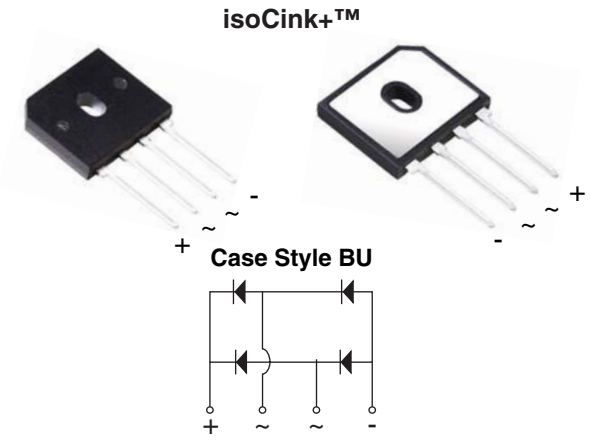
# Enhanced isoCink+™ Bridge Rectifiers




* 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 | |
|---|---|
| $I_{F(AV)}$ | 15 A |
| $V_{RRM}$ | 600 V, 800 V, 1000 V |
| $I_{FSM}$ | 200 A |
| $I_R$ | 5 µA |
| $V_F$ at $I_F$ = 7.5 A | 0.87 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. BU15065S)
- 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

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.

**Recommended Torque:** 5.7 cm-kg (5 inches-lbs)

**MAXIMUM RATINGS** ($T_A$ = 25 °C unless otherwise noted)

| PARAMETER | | SYMBOL | BU1506 | BU1508 | BU1510 | UNIT |
|---|---|---|---|---|---|---|
| Maximum repetitive peak reverse voltage | | $V_{RRM}$ | 600 | 800 | 1000 | V |
| Average rectified forward current (Fig. 1, 2) | $T_C$ = 80 °C (1) | $I_O$ | 15 | | | A |
| | $T_A$ = 25 °C (2) | | 3.4 | | | |
| Non-repetitive peak forward surge current 8.3 ms single sine-wave, $T_J$ = 25 °C | | $I_{FSM}$ | 200 | | | A |
| Rating for fusing (t < 8.3 ms) $T_J$ = 25 °C | | $I^2t$ | 160 | | | $A^2s$ |
| Operating junction and storage temperature range | | $T_J$, $T_{STG}$ | - 55 to + 150 | | | °C |

**Notes**
(1) With 60 W air cooled heatsink
(2) Without heatsink, free air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| ELECTRICAL CHARACTERISTICS ($T_A$ = 25 °C unless otherwise noted) | | | | | | |
|---|---|---|---|---|---|---|
| **PARAMETER** | **TEST CONDITIONS** | | **SYMBOL** | **TYP.** | **MAX.** | **UNIT** |
| Maximum instantaneous forward voltage per diode (1) | $I_F$ = 7.5 A | $T_A$ = 25 °C | $V_F$ | 0.97 | 1.05 | V |
| | | $T_A$ = 125 °C | | 0.87 | 0.95 | |
| Maximum reverse current per diode | rated $V_R$ | $T_A$ = 25 °C | $I_R$ | - | 5.0 | μA |
| | | $T_A$ = 125 °C | | 90 | 250 | |
| Typical junction capacitance per diode | 4.0 V, 1 MHz | | $C_J$ | 70 | - | pF |

**Note**

(1) Pulse test: 300 μs pulse width, 1 % duty cycle

| THERMAL CHARACTERISTICS ($T_A$ = 25 °C unless otherwise noted) | | | | | |
|---|---|---|---|---|---|
| **PARAMETER** | **SYMBOL** | **BU1506** | **BU1508** | **BU1510** | **UNIT** |
| Typical thermal resistance | $R_{\theta JC}$ (1) | 2.5 | | | °C/W |
| | $R_{\theta JA}$ (2) | 20 | | | |

**Notes**

(1) With 60 W air cooled heatsink

(2) Without heatsink, free air

| ORDERING INFORMATION (Example) | | | | |
|---|---|---|---|---|
| **PREFERRED P/N** | **UNIT WEIGHT (g)** | **PREFERRED PACKAGE CODE** | **BASE QUANTITY** | **DELIVERY MODE** |
| BU1506-E3/45 | 4.75 | 45 | 20 | Tube |
| BU1506-E3/51 | 4.75 | 51 | 250 | Paper tray |
| BU15065S-E3/45 | 4.75 | 45 | 20 | Tube |

