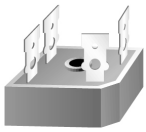
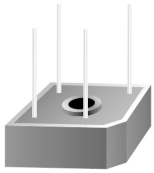
Bridge Rectifiers (Glass Passivated)

GBPC 12, 15, 25, 35 SERIES



GBPC
CASE 160AD



GBPC−W
CASE 160AD

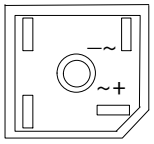
Features

- 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

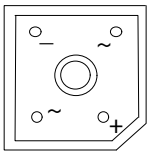
Suffix “W”

- Wire Lead Structure

PIN ASSIGNMENT



GBPC



GBPC−W

ORDERING INFORMATION

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

NOTE: Some of the devices on this data sheet have been **DISCONTINUED**. Please refer to the table on page 5.

SPECIFICATIONS

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C, unless otherwise specified.) (Note 1)

Symbol	Parameter		Value							Unit
			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
	8.3 ms 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

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 by impaired.

THERMAL CHARACTERISTICS (T_A = 25°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	°C/W

2. With Heatsink.

ELECTRICAL CHARACTERISTICS (T_A = 25°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°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

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.

TYPICAL PERFORMANCE CHARACTERISTICS

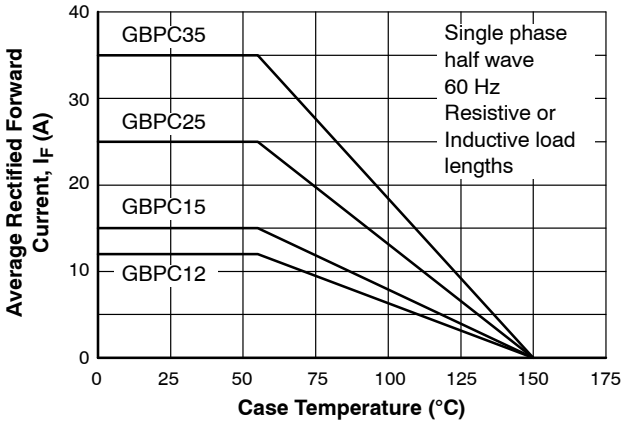


Figure 1. Forward Current Derating Curve

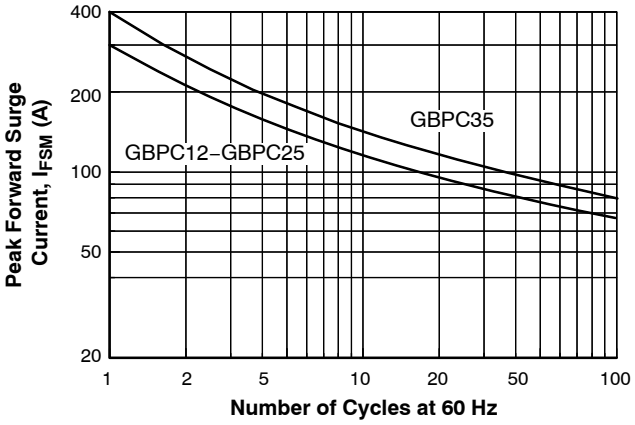


Figure 2. Non−Repetitive Surge Current

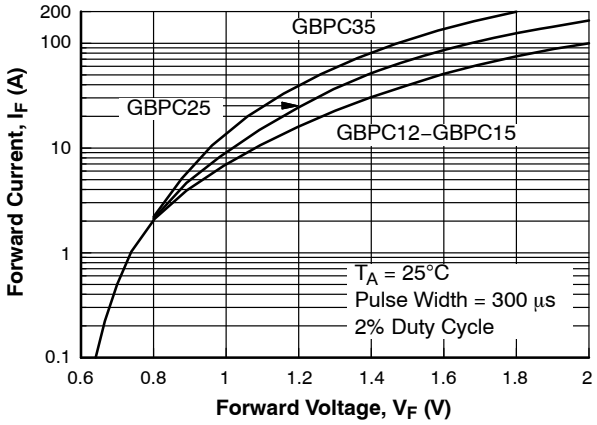


Figure 3. Forward Voltage Characteristics

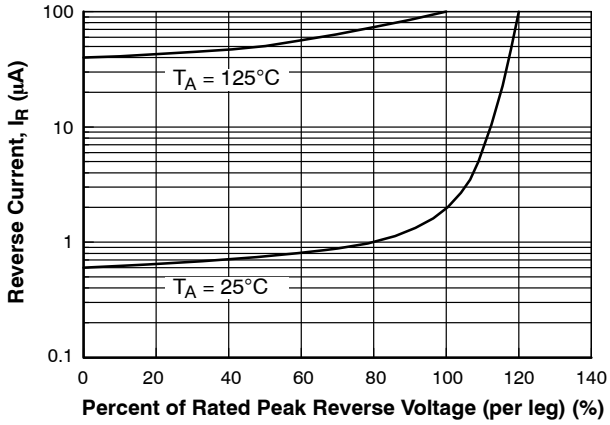


Figure 4. Reverse Current vs. Reverse Voltage

ORDERING INFORMATION

Part Number	Marking	Package	Packing Method
GBPC12005	GBPC12005	GBPC 4L (Pb−Free)	Bulk
GBPC1201	GBPC1201		
GBPC1202	GBPC1202		
GBPC1204	GBPC1204		
GBPC1206	GBPC1206		
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)	
GBPC1204W	GBPC1204W		
GBPC1206W	GBPC1206W		
GBPC1208W	GBPC1208W		
GBPC1210W	GBPC1210W		
GBPC15005W	GBPC15005W		
GBPC1501W	GBPC1501W		
GBPC1502W	GBPC1502W		
GBPC1504W	GBPC1504W		
GBPC1506W	GBPC1506W		
GBPC1508W	GBPC1508W		

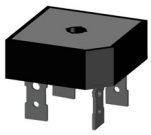
ORDERING INFORMATION (continued)

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

DISCONTINUED (Note 3)

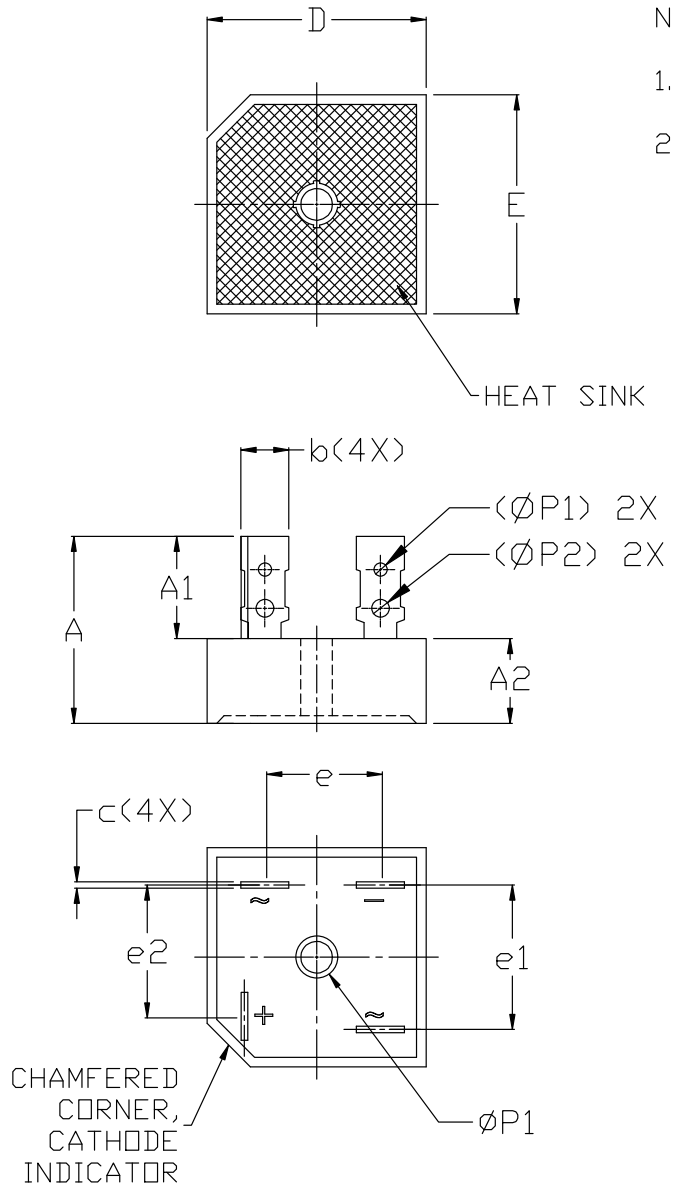
GBPC1208	GBPC1208	GBPC 4L (Pb−Free)	Bulk
GBPC1202W	GBPC1202W	GBPC−W 4L (Pb−Free)	
GBPC25005W	GBPC25005W		
GBPC35005W	GBPC35005W		

