

# KBPC50005W THRU KBPC5010W

## HIGH CURRENT SINGLE-PHASE SILICON BRIDGE RECTIFIERS

**REVERSE VOLTAGE: 50 to 1000 VOLTS**

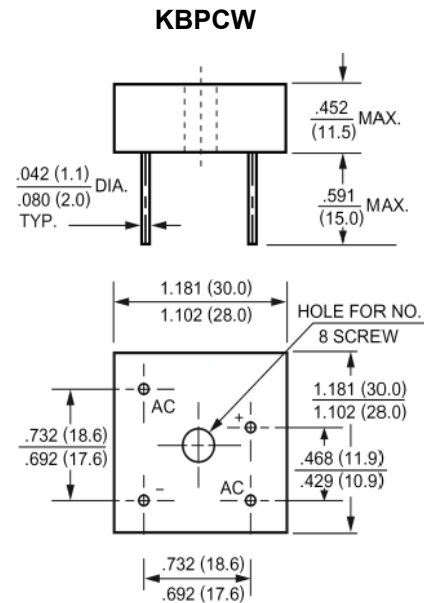
**FORWARD CURRENT: 50 AMPERES**

### Features

- Electrically isolated metal case for maximum heat dissipation
- Surge overload ratings to 500 A
- Low power loss, high efficiency
- Low reverse leakage current
- Case to terminal isolation voltage 2500 V
- UL recognized file # E-216968

### Mechanical data

- Metal or molded plastic with heatsink integrally mounted in the bridge encapsulation
- Mounting Position: Any



Dimensions in inches and (mm)

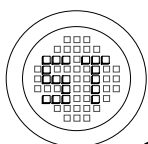
### Absolute Maximum Ratings and Characteristics

Rating at 25 °C ambient temperature unless otherwise specified. Single phase, half wave, 60 Hz, resistive or inductive load. For capacitive load, derate current by 20%.

Parameter	Symbols	KBPC 50005W	KBPC 5001W	KBPC 5002W	KBPC 5004W	KBPC 5006W	KBPC 5008W	KBPC 5010W	Units
Maximum Recurrent Peak Reverse Voltage	$V_{RRM}$	50	100	200	400	600	800	1000	V
Maximum RMS Voltage	$V_{RMS}$	35	70	140	280	420	560	700	V
Maximum DC Blocking Voltage	$V_{DC}$	50	100	200	400	600	800	1000	V
Maximum Average Forward Rectified Current at $T_C = 55^\circ\text{C}$	$I_{(AV)}$	50							A
Peak Forward Surge Current, 8.3 ms Single Half-Sine -Wave superimposed on rated load (JEDEC Method)	$I_{FSM}$	400							A
Maximum Forward Voltage at 25 A DC and 25 °C	$V_F$	1.2							V
Maximum Reverse Current at $T_A = 25^\circ\text{C}$ at Rated DC Blocking Voltage $T_A = 125^\circ\text{C}$	$I_R$	10 1000							$\mu\text{A}$
Typical Junction Capacitance <sup>1)</sup>	$C_J$	300							pF
Typical Thermal Resistance <sup>2)</sup>	$R_{\theta JC}$	2.6							°C/W
Operating and Storage Temperature Range	$T_J, T_S$	-55 to +150							°C

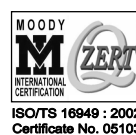
<sup>1)</sup> Measured at 1 MHz and applied reverse voltage of 4 VDC.

<sup>2)</sup> Thermal resistance from junction to case per leg.



**SEMTECH ELECTRONICS LTD.**

(Subsidiary of Semtech International Holdings Limited, a company listed on the Hong Kong Stock Exchange, Stock Code: 724)



