

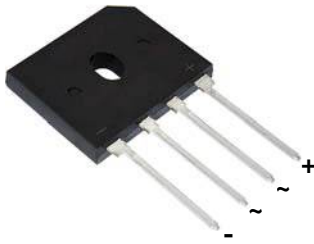


**THE DATASHEET OF
GBU6M-E3/51**

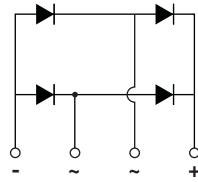




Glass Passivated Single-Phase Bridge Rectifier



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_{RMS}
- Solder dip 275 °C max. 10 s, per JESD 22-B106
- Material categorization:
for definitions of compliance please see www.vishay.com/doc?99912



RoHS COMPLIANT

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-E3 - RoHS-compliant, commercial grade

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

E3 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)

| 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 µA |
| V _F at I _F = 6.0 A | 1.0 V |
| T _J max. | 150 °C |
| Diode variations | In-Line |

| MAXIMUM RATINGS (T _A = 25 °C unless otherwise noted) | | | | | | | | | |
|--|-----------------------------------|-------------|-------|-------|-------|-------|-------|-------|------------------|
| PARAMETER | SYMBOL | 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) | I _{F(AV)} | 6.0 | | | | | | | A |
| $\frac{T_C = 90\text{ °C}^{(1)}}{T_A = 40\text{ °C}^{(2)}}$ | | 3.8 | | | | | | | |
| Peak forward surge current single sine-wave superimposed on rated load | I _{FSM} | 175 | | | | | | | A |
| 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



ELECTRICAL CHARACTERISTICS ($T_A = 25\text{ }^\circ\text{C}$ 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 | | | | μA |
| | $T_A = 125\text{ }^\circ\text{C}$ | | | | | 500 | | | | |
| Typical junction capacitance per diode | 4 V, 1 MHz | C_J | | | | 68 | | | | pF |

THERMAL CHARACTERISTICS ($T_A = 25\text{ }^\circ\text{C}$ 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

ORDERING INFORMATION

| 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)

