

Bridge Rectifiers (Glass Passivated)

GBPC 12, 15, 25, 35 SERIES

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
- Mounting Torque: 20 in-lbs Maximum
- These are Pb-Free Devices

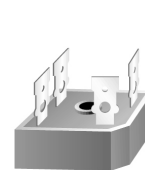
Suffix "W"

- Wire Lead Structure

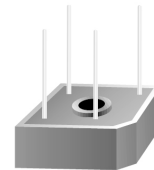


ON Semiconductor®

www.onsemi.com

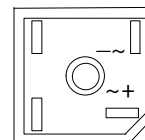


**GBPC
CASE 160AD**

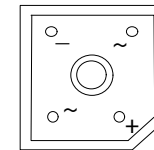


**GBPC-W
CASE 160AD**

PIN ASSIGNMENT



GBPC



GBPC-W

ORDERING INFORMATION

See detailed ordering and shipping information on page 4 of this data sheet.

GBPC 12, 15, 25, 35 SERIES

SPECIFICATIONS

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$, unless otherwise specified.) (Note 1)

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 $T_C = 55^\circ\text{C}$	GBPC12	12						A
		GBPC15	15						
		GBPC25	25						
		GBPC35	35						
I_{FSM}	Non-Repetitive Peak Forward Surge Current	GBPC12, 15, 25		300				A	
	8.3 ms Single Half-Sine-Wave	GBPC35		400				A	
T_{STG}	Storage Temperature Range	-55 to +150							$^\circ\text{C}$
T_J	Operating Junction Temperature	-55 to +150							$^\circ\text{C}$

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

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

THERMAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$, unless otherwise specified.)

Symbol	Parameter	Value	Unit
P_D	Power Dissipation	83.3	W
$R_{\theta JC}$	Thermal Resistance, Junction to Case (Note 2)	1.5	$^\circ\text{C/W}$

2. With Heatsink.

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$, unless otherwise specified.)

Symbol	Parameter	Test Conditions	Value	Unit	
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	$T_A = 25^\circ\text{C}$	5.0 (Max)	μA	
		$T_A = 125^\circ\text{C}$	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	

