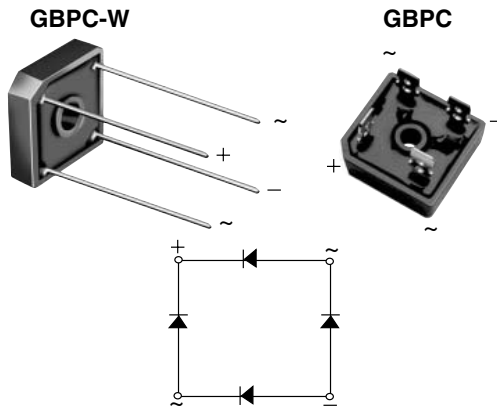


## Glass Passivated Single-Phase Bridge Rectifier



### FEATURES

- UL recognition file number E54214
- Universal 3-way terminals: snap-on, wire wrap-around, or P.C.B. mounting
- Typical  $I_R$  less than  $0.3 \mu A$
- High surge current capability
- Low thermal resistance
- Solder dip  $260^\circ C$ , 40 s
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC



### TYPICAL APPLICATIONS

General purpose use in ac-to-dc bridge full wave rectification for power supply, home appliances, office equipment, industrial automation applications.

| PRIMARY CHARACTERISTICS |                            |
|-------------------------|----------------------------|
| $I_{F(AV)}$             | 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 |
| $I_R$                   | $5 \mu A$                  |
| $V_F$                   | 1.1 V                      |
| $T_J \text{ max.}$      | $150^\circ C$              |

### MECHANICAL DATA

**Case:** GBPC, GBPC-W

Epoxy meets UL 94V-0 flammability rating

**Terminals:** Nickel plated on faston lugs or silver plated on wire leads, solderable per J-STD-002 and JESD22-B102. E4 suffix for consumer grade. 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.

| MAXIMUM RATINGS ( $T_A = 25^\circ C$ unless otherwise noted)                     |                |  |     |     |     |     |     |      |            |
|--|----------------|--|-----|-----|-----|-----|-----|------|------------|
| PARAMETER  | SYMBOL         | GBPC12, 15, 25, 35                                       |     |     |     |     |     |      | UNIT       |
|  |                | 005  | 01  | 02  | 04  | 06  | 08  | 10   |            |
| Maximum repetitive peak reverse voltage  | $V_{RRM}$      | 50   | 100 | 200 | 400 | 600 | 800 | 1000 | V          |
| Maximum RMS 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 (Fig. 1)                        | $I_{F(AV)}$    | GBPC12: 12<br>GBPC15: 15<br>GBPC25: 25<br>GBPC35: 35     |     |     |     |     |     |      | A          |
| Peak forward surge current single sine-wave superimposed on rated load           | $I_{FSM}$      | GBPC12: 200<br>GBPC15: 300<br>GBPC25: 300<br>GBPC35: 400 |     |     |     |     |     |      | A          |
| Rating (non-repetitive, for t greater than 1 ms and less than 8.3 ms) for fusing | $I^2t$         | GBPC12: 160<br>GBPC15: 375<br>GBPC25: 375<br>GBPC35: 660 |     |     |     |     |     |      | $A^2s$     |
| RMS isolation voltage from case to leads   | $V_{ISO}$      | 2500   |     |     |     |     |     |      | V          |
| Operating junction storage temperature range                                     | $T_J, T_{STG}$ | - 55 to + 150  |     |     |     |     |     |      | $^\circ C$ |

