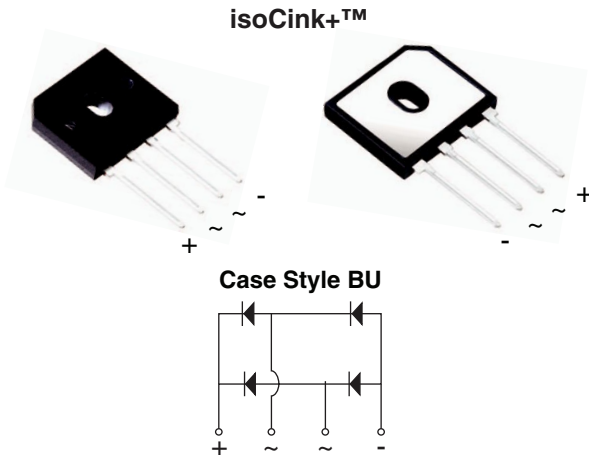


## Enhanced isoCink+™ Bridge Rectifiers



\* 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 |                      |
|-------------------------|----------------------|
| Package                 | BU                   |
| $I_{F(AV)}$             | 20 A                 |
| $V_{RRM}$               | 600 V, 800 V, 1000 V |
| $I_{FSM}$               | 240 A                |
| $I_R$                   | 5 $\mu$ A            |
| $V_F$ at $I_F = 10$ A   | 0.85 V               |
| $T_J$ max.              | 150 °C               |
| Diode variations        | In-Line              |

### 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. BU20065S)
- 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  
HALOGEN  
**FREE**

### 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

Molding compound meets UL 94 V-0 flammability rating  
Base P/N-M3 - halogen-free, RoHS-compliant, and commercial grade

**Terminals:** Matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

M3 suffix meets JESD 201 class 1A whisker test

**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 ( $T_A = 25$ °C unless otherwise noted)                             |                |                              |        |               |                  |
|-------------------------------------------------------------------------------------|----------------|------------------------------|--------|---------------|------------------|
| PARAMETER                                                                           | SYMBOL         | BU2006                       | BU2008 | BU2010        | UNIT             |
| Maximum repetitive peak reverse voltage                                             | $V_{RRM}$      | 600                          | 800    | 1000          | V                |
| Average rectified forward current (Fig. 1, 2)                                       | $I_O$          | $T_C = 61$ °C <sup>(1)</sup> |        | 20            | A                |
|                                                                                     |                | $T_A = 25$ °C <sup>(2)</sup> |        | 3.5           |                  |
| Non-repetitive peak forward surge current<br>8.3 ms single sine-wave, $T_J = 25$ °C | $I_{FSM}$      |                              |        | 240           | A                |
| Rating for fusing ( $t < 8.3$ ms) $T_J = 25$ °C                                     | $I^2t$         |                              |        | 239           | A <sup>2</sup> s |
| Operating junction and storage temperature range                                    | $T_J, T_{STG}$ |                              |        | - 55 to + 150 | °C               |

#### Notes

<sup>(1)</sup> With heatsink

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

| <b>ELECTRICAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted) |                     |                                   |        |      |      |               |
|----------------------------------------------------------------------------------------------|---------------------|-----------------------------------|--------|------|------|---------------|
| PARAMETER                                                                                    | TEST CONDITIONS     |                                   | SYMBOL | TYP. | MAX. | UNIT          |
| Maximum instantaneous forward voltage per diode <sup>(1)</sup>                               | $I_F = 10\text{ A}$ | $T_A = 25\text{ }^\circ\text{C}$  | $V_F$  | 0.95 | 1.05 | V             |
|                                                                                              |                     | $T_A = 125\text{ }^\circ\text{C}$ |        | 0.85 | 0.95 |               |
| Maximum reverse current per diode                                                            | rated $V_R$         | $T_A = 25\text{ }^\circ\text{C}$  | $I_R$  | -    | 5.0  | $\mu\text{A}$ |
|                                                                                              |                     | $T_A = 125\text{ }^\circ\text{C}$ |        | 110  | 350  |               |
| Typical junction capacitance per diode                                                       | 4.0 V, 1 MHz        |                                   | $C_J$  | 95   | -    | pF            |

