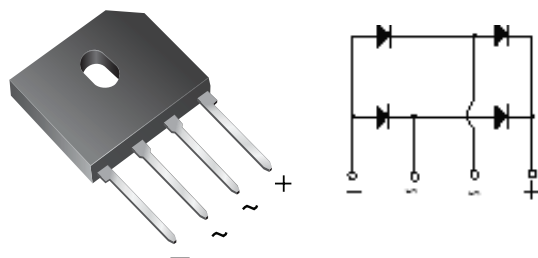


## Glass Passivated Single-Phase Bridge Rectifier



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 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 monitor, TV, printer, switching mode power supply, adapter, audio equipment, and home appliances applications.

### PRIMARY CHARACTERISTICS

|             |                |
|-------------|----------------|
| $I_{F(AV)}$ | 6.0 A          |
| $V_{RRM}$   | 50 V to 1000 V |
| $I_{FSM}$   | 175 A          |
| $I_R$       | 5 $\mu$ A      |
| $V_F$       | 1.0 V          |
| $T_J$ max.  | 150 °C         |

### MECHANICAL DATA

**Case:** GBU

Epoxy meets UL 94 V-0 flammability rating

**Terminals:** Matte tin plated leads, solderable per J-STD-002 and JESD22-B102

E3 suffix for consumer grade, meets 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 ( $T_A = 25$ °C unless otherwise noted)

| PARAMETER                                                                                                                 | SYMBOL         | GBU6A         | GBU6B | GBU6D | GBU6G | GBU6J | GBU6K | GBU6M | UNIT             |
|---------------------------------------------------------------------------------------------------------------------------|----------------|---------------|-------|-------|-------|-------|-------|-------|------------------|
| Maximum repetitive peak reverse voltage                                                                                   | $V_{RRM}$      | 50            | 100   | 200   | 400   | 600   | 800   | 1000  | V                |
| Maximum RMS voltage                                                                                                       | $V_{RMS}$      | 35            | 70    | 140   | 280   | 420   | 560   | 700   | V                |
| Maximum DC blocking voltage                                                                                               | $V_{DC}$       | 50            | 100   | 200   | 400   | 600   | 800   | 1000  | V                |
| Maximum average forward rectified output current at (Fig. 1) $T_C = 90$ °C <sup>(1)</sup><br>$T_A = 40$ °C <sup>(2)</sup> | $I_{F(AV)}$    | 6.0<br>3.8    |       |       |       |       |       |       | A                |
| Peak forward surge current single sine-wave superimposed on rated load                                                    | $I_{FSM}$      | 175           |       |       |       |       |       |       | A                |
| Rating for fusing ( $t < 8.3$ ms)                                                                                         | $I^2t$         | 127           |       |       |       |       |       |       | A <sup>2</sup> s |
| Operating junction and storage temperature range                                                                          | $T_J, T_{STG}$ | - 55 to + 150 |       |       |       |       |       |       | °C               |

#### Notes:

(1) Unit case mounted on aluminum plate heatsink

(2) Units mounted on P.C.B. with 0.5 x 0.5" (12 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                              | $T_A = 25\text{ }^{\circ}\text{C}$<br>$T_A = 125\text{ }^{\circ}\text{C}$ | $I_R$  | 5.0<br>500 |       |       |       |       |       |       | $\mu\text{A}$ |
| Typical junction capacitance per diode                                                         | 4.0 A, 1 MHz                                                              | $C_J$  | 211        |       |       |       | 94    |       |       | pF            |

| THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted) |                                    |       |       |       |       |       |       |       |      |      |
|-------------------------------------------------------------------------|------------------------------------|-------|-------|-------|-------|-------|-------|-------|------|------|
| PARAMETER                                                               | SYMBOL                             | GBU6A | GBU6B | GBU6D | GBU6G | GBU6J | GBU6K | GBU6M | UNIT |      |
| Typical thermal resistance                                              | R <sub>θJA</sub> <sup>(2)</sup>    | 20    |       |       |       |       |       |       |      | °C/W |
|                                                                         | R <sub>θJC</sub> <sup>(1)(3)</sup> | 2.5   |       |       |       |       |       |       |      |      |

**Notes:**

- (1) Units case mounted on aluminum plate heatsink
- (2) Units mounted in free air, no heatsink on P.C.B., 0.5 x 0.5" (12 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    |