3. **DISCONTINUED:** These devices are not recommended for new design. Please contact your **onsemi** representative for information. The most current information on these devices may be available on www.onsemi.com.



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

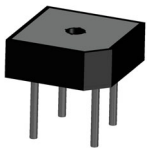
DATE 15 NOV 2023



NOTES:

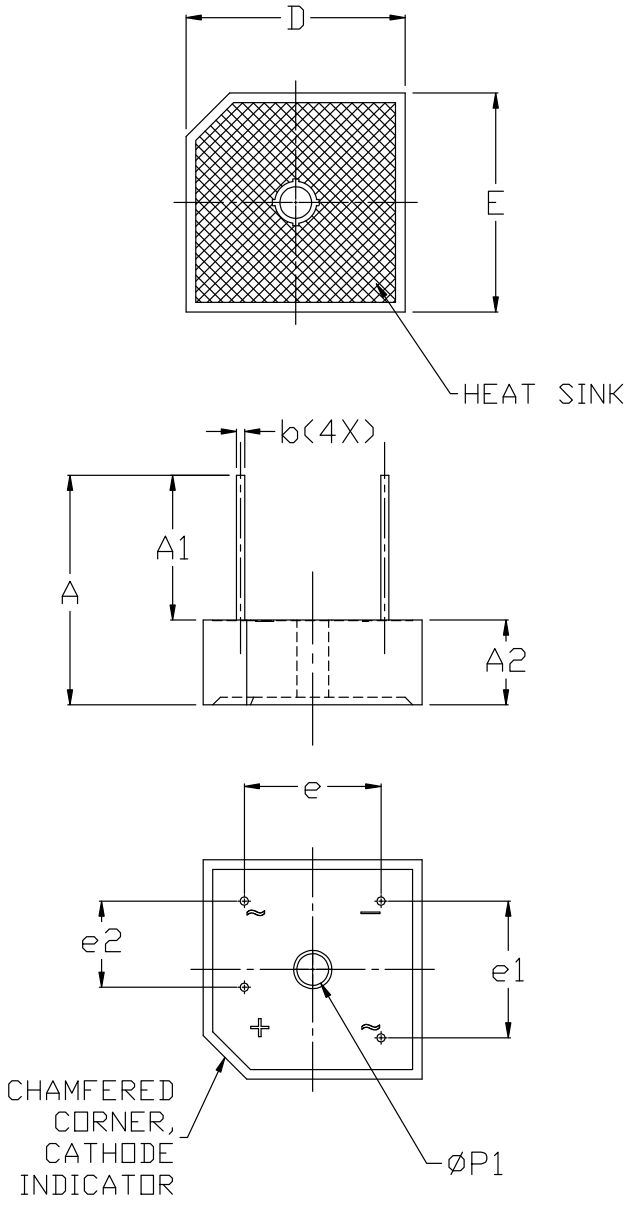
1. DIMENSIONING AND TOLERANCING CONFORM TO ASME Y14.5-2018.
2. ALL DIMENSION ARE IN MILLIMETERS.

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



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
øP	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

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