

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 | |
|-------------------------|----------------------|
| $I_{F(AV)}$ | 25 A |
| V_{RRM} | 600 V, 800 V, 1000 V |
| I_{FSM} | 300 A |
| I_R | 5 μ A |
| V_F at $I_F = 12.5$ A | 0.87 V |
| T_J max. | 150 °C |

| MAXIMUM RATINGS ($T_A = 25$ °C unless otherwise noted) | | | | | |
|---|----------------|------------------------------|--------|---------------|------------------|
| PARAMETER | SYMBOL | BU2506 | BU2508 | BU2510 | UNIT |
| Maximum repetitive peak reverse voltage | V_{RRM} | 600 | 800 | 1000 | V |
| Average rectified forward current (Fig. 1, 2) | I_O | $T_C = 60$ °C ⁽¹⁾ | | 25 | A |
| | | $T_A = 25$ °C ⁽²⁾ | | 3.5 | |
| Non-repetitive peak forward surge current 8.3 ms single sine-wave, $T_J = 25$ °C | I_{FSM} | | | 300 | A |
| Rating for fusing ($t < 8.3$ ms) $T_J = 25$ °C | I^2t | | | 373 | 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

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. BU25065S)
- 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)

| ELECTRICAL CHARACTERISTICS ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted) | | | | | | |
|--|-----------------------|-----------------------------------|-------|------|------|---------------|
| PARAMETER | TEST CONDITIONS | SYMBOL | TYP. | MAX. | UNIT | |
| Maximum instantaneous forward voltage per diode ⁽¹⁾ | $I_F = 12.5\text{ A}$ | $T_A = 25\text{ }^\circ\text{C}$ | V_F | 0.97 | 1.05 | V |
| | | $T_A = 125\text{ }^\circ\text{C}$ | | 0.87 | | |
| Maximum reverse current per diode | rated V_R | $T_A = 25\text{ }^\circ\text{C}$ | I_R | - | 5.0 | μA |
| | | $T_A = 125\text{ }^\circ\text{C}$ | | 120 | | |
| Typical junction capacitance per diode | 4.0 V, 1 MHz | C_J | 125 | - | pF | |

Note

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

| THERMAL CHARACTERISTICS ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted) | | | | | |
|---|--------------------------------|--------|--------|--------|--------------------|
| PARAMETER | SYMBOL | BU2506 | BU2508 | BU2510 | UNIT |
| Typical thermal resistance | $R_{\theta JC}$ ⁽¹⁾ | 2.0 | | | $^\circ\text{C/W}$ |
| | $R_{\theta JA}$ ⁽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 |
| BU2506-E3/45 | 4.84 | 45 | 20 | Tube |
| BU2506-E3/51 | 4.84 | 51 | 250 | Paper tray |
| BU25065S-E3/45 | 4.84 | 45 | 20 | Tube |

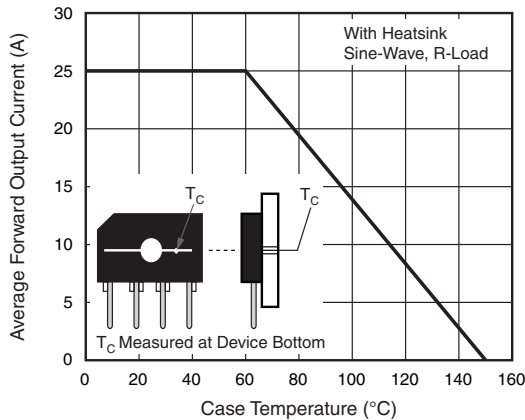
RATINGS AND CHARACTERISTICS CURVES ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise specified)