**Note**

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

| <b>THERMAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted) |                                |        |        |        |                    |
|-------------------------------------------------------------------------------------------|--------------------------------|--------|--------|--------|--------------------|
| PARAMETER                                                                                 | SYMBOL                         | BU2006 | BU2008 | BU2010 | UNIT               |
| Typical thermal resistance                                                                | $R_{\theta JC}$ <sup>(1)</sup> | 2.4    |        |        | $^\circ\text{C/W}$ |
|                                                                                           | $R_{\theta JA}$ <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 |
| BU2006-M3/45                          | 4.76            | 45                     | 20            | Tube          |
| BU2006-M3/51                          | 4.76            | 51                     | 250           | Paper tray    |
| BU2006S-M3/45                         | 4.76            | 45                     | 20            | Tube          |

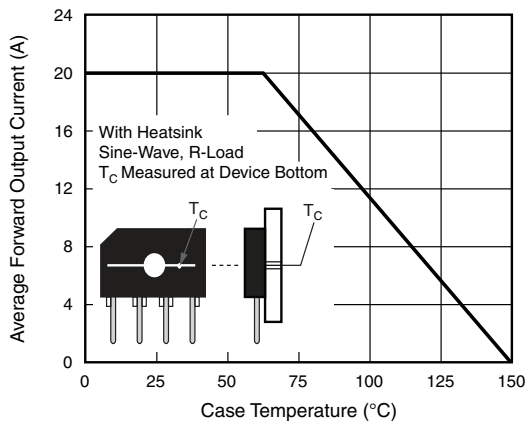
**RATINGS AND CHARACTERISTICS CURVES** ( $T_A = 25\text{ }^\circ\text{C}$  unless otherwise noted)


