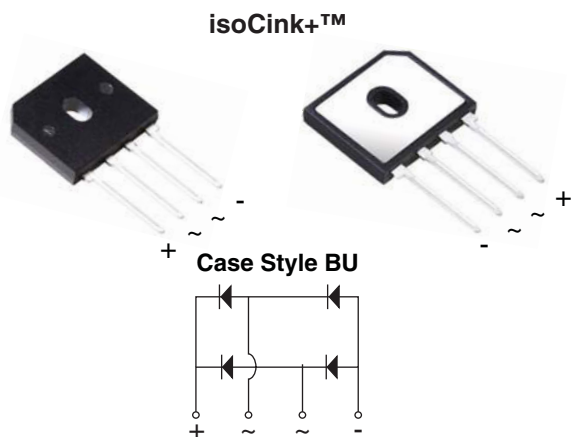


## Enhanced isoCink+™ Bridge Rectifiers



\* Tested to UL standard for safety electrically isolated semiconductor devices. UL 1557 4th edition. Dielectric tested to maximum case, storage and junction temperature to 150 °C to withstand 1500 V. Epoxy meets UL 94 V-0 flammability rating.

| PRIMARY CHARACTERISTICS |                      |
|-------------------------|----------------------|
| $I_{F(AV)}$             | 10 A                 |
| $V_{RRM}$               | 600 V, 800 V, 1000 V |
| $I_{FSM}$               | 120 A                |
| $I_R$                   | 5 $\mu$ A            |
| $V_F$ at $I_F = 5$ A    | 0.88 V               |
| $T_J$ max.              | 150 °C               |

### FEATURES

- UL recognition file number E309391 (QQQX2) UL 1557 (see \*)
- Thin single in-line package
- Available for BU-5S lead forming option (part number with "5S" suffix, e.g. BU10065S)
- Superior thermal conductivity
- Solder dip 275 °C max. 10 s, per JESD 22-B106
- Material categorization: For definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



**RoHS**  
COMPLIANT

### TYPICAL APPLICATIONS

General purpose use in AC/DC bridge full wave rectification for switching power supply, home appliances and white-goods applications.

### MECHANICAL DATA

**Case:** BU

**Terminals:** Matte tin plated leads, solderable per J-STD-002 and JESD22-B102

E3 suffix for consumer grade, meets JESD 201 class 1A whisker test

**Polarity:** As marked on body

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

| MAXIMUM RATINGS (T <sub>A</sub> = 25 °C unless otherwise noted)                              |                                       |                                   |               |        |        |                  |
|----------------------------------------------------------------------------------------------|---------------------------------------|-----------------------------------|---------------|--------|--------|------------------|
| PARAMETER                                                                                    |                                       | SYMBOL                            | BU1006        | BU1008 | BU1010 | UNIT             |
| Maximum repetitive peak reverse voltage                                                      |                                       | V <sub>RRM</sub>                  | 600           | 800    | 1000   | V                |
| Average rectified forward current (Fig. 1, 2)                                                | T <sub>C</sub> = 92 °C <sup>(1)</sup> | I <sub>O</sub>                    | 10            |        |        | A                |
|                                                                                              | T <sub>A</sub> = 25 °C <sup>(2)</sup> |                                   | 3.2           |        |        |                  |
| Non-repetitive peak forward surge current<br>8.3 ms single sine-wave, T <sub>J</sub> = 25 °C |                                       | I <sub>FSM</sub>                  | 120           |        |        | A                |
| Rating for fusing (t < 8.3 ms) T <sub>J</sub> = 25 °C                                        |                                       | I <sup>2</sup> t                  | 60            |        |        | A <sup>2</sup> s |
| Operating junction and storage temperature range                                             |                                       | T <sub>J</sub> , T <sub>STG</sub> | - 55 to + 150 |        |        | °C               |

#### Notes

<sup>(1)</sup> With 60 W air cooled heatsink

<sup>(2)</sup> Without heatsink, free air

| ELECTRICAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted) |                        |                         |                |      |      |      |
|----------------------------------------------------------------------------|------------------------|-------------------------|----------------|------|------|------|
| PARAMETER                                                                  | TEST CONDITIONS        |                         | SYMBOL         | TYP. | MAX. | UNIT |
| Maximum instantaneous forward voltage per diode <sup>(1)</sup>             | I <sub>F</sub> = 5.0 A | T <sub>A</sub> = 25 °C  | V <sub>F</sub> | 0.98 | 1.05 | V    |
|                                                                            |                        | T <sub>A</sub> = 125 °C |                | 0.88 | 0.95 |      |
| Maximum reverse current per diode                                          | rated V <sub>R</sub>   | T <sub>A</sub> = 25 °C  | I <sub>R</sub> | -    | 5.0  | μA   |
|                                                                            |                        | T <sub>A</sub> = 125 °C |                | 64   | 250  |      |
| Typical junction capacitance per diode                                     | 4.0 V, 1 MHz           |                         | C <sub>J</sub> | 43   | -    | pF   |

