

Single Phase Bridge Rectifier, 25 A, 35 A





GBPC...A

GBPC...W

PRIMARY CHARACTERISTICS Io 25 A, 35 A V_{RRM} 200 V to 1200 V Package GBPC...A, GBPC...W Circuit configuration Single phase bridge

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 <u>www.vishav.com/doc?99912</u>

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 | |
| | | 25 | 35 | Α | |
| I _O | T _C | 60 | 55 | °C | |
| I _{FSM} | 50 Hz | 400 | 475 | A | |
| | 60 Hz | 420 | 500 | | |
| 121 | 50 Hz | 790 | 1130 | A ² s | |
| I ² t | 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 | $\begin{array}{c} V_{RSM}, MAXIMUM \\ NON-REPETITIVE PEAK AC \\ REVERSE VOLTAGE \\ T_J = T_J MAXIMUM \\ V \end{array} \begin{array}{c} I_{RRM} \ MAXIMUM \\ AT \ RATED \ V_{RRM} \\ T_J = T_J \ MAXIMUM \\ mA \end{array}$ | | I _{RRM} MAXIMUM DC REVERSE CURRENT AT T _J = 125 °C μΑ | |
| | 02 | 200 | 275 | | | |
| VS-GBPC25A (1) VS-GBPC35A (1) VS-GBPC25W VS-GBPC35W | 04 | 400 | 500 | | | |
| | 06 | 600 | 725 | 500 | | |
| | 08 | 800 | 900 | 2 | 500 | |
| | 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 | |
| | Io | Resistive or inductive load | | 25 | 35 | A | |
| Maximum DC output current at case temperature | | Capacitive load | | 20 | 28 | | |
| at odde temperature | | | | | 60 | 55 | °C |
| | | t = 10 ms | No voltage | | 400 | 475 | А |
| Maximum peak, one-cycle | | t = 8.3 ms | reapplied | | 420 | 500 | |
| non-repetitive forward current | I _{FSM} | t = 10 ms | 100 % V _{RRM} | • | 335 | 400 | |
| | | t = 8.3 ms | reapplied | lairial T. T. as a since was | 350 | 420 | |
| | l ² t | t = 10 ms | No voltage | Initial $T_J = T_J$ maximum | 790 | 1130 | A ² s |
| Maximum I ² t for fusing | | t = 8.3 ms | reapplied | | 725 | 1030 | |
| Waxiiildiii i-t ior idsiiig | | t = 10 ms | 100 % V _{BBM} | | 560 | 800 | |
| | | t = 8.3 ms | reapplied | | 512 | 730 | |
| Maximum I ² √t for fusing | I ² √t | I^2t for time $t_x = I^2\sqrt{t} \ x \ \sqrt{t_x}$; $0.1 \le t_x \le 10$ ms, $V_{RRM} = 0$ V | | 7.9 | 11.3 | kA²√s | |
| Low level of threshold voltage | V _{F(TO)1} | (16.7 % x π x I _{F(AV)} < I < π x 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 | V |
| Low level forward slope resistance | r _{t1} | (16.7 % x π x I _{F(AV)} < I < π x I _{F(AV)}), T _J maximum | | 8.2 | 4.852 | mΩ | |
| High level forward slope resistance | level forward slope resistance r_{t2} $(I > \pi \times I_{F(AV)})$, T_J maximum | | 6.8 | 3.867 | 11177 | | |
| Maximum forward voltage drop | V_{FM} | $T_J = 25 ^{\circ}\text{C}, I_{\text{FM}} = I_{\text{Favg (arm)}}$ | | 1.1 | 1.1 | V | |
| Maximum DC reverse current | I _{RRM} | T _J = 25 °C, per diode at V _{RRM} | | C, per diode at V _{RRM} 5.0 | | .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 | 1.7 1.4 K/W | |
| Maximum thermal resistance, case to heatsink | R _{thCS} | Mounting surface, smooth, flat and greased 0.2 | | .2 | IV/ VV |
| Approximate weight | | | 1 | 6 | g |
| Mounting torque ± 10 % | | Bridge to heatsink | 2 | .0 | N · m (lbf · in) |

