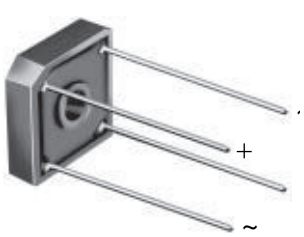
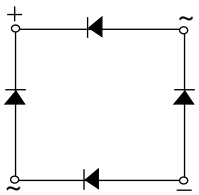
# Glass Passivated Single-Phase Bridge Rectifier





Case Style GBPC6

## FEATURES

- UL recognition file number E54214
- Ideal for printed circuit boards
- Typical $I_R$ less than 0.5 µA
- High surge current capability
- High case dielectric strength 1500 $V_{RMS}$
- Solder dip 275 °C max. 10 s, per JESD 22-B106
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

RoHS COMPLIANT

## LINKS TO ADDITIONAL RESOURCES

3D Models

## TYPICAL APPLICATIONS

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

| PRIMARY CHARACTERISTICS | |
|---|---|
| $I_{F(AV)}$ | 6 A |
| $V_{RRM}$ | 50 V, 100 V, 200 V, 400 V, 600 V, 800 V, 1000 V |
| $I_{FSM}$ | 175 A |
| $I_R$ | 5 µA |
| $V_F$ at $I_F$ = 3.0 A | 1.0 V |
| $T_J$ max. | 150 °C |
| Package | GBPC6 |
| Circuit configuration | Quad |

## MECHANICAL DATA

**Case:** GBPC6

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 in-lbs) maximum

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

**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 (1)(2) | $I_{F(AV)}$ | 6.0 | | | | | | | A |
| | $T_A$ = 40 °C (3) | | 3.0 | | | | | | | |
| 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 | | | | | | | $A^2s$ |
| 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 cm x 15 cm x 0.3 cm) aluminum plate
(3) Unit mounted on PCB at 0.375" (9.5 mm) lead length with 0.5" x 0.5" (12 mm x 12 mm) copper pads

| **ELECTRICAL CHARACTERISTICS** ($T_A$ = 25 °C unless otherwise noted) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **PARAMETER** | **SYMBOL** | **TEST CONDITIONS** | **GBPC 6005** | **GBPC 601** | **GBPC 602** | **GBPC 604** | **GBPC 606** | **GBPC 608** | **GBPC 610** | **UNIT** |
| Maximum instantaneous forward voltage drop per diode | $V_F$ | 3.0 A | 1.0 | | | | | | | V |
| Maximum DC reverse current at rated DC blocking voltage per diode | $I_R$ | $T_A$ = 25 °C | 5.0 | | | | | | | µA |
| | | $T_A$ = 125 °C | 500 | | | | | | | |
| Typical junction capacitance per diode | $C_J$ | 4.0 V, 1 MHz | 186 | | | | 90 | | | pF |

| **THERMAL CHARACTERISTICS** ($T_A$ = 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 (1) | $R_{\theta JA}$ | 22 | | | | | | | °C/W |
| | $R_{\theta JC}$ | 7.3 | | | | | | | |

**Notes**

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

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(3) Unit mounted on PCB at 0.375" (9.5 mm) lead length with 0.5" x 0.5" (12 mm x 12 mm) copper pads

