

Single Phase Rectifier Bridge, 1.9 A


2KBB

FEATURES

- Suitable for printed circuit board mounting
- Leads on standard 2.54 mm (0.1") grid
- Compact construction
- High surge current capability
- Polarized package
- Equivalent to standard DIN parts
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912


RoHS
COMPLIANT

PRODUCT SUMMARY

| | |
|-----------|---------------------|
| I_O | 1.9 A |
| V_{RRM} | 50 V to 1000 V |
| Package | 2KBB |
| Circuit | Single phase bridge |

DESCRIPTION

A 1.9 A single phase diode bridge rectifier assembly consisting of four silicon diodes in a plastic encapsulation, intended for general applications in industrial and consumer equipment.

MAJOR RATINGS AND CHARACTERISTICS

| SYMBOL | CHARACTERISTICS | VALUES | UNITS |
|-----------|-----------------|-------------|------------------|
| I_O | | 1.9 | A |
| | T_C | 45 | °C |
| 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 | | -40 to 150 | °C |

ELECTRICAL SPECIFICATIONS

VOLTAGE RATINGS AND APPLICATION DATA

| CROSS REFERENCE | | V_{RRM}, V_{RSM} MAXIMUM PEAK REVERSE VOLTAGE $T_J = 15\text{ °C}$ (V) | I_{RM} TYPICAL PEAK REVERSE CURRENT PER DIODE AT RATED V_{RRM} (μ A) | | APPLICATION DATA (SEE FIGURE 3) | | |
|-----------------|-----------|--|---|-----------------------|--|---|--|
| PART NUMBER | DIN CODE | | $T_J = 25\text{ °C}$ | $T_J = 150\text{ °C}$ | V_{RMS} MAXIMUM RECOMMENDE D AC SUPPLY VOLTAGE (V) | C_{MAX} MAXIMUM LOAD CAPACITANCE (μ F) | R_{MIN} MINIMUM SOURCE RESISTANCE (Ω) |
| | | | | | | | |
| VS-2KBB05 | B20C1500 | 50 | 10 | 500 | 20 | 7000 | 0.3 |
| VS-2KBB10 | B40C1500 | 100 | 10 | 500 | 40 | 5000 | 0.5 |
| VS-2KBB20 | B80C1500 | 200 | 10 | 500 | 80 | 3300 | 0.8 |
| VS-2KBB40 | B125C1500 | 400 | 10 | 500 | 125 | 1600 | 1.5 |
| VS-2KBB60 | B250C1500 | 600 | 10 | 500 | 250 | 1200 | 2.5 |
| VS-2KBB80 | B380C1500 | 800 | 10 | 500 | 380 | 800 | 3.0 |
| VS-2KBB100 | B500C1500 | 1000 | 10 | 500 | 500 | 600 | 5.0 |

Note

- For PIN configuration - ~ ~ ~ + add "R" to end of part number, e.g. 2KBB05R (see also dimensions for details - link at the end of datasheet)

| FORWARD CONDUCTION | | | | | |
|--|---------------------|--|--|------------|-----------------------------|
| PARAMETER | SYMBOL | TEST CONDITIONS | | VALUES | UNITS |
| Maximum DC output current | I_O | $T_C = 45\text{ }^\circ\text{C}$, resistive and inductive load | | 1.9 | A |
| | | $T_C = 45\text{ }^\circ\text{C}$, capacitive load | | 1.5 | |
| Maximum peak one cycle, non-repetitive surge current | I_{FSM} | $t = 6\text{ ms}$ | Following any rated load condition, and with rated V_{RRM} applied following surge | 50 | A |
| | | $t = 5\text{ ms}$ | | 52 | |
| Maximum I^2t for fusing, initial $T_J = T_J$ maximum | 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 | |
| | | $t = 10\text{ ms}$ | | 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 diode | V_{FM} | $I_O = 1.9\text{ A}$ (3.0 A_{pk}) | | 1.1 | V |
| 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 | | 4 | g |
| | | 0.14 | 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?95328 |

2KBB

DIMENSIONS in millimeters (inches)



Note

- For PIN configuration - ~ ~ + add "R" to end of part number



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