Bridge Rectifiers, 0.5 A

MB10S

Description

The MB family of bridge rectifiers is a 0.5 A rectifier family that achieves high surge current absorption within a very small foot print. Within its small 35 mm^2 form factor, the MB family shines in its surge capability. In order to absorb high surge currents, the design supports a 35 A I_{FSM} rating and a 5.0 A^2Sec I^2T rating. Devices in the family are also rated to breakdown voltages of up to 1000 V. These features make the MB family ideal for small power supplies that need a little extra surge capability.

Features

- Low−Leakage
- Surge Overload Rating: 35 A peak
- Ideal for Printed Circuit Board
- UL Certified: UL #E258596
- This Device is Pb−Free and RoHS Compliant

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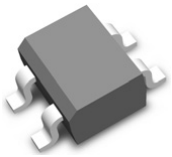
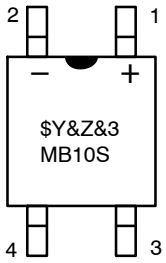


SOIC4 W
CASE 751EP

MARKING DIAGRAM



$Y	= ON Semiconductor Logo
&Z	= Assembly Plant Code
&3	= 3−Digit Data Code (Year & Week)
MB10S	= Specific Device Code

ORDERING INFORMATION

See detailed ordering and shipping information on page 2 of this data sheet.

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ABSOLUTE MAXIMUM RATINGS

(Values are at T_A = 25°C unless otherwise noted)

Symbol	Parameter	Value	Unit
V_{RRM}	Maximum Repetitive Reverse Voltage	1000	V
V_{RMS}	Maximum RMS Bridge Input Voltage	700	V
V_R	DC Reverse Voltage (Rated V_R)	1000	V
$I_{F(AV)}$	Average Rectified Forward Current at T_A = 50°C On Glass−Epoxy PCB On Aluminum Substrate	 0.5 0.8	A
I_{FSM}	Non−Repetitive Peak Forward Surge Current: 8.3 ms Single Half−Sine−Wave	35	A
T_{STG}	Storage Temperature Range	−55 to +150	°C
T_J	Operating Junction Temperature Range	−55 to +150	°C

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

THERMAL CHARACTERISTICS

Symbol	Parameter	Value	Unit
P_D	Power Dissipation	1.4	W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient, per Leg (Note 1)	85	°C/W
$R_{\theta JL}$	Thermal Resistance, Junction to Lead, per Leg (Note 1)	20	°C/W

1. Device mounted on PCB with 0.5 × 0.5 inch (13 × 13 mm) lead length.

ELECTRICAL CHARACTERISTICS (Values are at T_A = 25°C unless otherwise noted)

Symbol	Parameter	Conditions	Value	Unit
V_F	Maximum Forward Voltage, per Diode	I_F = 0.5 A	1.0	V
I_R	Maximum Reverse Current, per Diode at Rated V_R	T_A = 25°C	5.0	μA
		T_A = 125°C	0.5	mA
I^2t	I^2t Rating for Fusing	t < 8.3 ms	5.0	A^2s
C_T	Typical Capacitance, per Diode	V_R = 4.0 V, f = 1.0 MHz	13	pF

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

ORDERING INFORMATION

Part Number	Marking	Package	Shipping†
MB10S	MB10S	SOIC4 W (Pb−Free)	3,000 / Tape & Reel

