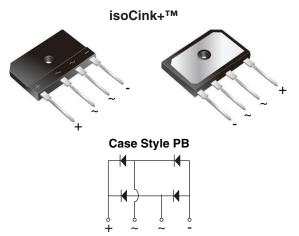


www.vishay.com

### 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 <sub>F(AV)</sub>	45 A				
$V_{RRM}$	600 V, 800 V, 1000 V				
I <sub>FSM</sub>	450 A				
I <sub>R</sub>	10 μA				
V <sub>F</sub> at I <sub>F</sub> = 22.5 A	0.90 V				
T <sub>J</sub> 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 <a href="https://www.vishay.com/doc?99912"><u>www.vishay.com/doc?99912</u></a>

#### **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 <sub>A</sub> = 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 current (Fig. 1, 2) $\frac{T_C = 84  ^{\circ}\text{C}}{T_A = 25  ^{\circ}\text{C}}$	$T_C = 84  ^{\circ}C^{(1)}$	-	45		А	
	T <sub>A</sub> = 25 °C <sup>(2)</sup>	IO	4.5			
Non-repetitive peak forward surge current 8.3 ms single sine-wave, $T_J = 25$ °C		I <sub>FSM</sub>	450		Α	
Rating for fusing (t < 8.3 ms) T <sub>J</sub> = 25 °C		I <sup>2</sup> t	840		A <sup>2</sup> s	
Operating junction and storage temperature range	•	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150		°C	

#### Notes

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

# PB5006, PB5008, PB5010

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<b>ELECTRICAL CHARACTERISTICS</b> (T <sub>A</sub> = 25 °C unless otherwise noted)							
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT	
Maximum instantaneous forward voltage per diode (1)	I <sub>F</sub> = 22.5 A	T <sub>A</sub> = 25 °C T <sub>A</sub> = 125 °C	V <sub>F</sub>	1.00	1.10	W	
		T <sub>A</sub> = 125 °C		0.90	1.00	]	
Reverse current per diode (2)	rated V <sub>R</sub>	T <sub>A</sub> = 25 °C	I <sub>R</sub>	-	10		
		T <sub>A</sub> = 125 °C		170	500	<del>-</del> 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 <sub>A</sub> = 25 °C unless otherwise noted)						
PARAMETER	SYMBOL	PB5006	PB5008	PB5010	UNIT	
Typical thermal resistance	R <sub>0</sub> JC (1)	0.7			°C/W	
	R <sub>0JA</sub> (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<sub>A</sub> = 25 °C unless otherwise noted)

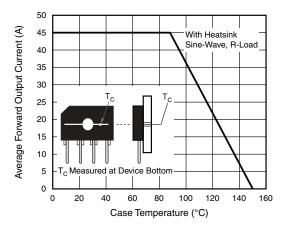


Fig. 1 - Derating Curve Output Rectified Current

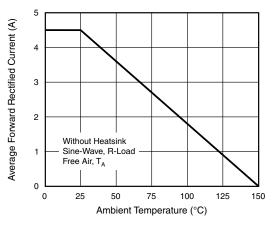


Fig. 2 - Forward Current Derating Curve

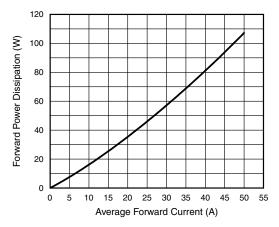


Fig. 3 - Forward Power Dissipation

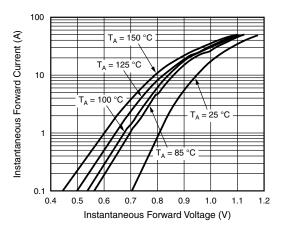


Fig. 4 - Typical Forward Characteristics Per Diode

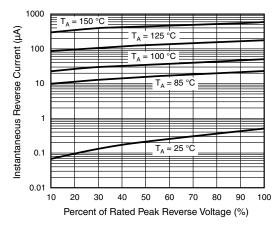


Fig. 5 - Typical Reverse Characteristics Per Diode

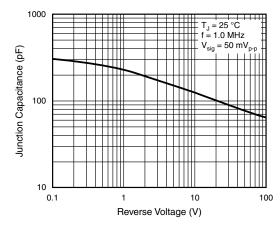
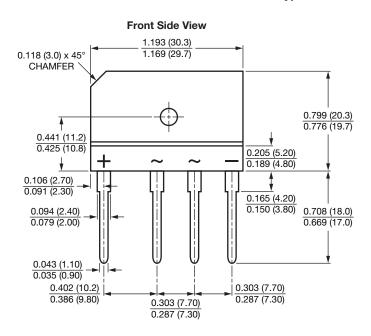


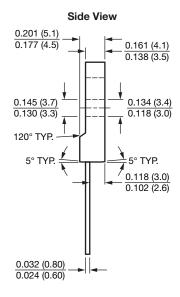
Fig. 6 - Typical Junction Capacitance Per Diode

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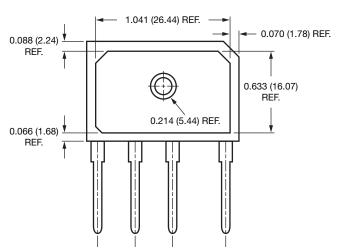
#### **PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)

#### Case Type PB





#### **Back Side View**





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Vishay

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