Fig. 1 - Derating Curve Output Rectified Current

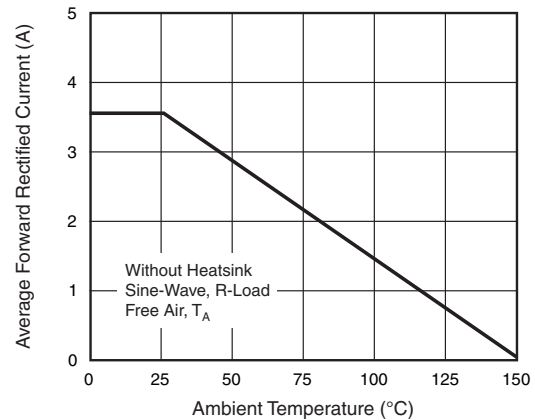


Fig. 2 - Forward Current Derating Curve

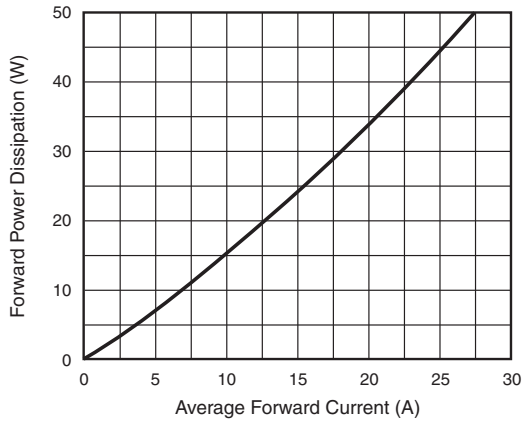


Fig. 3 - Forward Power Dissipation

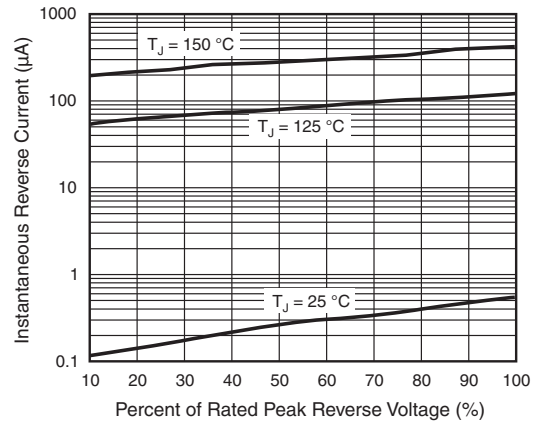


Fig. 5 - Typical Reverse Characteristics Per Diode

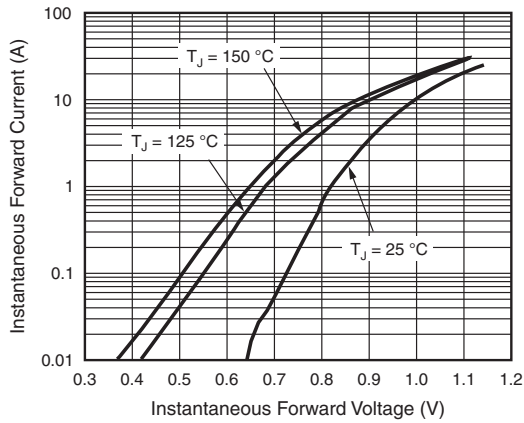


Fig. 4 - Typical Forward Characteristics Per Diode

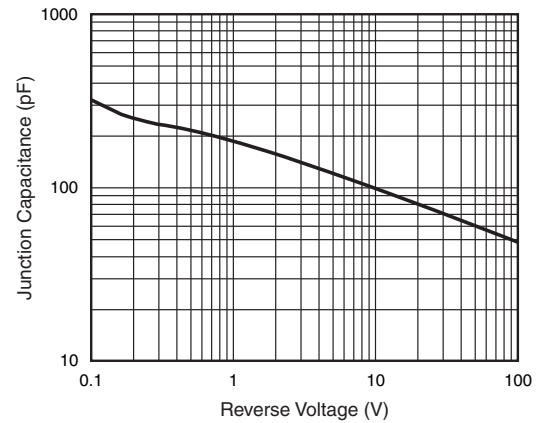


