

## 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](http://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 <sup>2</sup> s |
|                                   | 60 Hz           | 16.1        |                  |
| $V_{RRM}$                         |                 | 100 to 1000 | V                |
| $T_J$                             |                 | -55 to 150  | °C               |

### ELECTRICAL SPECIFICATIONS

| VOLTAGE RATINGS |           |                           |                                   |  |   |
|-----------------|-----------|---------------------------|-----------------------------------|--|---|
| CROSS REFERENCE |           | $V_{RRM}, V_{RSM}$<br>(V) | $V_{RMS}$<br>(RECOMMENDED)<br>(V) | MAXIMUM<br>LOAD CAPACITANCE<br>( $\mu$ F) <sup>(1)</sup> | MINIMUM<br>SOURCE RESISTANCE<br>( $\Omega$ ) <sup>(1)</sup> |
| 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

<sup>(1)</sup> See figure 3



| <b>FORWARD CONDUCTION</b>                            |                   |  |  |            |               |
|--|-------------------|--|--|------------|---------------|
| 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           | Following any rated load condition, and with rated $V_{RRM}$ applied following surge | 50         | A             |
|  |                   | 60 Hz half cycle sine wave or 5 ms rectangular pulse           |  | 52         |               |
| Maximum $I^2t$ capability for fusing                 | $I^2t$            | $t = 10\text{ ms}$   | Rated $V_{RRM}$ applied following surge, initial $T_J = 150\text{ }^\circ\text{C}$   | 12.5       | $A^2s$        |
|  |                   | $t = 8.3\text{ ms}$  |  | 11.3       |               |
|  |                   | $t = 10\text{ ms}$   | $V_{RRM} = 0$ following surge, initial $T_J = 150\text{ }^\circ\text{C}$             | 17.7       |               |
|  |                   | $t = 8.3\text{ ms}$  |  | 16.1       |               |
| Maximum $I^2\sqrt{t}$ capability for fusing          | $I^2\sqrt{t}$ (1) | $t = 0.1$ to $10\text{ ms}$ , $V_{RRM}$ following surge = 0    |  | 177        | $A^2\sqrt{s}$ |
| Maximum peak forward voltage per leg                 | $V_{FM}$          | $I_O = 1.2\text{ A}$ ( $1.88\text{ A}_{pk}$ )                  |  | 1.1        | V             |
| Typical peak reverse current per leg                 | $I_{RM}$          | $T_J = 25\text{ }^\circ\text{C}$ , at rated $V_{RRM}$          |  | 10         | $\mu\text{A}$ |
|  |                   | $T_J = 150\text{ }^\circ\text{C}$ , at rated $V_{RRM}$         |  | 500        |               |
| Operating frequency range                            | $f$               |  |  | 40 to 2000 | Hz            |

**Note**

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

| <b>THERMAL AND MECHANICAL SPECIFICATIONS</b>     |                |            |                  |
|--|----------------|------------|------------------|
| 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.              |

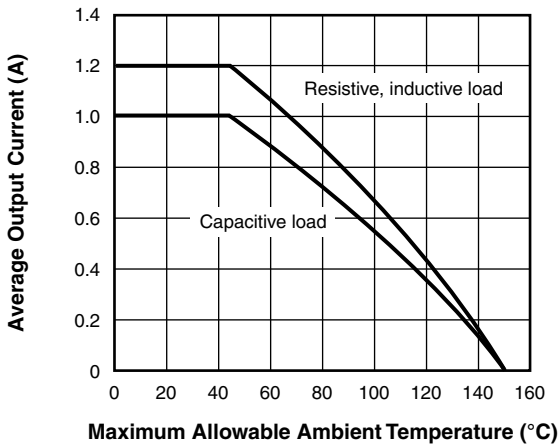


Fig. 1 - Average (DC) Output Current vs. Maximum Allowable Ambient Temperature

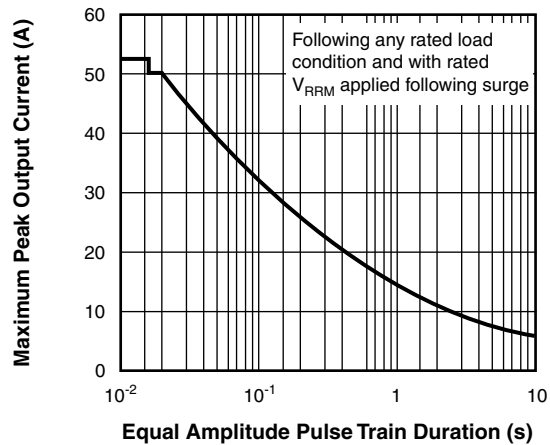


Fig. 2 - Maximum Non-Repetitive Surge Current vs. Pulse Train Duration ( $f = 50\text{ Hz}$ )



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



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

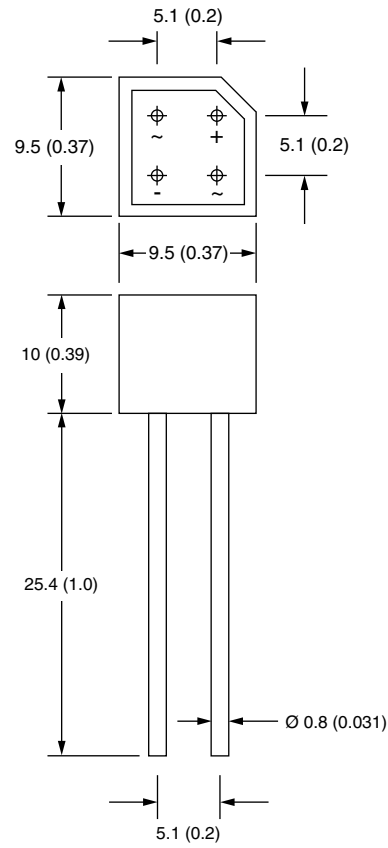
**CIRCUIT CONFIGURATION**



| LINKS TO RELATED DOCUMENTS |  |
|----------------------------|--|
| Dimensions                 | <a href="http://www.vishay.com/doc?95327">www.vishay.com/doc?95327</a> |

### D-38

**DIMENSIONS** in millimeters (inches)





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