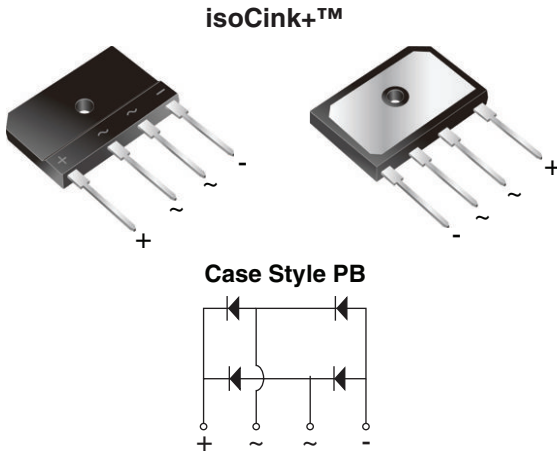


## Enhanced isoCink+™ Bridge Rectifiers



\*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



| 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               |
| Circuit configuration   | In-line              |

### FEATURES

- UL recognition file number E312394 (QQXX2) 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](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, 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)

### 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)                                                | I <sub>O</sub>                    | T <sub>C</sub> = 87 °C <sup>(1)</sup><br>40  |        |        | A                |
|                                                                                              |                                   | T <sub>A</sub> = 25 °C <sup>(2)</sup><br>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** ( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

| PARAMETER                                                      | TEST CONDITIONS     | SYMBOL | TYP. | MAX. | UNIT          |
|----------------------------------------------------------------|---------------------|--------|------|------|---------------|
| Maximum instantaneous forward voltage per diode <sup>(1)</sup> | $I_F = 20\text{ A}$ | $V_F$  | 1.01 | 1.10 | V             |
|                                                                |                     |        | 0.94 | 1.00 |               |
| Reverse current per diode <sup>(2)</sup>                       | rated $V_R$         | $I_R$  | -    | 10   | $\mu\text{A}$ |
|                                                                |                     |        | 130  | 500  |               |
| Typical junction capacitance per diode                         | 4.0 V, 1 MHz        | $C_J$  | 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** ( $T_A = 25\text{ }^{\circ}\text{C}$  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**ORDERING INFORMATION** (Example)

| PREFERRED P/N | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
|---------------|-----------------|------------------------|---------------|---------------|
| PB4006-E3/45  | 7.53            | 45                     | 20            | Tube          |

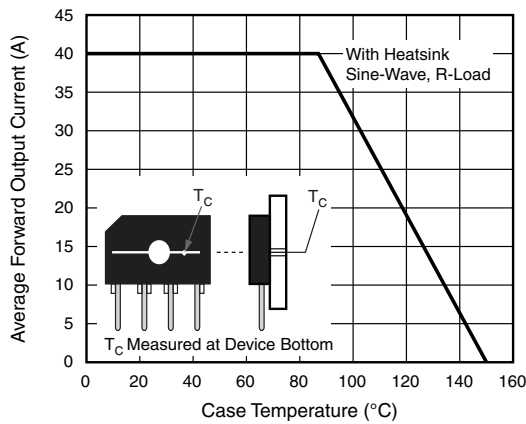
**RATINGS AND CHARACTERISTICS CURVES** ( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)


