


Single Phase Bridge (Power Modules), 25/35 A


GBPC...A

GBPC...W

FEATURES

- Universal, 3 way terminals: push-on, wrap around or solder
- High thermal conductivity package, electrically insulated case
- Positive polarity symbol molded on the plastic case
- Center hole fixing
- Glass passivated diode chips
- Excellent power/volume ratio
- Nickel plated terminals solderable using lead (Pb)-free solder; Solder Alloy Sn/Ag/Cu (SAC305); Solder temperature 260 to 275 °C
- Wire lead version available
- UL E300359 approved 
- RoHS compliant
- Designed and qualified for industrial and consumer level



PRODUCT SUMMARY

| | |
|-------|---------|
| I_o | 25/35 A |
|-------|---------|

DESCRIPTION/APPLICATIONS

A range of extremely compact, encapsulated single phase bridge rectifiers offering efficient and reliable operation. They are intended for use in general purpose and instrumentation applications

MAJOR RATINGS AND CHARACTERISTICS

| SYMBOL | CHARACTERISTICS | GBPC25 | GBPC35 | UNITS |
|-----------|-----------------|-------------|--------|------------------|
| I_o | | 25 | 35 | A |
| | T_c | 60 | 55 | °C |
| I_{FSM} | 50 Hz | 400 | 475 | A |
| | 60 Hz | 420 | 500 | |
| I^2t | 50 Hz | 790 | 1130 | A ² s |
| | 60 Hz | 725 | 1030 | |
| V_{RRM} | Range | 200 to 1200 | | V |
| T_J | | - 55 to 150 | | °C |

ELECTRICAL SPECIFICATIONS

| VOLTAGE RATINGS | | | | | |
|---|--------------|--|--|---|---|
| TYPE NUMBER | VOLTAGE CODE | V_{RRM} , MAXIMUM REPETITIVE PEAK AC REVERSE VOLTAGE $T_J = T_J$ MAXIMUM V | V_{RSM} , MAXIMUM NON-REPETITIVE PEAK AC REVERSE VOLTAGE $T_J = T_J$ MAXIMUM V | I_{RRM} MAXIMUM AT RATED V_{RRM} $T_J = T_J$ MAXIMUM mA | I_{RRM} MAXIMUM DC REVERSE CURRENT AT $T_J = 125^\circ\text{C}$ μA |
| GBPC25/35..A ⁽¹⁾ GBPC25/35..W | 02 | 200 | 275 | 2 | 500 |
| | 04 | 400 | 500 | | |
| | 06 | 600 | 725 | | |
| | 08 | 800 | 900 | | |
| | 10 | 1000 | 1100 | | |
| | 12 | 1200 | 1300 | | |

Note

⁽¹⁾ See Ordering Information table at the end of datasheet

| FORWARD CONDUCTION | | | | | | | |
|--|---------------|--|----------------------------|-----------------------------|--------|--------|------------------------------|
| PARAMETER | SYMBOL | TEST CONDITIONS | | | GBPC25 | GBPC35 | UNITS |
| Maximum DC output current at case temperature | I_O | Resistive or inductive load | | | 25 | 35 | A |
| | | Capacitive load | | | 20 | 28 | |
| | | | | | 60 | 55 | $^\circ\text{C}$ |
| Maximum peak, one-cycle non-repetitive forward current | I_{FSM} | t = 10 ms | No voltage reappplied | Initial $T_J = T_J$ maximum | 400 | 475 | A |
| | | t = 8.3 ms | | | 420 | 500 | |
| | | t = 10 ms | 100 % V_{RRM} reappplied | | 335 | 400 | |
| | | t = 8.3 ms | | | 350 | 420 | |
| Maximum I^2t for fusing | I^2t | t = 10 ms | No voltage reappplied | | 790 | 1130 | A^2s |
| | | t = 8.3 ms | | | 725 | 1030 | |
| | | t = 10 ms | 100 % V_{RRM} reappplied | | 560 | 800 | |
| | | t = 8.3 ms | | | 512 | 730 | |
| Maximum $I^2\sqrt{t}$ for fusing | $I^2\sqrt{t}$ | I^2t for time $t_x = I^2\sqrt{t} \times \sqrt{t_x}$; $0.1 \leq t_x \leq 10$ ms, $V_{RRM} = 0$ V | | | 7.9 | 11.3 | $\text{kA}^2\sqrt{\text{s}}$ |
| Low level of threshold voltage | $V_{F(TO)1}$ | $(16.7\% \times \pi \times I_{F(AV)} < I < \pi \times I_{F(AV)})$, T_J maximum | | | 0.76 | 0.77 | V |
| High level of threshold voltage | $V_{F(TO)2}$ | $(I > \pi \times I_{F(AV)})$, T_J maximum | | | 0.89 | 0.92 | |
| Low level forward slope resistance | r_{f1} | $(16.7\% \times \pi \times I_{F(AV)} < I < \pi \times I_{F(AV)})$, T_J maximum | | | 8.2 | 4.852 | $\text{m}\Omega$ |
| High level forward slope resistance | r_{f2} | $(I > \pi \times I_{F(AV)})$, T_J maximum | | | 6.8 | 3.867 | |
| Maximum forward voltage drop | V_{FM} | $T_J = 25^\circ\text{C}$, $I_{FM} = I_{Favg}$ (arm) | | | 1.1 | | V |
| Maximum DC reverse current | I_{RRM} | $T_J = 25^\circ\text{C}$, per diode at V_{RRM} | | | 5.0 | | μA |
| RMS isolation voltage base plate | V_{INS} | f = 50 Hz, t = 1 s | | | 2700 | | V |



