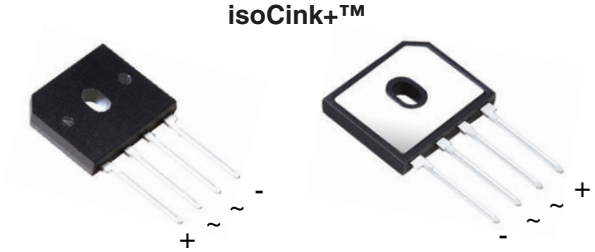
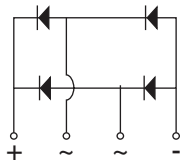
# Enhanced isoCink+™ Bridge Rectifiers

isoCink+™



Case Style BU



## 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. BU1006A5S)
- 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

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 |
| $I_{F(AV)}$ | 10 A |
| $V_{RRM}$ | 600 V, 800 V, 1000 V |
| $I_{FSM}$ | 90 A |
| $I_R$ | 5 µA |
| $V_F$ at $I_F$ = 5.0 A | 0.94 V |
| $T_J$ max. | 150 °C |
| Circuit configuration | In-line |

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

| PARAMETER | | SYMBOL | BU1006A | BU1008A | BU1010A | UNIT |
|---|---|---|---|---|---|---|
| Maximum repetitive peak reverse voltage | | $V_{RRM}$ | 600 | 800 | 1000 | V |
| Average rectified forward current (Fig. 1, 2) | $T_C$ = 90 °C (1) | $I_O$ | 10 | | | A |
| | $T_A$ = 25 °C (2) | | 3.0 | | | |
| Non-repetitive peak forward surge current 8.3 ms single sine-wave, $T_J$ = 25 °C | | $I_{FSM}$ | 90 | | | A |
| Rating for fusing (t < 8.3 ms) $T_J$ = 25 °C | | $I^2t$ | 33 | | | $A^2s$ |
| 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

**ELECTRICAL CHARACTERISTICS** ($T_A$ = 25 °C unless otherwise noted)

| PARAMETER | TEST CONDITIONS | | SYMBOL | TYP. | MAX. | UNIT |
|---|---|---|---|---|---|---|
| Maximum instantaneous forward voltage per diode (1) | $I_F$ = 5.0 A | $T_A$ = 25 °C | $V_F$ | 1.02 | 1.10 | V |
| | | $T_A$ = 125 °C | | 0.94 | 1.00 | |
| Maximum reverse current per diode | rated $V_R$ | $T_A$ = 25 °C | $I_R$ | - | 5.0 | µA |
| | | $T_A$ = 125 °C | | 45 | 250 | |
| Typical junction capacitance per diode | 4.0 V, 1 MHz | | $C_J$ | 30 | - | pF |

**Note**

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

| THERMAL CHARACTERISTICS ($T_A$ = 25 °C unless otherwise noted) | | | | | |
|---|---|---|---|---|---|
| **PARAMETER** | **SYMBOL** | **BU1006A** | **BU1008A** | **BU1010A** | **UNIT** |
| Typical thermal resistance | $R_{\theta JC}$ (1) | 3.0 | | | °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** |
| BU1006A-E3/45 | 4.48 | 45 | 20 | Tube |
| BU1006A-E3/51 | 4.48 | 51 | 250 | Paper tray |
| BU1006A-M3/45 | 4.48 | 45 | 20 | Tube |
| BU1006A5S-E3/45 | 4.48 | 45 | 20 | Tube |