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

GBPC 12, 15, 25, 35 SERIES

TYPICAL PERFORMANCE CHARACTERISTICS

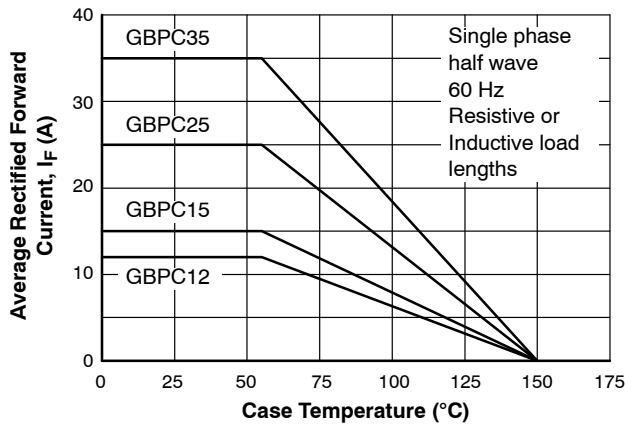


Figure 1. Forward Current Derating Curve

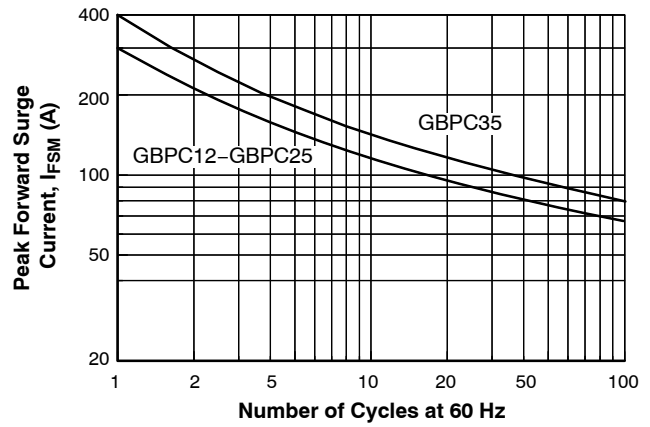


Figure 2. Non-Repetitive Surge Current

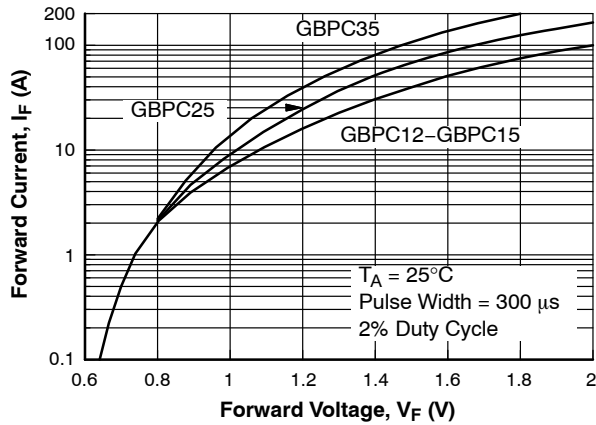


Figure 3. Forward Voltage Characteristics

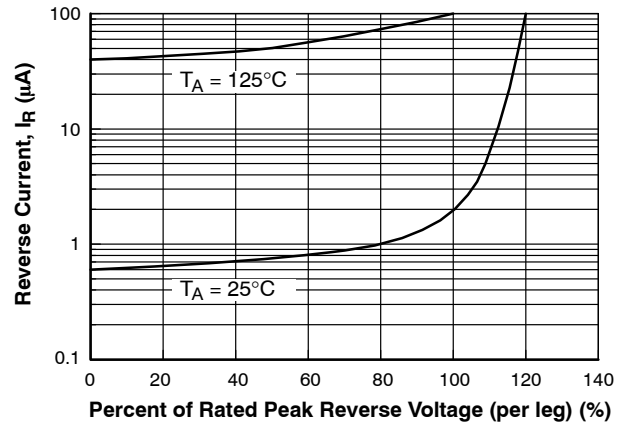


Figure 4. Reverse Current vs. Reverse Voltage

GBPC 12, 15, 25, 35 SERIES

ORDERING INFORMATION

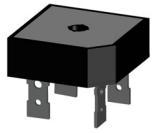
Part Number	Marking	Package	Packing Method		
GBPC12005	GBPC12005	GBPC 4L (Pb-Free)	Bulk		
GBPC1201	GBPC1201				
GBPC1202	GBPC1202				
GBPC1204	GBPC1204				
GBPC1206	GBPC1206				
GBPC1208	GBPC1208				
GBPC1210	GBPC1210				
GBPC15005	GBPC15005				
GBPC1501	GBPC1501				
GBPC1502	GBPC1502				
GBPC1504	GBPC1504				
GBPC1506	GBPC1506				
GBPC1508	GBPC1508				
GBPC1510	GBPC1510				
GBPC25005	GBPC25005				
GBPC2501	GBPC2501				
GBPC2502	GBPC2502				
GBPC2504	GBPC2504				
GBPC2506	GBPC2506				
GBPC2508	GBPC2508				
GBPC2510	GBPC2510				
GBPC35005	GBPC35005				
GBPC3501	GBPC3501				
GBPC3502	GBPC3502				
GBPC3504	GBPC3504				
GBPC3506	GBPC3506				
GBPC3508	GBPC3508				
GBPC3510	GBPC3510				
GBPC1201W	GBPC1201W			GBPC-W 4L (Pb-Free)	
GBPC1202W	GBPC1202W				
GBPC1204W	GBPC1204W				
GBPC1206W	GBPC1206W				
GBPC1208W	GBPC1208W				
GBPC1210W	GBPC1210W				
GBPC15005W	GBPC15005W				
GBPC1501W	GBPC1501W				
GBPC1502W	GBPC1502W				
GBPC1504W	GBPC1504W				
GBPC1506W	GBPC1506W				
GBPC1508W	GBPC1508W				

GBPC 12, 15, 25, 35 SERIES

ORDERING INFORMATION (continued)

