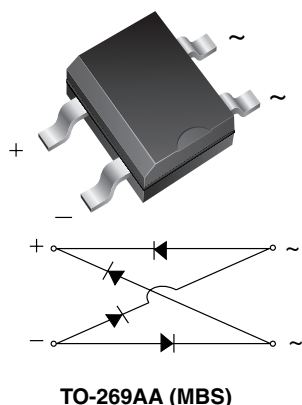


## Miniature Glass Passivated Single-Phase Surface Mount Bridge Rectifier



### 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-020C, LF max peak of 250 °C
- Solder Dip 260 °C, 40 seconds
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC



### TYPICAL APPLICATIONS

General purpose use in ac-to-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)

Epoxy meets UL 94V-0 flammability rating

**Terminals:** Matte tin plated leads, solderable per J-STD-002B and JESD22-B102D

E3 suffix for commercial grade

**Polarity:** As marked on body

| MAJOR RATINGS AND CHARACTERISTICS |                     |
|-----------------------------------|---------------------|
| $I_{F(AV)}$                       | 0.5 A               |
| $V_{RRM}$                         | 200 V, 400 V, 600 V |
| $I_{FSM}$                         | 35 A                |
| $I_R$                             | 5 $\mu$ A           |
| $V_F$                             | 1.0 V               |
| $T_j$ max.                        | 150 °C              |

| 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 (see Fig. 1)                      | $I_{F(AV)}$    | 0.5 <sup>(1)</sup><br>0.8 <sup>(2)</sup> |      |      | A                  |
| 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> sec |
| Operating junction and storage temperature range                                   | $T_J, T_{STG}$ | - 55 to + 150                            |      |      | °C                 |

#### Note:

(1) On glass epoxy P.C.B. mounted on 0.05 x 0.05" (1.3 x 1.3 mm) pads

(2) On aluminum substrate P.C.B. with an area of 0.8" x 0.8" (20 x 20 mm) mounted on 0.05 x 0.05" (1.3 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 drop per diode                                           | at 0.4 A                                                                  | $V_F$  | 1.0        |      |      | V             |
| Maximum DC reverse current at rated DC blocking voltage per diode                              | $T_A = 25\text{ }^{\circ}\text{C}$<br>$T_A = 125\text{ }^{\circ}\text{C}$ | $I_R$  | 5.0<br>100 |      |      | $\mu\text{A}$ |
| Typical junction capacitance per diode                                                         | at 4.0 V, 1 MHz                                                           | $C_J$  | 13         |      |      | pF            |

| THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted) |                  |                   |      |      |      |
|-------------------------------------------------------------------------|------------------|-------------------|------|------|------|
| PARAMETER                                                               | SYMBOL           | MB2S              | MB4S | MB6S | UNIT |
| Typical thermal resistance                                              | R <sub>θJA</sub> | 85 <sup>(1)</sup> |      |      | °C/W |
|                                                                         | R <sub>θJA</sub> | 70 <sup>(2)</sup> |      |      |      |
|                                                                         | R <sub>θJL</sub> | 20 <sup>(1)</sup> |      |      |      |

**Note:**

- (1) On glass epoxy P.C.B. mounted on 0.05 x 0.05" (1.3 x 1.3 mm) pads  
 (2) On aluminum substrate P.C.B. with an area of 0.8" x 0.8" (20 x 20 mm) mounted on 0.05 x 0.05" (1.3 x 1.3 mm) solder pad

| <b>ORDERING INFORMATION</b> |                 |                        |               |                                |
|-----------------------------|-----------------|------------------------|---------------|--------------------------------|
| 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 & Reel |