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

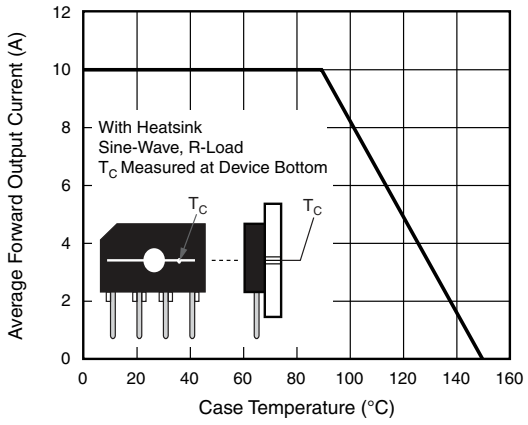



Fig. 1 - Derating Curve Output Rectified Current

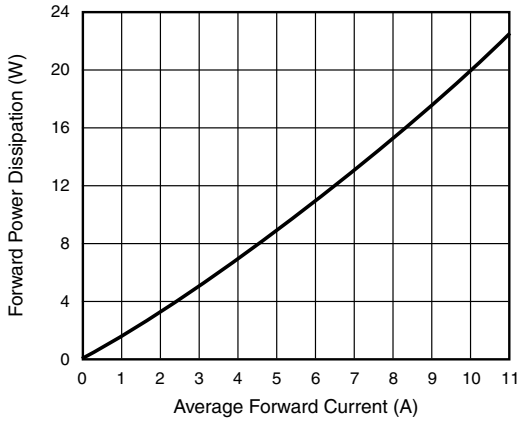



Fig. 3 - Forward Power Dissipation

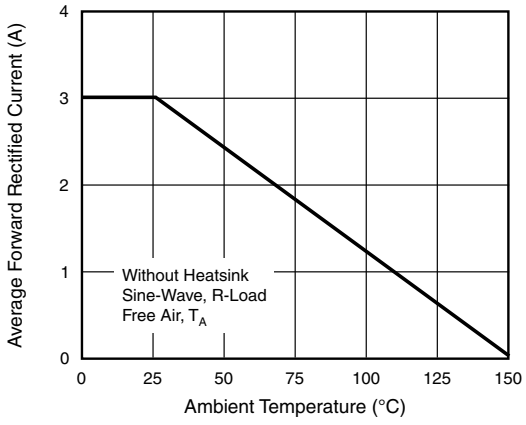



Fig. 2 - Forward Current Derating Curve

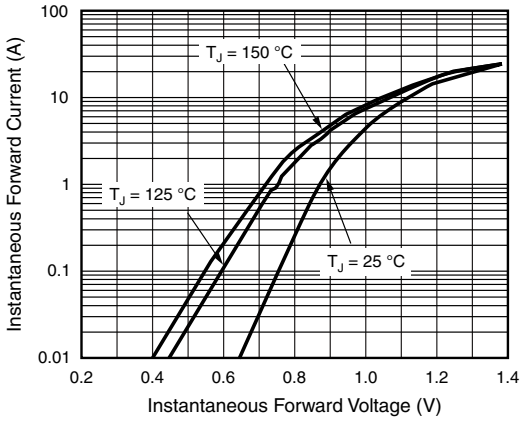



Fig. 4 - Typical Forward Characteristics Per Diode

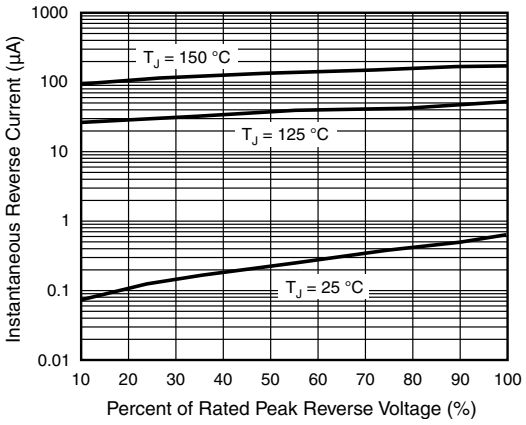



Fig. 5 - Typical Reverse Characteristics Per Diode

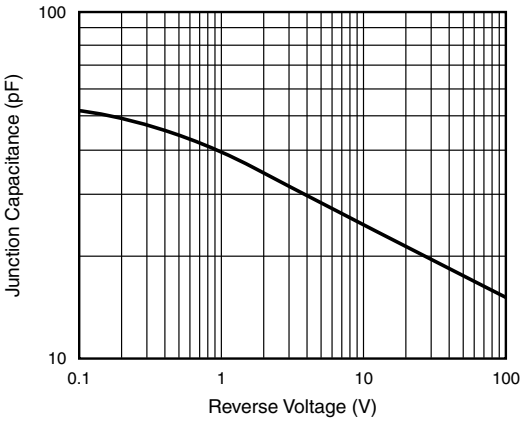
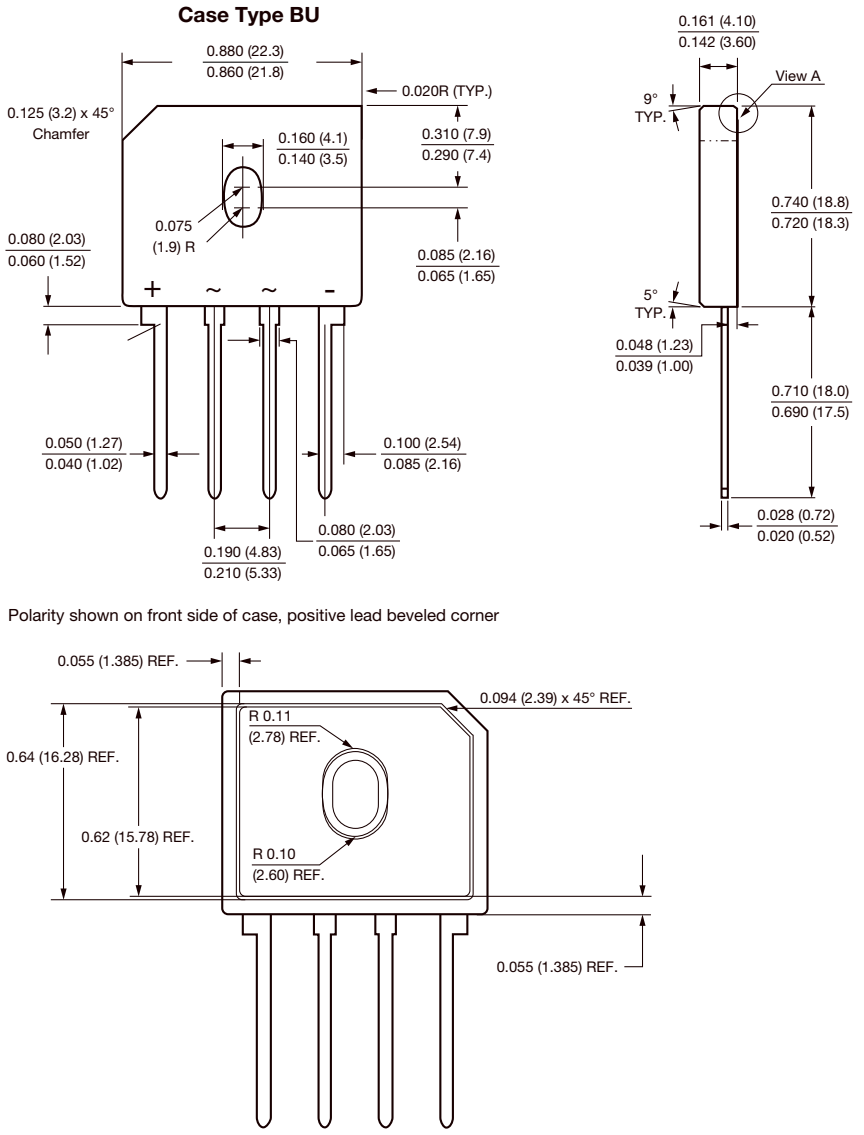