## RATINGS AND CHARACTERISTICS CURVES ($T_A$ = 25 °C unless otherwise specified)

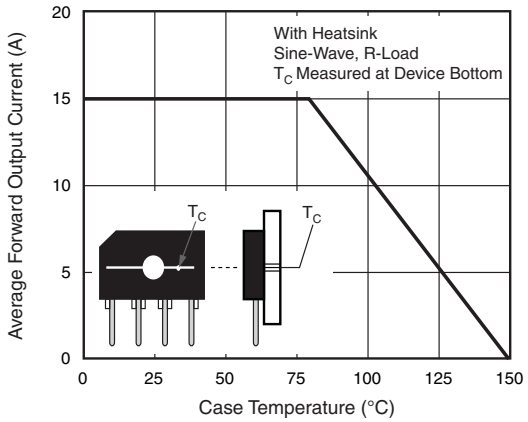


Fig. 1 - Derating Curve Output Rectified Current

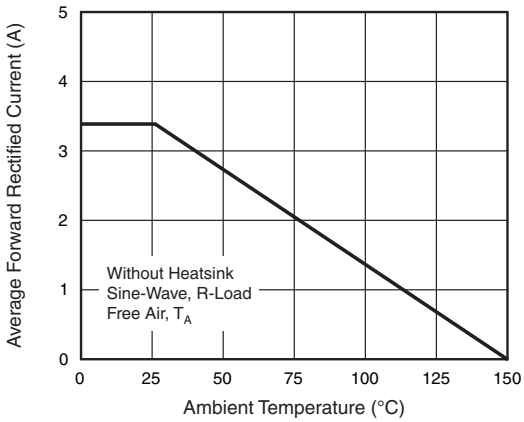


Fig. 2 - Forward Current Derating Curve


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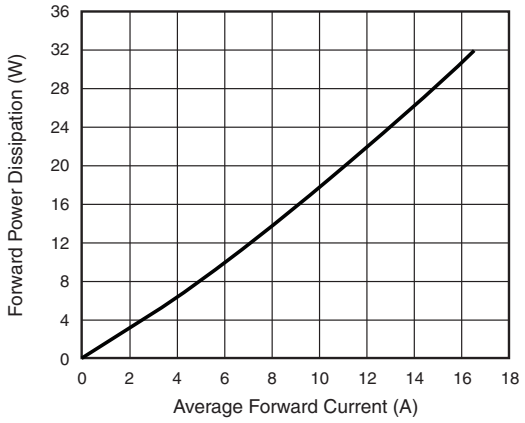


