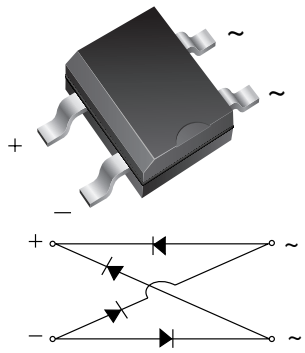
# Miniature Glass Passivated Fast Recovery Surface Mount Bridge Rectifier



TO-269AA (MBS)

## FEATURES

- UL recognition, file number E54214
- Saves space on printed circuit boards
- Ideal for automated placement
- Fast recovery, low switching loss
- High surge current capability
- Meets MSL level 1, per J-STD-020, LF maximum peak of 250 °C
- Solder dip 260 °C, 40 s
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC

RoHS COMPLIANT

## 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.

| PRIMARY CHARACTERISTICS | |
|---|---|
| $I_{F(AV)}$ | 0.5 A |
| $V_{RRM}$ | 200 V, 400 V |
| $I_{FSM}$ | 30 A |
| $t_{rr}$ | 150 ns |
| $V_F$ | 1.25 V |
| $T_J$ max. | 150 °C |

## MECHANICAL DATA

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

Epoxy meets UL 94V-0 flammability rating

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

**Polarity:** As marked on body

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

| PARAMETER | | SYMBOL | RMB2S | RMB4S | UNIT |
|---|---|---|---|---|---|
| Device marking code | | | 2R | 4R | |
| Maximum repetitive peak reverse voltage | | $V_{RRM}$ | 200 | 400 | V |
| Maximum RMS voltage | | $V_{RMS}$ | 140 | 280 | V |
| Maximum DC blocking voltage | | $V_{DC}$ | 200 | 400 | V |
| Maximum average forward output rectified current at $T_A$ = 30 °C | on glass-epoxy P.C.B.<br>on aluminum substrate | $I_{F(AV)}$ | 0.5 (1)<br>0.8 (2) | | A |
| Peak forward surge current 8.3 msec single half sine-wave superimposed on rated load | | $I_{FSM}$ | 30 | | 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 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

| **ELECTRICAL CHARACTERISTICS** ($T_A$ = 25 °C unless otherwise noted) | | | | | | |
|---|---|---|---|---|---|---|
| **PARAMETER** | **TEST CONDITIONS** | | **SYMBOL** | **RMB2S** | **RMB4S** | **UNIT** |
| Maximum instantaneous forward voltage drop per diode | 0.4 A | | $V_F$ | 1.25 | | V |
| Maximum DC reverse current at rated DC blocking voltage per diode | | $T_A$ = 25 °C<br>$T_A$ = 125 °C | $I_R$ | 5.0<br>100 | | µA |
| Maximum reverse recovery time per diode | $I_F$ = 0.5 A, $I_R$ = 1.0 A, $I_{rr}$ = 0.25 A | | $t_{rr}$ | 150 | | ns |
| 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** | **RMB2S** | **RMB4S** | **UNIT** |
| Typical thermal resistance | $R_{\theta JA}$<br>$R_{\theta JA}$<br>$R_{\theta JL}$ | 85 (1)<br>70 (2)<br>20 (1) | | °C/W |

**Notes:**

(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

| **ORDERING INFORMATION** (Example) | | | | |
|---|---|---|---|---|
| **PREFERRED P/N** | **UNIT WEIGHT (g)** | **PREFERRED PACKAGE CODE** | **BASE QUANTITY** | **DELIVERY MODE** |
| RMB4S-E3/45 | 0.22 | 45 | 100 | Tube |
| RMB4S-E3/80 | 0.22 | 80 | 3000 | 13" diameter paper tape and reel |

## RATINGS AND CHARACTERISTICS CURVES

($T_A$ = 25 °C unless otherwise noted)

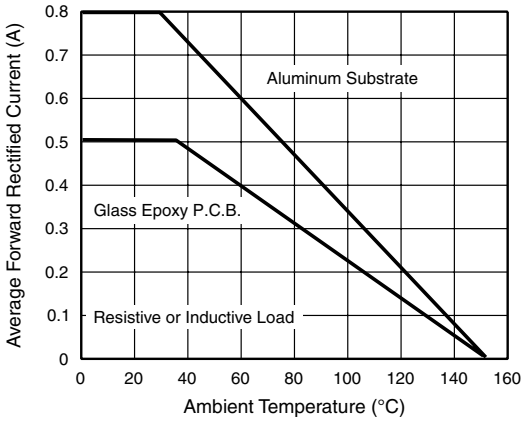



Figure 1. Maximum Forward Current Derating Curve

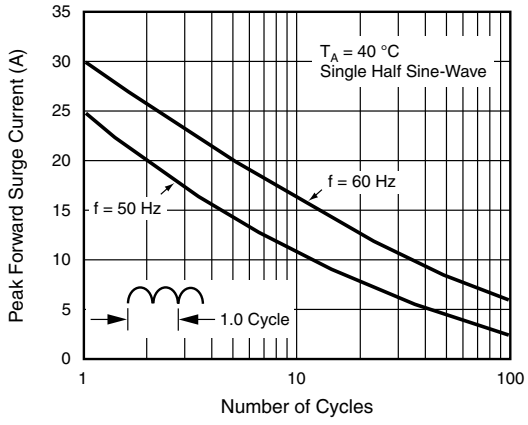



Figure 2. Maximum Non-Repetitive Peak Forward Surge Current Per Diode




For technical questions within your region, please contact one of the following:
PDD-Americas@vishay.com, PDD-Asia@vishay.com, PDD-Europe@vishay.com



