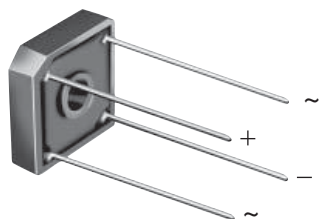
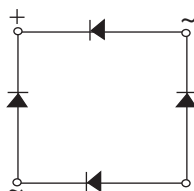
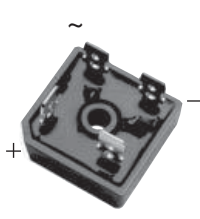


## Glass Passivated Single-Phase Bridge Rectifier

GBPC-W



GBPC



### FEATURES

- UL recognition file number E54214
- Universal 3-way terminals: snap-on, wire wrap-around, or PCB mounting
- Typical  $I_R$  less than 0.3  $\mu$ A
- High surge current capability
- Low thermal resistance
- 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 power supply, home appliances, office equipment, industrial automation applications.

### MECHANICAL DATA

**Case:** GBPC, GBPC-W

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

**Terminals:** Nickel plated on faston lugs or silver plated on wire leads, solderable per J-STD-002 and JESD22-B102.  
Suffix letter "W" added to indicate wire leads (e.g. GBPC12005W).

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

**Mounting Torque:** 20 inches-lbs. max.

### PRIMARY CHARACTERISTICS

|                  |                            |
|------------------|----------------------------|
| Package          | GBPC, GBPC-W               |
| $I_{F(AV)}$      | 12 A, 15 A, 25 A, 35 A     |
| $V_{RRM}$        | 50 V to 1000 V             |
| $I_{FSM}$        | 200 A, 300 A, 300 A, 400 A |
| $I_R$            | 5 $\mu$ A                  |
| $V_F$ at $I_F$   | 1.1 V                      |
| $T_J$ max.       | 150 °C                     |
| Diode variations | Quad                       |

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

| PARAMETER                                                                        |        | SYMBOL                            | GBPC12, 15, 25, 35 |     |     |     |     |     | UNIT             |    |
|----------------------------------------------------------------------------------|--------|-----------------------------------|--------------------|-----|-----|-----|-----|-----|------------------|----|
|                                                                                  |        |                                   | 005                | 01  | 02  | 04  | 06  | 08  |                  | 10 |
| Maximum repetitive peak reverse voltage                                          |        | V <sub>RRM</sub>                  | 50                 | 100 | 200 | 400 | 600 | 800 | 1000             | V  |
| Maximum RMS 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 (Fig. 1)                        | GBPC12 | I <sub>F (AV)</sub>               | 12                 |     |     |     |     |     | A                |    |
|                                                                                  | GBPC15 |                                   | 15                 |     |     |     |     |     |                  |    |
|                                                                                  | GBPC25 |                                   | 25                 |     |     |     |     |     |                  |    |
|                                                                                  | GBPC35 |                                   | 35                 |     |     |     |     |     |                  |    |
| Peak forward surge current single sine-wave superimposed on rated load           | GBPC12 | I <sub>FSM</sub>                  | 200                |     |     |     |     |     | A                |    |
|                                                                                  | GBPC15 |                                   | 300                |     |     |     |     |     |                  |    |
|                                                                                  | GBPC25 |                                   | 300                |     |     |     |     |     |                  |    |
|                                                                                  | GBPC35 |                                   | 400                |     |     |     |     |     |                  |    |
| Rating (non-repetitive, for t greater than 1 ms and less than 8.3 ms) for fusing | GBPC12 | I <sup>2</sup> t                  | 160                |     |     |     |     |     | A <sup>2</sup> s |    |
|                                                                                  | GBPC15 |                                   | 375                |     |     |     |     |     |                  |    |
|                                                                                  | GBPC25 |                                   | 375                |     |     |     |     |     |                  |    |
|                                                                                  | GBPC35 |                                   | 660                |     |     |     |     |     |                  |    |
| RMS isolation voltage from case to leads                                         |        | V <sub>ISO</sub>                  | 2500               |     |     |     |     |     | V                |    |
| Operating junction storage temperature range                                     |        | T <sub>J</sub> , T <sub>STG</sub> | - 55 to + 150      |     |     |     |     |     | °C               |    |

