

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

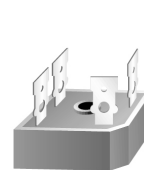
Suffix "W"

- Wire Lead Structure

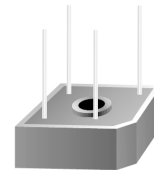


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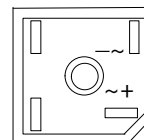


**GBPC
CASE 160AD**

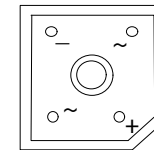


**GBPC-W
CASE 160AD**

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

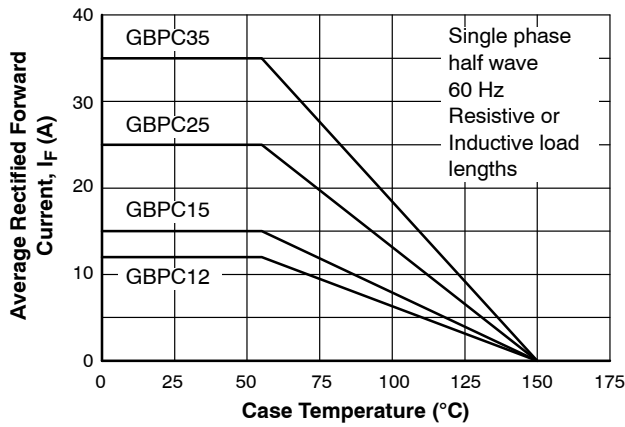


Figure 1. Forward Current Derating Curve

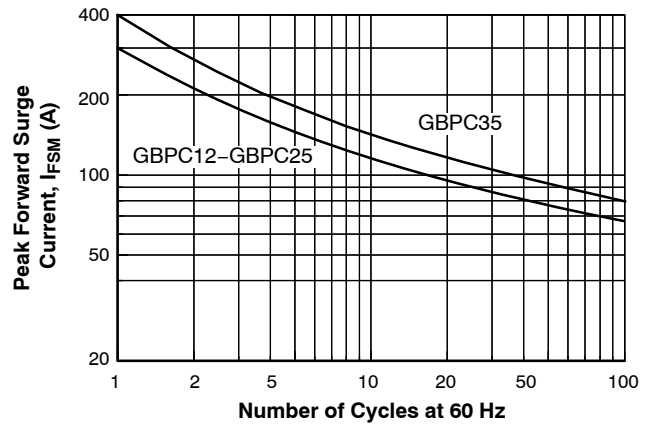


Figure 2. Non-Repetitive Surge Current

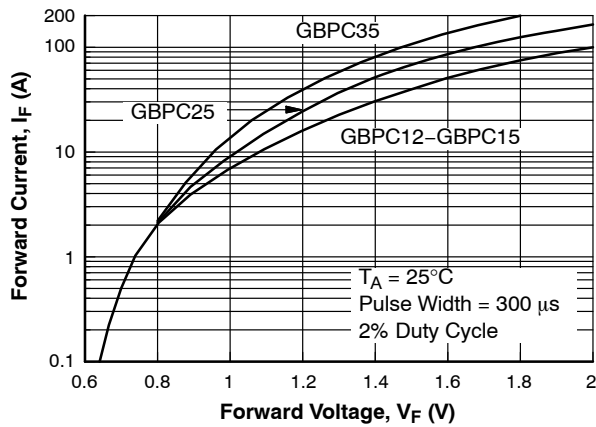


Figure 3. Forward Voltage Characteristics

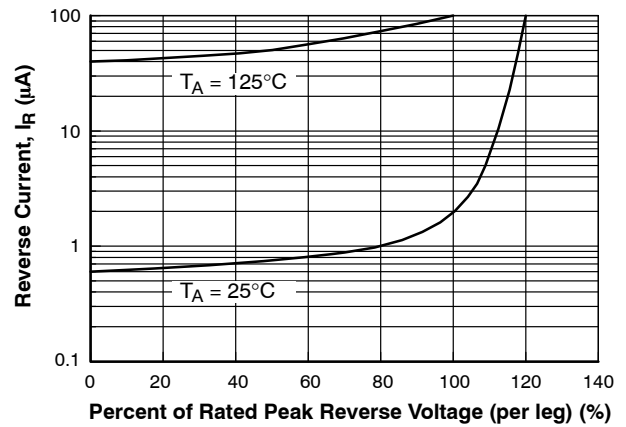


Figure 4. Reverse Current vs. Reverse Voltage

GBPC 12, 15, 25, 35 SERIES

ORDERING INFORMATION

