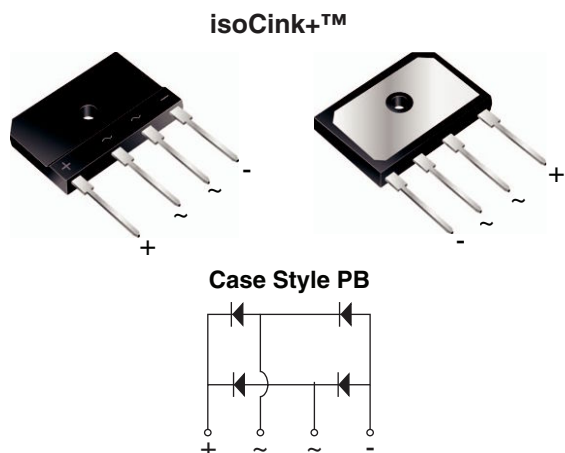


## Enhanced isoCink+™ Bridge Rectifiers



Case Style PB

\*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

|                       |                      |
|-----------------------|----------------------|
| Package               | PB                   |
| $I_{F(AV)}$           | 40 A                 |
| $V_{RRM}$             | 600 V, 800 V, 1000 V |
| $I_{FSM}$             | 400 A                |
| $I_R$                 | 10 $\mu$ A           |
| $V_F$ at $I_F = 20$ A | 0.94 V               |
| $T_J$ max.            | 150 °C               |
| Diode variations      | In-Line              |

### FEATURES

- UL recognition file number E312394 (QQX2) UL 1557 (see \*)
- Enhanced high-current density single in-line package
- 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](http://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: PB

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

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

| PARAMETER                                                                                    | SYMBOL                                                                                  | PB4006         | PB4008 | PB4010 | UNIT             |
|----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|----------------|--------|--------|------------------|
| Maximum repetitive peak reverse voltage                                                      | V <sub>RRM</sub>                                                                        | 600            | 800    | 1000   | V                |
| Average rectified forward current (Fig. 1, 2)                                                | $\frac{T_C = 87\text{ }^{\circ}\text{C}^{(1)}}{T_A = 25\text{ }^{\circ}\text{C}^{(2)}}$ | I <sub>O</sub> | 40     |        | A                |
|                                                                                              |                                                                                         |                | 4.4    |        |                  |
| Non-repetitive peak forward surge current<br>8.3 ms single sine-wave, T <sub>J</sub> = 25 °C | I <sub>FSM</sub>                                                                        | 400            |        |        | A                |
| Rating for fusing (t < 8.3 ms) T <sub>J</sub> = 25 °C                                        | I <sup>2</sup> t                                                                        | 664            |        |        | A <sup>2</sup> s |
| Operating junction and storage temperature range                                             | T <sub>J</sub> , T <sub>STG</sub>                                                       | - 55 to + 150  |        |        | °C               |

#### Notes

<sup>(1)</sup> With heatsink

<sup>(2)</sup> Without heatsink, free air

| ELECTRICAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted) |                       |                         |                |      |      |      |
|----------------------------------------------------------------------------|-----------------------|-------------------------|----------------|------|------|------|
| PARAMETER                                                                  | TEST CONDITIONS       |                         | SYMBOL         | TYP. | MAX. | UNIT |
| Maximum instantaneous forward voltage per diode <sup>(1)</sup>             | I <sub>F</sub> = 20 A | T <sub>A</sub> = 25 °C  | V <sub>F</sub> | 1.01 | 1.10 | V    |
|                                                                            |                       | T <sub>A</sub> = 125 °C |                | 0.94 | 1.00 |      |
| Reverse current per diode <sup>(2)</sup>                                   | rated V <sub>R</sub>  | T <sub>A</sub> = 25 °C  | I <sub>R</sub> | -    | 10   | μA   |
|                                                                            |                       | T <sub>A</sub> = 125 °C |                | 130  | 500  |      |
| Typical junction capacitance per diode                                     | 4.0 V, 1 MHz          |                         | C <sub>J</sub> | 120  | -    | pF   |

**Notes**
<sup>(1)</sup> Pulse test: 300  $\mu\text{s}$  pulse width, 1 % duty cycle

<sup>(2)</sup> Pulse test: 10 ms pulse width

| THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted) |                                 |        |        |        |      |
|-------------------------------------------------------------------------|---------------------------------|--------|--------|--------|------|
| PARAMETER                                                               | SYMBOL                          | PB4006 | PB4008 | PB4010 | UNIT |
| Typical thermal resistance                                              | R <sub>θJC</sub> <sup>(1)</sup> | 0.75   |        |        | °C/W |
|                                                                         | R <sub>θJA</sub> <sup>(2)</sup> | 18     |        |        |      |