**Note**

<sup>(1)</sup> Pulse test: 300  $\mu\text{s}$  pulse width, 1 % duty cycle

| THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted) |                                 |        |        |        |      |
|-------------------------------------------------------------------------|---------------------------------|--------|--------|--------|------|
| PARAMETER                                                               | SYMBOL                          | BU1006 | BU1008 | BU1010 | UNIT |
| Typical thermal resistance                                              | R <sub>θJC</sub> <sup>(1)</sup> | 3.0    |        |        | °C/W |
|                                                                         | R <sub>θJA</sub> <sup>(2)</sup> | 20     |        |        |      |

**Notes**

<sup>(1)</sup> With 60 W air cooled heatsink

<sup>(2)</sup> Without heatsink, free air

| <b>ORDERING INFORMATION</b> (Example) |                 |                        |               |               |
|---------------------------------------|-----------------|------------------------|---------------|---------------|
| PREFERRED P/N                         | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
| BU1006-E3/45                          | 4.55            | 45                     | 20            | Tube          |
| BU1006-E3/51                          | 4.55            | 51                     | 250           | Paper tray    |
| BU1006S-E3/45                         | 4.55            | 45                     | 20            | Tube          |

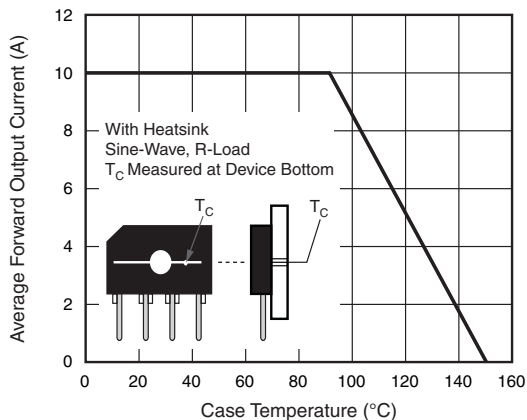
**RATINGS AND CHARACTERISTICS CURVES** ( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise specified)


