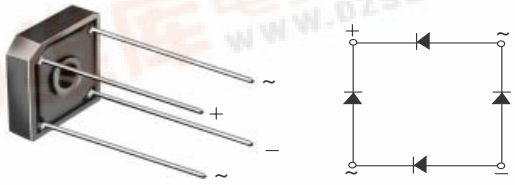
## Glass Passivated Single-Phase Bridge Rectifier

### Major Ratings and Characteristics

| | |
|---|---|
| $I_{F(AV)}$ | 6 A |
| $V_{RRM}$ | 50 V to 1000 V |
| $I_{FSM}$ | 175 A |
| $I_R$ | 5 µA |
| $V_F$ | 1.0 V |
| $T_j$ max. | 150 °C |

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 $V_{RMS}$
- 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:** GBPC6
Epoxy meets UL-94V-0 Flammability rating
**Terminals:** Silver plated (E4 Suffix) leads, solderable per J-STD-002B and MIL-STD-750, Method 2026
**Polarity:** As marked, Positive lead by belevled corner
**Mounting Torque:** 10 cm-kg (8.8 inches-lbs) max.
**Recommended Torque:** 5.7 cm-kg (5 inches-lbs)

### Maximum Ratings

Ratings at 25 °C ambient temperature unless otherwise specified.

| Parameter | Symbols | 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)<br>$T_A$ = 40 °C (3) | $I_{F(AV)}$ | 6.0<br>3.0 | | | | | | | A |
| 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 | | | | | | | $A^2sec$ |
| Operating junction and 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 | GBPC 6005 | GBPC 601 | GBPC 602 | GBPC 604 | GBPC 606 | GBPC 608 | GBPC 610 | Unit |
|---|---|---|---|---|---|---|---|---|---|---|
| Maximum instantaneous forward voltage drop per leg | at 3.0 A | $V_F$ | 1.0 | | | | | | | V |
| Maximum DC reverse current at rated DC blocking voltage per leg | $T_A$ = 25 °C<br>$T_A$ = 125 °C | $I_R$ | 5.0<br>500 | | | | | | | µA |
| Typical junction capacitance per leg | at 4.0 V, 1 MHz | $C_J$ | 186 | | | | 90 | | | pF |

## Thermal Characteristics

Ratings at 25 °C ambient temperature unless otherwise specified.

| Parameter | Symbols | GBPC 6005 | GBPC 601 | GBPC 602 | GBPC 604 | GBPC 606 | GBPC 608 | GBPC 610 | Unit |
|---|---|---|---|---|---|---|---|---|---|
| Typical thermal resistance per leg(1) | $R_{\theta JA}$<br>$R_{\theta JC}$ | 22<br>7.3 | | | | | | | °C/W |

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 x 15 x 0.3 cm) Al. Plate

(3) Unit mounted on P.C.B. at 0.375" (9.5 mm) lead length with 0.5 x 0.5" (12 x 12 mm) copper pads