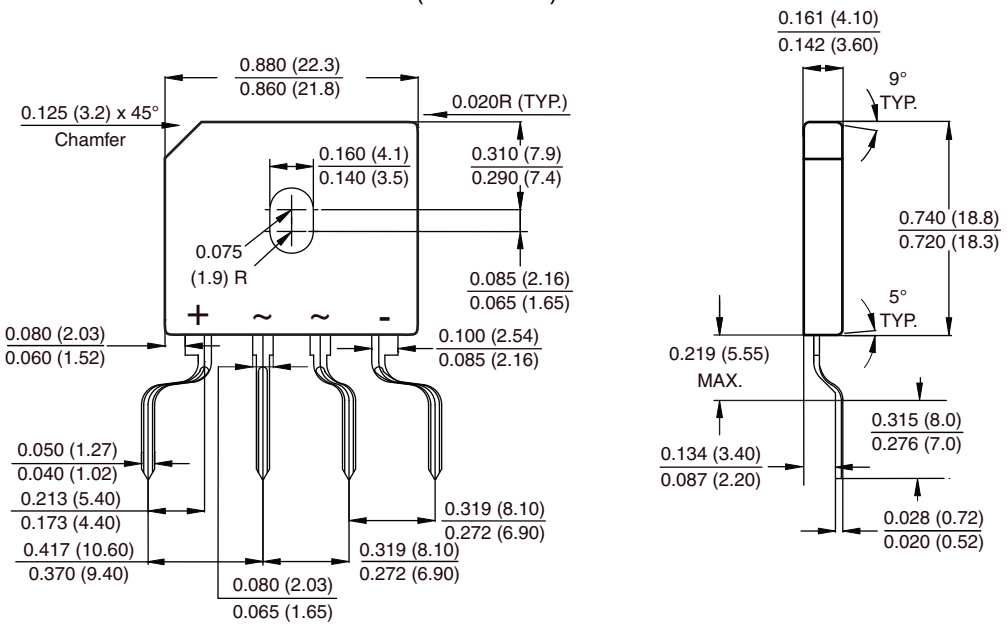

Fig. 6 - Typical Junction Capacitance Per Diode

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



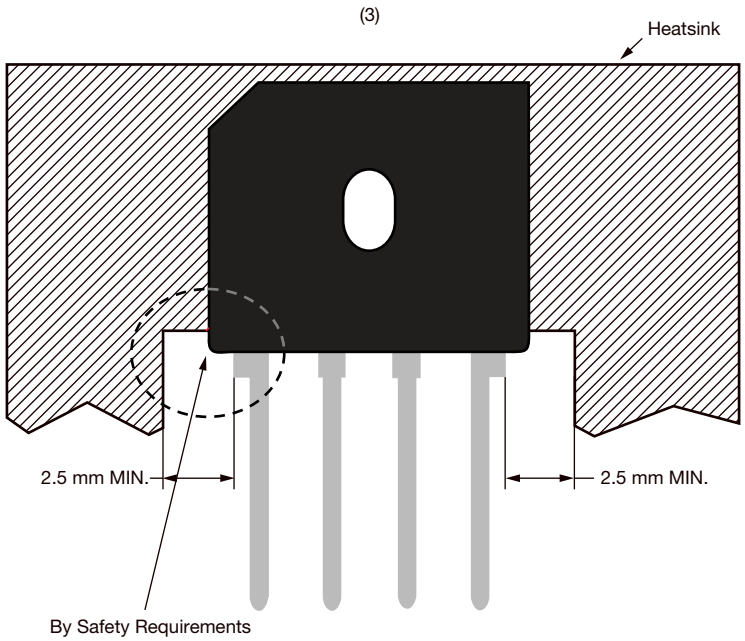

Polarity shown on front side of case, positive lead beveled corner

**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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