Fig. 1 - Derating Curve Output Rectified Current

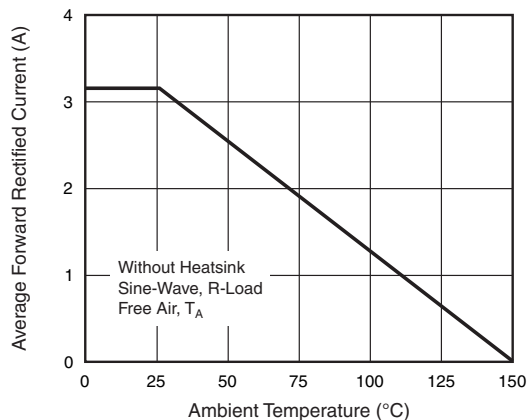


Fig. 2 - Forward Current Derating Curve

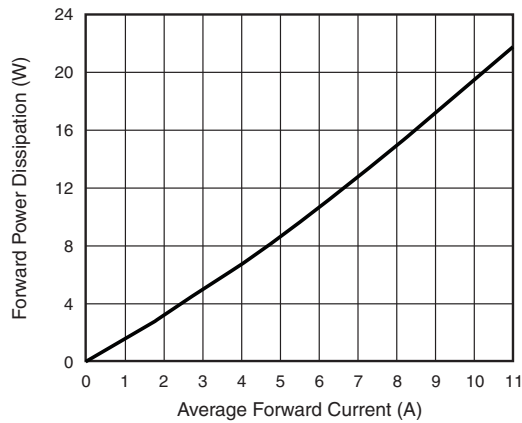


Fig. 3 - Forward Power Dissipation

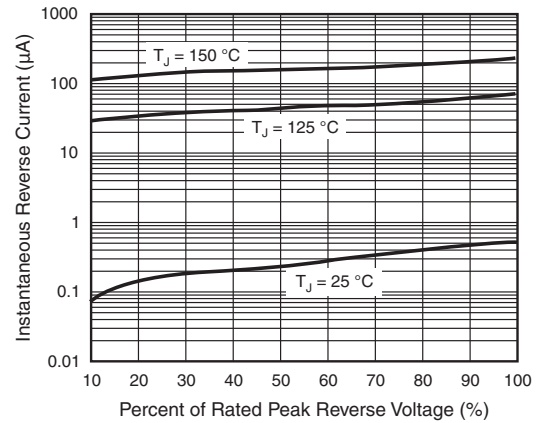


Fig. 5 - Typical Reverse Characteristics Per Diode

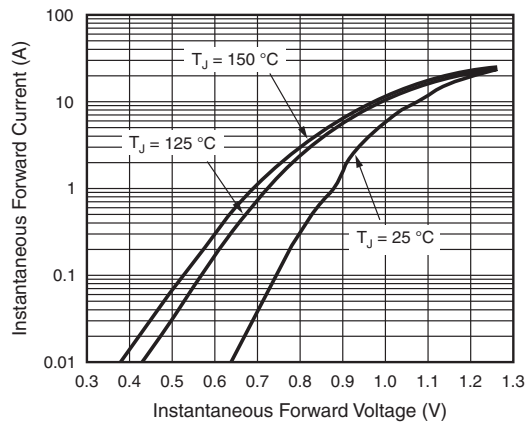


Fig. 4 - Typical Forward Characteristics Per Diode

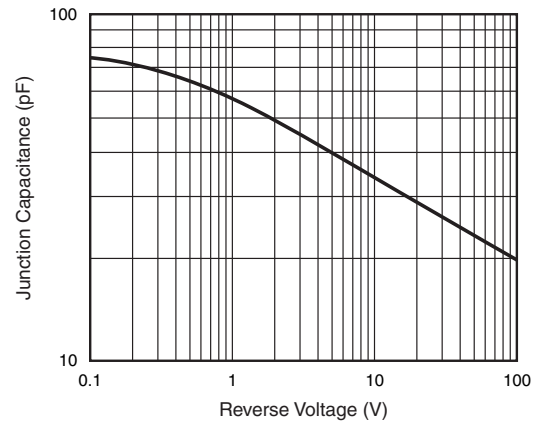
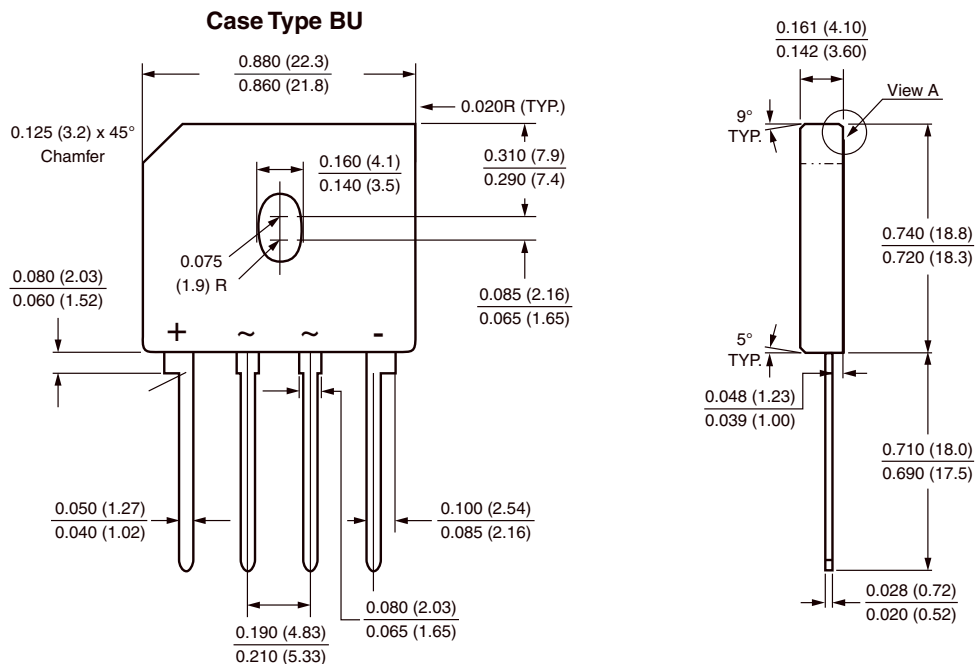


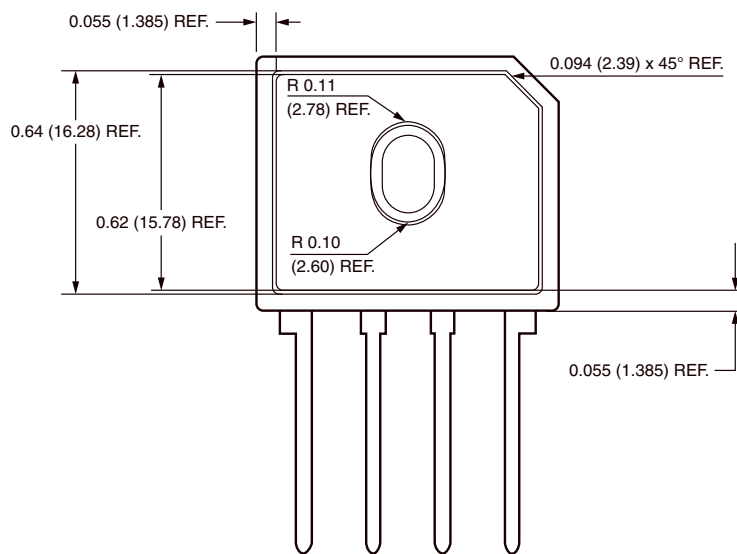
Fig. 6 - Typical Junction Capacitance Per Diode



PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

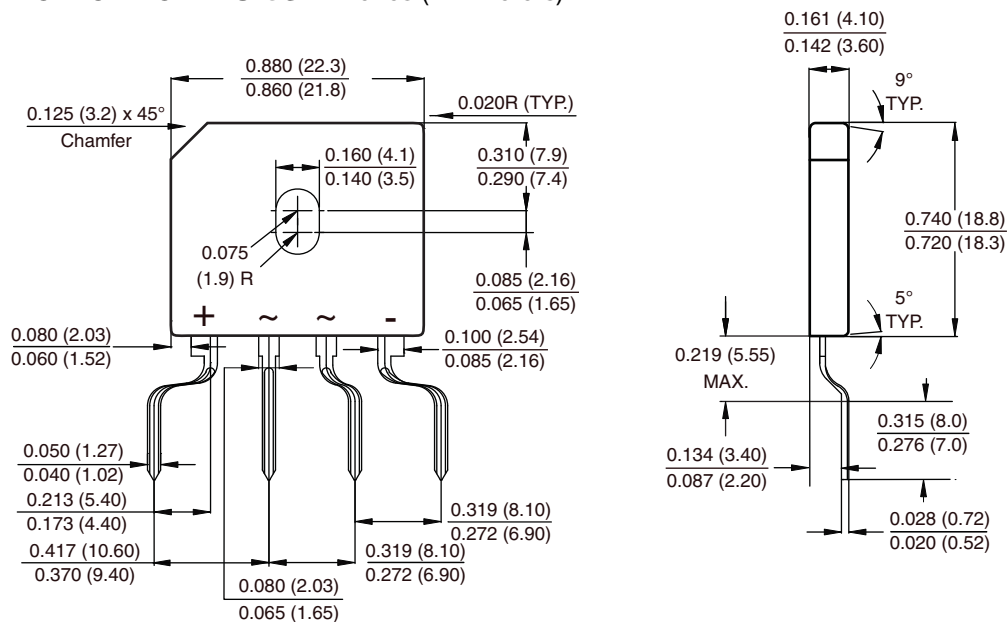


Polarity shown on front side of case, positive lead beveled corner



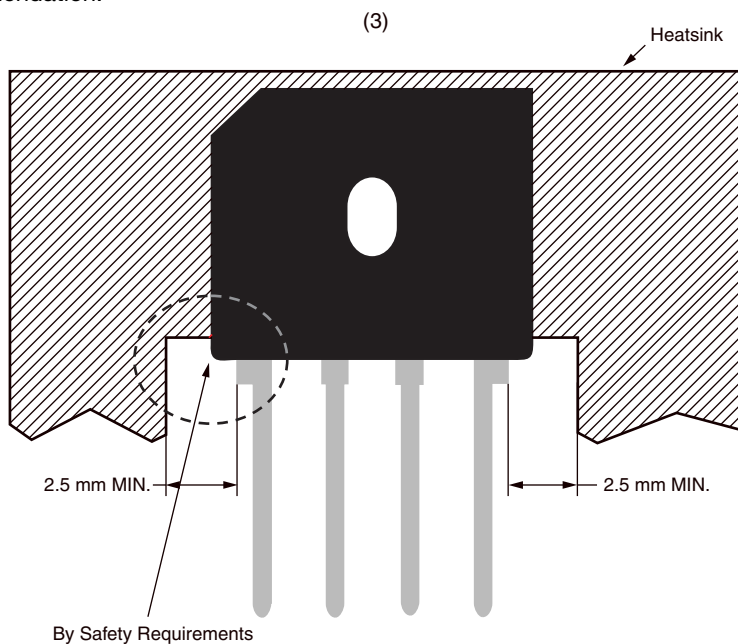


**FORMING SPECIFICATION: BU-5S** in inches (millimeters)



**APPLICATION NOTE**

- (1) Device UL approved for safety use dielectric strength of 1500 V.
- (2) If device is mounted in Floating Ground (F. G.) application, insulator is recommended to use to meet safety requirement.
- (3) Heat sink shape recommendation:





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