

## Glass Passivated Single-Phase Bridge Rectifier



### FEATURES

- UL recognition file number E54214
- Universal 3-way terminals: snap-on, wire wrap-around, or PCB mounting
- Typical  $I_R$  less than 0.3  $\mu\text{A}$
- High surge current capability
- Low thermal resistance
- Solder dip 275 °C max. 10 s, per JESD 22-B106
- Material categorization: For definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)


**RoHS**  
COMPLIANT

### TYPICAL APPLICATIONS

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

### MECHANICAL DATA

#### Case: GBPC, GBPC-W

Molding compound meets UL 94 V-0 flammability rating Base P/N-E4 - RoHS-compliant, commercial grade

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

### PRIMARY CHARACTERISTICS

Package	GBPC, GBPC-W
$I_{F(AV)}$	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 $\mu\text{A}$
$V_F$ at $I_F$	1.1 V
$T_J$ max.	150 °C
Diode variations	Quad

### MAXIMUM RATINGS ( $T_A = 25$ °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)	$I_{F(AV)}$	12							A
		15							
		25							
		35							
Peak forward surge current single sine-wave superimposed on rated load	$I_{FSM}$	200							A
		300							
		300							
		400							
Rating (non-repetitive, for t greater than 1 ms and less than 8.3 ms) for fusing	$I^2t$	160							A <sup>2</sup> s
		375							
		375							
		660							
RMS isolation voltage from case to leads	$V_{ISO}$	2500							V
Operating junction storage temperature range	$T_J, T_{STG}$	- 55 to + 150							°C



<b>ELECTRICAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ 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	$I_F = 6.0\text{ A}$	$V_F$	1.1						V
	GBPC15	$I_F = 7.5\text{ A}$								
	GBPC25	$I_F = 12.5\text{ A}$								
	GBPC35	$I_F = 17.5\text{ A}$								
Maximum reverse DC current at rated DC blocking voltage per diode	$T_A = 25\text{ }^\circ\text{C}$		$I_R$	5.0						$\mu\text{A}$
	$T_A = 125\text{ }^\circ\text{C}$			500						
Typical junction capacitance per diode	4 V, 1 MHz		$C_J$	300						pF

<b>THERMAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)										
PARAMETER	SYMBOL	GBPC12, 15, 25, 35						UNIT		
		005	01	02	04	06	08		10	
Typical thermal resistance	GBPC12 to GBPC25		$R_{\theta JC}^{(1)}$	1.9						$^\circ\text{C/W}$
	GBPC35			1.4						

**Notes**<sup>(1)</sup> With heatsink<sup>(2)</sup> Bolt down on heatsink with silicone thermal compound between bridge and mounting surface for maximum heat transfer with #10 screw

<b>ORDERING INFORMATION</b> (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)



Fig. 1 - Maximum Output Rectified Current



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



Fig. 2 - Maximum Output Rectified Current



Fig. 5 - Typical Instantaneous Forward Characteristics Per Diode



Fig. 3 - Maximum Power Dissipation



Fig. 6 - Typical Reverse Leakage Characteristics Per Diode



Fig. 7 - Typical Junction Capacitance Per Diode



Fig. 8 - Typical Transient Thermal Impedance Per Diode

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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