Fig. 6 - Typical Junction Capacitance Per Diode



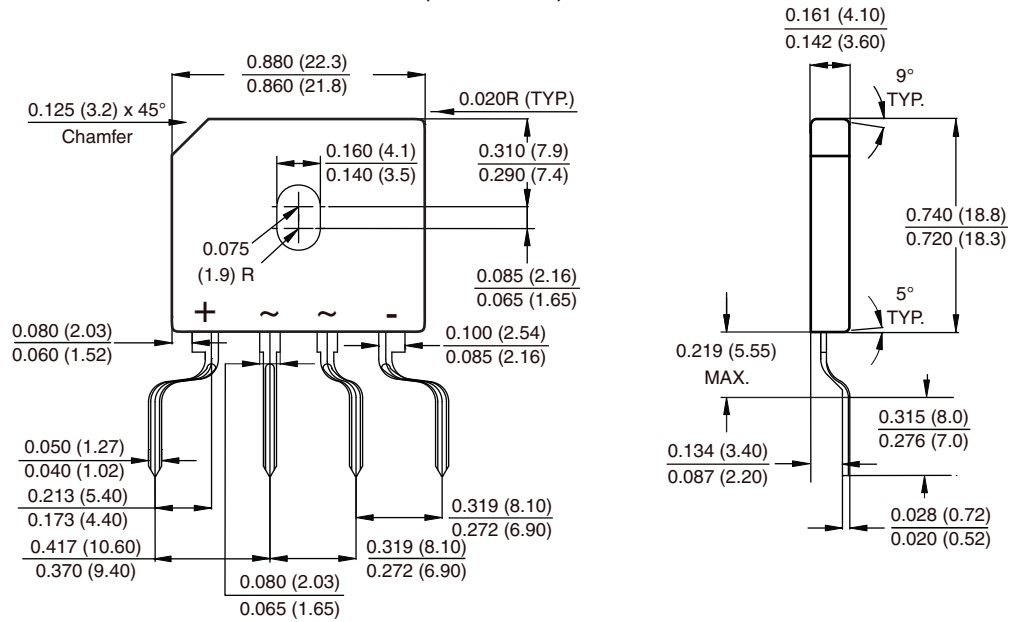
PACKAGE OUTLINE DIMENSIONS in inches (millimeters)



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

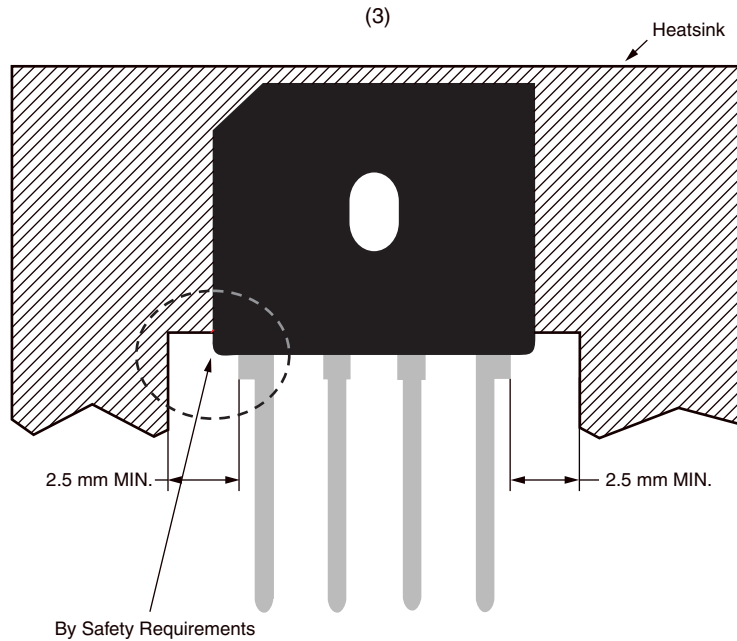


FORMING SPECIFICATION: BU-5S in inches (millimeters)



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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