**Notes**
<sup>(1)</sup> With 60 W air cooled heatsink

<sup>(2)</sup> Without heatsink, free air

| <b>ORDERING INFORMATION</b> (Example) |                 |                        |               |               |
|---------------------------------------|-----------------|------------------------|---------------|---------------|
| PREFERRED P/N                         | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
| PB4006-E3/45                          | 7.53            | 45                     | 20            | Tube          |

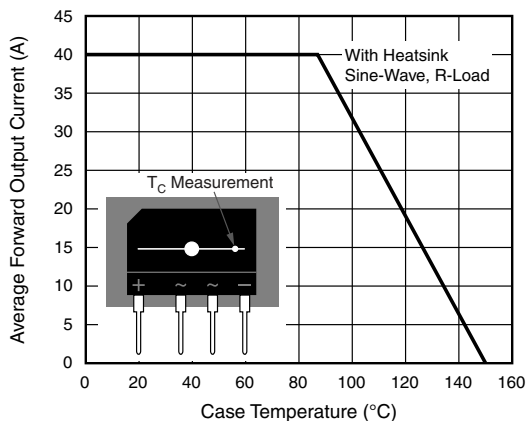
**RATINGS AND CHARACTERISTICS CURVES** ( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)


Fig. 1 - Derating Curve Output Rectified Current