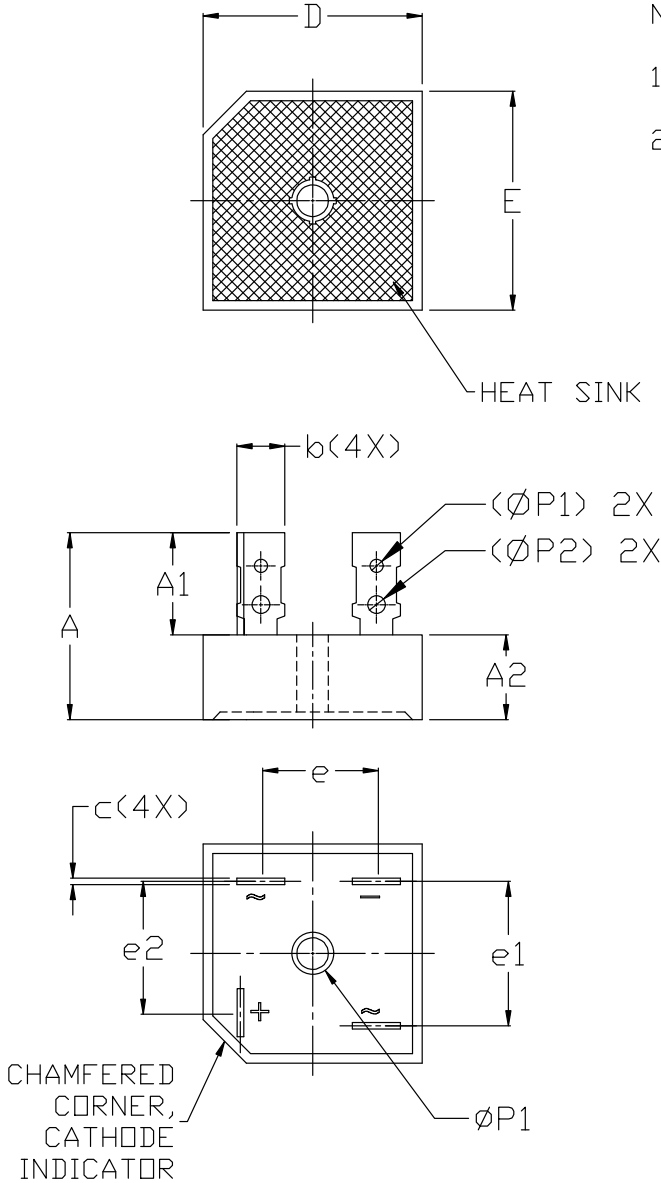
Part Number	Marking	Package	Packing Method
GBPC1510W	GBPC1510W	GBPC-W 4L (Pb-Free)	Bulk
GBPC25005W	GBPC25005W		
GBPC2501W	GBPC2501W		
GBPC2502W	GBPC2502W		
GBPC2504W	GBPC2504W		
GBPC2506W	GBPC2506W		
GBPC2508W	GBPC2508W		
GBPC2510W	GBPC2510W		
GBPC35005W	GBPC35005W		
GBPC3501W	GBPC3501W		
GBPC3502W	GBPC3502W		
GBPC3504W	GBPC3504W		
GBPC3506W	GBPC3506W		
GBPC3508W	GBPC3508W		
GBPC3510W	GBPC3510W		

MECHANICAL CASE OUTLINE
PACKAGE DIMENSIONS



GBPC4 28.75x28.75x11.10, MODEL 1
CASE 160AD
ISSUE C

DATE 15 NOV 2023



NOTES:

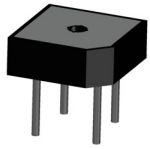
1. DIMENSIONING AND TOLERANCING CONFORM TO ASME Y14.5-2018.
2. ALL DIMENSION ARE IN MILLIMETERS.

DIM	MILLIMETERS		
	MIN.	NOM.	MAX.
A	21.500	23.000	24.500
A1	13.270 REF		
A2	10.970	11.100	11.230
ØP	5.080	5.335	5.590
ØP1	1.780 REF		
ØP2	2.360 REF		
D	28.500	28.750	29.000
E	28.500	28.750	29.000
b	6.350 TYP		
c	0.760	0.810	0.860
e	13.300	14.300	15.300
e1	17.100	18.100	19.100
e2	15.500	16.550	17.600

DOCUMENT NUMBER:	98AON13489G	Electronic versions are uncontrolled except when accessed directly from the Document Repository. Printed versions are uncontrolled except when stamped "CONTROLLED COPY" in red.
DESCRIPTION:	GBPC4 28.75x28.75x11.10, MODEL 1	PAGE 1 OF 2

onsemi and **ONSEMI** are trademarks of Semiconductor Components Industries, LLC dba **onsemi** or its subsidiaries in the United States and/or other countries. **onsemi** reserves the right to make changes without further notice to any products herein. **onsemi** makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does **onsemi** assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. **onsemi** does not convey any license under its patent rights nor the rights of others.

