Vishay General Semiconductor

# Single-Phase Bridge Rectifier



| PRIMARY CHARACTERISTICS |                |  |  |  |  |  |  |  |
|-------------------------|----------------|--|--|--|--|--|--|--|
| I <sub>F(AV)</sub> 4 A  |                |  |  |  |  |  |  |  |
| V <sub>RRM</sub>        | 50 V to 1000 V |  |  |  |  |  |  |  |
| I <sub>FSM</sub>        | 200 A          |  |  |  |  |  |  |  |
| I <sub>R</sub>          | 5 μΑ           |  |  |  |  |  |  |  |
| V <sub>F</sub>          | 1.1 V          |  |  |  |  |  |  |  |
| T <sub>J</sub> max.     | 150 °C         |  |  |  |  |  |  |  |

#### FEATURES

- UL recognition file number E54214
- Ideal for printed circuit boards
- · High surge current capability
- High case dielectric strength of 1500 V<sub>RMS</sub>
  RoHS
  COMPLIANT
- Solder dip 260 °C, 40 s
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC

#### **TYPICAL APPLICATIONS**

General purpose use in ac-to-dc bridge full wave rectification for monitor, TV, printer, SMPS, adapter, audio equipment, and home appliances applications.

#### **MECHANICAL DATA**

#### Case: KBL

Epoxy meets UL 94V-0 flammability rating

**Terminals:** Silver plated leads, solderable per J-STD-002 and JESD22-B102 E4 suffix for consumer grade

**Polarity:** As marked on body

**Mounting Torque:** 10 cm-kg (8.8 inches-lbs) max. **Recommended Torque:** 5.7 cm-kg (5 inches-lbs)

| MAXIMUM RATINGS (T <sub>A</sub> = 25 °C unless otherwise noted)           |                                   |               |       |       |       |       |       |       |      |
|---|-----------------------------------|---------------|-------|-------|-------|-------|-------|-------|------|
| PARAMETER   | SYMBOL                            | KBL005        | KBL01 | KBL02 | KBL04 | KBL06 | KBL08 | KBL10 | UNIT |
| Maximum repetitive peak reverse voltage                                   | V <sub>RRM</sub>                  | 50            | 100   | 200   | 400   | 600   | 800   | 1000  | V    |
| Maximum RMS voltage   | V <sub>RMS</sub>                  | 35            | 70    | 140   | 280   | 420   | 560   | 700   | V    |
| Maximum DC blocking voltage   | V <sub>DC</sub>                   | 50            | 100   | 200   | 400   | 600   | 800   | 1000  | V    |
| Maximum average forward current at $T_A = 50 \ ^\circ C$                  | I <sub>F(AV)</sub>                | 4.0           |       |       |       |       |       | А     |      |
| Peak forward surge current single sine-wave<br>superimposed on rated load | I <sub>FSM</sub>                  | 200           |       |       |       |       | А     |       |      |
| Operating junction and storage temperature range                          | T <sub>J</sub> , T <sub>STG</sub> | - 50 to + 150 |       |       |       |       | °C    |       |      |

| <b>ELECTRICAL CHARACTERISTICS</b> ( $T_A = 25 \degree C$ unless otherwise noted) |   |                |            |       |       |       |       |       |          |      |
|--|---|----------------|------------|-------|-------|-------|-------|-------|----------|------|
| PARAMETER  | TEST CONDITIONS                                   | SYMBOL         | KBL005     | KBL01 | KBL02 | KBL04 | KBL06 | KBL08 | KBL10    | UNIT |
| Maximum instantaneous forward drop per diode                                     | 4.0 A   | V <sub>F</sub> | 1.1        |       |       |       |       |       | V        |      |
| Maximum DC reverse<br>current at rated DC<br>blocking voltage per diode          | T <sub>A</sub> = 25 °C<br>T <sub>A</sub> = 125 °C | I <sub>R</sub> | 5.0<br>1.0 |       |       |       |       |       | μA<br>mA |      |

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| <b>THERMAL CHARACTERISTICS</b> (T <sub>A</sub> = 25 °C unless otherwise noted) |                               |   |       |       |       |       |       |       |      |
|--|-------------------------------|---|-------|-------|-------|-------|-------|-------|------|
| PARAMETER  | SYMBOL                        | KBL005                                  | KBL01 | KBL02 | KBL04 | KBL06 | KBL08 | KBL10 | UNIT |
| Typical thermal resistance   | $R_{	heta JA} \ R_{	heta JL}$ | 19 <sup>(1)</sup><br>2.4 <sup>(2)</sup> |       |       |       |       | °C/W  |       |      |

Notes:

- (1) Thermal resistance from junction to ambient with units mounted on 3.0 x 3.0 x 0.11" thick (7.5 x 7.5 x 0.3 cm) aluminum plate
- (2) Thermal resistance from junction to lead with units mounted on P.C.B. at 0.375" (9.5 mm) lead length and 0.5 x 0.5" (12 x 12 mm) copper pads

| ORDERING INFORMATION (Example) |  |    |     |                      |  |  |  |  |
|--------------------------------|--|----|-----|----------------------|--|--|--|--|
| PREFERRED P/N                  | EFERRED P/N UNIT WEIGHT (g) PREFERRED PACKAGE CODE BASE QUANTITY DELIVERY MODE |    |     |                      |  |  |  |  |
| KBL06-E4/51                    | 6.0  | 51 | 300 | Anti-static PVC tray |  |  |  |  |

#### **RATINGS AND CHARACTERISTICS CURVES**

(T<sub>A</sub> = 25 °C unless otherwise noted)

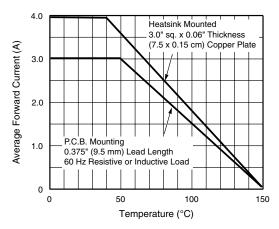
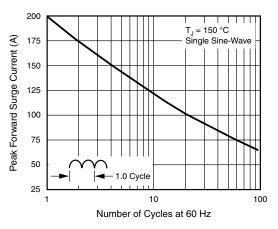
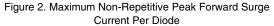


Figure 1. Derating Curve Output Rectified Current





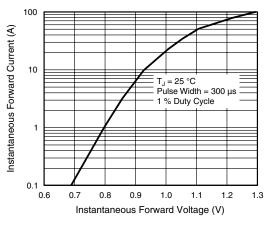


Figure 3. Typical Instantaneous Forward Characteristics Per Diode

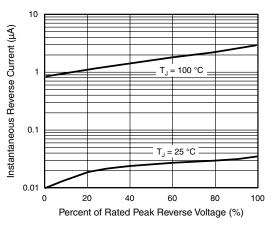


Figure 4. Typical Reverse Leakage Characteristics Per Diode

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## KBL005 thru KBL10

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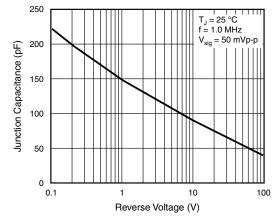
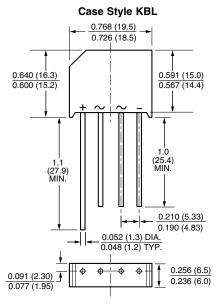


Figure 5. Typical Junction Capacitance Per Diode

#### **PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)



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## Disclaimer

All product specifications and data are subject to change without notice.

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