

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_{RMS}
- 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 | |
|-------------------------|----------------|
| $I_{F(AV)}$ | 4.0 A |
| V_{RRM} | 50 V to 1000 V |
| I_{FSM} | 150 A |
| I_R | 5 μ 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 | GBU4A | GBU4B | GBU4D | GBU4G | GBU4J | GBU4K | GBU4M | 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 $T_C = 100$ °C ⁽¹⁾ $T_A = 40$ °C ⁽²⁾ | $I_{F(AV)}$ | 4.0 3.0 | | | | | | | A |
| Peak forward surge current single sine-wave superimposed on rated load | I_{FSM} | 150 | | | | | | | A |
| Rating for fusing ($t < 8.3$ ms) | I^2t | 93 | | | | | | | A ² s |
| Operating junction and storage temperature range | T_J, T_{STG} | - 55 to + 150 | | | | | | | °C |

Notes:

(1) Unit case mounted on 1.6 x 1.6 x 0.06" thick (4.0 x 4.0 x 0.15 cm) aluminum plate

(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

| ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted) | | | | | | | | | | |
|----------------------------------------------------------------------------|---------------------------------------------------|----------------|-------|-------|-------|------------|-------|-------|-------|------|
| PARAMETER | TEST CONDITIONS | SYMBOL | GBU4A | GBU4B | GBU4D | GBU4G | GBU4J | GBU4K | GBU4M | UNIT |
| Maximum instantaneous forward drop per diode | 4.0 A | V _F | | | | 1.0 | | | | V |
| Maximum DC reverse current at rated DC blocking voltage per diode | T _A = 25 °C T _A = 125 °C | I _R | | | | 5.0 500 | | | | μA |
| Typical junction capacitance per diode | 4.0 A, 1 MHz | C _J | | 100 | | | | 45 | | pF |

| THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted) | | | | | | | | | | |
|-------------------------------------------------------------------------|--------------------------------------------------------------------|-------|-------|-------|-----------|-------|-------|-------|------|--|
| PARAMETER | SYMBOL | GBU4A | GBU4B | GBU4D | GBU4G | GBU4J | GBU4K | GBU4M | UNIT | |
| Typical thermal resistance | R _{θJA} ⁽²⁾ R _{θJC} ⁽¹⁾ | | | | 22 4.2 | | | | °C/W | |

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

| ORDERING INFORMATION | | | | |
|----------------------|-----------------|------------------------|---------------|---------------|
| PREFERRED P/N | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
| GBU4J-E3/45 | 3.565 | 45 | 20 | Tube |
| GBU4J-E3/51 | 3.565 | 51 | 250 | Paper tray |

RATINGS AND CHARACTERISTICS CURVES

(T_A = 25 °C unless otherwise noted)

