FAIRCHILD SEMICONDUCTOR®

June 2013

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

Features

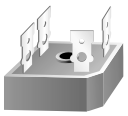
- Integrally molded heat-sink provided very low thermal resistance for maximum heat dissipation.
- Surge Overload Ratings from 300 A to 400 A.
- Isolated voltage from case to lead over 2500 V.
- UL certified, UL #E258596
- Terminals Finish Material - Silver (Solderable per MIL-STD-202, Method 208 for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

Suffix “W”

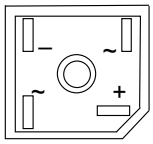
- Wire Lead Structure

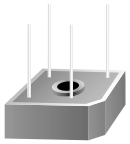
Suffix “M”

- Terminal Location Face to Face

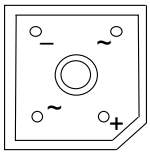


GBPC





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

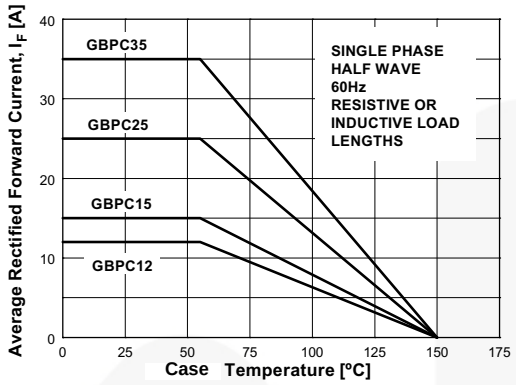


Figure 1. Forward Current Derating Curve

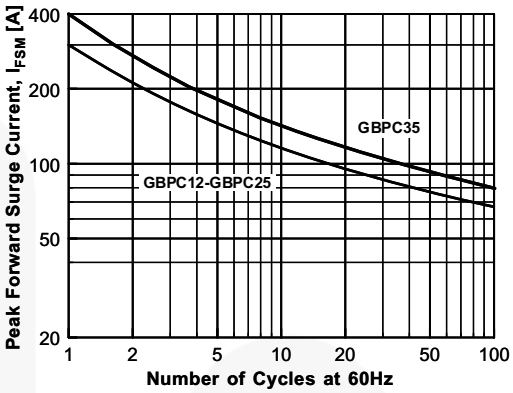


Figure 2. Non-Repetitive Surge Current

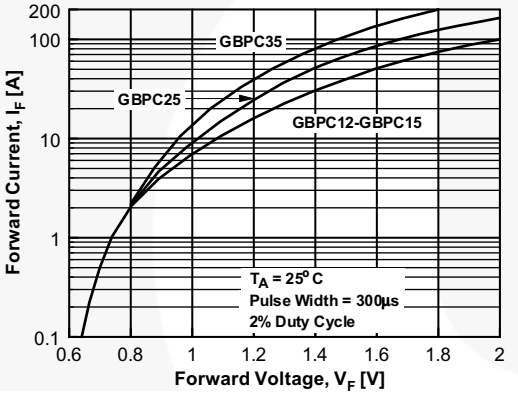


Figure 3. Forward Voltage Characteristics

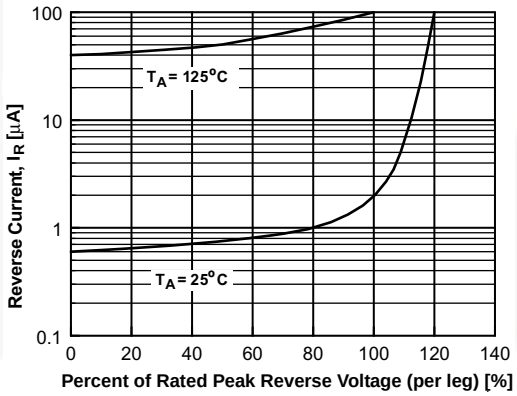


Figure 4. Reverse Current vs. Reverse Voltage

