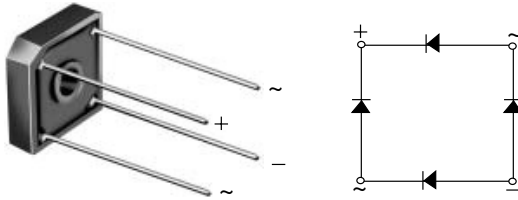


## Glass Passivated Single-Phase Bridge Rectifier



Case Style GBPC6

### FEATURES

- UL recognition file number E54214
- Ideal for printed circuit boards
- Typical  $I_R$  less than 0.5  $\mu\text{A}$
- High surge current capability
- High case dielectric strength 1500  $V_{\text{RMS}}$
- Solder dip 260 °C, 40 s
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC


**RoHS**  
COMPLIANT

### 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 leads, solderable per J-STD-002 and JESD22-B102  
E4 suffix for consumer grade

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

**Mounting Torque:** 10 cm-kg (8.8 inches-lbs) max.

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

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	6 A
$V_{RRM}$	50 V to 1000 V
$I_{FSM}$	175 A
$I_R$	5 $\mu\text{A}$
$V_F$	1.0 V
$T_J$ max.	150 °C

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 <sup>(1)(2)</sup> $T_A = 40$ °C <sup>(3)</sup>	$I_{F(AV)}$	6.0 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 <sup>2</sup> s
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 x 15 x 0.3 cm) aluminum 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

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

THERMAL CHARACTERISTICS ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)										
PARAMETER	SYMBOL	GBPC 6005	GBPC 601	GBPC 602	GBPC 604	GBPC 606	GBPC 608	GBPC 610	UNIT	
Typical thermal resistance <sup>(1)</sup>	$R_{\theta JA}$ $R_{\theta JC}$	22 7.3								$^\circ\text{C/W}$

**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) aluminum 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

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

## RATINGS AND CHARACTERISTICS CURVES

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

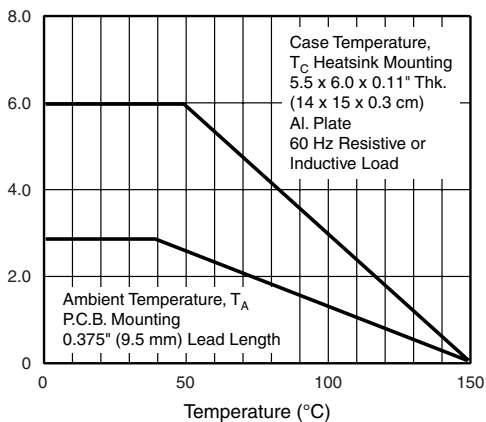


Figure 1. Derating Curve Output Rectified Current

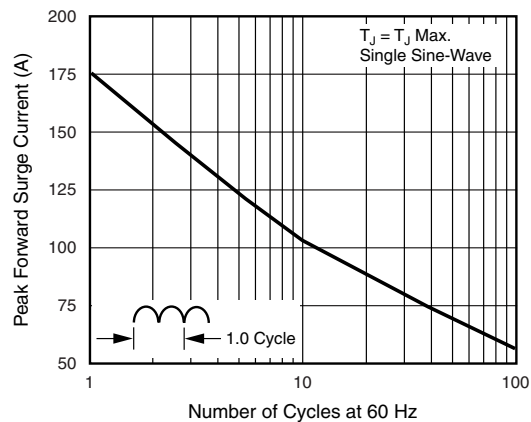


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current Per Diode

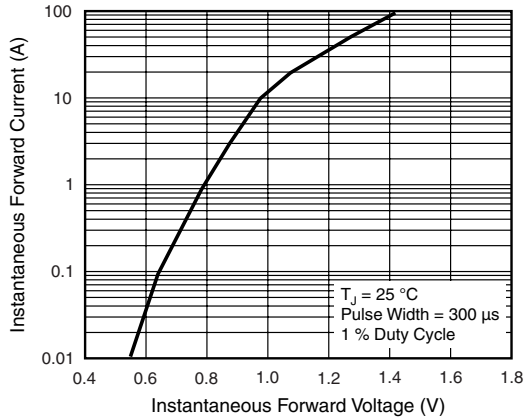


Figure 3. Typical Forward Characteristics Per Diode

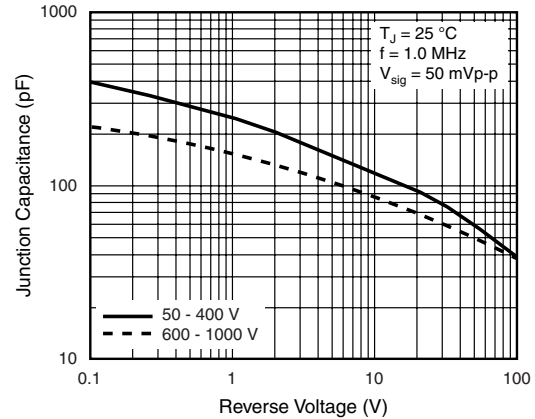


Figure 5. Typical Junction Capacitance Per Diode

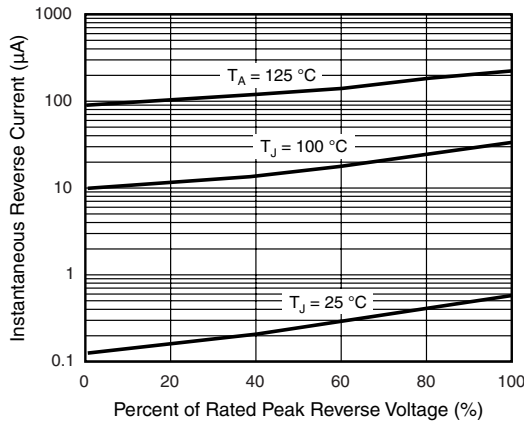


Figure 4. Typical Reverse Leakage Characteristics Per Diode

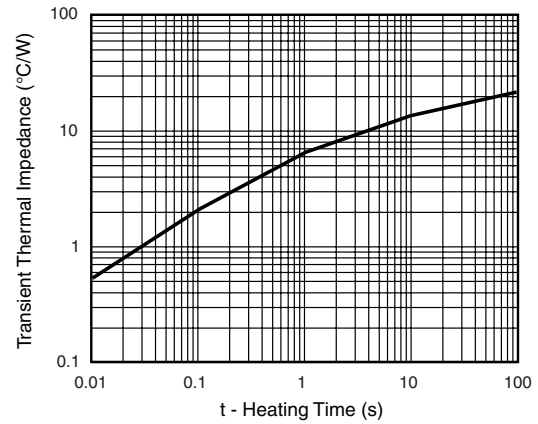
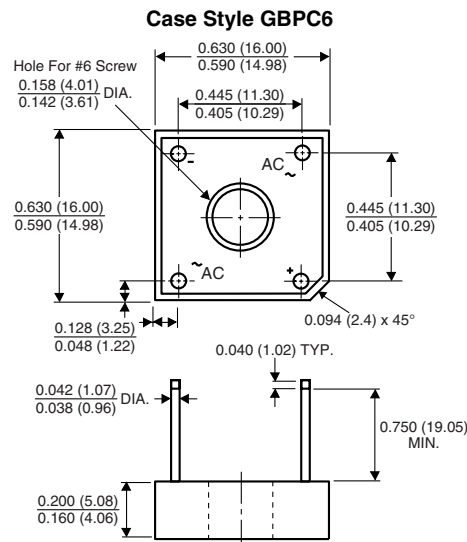


Figure 6. Typical Transient Thermal Impedance Per Diode

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)



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



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