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

TYPICAL PERFORMANCE CHARACTERISTICS

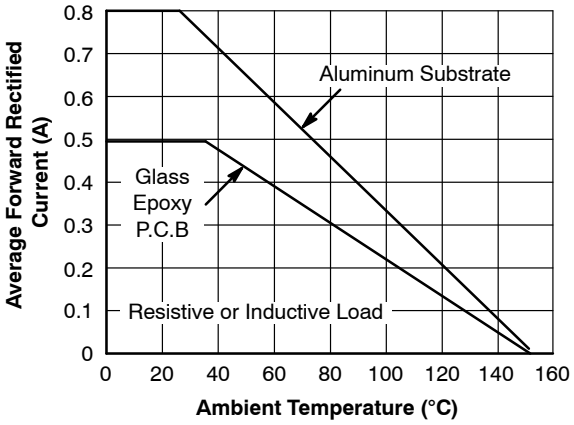

Figure 1. Derating Curve for Output Rectified Current

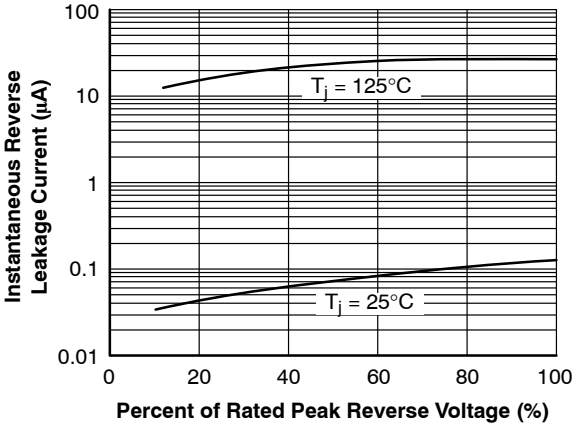

Figure 2. Typical Reverse Leakage Characteristics Per Leg

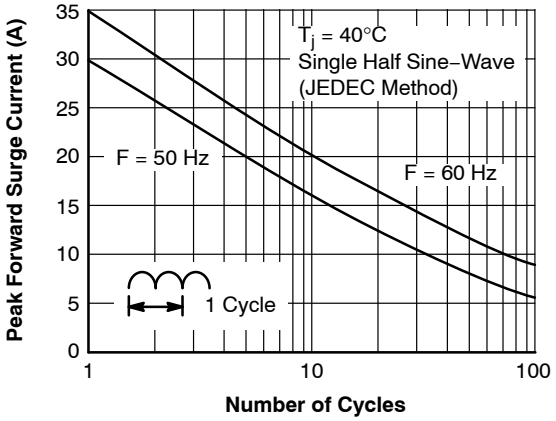

Figure 3. Maximum Non−Repetitive Peak Forward Surge Current Per Leg

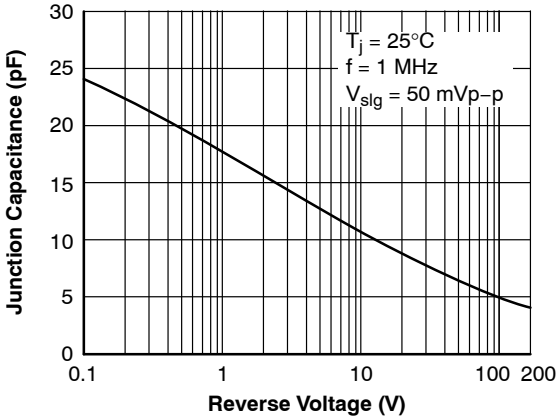

Figure 4. Typical Junction Capacitance Per Leg

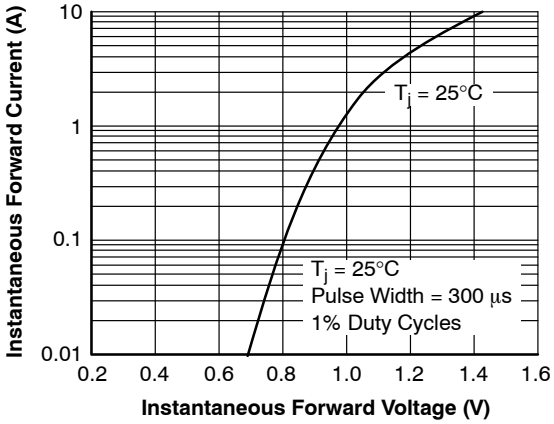

Figure 5. Typical Forward Voltage Characteristics Per Leg

MECHANICAL CASE OUTLINE
PACKAGE DIMENSIONS