Physical Dimensions

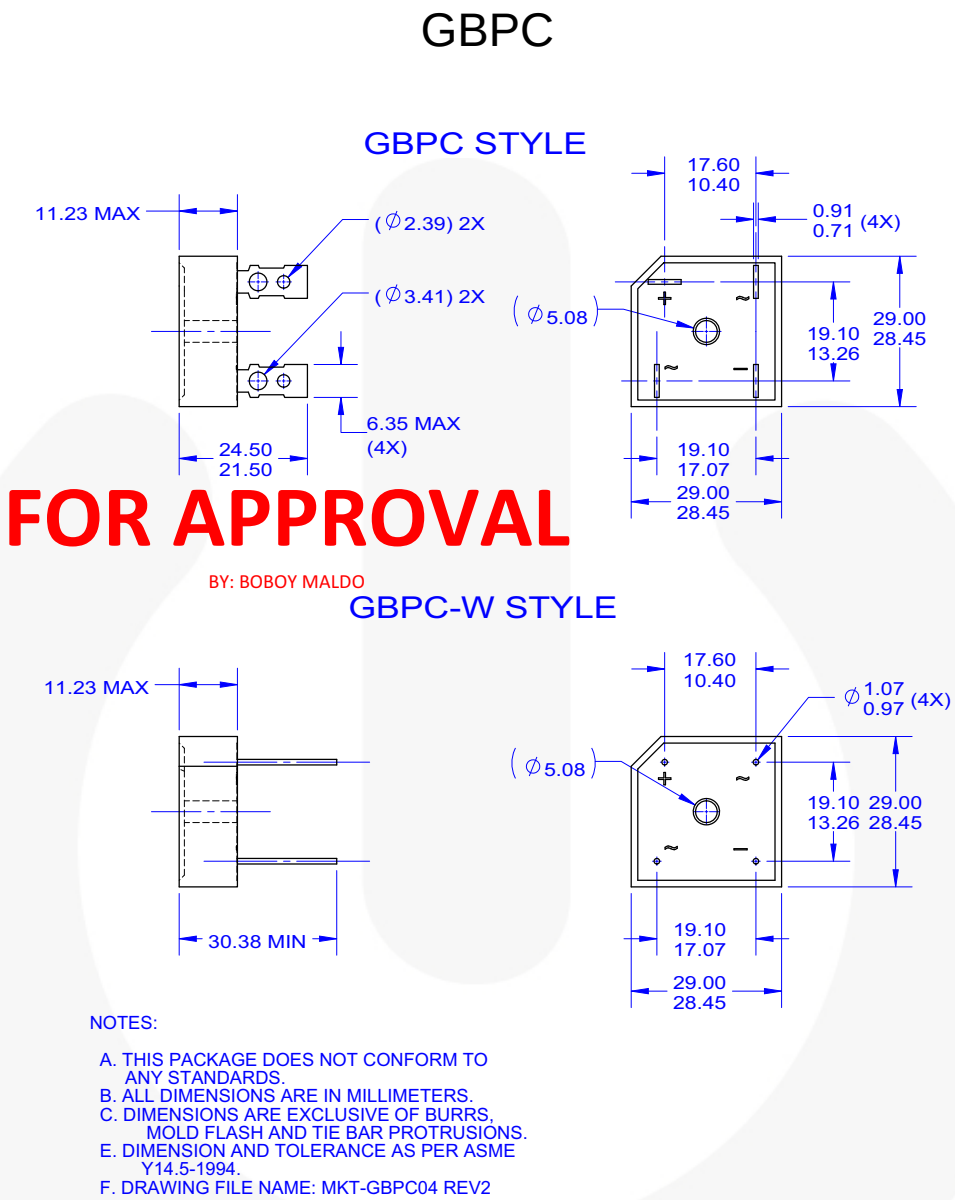


Figure 5. 4-TERMINAL, COMBINATION GBPC AND GBPC-W (ACTIVE)

Package drawings are provided as a service to customers considering Fairchild components. Drawings may change in any manner without notice. Please note the revision and/or date on the drawing and contact a Fairchild Semiconductor representative to verify or obtain the most recent revision. Package specifications do not expand the terms of Fairchild's worldwide terms and conditions, specifically the warranty therein, which covers Fairchild products.

Always visit Fairchild Semiconductor's online packaging area for the most recent package drawings:
http://www.fairchildsemi.com/packaging/.

For current tape and reel specifications, visit Fairchild Semiconductor's online packaging area:
http://www.fairchildsemi.com/packing_dwg/PKG-GBPC04A_TSC.pdf.

FAIRCHILD SEMICONDUCTOR®

TRADEMARKS

The following includes registered and unregistered trademarks and service marks, owned by Fairchild Semiconductor and/or its global subsidiaries, and is not intended to be an exhaustive list of all such trademarks.

