

# International Rectifier

## 2KBB SERIES 1.9A single phase rectifier bridge

### Maximum Ratings and Characteristics

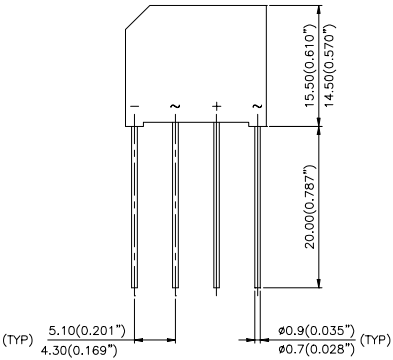
|           | 2KBB..      | Units |
|-----------|-------------|-------|
| $I_O$     | 1.9         | A     |
| $I_{FSM}$ | 50Hz        | 50    |
|           | 60Hz        | 52    |
| $I^2t$    | 50Hz        | 17.7  |
|           | 60Hz        | 16.1  |
| $V_{RRM}$ | 100 to 1000 | V     |
| $T_J$     | -40 to 150  | °C    |

### Description/Features

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

- Suitable for printed circuit board mounting
- Leads on standard 2.54mm (0.1in.) grid
- Compact construction
- High surge current capability
- Polarized package
- Equivalent to standard DIN parts

| Part number | DIN code equivalent |
|-------------|---------------------|
| 2KBB05      | B20C1500            |
| 2KBB10      | B40C1500            |
| 2KBB20      | B80C1500            |
| 2KBB40      | B125C1500           |
| 2KBB60      | B250C1500           |
| 2KBB80      | B380C1500           |
| 2KBB100     | B500C1500           |

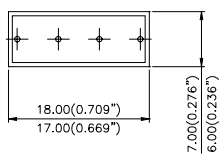


(TYP) 5.10(0.201")  
4.30(0.169")

15.50(0.610")  
14.50(0.570")


20.00(0.787")

ø0.9(0.035") (TYP)  
ø0.7(0.028")



18.00(0.709")  
17.00(0.669")

7.00(0.276")  
6.00(0.236")



**2KBB..**

NOTE :  
FOR PIN CONFIGURATION - ~ ~ +  
ADD 'R' TO END OF CODE

ALL DIMENSIONS IN MILLEMMETERS (INCHES)

Reverse voltage ratings and application data

| Part number       | V <sub>RRM</sub> , V <sub>RSM</sub><br>max. peak<br>rev. voltage<br>T <sub>J</sub> = 15°C | I <sub>RM</sub> , typical peak<br>rev. current per diode<br>at rated V <sub>RRM</sub><br>T <sub>J</sub> = 150°C |     | Application data (see figure 3)                           |  |   |
|-------------------|---|---|-----|---|--|---|
|                   |   |   |     | V <sub>RSM</sub> max.<br>recommended AC<br>supply voltage | C <sub>max</sub> max.<br>load<br>capacitance | R <sub>min</sub> min.<br>source<br>resistance |
|                   |   |   |     | V   | μF   | Ω   |
| 2KBB05, 2KBB05R   | 50  | 10  | 500 | 20  | 7000   | 0.3   |
| 2KBB10, 2KBB10R   | 100   | 10  | 500 | 40  | 5000   | 0.5   |
| 2KBB20, 2KBB20R   | 200   | 10  | 500 | 80  | 3300   | 0.8   |
| 2KBB40, 2KBB40R   | 400   | 10  | 500 | 125   | 1600   | 1.5   |
| 2KBB60, 2KBB60R   | 600   | 10  | 500 | 250   | 1200   | 2.5   |
| 2KBB80, 2KBB80R   | 800   | 10  | 500 | 380   | 800  | 3.0   |
| 2KBB100, 2KBB100R | 1000  | 10  | 500 | 500   | 600  | 5.0   |

