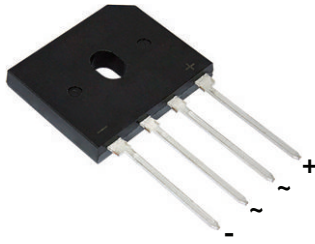
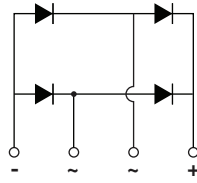




## Glass Passivated Single-Phase Bridge Rectifier



Case Style GBU



Case Style GBU

### FEATURES

- UL recognition file number E54214
- Ideal for printed circuit boards
- High surge current capability
- High case dielectric strength of 1500 V<sub>RMS</sub>
- 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**

### LINKS TO ADDITIONAL RESOURCES



### TYPICAL APPLICATIONS

General purpose use in AC/DC bridge full wave rectification for monitor, TV, printer, switching mode power supply, adapter, audio equipment, and home appliances applications.

| PRIMARY CHARACTERISTICS                  |   |
|--|---|
| I <sub>F(AV)</sub>                       | 6.0 A   |
| V <sub>RRM</sub>                         | 50 V, 100 V, 200 V, 400 V, 600 V, 800 V, 1000 V |
| I <sub>FSM</sub>                         | 175 A   |
| I <sub>R</sub>                           | 5 μA  |
| V <sub>F</sub> at I <sub>F</sub> = 6.0 A | 1.0 V   |
| T <sub>J</sub> max.                      | 150 °C  |
| Package                                  | GBU   |
| Circuit configuration                    | In-line   |

### MECHANICAL DATA

**Case:** GBU

Molding compound meets UL 94 V-0 flammability rating  
Base P/N-E3 - RoHS-compliant, commercial grade  
Base P/N-M3 - halogen-free, RoHS-compliant, and commercial grade

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

E3 and M3 suffix meet JESD 201 class 1A whisker test

**Polarity:** as marked on body

**Mounting Torque:** 10 cm-kg (8.8 inches-lbs) max.

**Recommended Torque:** 5.7 cm-kg (5 inches-lbs)

| MAXIMUM RATINGS (T <sub>A</sub> = 25 °C unless otherwise noted)        |                                   |                                       |       |       |       |       |       |       |             |                  |
|--|-----------------------------------|---------------------------------------|-------|-------|-------|-------|-------|-------|-------------|------------------|
| PARAMETER  | SYMBOL                            | GBU6A                                 | GBU6B | GBU6D | GBU6G | GBU6J | GBU6K | GBU6M | 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 rectified output current at (fig. 1)           | I <sub>F(AV)</sub>                | T <sub>C</sub> = 90 °C <sup>(1)</sup> |       |       |       |       |       |       | 6.0         | A                |
|  |                                   | T <sub>A</sub> = 40 °C <sup>(2)</sup> |       |       |       |       |       |       | 3.8         |                  |
| Peak forward surge current single sine-wave superimposed on rated load | I <sub>FSM</sub>                  | 175                                   |       |       |       |       |       |       | 175         | A                |
| Rating for fusing (t < 8.3 ms)   | I <sup>2</sup> t                  | 127                                   |       |       |       |       |       |       | 127         | A <sup>2</sup> s |
| Operating junction and storage temperature range                       | T <sub>J</sub> , T <sub>STG</sub> | -55 to +150                           |       |       |       |       |       |       | -55 to +150 | °C               |

### Notes

<sup>(1)</sup> Unit case mounted on aluminum plate heatsink

<sup>(2)</sup> Units mounted on PCB with 0.5" x 0.5" (12 mm x 12 mm) copper pads and 0.375" (9.5 mm) lead length



| <b>ELECTRICAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted) |                                   |        |       |       |       |       |       |       |       |               |
|--|-----------------------------------|--------|-------|-------|-------|-------|-------|-------|-------|---------------|
| PARAMETER  | TEST CONDITIONS                   | SYMBOL | GBU6A | GBU6B | GBU6D | GBU6G | GBU6J | GBU6K | GBU6M | UNIT          |
| Maximum instantaneous forward voltage drop per diode   | 6.0 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   |       |       |       | $\mu\text{A}$ |
|  | $T_A = 125\text{ }^\circ\text{C}$ |        |       |       |       | 500   |       |       |       |               |
| Typical junction capacitance per diode   | 4 V, 1 MHz                        | $C_J$  |       |       |       | 68    |       |       |       | pF            |

