

## 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](http://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
$I_{F(AV)}$	45 A
$V_{RRM}$	600 V, 800 V, 1000 V
$I_{FSM}$	450 A
$I_R$	10 $\mu$ A
$V_F$ at $I_F = 22.5$ A	0.90 V
$T_J$ max.	150 °C
Circuit configuration	In-line

### 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 current (Fig. 1, 2)	$I_O$	$T_C = 84$ °C <sup>(1)</sup>			45	A
		$T_A = 25$ °C <sup>(2)</sup>			4.5	
Non-repetitive peak forward surge current 8.3 ms single sine-wave, $T_J = 25$ °C	$I_{FSM}$	450			A	
Rating for fusing ( $t < 8.3$ ms) $T_J = 25$ °C	$I^2t$	840			A <sup>2</sup> s	
Operating junction and storage temperature range	$T_J, T_{STG}$	-55 to +150			°C	

### Notes

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

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



<b>ELECTRICAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)					
PARAMETER	TEST CONDITIONS	SYMBOL	TYP.	MAX.	UNIT
Maximum instantaneous forward voltage per diode <sup>(1)</sup>	$I_F = 22.5\text{ A}$	$T_A = 25\text{ }^\circ\text{C}$	1.00	1.10	V
		$T_A = 125\text{ }^\circ\text{C}$	0.90	1.00	
Reverse current per diode <sup>(2)</sup>	rated $V_R$	$T_A = 25\text{ }^\circ\text{C}$	-	10	$\mu\text{A}$
		$T_A = 125\text{ }^\circ\text{C}$	170	500	
Typical junction capacitance per diode	4.0 V, 1 MHz	$C_J$	162	-	pF

**Notes**

- (1) Pulse test: 300  $\mu\text{s}$  pulse width, 1 % duty cycle
- (2) Pulse test: 10 ms pulse width

<b>THERMAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)					
PARAMETER	SYMBOL	PB5006	PB5008	PB5010	UNIT
Typical thermal resistance	$R_{\theta JC}$ <sup>(1)</sup>	0.7			$^\circ\text{C/W}$
	$R_{\theta JA}$ <sup>(2)</sup>	18			

**Notes**

- (1) With 60 W air cooled heatsink
- (2) Without heatsink, free air

<b>ORDERING INFORMATION</b> (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
PB5006-E3/45	7.62	45	20	Tube

