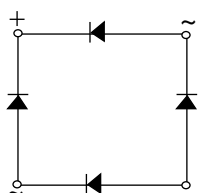
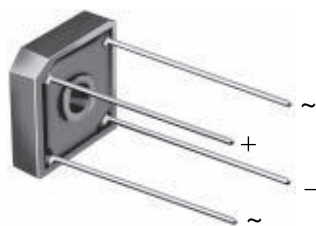




## Glass Passivated Single-Phase Bridge Rectifier



Case Style GBPC1

## PRIMARY CHARACTERISTICS

|                        |                                                    |
|------------------------|----------------------------------------------------|
| Package                | GBPC1                                              |
| $I_{F(AV)}$            | 3 A                                                |
| $V_{RRM}$              | 50 V, 100 V, 200 V, 400 V, 600 V,<br>800 V, 1000 V |
| $I_{FSM}$              | 60 A                                               |
| $I_R$                  | 5 $\mu$ A                                          |
| $V_F$ at $I_F = 1.5$ A | 1.0 V                                              |
| $T_J$ max.             | 150 °C                                             |
| Diode variations       | Quad                                               |

## FEATURES

- UL recognition, file number E54214
- Ideal for printed circuit boards
- Typical  $I_R$  less than 0.1  $\mu$ A
- High case dielectric strength
- High surge current capability
- 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

## TYPICAL APPLICATIONS

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

## MECHANICAL DATA

**Case:** GBPC1

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 inches-lbs) max.

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

MAXIMUM RATINGS ( $T_A = 25$  °C unless otherwise noted)

| PARAMETER                                                                                                        | SYMBOL         | GBPC 1005     | GBPC 101 | GBPC 102 | GBPC 104 | GBPC 106 | GBPC 108 | GBPC 110 | 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 $T_C = 60$ °C <sup>(1)</sup><br>$T_A = 25$ °C <sup>(2)</sup> | $I_{F(AV)}$    | 3.0           |          |          |          |          |          |          | A                |
|                                                                                                                  |                | 2.0           |          |          |          |          |          |          |                  |
| Peak forward surge current single sine-wave superimposed on rated load                                           | $I_{FSM}$      | 60            |          |          |          |          |          |          | A                |
| Rating for fusing ( $t < 8.3$ ms)                                                                                | $I^2t$         | 15            |          |          |          |          |          |          | A <sup>2</sup> s |
| Operating junction and storage temperature range                                                                 | $T_J, T_{STG}$ | - 55 to + 150 |          |          |          |          |          |          | °C               |

## Notes

<sup>(1)</sup> Unit mounted on 4.0" x 4.0" x 0.11" thick (10.5 cm x 10.5 cm x 0.3 cm) aluminum plate

<sup>(2)</sup> Unit mounted on P.C.B. 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                                                                  | TEST CONDITIONS         | SYMBOL         | GBPC 1005 | GBPC 101 | GBPC 102 | GBPC 104 | GBPC 106 | GBPC 108 | GBPC 110 | UNIT |
| Maximum instantaneous forward voltage drop per diode                       | I <sub>F</sub> = 1.5 A  | V <sub>F</sub> | 1.0       |          |          |          |          |          |          | V    |
| Maximum DC reverse current at rated DC blocking voltage per diode          | T <sub>A</sub> = 25 °C  | I <sub>R</sub> | 5.0       |          |          |          |          |          |          | μA   |
|                                                                            | T <sub>A</sub> = 125 °C |                | 500       |          |          |          |          |          |          |      |
| Typical junction capacitance per diode                                     | 4.0 V, 1 MHz            | C <sub>J</sub> | 21        |          |          |          |          |          |          | pF   |

| THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted) |                  |           |          |          |          |          |          |          |      |
|-------------------------------------------------------------------------|------------------|-----------|----------|----------|----------|----------|----------|----------|------|
| PARAMETER                                                               | SYMBOL           | GBPC 1005 | GBPC 101 | GBPC 102 | GBPC 104 | GBPC 106 | GBPC 108 | GBPC 110 | UNIT |
| Typical thermal resistance <sup>(1)</sup>                               | R <sub>θJA</sub> | 12        |          |          |          |          |          |          | °C/W |
|                                                                         | R <sub>θJC</sub> | 8.0       |          |          |          |          |          |          |      |

**Note**

<sup>(1)</sup> Bolt down on heat-sink with silicone thermal compound between bridge and mounting surface for maximum heat transfer with #6 screw

| ORDERING INFORMATION (Example) |                 |                        |               |               |
|--------------------------------|-----------------|------------------------|---------------|---------------|
| PREFERRED P/N                  | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
| GBPC106-E4/51                  | 2.5             | 51                     | 100           | Paper box     |

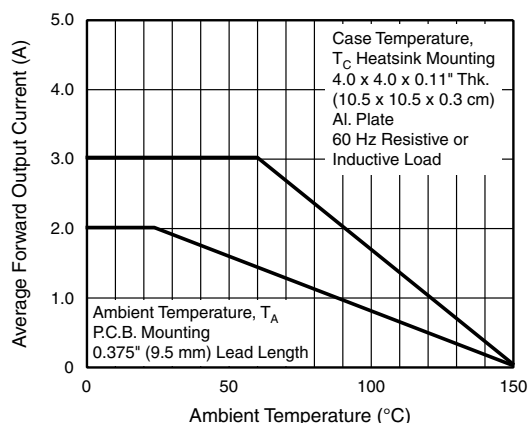
**RATINGS AND CHARACTERISTICS CURVES** ( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