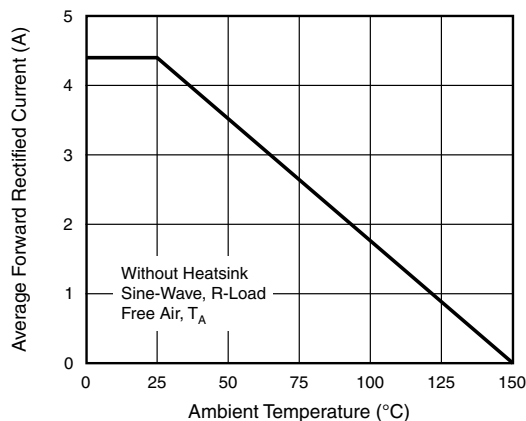


Fig. 2 - Forward Current Derating Curve

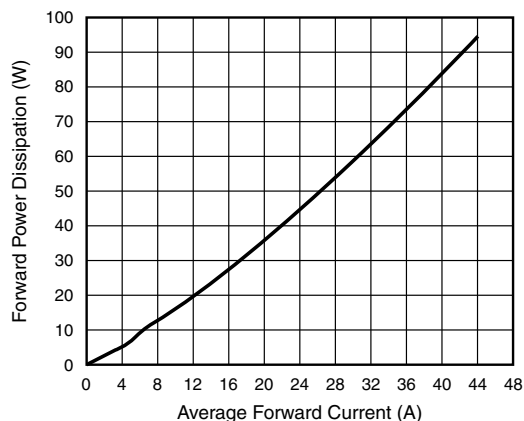


Fig. 3 - Forward Power Dissipation

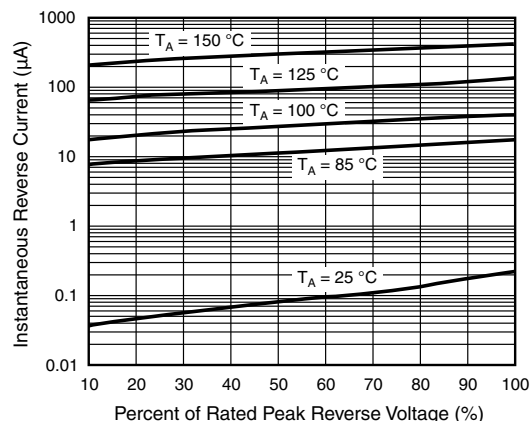


Fig. 5 - Typical Reverse Characteristics Per Diode

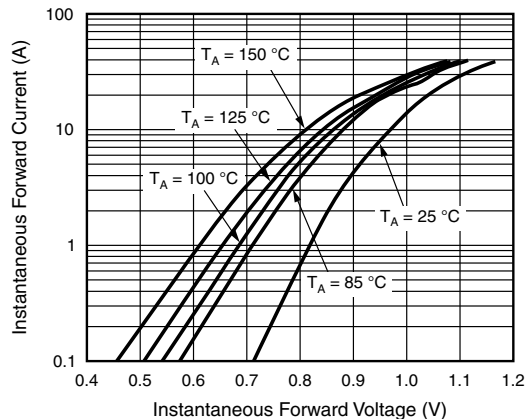


Fig. 4 - Typical Forward Characteristics Per Diode

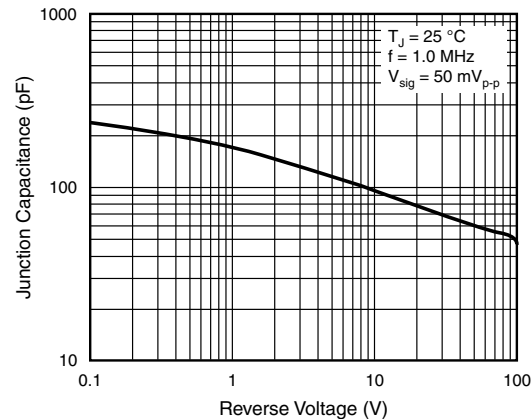
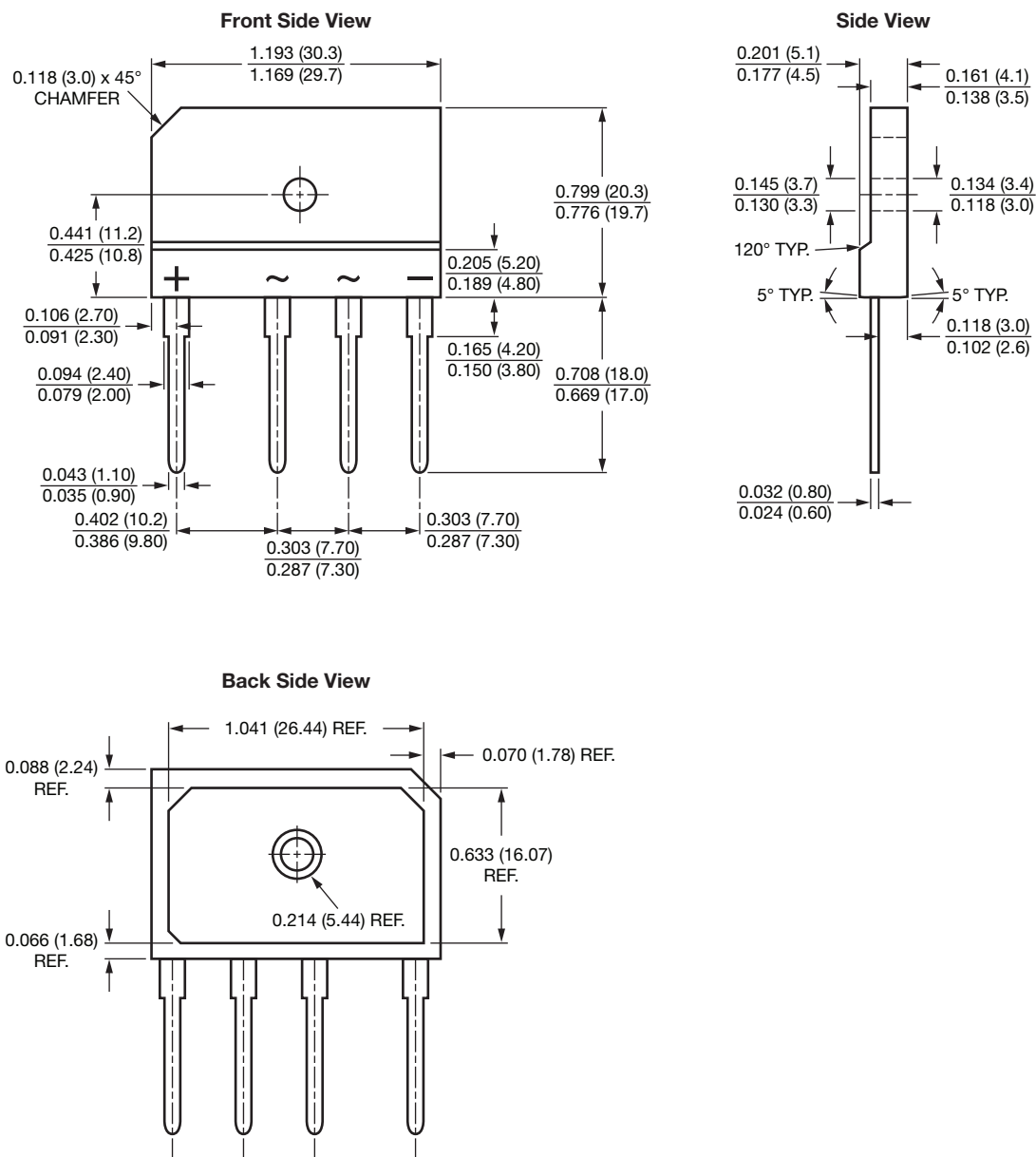


Fig. 6 - Typical Junction Capacitance Per Diode



PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

Case Type PB





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