

# Bridge Rectifier

## **GBPC1210W**

1000V / 12A

# DATASHEET

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OEM – General Semiconductor

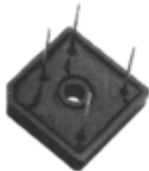
Source: General Semiconductor Databook 1998

# GBPC12, 15, 25 AND 35 SERIES

## GLASS PASSIVATED SINGLE-PHASE BRIDGE RECTIFIER

Reverse Voltage - 50 to 1000 Volts Current Voltage - 12.0 to 35.0 Amperes

GBPC - W Wire leads



GBPC - Standard



### FEATURES

- ◆ The plastic package has Underwriters Laboratory Flammability Classification 94V-0
- ◆ This series is UL recognized under component index, file number E54214
- ◆ Integrally molded heatsink provides very low thermal resistance for maximum heat dissipation
- ◆ Universal 3-way terminals; snap-on, wire wrap-around, or P.C.B. mounting
- ◆ High forward surge current capabilities
- ◆ Glass passivated chip junctions
- ◆ Typical  $I_R$  less than  $0.3\mu A$
- ◆ High temperature soldering guaranteed:  
260°C/10 seconds at 5lbs. (2.3 kg) tension

### MECHANICAL DATA

**Case:** Molded plastic with heatsink integrally mounted in the bridge encapsulation  
**Terminals:** Either plated 0.25" (6.35mm). Faston lugs or plated copper leads 0.040" (1.02mm) diameter. Suffix letter "W" added to indicate leads (e.g. GBPC12005W).  
**Mounting Position:** See NOTE 3  
**Polarity:** Polarity symbols molded on body  
**Mounting Torque:** 20 in. - lb. max. **Weight:** 0.53 ounce, 15 grams

### MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.

		GBPC12, 15, 25, 35								
		SYMBOLS	005	01	02	04	06	08	10	UNITS
Maximum repetitive peak reverse voltage		VRRM	50	100	200	400	600	800	1000	Volts
Maximum RMS voltage		VRMS	35	70	140	280	420	560	700	Volts
Maximum DC blocking voltage		VDC	50	100	200	400	600	800	1000	Volts
Maximum average forward rectified output current (SEE FIG.1)		GBPC12 GBPC15 GBPC25 GBPC35	$I_{(AV)}$			12.0 15.0 25.0 35.0				Amps
Peak forward surge current single sine-wave superimposed on rated load (JEDEC Method)		GBPC12 GBPC15 GBPC25 GBPC35	$I_{FSM}$			200.0 300.0 300.0 400.0				Amps
Rating (non-repetitive, for t greater than 1ms and less than 8.3ms) for fusing		GBPC12 GBPC15 GBPC25 GBPC35	$I_t$			160.0 375.0 375.0 660.0				A <sup>2</sup> sec
Maximum instantaneous forward voltage drop per leg at		GBPC12 $I_F=6.0A$ GBPC15 $I_F=7.5A$ GBPC25 $I_F=12.5A$ GBPC35 $I_F=17.5A$	$V_F$			1.1				Volts
Maximum reverse DC current at rated DC blocking voltage per leg		$T_A=25^\circ C$ $T_A=125^\circ C$	$I_R$			5.0 500.0				$\mu A$
RMS isolation voltage from case to leads		$V_{ISO}$				2500.0				Volts
Typical junction capacitance per leg (NOTE 1)		$C_J$				300.0				pF
Typical thermal resistance per leg (NOTE 2)		GBPC12-25 GBPC35	$R_{\theta JC}$			1.9 1.4				°C/W
Operating junction storage temperature range		$T_J, T_{STG}$				-55 to +150				°C

**NOTES:**

- (1) Measured at 1.0 MHz and applied reverse voltage of 4.0 Volts
- (2) Thermal resistance from junction to case per leg
- (3) Bolt down on heat-sink with silicone thermal compound between bridge and mounting surface for maximum heat transfer efficiency with #10 screw

