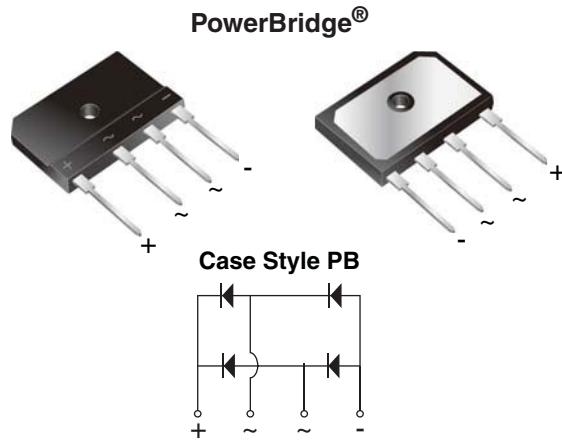


## Enhanced PowerBridge<sup>®</sup> Rectifiers



\* Tested to UL standard for safety electrically isolated semiconductor devices. UL 1557 4<sup>th</sup> 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

$I_{F(AV)}$	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

### 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
- Compliant to RoHS Directive 2002/95/EC and in accordance to WEEE 2002/96/EC



### 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	PB5006	PB5008	PB5010	UNIT
Maximum repetitive peak reverse voltage	$V_{RRM}$	600	800	1000	V
Average rectified forward current (Fig. 1, 2)	$I_o$	45 4.5			A
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

(1) With heatsink

(2) 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> = 22.5 A	T <sub>A</sub> = 25 °C T <sub>A</sub> = 125 °C	V <sub>F</sub>	1.00 0.90	1.10 1.00	V
Reverse current per diode <sup>(2)</sup>	rated V <sub>R</sub>	T <sub>A</sub> = 25 °C T <sub>A</sub> = 125 °C	I <sub>R</sub>	- 170	10 500	μA
Typical junction capacitance per diode	4.0 V, 1 MHz		C <sub>J</sub>	162	-	pF

**Notes**

<sup>(1)</sup> Pulse test: 300 μs 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	PB5006	PB5008	PB5010	UNIT
Typical thermal resistance	R <sub>θJC</sub> <sup>(1)</sup>	0.7			°C/W
	R <sub>θJA</sub> <sup>(2)</sup>	18			

**Notes**

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

<sup>(2)</sup> 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

**RATINGS AND CHARACTERISTICS CURVES**

(T<sub>A</sub> = 25 °C unless otherwise noted)

