FAIRCHILD SEMICONDUCTOR®

July 2010

GBPC 12, 15, 25, 35 SERIES
Bridge Rectifiers (Glass Passivated)

Features

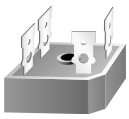
- Integrally molded heatsink provided very low thermal resistance for maximum heat dissipation.
- Surge Overload Ratings from 300 amperes to 400 amperes.
- Isolated voltage from case to lead over 2500 volts.
- UL certified, UL #E326243
- Terminals Finish Material - Silver (solderable per MIL-STD-202, Method 208 for the wire type GBPC-W package)
  - Nickel for GBPC package.

Suffix “W”

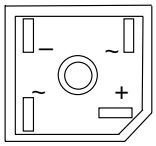
Wire Lead Structure

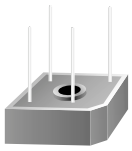
Suffix “M”

Terminal Location Face to Face

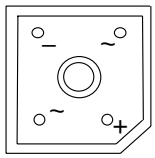


GBPC





GBPC-W



Absolute Maximum Ratings * T_A = 25°C unless otherwise noted

Symbol	Parameter	Value							Units
		005	01	02	04	06	08	10	
V_{RRM}	Maximum Repetitive Reverse Voltage	50	100	200	400	600	800	1000	V
V_{RMS}	Maximum RMS Bridge Input Voltage	35	70	140	280	420	560	700	V
V_R	DC Reverse Voltage (Rated V_R)	50	100	200	400	600	800	1000	V
$I_{F(AV)}$	Average Rectified Forward Current @ T_C = 55°C GBPC12	12							A
	GBPC15	15							A
	GBPC25	25							A
	GBPC35	35							A
I_{FSM}	Non-Repetitive Peak Forward Surge Current GBPC12, 25, 25 8.3ms Single Half-Sine-Wave	300							A
	GBPC35	400							A
T_{STG}	Storage Temperature Range	-55 to +150							°C
T_J	Operating Junction Temperature	-55 to +150							°C

* These ratings are limiting values above which the serviceability of any semiconductor device may by impaired.

Thermal Characteristics

Symbol	Parameter	Value	Units
P_D	Power Dissipation	83.3	W
$R_{\theta JC}$	Thermal Resistance, Junction to Case *	1.5	°C/W

* With Heatsink

Electrical Characteristics T_A = 25°C unless otherwise noted

Symbol	Parameter		Value	Units
V_F	Forward Voltage Drop, per bridge			
	@6.0A	GBPC12		
	@7.5A	GBPC15	1.1 (Max.)	V
	@12.5A	GBPC25		
	@17.5A	GBPC35		
I_R	Reverse Current, per element			
	@ Rated V_R	T_A = 25°C	5.0 (Max.)	μA
		T_A = 125°C	500 (Max.)	μA
I^2t	Rating for Fusing			
	t < 8.35ms	GBPC12, 15, 25	375	A^2Sec
		GBPC35	660	A^2Sec
C_T	Total Capacitance, per leg			
	V_R = 4.0V	GBPC12, 15, 25	180	pF
	f = 1.0MHz	GBPC35	200	pF

Typical Performance Characteristics

Figure 1. Forward Current Derating Curve

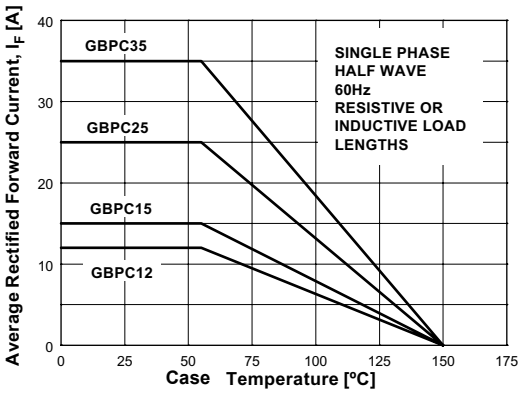


Figure 2. Non-Repetitive Surge Current

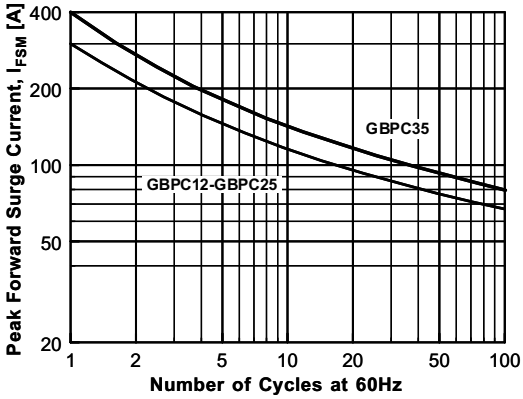


Figure 3. Forward Voltage Characteristics

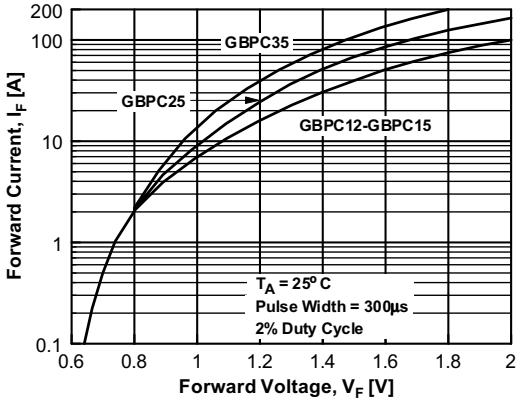
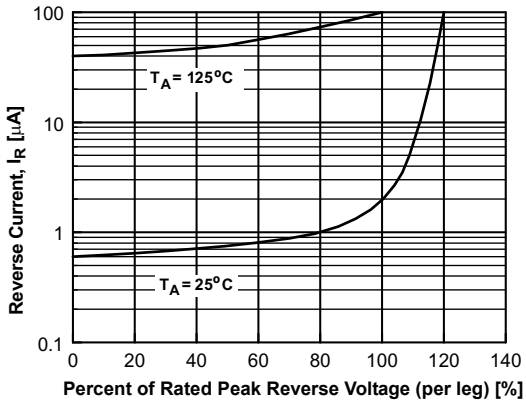


Figure 4. Reverse Current vs Reverse Voltage



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