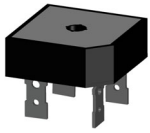
| Part Number | Marking | Package | Packing Method | | |
|-------------|------------|----------------------|----------------|------------------------|--|
| GBPC12005 | GBPC12005 | GBPC 4L (Pb-Free) | Bulk | | |
| GBPC1201 | GBPC1201 | | | | |
| GBPC1202 | GBPC1202 | | | | |
| GBPC1204 | GBPC1204 | | | | |
| 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)

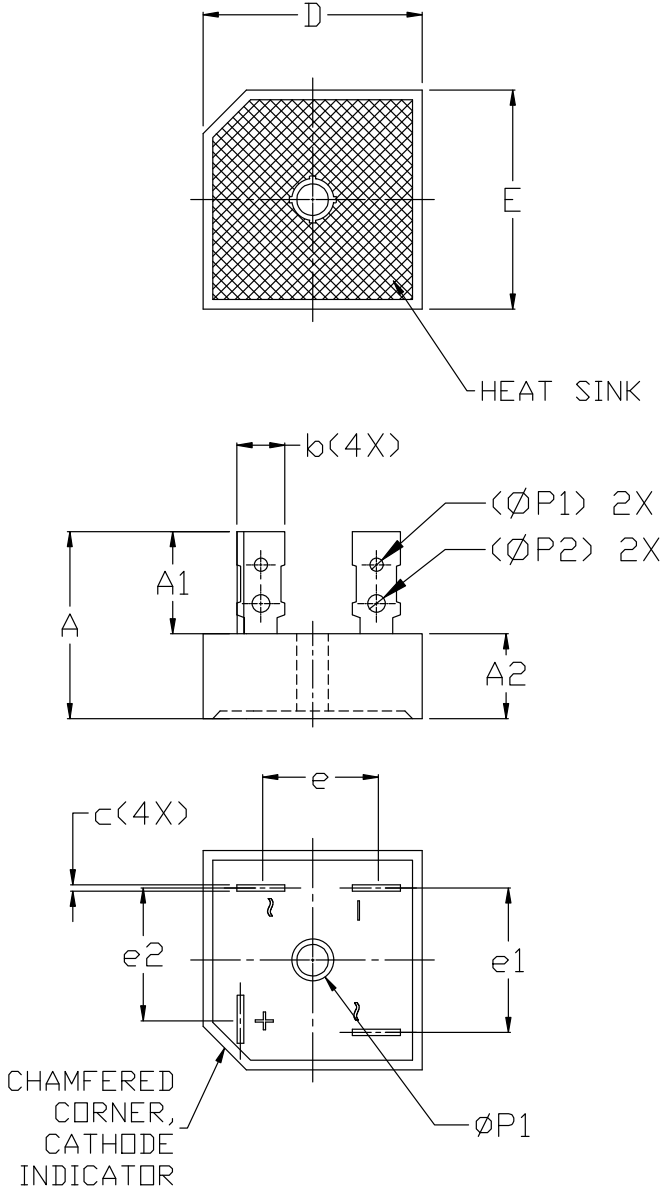
| Part Number | Marking | Package | Packing Method |
|-------------|------------|------------------------|----------------|
| GBPC1510W | GBPC1510W | GBPC-W 4L (Pb-Free) | Bulk |
| GBPC25005W | GBPC25005W | | |
| GBPC2501W | GBPC2501W | | |
| GBPC2502W | GBPC2502W | | |
| GBPC2504W | GBPC2504W | | |
| 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 28.75X28.75, MODEL 1
CASE 160AD
ISSUE B