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

| PARAMETER                                                         |        | TEST CONDITIONS         | SYMBOL         | GBPC12, 15, 25, 35 |    |    |    |    |    |    | UNIT |
|-------------------------------------------------------------------|--------|-------------------------|----------------|--------------------|----|----|----|----|----|----|------|
|                                                                   |        |                         |                | 005                | 01 | 02 | 04 | 06 | 08 | 10 |      |
| Maximum instantaneous forward drop per diode                      | GBPC12 | I <sub>F</sub> = 6.0 A  | V <sub>F</sub> | 1.1                |    |    |    |    |    |    | V    |
|                                                                   | GBPC15 | I <sub>F</sub> = 7.5 A  |                |                    |    |    |    |    |    |    |      |
|                                                                   | GBPC25 | I <sub>F</sub> = 12.5 A |                |                    |    |    |    |    |    |    |      |
|                                                                   | GBPC35 | I <sub>F</sub> = 17.5 A |                |                    |    |    |    |    |    |    |      |
| Maximum reverse DC 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 V, 1 MHz              | C <sub>J</sub> | 300                |    |    |    |    |    |    | pF   |

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

| PARAMETER                  |                  | SYMBOL                | GBPC12, 15, 25, 35 |    |    |    |    |    |    | UNIT |
|----------------------------|------------------|-----------------------|--------------------|----|----|----|----|----|----|------|
|                            |                  |                       | 005                | 01 | 02 | 04 | 06 | 08 | 10 |      |
| Typical thermal resistance | GBPC12 to GBPC25 | $R_{\theta JC}^{(1)}$ | 1.9                |    |    |    |    |    |    | °C/W |
|                            | GBPC35           |                       | 1.4                |    |    |    |    |    |    |      |

**Notes**<sup>(1)</sup> With heatsink<sup>(2)</sup> Bolt down on heatsink with silicone thermal compound between bridge and mounting surface for maximum heat transfer with #10 screw**ORDERING INFORMATION** (Example)

| PREFERRED P/N   | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
|-----------------|-----------------|------------------------|---------------|---------------|
| GBPC1206-E4/51  | 15.79           | 51                     | 100           | Paper box     |
| GBPC1506-E4/51  | 15.79           | 51                     | 100           | Paper box     |
| GBPC2506-E4/51  | 15.79           | 51                     | 100           | Paper box     |
| GBPC3506-E4/51  | 15.79           | 51                     | 100           | Paper box     |
| GBPC1206W-E4/51 | 13.8            | 51                     | 100           | Paper box     |
| GBPC1506W-E4/51 | 13.8            | 51                     | 100           | Paper box     |
| GBPC2506W-E4/51 | 13.8            | 51                     | 100           | Paper box     |
| GBPC3506W-E4/51 | 13.8            | 51                     | 100           | Paper box     |



## RATINGS AND CHARACTERISTICS CURVES

( $T_A = 25^\circ\text{C}$  unless otherwise noted)