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

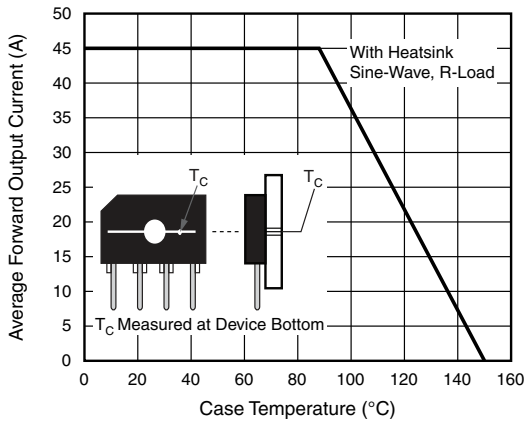


Fig. 1 - Derating Curve Output Rectified Current

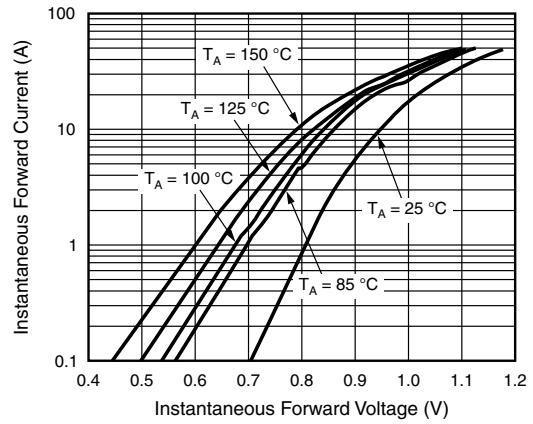


Fig. 4 - Typical Forward Characteristics Per Diode

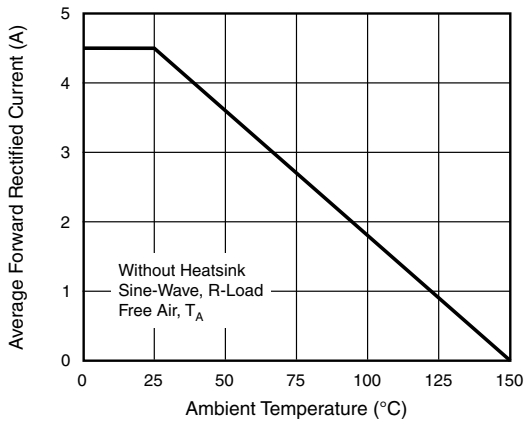


Fig. 2 - Forward Current Derating Curve

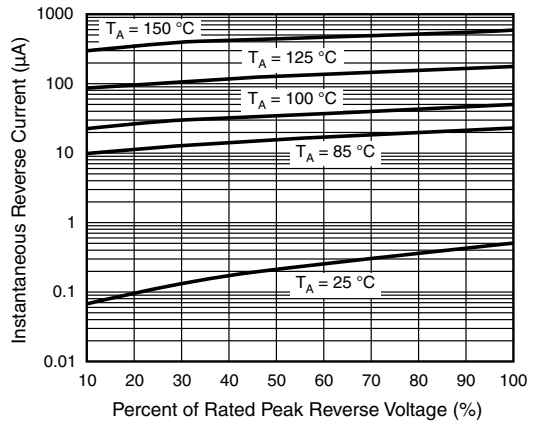


Fig. 5 - Typical Reverse Characteristics Per Diode

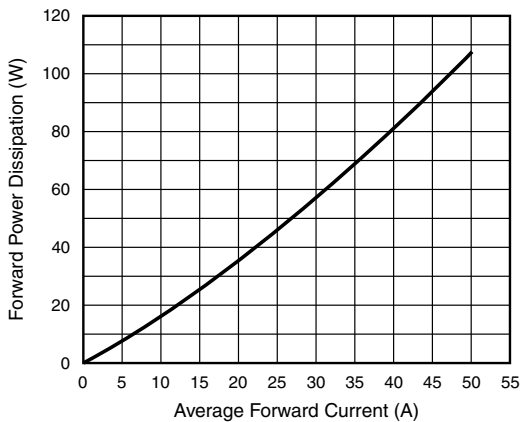


Fig. 3 - Forward Power Dissipation

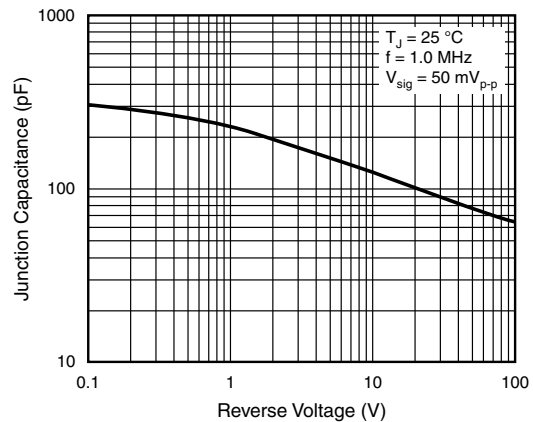
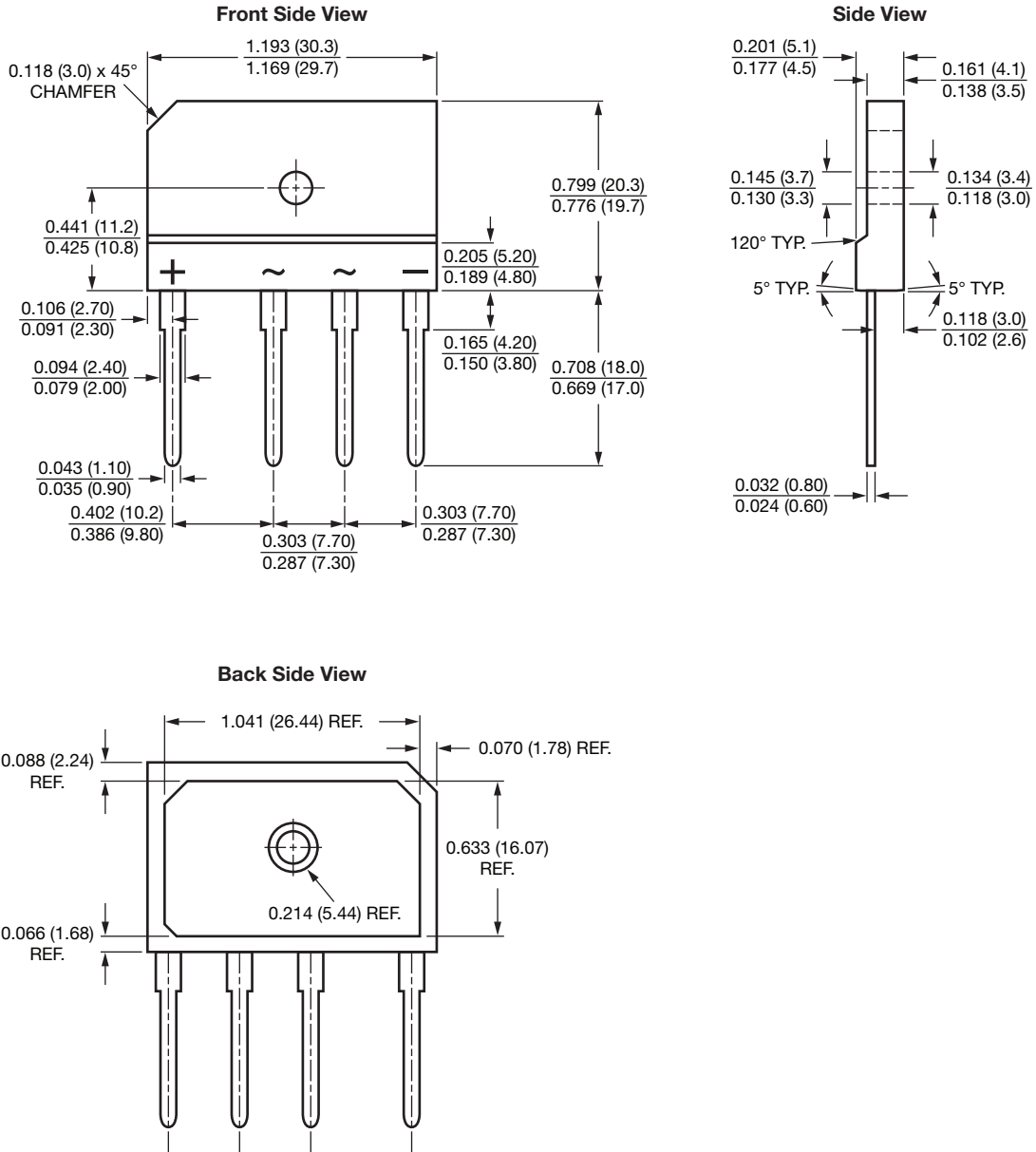


Fig. 6 - Typical Junction Capacitance Per Diode



PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

Case Type PB





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