## RATINGS AND CHARACTERISTICS CURVES

( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

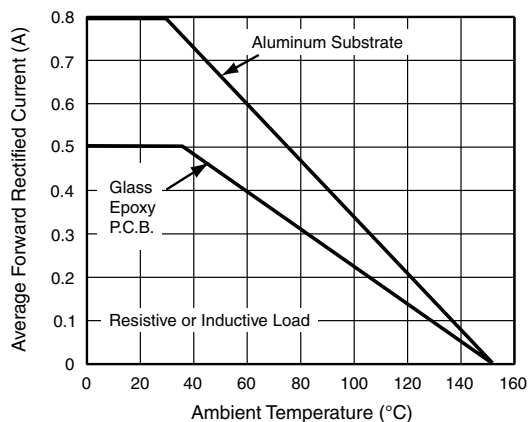


Figure 1. Derating Curve for Output Rectified Current

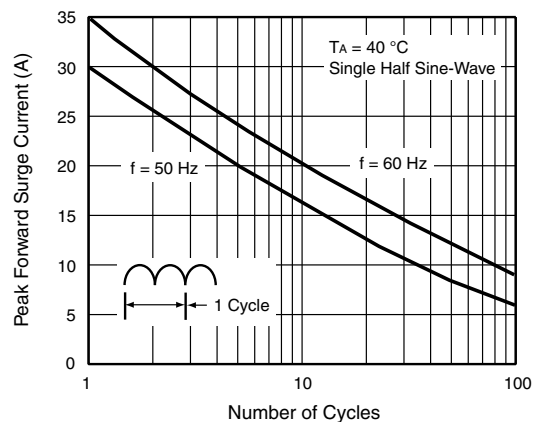


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current Per Diode

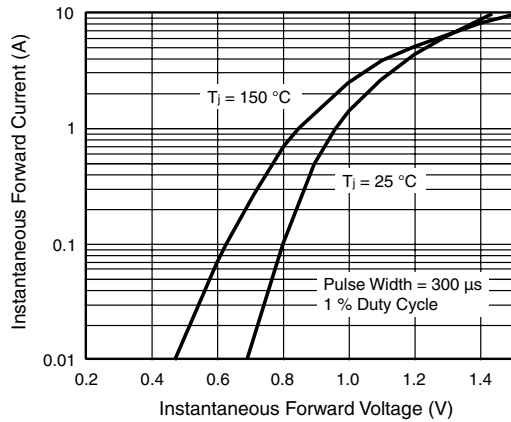


Figure 3. Typical Forward Voltage Characteristics Per Diode

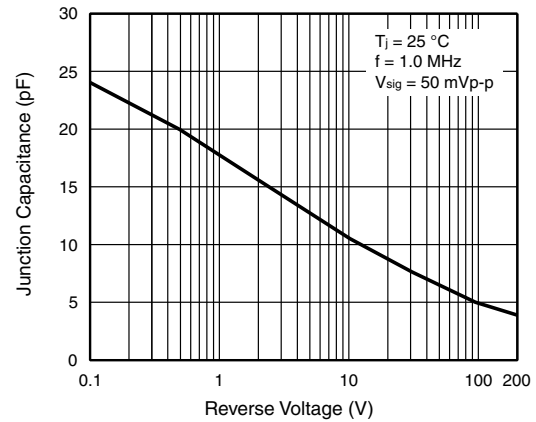


Figure 5. Typical Junction Capacitance Per Diode

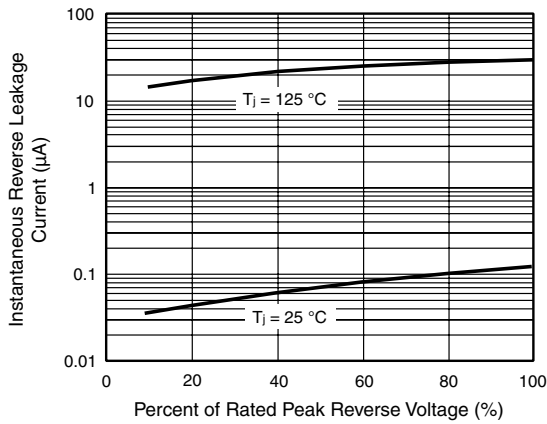
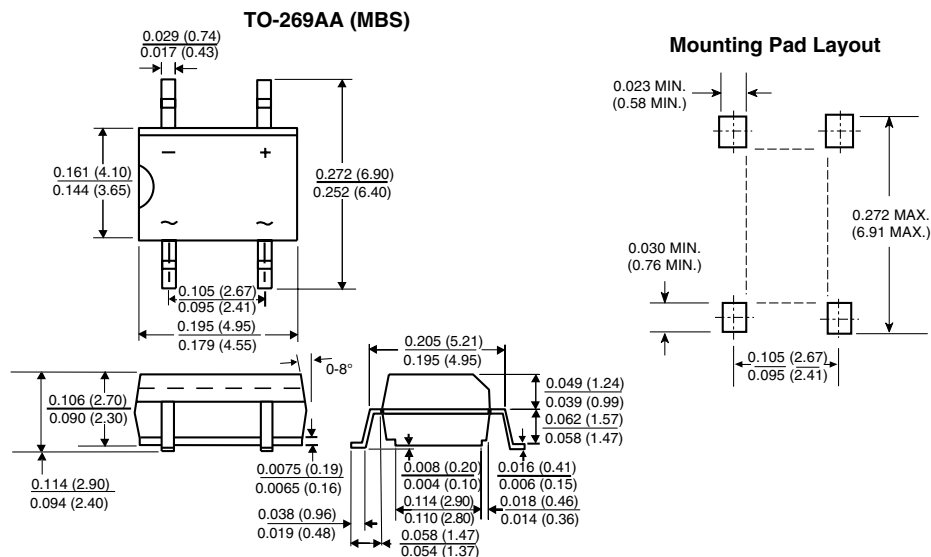


Figure 4. Typical Reverse Leakage Characteristics Per Diode

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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