

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.

LINKS TO ADDITIONAL RESOURCES



FEATURES

- UL recognition file number E312394 (QQX2) UL 1557 (see *)
- Enhanced high-current density single in-line package
- Superior thermal conductivity
- Glass passivated chip junction
- Solder dip 275 °C max. 10 s, per JESD 22-B106
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912



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: PB

Molding compound meets UL 94 V-0 flammability rating Base P/N-E3 - RoHS-compliant, industrial grade

Terminals: matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

E3 suffix 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 | |
|-------------------------|----------------------|
| Package | PB |
| $I_{F(AV)}$ | 30 A |
| V_{RRM} | 600 V, 800 V, 1000 V |
| I_{FSM} | 240 A |
| I_R | 10 μ A |
| V_F at $I_F = 15$ A | 0.97 V |
| T_J max. | 150 °C |
| Circuit configuration | In-line |

| MAXIMUM RATINGS ($T_A = 25$ °C unless otherwise noted) | | | | | |
|---|----------------|------------------------------|--------|------------------|------|
| PARAMETER | SYMBOL | PB3006 | PB3008 | PB3010 | UNIT |
| Maximum repetitive peak reverse voltage | V_{RRM} | 600 | 800 | 1000 | V |
| Average rectified forward current (fig. 1, 2) | I_O | $T_C = 86$ °C ⁽¹⁾ | | 30 | A |
| | | $T_A = 25$ °C ⁽²⁾ | | 4.0 | |
| Non-repetitive peak forward surge current 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 | 240 | | A ² s | |
| Operating junction and storage temperature range | T_J, T_{STG} | -55 to +150 | | °C | |

Notes

⁽¹⁾ With heatsink

⁽²⁾ Without heatsink, free air



| 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⁾ | $I_F = 15\text{ A}$ | $T_A = 25\text{ }^\circ\text{C}$ | V_F | 1.05 | 1.10 | V |
| | | $T_A = 125\text{ }^\circ\text{C}$ | | 0.97 | | |
| Reverse current per diode ⁽²⁾ | Rated V_R | $T_A = 25\text{ }^\circ\text{C}$ | I_R | - | 10 | μA |
| | | $T_A = 125\text{ }^\circ\text{C}$ | | 90 | 500 | |
| Typical junction capacitance per diode | 4.0 V, 1 MHz | C_J | 72 | - | pF | |

Notes

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

⁽²⁾ Pulse test: 10 ms pulse width

| THERMAL CHARACTERISTICS ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted) | | | | | |
|---|--------------------------------|--------|--------|--------|--------------------|
| PARAMETER | SYMBOL | PB3006 | PB3008 | PB3010 | UNIT |
| Typical thermal resistance | $R_{\theta JC}$ ⁽¹⁾ | 0.95 | | | $^\circ\text{C/W}$ |
| | $R_{\theta JA}$ ⁽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 |
| PB3006-E3/45 | 7.42 | 45 | 20 | Tube |

