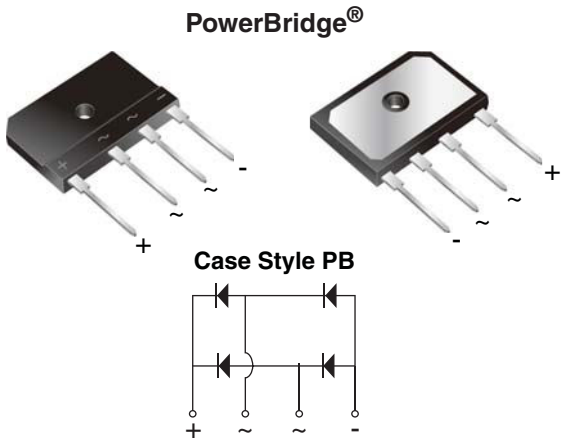
PB5006 thru PB5010

Vishay General Semiconductor

Enhanced PowerBridge® 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.

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	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

FEATURES

- UL recognition file number E312394 (QQQX2) 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

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, 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)	T_C = 84 °C (1) T_A = 25 °C (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^2s
Operating junction and storage temperature range		T_J, T_{STG}	- 55 to + 150			°C

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

For technical questions within your region, please contact one of the following:
DiodesAmericas@vishay.com, DiodesAsia@vishay.com, DiodesEurope@vishay.com

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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 0.90	1.10 1.00	V
Reverse current per diode (2)	rated V_R	T_A = 25 °C T_A = 125 °C	I_R	- 170	10 500	µA
Typical junction capacitance per diode	4.0 V, 1 MHz		C_J	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	$R_{\theta JC}$ (1) $R_{\theta JA}$ (2)	0.7 18			°C/W

Notes

(1) With 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

RATINGS AND CHARACTERISTICS CURVES

(T_A = 25 °C unless otherwise noted)

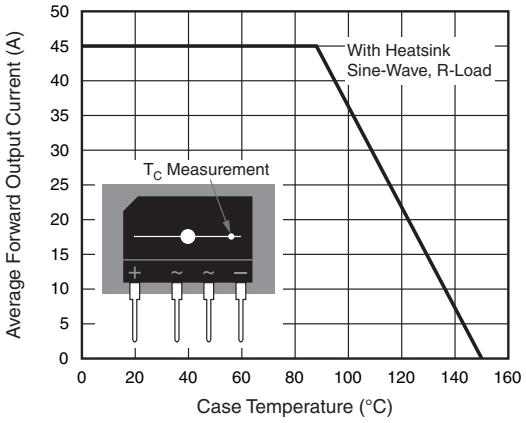

Figure 1. Derating Curve Output Rectified Current

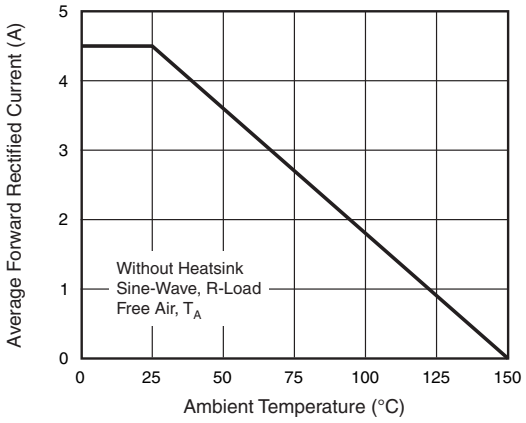

Figure 2. Forward Current Derating Curve

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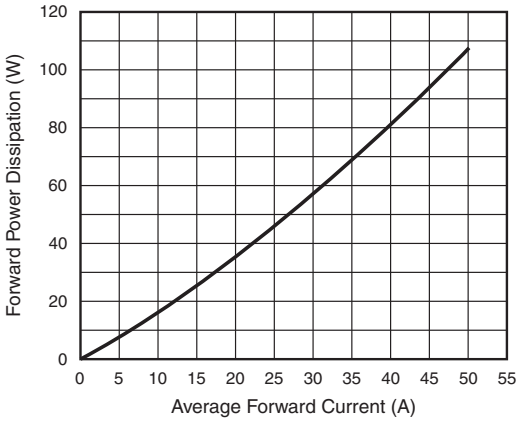

