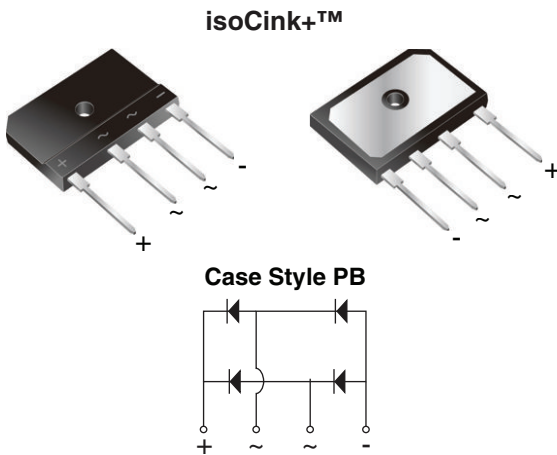




**THE DATASHEET OF
PB5010-E3/45**



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 (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 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 μ 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 ⁽¹⁾		45	A
		$T_A = 25$ °C ⁽²⁾		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 ² 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 ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)						
PARAMETER	TEST CONDITIONS	SYMBOL	TYP.	MAX.	UNIT	
Maximum instantaneous forward voltage per diode ⁽¹⁾	$I_F = 22.5\text{ A}$	$T_A = 25\text{ }^\circ\text{C}$	V_F	1.00	1.10	V
		$T_A = 125\text{ }^\circ\text{C}$		0.90	1.00	
Reverse current per diode ⁽²⁾	rated V_R	$T_A = 25\text{ }^\circ\text{C}$	I_R	-	10	μA
		$T_A = 125\text{ }^\circ\text{C}$		170	500	
Typical junction capacitance per diode	4.0 V, 1 MHz	C_J	162	-	pF	

Notes

- (1) Pulse test: 300 μs pulse width, 1 % duty cycle
- (2) Pulse test: 10 ms pulse width

