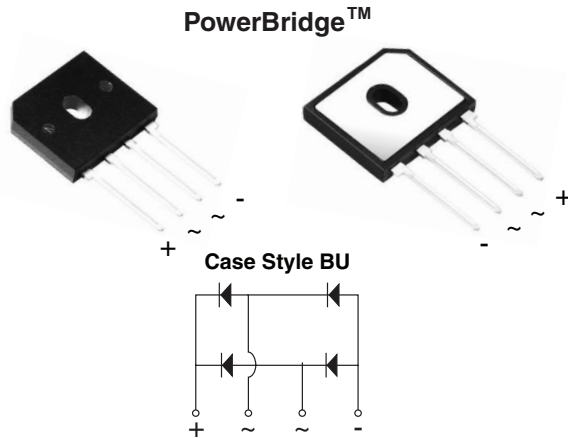


Enhanced Power Bridge Rectifiers



* 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 94V-0 flammability rating.

FEATURES



- UL recognition file number E309391 (QQX2) UL 1557 (see *)
- Thin single in-line package
- Available for BU-5S lead forming option (part number with "5S" suffix, e.g. BU1006A5S)
- Superior thermal conductivity
- Solder dip 260 °C, 40 s
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC

TYPICAL APPLICATIONS

General purpose use in ac-to-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)

| PRIMARY CHARACTERISTICS | |
|-------------------------|----------------------|
| $I_{F(AV)}$ | 10 A |
| V_{RRM} | 600 V, 800 V, 1000 V |
| I_{FSM} | 90 A |
| I_R | 5 μ A |
| V_F at $I_F = 5$ A | 0.94 V |
| T_J max. | 150 °C |

| 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) | I_O | | 10 3.0 | | A |
| 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 ² s |
| 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 T _A = 125 °C | V _F | 1.02 0.94 | 1.10 1.00 | V |
| Maximum reverse current per diode | rated V _R | T _A = 25 °C T _A = 125 °C | I _R | - 45 | 5.0 250 | μA |
| 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 _{θJC} ⁽¹⁾ | 3.0 | | | °C/W |
| | R _{θJA} ⁽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 |
| BU1006A5S-E3/45 | 4.48 | 45 | 20 | Tube |

RATINGS AND CHARACTERISTICS CURVES

(T_A = 25 °C unless otherwise noted)