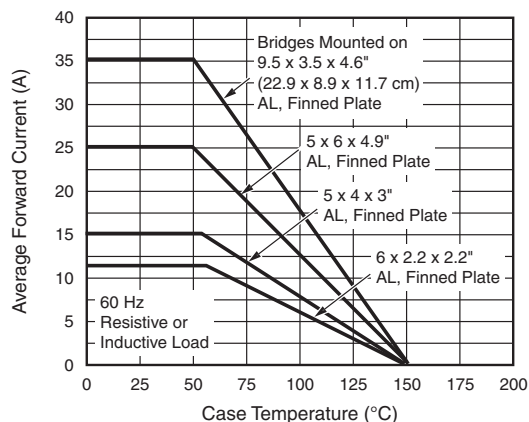


Fig. 1 - Maximum Output Rectified Current

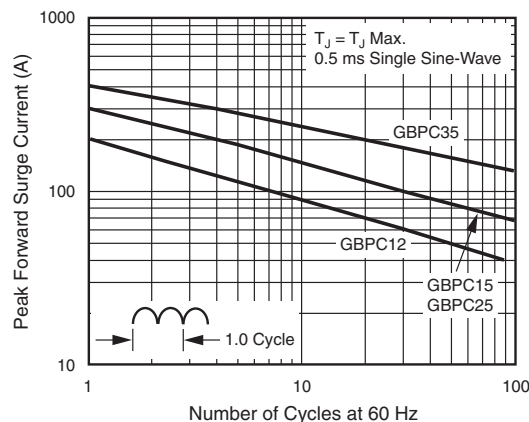


Fig. 4 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

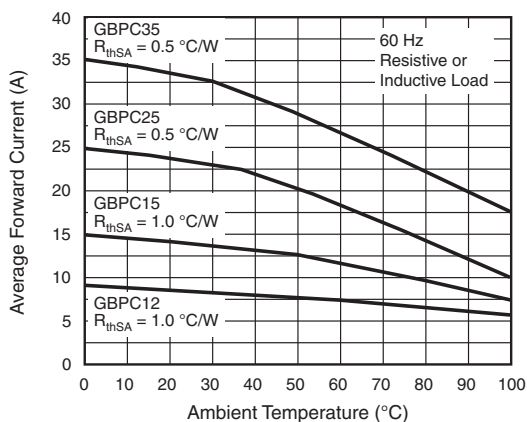


Fig. 2 - Maximum Output Rectified Current

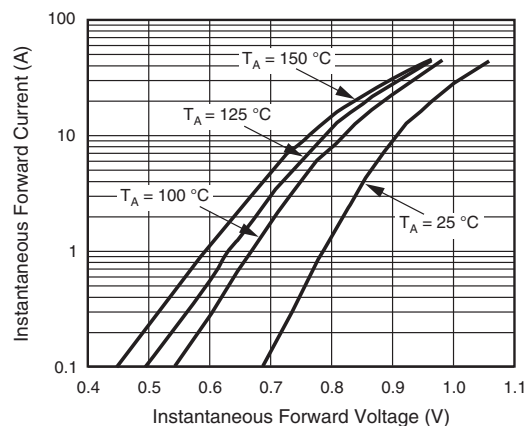


Fig. 5 - Typical Instantaneous Forward Characteristics Per Diode

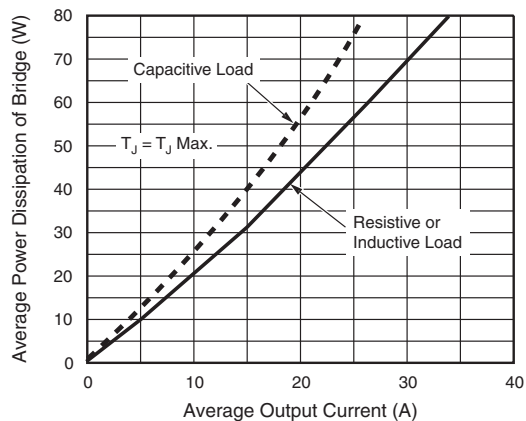


Fig. 3 - Maximum Power Dissipation

