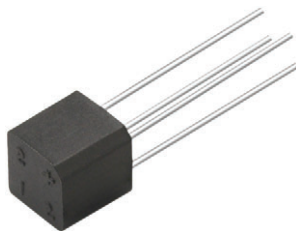


Single Phase Rectifier Bridge, 1.2 A



D-38

FEATURES

- Ease of assembly, installation, inventory
- High surge rating
- Compact
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912


RoHS
COMPLIANT

DESCRIPTION

A 1.2 A diode bridge rectifier assembly designed for new circuits and for replacement service. For printed circuit board applications.

PRIMARY CHARACTERISTICS

| | |
|-----------------------|---------------------|
| I_O | 1.2 A |
| V_{RRM} | 100 V to 1000 V |
| Package | D-38 |
| Circuit configuration | Single phase bridge |

MAJOR RATINGS AND CHARACTERISTICS

| SYMBOL | CHARACTERISTICS | VALUES | UNITS |
|-----------|-----------------|-------------|------------------|
| I_O | | 1.2 | A |
| I_{FSM} | 50 Hz | 50 | A |
| | 60 Hz | 52 | |
| I^2t | 50 Hz | 17.7 | A ² s |
| | 60 Hz | 16.1 | |
| V_{RRM} | | 100 to 1000 | V |
| T_J | | -55 to 150 | °C |

ELECTRICAL SPECIFICATIONS

VOLTAGE RATINGS

| CROSS REFERENCE | | V_{RRM}, V_{RSM} (V) | V_{RMS} (RECOMMENDED) (V) | MAXIMUM LOAD CAPACITANCE (μF) ⁽¹⁾ | MINIMUM SOURCE RESISTANCE (Ω) ⁽¹⁾ |
|-----------------|-----------|---------------------------|-----------------------------------|---|---|
| PART NUMBER | DIN CODE | | | | |
| VS-1KAB05E | | 50 | 20 | 7000 | 0.5 |
| VS-1KAB10E | B40C1000 | 100 | 40 | 5000 | 0.5 |
| VS-1KAB20E | B80C1000 | 200 | 80 | 3300 | 0.8 |
| VS-1KAB40E | B125C1000 | 400 | 125 | 1600 | 1.5 |
| VS-1KAB60E | B250C1000 | 600 | 250 | 1200 | 2.6 |
| VS-1KAB80E | B380C1000 | 800 | 380 | 800 | 3.0 |
| VS-1KAB100E | B500C1000 | 1000 | 500 | 600 | 5.0 |

Note

⁽¹⁾ See figure 3



| FORWARD CONDUCTION | | | | |
|--|-------------------|--|------------|-----------------------------|
| PARAMETER | SYMBOL | TEST CONDITIONS | VALUES | UNITS |
| Maximum DC output current | I_O | $T_A = 45\text{ }^{\circ}\text{C}$, resistive or inductive load | 1.2 | A |
| | | $T_A = 45\text{ }^{\circ}\text{C}$, capacitive load | 1.0 | |
| Maximum peak one cycle, non-repetitive surge current | I_{FSM} | 50 Hz half cycle sine wave or 6 ms rectangular pulse | 50 | A |
| | | 60 Hz half cycle sine wave or 5 ms rectangular pulse | 52 | |
| Maximum I^2t capability for fusing | I^2t | $t = 10\text{ ms}$ | 12.5 | A^2s |
| | | $t = 8.3\text{ ms}$ | 11.3 | |
| | | $t = 10\text{ ms}$ | 17.7 | |
| | | $t = 8.3\text{ ms}$ | 16.1 | |
| Maximum $I^2\sqrt{t}$ capability for fusing | $I^2\sqrt{t}$ (1) | $t = 0.1\text{ to }10\text{ ms}$, V_{RRM} following surge = 0 | 177 | $\text{A}^2\sqrt{\text{s}}$ |
| Maximum peak forward voltage per leg | V_{FM} | $I_O = 1.2\text{ A}$ (1.88 A_{pk}) | 1.1 | V |
| Typical peak reverse current per leg | I_{RM} | $T_J = 25\text{ }^{\circ}\text{C}$, at rated V_{RRM} | 10 | μA |
| | | $T_J = 150\text{ }^{\circ}\text{C}$, at rated V_{RRM} | 500 | |
| Operating frequency range | f | | 40 to 2000 | Hz |

Note(1) I^2t for time $t_x = I^2\sqrt{t} \times \sqrt{t_x}$

| THERMAL AND MECHANICAL SPECIFICATIONS | | | |
|--|----------------|------------|--------------------|
| PARAMETER | SYMBOL | VALUES | UNITS |
| Operating junction and storage temperature range | T_J, T_{Stg} | -40 to 150 | $^{\circ}\text{C}$ |
| Approximate weight | | 3 | g |
| | | 0.1 | oz. |

