

Single Phase Bridge (Power Modules), 25 A, 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 °C to 275 °C
- Wire lead version available
- UL E300359 approved
- Designed and qualified for industrial and consumer level
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912



RoHS
COMPLIANT

| PRODUCT SUMMARY | |
|-----------------|---------------------|
| I_o | 25 A, 35 A |
| V_{RRM} | 200 V to 1200 V |
| Package | GBPC..A, GBPC..W |
| Circuit | Single phase bridge |

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 | VALUES GBPC25 | VALUES 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 $T_J = 125$ °C µA |
| VS-GBPC25..A ⁽¹⁾ VS-GBPC35..A ⁽¹⁾ VS-GBPC25..W VS-GBPC35..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 | | VALUES GBPC25 | VALUES GBPC35 | UNITS | |
| Maximum DC output current at case temperature | I_O | Resistive or inductive load | | 25 | 35 | A | |
| | | Capacitive load | | 20 | 28 | | |
| | | | | 60 | 55 | °C | |
| Maximum peak, one-cycle non-repetitive forward current | I_{FSM} | $t = 10$ ms | No voltage reapplied | Initial $T_J = T_J$ maximum | 400 | 475 | A |
| | | $t = 8.3$ ms | | | | | |
| | | $t = 10$ ms | 100 % V_{RRM} reapplied | | 335 | 400 | |
| | | $t = 8.3$ ms | | | | | |
| Maximum I^2t for fusing | I^2t | $t = 10$ ms | No voltage reapplied | Initial $T_J = T_J$ maximum | 790 | 1130 | A ² s |
| | | $t = 8.3$ ms | | | | | |
| | | $t = 10$ ms | 100 % V_{RRM} reapplied | | 560 | 800 | |
| | | $t = 8.3$ ms | | | | | |
| 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 | kA ² √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_{t1} | $(16.7\% \times \pi \times I_{F(AV)} < I < \pi \times I_{F(AV)})$, T_J maximum | | 8.2 | 4.852 | mΩ | |
| High level forward slope resistance | r_{t2} | $(I > \pi \times I_{F(AV)})$, T_J maximum | | 6.8 | 3.867 | | |
| Maximum forward voltage drop | V_{FM} | $T_J = 25$ °C, $I_{FM} = I_{Favg}$ (arm) | | 1.1 | 1.1 | V | |
| Maximum DC reverse current | I_{RRM} | $T_J = 25$ °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 | | VALUES GBPC25 | VALUES 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 ± 10 % | | Bridge to heatsink | | 2.0 | | N · m (lbf · in) |