| <b>THERMAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted) |                        |       |       |       |       |       |       |       |                    |  |
|---|------------------------|-------|-------|-------|-------|-------|-------|-------|--------------------|--|
| PARAMETER   | SYMBOL                 | GBU6A | GBU6B | GBU6D | GBU6G | GBU6J | GBU6K | GBU6M | UNIT               |  |
| Typical thermal resistance  | $R_{\theta JA}$ (2)    |       |       |       | 20    |       |       |       | $^\circ\text{C/W}$ |  |
|   | $R_{\theta JC}$ (1)(3) |       |       |       | 2.5   |       |       |       |                    |  |

**Notes**

- (1) Units case mounted on aluminum plate heatsink
- (2) Units mounted in free air, no heatsink on PCB, 0.5" x 0.5" (12 mm x 12 mm) copper pads, 0.375" (9.5 mm) lead length
- (3) Recommended mounting position is to bolt down on heatsink with silicone thermal compound for maximum heat transfer with #6 screws

| <b>ORDERING INFORMATION</b> |                 |                        |               |               |
|-----------------------------|-----------------|------------------------|---------------|---------------|
| PREFERRED P/N               | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
| GBU6J-E3/45                 | 3.857           | 45                     | 20            | Tube          |
| GBU6J-E3/51                 | 3.857           | 51                     | 250           | Paper tray    |
| GBU6J-M3/45                 | 3.857           | 45                     | 20            | Tube          |
| GBU6J-M3/51                 | 3.857           | 51                     | 250           | Paper tray    |

