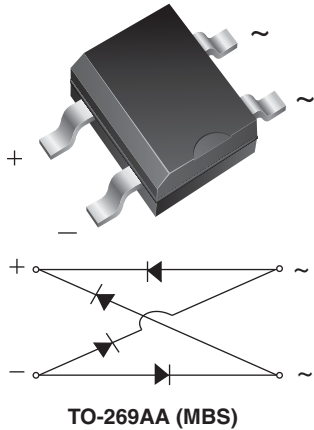


## Miniature Glass Passivated Fast Recovery Surface Mount Bridge Rectifier



### 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  | $V_{RRM}$      | 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)                          | $I_{F(AV)}$    | 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 superimposed on rated load | $I_{FSM}$      | 35                                   |      |      | A                |
| Rating for fusing ( $t < 8.3$ ms)  | $I^2t$         | 5.0                                  |      |      | A <sup>2</sup> s |
| Operating junction and storage temperature range                                   | $T_J, T_{STG}$ | - 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



| <b>ELECTRICAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted) |                                   |        |      |      |      |               |
|--|-----------------------------------|--------|------|------|------|---------------|
| PARAMETER  | TEST CONDITIONS                   | SYMBOL | MB2S | MB4S | MB6S | UNIT          |
| Maximum instantaneous forward voltage per diode  | $I_F = 0.4\text{ A}$              | $V_F$  |      | 1.0  |      | V             |
| Maximum DC reverse current at rated DC blocking voltage per diode                            | $T_A = 25\text{ }^\circ\text{C}$  | $I_R$  |      | 5.0  |      | $\mu\text{A}$ |
|  | $T_A = 125\text{ }^\circ\text{C}$ |        |      | 100  |      |               |
| Typical junction capacitance per diode   | 4.0 V, 1 MHz                      | $C_J$  |      | 13   |      | pF            |

| <b>THERMAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted) |                       |      |      |      |                    |
|---|-----------------------|------|------|------|--------------------|
| PARAMETER   | SYMBOL                | MB2S | MB4S | MB6S | UNIT               |
| Typical thermal resistance  | $R_{\theta JA}^{(1)}$ |      | 85   |      | $^\circ\text{C/W}$ |
|   | $R_{\theta JA}^{(2)}$ |      | 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

| <b>ORDERING INFORMATION</b> (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)

