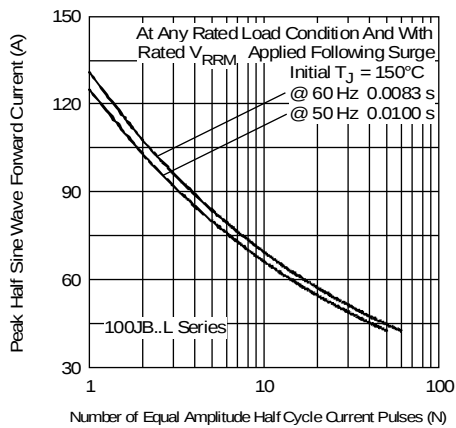


Fig. 4 - Maximum Non-Repetitive Surge Current

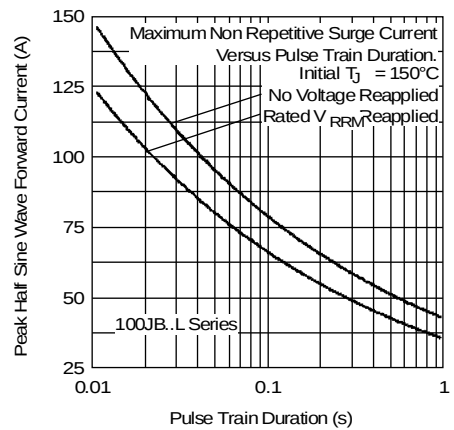


Fig. 5 - Maximum Non-Repetitive Surge Current

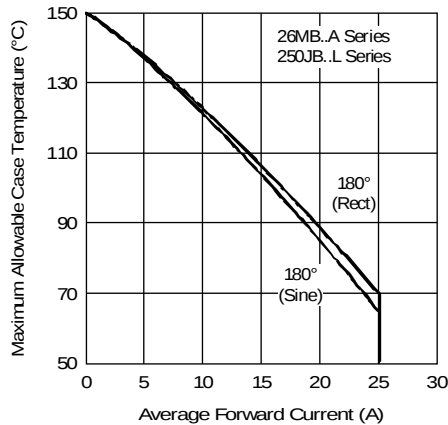


Fig. 6 - Current Ratings Characteristics

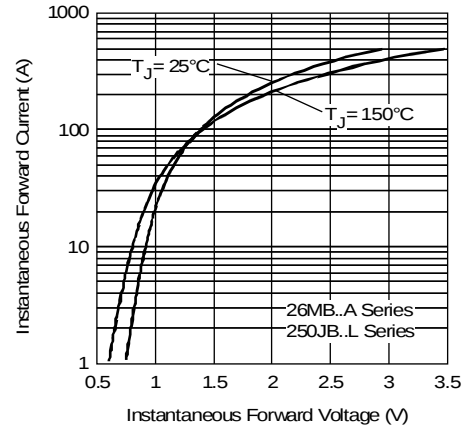


Fig. 7 - Forward Voltage Drop Characteristics

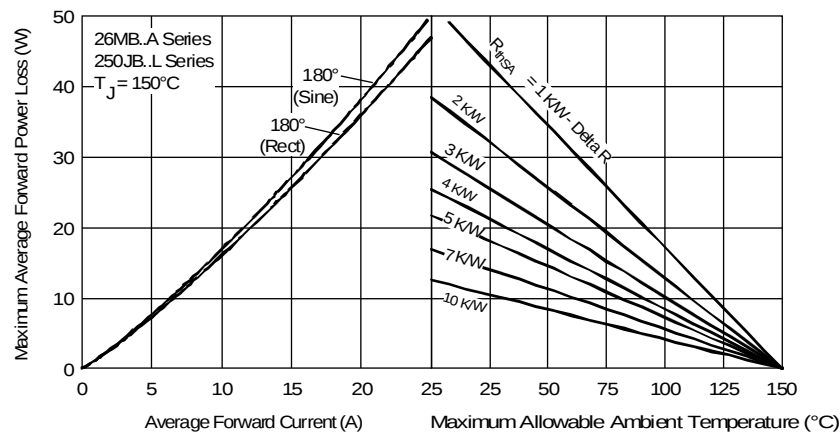


Fig. 8 - Total Power Loss Characteristics

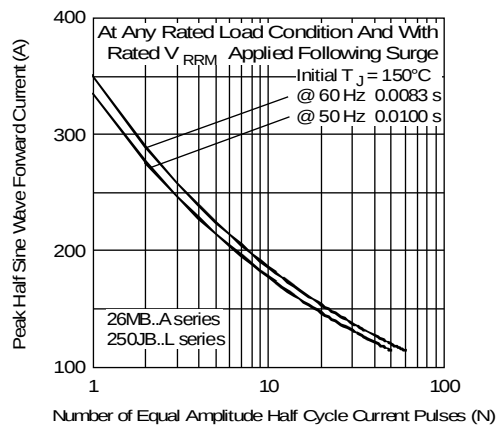


Fig. 9 - Maximum Non-Repetitive Surge Current

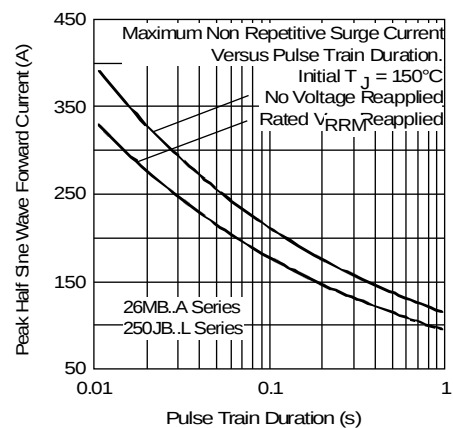