## RATINGS AND CHARACTERISTICS CURVES

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

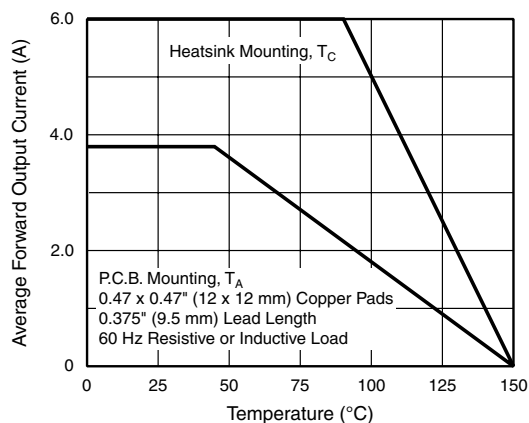


Figure 1. Derating Curve Output Rectified Current

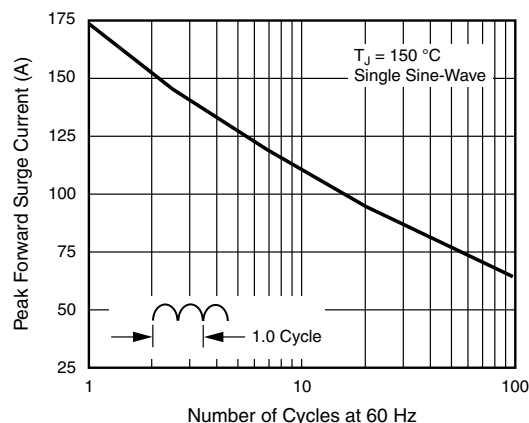


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current Per Diode

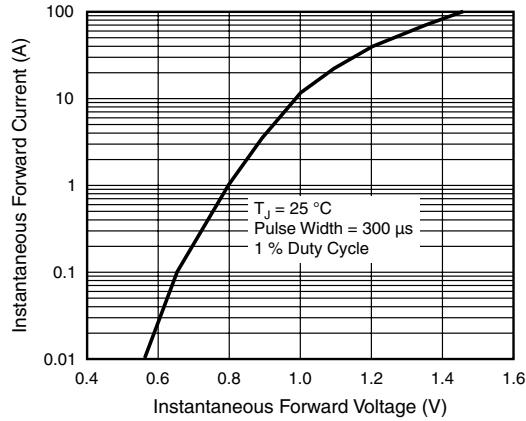


Figure 3. Typical Forward Characteristics Per Diode

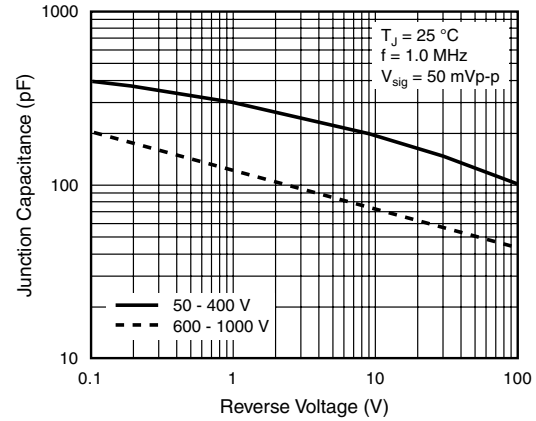


Figure 5. Typical Junction Capacitance Per Diode

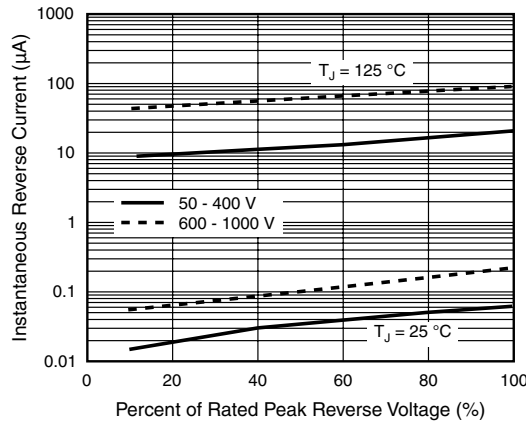


Figure 4. Typical Reverse Leakage Characteristics Per Diode

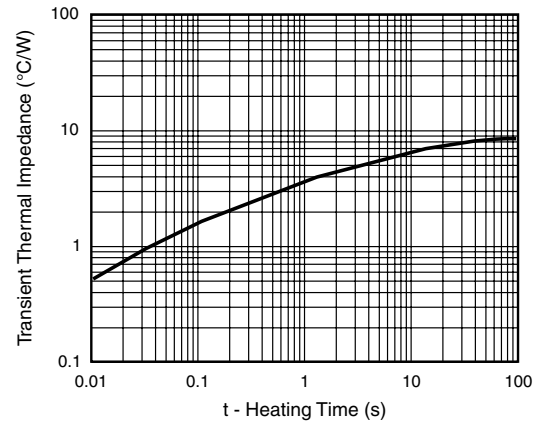
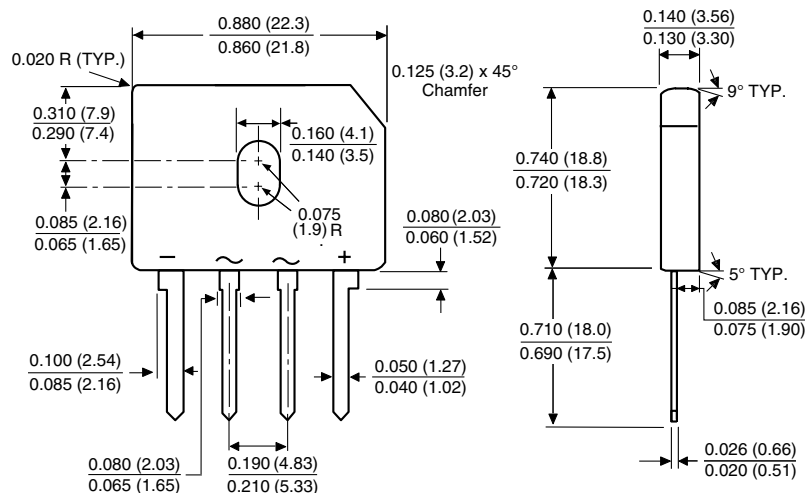


Figure 6. Typical Transient Thermal Impedance

### 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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