

# Bridge Rectifier

## **GBPC1508**

800V / 15A

# 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		$V_{RRM}$	50	100	200	400	600	800	1000	Volts	
Maximum RMS voltage		$V_{RMS}$	35	70	140	280	420	560	700	Volts	
Maximum DC blocking voltage		$V_{DC}$	50	100	200	400	600	800	1000	Volts	
Maximum average forward rectified output current (SEE FIG. 1)	GBPC12	$I_{(AV)}$								12.0	Amps
	GBPC15		15.0								
	GBPC25		25.0								
	GBPC35		35.0								
Peak forward surge current single sine-wave superimposed on rated load (JEDEC Method)	GBPC12	$I_{FSM}$								200.0	Amps
	GBPC15		300.0								
	GBPC25		300.0								
	GBPC35		400.0								
Rating (non-repetitive, for t greater than 1ms and less than 8.3ms) for fusing	GBPC12	$I^2t$								160.0	A <sup>2</sup> sec
	GBPC15		375.0								
	GBPC25		375.0								
	GBPC35		660.0								
Maximum instantaneous forward voltage drop per leg at	GBPC12 $I_F=6.0A$	$V_F$								1.1	Volts
	GBPC15 $I_F=7.5A$										
	GBPC25 $I_F=12.5A$										
	GBPC35 $I_F=17.5A$										
Maximum reverse DC current at rated DC blocking voltage per leg	$T_A=25^\circ C$	$I_R$								5.0	$\mu A$
	$T_A=125^\circ C$		500.0								
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	$R_{\theta JC}$								1.9	°C/W
	GBPC35		1.4								
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

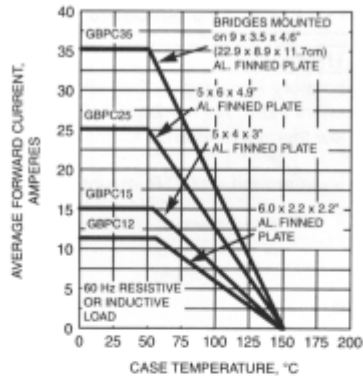


FIG. 2 - MAXIMUM OUTPUT RECTIFIED CURRENT

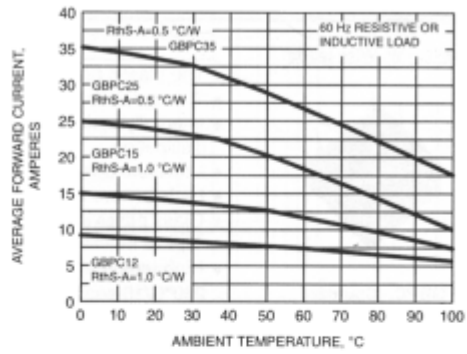


FIG. 3 - MAXIMUM POWER DISSIPATION

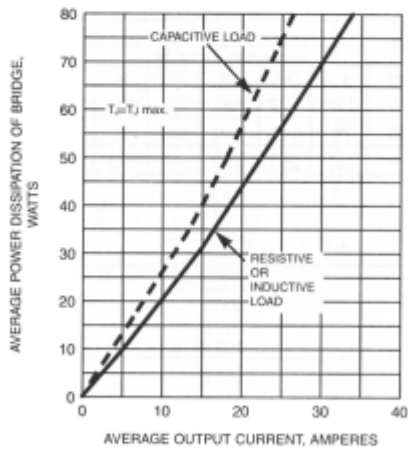
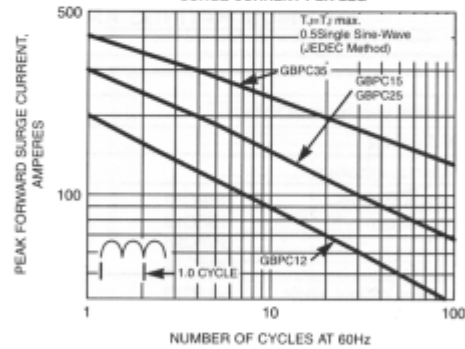
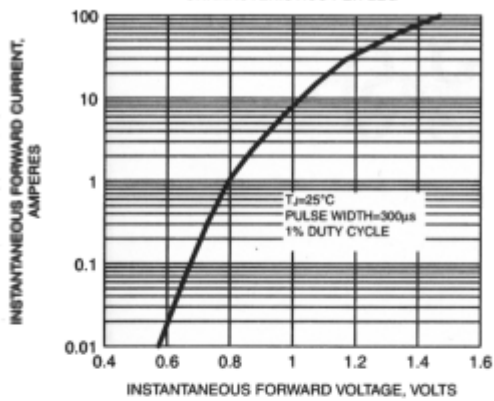