2Cool™
AccuPower™
AX-CAP®*
BitSiC™
Build it Now™
CorePLUS™
CorePOWER™
CROSSVOLT™
CTL™
Current Transfer Logic™
DEUXPEED®
Dual Cool™
EcoSPARK®
EfficientMax™
ESBC™
F®
Fairchild®
Fairchild Semiconductor®
FACT Quiet Series™
FACT®
FAST®
FastvCore™
FETBench™
FPS™
F-PFS™
FRFET®
Global Power Resource℠
GreenBridge™
Green FPS™
Green FPS™ e-Series™
G*max*™
GTO™
IntelliMAX™
ISOPLANAR™
Making Small Speakers Sound Louder and Better™
MegaBuck™
MICROCOUPLER™
MicroFET™
MicroPak™
MicroPak2™
MillerDrive™
MotionMax™
mWSaver™
OptoHiT™
OPTOLOGIC®
OPTOPLANAR®
PowerTrench®
PowerXS™
Programmable Active Droop™
QFET®
QS™
Quiet Series™
RapidConfigure™
™
Saving our world, 1mW/W/kW at a time™
SignalWise™
SmartMax™
SMART START™
Solutions for Your Success™
SPM®
STEALTH™
SuperFET®
SuperSOT™-3
SuperSOT™-6
SuperSOT™-8
SupreMOS®
SyncFET™
Sync-Lock™
SYSTEM GENERAL®*
TinyBoost™
TinyBuck™
TinyCalc™
TinyLogic®
TINYOPTO™
TinyPower™
TinyPWM™
TinyWire™
TranSiC™
TriFault Detect™
TRUECURRENT®*
µSerDes™
SerDes™
UHC®
Ultra FRFET™
UniFET™
VCX™
VisualMax™
VoltagePlus™
XS™

* Trademarks of System General Corporation, used under license by Fairchild Semiconductor.

DISCLAIMER

FAIRCHILD SEMICONDUCTOR RESERVES THE RIGHT TO MAKE CHANGES WITHOUT FURTHER NOTICE TO ANY PRODUCTS HEREIN TO IMPROVE RELIABILITY, FUNCTION, OR DESIGN. FAIRCHILD DOES NOT ASSUME ANY LIABILITY ARISING OUT OF THE APPLICATION OR USE OF ANY PRODUCT OR CIRCUIT DESCRIBED HEREIN; NEITHER DOES IT CONVEY ANY LICENSE UNDER ITS PATENT RIGHTS, NOR THE RIGHTS OF OTHERS. THESE SPECIFICATIONS DO NOT EXPAND THE TERMS OF FAIRCHILD'S WORLDWIDE TERMS AND CONDITIONS, SPECIFICALLY THE WARRANTY THEREIN, WHICH COVERS THESE PRODUCTS.

LIFE SUPPORT POLICY

FAIRCHILD'S PRODUCTS ARE NOT AUTHORIZED FOR USE AS CRITICAL COMPONENTS IN LIFE SUPPORT DEVICES OR SYSTEMS WITHOUT THE EXPRESS WRITTEN APPROVAL OF FAIRCHILD SEMICONDUCTOR CORPORATION.

As used herein:

1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body or (b) support or sustain life, and (c) whose failure to perform when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in a significant injury of the user.
2. A critical component in any component of a life support, device, or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.

ANTI-COUNTERFEITING POLICY

Fairchild Semiconductor Corporation's Anti-Counterfeiting Policy. Fairchild's Anti-Counterfeiting Policy is also stated on our external website, www.fairchildsemi.com, under Sales Support.

Counterfeiting of semiconductor parts is a growing problem in the industry. All manufacturers of semiconductor products are experiencing counterfeiting of their parts. Customers who inadvertently purchase counterfeit parts experience many problems such as loss of brand reputation, substandard performance, failed applications, and increased cost of production and manufacturing delays. Fairchild is taking strong measures to protect ourselves and our customers from the proliferation of counterfeit parts. Fairchild strongly encourages customers to purchase Fairchild parts either directly from Fairchild or from Authorized Fairchild Distributors who are listed by country on our web page cited above. Products customers buy either from Fairchild directly or from Authorized Fairchild Distributors are genuine parts, have full traceability, meet Fairchild's quality standards for handling and storage and provide access to Fairchild's full range of up-to-date technical and product information. Fairchild and our Authorized Distributors will stand behind all warranties and will appropriately address any warranty issues that may arise. Fairchild will not provide any warranty coverage or other assistance for parts bought from Unauthorized Sources. Fairchild is committed to combat this global problem and encourage our customers to do their part in stopping this practice by buying direct or from authorized distributors.

PRODUCT STATUS DEFINITIONS

Definition of Terms

Datasheet Identification	Product Status	Definition
Advance Information	Formative / In Design	Datasheet contains the design specifications for product development. Specifications may change in any manner without notice.
Preliminary	First Production	Datasheet contains preliminary data; supplementary data will be published at a later date. Fairchild Semiconductor reserves the right to make changes at any time without notice to improve design.
No Identification Needed	Full Production	Datasheet contains final specifications. Fairchild Semiconductor reserves the right to make changes at any time without notice to improve the design.
Obsolete	Not In Production	Datasheet contains specifications on a product that is discontinued by Fairchild Semiconductor. The datasheet is for reference information only.

Rev. I64