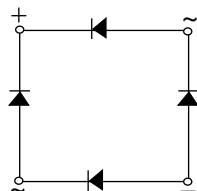
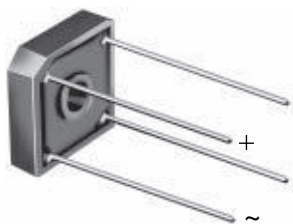




## Glass Passivated Single-Phase Bridge Rectifier



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 ( $T_A = 25$ °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 <sub>RRM</sub>                  | 50            | 100      | 200      | 400      | 600      | 800      | 1000     | V                |
| Maximum RMS bridge input voltage                                                                                                         | V <sub>RMS</sub>                  | 35            | 70       | 140      | 280      | 420      | 560      | 700      | V                |
| Maximum DC blocking voltage                                                                                                              | V <sub>DC</sub>                   | 50            | 100      | 200      | 400      | 600      | 800      | 1000     | V                |
| Maximum average forward rectified output current at<br>T <sub>C</sub> = 50 °C <sup>(1)(2)</sup><br>T <sub>A</sub> = 40 °C <sup>(3)</sup> | I <sub>F(AV)</sub>                | 6.0           |          |          |          |          |          |          | A                |
|                                                                                                                                          |                                   | 3.0           |          |          |          |          |          |          |                  |
| Peak forward surge current single sine-wave superimposed on rated load                                                                   | I <sub>FSM</sub>                  | 175           |          |          |          |          |          |          | A                |
| Rating for fusing (t = 8.3 ms)                                                                                                           | I <sup>2</sup> t                  | 127           |          |          |          |          |          |          | A <sup>2</sup> s |
| Operating junction and storage temperature range                                                                                         | T <sub>J</sub> , T <sub>STG</sub> | - 55 to + 150 |          |          |          |          |          |          | °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** ( $T_A = 25\text{ }^{\circ}\text{C}$  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** ( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

| PARAMETER                      | SYMBOL           | GBPC 6005 | GBPC 601 | GBPC 602 | GBPC 604 | GBPC 606 | GBPC 608 | GBPC 610 | UNIT |
|--------------------------------|------------------|-----------|----------|----------|----------|----------|----------|----------|------|
| 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     |

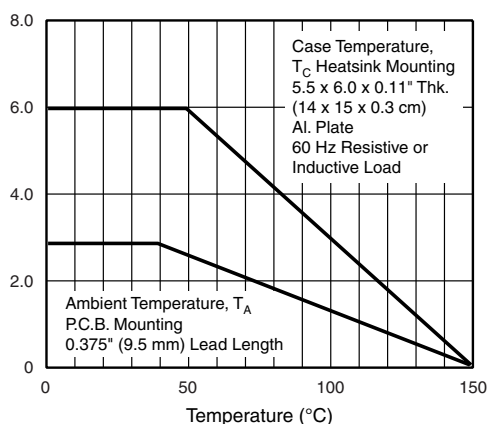
**RATINGS AND CHARACTERISTICS CURVES** ( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