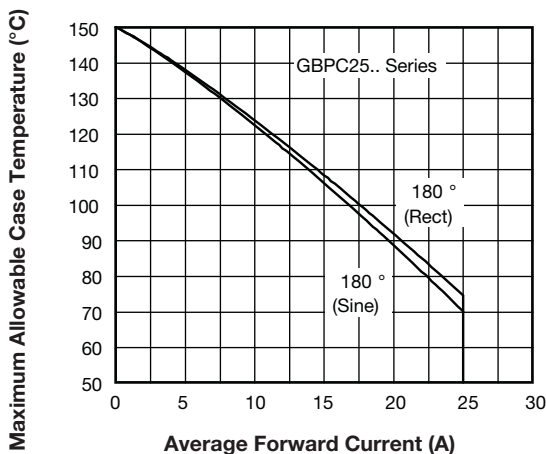


Fig. 1 - Current Ratings Characteristics

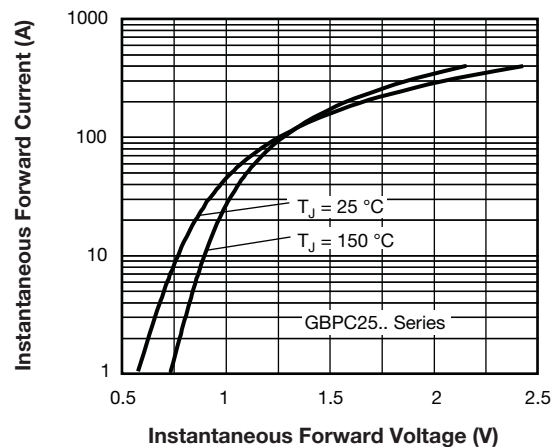


Fig. 2 - Forward Voltage Drop Characteristics

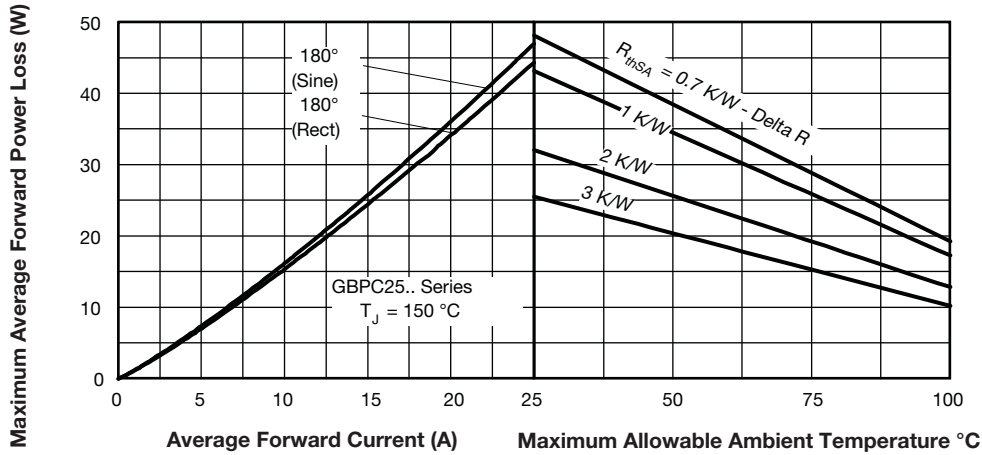


Fig. 3 - Total Power Loss Characteristics

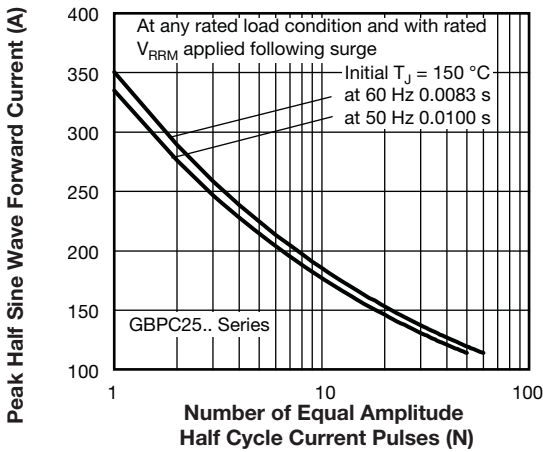


Fig. 4 - Maximum Non-Repetitive Surge Current

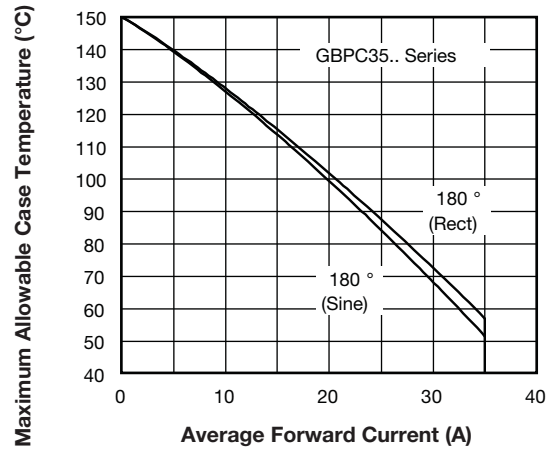


Fig. 6 - Current Ratings Characteristics

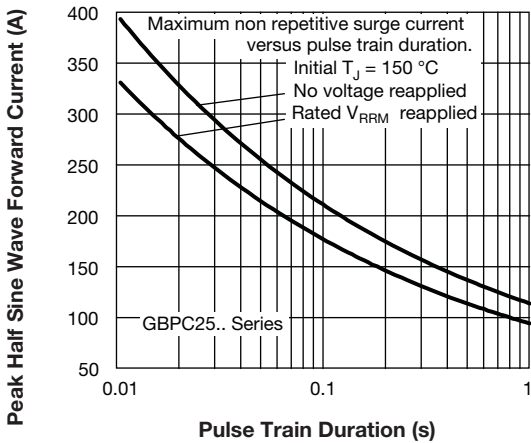


Fig. 5 - Maximum Non-Repetitive Surge Current

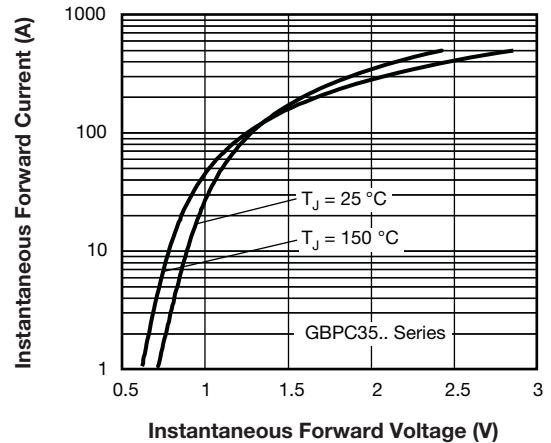


Fig. 7 - Forward Voltage Drop Characteristics

