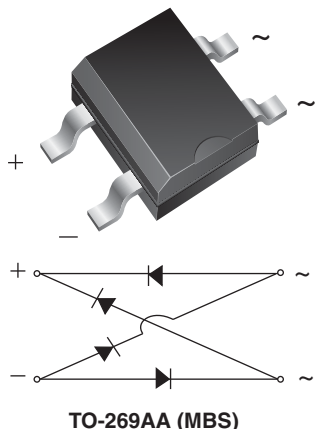


## Miniature Glass Passivated Fast Recovery Surface Mount Bridge Rectifier



TO-269AA (MBS)

### 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](http://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.

### MECHANICAL DATA

**Case:** TO-269AA (MBS)

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

|                        |                     |
|------------------------|---------------------|
| Package                | TO-269AA (MBS)      |
| $I_{F(AV)}$            | 0.5 A               |
| $V_{RRM}$              | 200 V, 400 V, 600 V |
| $I_{FSM}$              | 35 A                |
| $I_R$                  | 5 $\mu$ A           |
| $V_F$ at $I_F = 0.4$ A | 1.0 V               |
| $T_J$ max.             | 150 °C              |
| Diode variations       | 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 <sub>RRM</sub>                  | 200                                  | 400  | 600  | V                |
| Maximum RMS voltage                                                                   | V <sub>RMS</sub>                  | 140                                  | 280  | 420  | V                |
| Maximum DC blocking voltage                                                           | V <sub>DC</sub>                   | 200                                  | 400  | 600  | V                |
| Maximum average forward output<br>rectified current (fig. 1)                          | I <sub>F(AV)</sub>                | on glass-epoxy PCB <sup>(1)</sup>    |      |      | A                |
|                                                                                       |                                   | on aluminum substrate <sup>(2)</sup> |      |      |                  |
| Peak forward surge current 8.3 ms single half sine-wave<br>superimposed on rated load | I <sub>FSM</sub>                  | 35                                   |      |      | A                |
| Rating for fusing (t < 8.3 ms)                                                        | I <sup>2</sup> t                  | 5.0                                  |      |      | A <sup>2</sup> s |
| Operating junction and storage temperature range                                      | T <sub>J</sub> , T <sub>STG</sub> | - 55 to + 150                        |      |      | °C               |

#### Notes

<sup>(1)</sup> On glass epoxy PCB mounted on 0.05" x 0.05" (1.3 mm x 1.3 mm) pads

<sup>(2)</sup> 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** ( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

| PARAMETER                                                         | TEST CONDITIONS         | SYMBOL         | MB2S | MB4S | MB6S | UNIT |
|-------------------------------------------------------------------|-------------------------|----------------|------|------|------|------|
| Maximum instantaneous forward voltage per diode                   | I <sub>F</sub> = 0.4 A  | V <sub>F</sub> | 1.0  |      |      | V    |
| Maximum DC reverse current at rated DC blocking voltage per diode | T <sub>A</sub> = 25 °C  | I <sub>R</sub> | 5.0  |      |      | μA   |
|                                                                   | T <sub>A</sub> = 125 °C |                | 100  |      |      |      |
| Typical junction capacitance per diode                            | 4.0 V, 1 MHz            | C <sub>J</sub> | 13   |      |      | pF   |

**THERMAL CHARACTERISTICS** ( $T_A = 25\text{ }^{\circ}\text{C}$  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 |

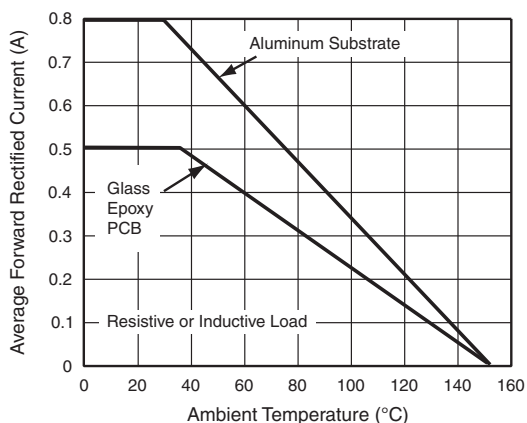
**RATINGS AND CHARACTERISTICS CURVES** ( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