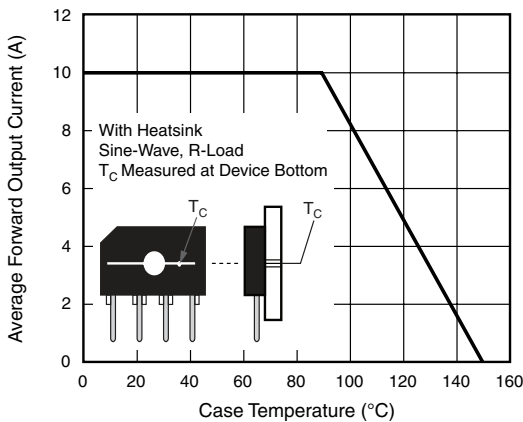


Figure 1. Derating Curve Output Rectified Current

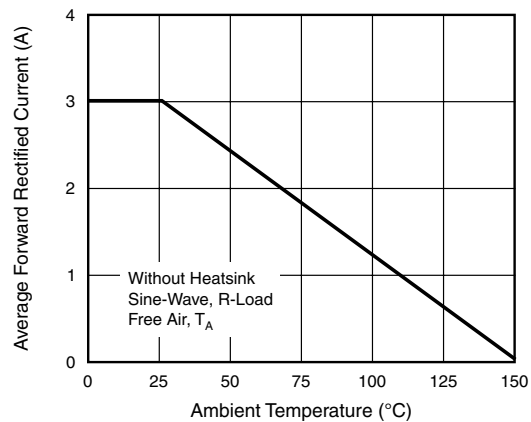


Figure 2. Forward Current Derating Curve

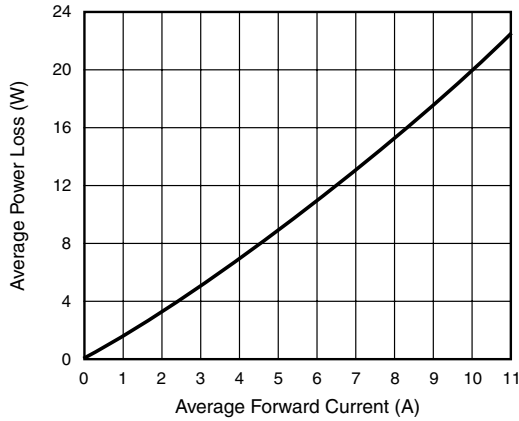


Figure 3. Average Rectified Forward Current

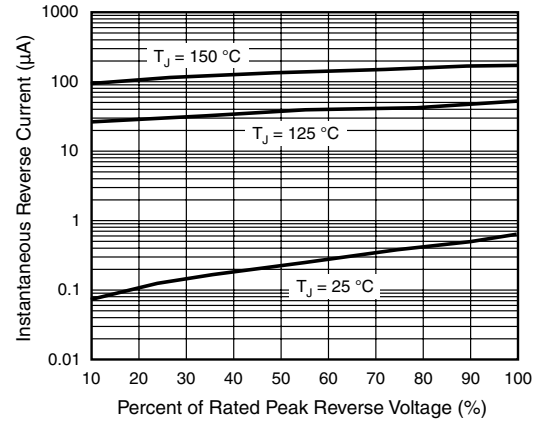


Figure 5. Typical Reverse Characteristics Per Diode

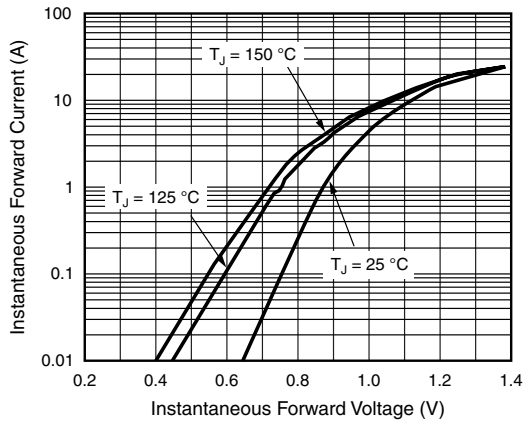


Figure 4. Typical Forward Characteristics Per Diode

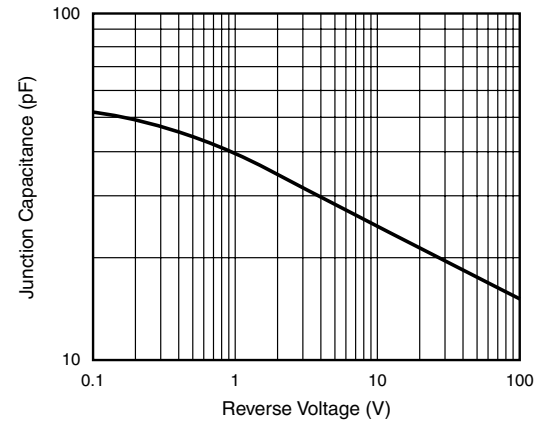


Figure 6. Typical Junction Capacitance Per Diode