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

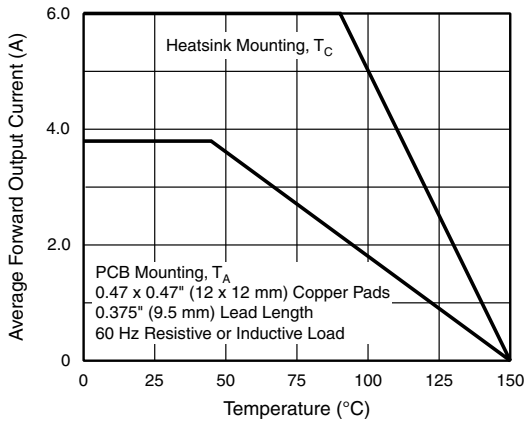


Fig. 1 - Derating Curve Output Rectified Current

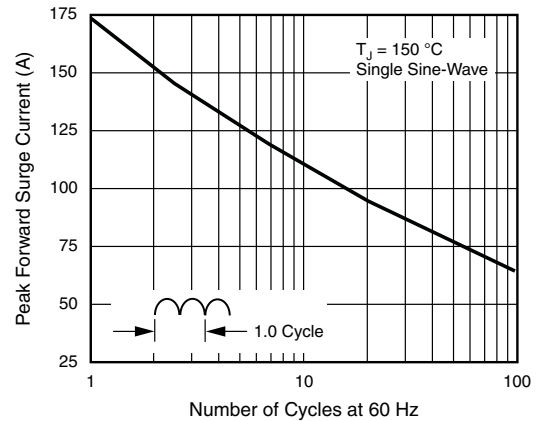


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

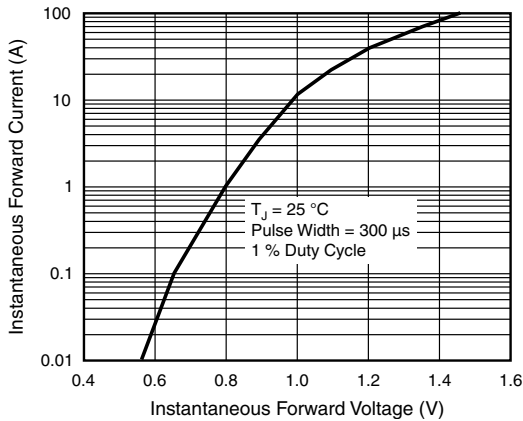


Fig. 3 - Typical Forward Characteristics Per Diode

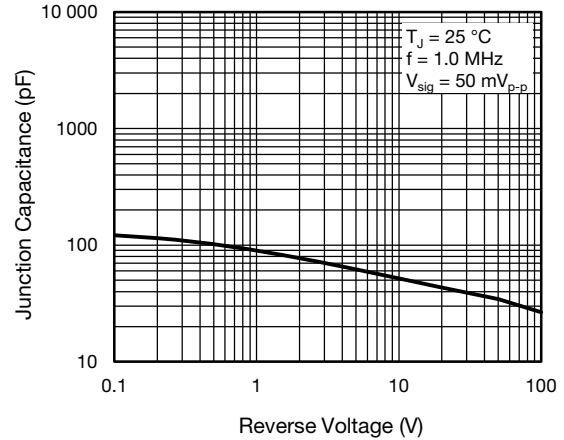


Fig. 5 - Typical Junction Capacitance Per Diode

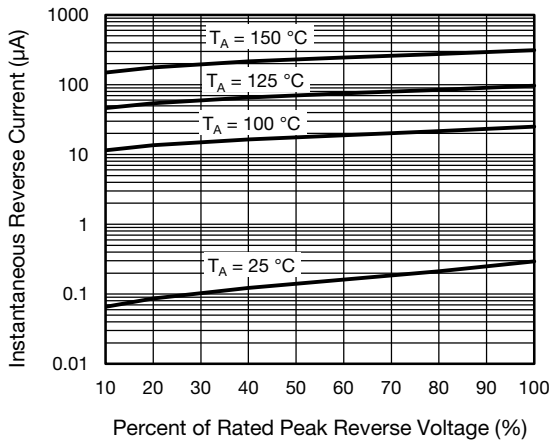


Fig. 4 - Typical Reverse Leakage Characteristics Per Diode

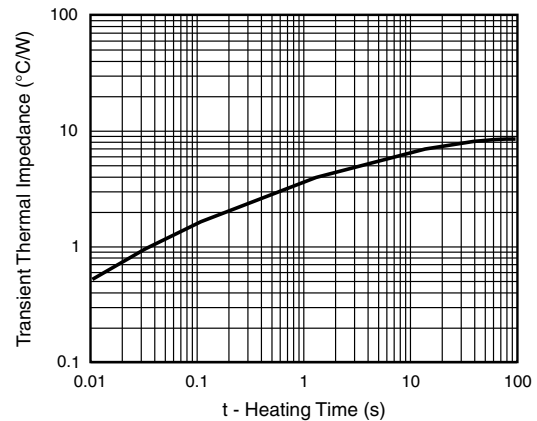
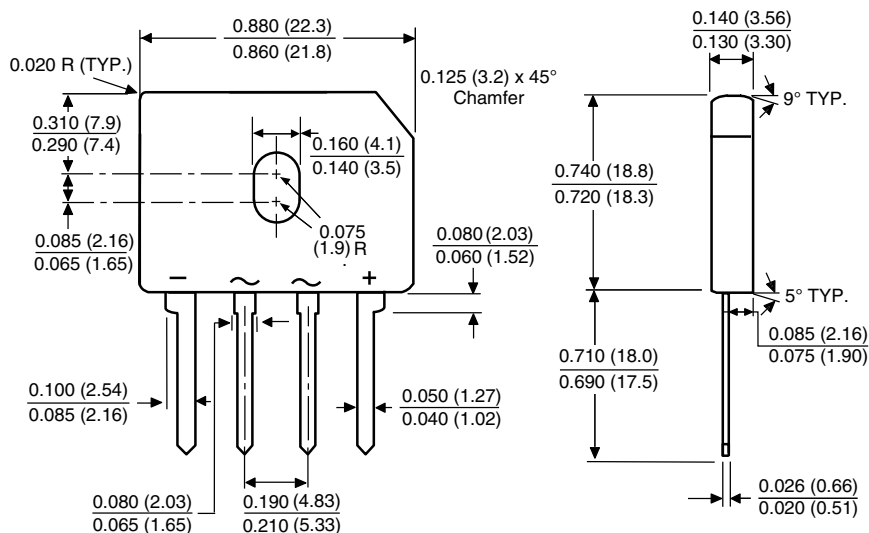


Fig. 6 - Typical Transient Thermal Impedance

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

### Case Type GBU



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



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