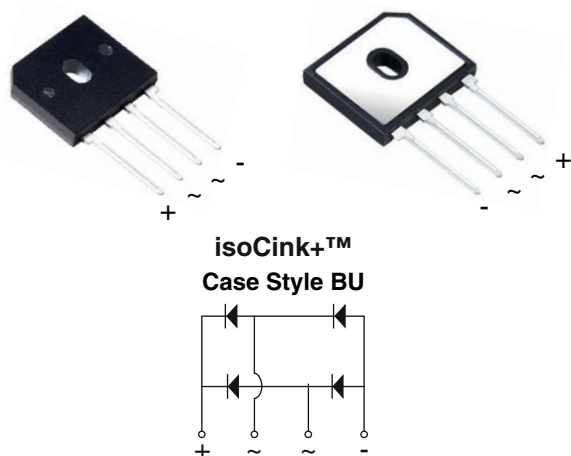


## Enhanced isoCink+™ Bridge Rectifiers



### FEATURES

- UL recognition file number E312394
- Thin single in-line package
- Glass passivated chip junction
- 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**  
Available

### 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-E3 - RoHS-compliant, commercial grade  
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  
E3 and M3 suffix meet 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)

| 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               |
| Circuit configuration   | In-line              |

| 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 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> = 10 A | T <sub>A</sub> = 25 °C  | V <sub>F</sub> | 0.95 | 1.05 | V    |
|                                                                            |                       | T <sub>A</sub> = 125 °C |                | 0.85 | 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 |                | 110  | 350  |      |
| Typical junction capacitance per diode                                     | 4.0 V, 1 MHz          |                         | C <sub>J</sub> | 95   | -    | pF   |

#### Note

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

| THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted) |                                 |        |        |        |      |
|-------------------------------------------------------------------------|---------------------------------|--------|--------|--------|------|
| PARAMETER                                                               | SYMBOL                          | BU2006 | BU2008 | BU2010 | UNIT |
| Typical thermal resistance                                              | R <sub>θJC</sub> <sup>(1)</sup> | 2.4    |        |        | °C/W |
|                                                                         | R <sub>θJA</sub> <sup>(2)</sup> | 20     |        |        |      |

**Notes**

(1) With 60 W air cooled heatsink

(2) Without heatsink, free air

| <b>ORDERING INFORMATION</b> (Example) |                 |                        |               |               |
|---------------------------------------|-----------------|------------------------|---------------|---------------|
| PREFERRED P/N                         | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
| BU2006-E3/45                          | 4.76            | 45                     | 20            | Tube          |
| BU2006-E3/51                          | 4.76            | 51                     | 250           | Paper tray    |
| BU2006-M3/45                          | 4.76            | 45                     | 20            | Tube          |
| BU2006S-E3/45                         | 4.76            | 45                     | 20            | Tube          |

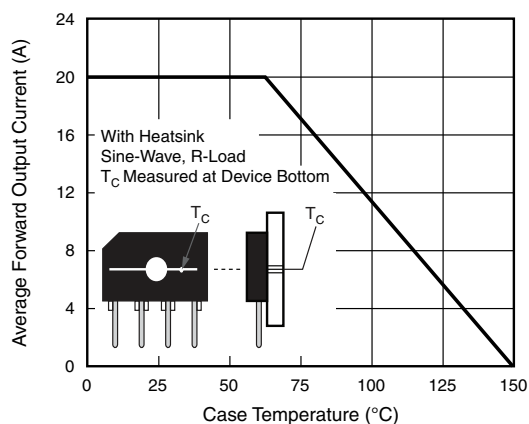
**RATINGS AND CHARACTERISTICS CURVES** ( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise specified)


