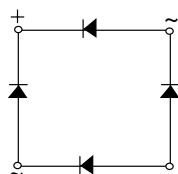
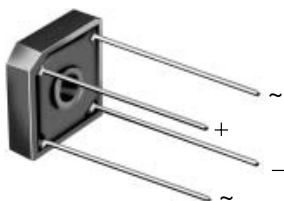


## Glass Passivated Single-Phase Bridge Rectifier



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 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 power supply, home appliances, office equipment, industrial automation applications.

### MECHANICAL DATA

**Case:** GBPC6

Epoxy meets UL 94V-0 flammability rating

**Terminals:** Silver plated leads, solderable per J-STD-002 and JESD22-B102  
E4 suffix for consumer grade

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

**Mounting Torque:** 10 cm·kg (8.8 inches·lbs) max.

**Recommended Torque:** 5.7 cm·kg (5 inches·lbs)

| PRIMARY CHARACTERISTICS |                |
|-------------------------|----------------|
| $I_{F(AV)}$             | 6 A            |
| $V_{RRM}$               | 50 V to 1000 V |
| $I_{FSM}$               | 175 A          |
| $I_R$                   | 5 $\mu A$      |
| $V_F$                   | 1.0 V          |
| $T_J$ max.              | 150 °C         |

| 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                                                                             | $V_{RRM}$      | 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 $T_C = 50$ °C <sup>(1)(2)</sup><br>$T_A = 40$ °C <sup>(3)</sup> | $I_{F(AV)}$    | 6.0<br>3.0    |          |          |          |          |          |          | A                |
| Peak forward surge current single sine-wave superimposed on rated load                                              | $I_{FSM}$      | 175           |          |          |          |          |          |          | A                |
| Rating for fusing ( $t < 8.3$ ms)                                                                                   | $I^2t$         | 127           |          |          |          |          |          |          | A <sup>2</sup> s |
| Operating junction and storage temperature range                                                                    | $T_J, T_{STG}$ | - 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 x 15 x 0.3 cm) aluminum plate
- (3) Unit mounted on P.C.B. at 0.375" (9.5 mm) lead length with 0.5 x 0.5" (12 x 12 mm) copper pads

| <b>ELECTRICAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted) |                                                                           |        |            |          |          |          |          |          |          |               |
|------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|--------|------------|----------|----------|----------|----------|----------|----------|---------------|
| PARAMETER                                                                                      | TEST CONDITIONS                                                           | SYMBOL | GBPC 6005  | GBPC 601 | GBPC 602 | GBPC 604 | GBPC 606 | GBPC 608 | GBPC 610 | UNIT          |
| Maximum instantaneous forward voltage drop per diode                                           | 3.0 A                                                                     | $V_F$  | 1.0        |          |          |          |          |          |          | V             |
| Maximum DC reverse current at rated DC blocking voltage per diode                              | $T_A = 25\text{ }^{\circ}\text{C}$<br>$T_A = 125\text{ }^{\circ}\text{C}$ | $I_R$  | 5.0<br>500 |          |          |          |          |          |          | $\mu\text{A}$ |
| Typical junction capacitance per diode                                                         | 4.0 V, 1 MHz                                                              | $C_J$  | 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 <sup>(1)</sup>                               | R <sub>θJA</sub><br>R <sub>θJC</sub> | 22<br>7.3 |          |          |          |          |          |          | °C/W |

**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 x 15 x 0.3 cm) aluminum plate
- (3) Unit mounted on P.C.B. at 0.375" (9.5 mm) lead length with 0.5 x 0.5" (12 x 12 mm) copper pads

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

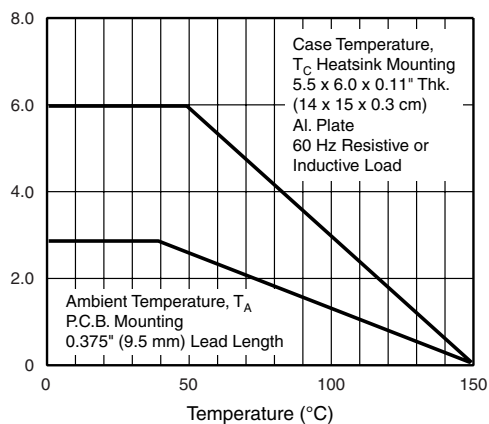
**RATINGS AND CHARACTERISTICS CURVES**( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