**RATINGS AND CHARACTERISTICS CURVES GBPC12, 15, 25 AND 35 SERIES**

FIG. 1 - MAXIMUM OUTPUT RECTIFIED CURRENT

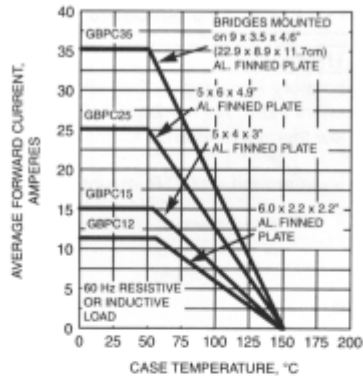


FIG. 2 - MAXIMUM OUTPUT RECTIFIED CURRENT

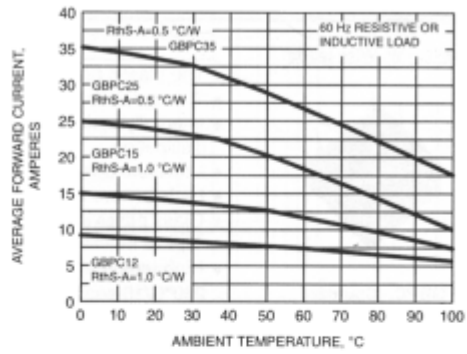


FIG. 3 - MAXIMUM POWER DISSIPATION

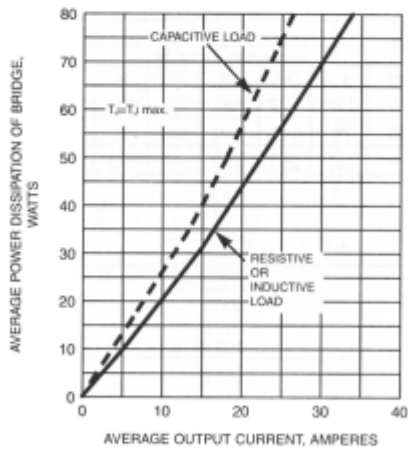
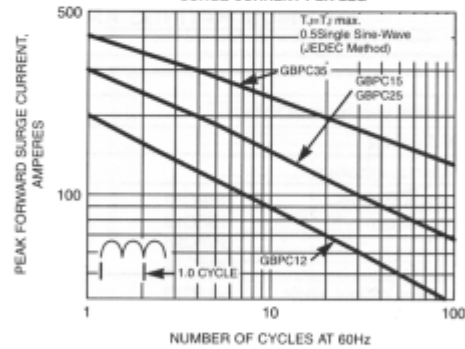
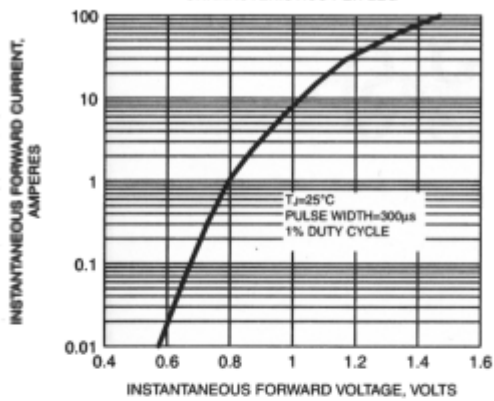


