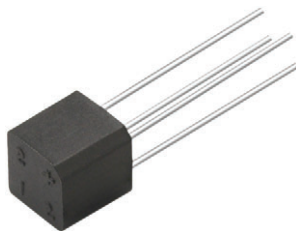


## Single Phase Rectifier Bridge, 1.2 A



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<br>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



| FORWARD CONDUCTION                                   |                     |                                                                  |            |                             |
|------------------------------------------------------|---------------------|------------------------------------------------------------------|------------|-----------------------------|
| PARAMETER                                            | SYMBOL              | TEST CONDITIONS                                                  | VALUES     | UNITS                       |
| Maximum DC output current                            | $I_O$               | $T_A = 45^\circ\text{C}$ , resistive or inductive load           | 1.2        | A                           |
|                                                      |                     | $T_A = 45^\circ\text{C}$ , 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       | $\text{A}^2\text{s}$        |
|                                                      |                     | $t = 8.3\text{ ms}$                                              | 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                 | $V_{FM}$            | $I_O = 1.2\text{ A}$ ( $1.88\text{ A}_{pk}$ )                    | 1.1        | V                           |
| Typical peak reverse current per leg                 | $I_{RM}$            | $T_J = 25^\circ\text{C}$ , at rated $V_{RRM}$                    | 10         | $\mu\text{A}$               |
|                                                      |                     | $T_J = 150^\circ\text{C}$ , 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.              |

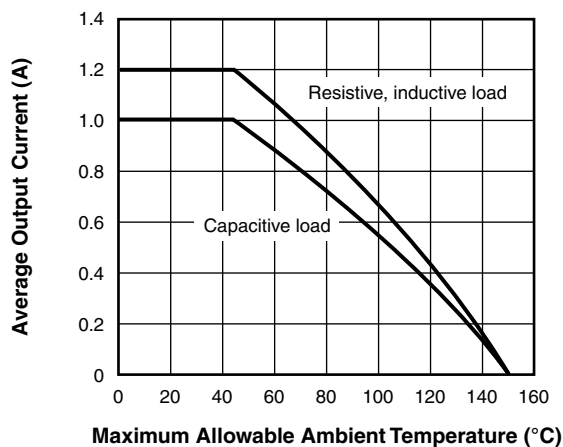


Fig. 1 - Average (DC) Output Current vs. Maximum Allowable Ambient Temperature

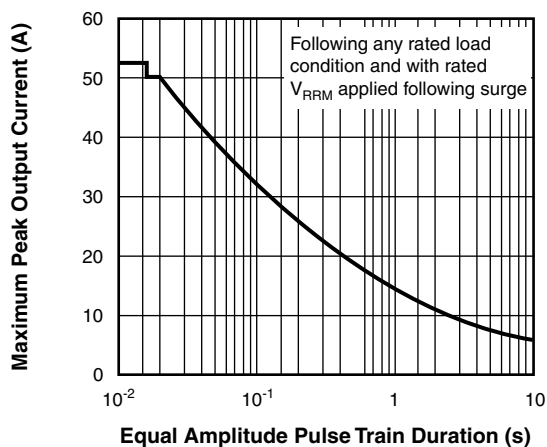


Fig. 2 - Maximum Non-Repetitive Surge Current vs. Pulse Train Duration ( $f = 50\text{ Hz}$ )

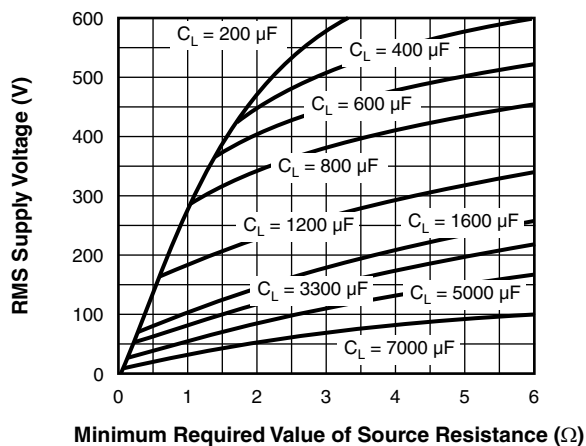


Fig. 3 - Minimum Required Source Resistance vs. RMS Supply Voltage and Load Capacitance

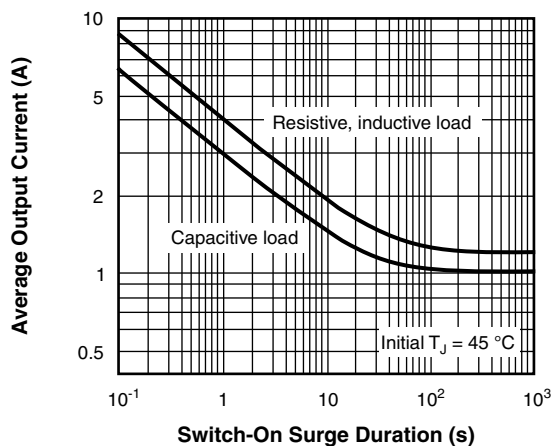
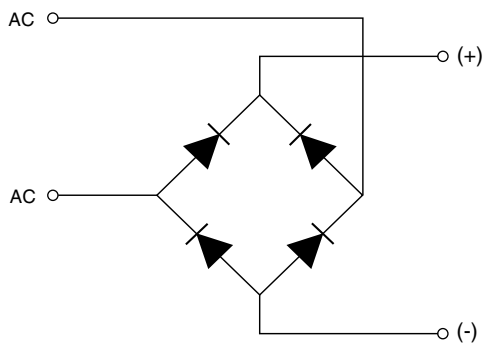


Fig. 4 - Maximum Switch-On Surge Current vs. Surge Duration

### CIRCUIT CONFIGURATION

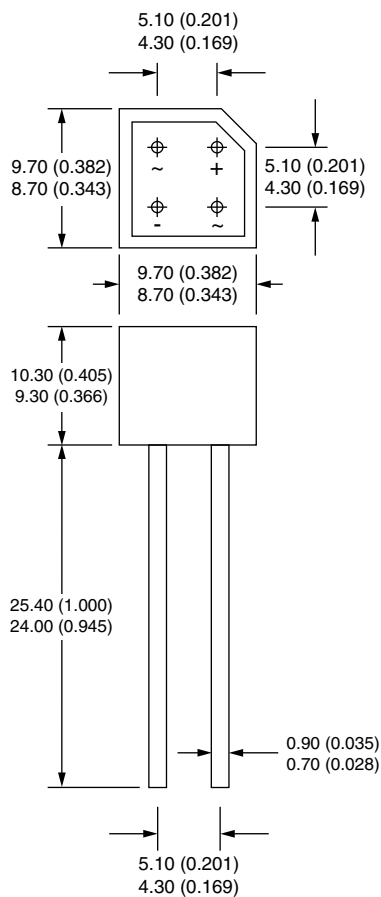


| LINKS TO RELATED DOCUMENTS |                                                                        |
|----------------------------|------------------------------------------------------------------------|
| Dimensions                 | <a href="http://www.vishay.com/doc?95327">www.vishay.com/doc?95327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



## D-38

**DIMENSIONS** in millimeters (inches)





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