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

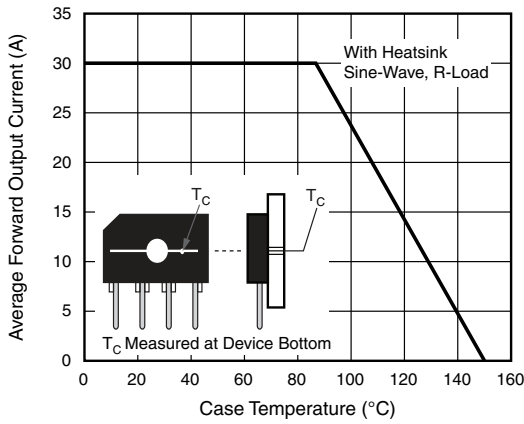


Fig. 1 - Derating Curve Output Rectified Current

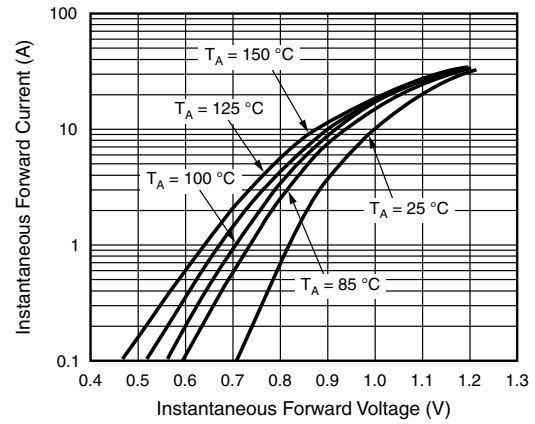


Fig. 4 - Typical Forward Characteristics Per Diode

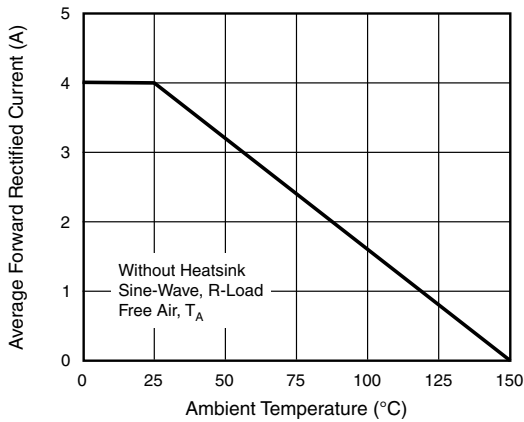


Fig. 2 - Forward Current Derating Curve

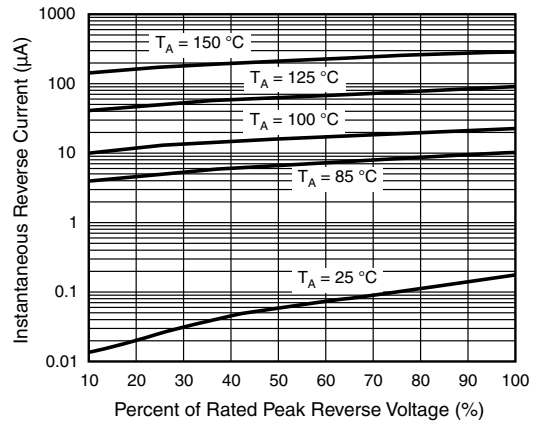