Fig. 1 - Derating Curve Output Rectified Current

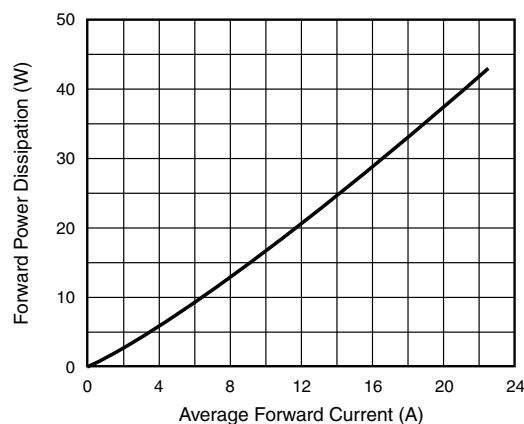


Fig. 3 - Forward Power Dissipation

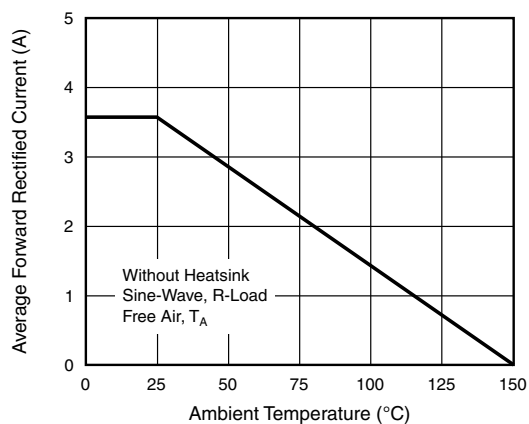


Fig. 2 - Forward Current Derating Curve

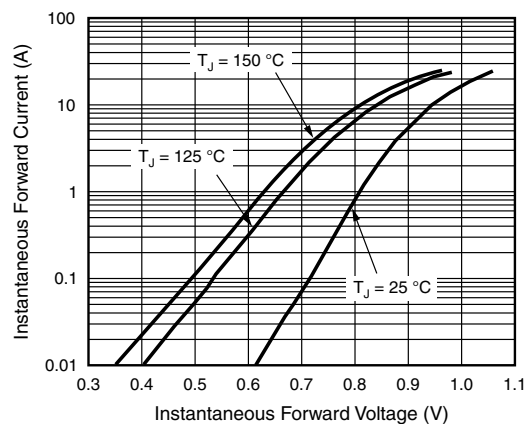


Fig. 4 - Typical Forward Characteristics Per Diode

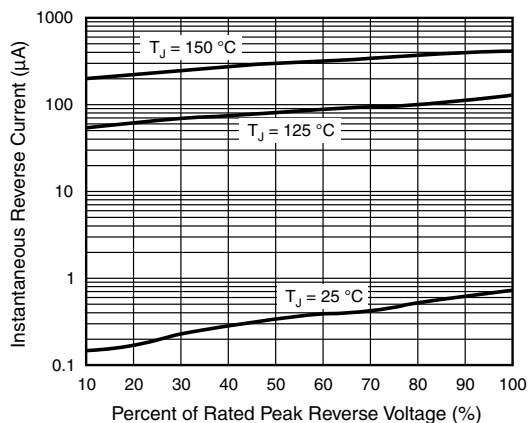


Fig. 5 - Typical Reverse Characteristics Per Diode

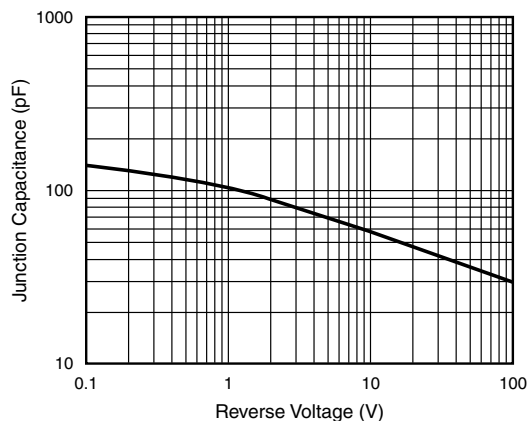
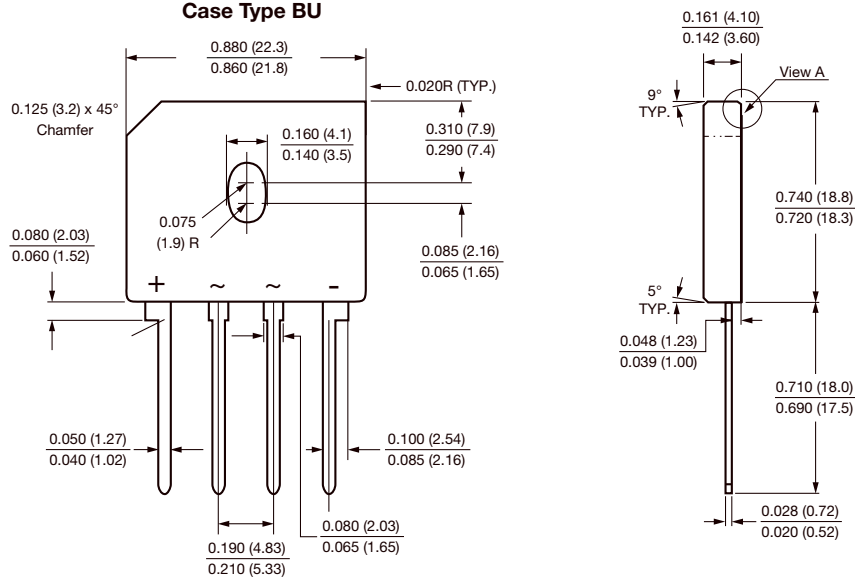
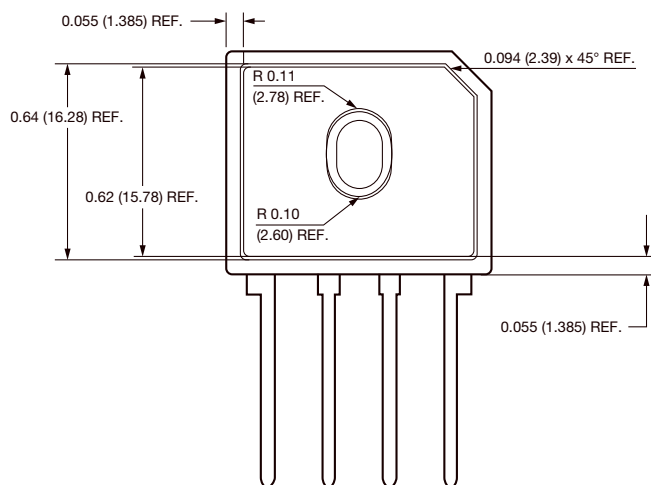