MECHANICAL CASE OUTLINE
PACKAGE DIMENSIONS

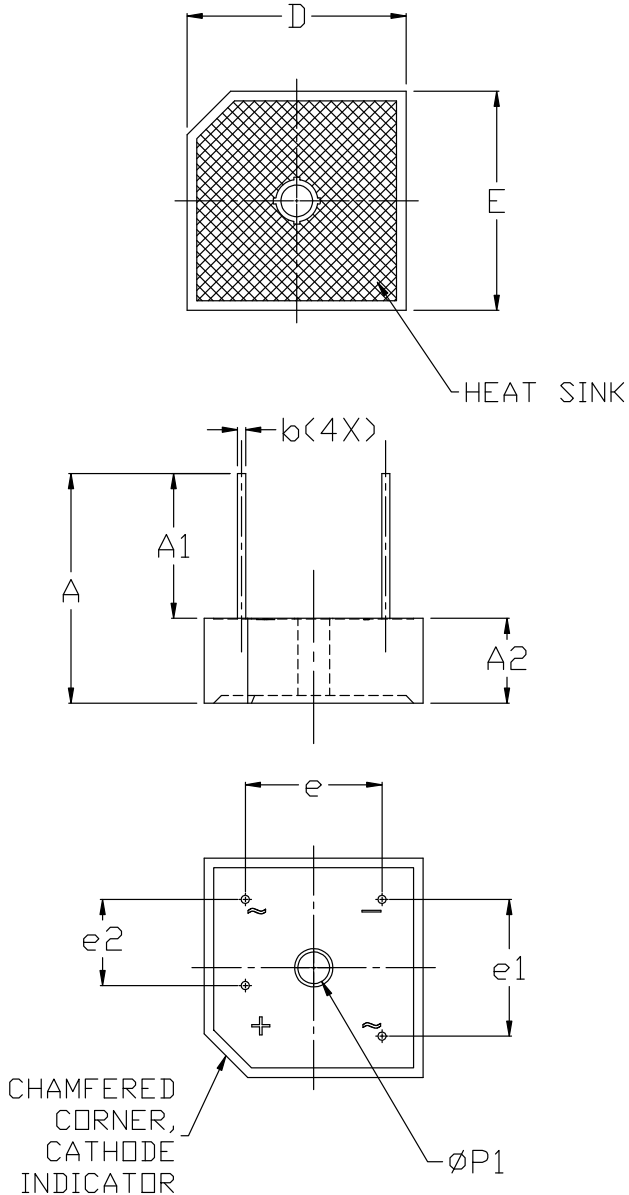


GBPC4 28.75x28.75x11.10, MODEL 2
CASE 160AD
ISSUE C

DATE 15 NOV 2023

NOTES:

1. DIMENSIONING AND TOLERANCING CONFORM TO ASME Y14.5-2018.
2. ALL DIMENSION ARE IN MILLIMETERS.



DIM	MILLIMETERS		
	MIN.	NOM.	MAX.
A	30.500	---	---
A1	19.270 REF		
A2	10.970	11.100	11.230
ϕP	5.080	5.335	5.590
D	28.500	28.750	29.000
E	28.500	28.750	29.000
b	0.970	1.020	1.070
e	17.100	18.100	19.100
e1	17.100	18.100	19.100
e2	10.400	11.400	12.400

DOCUMENT NUMBER:	98AON13489G	Electronic versions are uncontrolled except when accessed directly from the Document Repository. Printed versions are uncontrolled except when stamped "CONTROLLED COPY" in red.
DESCRIPTION:	GBPC4 28.75x28.75x11.10, MODEL 2	PAGE 2 OF 2

onsemi and **ONSEMI** are trademarks of Semiconductor Components Industries, LLC dba **onsemi** or its subsidiaries in the United States and/or other countries. **onsemi** reserves the right to make changes without further notice to any products herein. **onsemi** makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does **onsemi** assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. **onsemi** does not convey any license under its patent rights nor the rights of others.

onsemi, **Onsemi**, and other names, marks, and brands are registered and/or common law trademarks of Semiconductor Components Industries, LLC dba "**onsemi**" or its affiliates and/or subsidiaries in the United States and/or other countries. **onsemi** owns the rights to a number of patents, trademarks, copyrights, trade secrets, and other intellectual property. A listing of **onsemi**'s product/patent coverage may be accessed at www.onsemi.com/site/pdf/Patent-Marking.pdf. **onsemi** reserves the right to make changes at any time to any products or information herein, without notice. The information herein is provided "as-is" and **onsemi** makes no warranty, representation or guarantee regarding the accuracy of the information, product features, availability, functionality, or suitability of its products for any particular purpose, nor does **onsemi** assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. Buyer is responsible for its products and applications using **onsemi** products, including compliance with all laws, regulations and safety requirements or standards, regardless of any support or applications information provided by **onsemi**. "Typical" parameters which may be provided in **onsemi** data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. **onsemi** does not convey any license under any of its intellectual property rights nor the rights of others. **onsemi** products are not designed, intended, or authorized for use as a critical component in life support systems or any FDA Class 3 medical devices or medical devices with a same or similar classification in a foreign jurisdiction or any devices intended for implantation in the human body. Should Buyer purchase or use **onsemi** products for any such unintended or unauthorized application, Buyer shall indemnify and hold **onsemi** and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that **onsemi** was negligent regarding the design or manufacture of the part. **onsemi** is an Equal Opportunity/Affirmative Action Employer. This literature is subject to all applicable copyright laws and is not for resale in any manner.

ADDITIONAL INFORMATION

TECHNICAL PUBLICATIONS:

Technical Library: www.onsemi.com/design/resources/technical-documentation
onsemi Website: www.onsemi.com

ONLINE SUPPORT: www.onsemi.com/support

For additional information, please contact your local Sales Representative at www.onsemi.com/support/sales