| THERMAL AND MECHANICAL SPECIFICATIONS | | | | | |
|---|----------------|--|-------------|--------|---------------------|
| PARAMETER | SYMBOL | TEST CONDITIONS | GBPC25 | GBPC35 | UNITS |
| Junction and storage temperature range | T_J, T_{Stg} | | - 55 to 150 | | °C |
| Maximum thermal resistance, junction to case per bridge | R_{thJC} | DC operation | 1.7 | 1.4 | K/W |
| Maximum thermal resistance, case to heatsink | R_{thCS} | Mounting surface, smooth, flat and greased | 0.2 | | |
| Approximate weight | | | 16 | | g |
| Mounting torque $\pm 10\%$ | | Bridge to heatsink | 2.0 | | N · m (lbf · in) |

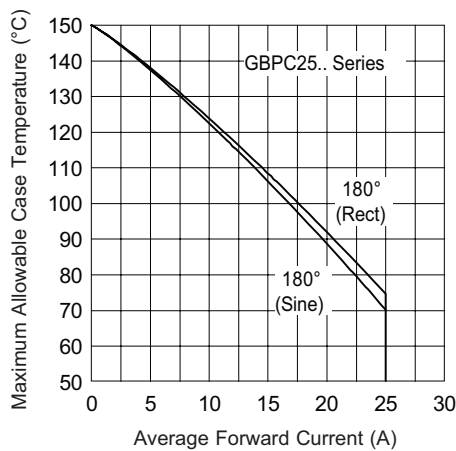


Fig. 1 - Current Ratings Characteristics

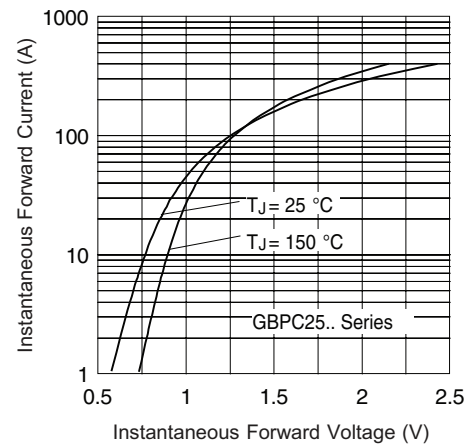


Fig. 2 - Forward Voltage Drop Characteristics

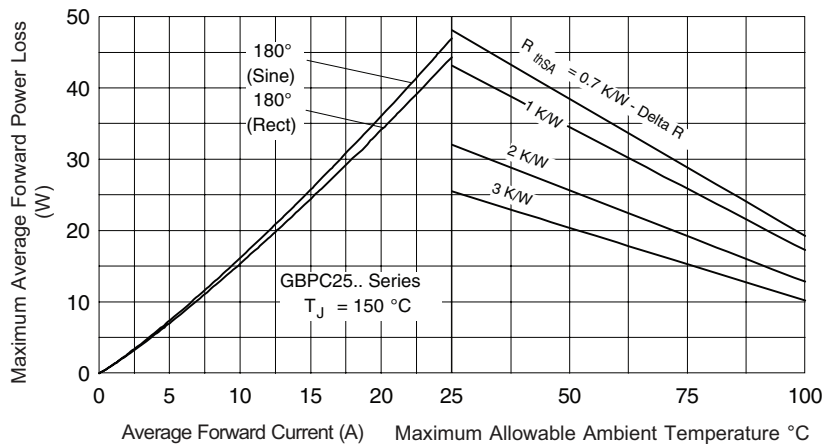


