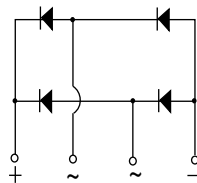




## Glass Passivated Single-Phase Bridge Rectifier



Case Type GBL

## FEATURES

- UL recognition file number E54214
- Ideal for printed circuit boards
- High surge current capability
- Typical  $I_R$  less than 0.1  $\mu A$
- High case dielectric strength
- Solder dip 275 °C max. 10 s, per JESD 22-B106
- Material categorization: For definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



**RoHS**  
COMPLIANT  
HALOGEN  
**FREE**

## TYPICAL APPLICATIONS

General purpose use in AC/DC bridge full wave rectification for monitor, TV, printer, SMPS, adapter, audio equipment, and home appliances application.

## MECHANICAL DATA

## Case: GBL

Molding compound meets UL 94 V-0 flammability rating  
Base P/N-M3 - halogen-free and RoHS-compliant, commercial grade

**Terminals:** Matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

M3 suffix meets JESD 201 class 1A whisker test

**Polarity:** As marked on body

## PRIMARY CHARACTERISTICS

|                        |                                                 |
|------------------------|-------------------------------------------------|
| Package                | GBL                                             |
| $I_{F(AV)}$            | 4.0 A                                           |
| $V_{RRM}$              | 50 V, 100 V, 200 V, 400 V, 600 V, 800 V, 1000 V |
| $I_{FSM}$              | 150 A                                           |
| $I_R$                  | 5 $\mu A$                                       |
| $V_F$ at $I_F = 4.0$ A | 1.0 V                                           |
| $T_J$ max.             | 150 °C                                          |
| Diode variations       | In-line                                         |

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

| PARAMETER                                                                 | SYMBOL                            | GBL005             | GBL01 | GBL02 | GBL04 | GBL06 | GBL08 | GBL10 | UNIT             |
|---------------------------------------------------------------------------|-----------------------------------|--------------------|-------|-------|-------|-------|-------|-------|------------------|
| Maximum repetitive peak reverse voltage                                   | V <sub>RRM</sub>                  | 50                 | 100   | 200   | 400   | 600   | 800   | 1000  | V                |
| Maximum RMS voltage                                                       | V <sub>RMS</sub>                  | 35                 | 70    | 140   | 280   | 420   | 560   | 700   | V                |
| Maximum DC blocking voltage                                               | V <sub>DC</sub>                   | 50                 | 100   | 200   | 400   | 600   | 800   | 1000  | V                |
| Maximum average forward<br>rectified output current at                    | I <sub>F(AV)</sub>                | 4.0 <sup>(1)</sup> |       |       |       |       |       |       | A                |
| T <sub>C</sub> = 50 °C<br>T <sub>A</sub> = 40 °C                          |                                   | 3.0 <sup>(2)</sup> |       |       |       |       |       |       |                  |
| Peak forward surge current single sine-wave<br>superimposed on rated load | I <sub>FSM</sub>                  | 150                |       |       |       |       |       |       | A                |
| Rating for fusing (t < 8.3 ms)                                            | I <sup>2</sup> t                  | 93                 |       |       |       |       |       |       | 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> Unit mounted on 3.0" x 3.0" x 0.11" thick (7.5 cm x 7.5 cm x 0.3 cm) aluminum plate  
<sup>(2)</sup> Unit mounted on PCB at 0.375" (9.5 mm) lead length and 0.5" x 0.5" (12 mm x 12 mm) copper pads

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

| PARAMETER                                                         | TEST CONDITIONS         | SYMBOL         | GBL005 | GBL01 | GBL02 | GBL04 | GBL06 | GBL08 | GBL10 | UNIT |
|-------------------------------------------------------------------|-------------------------|----------------|--------|-------|-------|-------|-------|-------|-------|------|
| Maximum instantaneous forward voltage drop per diode              | 4.0 A                   | V <sub>F</sub> | 1.00   |       |       |       |       |       |       | 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 |                | 500    |       |       |       |       |       |       |      |
| Typical junction capacitance per diode                            | 4.0 V, 1 MHz            | C <sub>J</sub> | 95     |       |       |       | 40    |       |       | pF   |



| THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted) |                                 |        |       |       |       |       |       |       |      |
|-------------------------------------------------------------------------|---------------------------------|--------|-------|-------|-------|-------|-------|-------|------|
| PARAMETER                                                               | SYMBOL                          | GBL005 | GBL01 | GBL02 | GBL04 | GBL06 | GBL08 | GBL10 | UNIT |
| Typical thermal resistance                                              | R <sub>θJA</sub> <sup>(2)</sup> | 22     |       |       |       |       |       |       | °C/W |
|                                                                         | R <sub>θJC</sub> <sup>(1)</sup> | 3.5    |       |       |       |       |       |       |      |

## Notes

- (1) Unit mounted on 3.0" x 3.0" x 0.11" thick (7.5 cm x 7.5 cm x 0.3 cm) aluminum plate  
(2) Unit mounted on PCB at 0.375" (9.5 mm) lead length and 0.5" x 0.5" (12 mm x 12 mm) copper pads

| ORDERING INFORMATION (Example) |                 |                        |               |                      |
|--------------------------------|-----------------|------------------------|---------------|----------------------|
| PREFERRED P/N                  | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE        |
| GBL06-M3/45                    | 2.18            | 45                     | 20            | Tube                 |
| GBL06-M3/51                    | 2.18            | 51                     | 400           | Anti-static PVC tray |

