

GBU6A, GBU6B, GBU6D, GBU6G, GBU6J, GBU6K, GBU6M

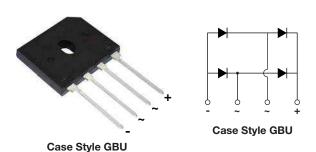
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Vishay General Semiconductor

HALOGEN

FREE

Glass Passivated Single-Phase Bridge Rectifier



| PRIMARY CHARACTERISTICS | | | | | | |
|--|--|--|--|--|--|--|
| Package | GBU | | | | | |
| I _{F(AV)} | 6.0 A | | | | | |
| V _{RRM} | 50 V, 100 V, 200 V, 400 V, 600 V, 800 V, 1000 V | | | | | |
| I _{FSM} | 175 A | | | | | |
| I _R | 5 μΑ | | | | | |
| V _F at I _F = 6.0 A | 1.0 V | | | | | |
| T _J max. | 150 °C | | | | | |
| Diode variations | In-line | | | | | |

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 275 °C max. 10 s, per JESD 22-B106
- Material categorization: for definitions of compliance please see <u>www.vishay.com/doc?99912</u>

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.

MECHANICAL DATA

Case: GBU

Molding compound meets UL 94 V-0 flammability rating 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

M3 suffix 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 | ٧ |
| Maximum RMS voltage | V _{RMS} | 35 | 70 | 140 | 280 | 420 | 560 | 700 | ٧ |
| Maximum DC blocking voltage | V_{DC} | 50 | 100 | 200 | 400 | 600 | 800 | 1000 | ٧ |
| Maximum average forward $T_C = 90 ^{\circ}C^{(1)}$ | I _{F(AV)} | 6.0 | | | | | | | A |
| rectified output current at (fig. 1) $T_A = 40 ^{\circ}\text{C}$ (2) | 'F(AV) | 3.8 | | | | | | | |
| Peak forward surge current single sine-wave superimposed on rated load | I _{FSM} | 175 | | | Α | | | | |
| Rating for fusing (t < 8.3 ms) | I ² t | 127 | | | | A ² 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 PCB with 0.5" x 0.5" (12 mm x 12 mm) copper pads and 0.375" (9.5 mm) lead length



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| ELECTRICAL CHARACTERISTICS (T _A = 25 °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 | | | | > |
| Maximum DC reverse current at rated DC | T _A = 25 °C | 1_ | | | | 5.0 | | | | |
| blocking voltage per diode T _A = 125 °C | | IR | 500 | | | | | | μΑ | |
| Typical junction capacitance per diode | 4 V, 1 MHz | CJ | 68 | | | | pF | | | |

| THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted) | | | | | | | | | |
|---|---|-----|--|--|--|--|------|--|------|
| PARAMETER | SYMBOL GBU6A GBU6B GBU6D GBU6G GBU6J GBU6K GBU6M UN | | | | | | UNIT | | |
| Typical thermal resistance | R _{0JA} (2) | 20 | | | | | | | °C/W |
| Typical trieffilal resistance | R ₀ JC (1)(3) | 2.5 | | | | | | | C/VV |

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

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

RATINGS AND CHARACTERISTICS CURVES (T_A = 25 °C unless otherwise noted)

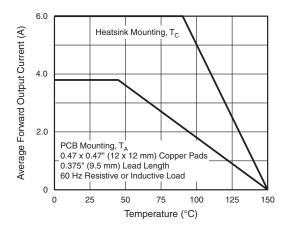


Fig. 1 - Derating Curve Output Rectified Current

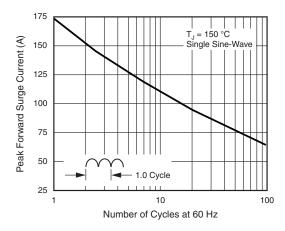


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode



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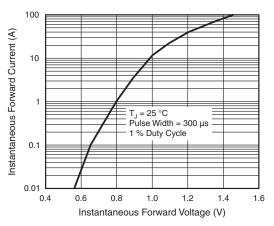


Fig. 3 - Typical Forward Characteristics Per Diode

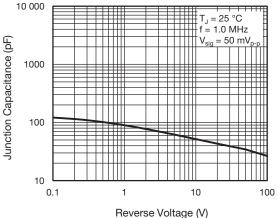


Fig. 5 - Typical Junction Capacitance Per Diode

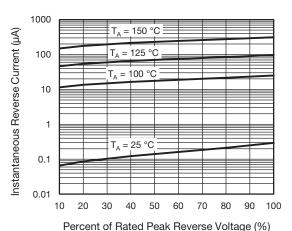


Fig. 4 - Typical Reverse Leakage Characteristics Per Diode

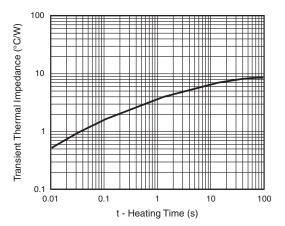
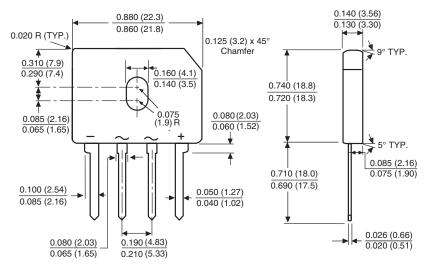


Fig. 6 - Typical Transient Thermal Impedance

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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