Fig. 5 - Typical Reverse Characteristics Per Diode

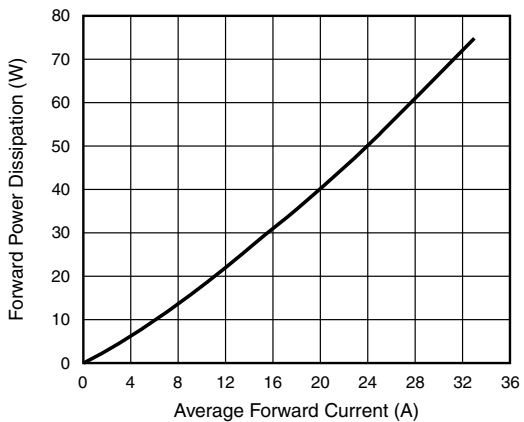


Fig. 3 - Forward Power Dissipation

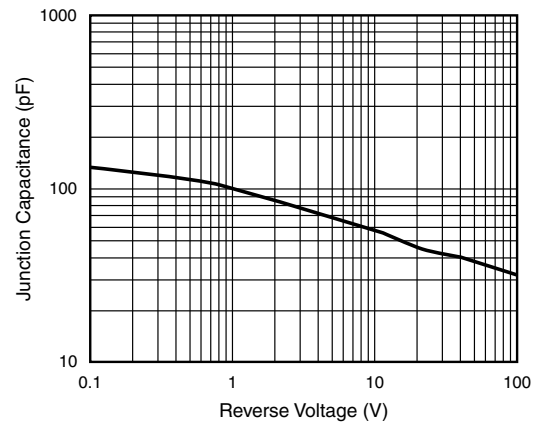
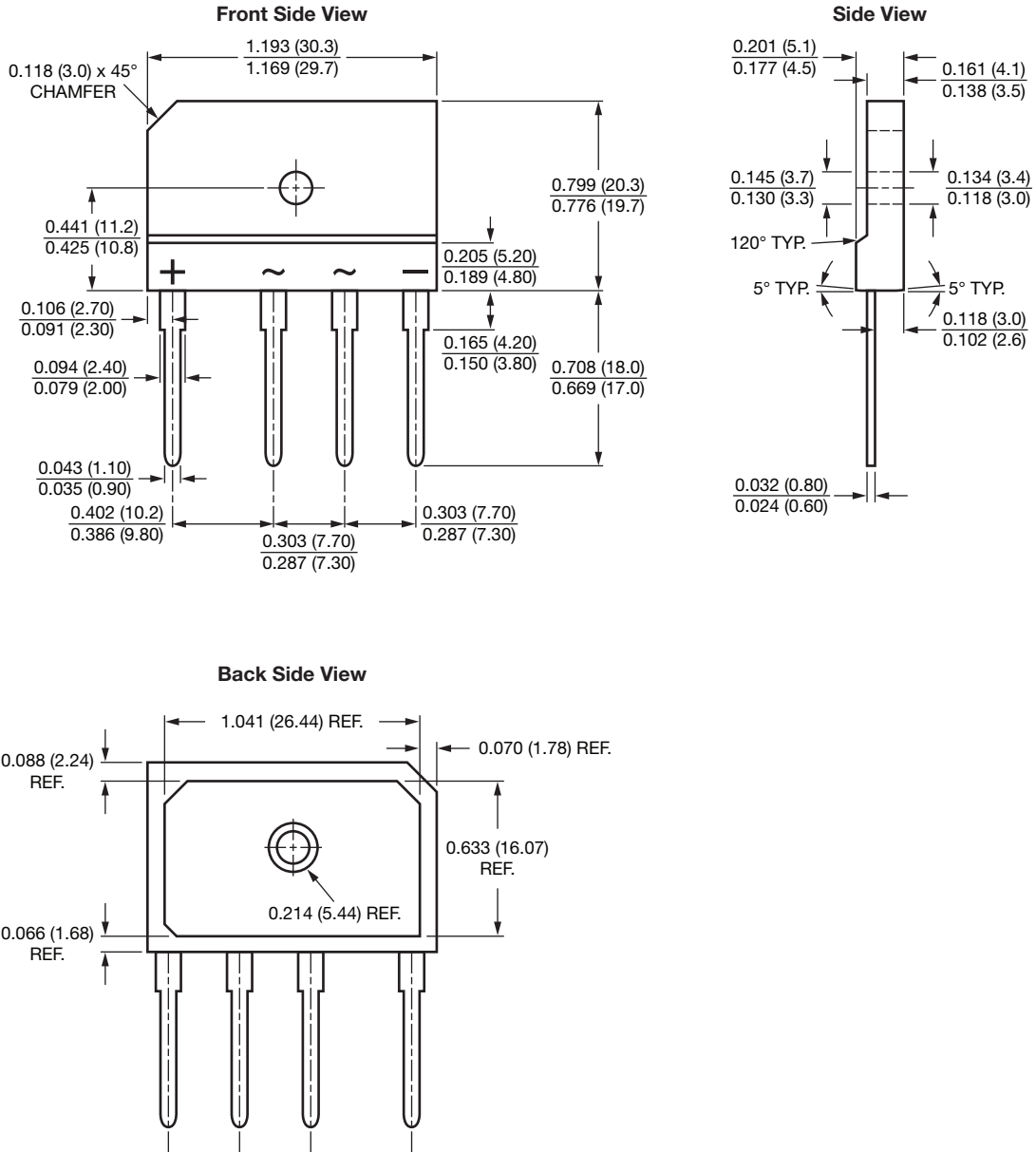


Fig. 6 - Typical Junction Capacitance Per Diode



PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

Case Type PB





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