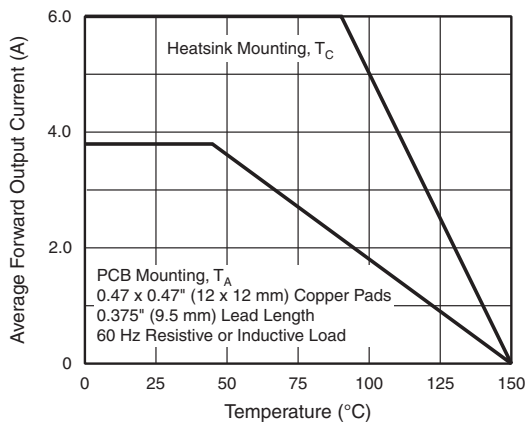


Fig. 1 - Derating Curve Output Rectified Current

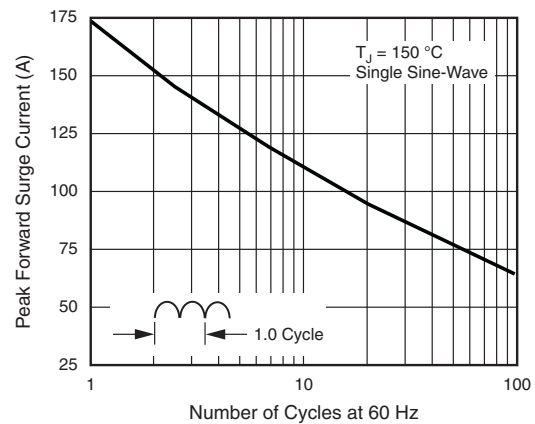


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

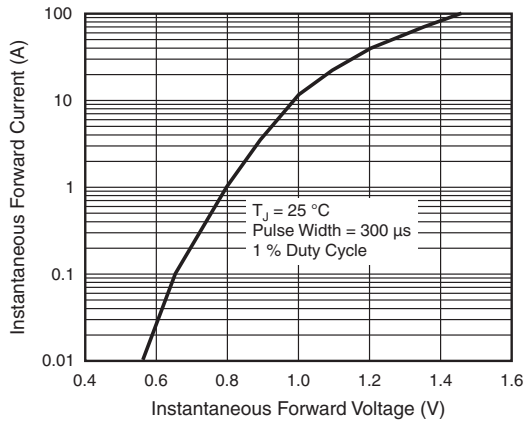


Fig. 3 - Typical Forward Characteristics Per Diode

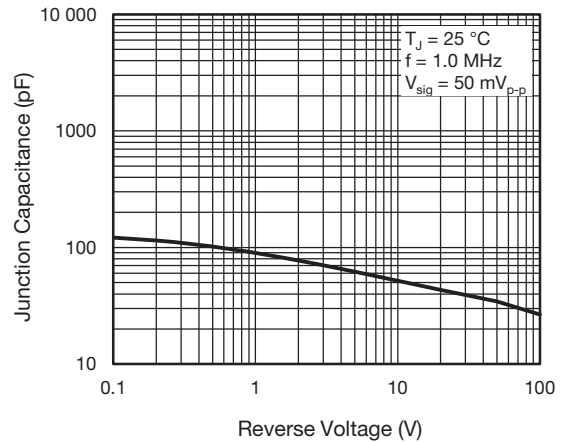


Fig. 5 - Typical Junction Capacitance Per Diode

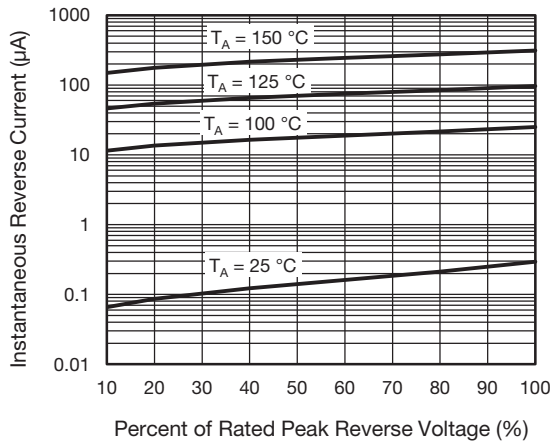


Fig. 4 - Typical Reverse Leakage Characteristics Per Diode

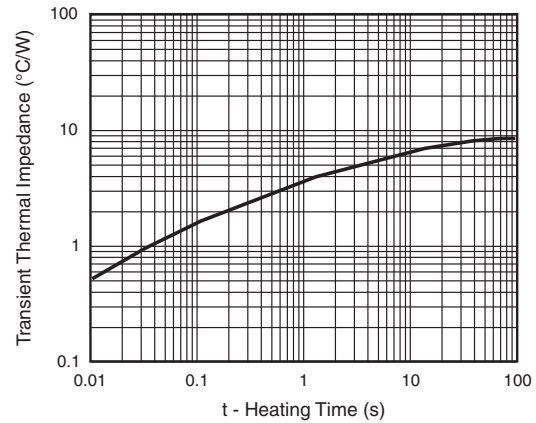
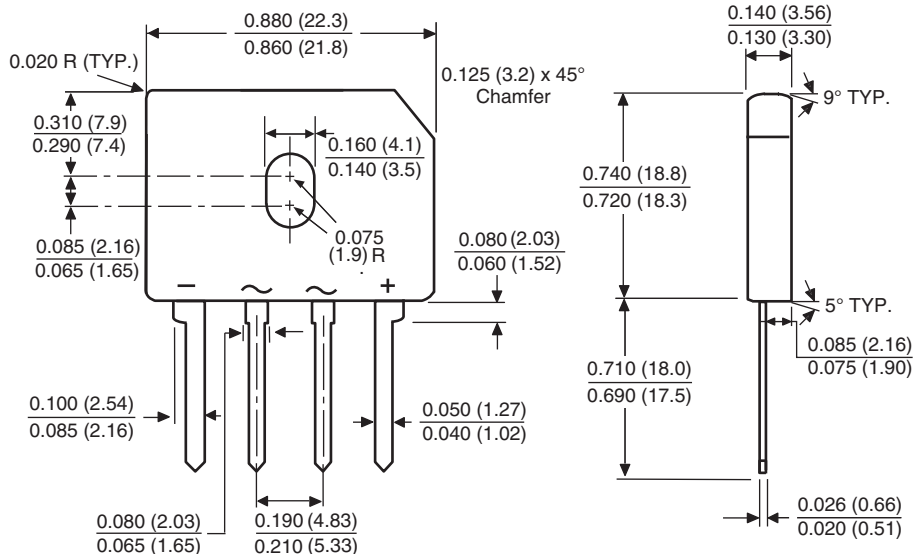


Fig. 6 - Typical Transient Thermal Impedance

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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