## Ratings and Characteristics Curves

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

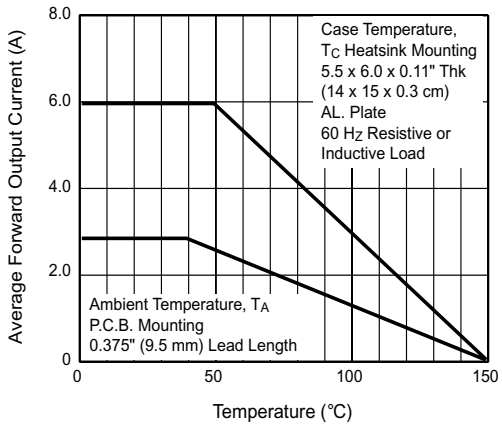



Figure 1. Derating Curve Output Rectified Current

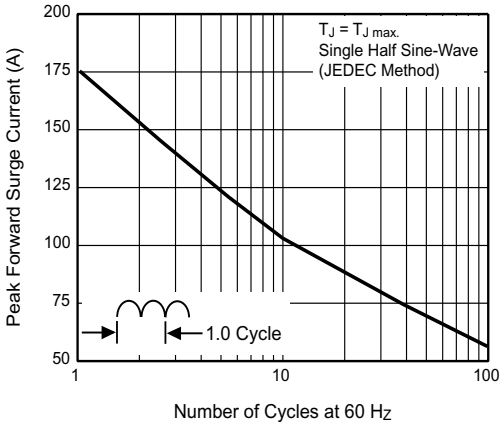



Figure 2. Maximum Non-Repetitive Peak Forward Surge Current Per Leg

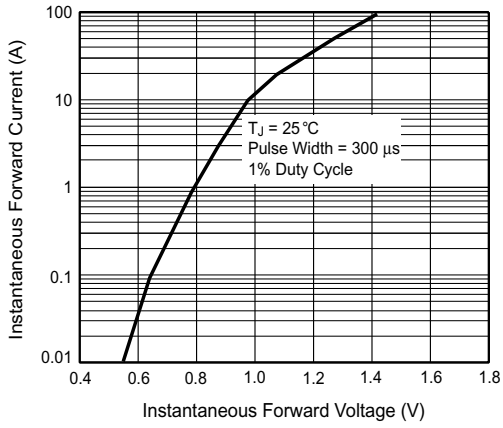



Figure 3. Typical Forward Characteristics Per Leg

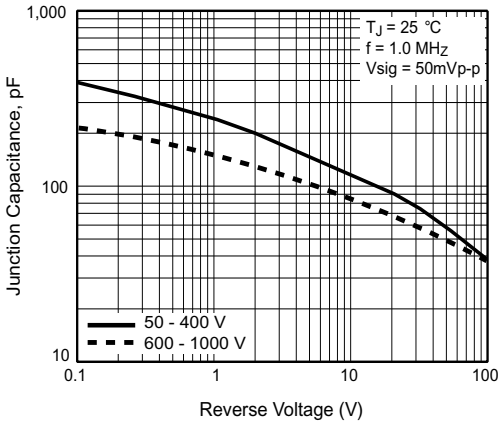



Figure 5. Typical Junction Capacitance Per Leg

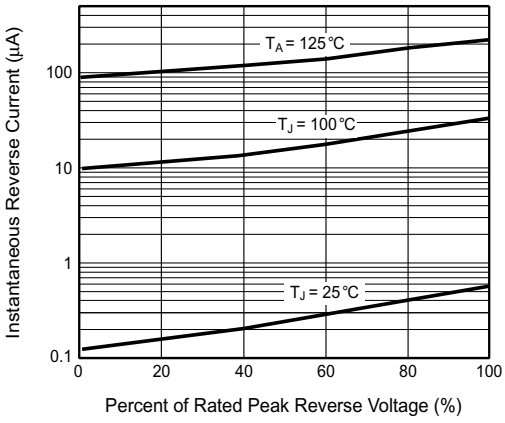



Figure 4. Typical Reverse Leakage Characteristics Per Leg

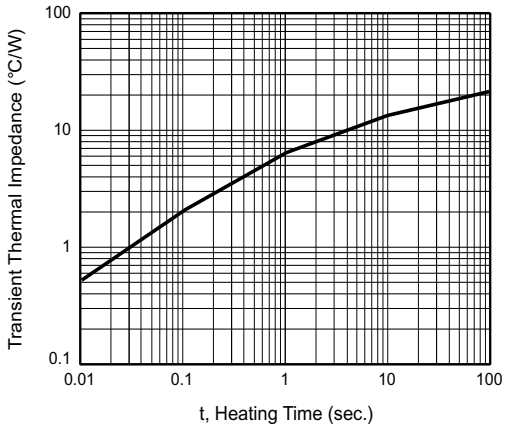
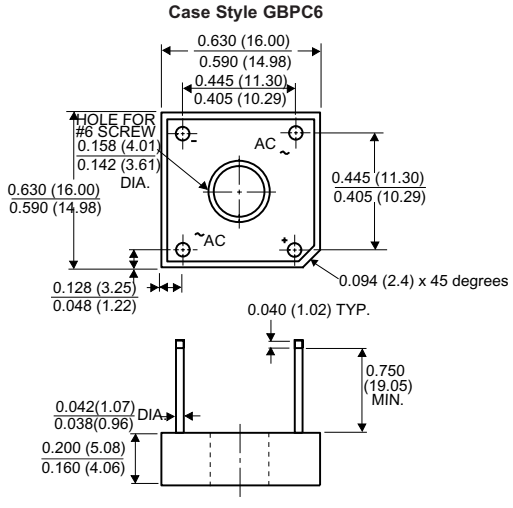



Figure 6. Typical Transient Thermal Impedance Per Leg

## Package outline dimensions in inches (millimeters)




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