# GBPC12, GBPC15, GBPC25 & GBPC35

Vishay General Semiconductor



| ELECTRICAL CHARACTERISTICS (T <sub>A</sub> = 25 °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<br>GBPC15<br>GBPC25<br>GBPC35              | I <sub>F</sub> = 6.0 A<br>I <sub>F</sub> = 7.5 A<br>I <sub>F</sub> = 12.5 A<br>I <sub>F</sub> = 17.5 A | V <sub>F</sub>     | 1.1 |    |    |    |    |    |      | V |
| Maximum reverse DC current at rated DC blocking voltage per diode          | T <sub>A</sub> = 25 °C<br>T <sub>A</sub> = 125 °C | I <sub>R</sub>   | 5.0<br>500         |     |    |    |    |    |    | μA   |   |
| Typical junction capacitance per diode                                     | 4 V, 1 MHz  | C <sub>J</sub>   | 300                |     |    |    |    |    |    | pF   |   |

| THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted) |                     |                    |            |    |    |    |    |    |      |      |
|---|---------------------|--------------------|------------|----|----|----|----|----|------|------|
| PARAMETER   | SYMBOL              | GBPC12, 15, 25, 35 |            |    |    |    |    |    | UNIT |      |
|   |                     | 005                | 01         | 02 | 04 | 06 | 08 | 10 |      |      |
| Typical thermal resistance <sup>(1)</sup>                               | GBPC12-25<br>GBPC35 | R <sub>θJC</sub>   | 1.9<br>1.4 |    |    |    |    |    |      | °C/W |