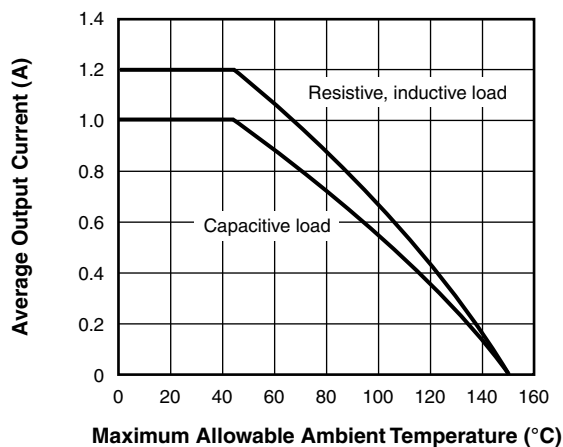


Fig. 1 - Average (DC) Output Current vs. Maximum Allowable Ambient Temperature

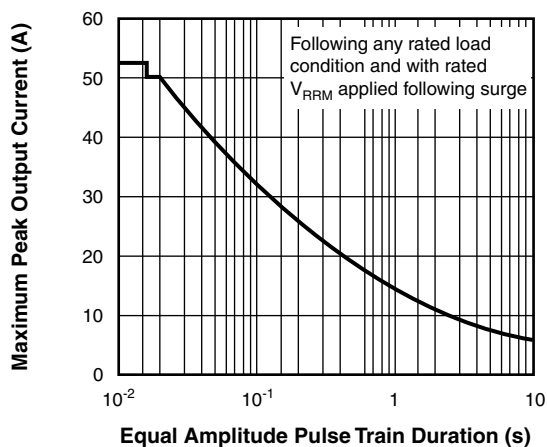


Fig. 2 - Maximum Non-Repetitive Surge Current vs. Pulse Train Duration ($f = 50\text{ Hz}$)

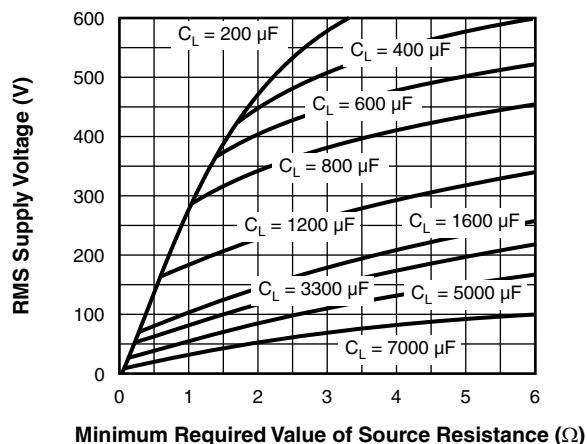


Fig. 3 - Minimum Required Source Resistance vs. RMS Supply Voltage and Load Capacitance

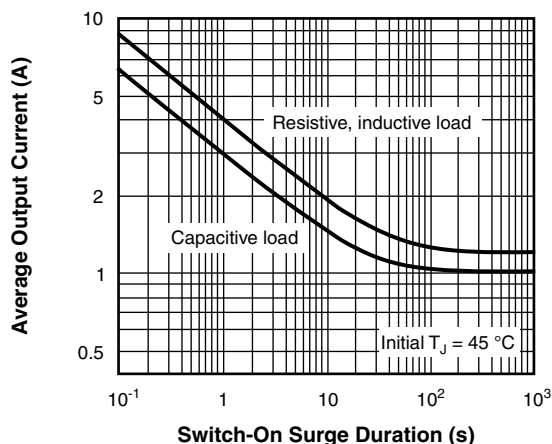
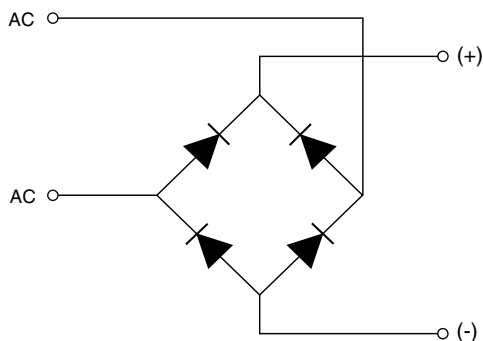


Fig. 4 - Maximum Switch-On Surge Current vs. Surge Duration

CIRCUIT CONFIGURATION



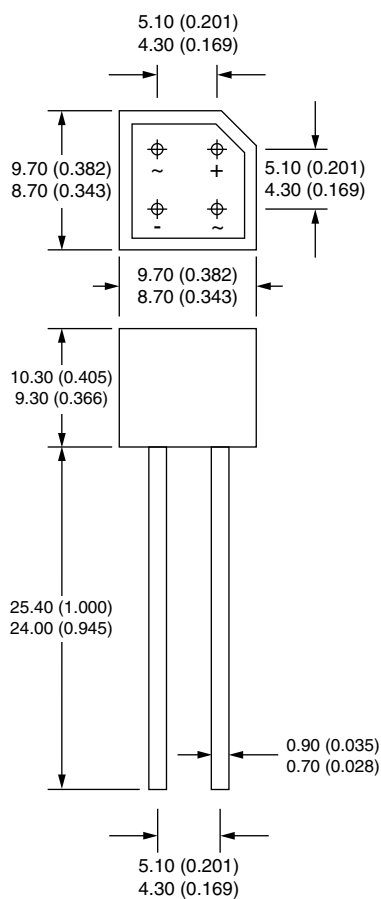
LINKS TO RELATED DOCUMENTS

| | |
|------------|--|
| Dimensions | www.vishay.com/doc?95327 |
|------------|--|



D-38

DIMENSIONS in millimeters (inches)





Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay's knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and / or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein.

Hyperlinks included in this datasheet may direct users to third-party websites. These links are provided as a convenience and for informational purposes only. Inclusion of these hyperlinks does not constitute an endorsement or an approval by Vishay of any of the products, services or opinions of the corporation, organization or individual associated with the third-party website. Vishay disclaims any and all liability and bears no responsibility for the accuracy, legality or content of the third-party website or for that of subsequent links.

Vishay products are not designed for use in life-saving or life-sustaining applications or any application in which the failure of the Vishay product could result in personal injury or death unless specifically qualified in writing by Vishay. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay. Product names and markings noted herein may be trademarks of their respective owners.