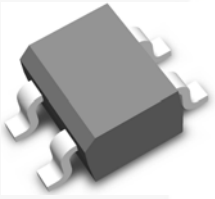
April 2014

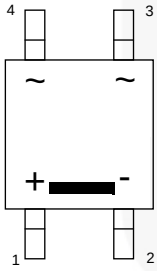
MB1S - MB8S
0.5 A Bridge Rectifiers

Features

- Low-Leakage
- Surge Overload Rating: 35 A peak
- Ideal for Printed Circuit Board
- UL Certified: UL #E258596



SOIC-4
Polarity symbols molded
or mark on body



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.

For higher I_{FAV} current ratings, lower profile packaging, or lower V_F values, explore the Fairchild MDB family of bridge rectifiers. For improved V_F and efficiency values in the MB package or even higher surge capability, ask about Fairchild's pending MBxSV family.

Ordering Informations

Part Number	Marking	Package	Packing Method
MB1S	MB1S	SOIC-4	Tape and Reel
MB2S	MB2S		
MB4S	MB4S		
MB6S	MB6S		
MB8S	MB8S		

Absolute Maximum Ratings

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only. Values are at T_A = 25°C unless otherwise noted.

Symbol	Parameter	Value					Unit
		MB1S	MB2S	MB4S	MB6S	MB8S	
V_{RRM}	Maximum Repetitive Reverse Voltage	100	200	400	600	800	V
V_{RMS}	Maximum RMS Bridge Input Voltage	70	140	280	420	560	V
V_R	DC Reverse Voltage (Rated V_R)	100	200	400	600	800	V
$I_{F(AV)}$	Average Rectified Forward Current at T_A = 50°C	0.5					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

Thermal Characteristics

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

Note:

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

Electrical Characteristics

Values are at T_A = 25°C unless otherwise specified.

Symbol	Parameter	Conditions	Value	Unit
V_F	Forward Voltage, per Bridge	I_F = 0.5 A	1.0	V
I_R	Reverse Current, per Leg 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	Total Capacitance, per Leg	V_R = 4.0 V, f = 1.0 MHz	13	pF

