



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



RoHS
COMPLIANT

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 ² 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 V | V_{RSM} , MAXIMUM NON-REPETITIVE PEAK REVERSE VOLTAGE V | V_{RMS} , MAXIMUM RECOMMENDED RMS SUPPLY VOLTAGE 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 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 | μA |
| | | $T_J = 150\text{ }^\circ\text{C}$, 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

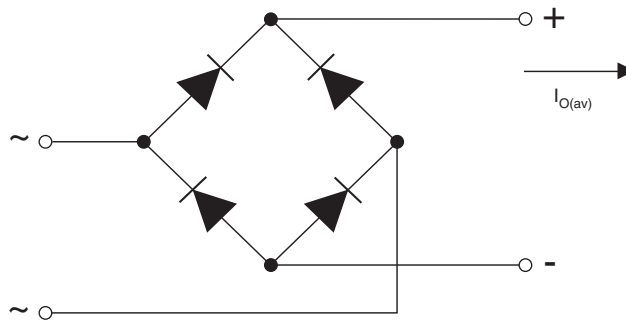
Fig. 3 - Non-Repetitive Surge Ratings



93585_04

Fig. 4 - Non-Repetitive Surge Ratings

CIRCUIT CONFIGURATION



LINKS TO RELATED DOCUMENTS

| | |
|------------|--|
| Dimensions | www.vishay.com/doc?95250 |
|------------|--|



D-72

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



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





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