**Notes:**

- (1) With heatsink
- (2) 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

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

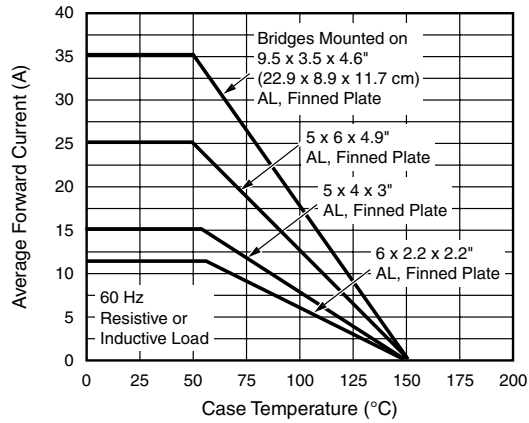


Figure 1. Maximum Output Rectified Current

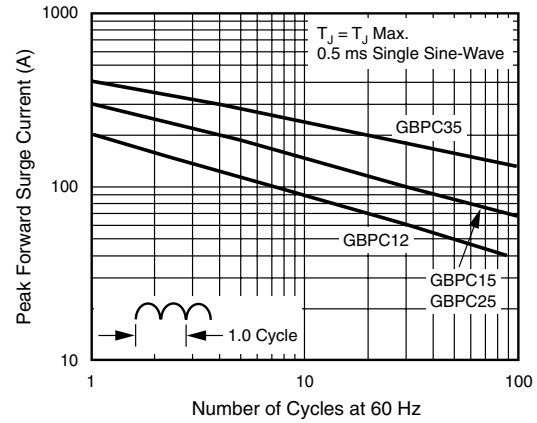


Figure 4. Maximum Non-Repetitive Peak Forward Surge Current Per Diode

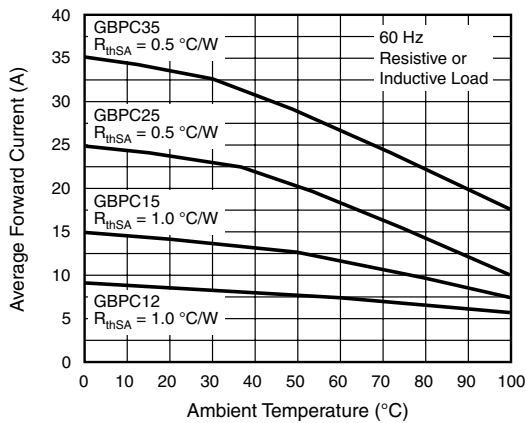


Figure 2. Maximum Output Rectified Current

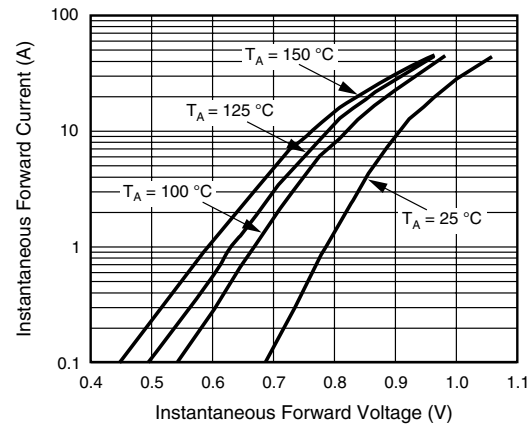


Figure 5. Typical Instantaneous Forward Characteristics Per Diode

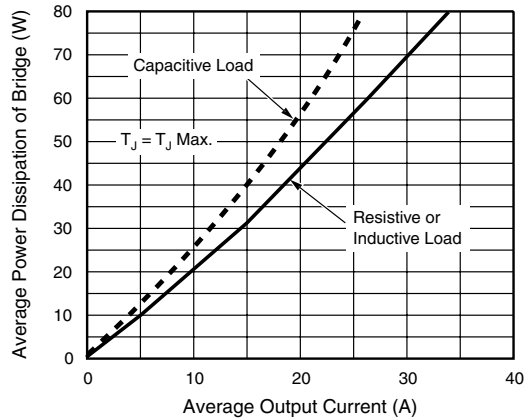


Figure 3. Maximum Power Dissipation

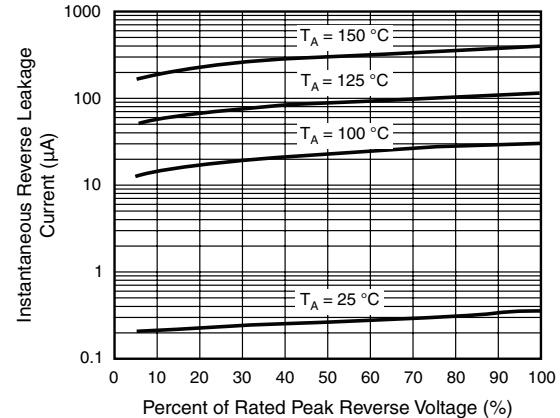


Figure 6. Typical Reverse Leakage Characteristics Per Diode

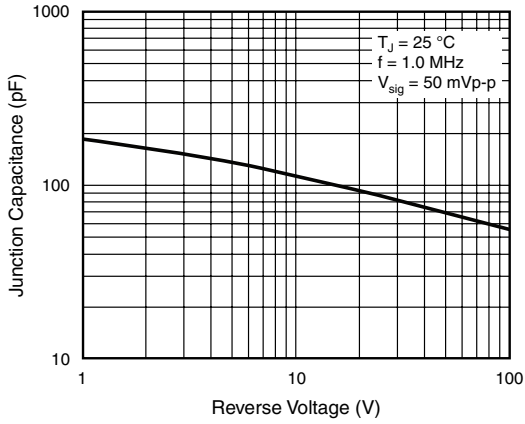


Figure 7. Typical Junction Capacitance Per Diode

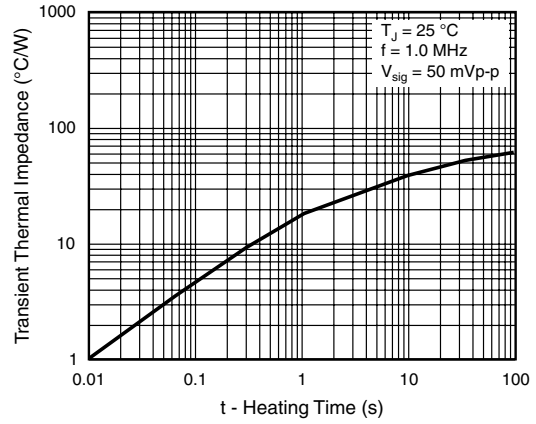


Figure 8. Typical Transient Thermal Impedance Per Diode

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





## Disclaimer

All product specifications and data are subject to change without notice.

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