Fig. 10 - Maximum Non-Repetitive Surge Current

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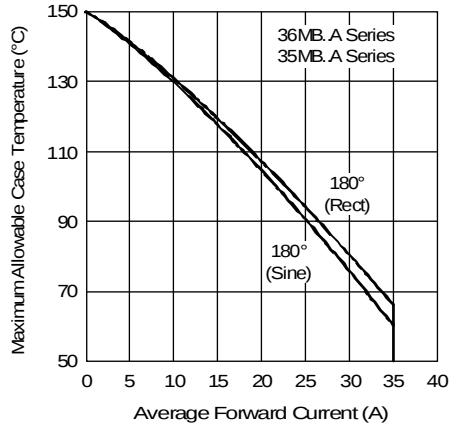


Fig. 11 - Current Ratings Characteristics

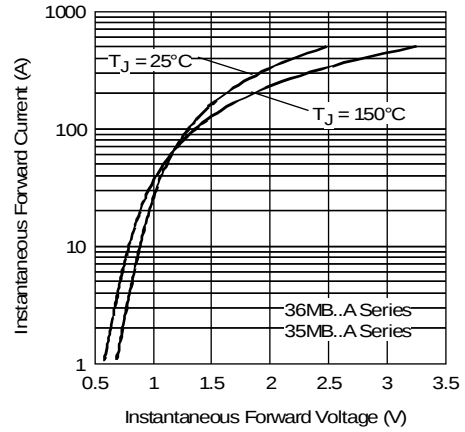


Fig. 12 - Forward Voltage Drop Characteristics

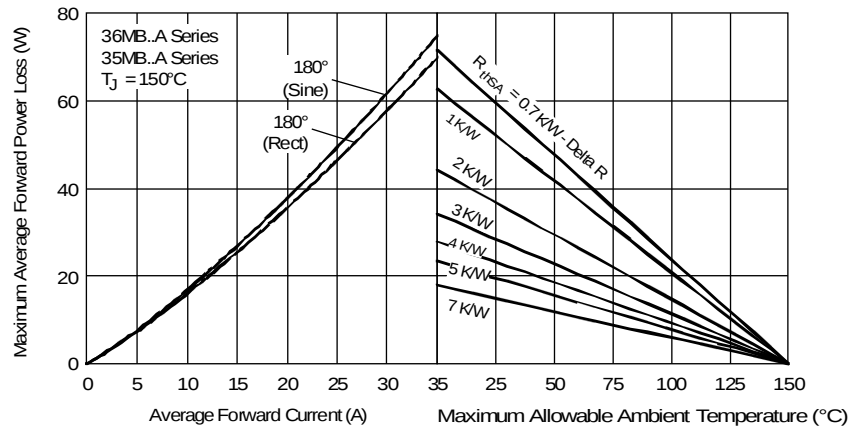


Fig. 13 - Total Power Loss Characteristics

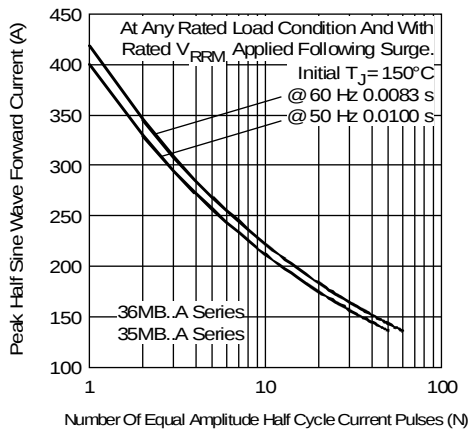


Fig. 14 - Maximum Non-Repetitive Surge Current

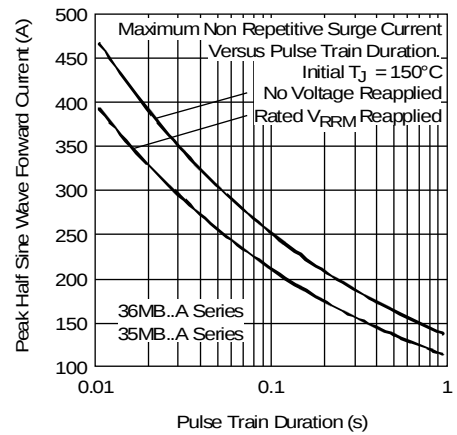


Fig. 15 - Maximum Non-Repetitive Surge Current