Fig. 6 - Typical Junction Capacitance Per Diode

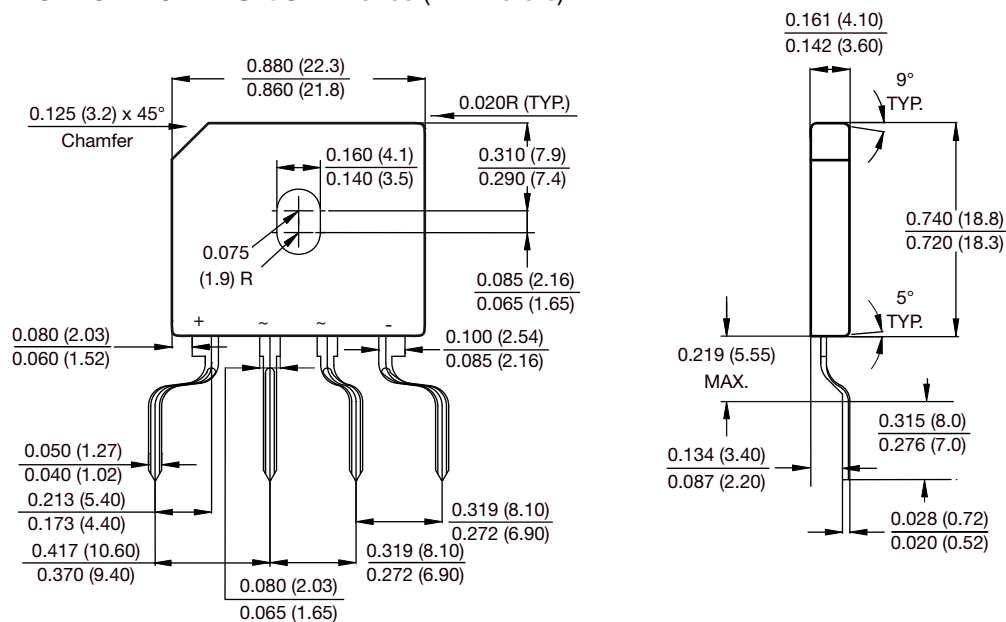
**PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)

**Case Type BU**


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

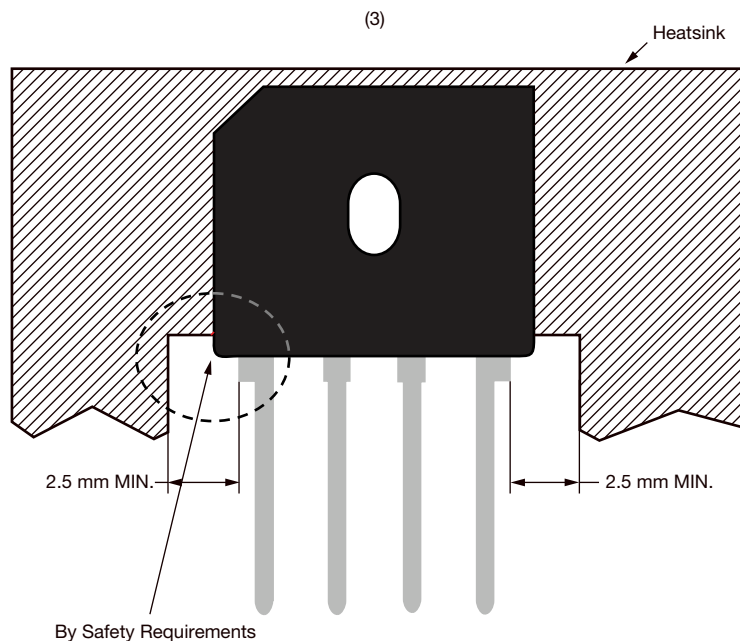


**FORMING SPECIFICATION: BU-5S** in inches (millimeters)



## 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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