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

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

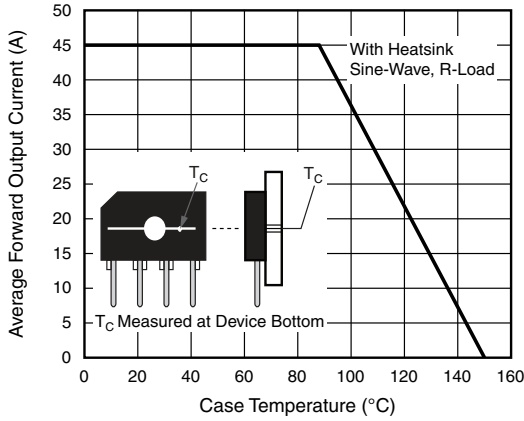


Fig. 1 - Derating Curve Output Rectified Current

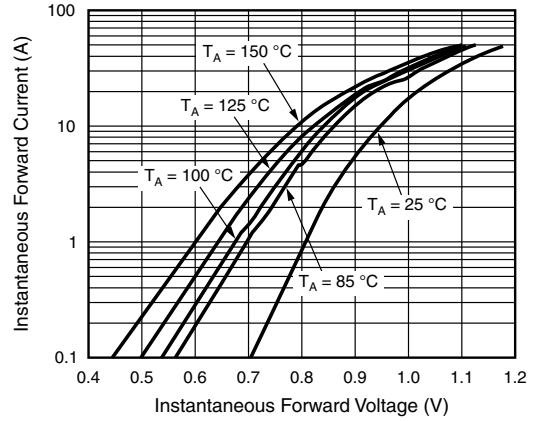


Fig. 4 - Typical Forward Characteristics Per Diode

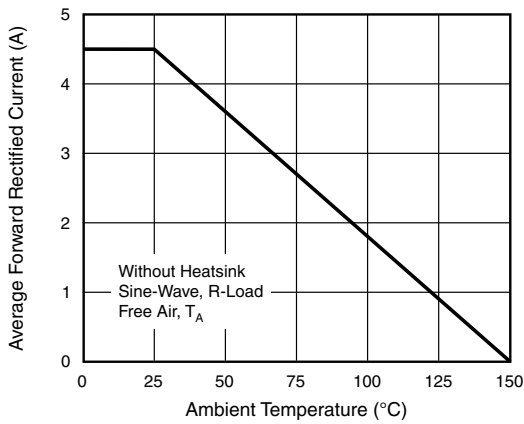


Fig. 2 - Forward Current Derating Curve

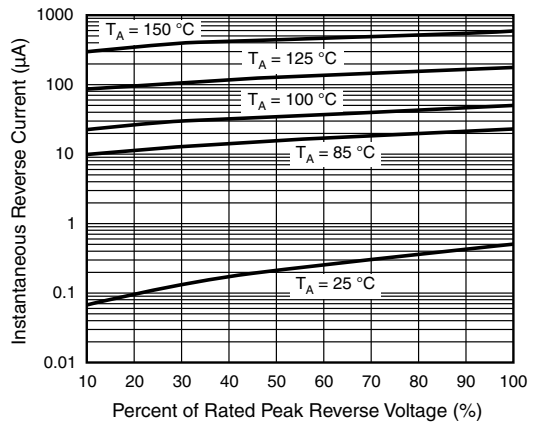


Fig. 5 - Typical Reverse Characteristics Per Diode

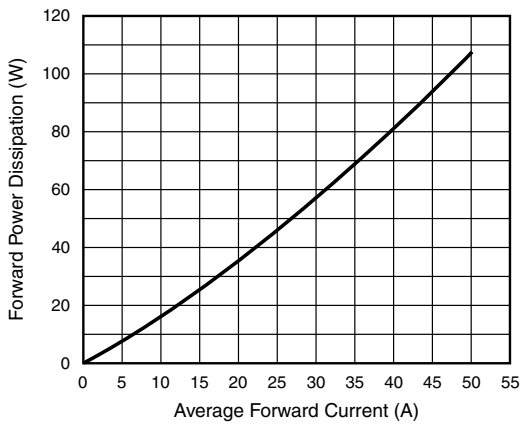


Fig. 3 - Forward Power Dissipation

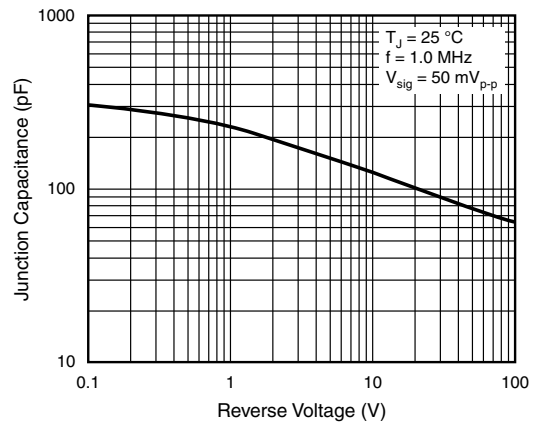
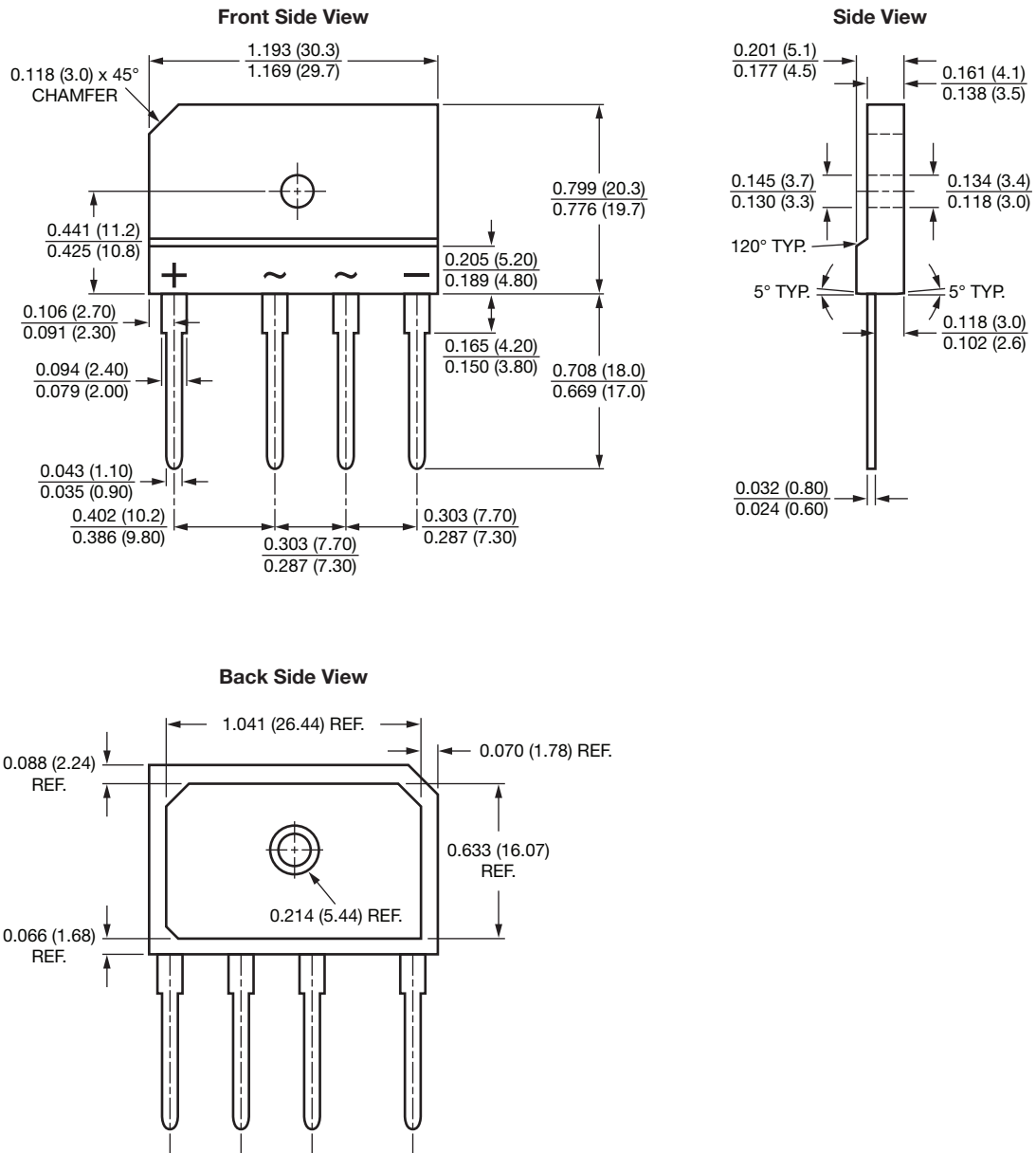


Fig. 6 - Typical Junction Capacitance Per Diode



PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

Case Type PB





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