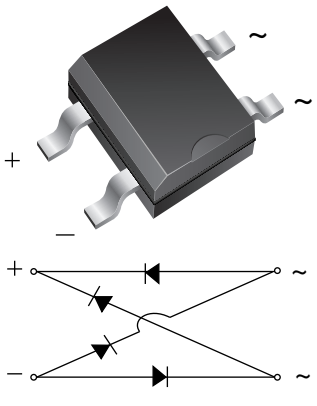
Miniature Glass Passivated Fast Recovery Surface-Mount Bridge Rectifier



MBS (TO-269AA)

FEATURES

- UL recognition, file number E54214
- Saves space on printed circuit boards
- Ideal for automated placement
- High surge current capability
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

RoHS COMPLIANT

TYPICAL APPLICATIONS

General purpose use in AC/DC bridge full wave rectification for power supply, lighting ballaster, battery charger, home appliances, office equipment, and telecommunication applications.

LINKS TO ADDITIONAL RESOURCES

3D Models

MECHANICAL DATA

Case: MBS (TO-269AA)

Molding compound meets UL 94 V-0 flammability rating
Base P/N-E3 - RoHS-compliant, commercial grade

Terminals: matte tin plated leads, solderable per J-STD-002 and JESD22-B102
E3 suffix meets JESD 201 class 1A whisker test

Polarity: as marked on body

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	0.5 A
V_{RRM}	200 V, 400 V, 600 V
I_{FSM}	35 A
I_R	5 µA
V_F at I_F = 0.4 A	1.0 V
T_J max.	150 °C
Package	MBS (TO-269AA)
Circuit configuration	Quad

MAXIMUM RATINGS (T_A = 25 °C unless otherwise noted)

PARAMETER		SYMBOL	MB2S	MB4S	MB6S	UNIT
Device marking code			2	4	6	
Maximum repetitive peak reverse voltage		V_{RRM}	200	400	600	V
Maximum RMS voltage		V_{RMS}	140	280	420	V
Maximum DC blocking voltage		V_{DC}	200	400	600	V
Maximum average forward output rectified current (fig. 1)	on glass-epoxy PCB (1)	$I_{F(AV)}$	0.5			A
	on aluminum substrate (2)		0.8			
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load		I_{FSM}	35			A
Rating for fusing (t < 8.3 ms)		I^2t	5.0			A^2s
Operating junction and storage temperature range		T_J, T_{STG}	-55 to +150			°C

Notes

(1) On glass epoxy PCB mounted on 0.05" x 0.05" (1.3 mm x 1.3 mm) pads

(2) On aluminum substrate PCB with an area of 0.8" x 0.8" (20 mm x 20 mm) mounted on 0.05" x 0.05" (1.3 mm x 1.3 mm) solder pad

ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)						
PARAMETER	**TEST CONDITIONS**	**SYMBOL**	**MB2S**	**MB4S**	**MB6S**	**UNIT**
Maximum instantaneous forward voltage per diode	I_F = 0.4 A	V_F	1.0			V
Maximum DC reverse current at rated DC blocking voltage per diode	T_A = 25 °C	I_R	5.0			μA
	T_A = 125 °C		100			
Typical junction capacitance per diode	4.0 V, 1 MHz	C_J	13			pF

THERMAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)					
PARAMETER	**SYMBOL**	**MB2S**	**MB4S**	**MB6S**	**UNIT**
Typical thermal resistance	$R_{\theta JA}$ (1)	85			°C/W
	$R_{\theta JA}$ (2)	70			
	$R_{\theta JL}$ (1)	20			

Notes

(1) On glass epoxy PCB mounted on 0.05" x 0.05" (1.3 mm x 1.3 mm) pads

(2) On aluminum substrate PCB with an area of 0.8" x 0.8" (20 mm x 20 mm) mounted on 0.05" x 0.05" (1.3 mm x 1.3 mm) solder pad

ORDERING INFORMATION (Example)				
PREFERRED P/N	**UNIT WEIGHT (g)**	**PREFERRED PACKAGE CODE**	**BASE QUANTITY**	**DELIVERY MODE**
MB2S-E3/45	0.22	45	100	Tube
MB2S-E3/80	0.22	80	3000	13" diameter paper tape and reel

RATINGS AND CHARACTERISTICS CURVES (T_A = 25 °C unless otherwise noted)

