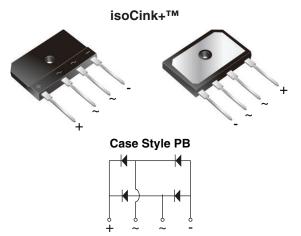


www.vishay.com

Vishay General Semiconductor

Enhanced isoCink+TM 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 $^{\circ}\text{C}$ to withstand 1500 V.

Epoxy meets UL 94 V-0 flammability rating.

LINKS TO ADDITIONAL RESOURCES



| PRIMARY CHARACTERISTICS | | | | | |
|-------------------------|----------------------|--|--|--|--|
| Package | PB | | | | |
| I _{F(AV)} | 45 A | | | | |
| V_{RRM} | 600 V, 800 V, 1000 V | | | | |
| I _{FSM} | 450 A | | | | |
| I _R | 10 µA | | | | |
| V_F at $I_F = 22.5 A$ | 0.90 V | | | | |
| T _J max. | 150 °C | | | | |
| Circuit configuration | In-line | | | | |

FEATURES

UL recognition file number E312394 (QQQX2)
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 <u>www.vishay.com/doc?99912</u>

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 | PB5006 | PB5008 | PB5010 | UNIT | |
| Maximum repetitive peak reverse voltage | V_{RRM} | 600 | 800 | 1000 | V | |
| Average rectified forward ourrent (Fig. 1.2) | °C (1) | 45 | | А | | |
| Average rectified forward current (Fig. 1, 2) $T_A = 2$ | °C (2) | 4.5 | | | | |
| Non-repetitive peak forward surge current 8.3 ms single sine-wave, T _J = 25 °C | I _{FSM} | 450 | | Α | | |
| Rating for fusing (t < 8.3 ms) T _J = 25 °C | I ² t | 840 | | A ² s | | |
| Operating junction and storage temperature range | T _J , T _{STG} | T _{STG} -55 to +150 | | °C | | |

Notes

- (1) With heatsink
- (2) Without heatsink, free air

PB5006, PB5008, PB5010

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| 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 = 22.5 A | T _A = 25 °C T _A = 125 °C | V _F | 1.00 | 1.10 | - V | |
| | | T _A = 125 °C | | 0.90 | 1.00 | | |
| Reverse current per diode (2) | rated V _R | T _A = 25 °C | _ | - | 10 | | |
| | rated v _R | T _A = 125 °C | I _R | 170 | 500 | - μΑ | |
| Typical junction capacitance per diode | 4.0 V, 1 MHz | | CJ | 162 | - | pF | |

Notes

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

(2) Pulse test: 10 ms pulse width

| THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted) | | | | | | |
|---|-----------------------|--------|--------|--------|------|--|
| PARAMETER | SYMBOL | PB5006 | PB5008 | PB5010 | UNIT | |
| Typical thermal resistance | R ₀ JC (1) | 0.7 | | | °C/W | |
| | R _{0JA} (2) | 18 | | | | |

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 | | |
| PB5006-E3/45 | 7.62 | 45 | 20 | Tube | | |

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RATINGS AND CHARACTERISTICS CURVES (T_A = 25 °C unless otherwise noted)

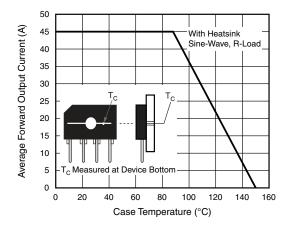


Fig. 1 - Derating Curve Output Rectified Current

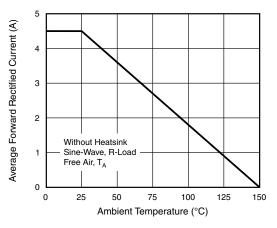


Fig. 2 - Forward Current Derating Curve

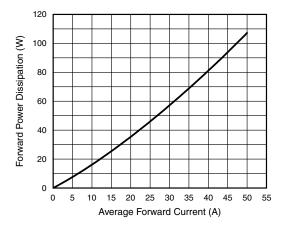


Fig. 3 - Forward Power Dissipation

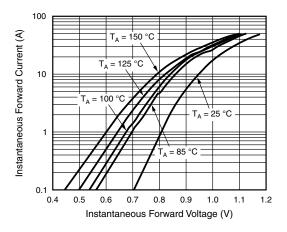


Fig. 4 - Typical Forward Characteristics Per Diode

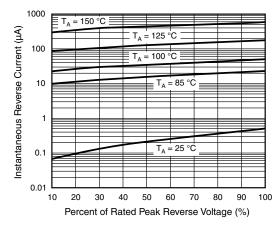


Fig. 5 - Typical Reverse Characteristics Per Diode

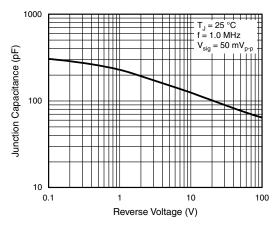
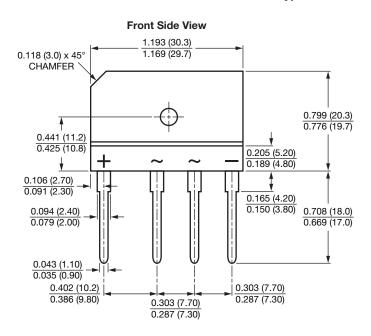


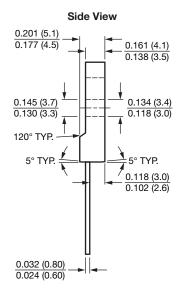
Fig. 6 - Typical Junction Capacitance Per Diode

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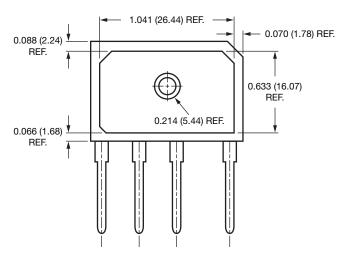
PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

Case Type PB





Back Side View





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