Fig. 1 - Derating Curve Output Rectified Current

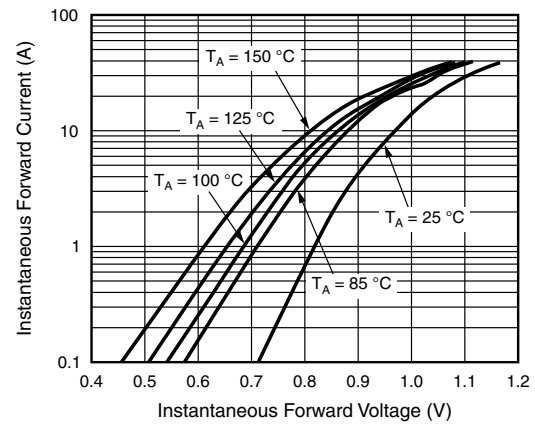


Fig. 4 - Typical Forward Characteristics Per Diode

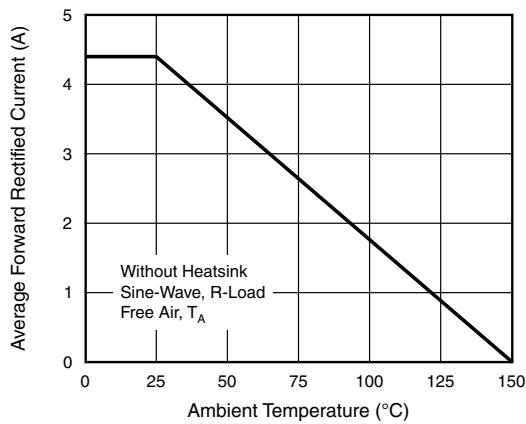


Fig. 2 - Forward Current Derating Curve

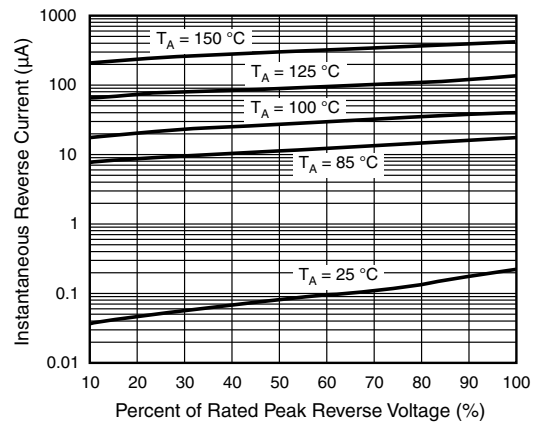


Fig. 5 - Typical Reverse Characteristics Per Diode

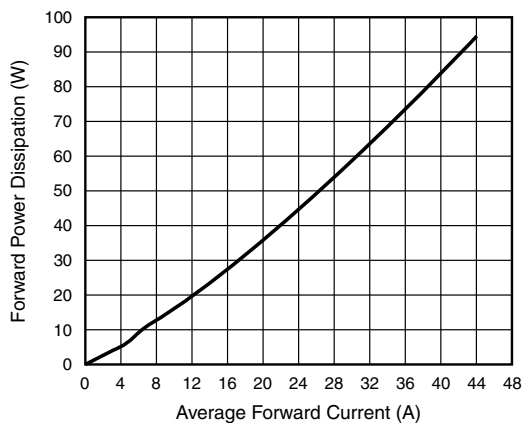


Fig. 3 - Forward Power Dissipation

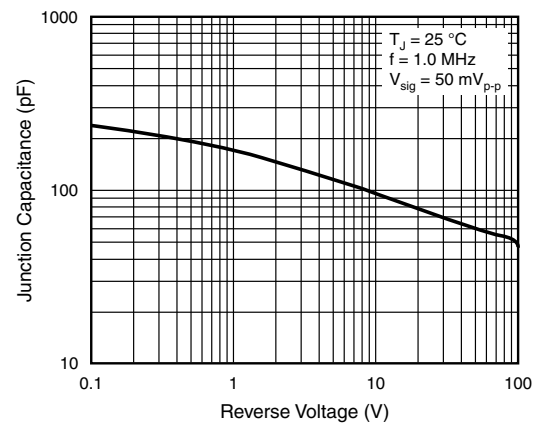
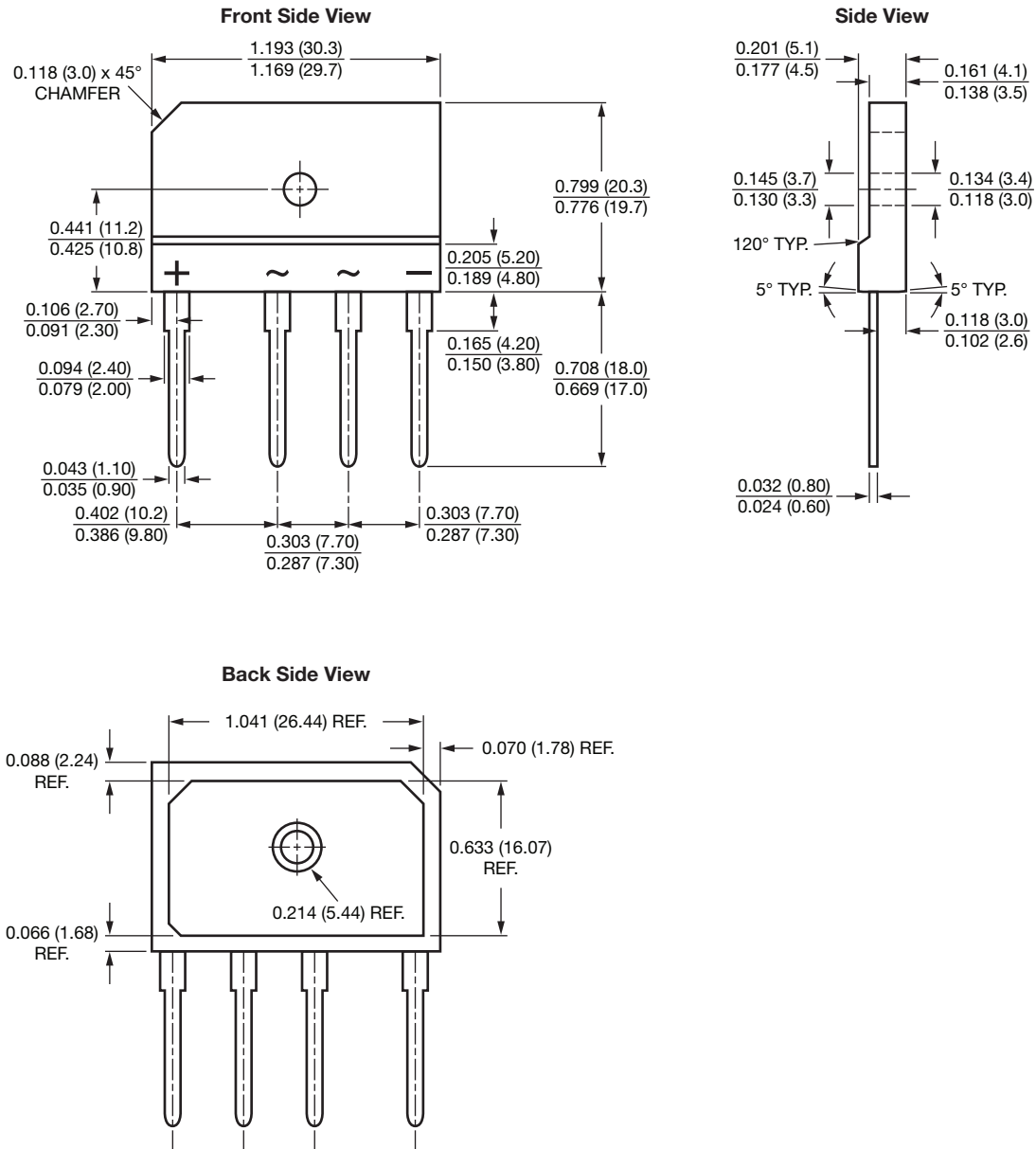


Fig. 6 - Typical Junction Capacitance Per Diode



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

**Case Type PB**





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