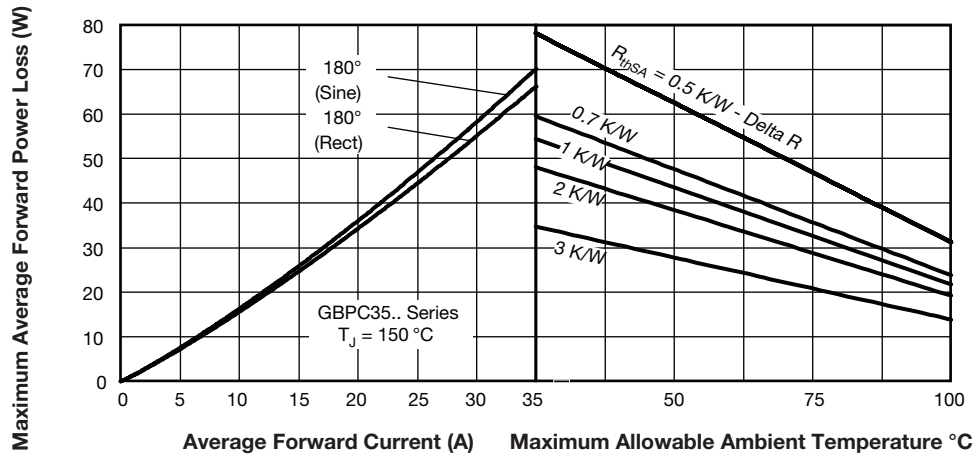


Fig. 8 - Total Power Loss Characteristics

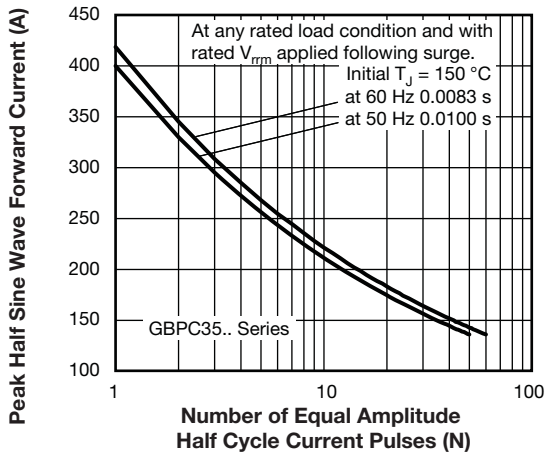


Fig. 9 - Maximum Non-Repetitive Surge Current

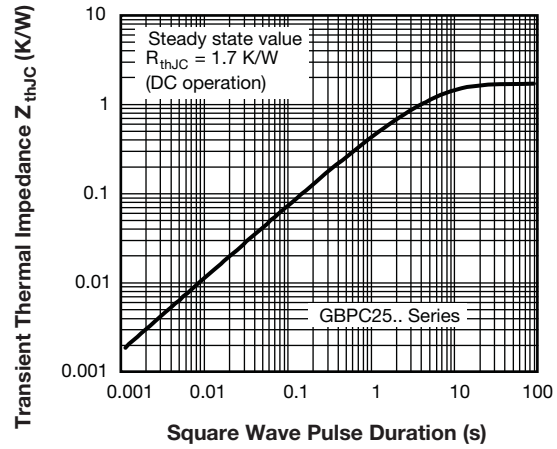


Fig. 11 - Thermal Impedance Z_{thJC} Characteristic

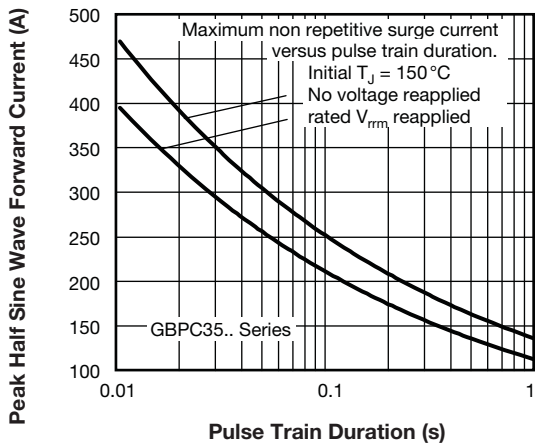


Fig. 10 - Maximum Non-Repetitive Surge Current

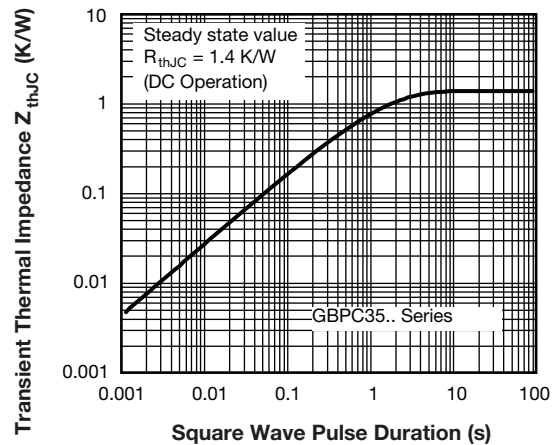
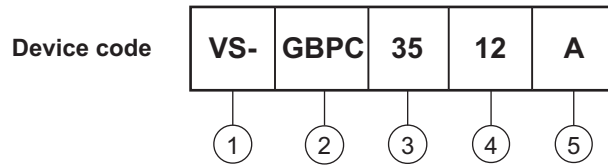


Fig. 12 - Thermal Impedance Z_{thJC} Characteristic

ORDERING INFORMATION TABLE



1 - Vishay Semiconductors product

2 - Circuit configuration:
Single phase bridge coding