Typical Performance Characteristics

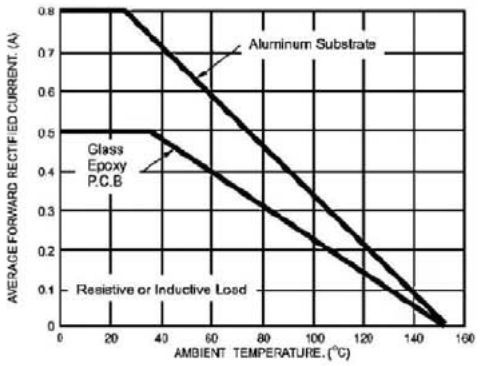


Figure 1. Derating Curve for Output Rectified Current

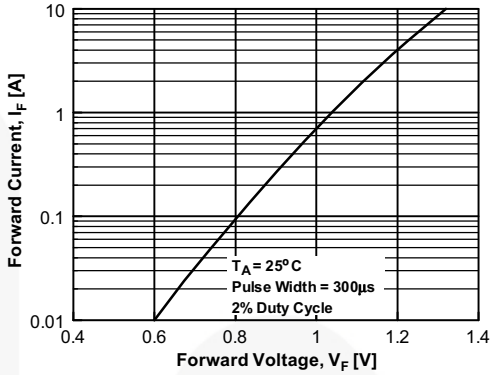


Figure 2. Forward Voltage Characteristics

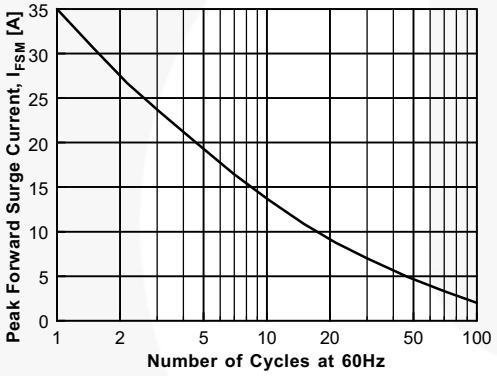


Figure 3. Non-Repetitive Surge Current

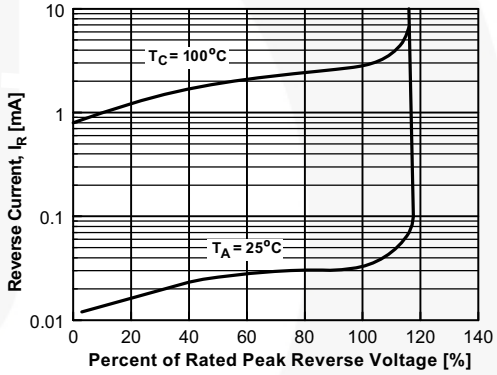


Figure 4. Reverse Current vs. Reverse Voltage

Physical Dimensions

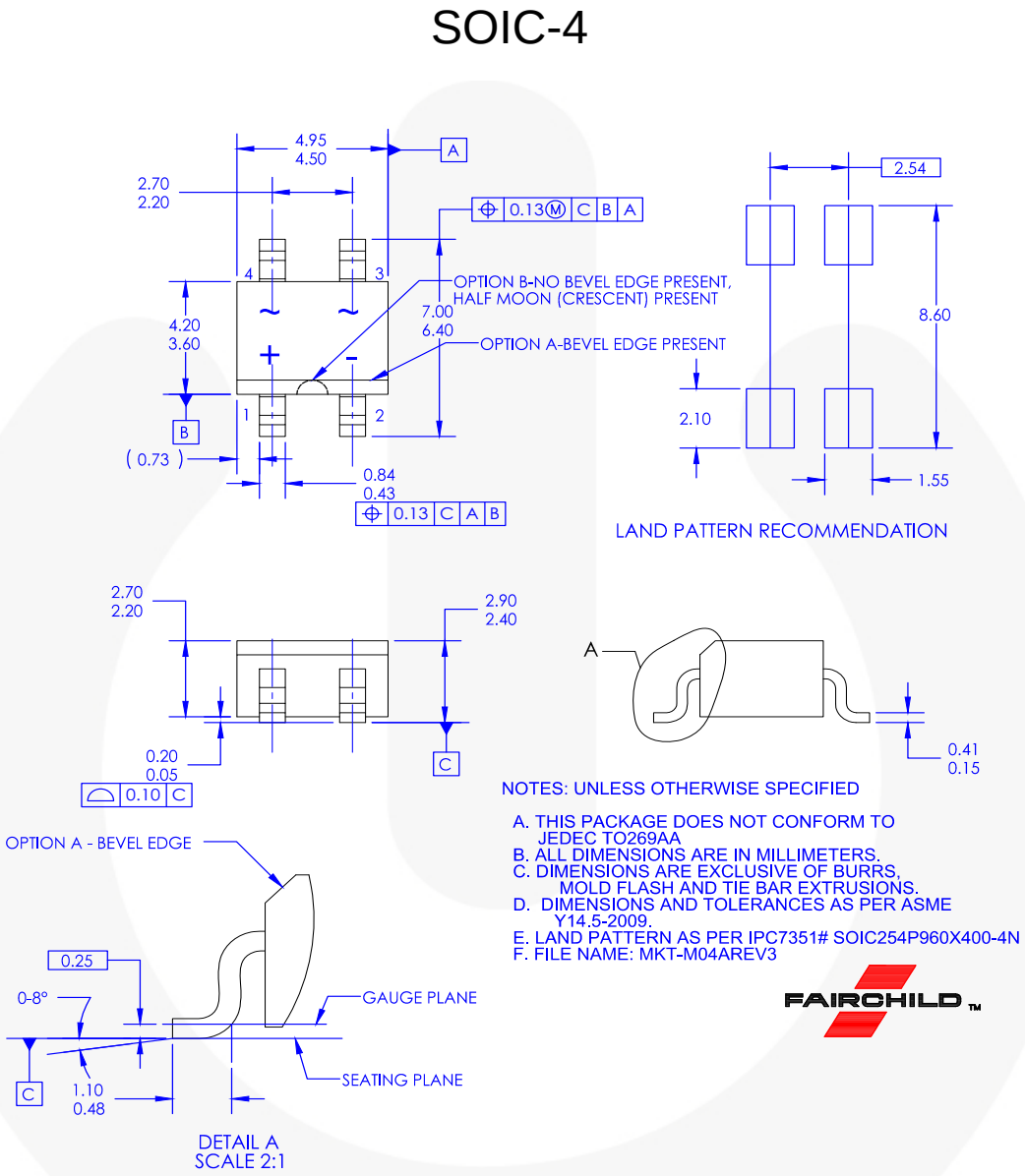


Figure 5. 4-LEAD, SOIC, JEDEC TO269AA, 3.95 MM WIDE BODY (Active)

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