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

## RATINGS AND CHARACTERISTICS CURVES ($T_A$ = 25 °C unless otherwise noted)

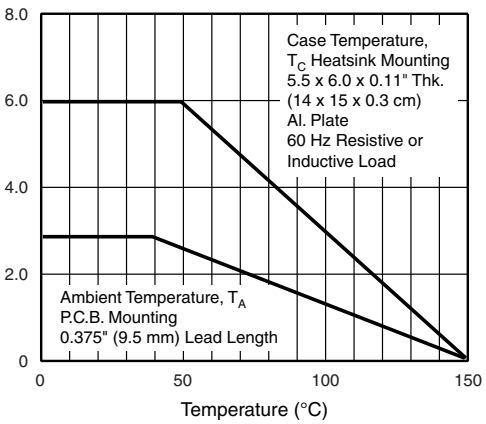



Fig. 1 - Derating Curve Output Rectified Current

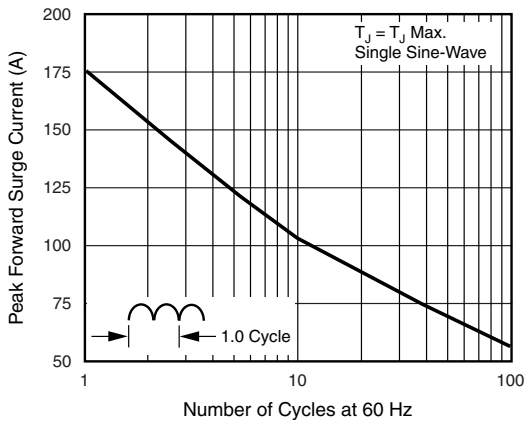



Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

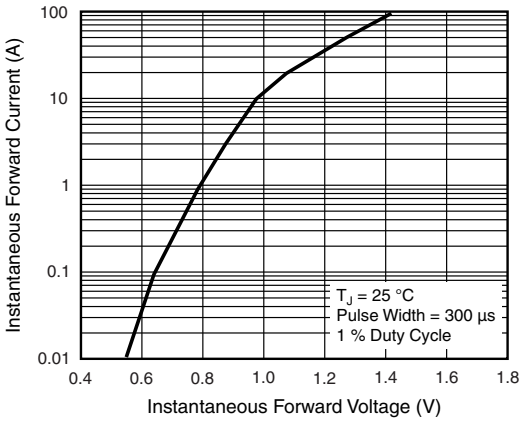



Fig. 3 - Typical Forward Characteristics Per Diode

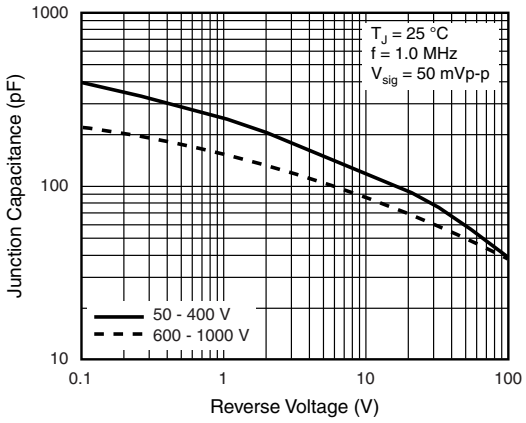



Fig. 5 - Typical Junction Capacitance Per Diode

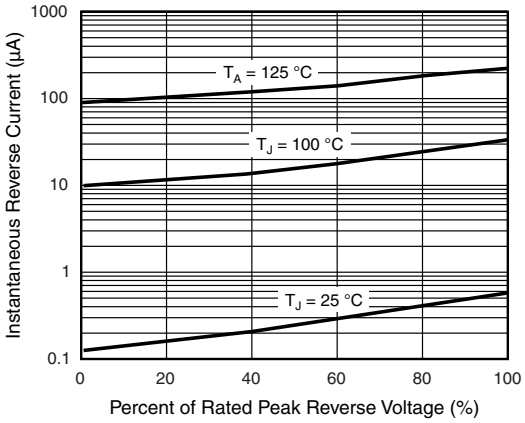



Fig. 4 - Typical Reverse Leakage Characteristics Per Diode

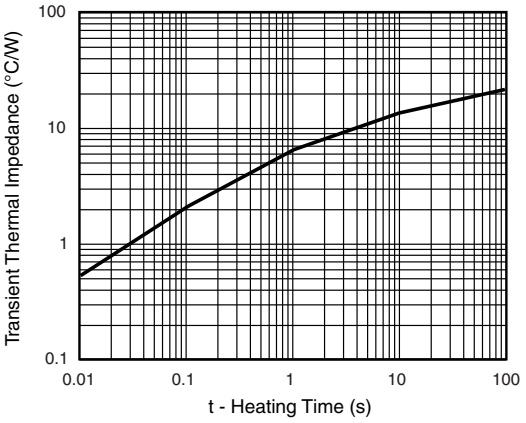
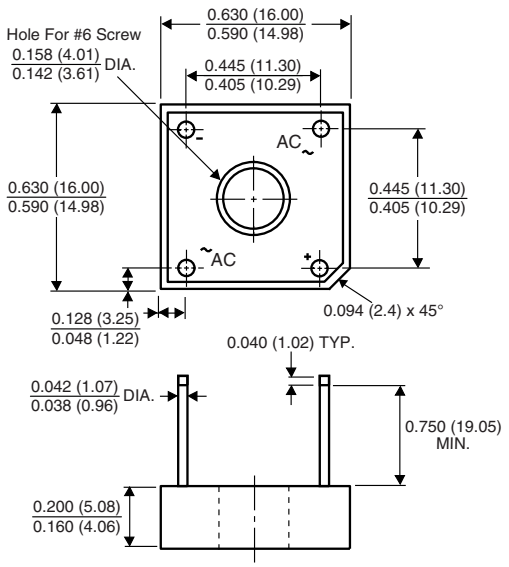



Fig. 6 - Typical Transient Thermal Impedance Per Diode

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

**Case Style GBPC6**




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

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