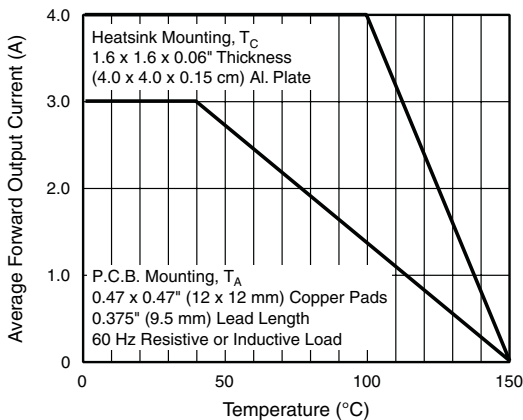


Figure 1. Derating Curve Output Rectified Current

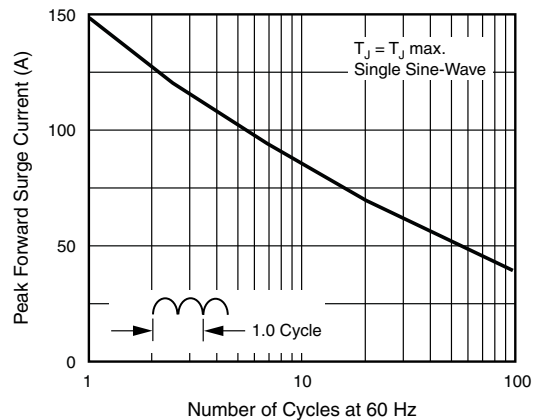


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current Per Diode

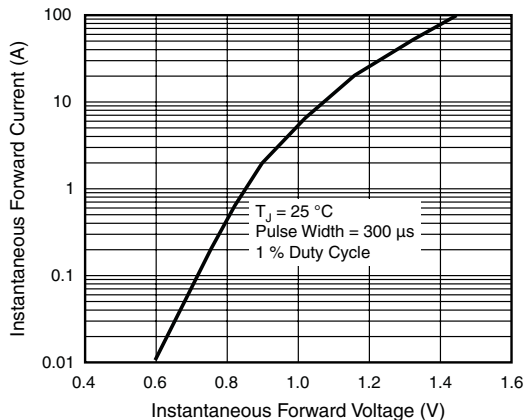


Figure 3. Typical Forward Characteristics Per Diode

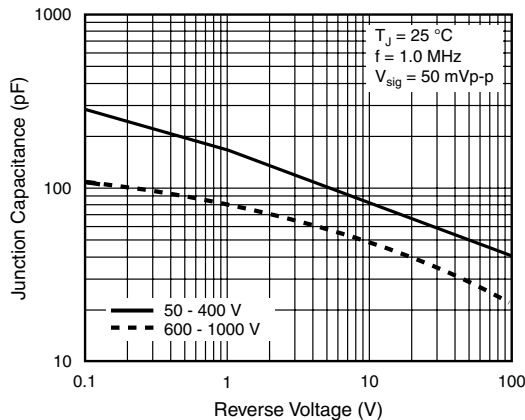


Figure 5. Typical Junction Capacitance Per Diode

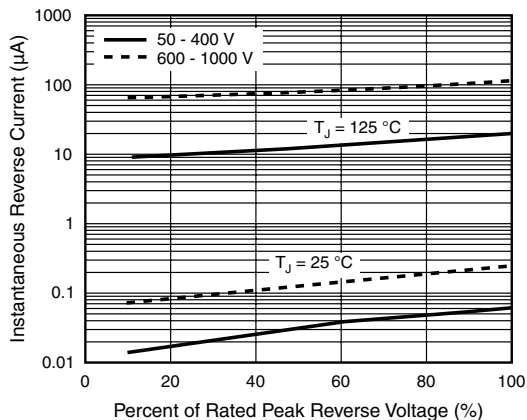


Figure 4. Typical Reverse Leakage Characteristics Per Diode

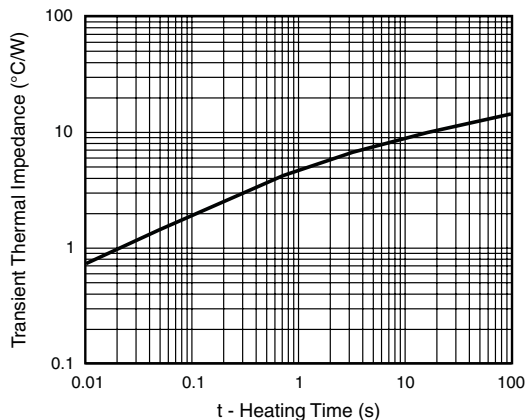
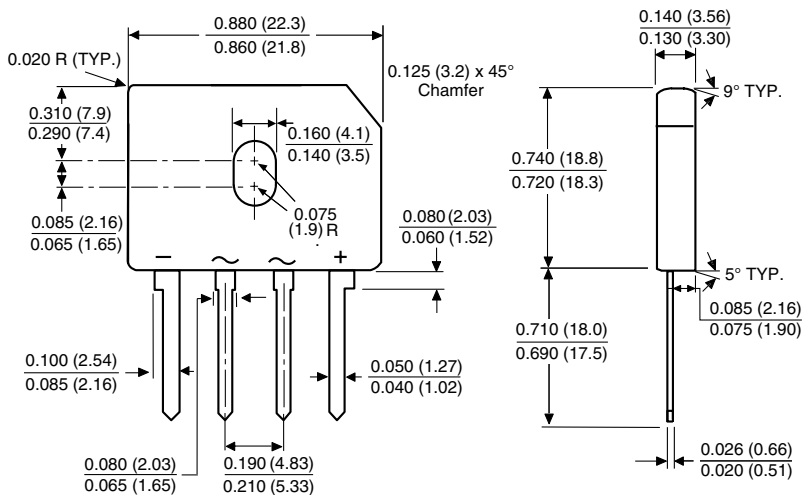


Figure 6. Typical Transient Thermal Impedance

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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