Fig. 3 - Total Power Loss Characteristics

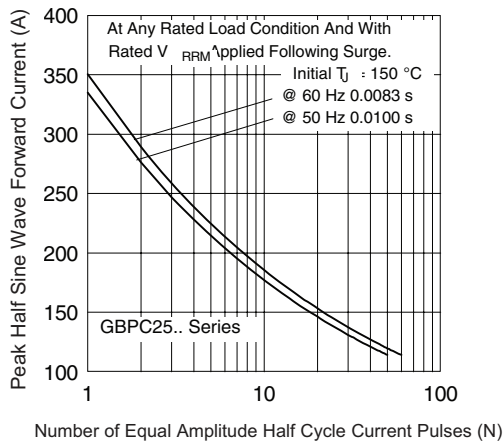


Fig. 4 - Maximum Non-Repetitive Surge Current

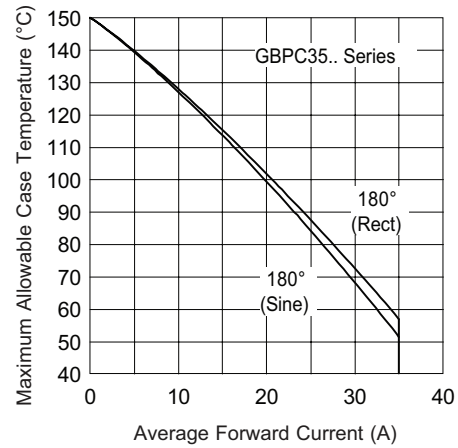


Fig. 6 - Current Ratings Characteristics

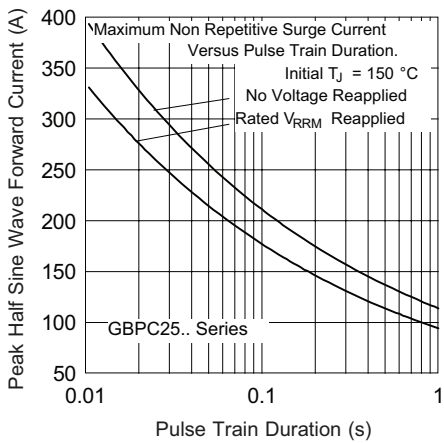


Fig. 5 - Maximum Non-Repetitive Surge Current

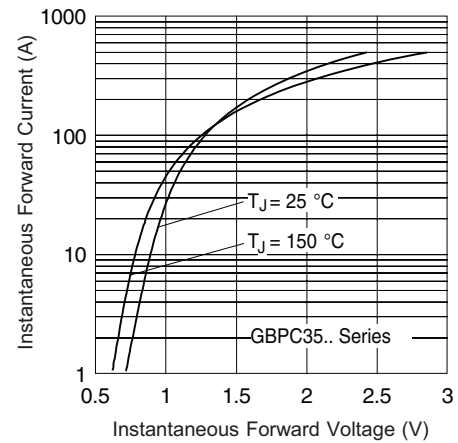


Fig. 7 - Forward Voltage Drop Characteristics

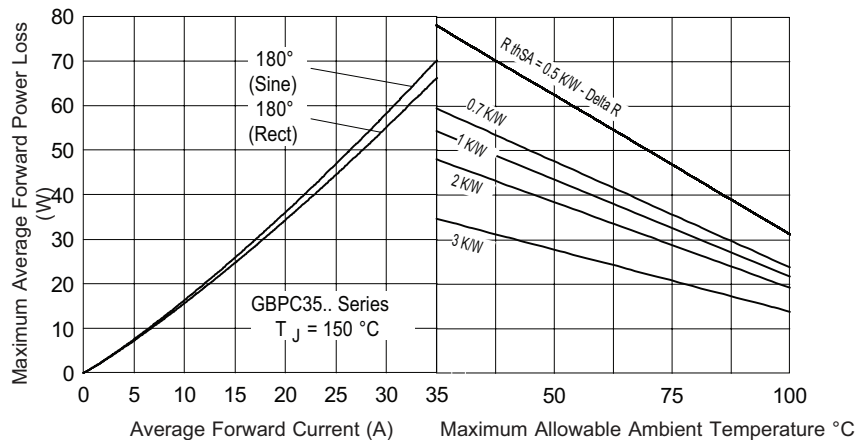


Fig. 8 - Total Power Loss Characteristics

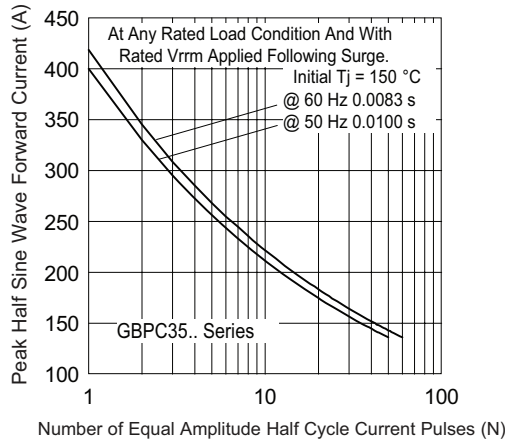


Fig. 9 - Maximum Non-Repetitive Surge Current

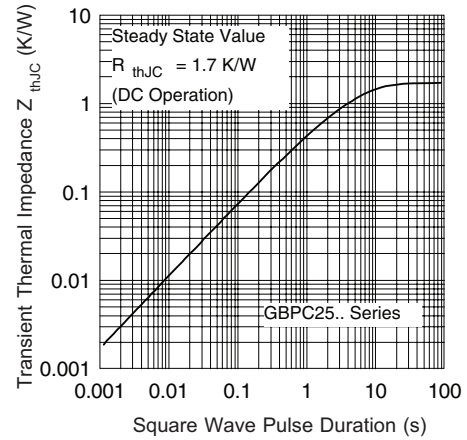
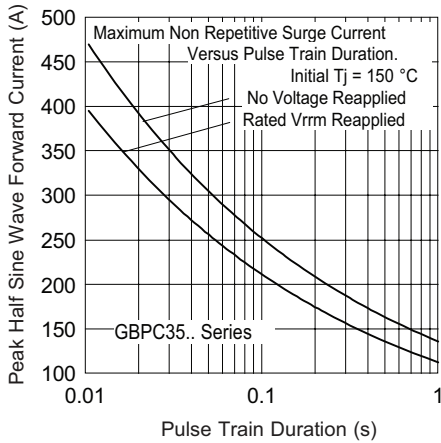
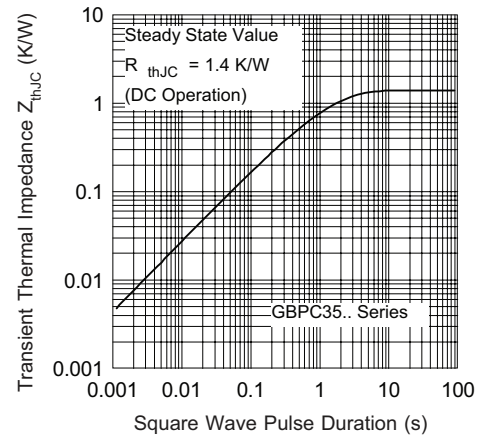

 Fig. 11 - Thermal Impedance Z_{thJC} Characteristic


Fig. 10 - Maximum Non-Repetitive Surge Current


 Fig. 12 - Thermal Impedance Z_{thJC} Characteristic

ORDERING INFORMATION TABLE

| | | | | |
|-------------|-------------|-----------|-----------|----------|
| Device code | GBPC | 35 | 12 | A |
| | ① | ② | ③ | ④ |

- ① - Circuit configuration:
Single phase bridge coding
- ② - Current rating code 25 = 25 A (average)
35 = 35 A (average)
- ③ - Voltage code x 100 = V_{RRM}
- ④ - Diode bridge rectifier:
 - A = Standard fast-on terminal
 - W = Wire lead

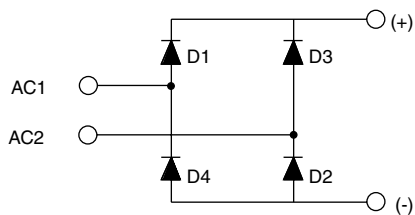
GBPC.. Series

Vishay High Power Products

Single Phase Bridge
(Power Modules), 25/35 A



CIRCUIT CONFIGURATION



LINKS TO RELATED DOCUMENTS

| | |
|----------------------------|---|
| LINKS TO RELATED DOCUMENTS | |
| Dimensions | http://www.vishay.com/doc?95331 |



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