Fig. 3 - Forward Power Dissipation

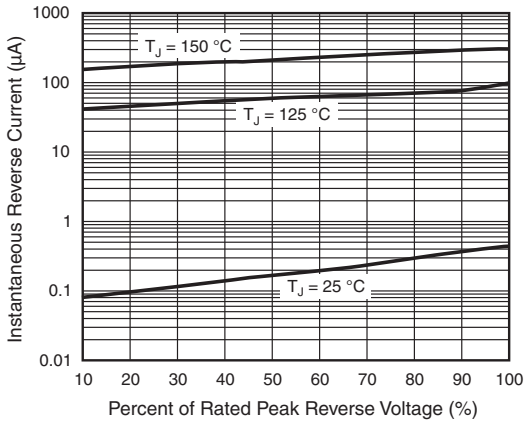


Fig. 5 - Typical Reverse Characteristics Per Diode

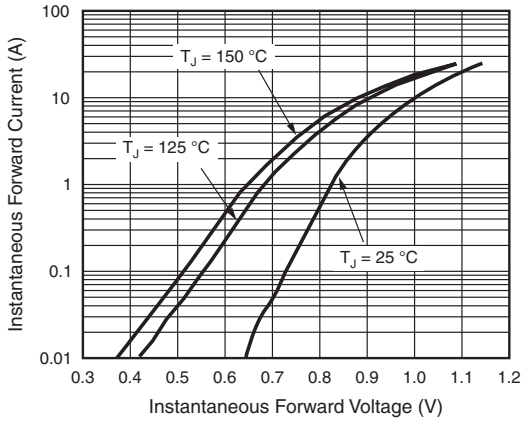


Fig. 4 - Typical Forward Characteristics Per Diode

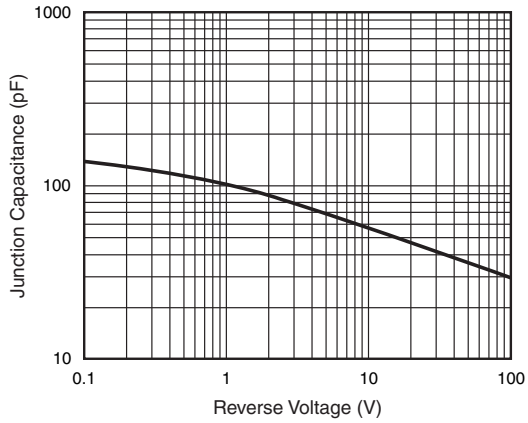


Fig. 6 - Typical Junction Capacitance Per Diode


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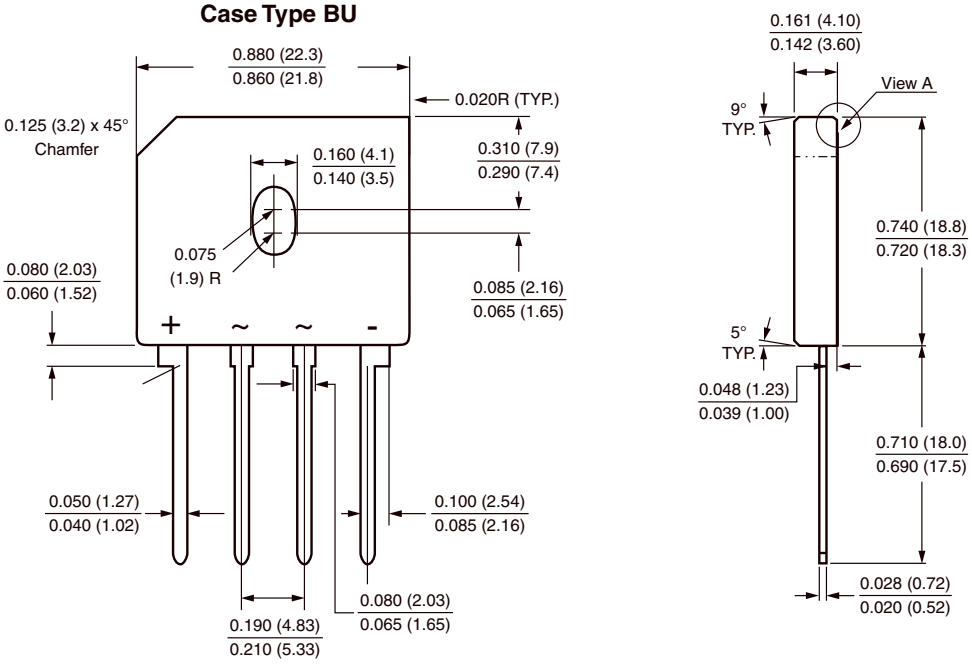
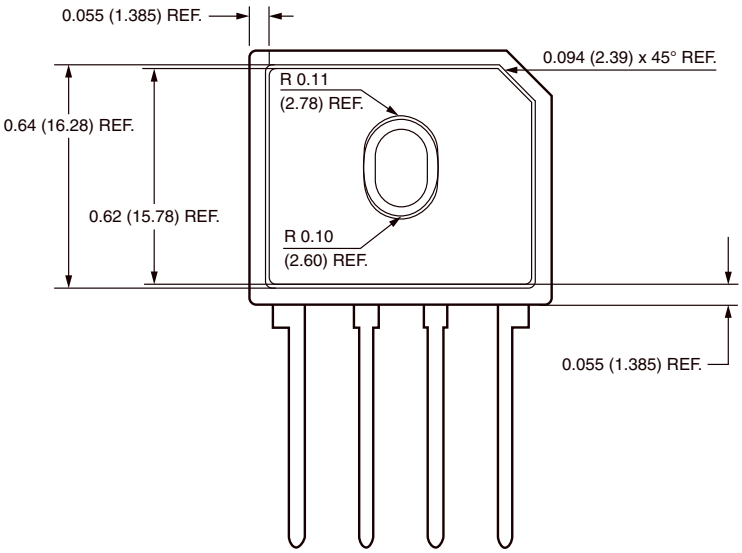
## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