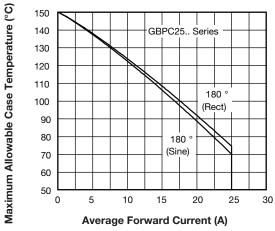


Fig. 1 - Current Ratings Characteristics

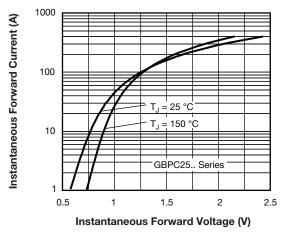


Fig. 2 - Forward Voltage Drop Characteristics



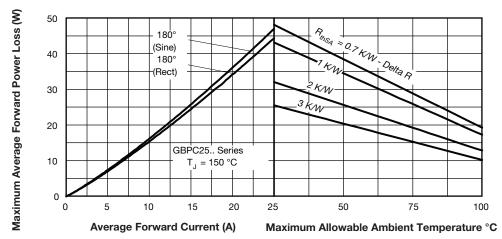


Fig. 3 - Total Power Loss Characteristics

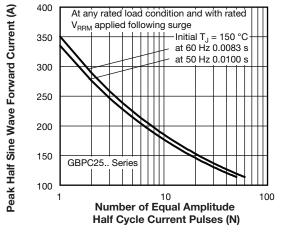


Fig. 4 - Maximum Non-Repetitive Surge Current

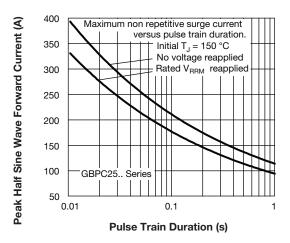


Fig. 5 - Maximum Non-Repetitive Surge Current

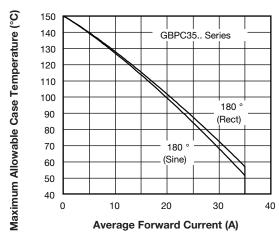


Fig. 6 - Current Ratings Characteristics

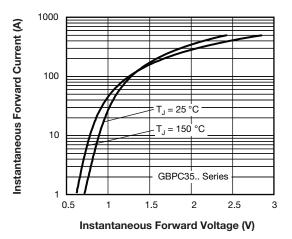


Fig. 7 - Forward Voltage Drop Characteristics



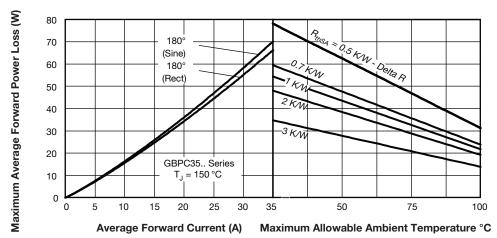


Fig. 8 - Total Power Loss Characteristics

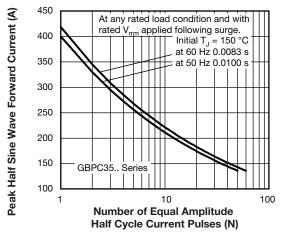


Fig. 9 - Maximum Non-Repetitive Surge Current

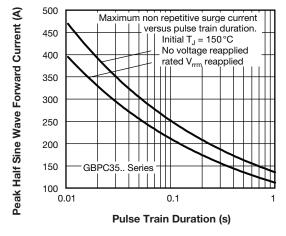


Fig. 10 - Maximum Non-Repetitive Surge Current

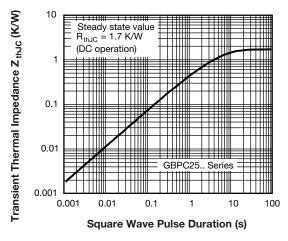


Fig. 11 - Thermal Impedance Z_{thJC} Characteristic

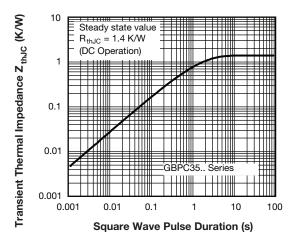
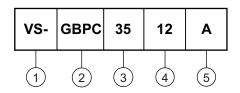


Fig. 12 - Thermal Impedance Z_{thJC} Characteristic



ORDERING INFORMATION TABLE

Device code

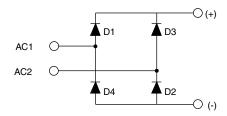


- 1 Vishay Semiconductors product
- 2 Circuit configuration:

Single phase bridge coding

- 25 = 25 A (average) 3 - Current rating code 35 = 35 A (average)
- Voltage code x 100 = V_{RRM}
- Diode bridge rectifier:
 - A = standard fast-on terminal
 - W = wire lead

CIRCUIT CONFIGURATION

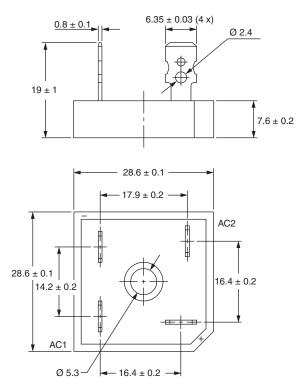


| LINKS TO RELATED DOCUMENTS | | | | |
|----------------------------|--------------------------|--|--|--|
| Dimensions | www.vishay.com/doc?95331 | | | |

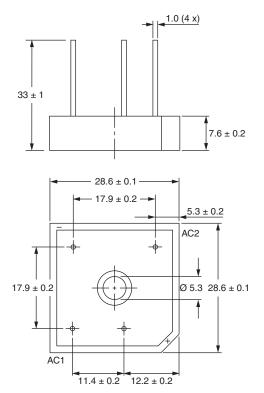


GBPC

DIMENSIONS FOR GBPC...A in millimeters



DIMENSIONS FOR GBPC...W in millimeters





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