FIG. 4 - MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT PER LEG

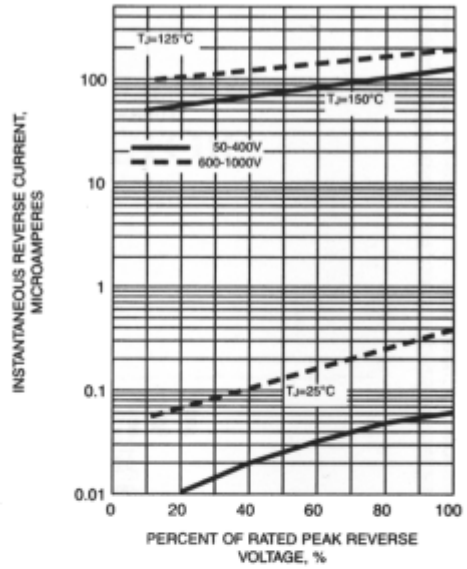


**RATINGS AND CHARACTERISTICS CURVES GBPC12, 15, 25 AND 35 SERIES**

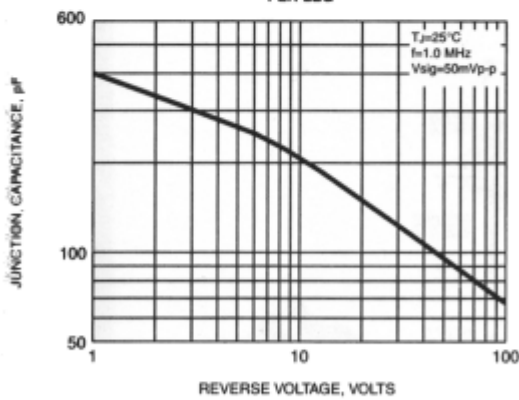
**FIG. 5 - TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS PER LEG**



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



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



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

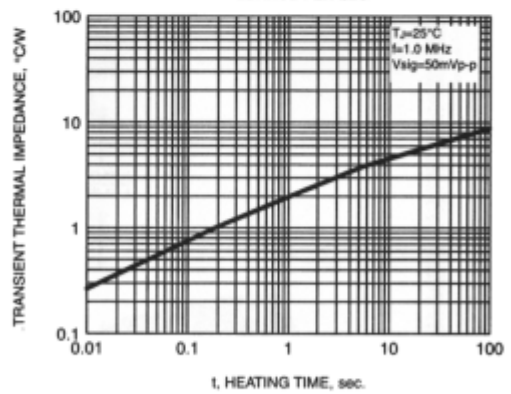


FIG. 9

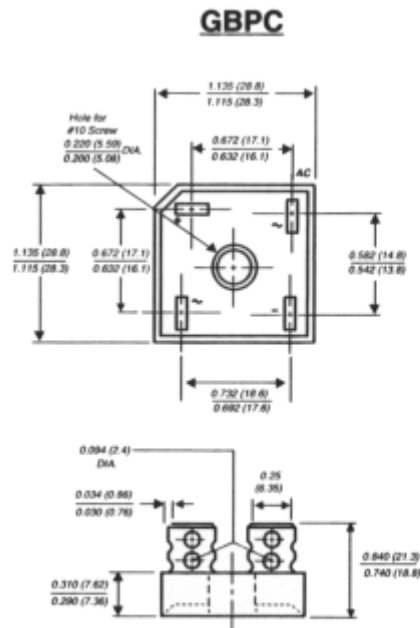
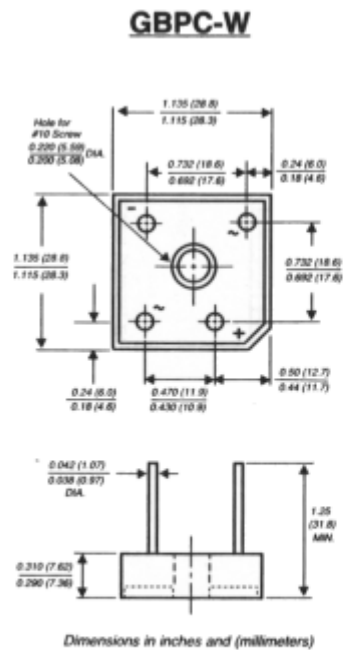


FIG. 10



**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