Fig. 1 - Derating Curve Output Rectified Current

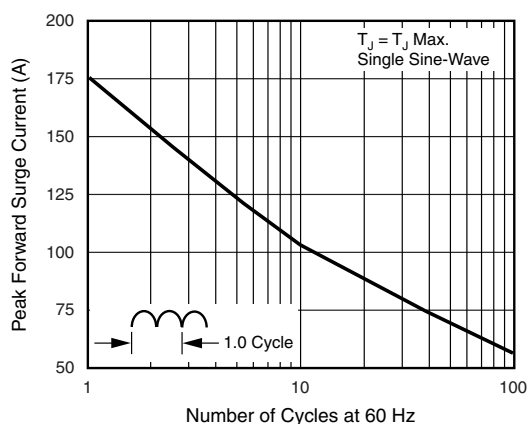


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

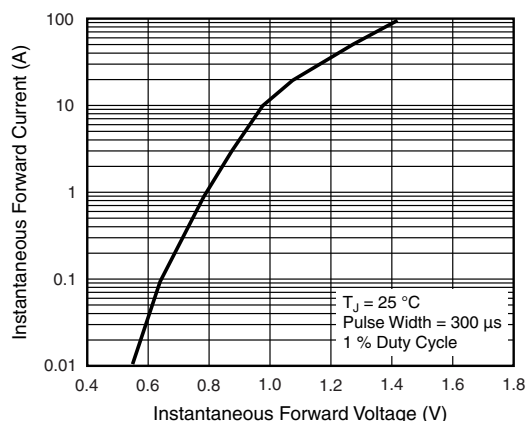


Fig. 3 - Typical Forward Characteristics Per Diode

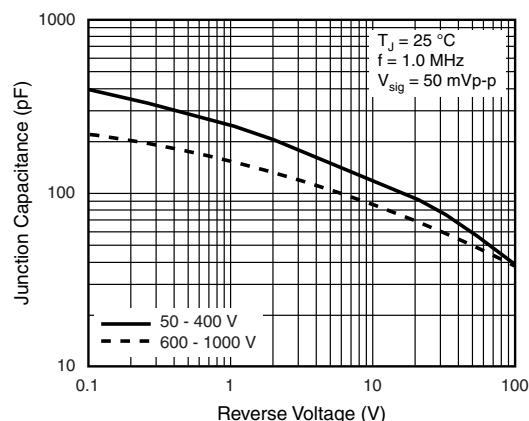


Fig. 5 - Typical Junction Capacitance Per Diode

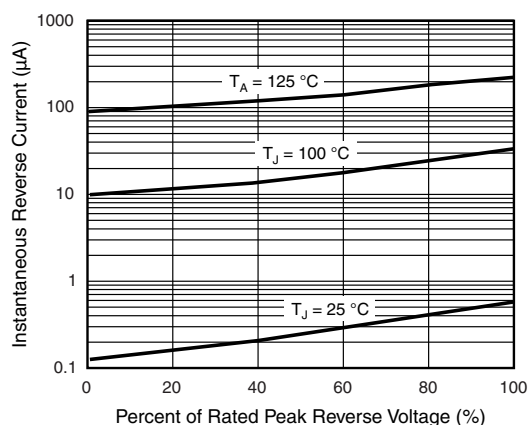


Fig. 4 - Typical Reverse Leakage Characteristics Per Diode

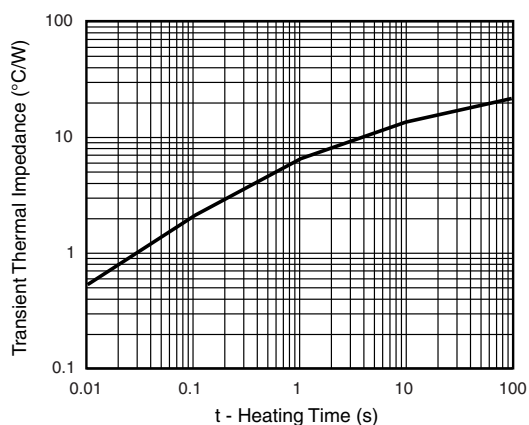
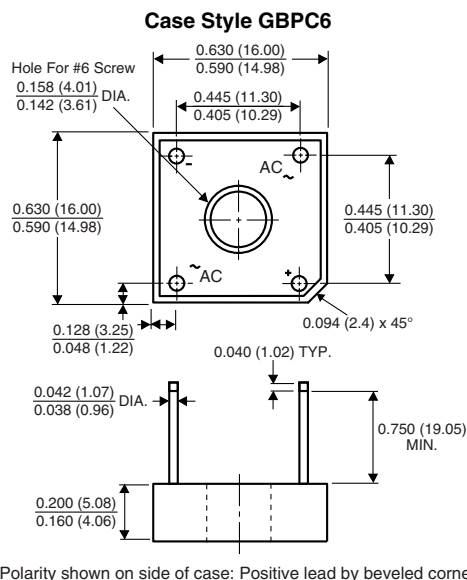


Fig. 6 - Typical Transient Thermal Impedance Per Diode

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



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