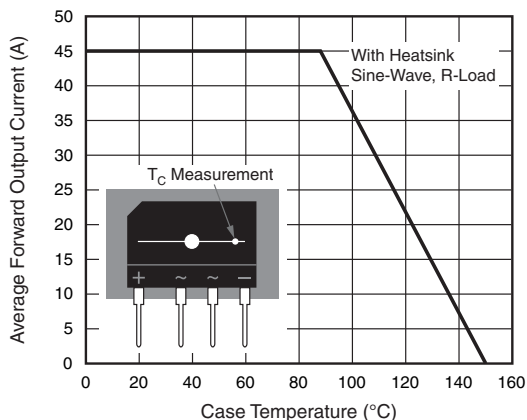


Figure 1. Derating Curve Output Rectified Current

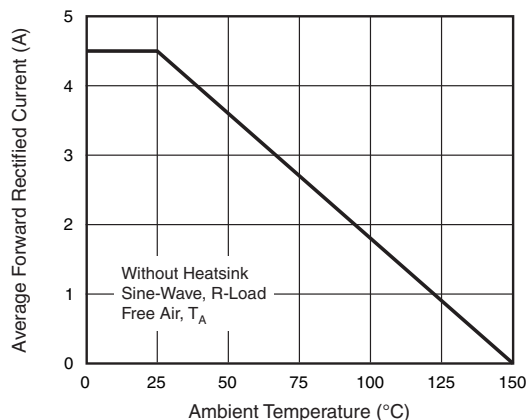


Figure 2. Forward Current Derating Curve

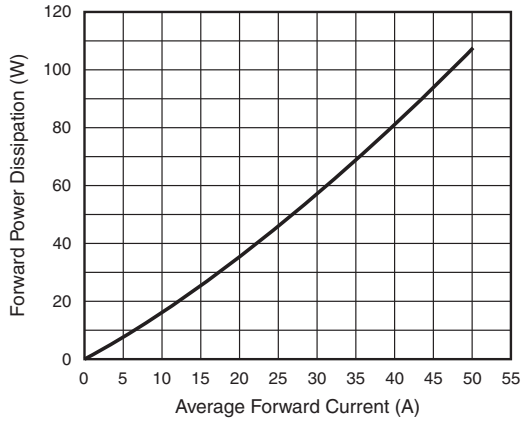


Figure 3. Forward Power Dissipation

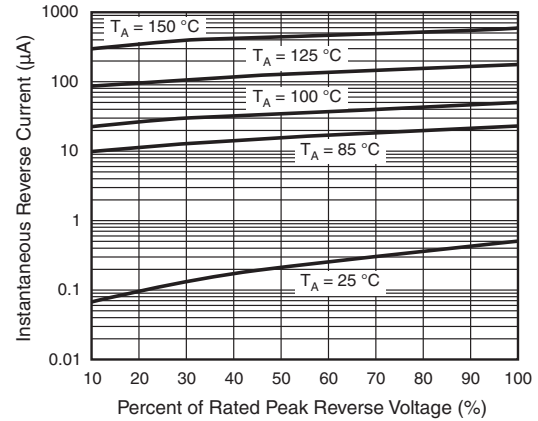


Figure 5. Typical Reverse Characteristics Per Diode

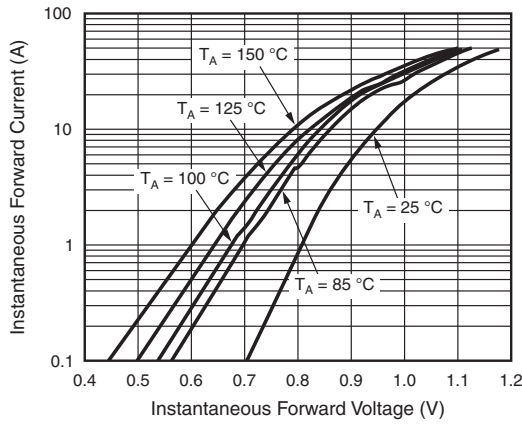


Figure 4. Typical Forward Characteristics Per Diode

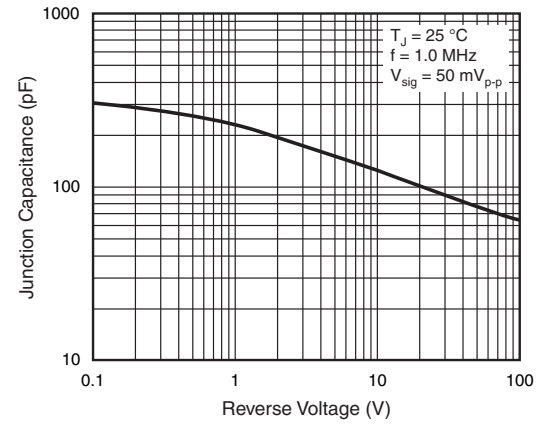


Figure 6. Typical Junction Capacitance Per Diode

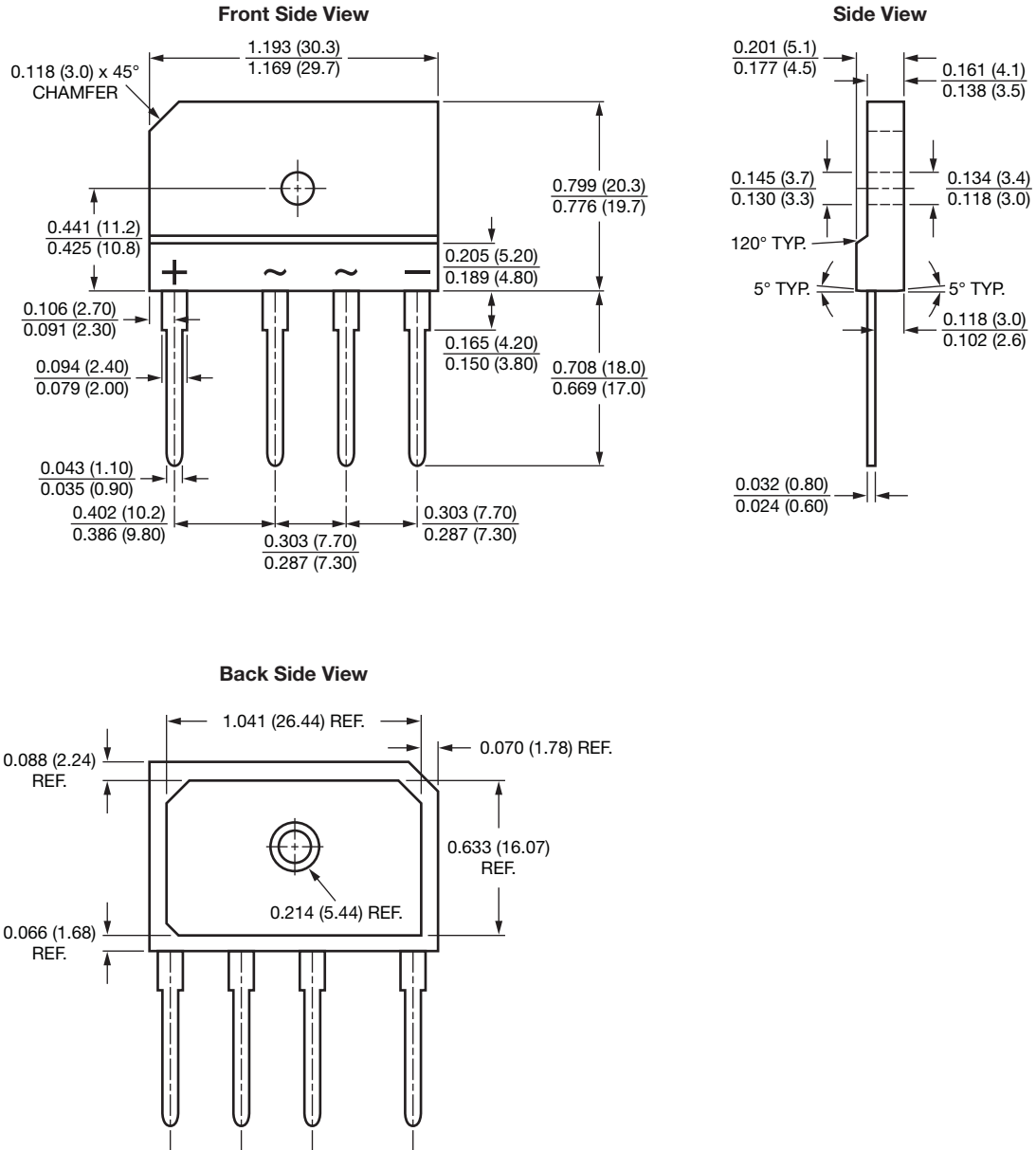
# PB5006 thru PB5010

Vishay General Semiconductor



## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

### Case Type PB





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