Figure 1. Derating Curve Output Rectified Current

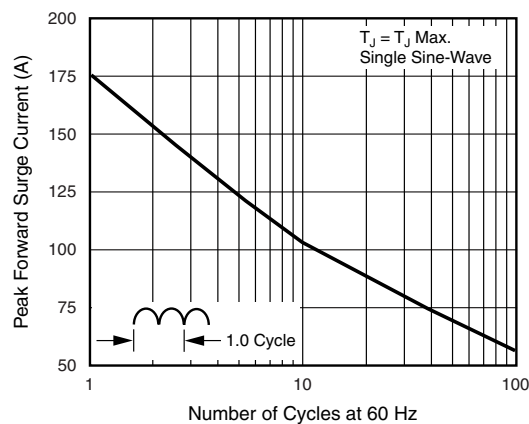


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current Per Diode

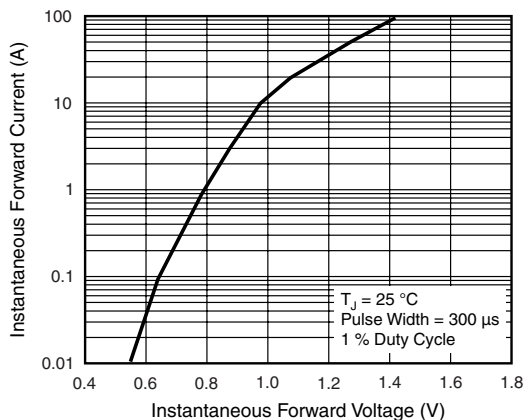


Figure 3. Typical Forward Characteristics Per Diode

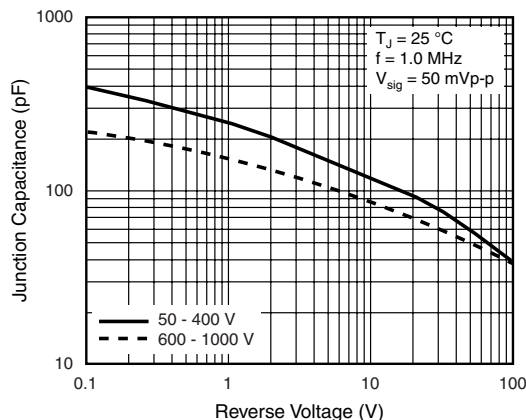


Figure 5. Typical Junction Capacitance Per Diode

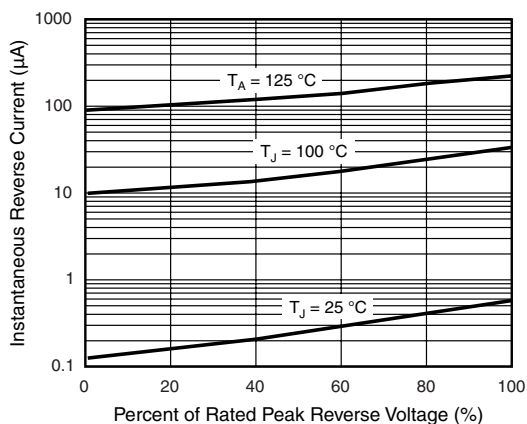


Figure 4. Typical Reverse Leakage Characteristics Per Diode

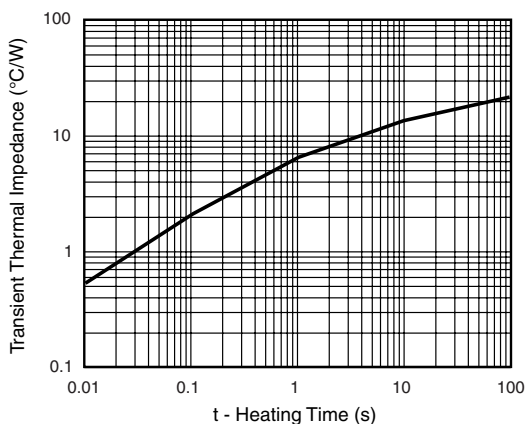
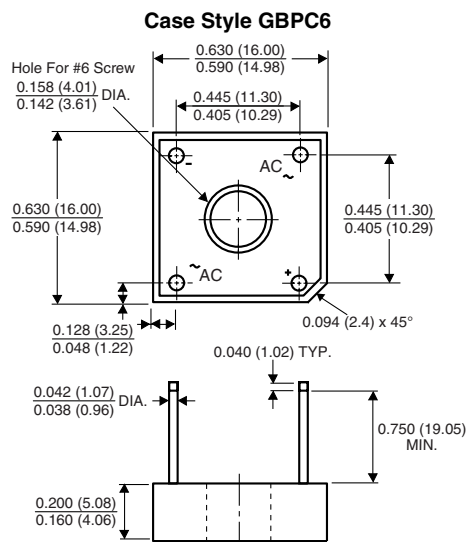


Figure 6. Typical Transient Thermal Impedance Per Diode

### PACKAGE OUTLINE DIMENSIONS in inches (millimeters)



Polarity shown on side of case: Positive lead by beveled corner



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