FIG. 4 - MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT PER LEG

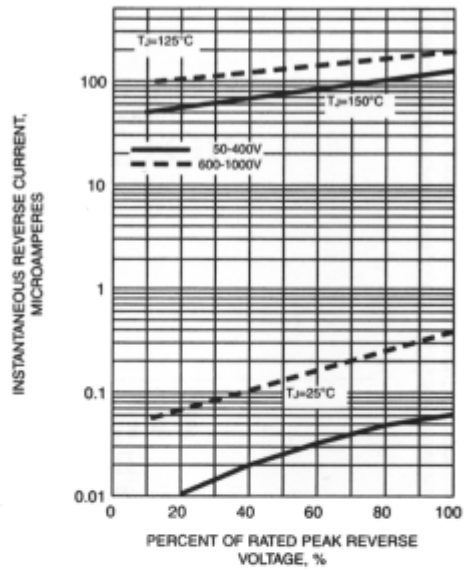


**RATINGS AND CHARACTERISTICS CURVES GBPC12, 15, 25 AND 35 SERIES**

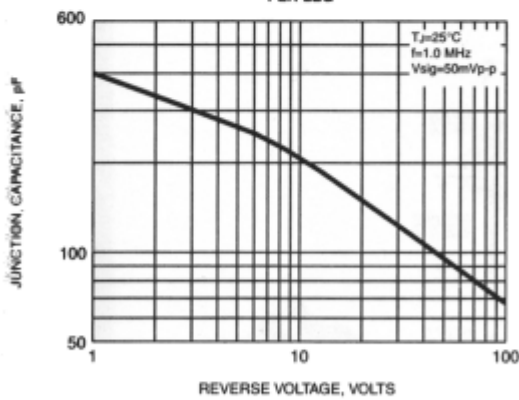
**FIG. 5 - TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS PER LEG**



**FIG. 6 - TYPICAL REVERSE LEAKAGE CHARACTERISTICS PER LEG**



**FIG. 7 - TYPICAL JUNCTION CAPACITANCE PER LEG**



**FIG. 8 - TYPICAL TRANSIENT THERMAL IMPEDANCE PER LEG**

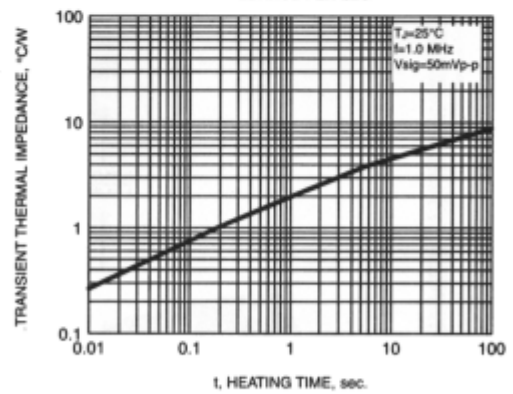


FIG. 9

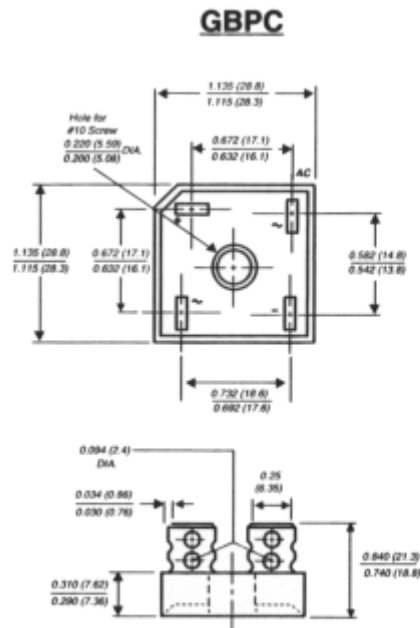
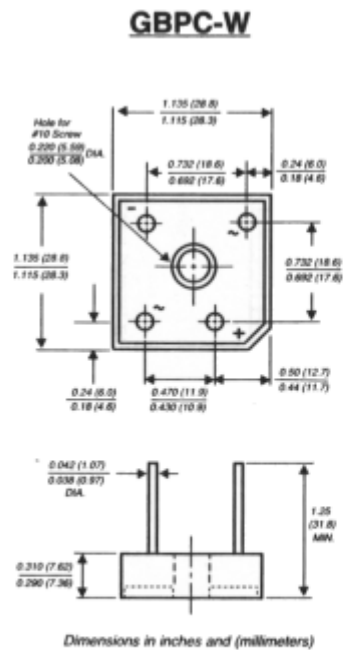


FIG. 10



**NOTES:**

- (1) Corrosion resistant terminals designed with 0.25" female quick connectors for wrap or snap-on
- (2) A thin film of silicone thermal compound is recommended between the bridge case and mounting surface for improved thermal conduction