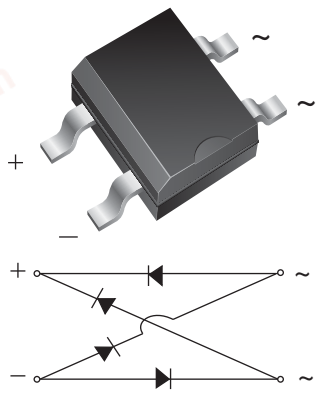
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## Miniature Glass Passivated Fast Recovery Surface Mount Bridge Rectifier



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

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.

| 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 µA |
| $V_F$ at $I_F$ = 0.4 A | 1.0 V |
| $T_J$ max. | 150 °C |
| Diode variations | Quad |

### 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

**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



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| **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)

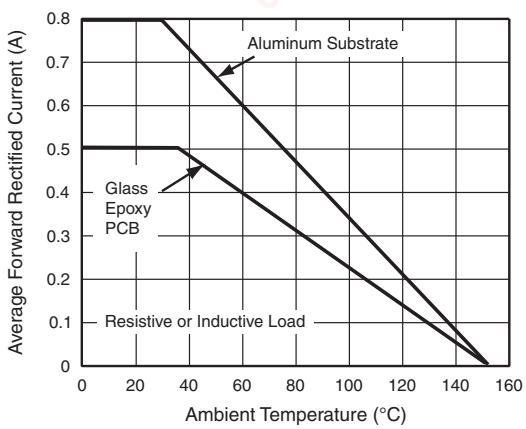



Fig. 1 - Derating Curve for Output Rectified Current

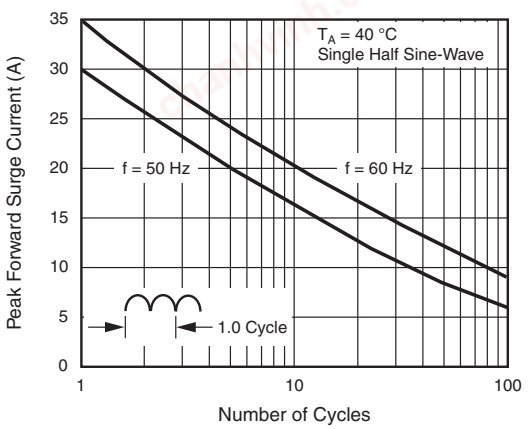



Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode



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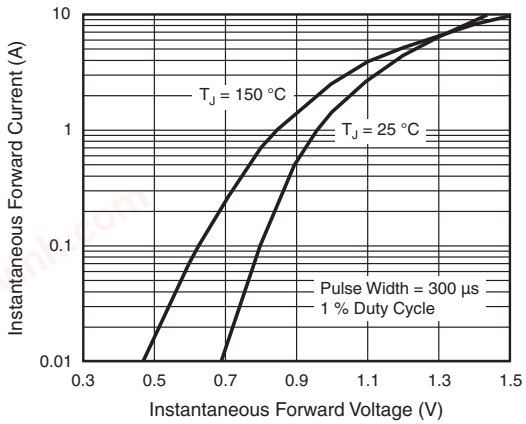



Fig. 3 - Typical Forward Voltage Characteristics Per Diode

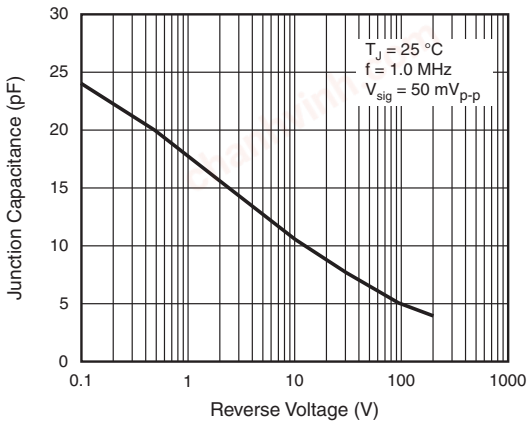



Fig. 5 - Typical Junction Capacitance Per Diode

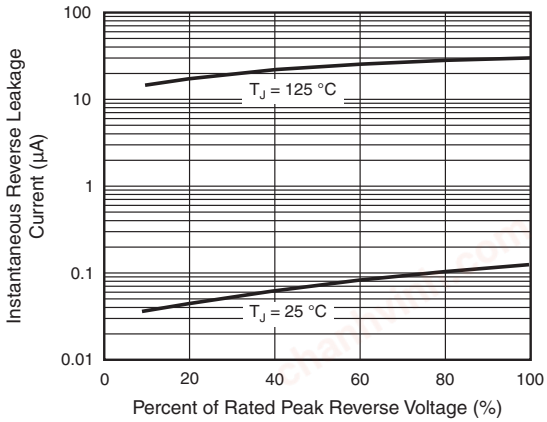
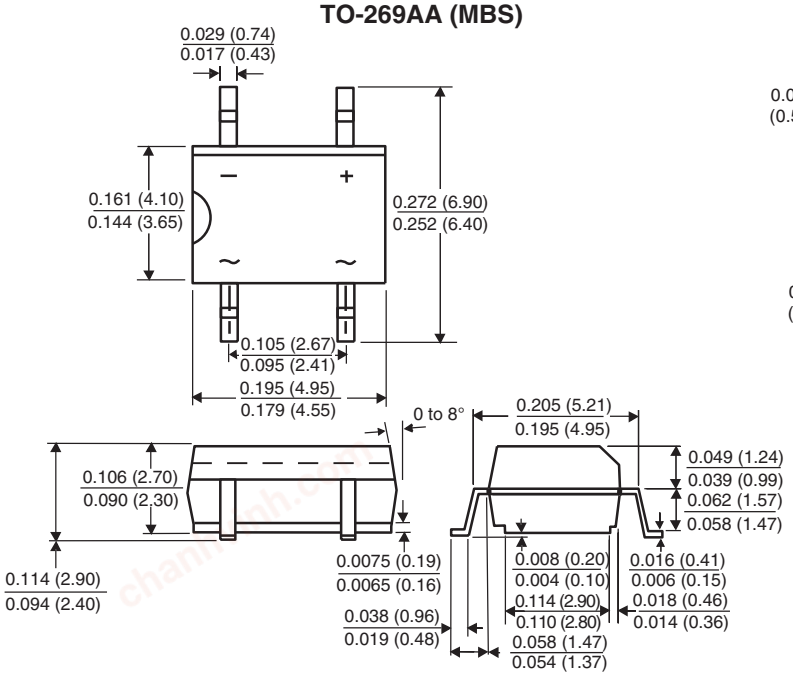


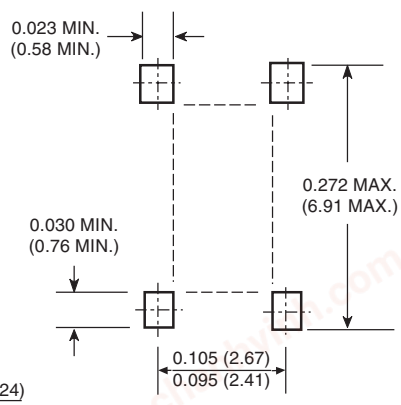

Fig. 4 - Typical Reverse Leakage Characteristics Per Diode

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

### TO-269AA (MBS)




### Mounting Pad Layout





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