Fig. 1 - Derating Curve Output Rectified Current

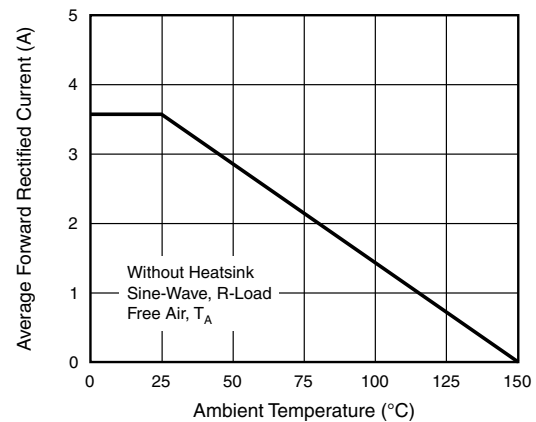


Fig. 2 - Forward Current Derating Curve

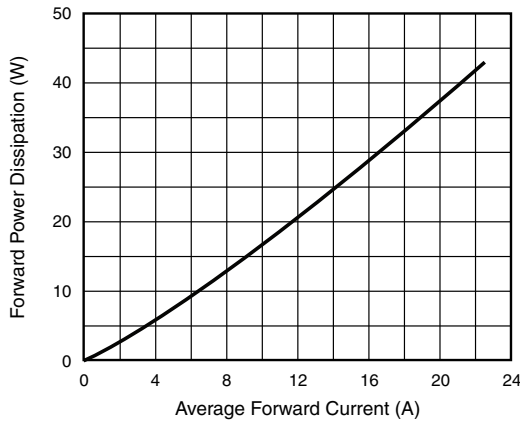


Fig. 3 - Forward Power Dissipation

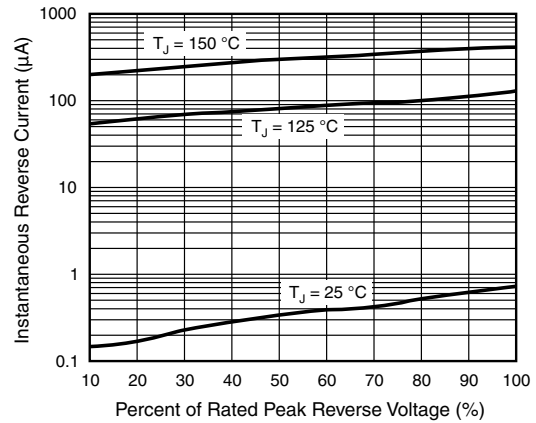


Fig. 5 - Typical Reverse Characteristics Per Diode

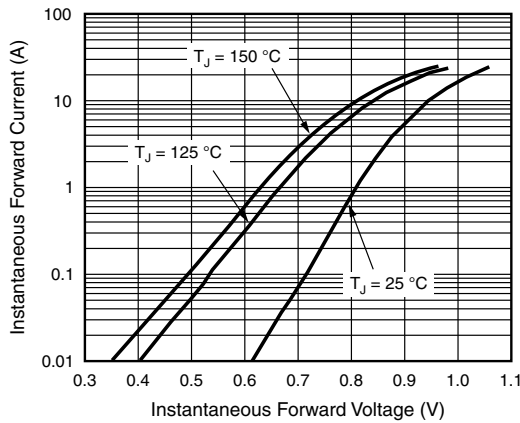


Fig. 4 - Typical Forward Characteristics Per Diode

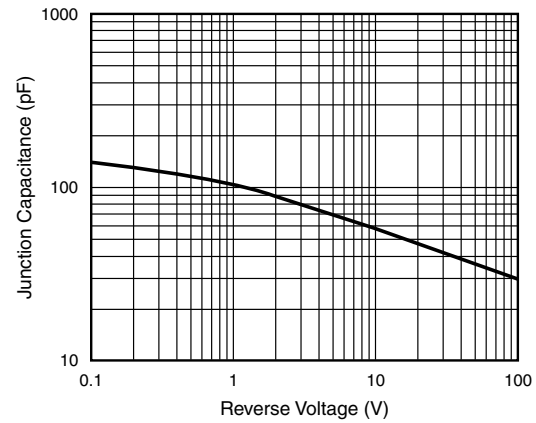
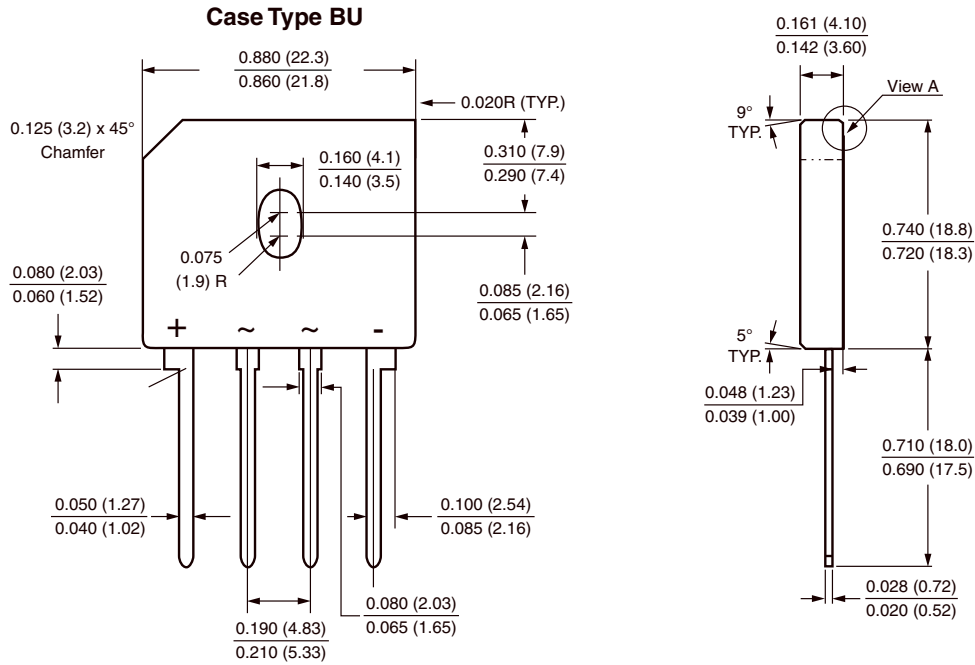


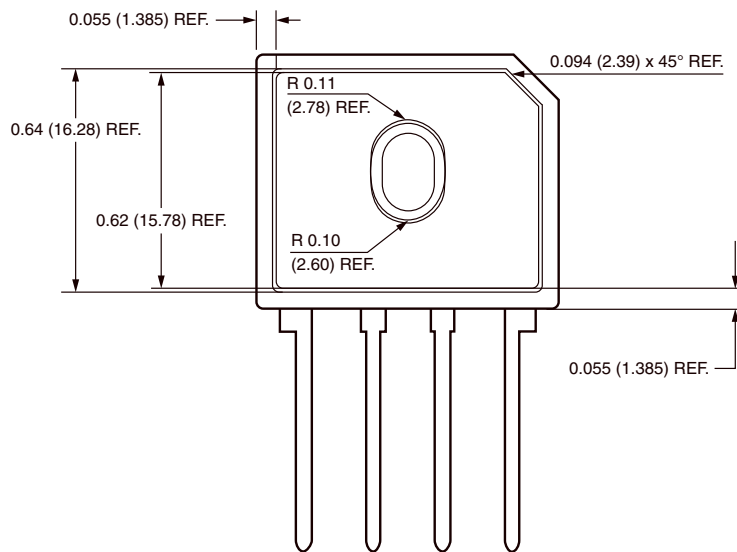
Fig. 6 - Typical Junction Capacitance Per Diode



PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

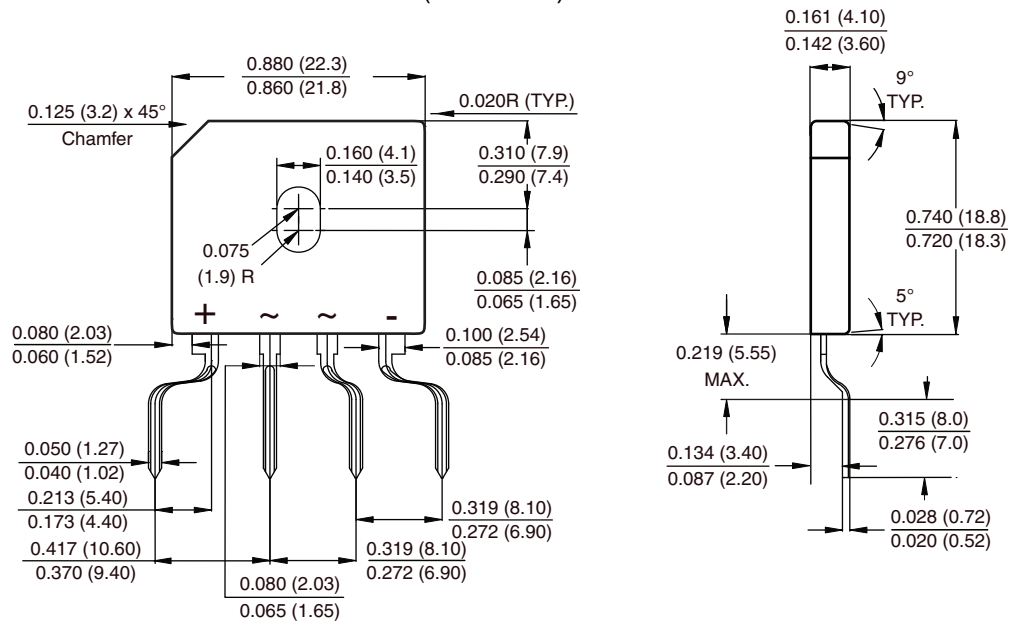


Polarity shown on front side of case, positive lead beveled corner



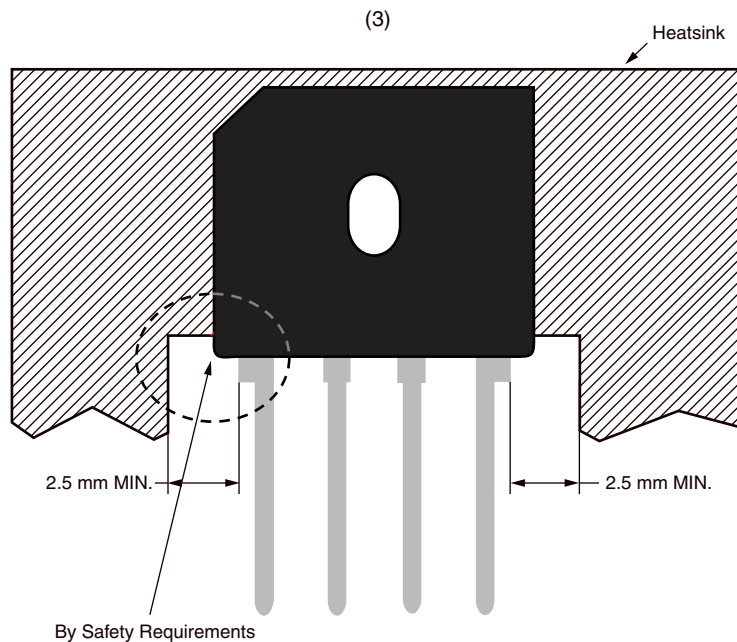


FORMING SPECIFICATION: BU-5S in inches (millimeters)



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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