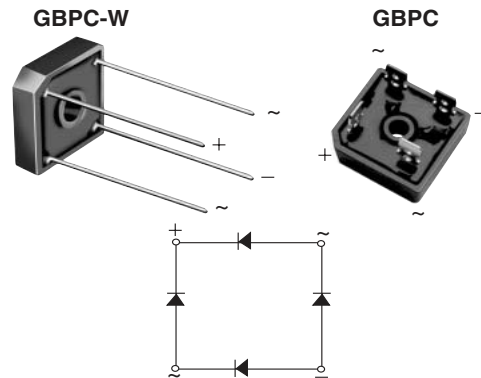


## Glass Passivated Single-Phase Bridge Rectifier

### Major Ratings and 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                      |
| $T_j$ max.  | 150 °C                     |



### 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
- Meets MSL level 1, per J-STD-020C

### 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:** GBPC, GBPC-W

Epoxy meets UL-94V-0 Flammability rating

**Terminals:** Nickel plated on faston lugs or Silver plated on wire leads (E4 Suffix), solderable per J-STD-002B and MIL-STD-750, Method 2026. 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

Ratings at 25 °C ambient temperature unless otherwise specified.

| Parameter  | Symbols        | GBPC12, 15, 25, 35                                       |     |     |     |     |     |      | Units              |
|--|----------------|--|-----|-----|-----|-----|-----|------|--------------------|
|  |                | 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 (See 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 <sup>2</sup> sec |
| RMS isolation voltage from case to leads   | $V_{ISO}$      | 2500   |     |     |     |     |     |      | V                  |
| Operating junction storage temperature range                                     | $T_J, T_{STG}$ | - 55 to + 150  |     |     |     |     |     |      | °C                 |

### Electrical Characteristics

Ratings at 25 °C ambient temperature unless otherwise specified.

| Parameter   | Test condition                                | Symbols  | GBPC12, 15, 25, 35 |     |    |    |    |    | Units         |    |
|---|---|--|--------------------|-----|----|----|----|----|---------------|----|
|   |   |  | 005                | 01  | 02 | 04 | 06 | 08 |               | 10 |
| Maximum instantaneous forward drop per leg                      | GBPC12<br>GBPC15<br>GBPC25<br>GBPC35          | $I_F = 6.0\text{ A}$<br>$I_F = 7.5\text{ A}$<br>$I_F = 12.5\text{ A}$<br>$I_F = 17.5\text{ A}$ | $V_F$              | 1.1 |    |    |    |    |               | V  |
| Maximum reverse DC current at rated DC blocking voltage per leg | $T_A = 25\text{ °C}$<br>$T_A = 125\text{ °C}$ | $I_R$  | 5.0<br>500         |     |    |    |    |    | $\mu\text{A}$ |    |
| Typical junction capacitance per leg                            | at 4 V, 1 MHz                                 | $C_J$  | 300                |     |    |    |    |    | pF            |    |

### Thermal Characteristics

Ratings at 25 °C ambient temperature unless otherwise specified.

| Parameter   | Symbols             | GBPC12, 15, 25, 35 |            |    |    |    |    | Units |                      |
|---|---------------------|--------------------|------------|----|----|----|----|-------|----------------------|
|   |                     | 005                | 01         | 02 | 04 | 06 | 08 |       | 10                   |
| Typical thermal resistance per leg <sup>(1)</sup> | GBPC12-25<br>GBPC35 | $R_{\theta JC}$    | 1.9<br>1.4 |    |    |    |    |       | $^{\circ}\text{C/W}$ |

Notes:

- (1) Thermal resistance from junction to case per leg
- (2) Bolt down on heatsink with silicone thermal compound between bridge and mounting surface for maximum heat transfer with #10 screw