3 - Current rating code

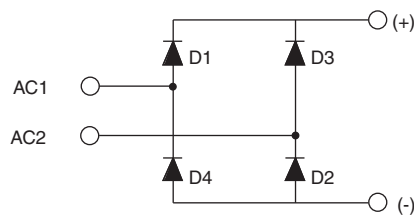
| |
|---------------------|
| 25 = 25 A (average) |
| 35 = 35 A (average) |

4 - Voltage code x 100 = V_{RRM}

5 - Diode bridge rectifier:

- A = standard fast-on terminal
- W = wire lead

CIRCUIT CONFIGURATION

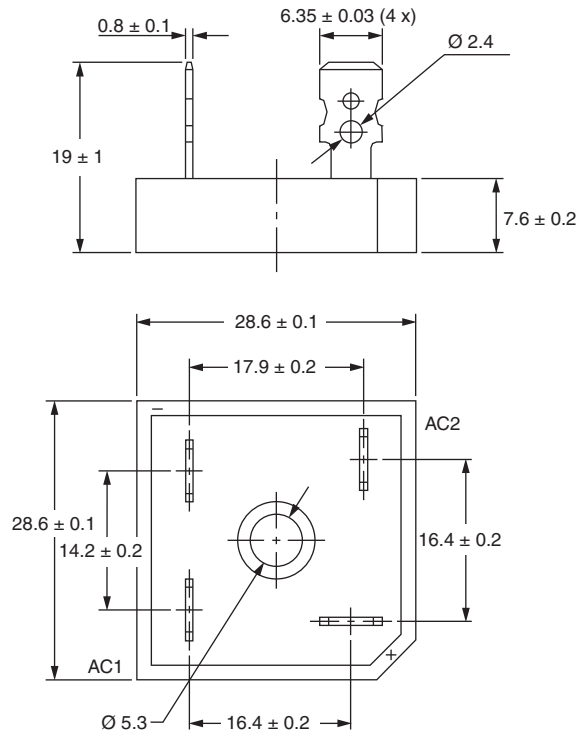


LINKS TO RELATED DOCUMENTS

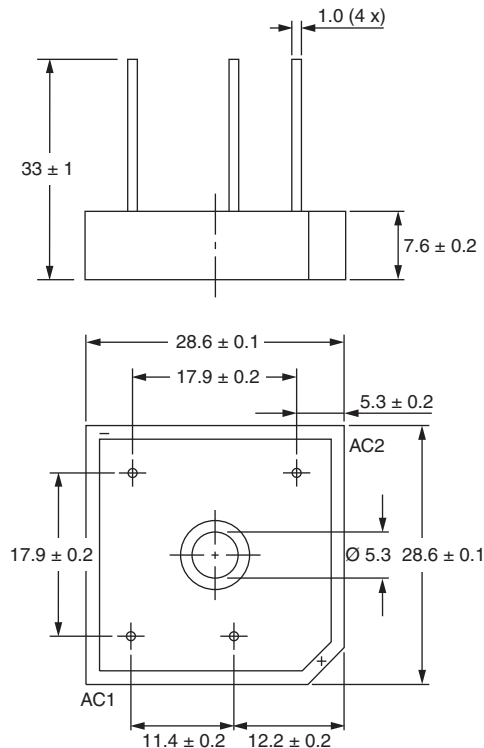
| | |
|------------|--|
| Dimensions | www.vishay.com/doc?95331 |
|------------|--|

GBPC

DIMENSIONS FOR GBPC...A in millimeters



DIMENSIONS FOR GBPC...W in millimeters





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