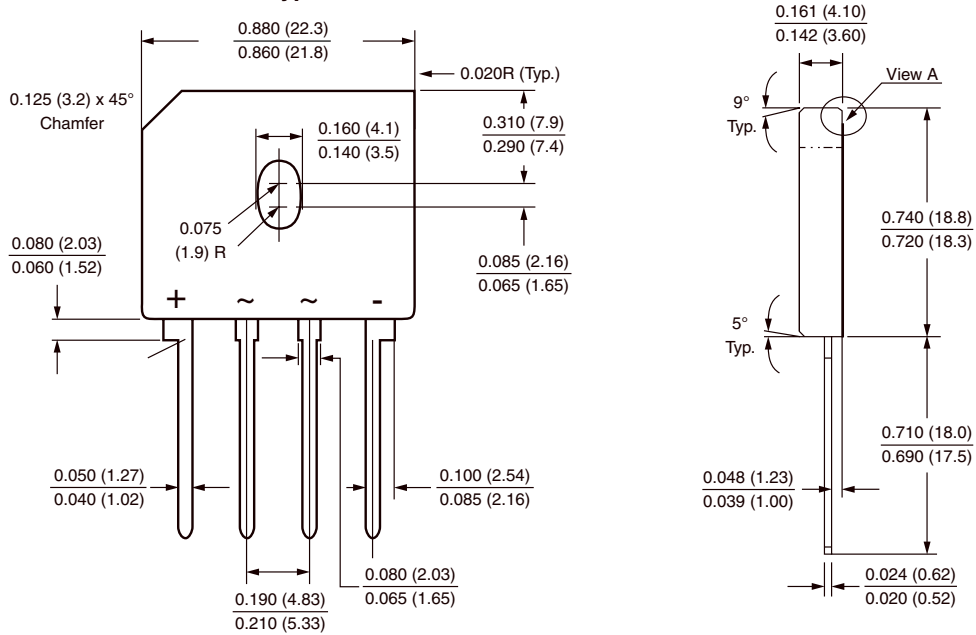
BU1006A thru BU1010A

Vishay General Semiconductor

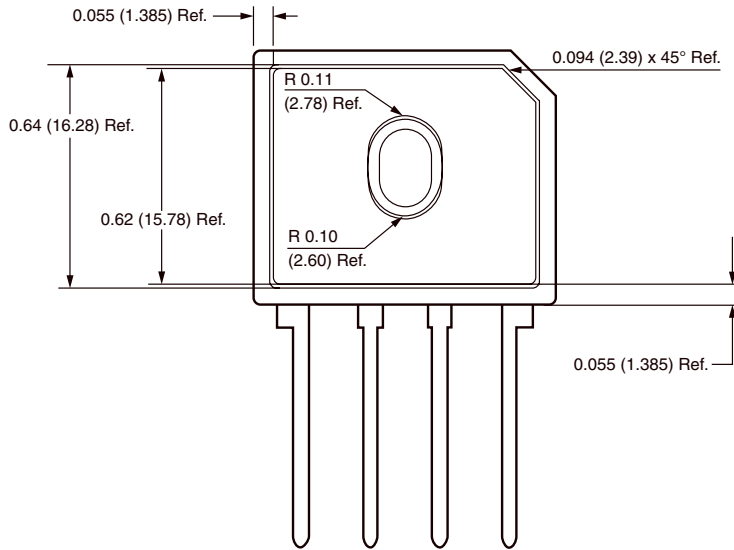


PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

Case Type BU

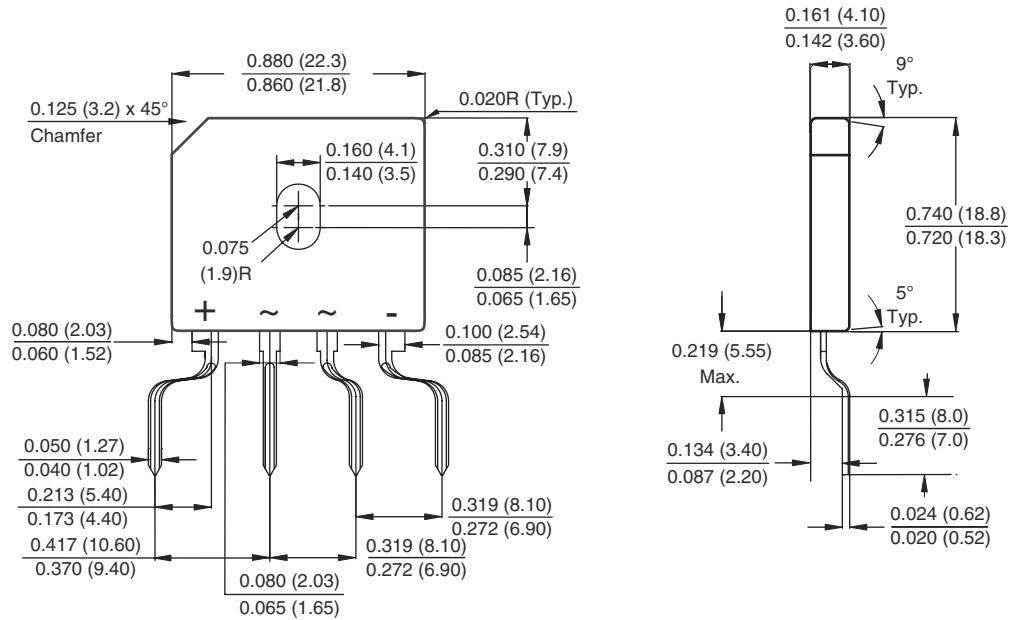


Polarity shown on front side of case, positive lead beveled corner



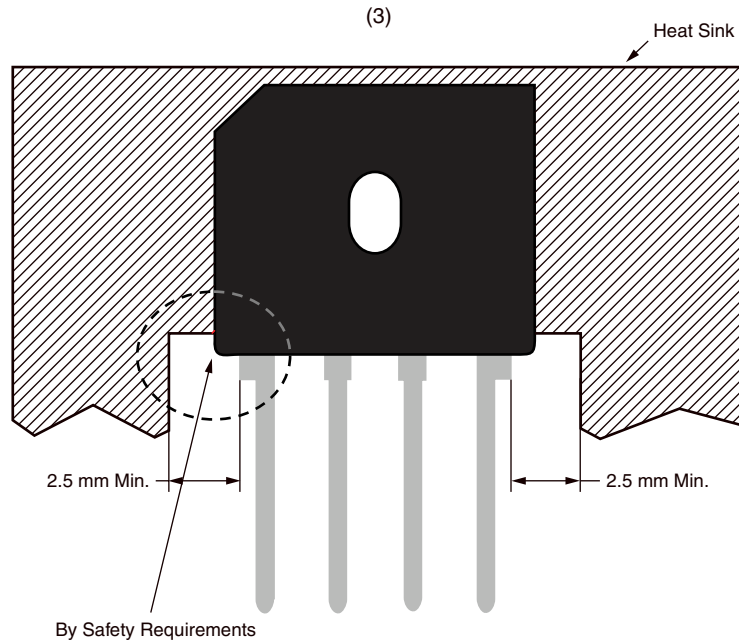


FORMING SPECIFICATION: BU-5S in inches (millimeters)



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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