### Case Type BU




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



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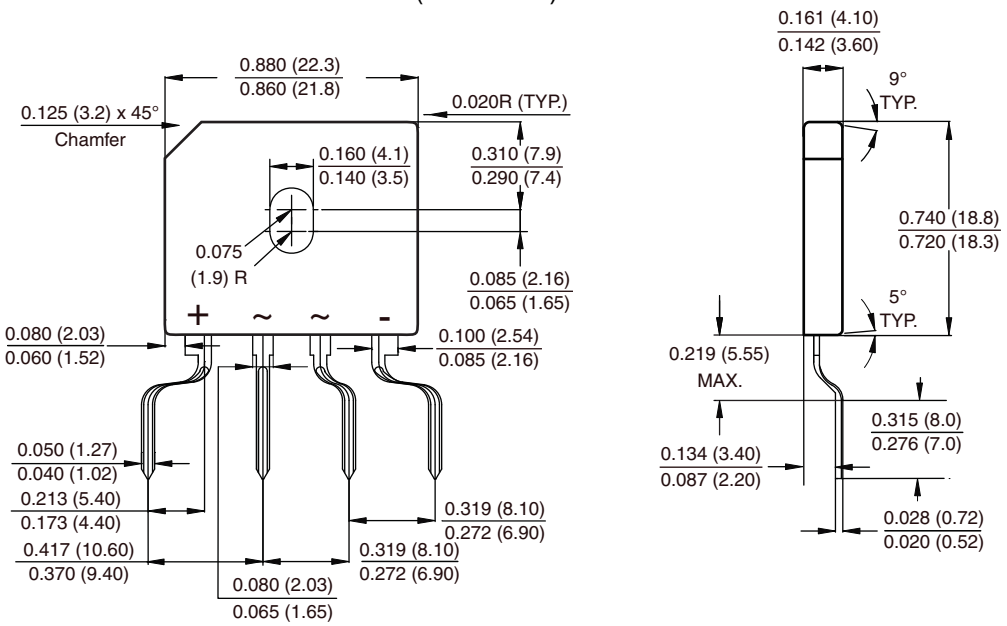
**FORMING SPECIFICATION: BU-5S** in inches (millimeters)

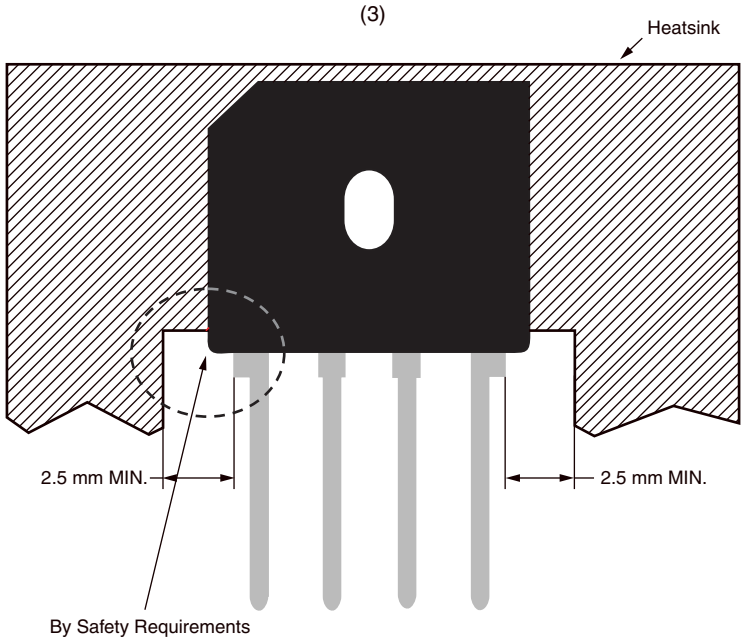



## APPLICATION NOTE

(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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