**Electrical Specification**

Forward Conduction

| Parameters  | 2KBB...    | Unit              | Conditions   |
|---|------------|-------------------|--|
| I <sub>O</sub> Maximum DC output current  | 1.9        | A                 | T <sub>C</sub> = 45°C, Resistive & inductive load  |
|   | 1.5        |                   | T <sub>C</sub> = 45°C, Capacitive load   |
| I <sub>FSM</sub> Maximum peak, one-cycle non-repetitive surge current,                            | 50         |                   | t = 6ms Following any rated load condition, and with rated V <sub>RRM</sub> applied following surge                                      |
|   | 52         |                   | t = 5ms  |
| I <sup>2</sup> t Maximum I <sup>2</sup> t for fusing, initial T <sub>J</sub> = T <sub>J</sub> max | 12.5       | A <sup>2</sup> s  | t = 10ms Rated V <sub>RRM</sub> applied following surge, initial T <sub>J</sub> = 150°C  |
|   | 11.3       | A <sup>2</sup> s  | t = 8.3ms  |
|   | 17.7       |                   |  |
|   | 16.1       |                   |  |
| I <sup>2</sup> √t Maximum I <sup>2</sup> √t capability for fusing                                 | 177        | A <sup>2</sup> √s | V <sub>RRM</sub> following surge = 0, t = 0.1 to 10 ms<br>I <sup>2</sup> t for time t <sub>x</sub> = I <sup>2</sup> √t · √t <sub>x</sub> |
| V <sub>FM</sub> Maximum peak forward voltage per diode  | 1.1        | V                 | I <sub>O</sub> = 1.9A (3.0 A pk)   |
| f Operating frequency range   | 40 to 2000 | Hz                |  |

**Thermal and Mechanical Specifications**

| Parameters   | 2KBB...    | Unit   | Conditions |
|--|------------|--------|------------|
| T <sub>J</sub> Operating and storage temperature range | -40 to 150 | °C     |            |
| T <sub>stg</sub>                                       |            |        |            |
| Wt Approximate weight                                  | 4 (0.14)   | g (oz) |            |

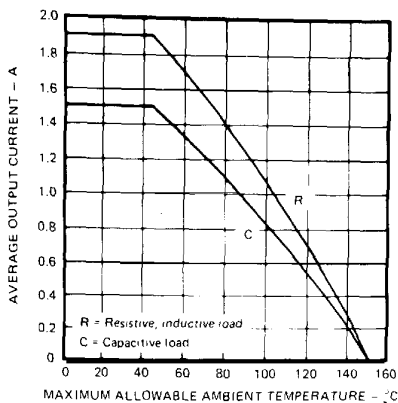


Fig. 1 – Average (DC) Output Current Vs. Maximum Allowable Ambient Temperature

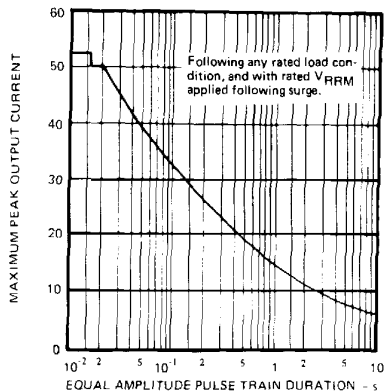


Fig. 2 – Maximum Non-repetitive Surge Current Vs. Pulse Train Duration (f = 50 Hz)

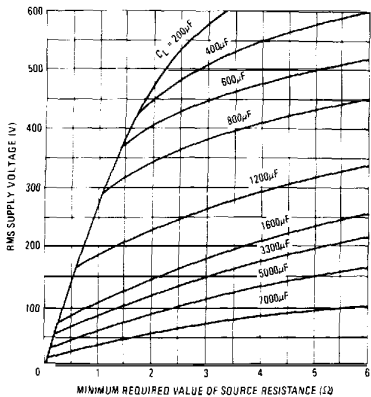


Fig. 3 – Minimum Required Source Resistance Vs. RMS Supply Voltage and Load Capacitance

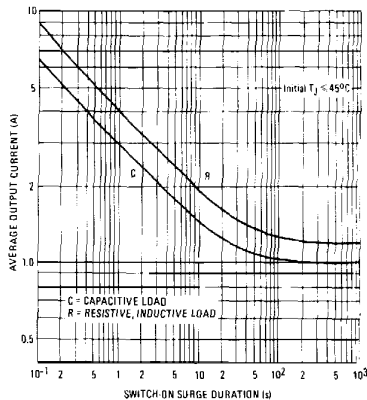


Fig. 4 – Maximum Switch-On Surge Current Vs. Surge Duration