FAIRCHILD SEMICONDUCTOR®

June 2013

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

Features

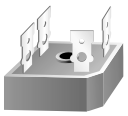
- Integrally molded heat-sink provided very low thermal resistance for maximum heat dissipation.
- Surge Overload Ratings from 300 A to 400 A.
- Isolated voltage from case to lead over 2500 V.
- UL certified, UL #E258596
- Terminals Finish Material - Silver (Solderable per MIL-STD-202, Method 208 for the wire type GBPC-W package)
  - Nickel for GBPC package.

Suffix “W”

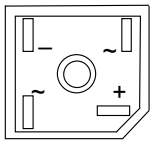
- Wire Lead Structure

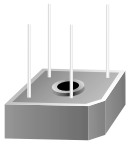
Suffix “M”

- Terminal Location Face to Face

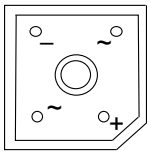


GBPC





GBPC-W



Ordering Informations

Part Number	Marking	Package	Packing Method
GBPC35005W	GBPC35005W	GBPC-W 4L	Bulk
GBPC35005	GBPC35005	GBPC 4L	Bulk

Absolute Maximum Ratings(1)

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only. Values are at 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 at T_C = 55°C	GBPC12	12							A
		GBPC15	15							
		GBPC25	25							
		GBPC35	35							
I_{FSM}	Non-Repetitive Peak Forward Surge Current	GBPC12, 15, 25	300							A
	8.3ms Single Half-Sine-Wave	GBPC35	400							A
T_{STG}	Storage Temperature Range		-55 to +150							°C
T_J	Operating Junction Temperature		-55 to +150							°C

Note:

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

Thermal Characteristics

Values are at T_A = 25°C unless otherwise noted.

Symbol	Parameter	Value	Units
P_D	Power Dissipation	83.3	W
$R_{\theta JC}$	Thermal Resistance, Junction to Case(2)	1.5	°C/W

Note:

2. With Heatsink.

Electrical Characteristics

Values are at T_A = 25°C unless otherwise noted**.**

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

Typical Performance Characteristics

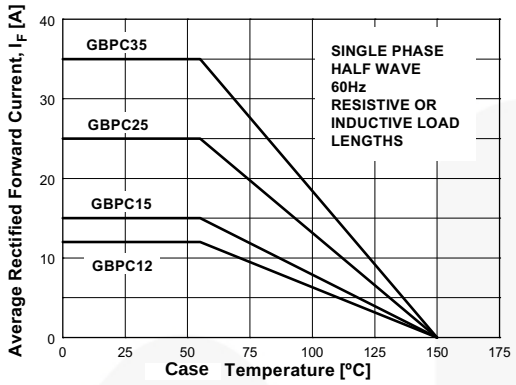


Figure 1. Forward Current Derating Curve

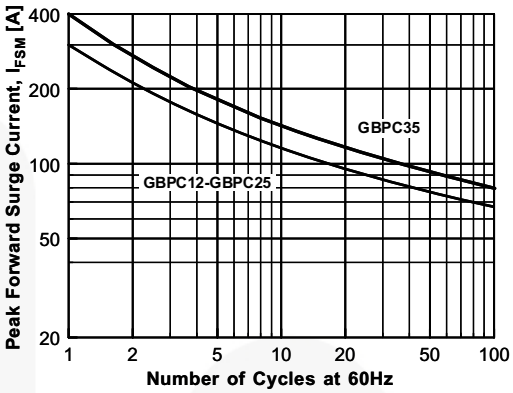


Figure 2. Non-Repetitive Surge Current

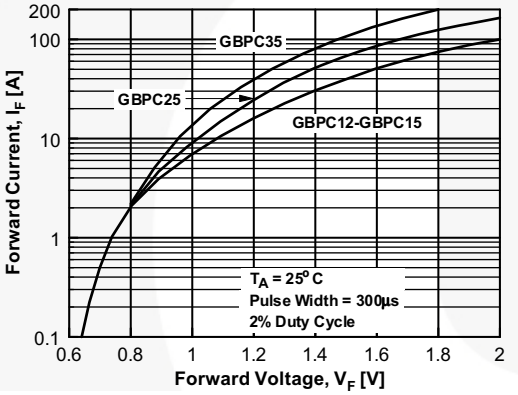


Figure 3. Forward Voltage Characteristics

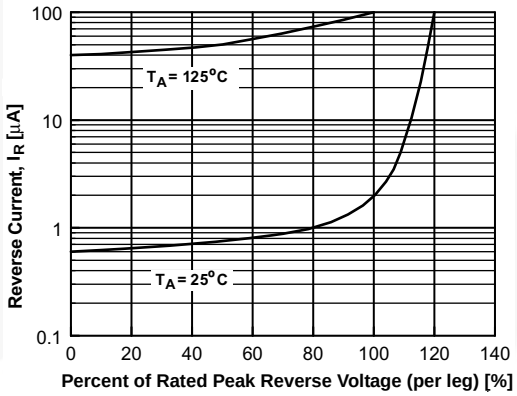
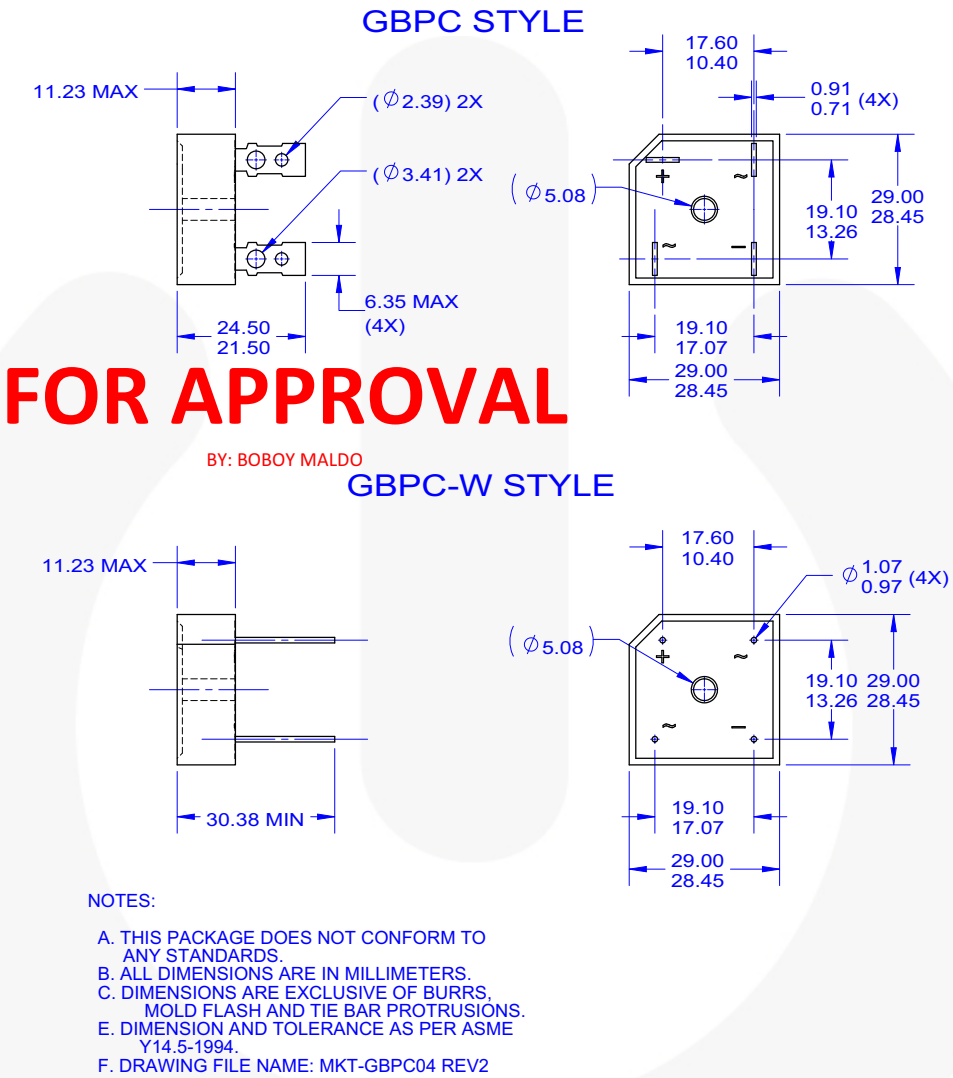


Figure 4. Reverse Current vs. Reverse Voltage

Physical Dimensions

GBPC



NOTES:

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C. DIMENSIONS ARE EXCLUSIVE OF BURRS, MOLD FLASH AND TIE BAR PROTRUSIONS.
E. DIMENSION AND TOLERANCE AS PER ASME Y14.5-1994.
F. DRAWING FILE NAME: MKT-GBPC04 REV2

Figure 5. 4-TERMINAL, COMBINATION GBPC AND GBPC-W (ACTIVE)

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