Fig. 1 - Derating Curve for Output Rectified Current

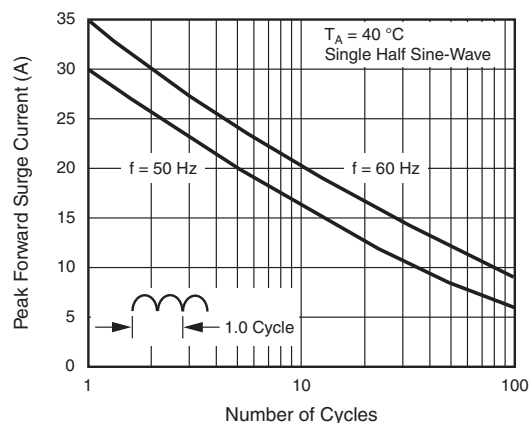


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

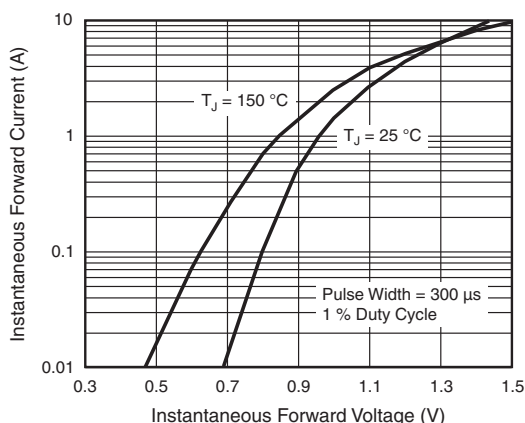


Fig. 3 - Typical Forward Voltage Characteristics Per Diode

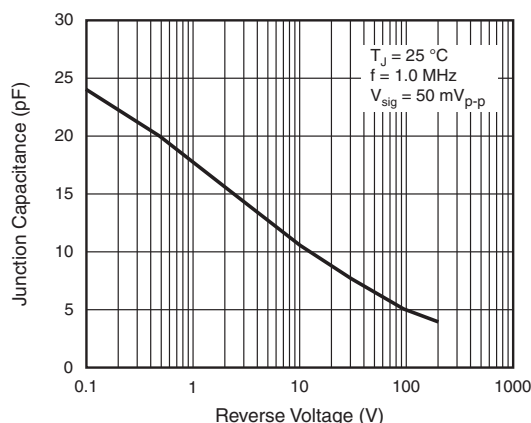


Fig. 5 - Typical Junction Capacitance Per Diode

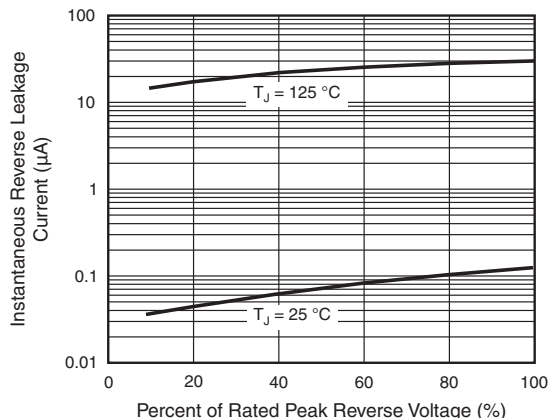
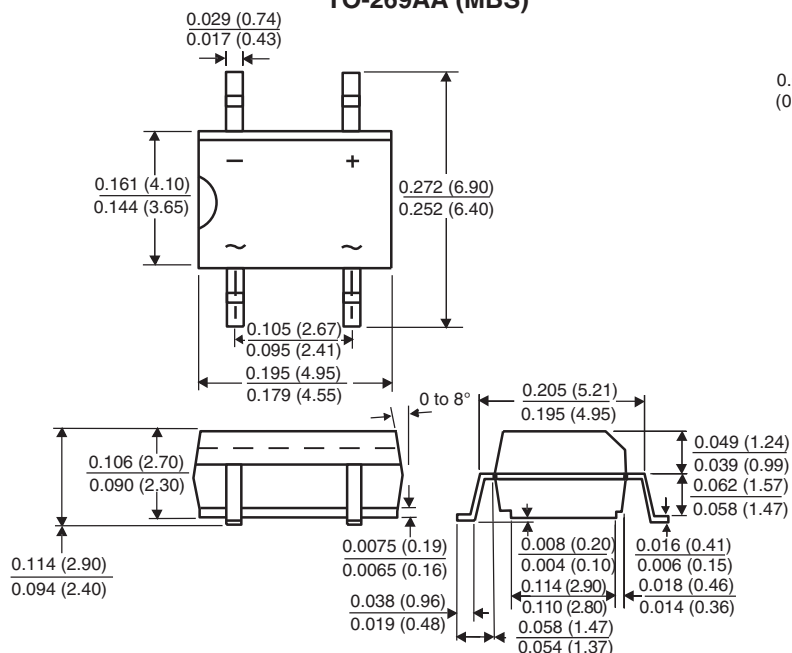
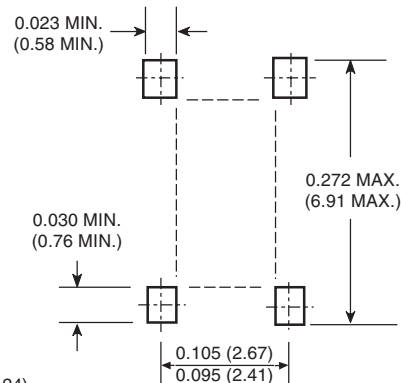


Fig. 4 - Typical Reverse Leakage Characteristics Per Diode

**PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)

**TO-269AA (MBS)**

**Mounting Pad Layout**




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