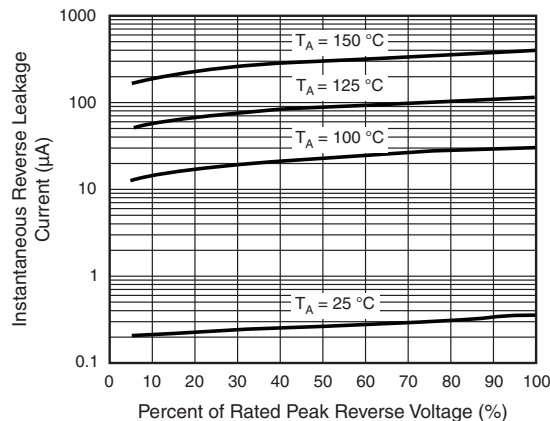


Fig. 6 - Typical Reverse Leakage Characteristics Per Diode

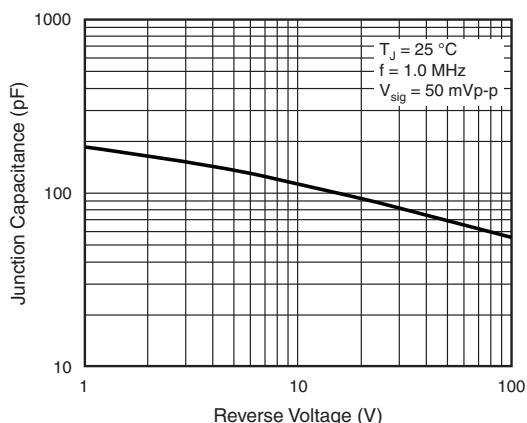


Fig. 7 - Typical Junction Capacitance Per Diode

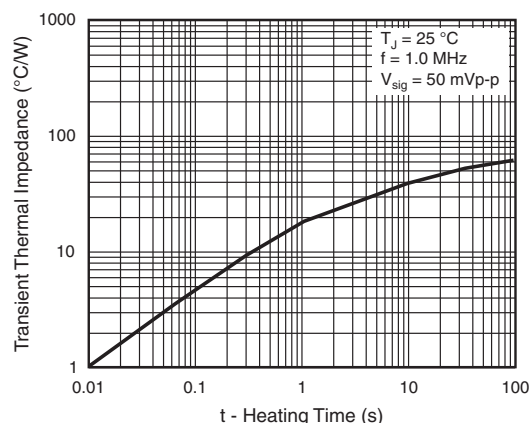
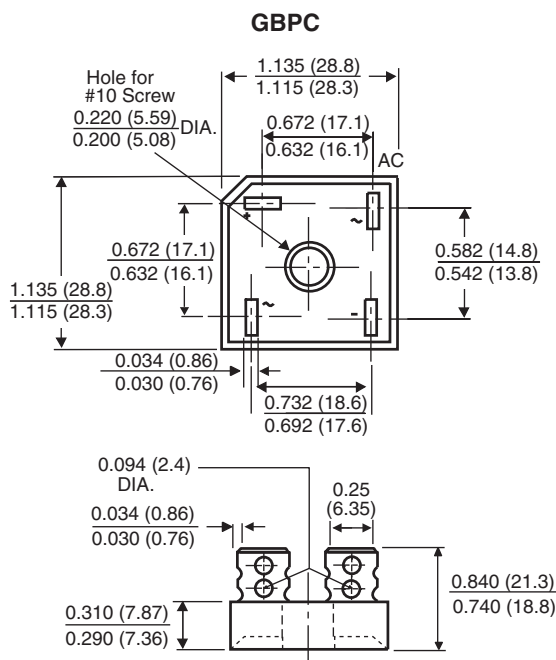
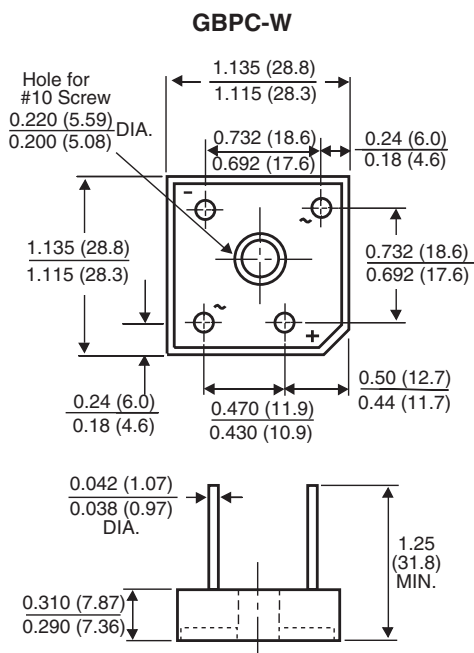


Fig. 8 - Typical Transient Thermal Impedance Per Diode

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




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