### Ratings and Characteristics Curves

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

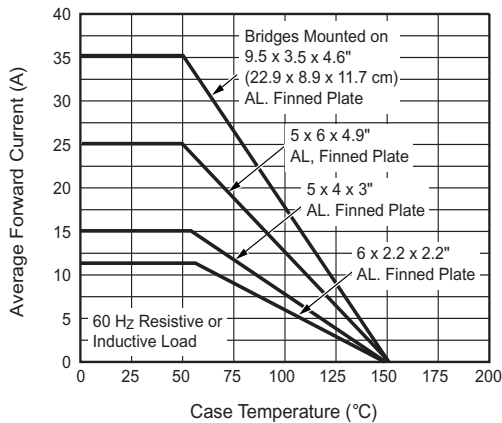


Figure 1. Maximum Output Rectified Current

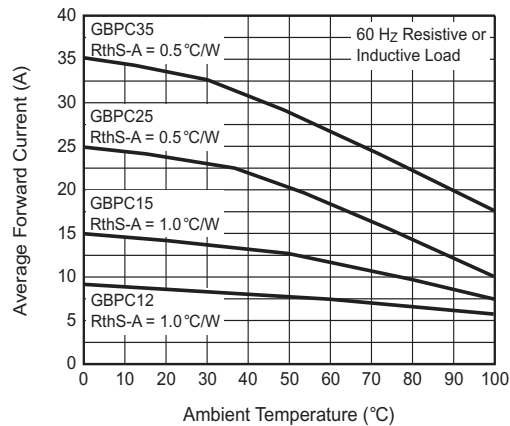


Figure 2. Maximum Output Rectified Current

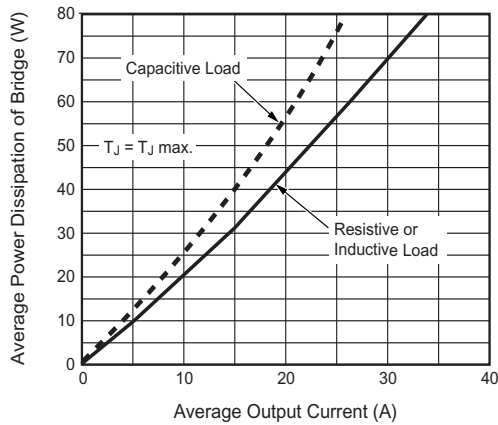


Figure 3. Maximum Power Dissipation

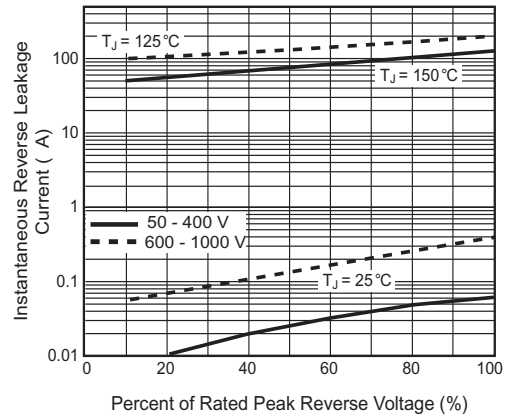


Figure 6. Typical Reverse Leakage Characteristics Per Leg

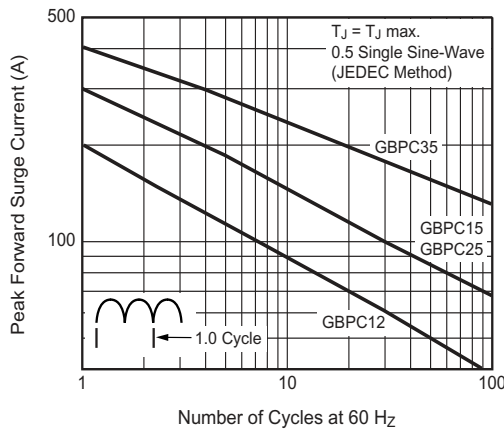


Figure 4. Maximum Non-Repetitive Peak Forward Surge Current Per Leg

