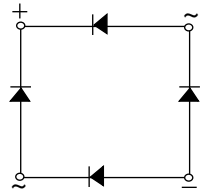
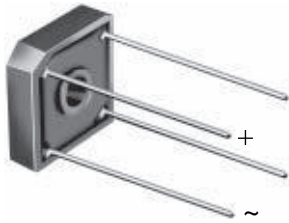




## Glass Passivated Single-Phase Bridge Rectifier



Case Style GBPC6

### FEATURES

- UL recognition file number E54214
- Ideal for printed circuit boards
- Typical  $I_R$  less than 0.5  $\mu A$
- High surge current capability
- High case dielectric strength 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](http://www.vishay.com/doc?99912)



RoHS  
COMPLIANT

| PRIMARY CHARACTERISTICS |   |
|-------------------------|---|
| Package                 | GBPC6   |
| $I_{F(AV)}$             | 6 A   |
| $V_{RRM}$               | 50 V, 100 V, 200 V, 400 V, 600 V, 800 V, 1000 V |
| $I_{FSM}$               | 175 A   |
| $I_R$                   | 5 $\mu A$                                       |
| $V_F$ at $I_F = 3.0 A$  | 1.0 V   |
| $T_J$ max.              | 150 °C  |
| Diode variations        | Quad  |

### TYPICAL APPLICATIONS

General purpose use in AC/DC bridge full wave rectification for power supply, home appliances, office equipment, industrial automation applications.

### MECHANICAL DATA

**Case:** GBPC6

Molding compound meets UL 94 V-0 flammability rating Base P/N-E4 - RoHS-compliant, commercial grade

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

**Polarity:** As marked, positive lead by beveled corner

**Mounting Torque:** 10 cm-kg (8.8 in-lbs) maximum

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

| MAXIMUM RATINGS ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted) |                |   |          |          |          |          |          |          |                  |   |
|--|----------------|---|----------|----------|----------|----------|----------|----------|------------------|---|
| PARAMETER  | SYMBOL         | GBPC 6005                               | GBPC 601 | GBPC 602 | GBPC 604 | GBPC 606 | GBPC 608 | GBPC 610 | UNIT             |   |
| Maximum repetitive peak reverse voltage                                    | $V_{RRM}$      | 50                                      | 100      | 200      | 400      | 600      | 800      | 1000     | V                |   |
| Maximum RMS bridge input 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                        | $I_{F(AV)}$    | $T_C = 50\text{ }^\circ\text{C}$ (1)(2) |          |          |          |          |          |          | 6.0              | A |
|  |                | $T_A = 40\text{ }^\circ\text{C}$ (3)    |          |          |          |          |          |          | 3.0              |   |
| Peak forward surge current single sine-wave superimposed on rated load     | $I_{FSM}$      | 175                                     |          |          |          |          |          |          | A                |   |
| Rating for fusing ( $t = 8.3\text{ ms}$ )                                  | $I^2t$         | 127                                     |          |          |          |          |          |          | $A^2s$           |   |
| Operating junction and storage temperature range                           | $T_J, T_{STG}$ | - 55 to + 150                           |          |          |          |          |          |          | $^\circ\text{C}$ |   |

### Notes

- (1) Bolt down on heat-sink with silicone thermal compound between bridge and mounting surface for maximum heat transfer with #6 screw
- (2) Unit mounted on 5.5" x 6.0" x 0.11" thick (14 cm x 15 cm x 0.3 cm) aluminum plate
- (3) Unit mounted on PCB at 0.375" (9.5 mm) lead length with 0.5" x 0.5" (12 mm x 12 mm) copper pads



| ELECTRICAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted) |                |                         |           |          |          |          |          |          |          |      |    |
|--|----------------|-------------------------|-----------|----------|----------|----------|----------|----------|----------|------|----|
| PARAMETER  | SYMBOL         | TEST CONDITIONS         | GBPC 6005 | GBPC 601 | GBPC 602 | GBPC 604 | GBPC 606 | GBPC 608 | GBPC 610 | UNIT |    |
| Maximum instantaneous forward voltage drop per diode                       | V <sub>F</sub> | 3.0 A                   | 1.0       |          |          |          |          |          |          |      | V  |
| Maximum DC reverse current at rated DC blocking voltage per diode          | I <sub>R</sub> | T <sub>A</sub> = 25 °C  | 5.0       |          |          |          |          |          |          |      | μA |
|  |                | T <sub>A</sub> = 125 °C | 500       |          |          |          |          |          |          |      |    |
| Typical junction capacitance per diode                                     | C <sub>J</sub> | 4.0 V, 1 MHz            | 186       |          |          |          | 90       |          |          |      | pF |

| THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted) |                  |           |          |          |          |          |          |          |      |      |
|---|------------------|-----------|----------|----------|----------|----------|----------|----------|------|------|
| PARAMETER   | SYMBOL           | GBPC 6005 | GBPC 601 | GBPC 602 | GBPC 604 | GBPC 606 | GBPC 608 | GBPC 610 | UNIT |      |
| Typical thermal resistance (1)  | R <sub>θJA</sub> | 22        |          |          |          |          |          |          |      | °C/W |
|   | R <sub>θJC</sub> | 7.3       |          |          |          |          |          |          |      |      |

**Notes**

- (1) Bolt down on heat-sink with silicone thermal compound between bridge and mounting surface for maximum heat transfer with #6 screw
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- (3) Unit mounted on PCB at 0.375" (9.5 mm) lead length with 0.5" x 0.5" (12 mm x 12 mm) copper pads

| ORDERING INFORMATION (Example) |                 |              |               |               |
|--------------------------------|-----------------|--------------|---------------|---------------|
| PREFERRED P/N                  | UNIT WEIGHT (g) | PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
| GBPC606-E4/51                  | 3.2             | 51           | 100           | Paper box     |