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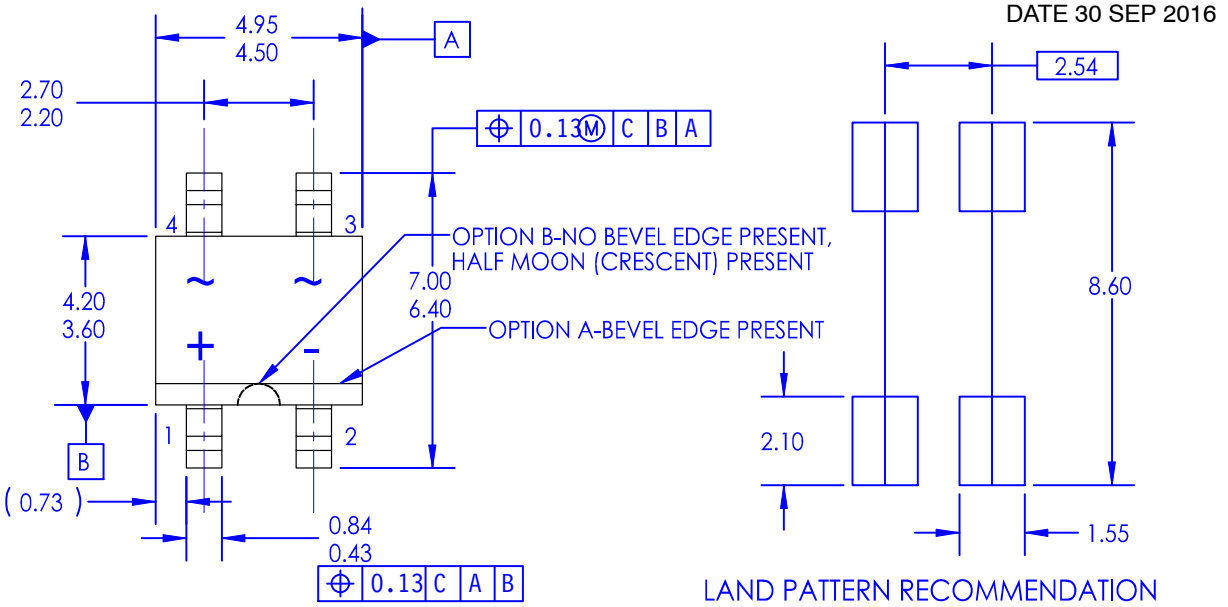
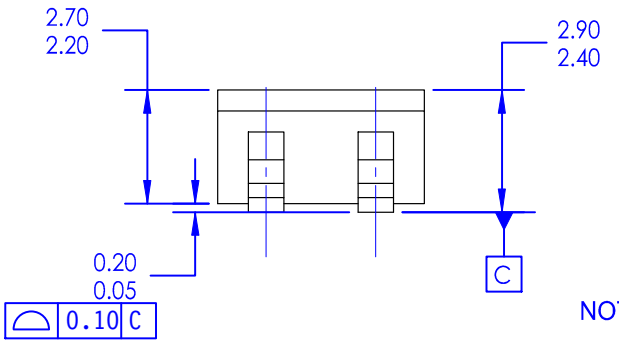
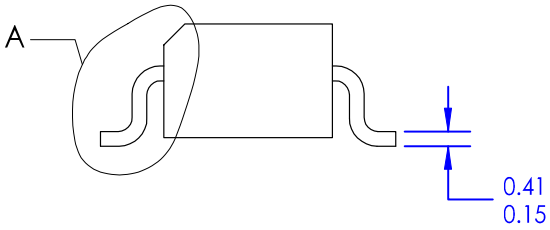


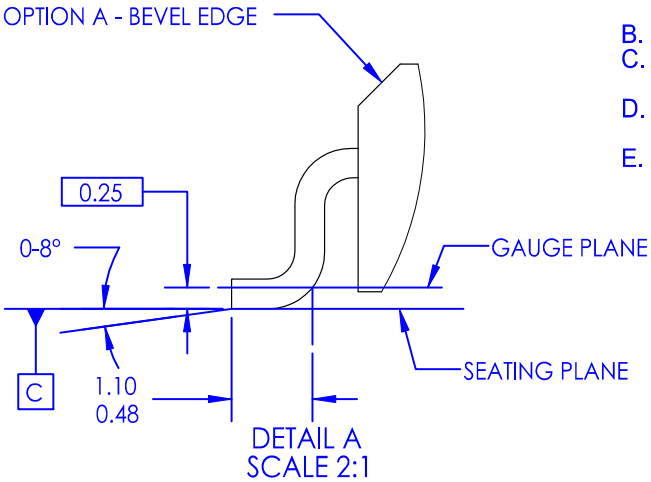
LAND PATTERN RECOMMENDATION





NOTES: UNLESS OTHERWISE SPECIFIED

A. THIS PACKAGE DOES NOT CONFORM TO JEDEC TO269AA
B. ALL DIMENSIONS ARE IN MILLIMETERS.
C. DIMENSIONS ARE EXCLUSIVE OF BURRS, MOLD FLASH AND TIE BAR EXTRUSIONS.
D. DIMENSIONS AND TOLERANCES AS PER ASME Y14.5-2009.
E. LAND PATTERN AS PER IPC7351# SOIC254P960X400-4N



DETAIL A
SCALE 2:1

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