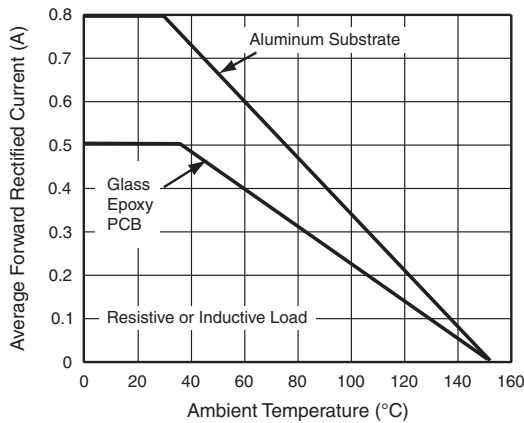


Fig. 1 - Derating Curve for Output Rectified Current

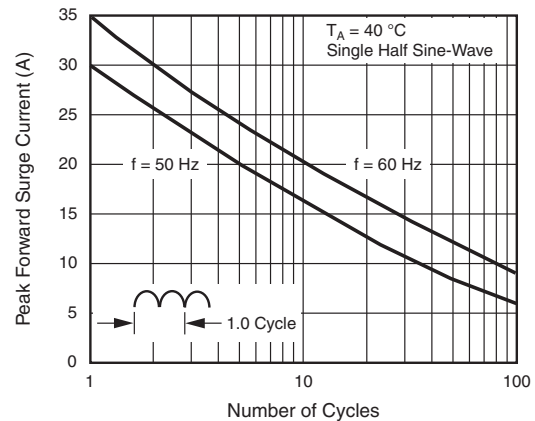


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

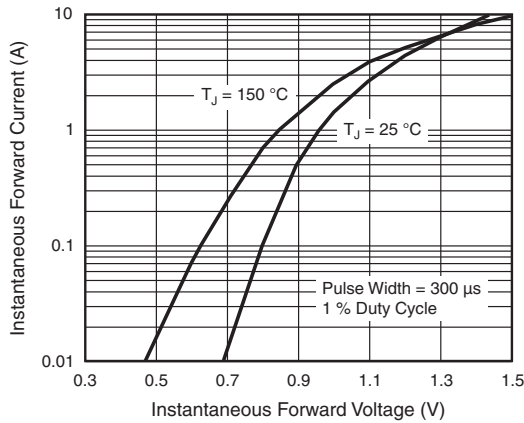


Fig. 3 - Typical Forward Voltage Characteristics Per Diode

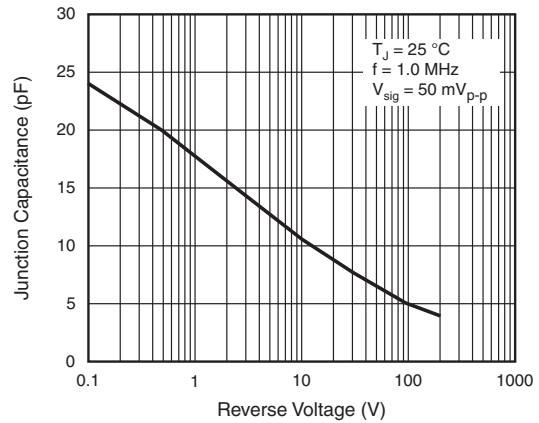


Fig. 5 - Typical Junction Capacitance Per Diode

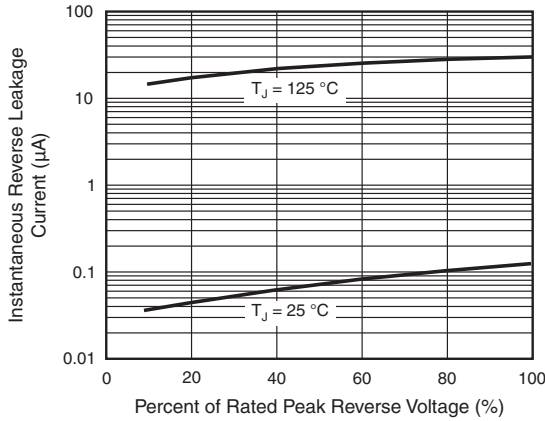
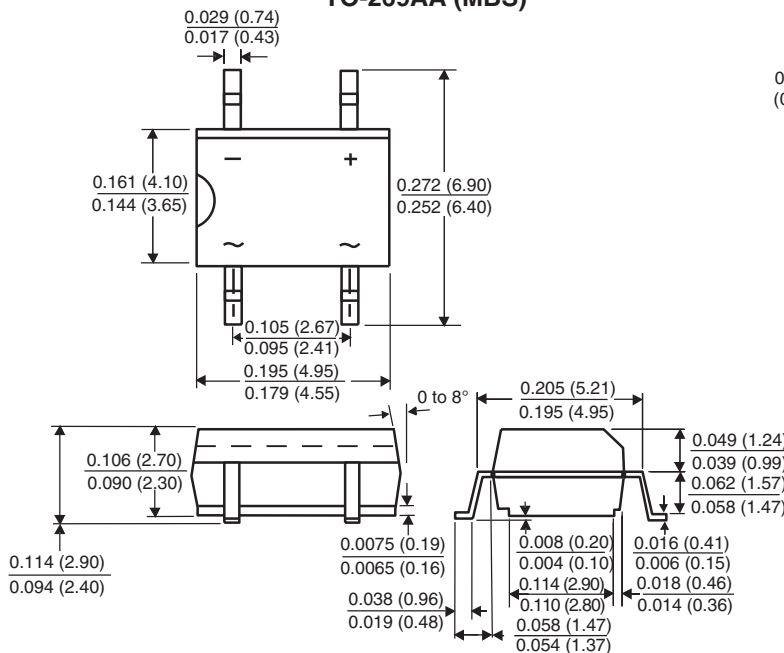


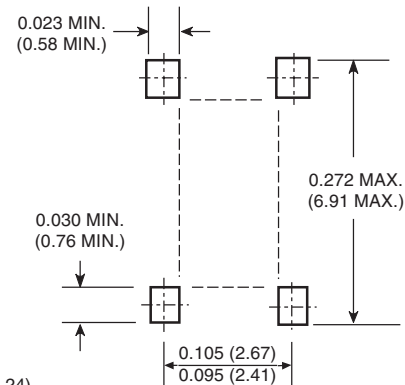
Fig. 4 - Typical Reverse Leakage Characteristics Per Diode

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

### TO-269AA (MBS)



### Mounting Pad Layout





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