**RATINGS AND CHARACTERISTICS CURVES (T<sub>A</sub> = 25 °C unless otherwise noted)**

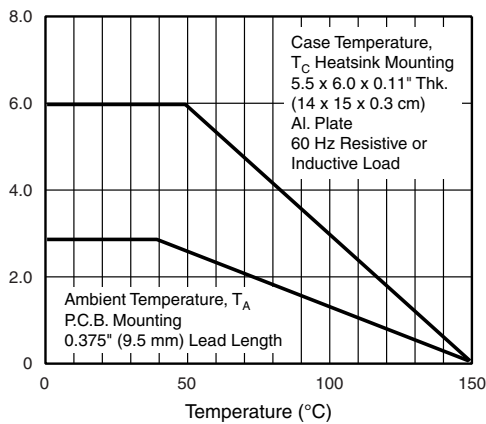


Fig. 1 - Derating Curve Output Rectified Current

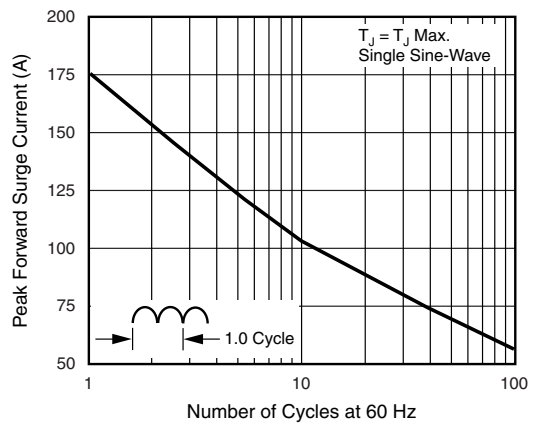


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

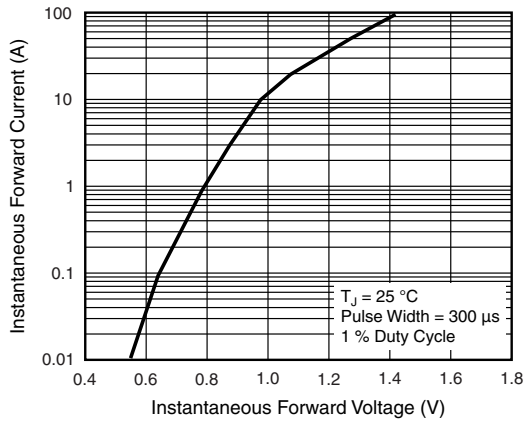


Fig. 3 - Typical Forward Characteristics Per Diode

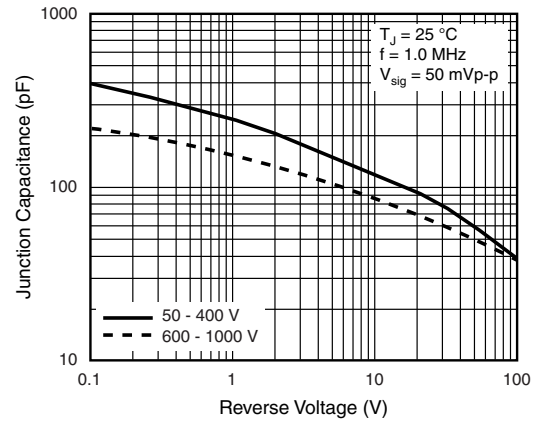


Fig. 5 - Typical Junction Capacitance Per Diode

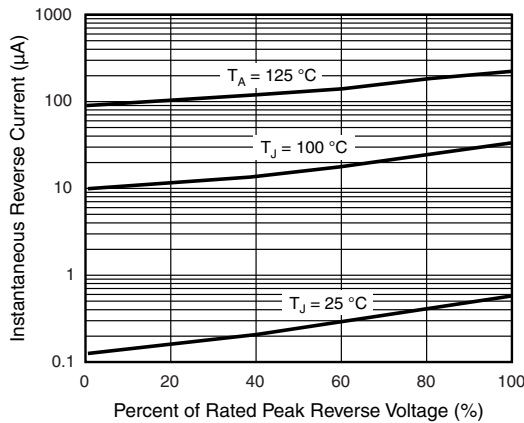


Fig. 4 - Typical Reverse Leakage Characteristics Per Diode

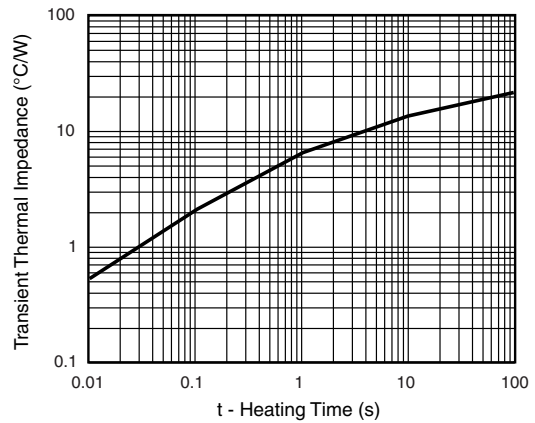
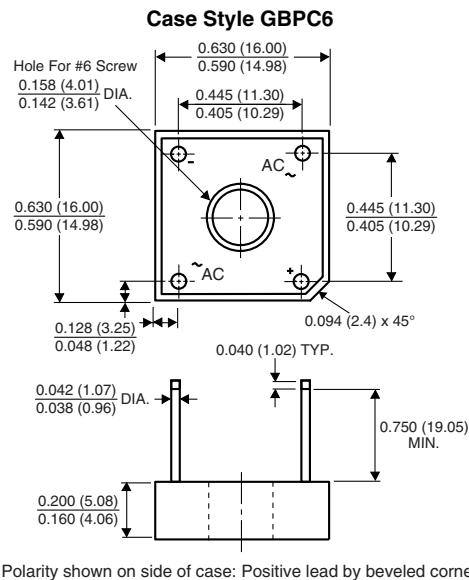


Fig. 6 - Typical Transient Thermal Impedance Per Diode

**PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)





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