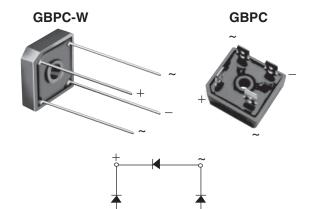


Vishay General Semiconductor

## **Glass Passivated Single-Phase Bridge Rectifier**



PRIMARY CHARACTERISTICS								
Package	GBPC, GBPC-W							
I <sub>F(AV)</sub>	12 A, 15 A, 25 A, 35 A							
V <sub>RRM</sub>	50 V to 1000 V							
I <sub>FSM</sub>	200 A, 300 A, 300 A, 400 A							
I <sub>R</sub>	5 μΑ							
V <sub>F</sub> at I <sub>F</sub>	1.1 V							
T <sub>J</sub> max.	150 °C							
Diode variations	Quad							

#### FEATURES

- UL recognition file number E54214
- Universal 3-way terminals: snap-on, wire wrap-around, or PCB mounting
- Typical I<sub>R</sub> less than 0.3  $\mu$ 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 <u>www.vishay.com/doc?99912</u>

#### 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.

<b>MAXIMUM RATINGS</b> ( $T_A = 25 \text{ °C}$ unless otherwise noted)										
PARAMETER		SYMBOL	GBPC12, 15, 25, 35							UNIT
			005	01	02	04	06	08	10	UNIT
Maximum repetitive peak reverse voltage		V <sub>RRM</sub>	50	100	200	400	600	800	1000	V
Maximum RMS voltage		V <sub>RMS</sub>	35	70	140	280	420	560	700	V
Maximum DC blocking voltage		V <sub>DC</sub>	50	100	200	400	600	800	1000	V
	GBPC12					12				A
Maximum average forward rectified	GBPC15	I <sub>F (AV)</sub>				15				
output current (Fig. 1)	GBPC25		25							
	GBPC35		35							
	GBPC12		200							
Peak forward surge current single	GBPC15		300							A
sine-wave superimposed on rated load	GBPC25	I <sub>FSM</sub>	300							
	GBPC35		400							
	GBPC12		160							
Rating (non-repetitive, for t greater than 1 ms and less than 8.3 ms) for fusing	GBPC15	l <sup>2</sup> t	375							
	GBPC25	141	375							A <sup>2</sup> s
	GBPC35	1	660						1	
RMS isolation voltage from case to leads	V <sub>ISO</sub>	2500						V		
Operating junction storage temperature ra	T <sub>J</sub> , T <sub>STG</sub>	- 55 to + 150						°C		

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COMPLIANT



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ELECTRICAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)											
PARAMETER		TEST	SYMBOL	GBPC12, 15, 25, 35							UNIT
		CONDITIONS		005	01	02	04	06	08	10	UNIT
	GBPC12	I <sub>F</sub> = 6.0 A		V <sub>F</sub> 1.1							
Maximum instantaneous forward drop per diode	GBPC15	I <sub>F</sub> = 7.5 A	V <sub>F</sub>								v
	GBPC25	I <sub>F</sub> = 12.5 A								v	
	GBPC35	I <sub>F</sub> = 17.5 A									
Maximum reverse DC current at rated DC blocking voltage per diode		$T_A = 25 \ ^\circ C$		5.0							μA
		T <sub>A</sub> = 125 °C	I <sub>R</sub>								
Typical junction capacitance	e per diode	4 V, 1 MHz	CJ	300					pF		

<b>THERMAL CHARACTERISTICS</b> ( $T_A = 25 \text{ °C}$ unless otherwise noted)										
PARAMETER		SYMBOL	GBPC12, 15, 25, 35							
			005	01	02	04	06	08	10	UNIT
Typical thermal resistance	GBPC12 to GBPC25	- R <sub>θJC</sub> <sup>(1)</sup>				1.9				°C/W
rypical mermai fesistance	GBPC35	ΠθJC (')	1.4							0/10

#### Notes

<sup>(1)</sup> With heatsink

(2) Bolt down on heatsink with silicone thermal compound between bridge and mounting surface for maximum heat transfer with #10 screw

ORDERING INFORMATION (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					

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#### **RATINGS AND CHARACTERISTICS CURVES**

(T<sub>A</sub> = 25 °C unless otherwise noted)

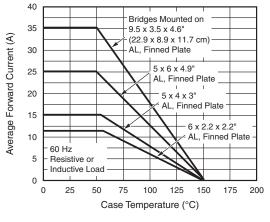


Fig. 1 - Maximum Output Rectified Current

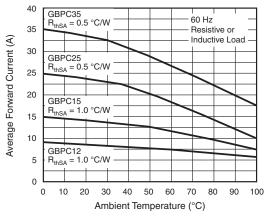


Fig. 2 - Maximum Output Rectified Current

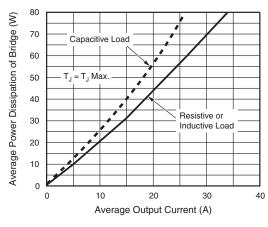


Fig. 3 - Maximum Power Dissipation

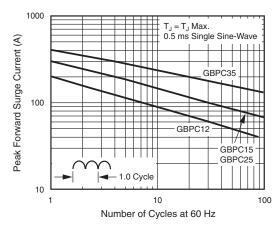


Fig. 4 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

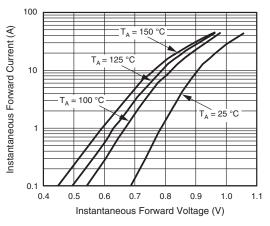


Fig. 5 - Typical Instantaneous Forward Characteristics Per Diode

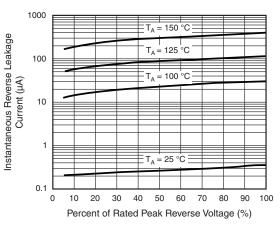


Fig. 6 - Typical Reverse Leakage Characteristics Per Diode

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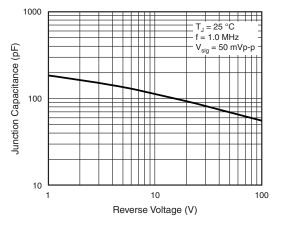


Fig. 7 - Typical Junction Capacitance Per Diode

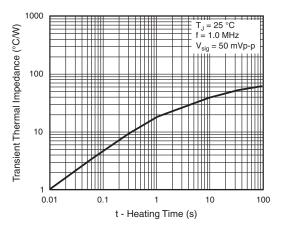
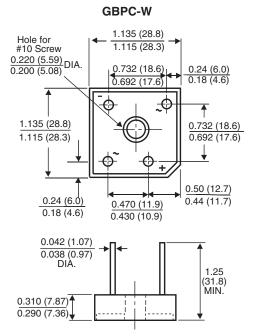
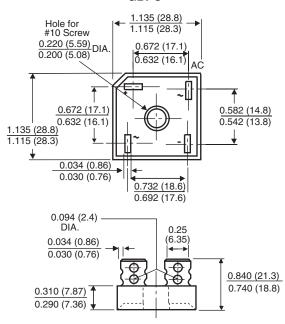


Fig. 8 - Typical Transient Thermal Impedance Per Diode







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