DATE 11 APR 2023



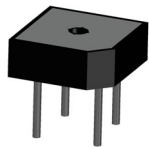
| DIM | MILLIMETERS | | |
|-----|-------------|--------|--------|
| | MIN. | NOM. | MAX. |
| A | 21.500 | 23.000 | 24.500 |
| A1 | 13.270 REF | | |
| A2 | 10.970 | 11.100 | 11.230 |
| ØP | 5.080 | 5.335 | 5.590 |
| ØP1 | 1.780 REF | | |
| ØP2 | 2.360 REF | | |
| D | 28.500 | 28.750 | 29.000 |
| E | 28.500 | 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 |

| | | |
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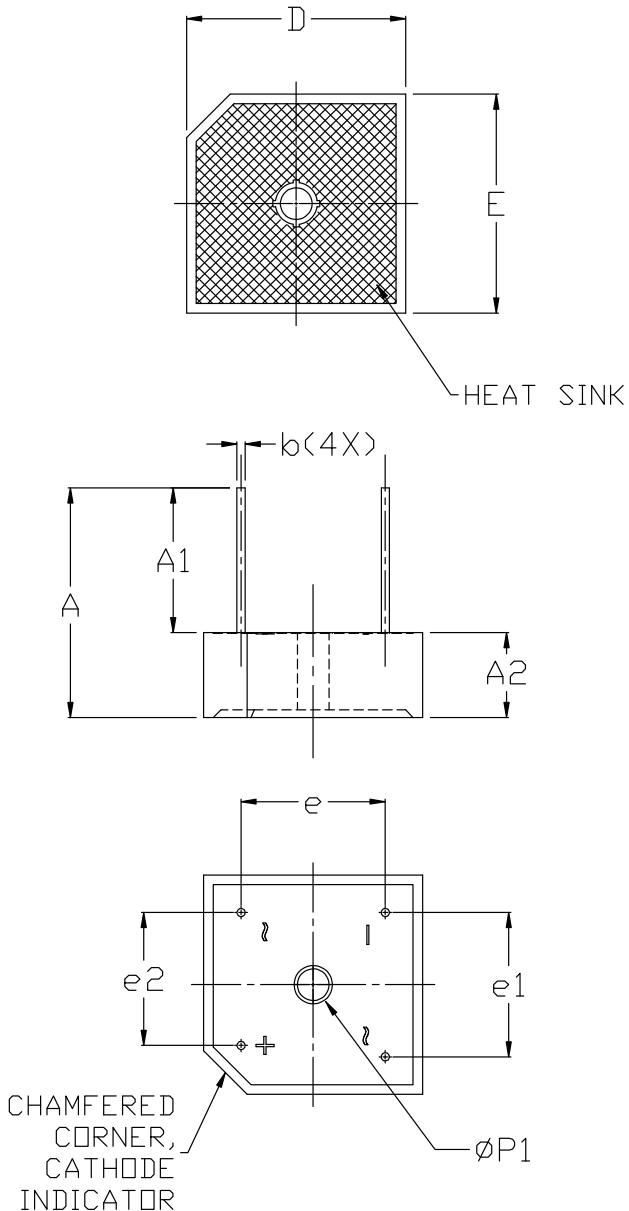
MECHANICAL CASE OUTLINE

PACKAGE DIMENSIONS



GBPC4 28.75X28.75, MODEL 2
CASE 160AD
ISSUE B

DATE 11 APR 2023



| 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 | 10.400 | 11.400 | 12.400 |
| e1 | 17.100 | 18.100 | 19.100 |
| e2 | 17.100 | 18.100 | 19.100 |

| | | |
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