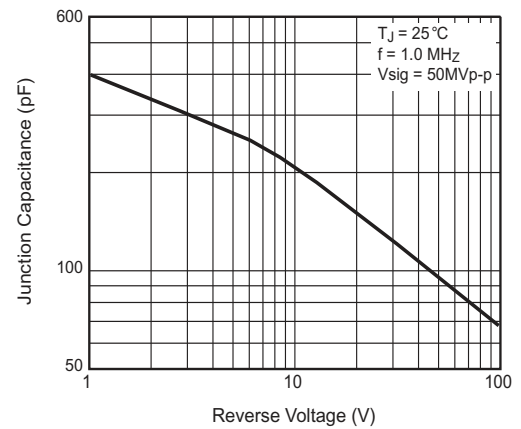


Figure 7. Typical Junction Capacitance Per Leg

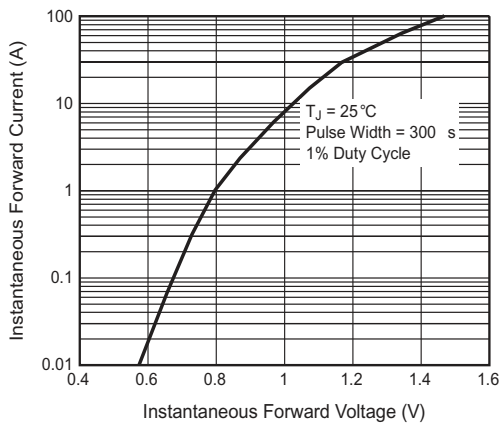


Figure 5. Typical Instantaneous Forward Characteristics Per Leg

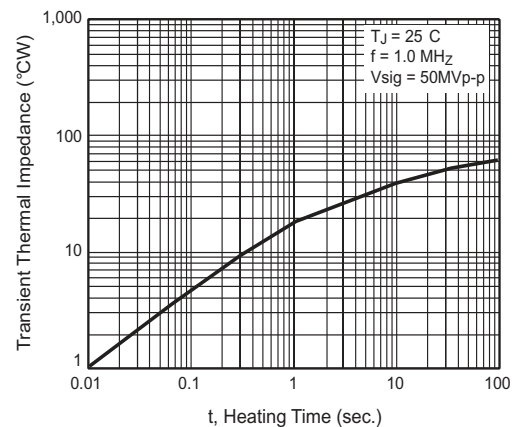


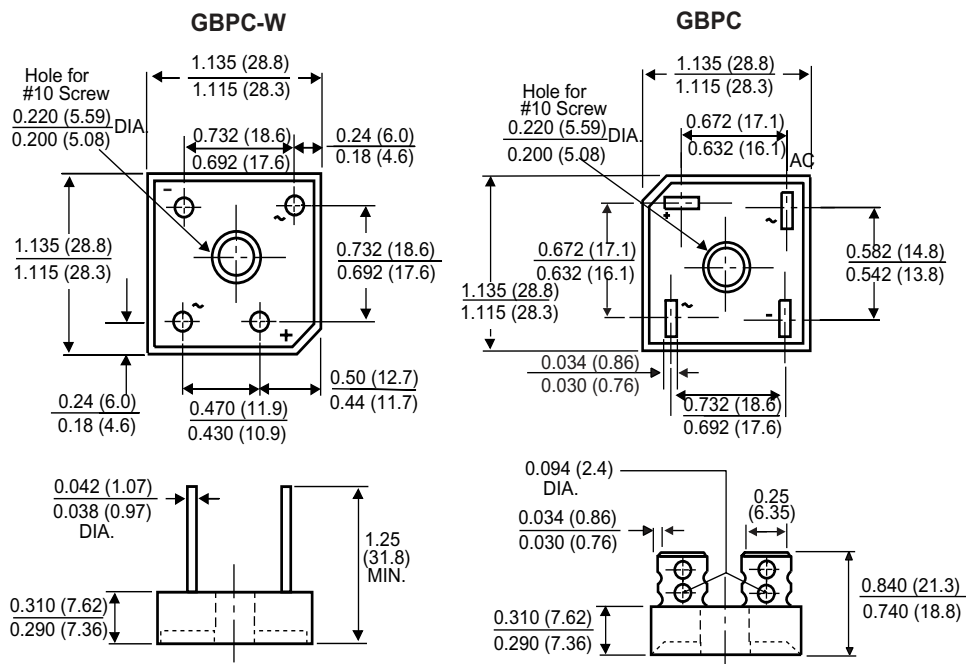
Figure 8. Typical Transient Thermal Impedance Per Leg

# GBPC12, 15, 25 and 35



Vishay Semiconductors

## Package outline dimensions in inches (millimeters)



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