Figure 3. Forward Power Dissipation

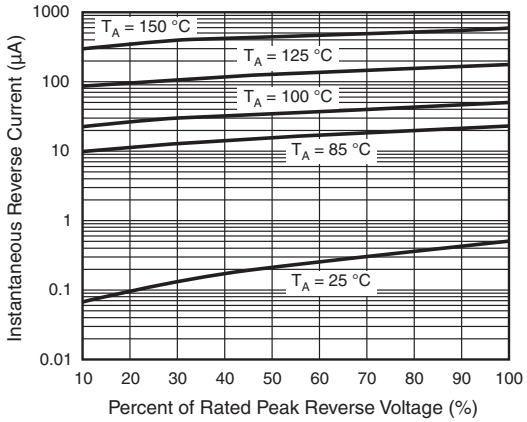

Figure 5. Typical Reverse Characteristics Per Diode

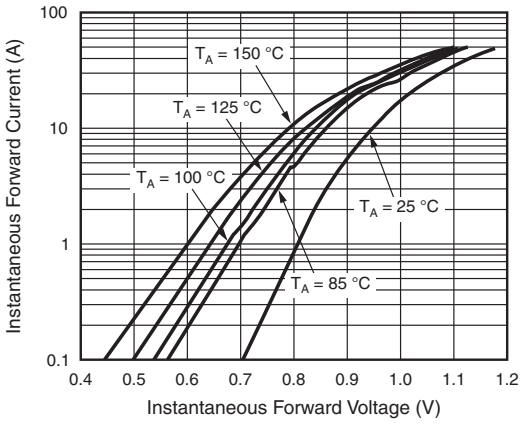

Figure 4. Typical Forward Characteristics Per Diode

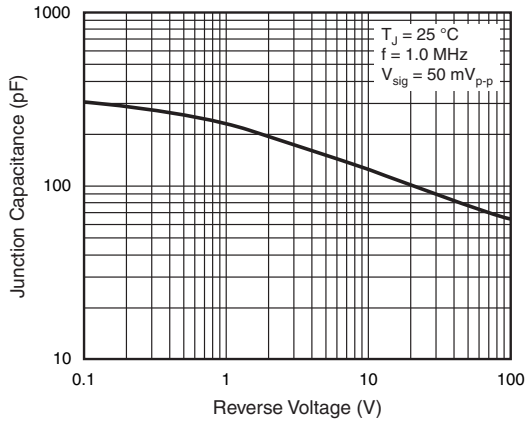

Figure 6. Typical Junction Capacitance Per Diode

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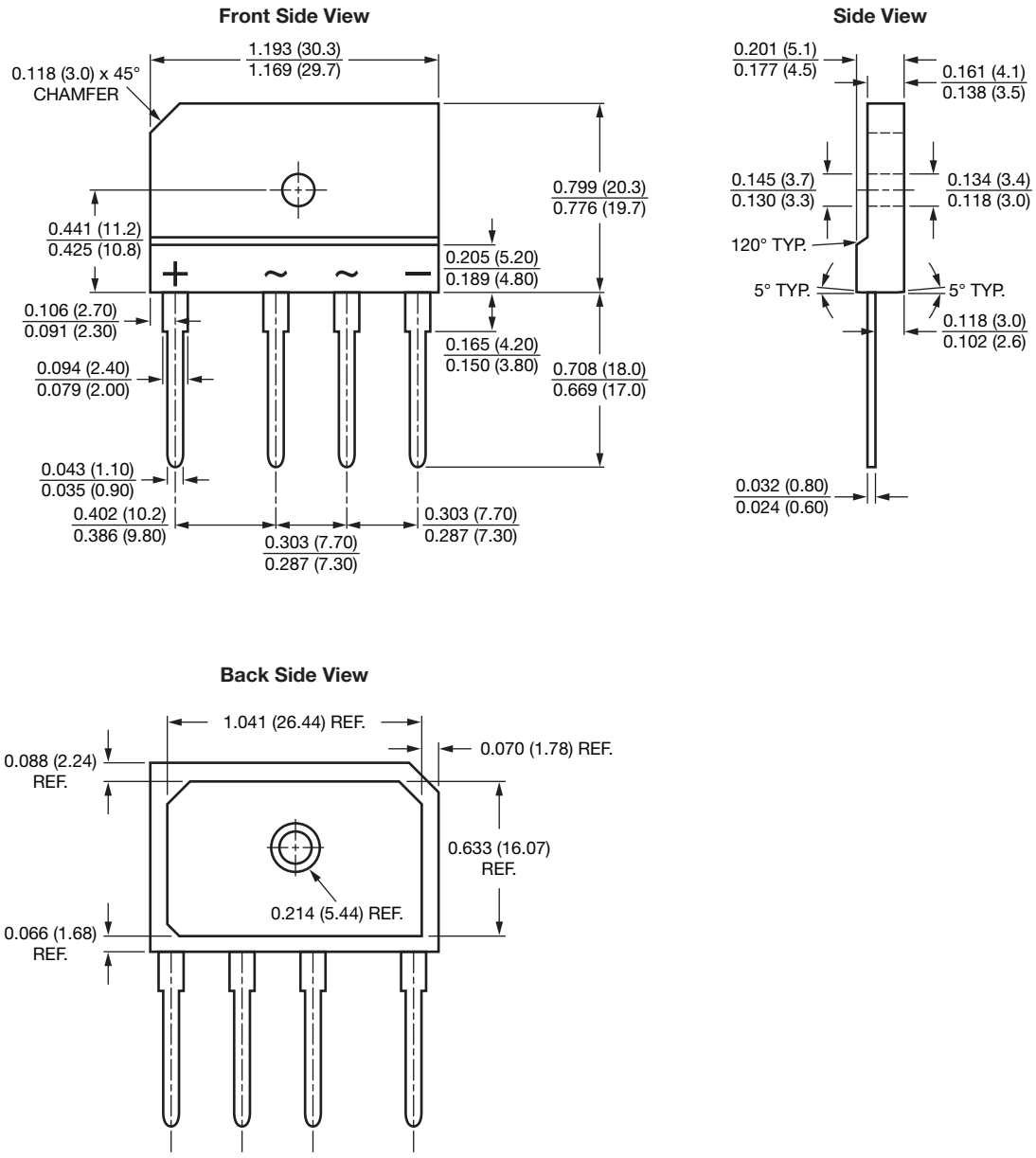
PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

Case Type PB



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