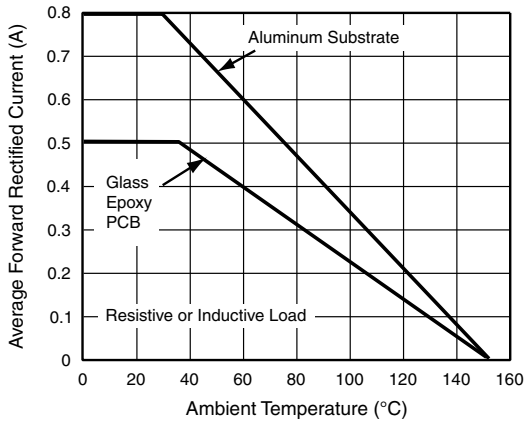


Fig. 1 - Derating Curve for Output Rectified Current

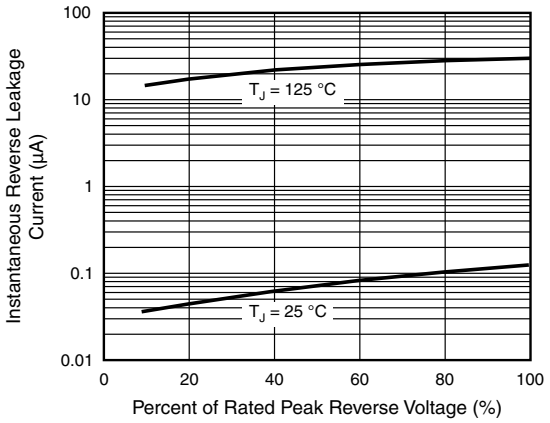


Fig. 4 - Typical Reverse Leakage Characteristics Per Diode

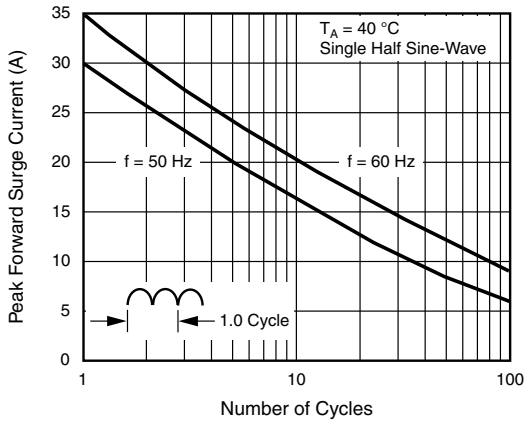


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

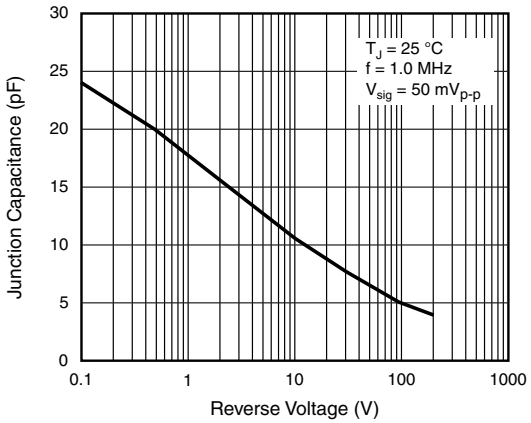


Fig. 5 - Typical Junction Capacitance Per Diode

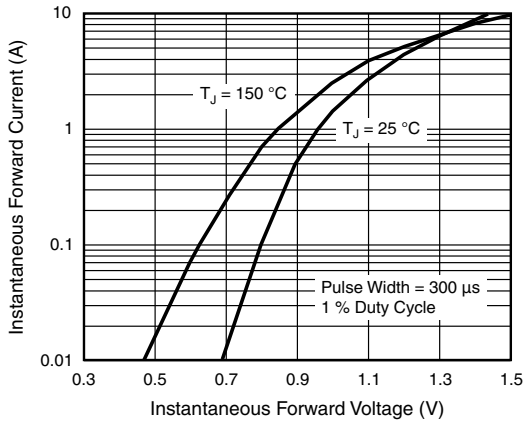
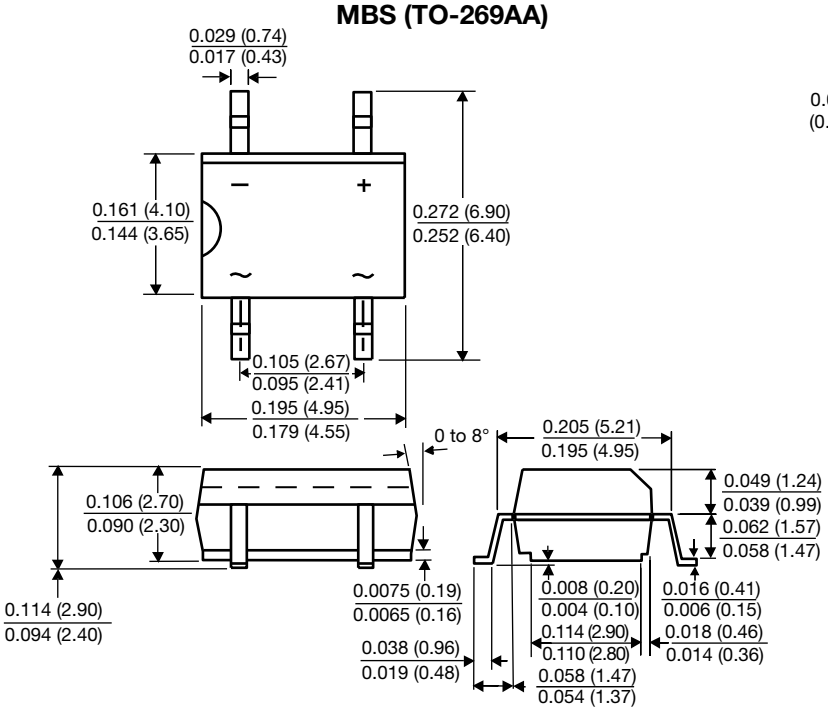


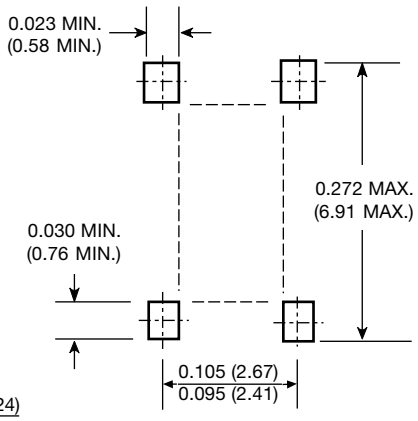
Fig. 3 - Typical Forward Voltage Characteristics Per Diode

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

MBS (TO-269AA)



Mounting Pad Layout



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