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

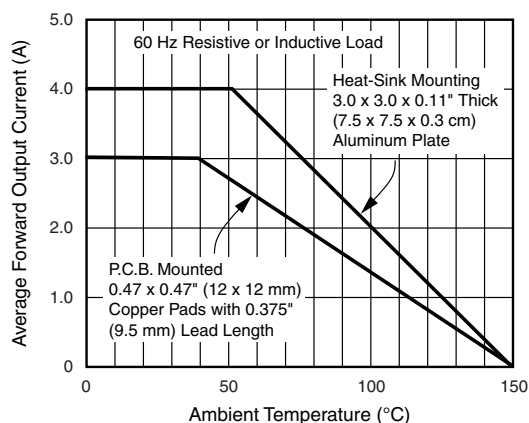


Fig. 1 - Derating Curves Output Rectified Current

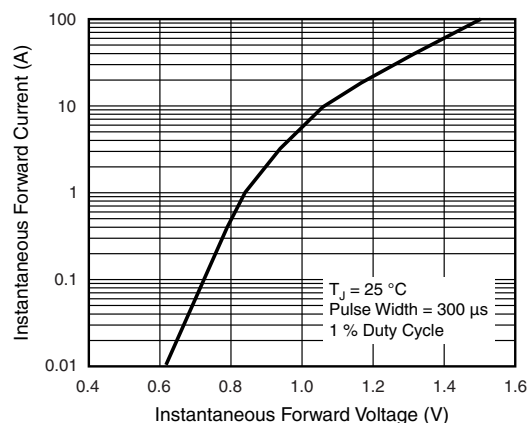


Fig. 3 - Typical Forward Voltage Characteristics Per Diode

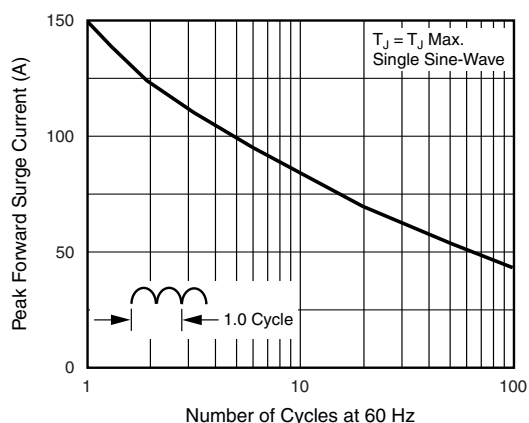


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

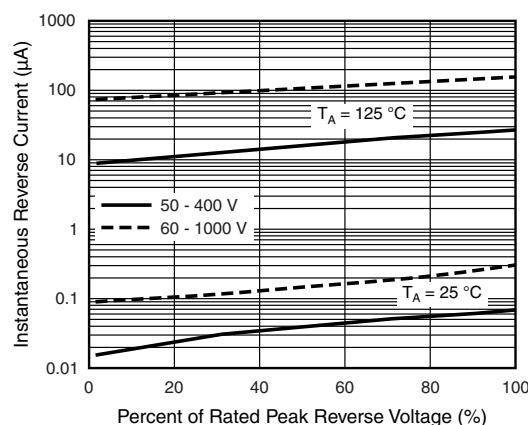


Fig. 4 - Typical Reverse Characteristics Per Diode

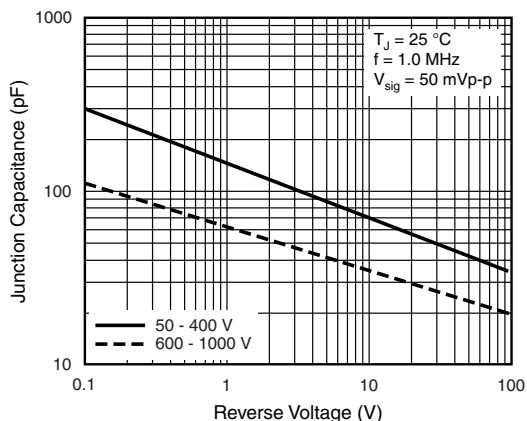


Fig. 5 - Typical Junction Capacitance Per Diode

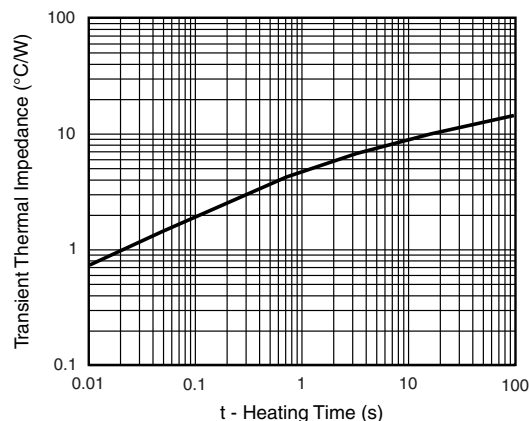
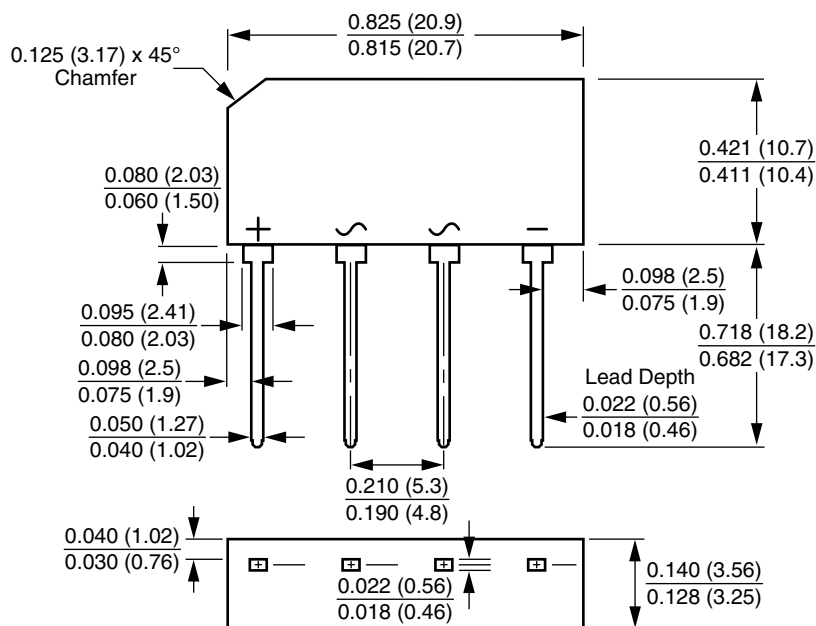


Fig. 6 - Typical Transient Thermal Impedance Per Diode

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

### Case Type GBL



Polarity shown on front side of case, positive lead beveled corner



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