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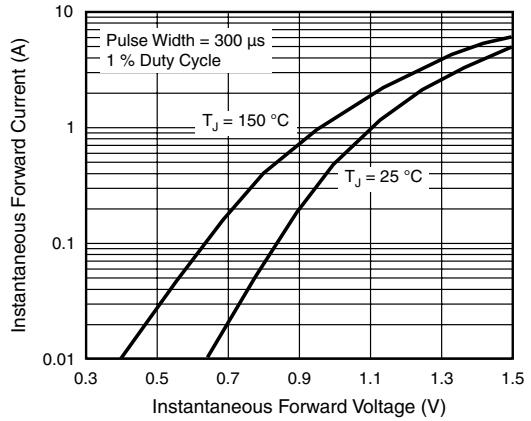



Figure 3. Typical Instantaneous Forward Characteristics Per Diode

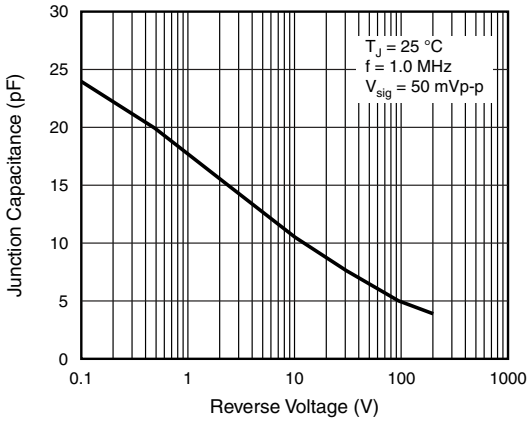



Figure 5. Typical Junction Capacitance Per Diode

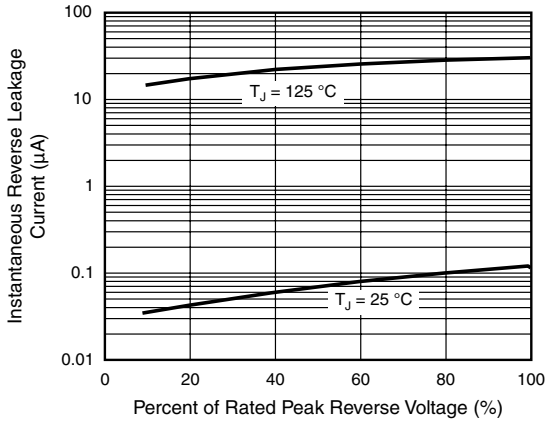
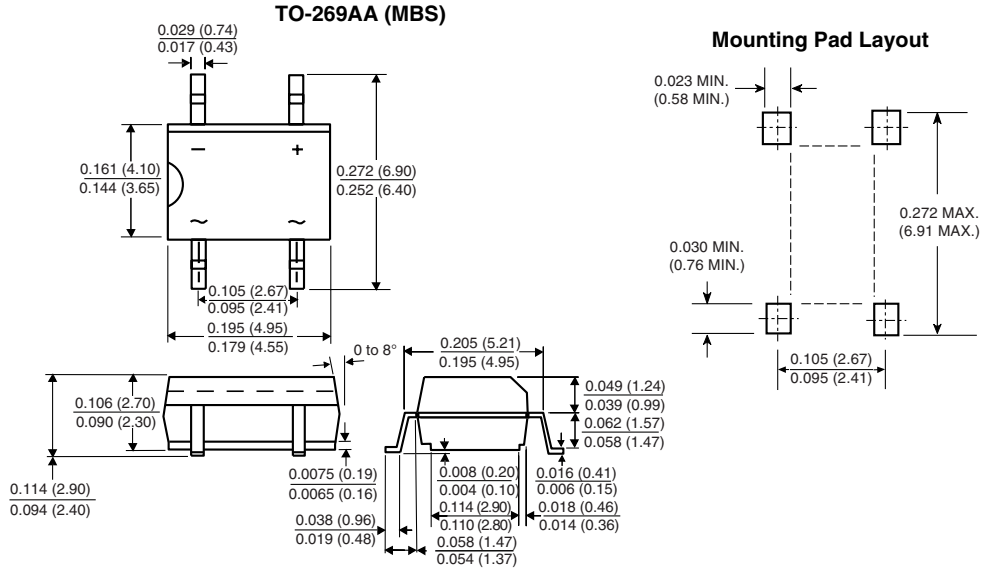



Figure 4. Typical Reverse Leakage Characteristics Per Diode

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)



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Адрес: 105318, г.Москва, ул.Щербаковская д.3, офис 1107

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**Офис по работе с юридическими лицами:**

105318, г.Москва, ул.Щербаковская д.3, офис 1107, 1118, ДЦ «Щербаковский»

Телефон: +7 495 668-12-70 (многоканальный)

Факс: +7 495 668-12-70 (доб.304)

E-mail: info@moschip.ru

Skype отдела продаж:
moschip.ru
moschip.ru_4
moschip.ru_6
moschip.ru_9