



## Single Phase Rectifier Bridge, 3 A, 6 A



D-72

### FEATURES

- Suitable for printed circuit board or chassis mounting
- Compact construction
- High surge current capability
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



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### DESCRIPTION

The VS-KBPC series of single phase rectifier bridge consists of four silicon junctions connected as a full bridge. These devices are intended for general use in industrial and consumer equipment.

| PRIMARY CHARACTERISTICS |                     |
|-------------------------|---------------------|
| $I_{O(AV)}$             | 3.0 A to 6.0 A      |
| $V_{RRM}$               | 50 V to 1000 V      |
| Package                 | D-72                |
| Circuit configuration   | Single phase bridge |

| MAJOR RATINGS AND CHARACTERISTICS |                 |              |              |                  |
|-----------------------------------|-----------------|--------------|--------------|------------------|
| SYMBOL                            | CHARACTERISTICS | VALUES KBPC1 | VALUES KBPC6 | UNITS            |
| $I_o$                             |                 | 3            | 6            | A                |
|                                   | $T_C$           | 50           | 50           | °C               |
| $I_{FSM}$                         | 50 Hz           | 50           | 125          | A                |
|                                   | 60 Hz           | 55           | 137          |                  |
| $I^2t$                            | 50 Hz           | 12.5         | 78           | A <sup>2</sup> s |
|                                   | 60 Hz           | 11.4         | 71           |                  |
| $V_{RRM}$                         | Range           | 50 to 1000   |              | V                |
| $T_J$                             |                 | -40 to +150  |              | °C               |

### ELECTRICAL SPECIFICATIONS

| VOLTAGE RATINGS |  |  |   |
|-----------------|--|--|---|
| PART NUMBER     | $V_{RRM}$ , MAXIMUM REPETITIVE PEAK REVERSE VOLTAGE<br>V | $V_{RSM}$ , MAXIMUM NON-REPETITIVE PEAK REVERSE VOLTAGE<br>V | $V_{RMS}$ , MAXIMUM RECOMMENDED RMS SUPPLY VOLTAGE<br>V |
| VS-KBPC1005     | 50   | 50   | 20  |
| VS-KBPC101      | 100  | 100  | 40  |
| VS-KBPC102      | 200  | 200  | 80  |
| VS-KBPC104      | 400  | 400  | 125   |
| VS-KBPC106      | 600  | 600  | 250   |
| VS-KBPC108      | 800  | 800  | 380   |
| VS-KBPC110      | 1000   | 1000   | 500   |
| VS-KBPC6005     | 50   | 50   | 20  |
| VS-KBPC601      | 100  | 100  | 40  |
| VS-KBPC602      | 200  | 200  | 80  |
| VS-KBPC604      | 400  | 400  | 125   |
| VS-KBPC606      | 600  | 600  | 250   |
| VS-KBPC608      | 800  | 800  | 380   |
| VS-KBPC610      | 1000   | 1000   | 500   |



| FORWARD CONDUCTION                                   |               |  |   |              |               |
|--|---------------|--|---|--------------|---------------|
| PARAMETER  | SYMBOL        | TEST CONDITIONS  | VALUES KBPC1  | VALUES KBPC6 | UNITS         |
| Maximum DC output current                            | $I_O$         | $T_C = 50\text{ }^\circ\text{C}$ , resistive or inductive load | 3.0   | 6.0          | A             |
|  |               | $T_C = 50\text{ }^\circ\text{C}$ , capacitive load             | 2.4   | 4.7          |               |
| Maximum peak one cycle, non-repetitive surge current | $I_{FSM}$     | $t = 10\text{ ms}$ , 20 ms                                     | Following any rated load condition and with rated $V_{RRM}$ reapplied | 50           | 125           |
|  |               | $t = 8.3\text{ ms}$ , 16.7 ms                                  |   | 55           | 137           |
| Maximum $I^2t$ capability for fusing                 | $I^2t$        | $t = 10\text{ ms}$   | Initial $T_J = T_J$ maximum<br>100 % $V_{RRM}$ reapplied              | 12.5         | 78            |
|  |               | $t = 8.3\text{ ms}$  |   | 11.4         | 71            |
|  |               | $t = 10\text{ ms}$   |   | 17.7         | 110           |
|  |               | $t = 8.3\text{ ms}$  |   | 16.1         | 1000          |
| Maximum $I^2\sqrt{t}$ capability for fusing          | $I^2\sqrt{t}$ | $t = 0.1\text{ ms}$ to 10 ms, no voltage reapplied             | 177   | 1105         | $A^2\sqrt{s}$ |
| Maximum peak forward voltage per diode               | $V_{FM}$      | $I_{FM} = 0.5 \times I_O$ , $T_J = 25\text{ }^\circ\text{C}$   | 1.1   | 1.2          | V             |
| Typical peak reverse leakage per diode               | $I_{RM}$      | $T_J = 25\text{ }^\circ\text{C}$ , 100 % $V_{RRM}$             | 10  | 10           | $\mu\text{A}$ |
|  |               | $T_J = 150\text{ }^\circ\text{C}$ , 100 % $V_{RRM}$            | 1.0   | 1.0          | mA            |
| Operating frequency range                            | f             |  | 40 to 1000  |              | Hz            |
| Maximum repetitive peak reverse voltage range        | $V_{RRM}$     |  | 50 to 1000  |              | V             |

| THERMAL AND MECHANICAL SPECIFICATIONS   |                |              |              |                  |
|---|----------------|--------------|--------------|------------------|
| PARAMETER                               | SYMBOL         | VALUES KBPC1 | VALUES KBPC6 | UNITS            |
| Operating and storage temperature range | $T_J, T_{Stg}$ | -40 to +150  |              | $^\circ\text{C}$ |
| Thermal resistance, junction to case    | $R_{thJC}$     | -            | -            | K/W              |
| Approximate weight                      |                | 5            | 6            | g                |
|   |                | 0.18         | 0.21         | oz.              |



93585\_01 Maximum Allowable Case Temperature ( $^\circ\text{C}$ )

Fig. 1 - Case Temperature Ratings



93585\_02 Maximum Allowable Case Temperature ( $^\circ\text{C}$ )

Fig. 2 - Case Temperature Ratings



93585\_03

Fig. 3 - Non-Repetitive Surge Ratings



93585\_04

Fig. 4 - Non-Repetitive Surge Ratings

## CIRCUIT CONFIGURATION



### LINKS TO RELATED DOCUMENTS

|            |  |
|------------|--|
| Dimensions | <a href="http://www.vishay.com/doc?95250">www.vishay.com/doc?95250</a> |
|------------|--|



## D-72

### DIMENSIONS in millimeters (inches): **KBPC6, KBPC8**



### DIMENSIONS in millimeters (inches): **KBPC1**





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