Fig. 1 - Derating Curve Output Rectified Current

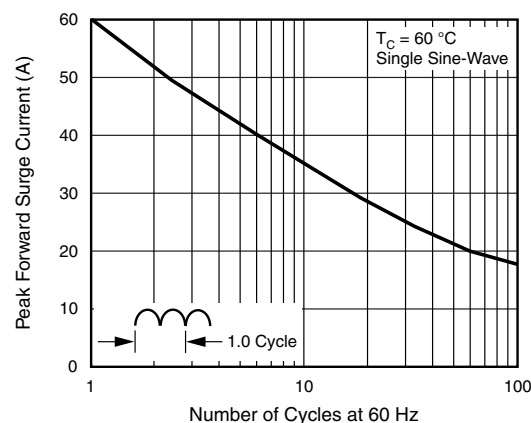


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

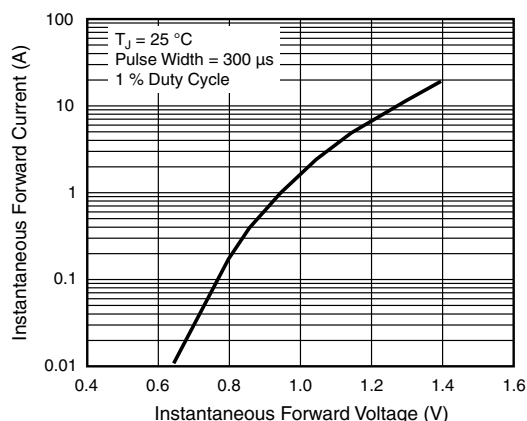


Fig. 3 - Typical Forward Characteristics Per Diode

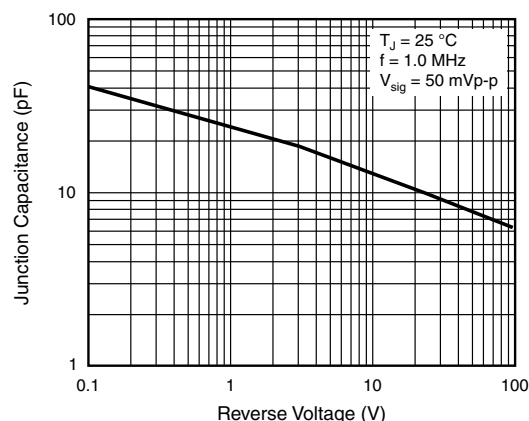


Fig. 5 - Typical Junction Capacitance Per Diode

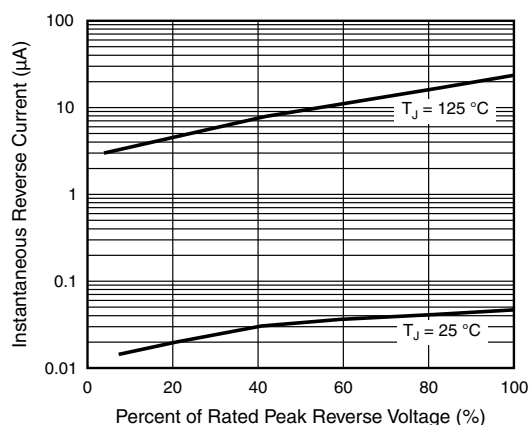


Fig. 4 - Typical Reverse Leakage Characteristics Per Diode

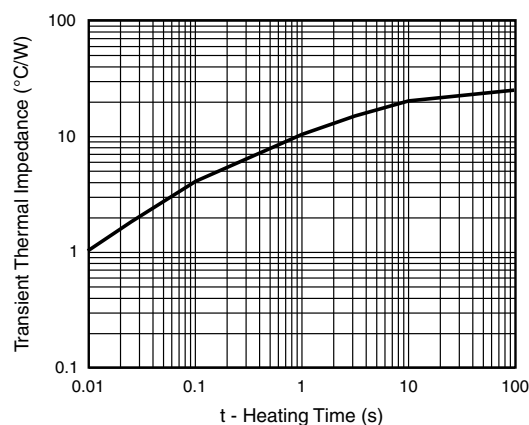
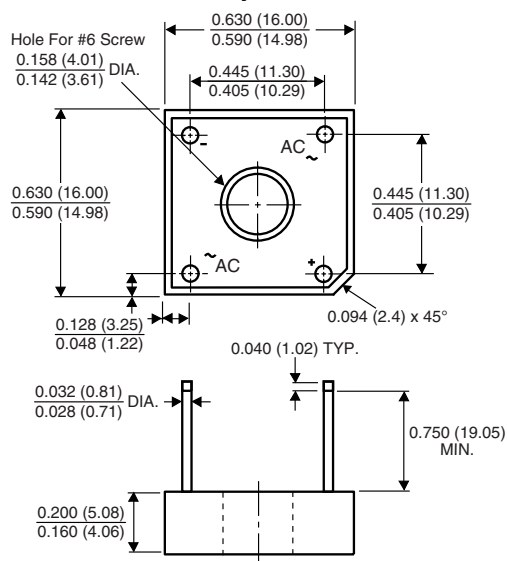


Fig. 6 - Typical Transient Thermal Impedance Per Diode

**PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)**Case Style GBPC1**

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



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