ISO/TS 16949 : 2002  
Certificate No. 05103

ISO 14001:2004  
Certificate No. 7116

ISO 9001:2000  
Certificate No. 0506098

Dated : 15/02/2006 H

# KBPC50005W THRU KBPC5010W

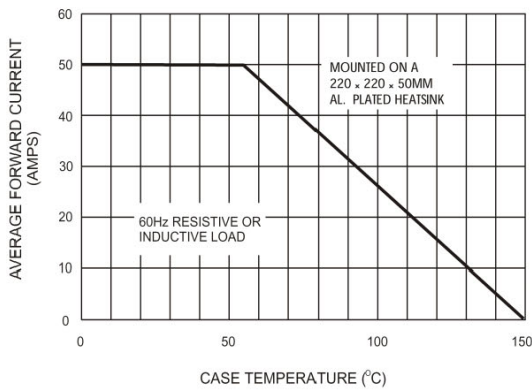


Figure 1. Forward Current Derating Curve

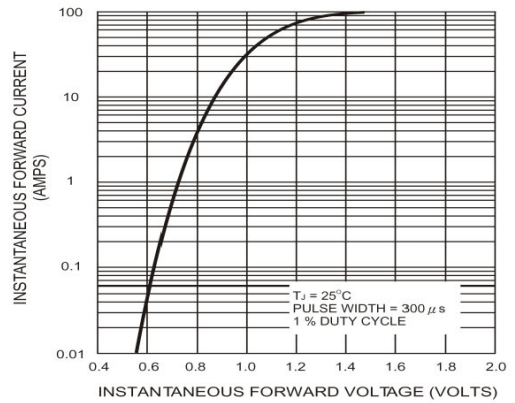


Figure 2. Typical Instantaneous Forward Characteristics Per Bridge Element

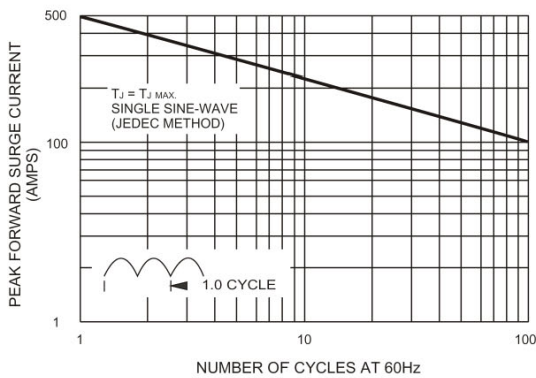


Figure 3. Maximum Non-repetitive Peak Forward Surge Current Per Bridge Element

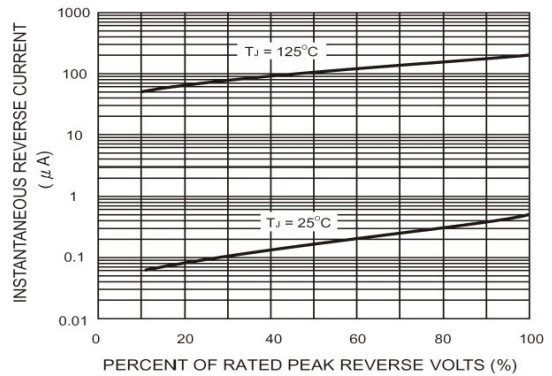


Figure 4. Typical Reverse Leakage Characteristics Per Bridge Element

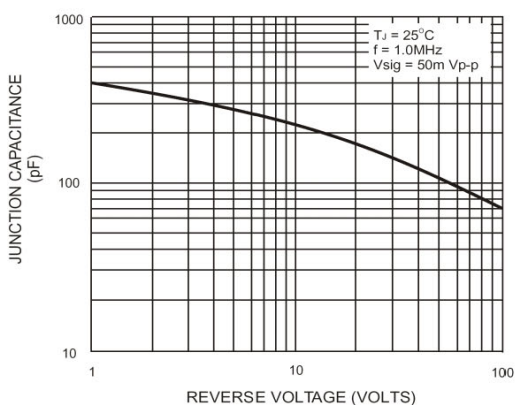


Figure 5. Typical Junction Capacitance Per Bridge Element

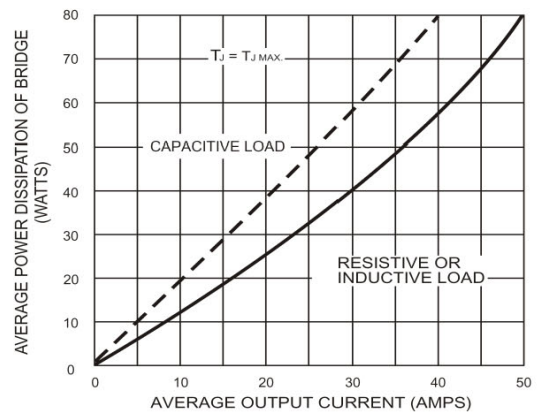
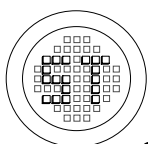


Figure 6. Maximum Power Dissipation



**SEMTECH ELECTRONICS LTD.**  
 (Subsidiary of Semtech International Holdings Limited, a company  
 listed on the Hong Kong Stock Exchange, Stock Code: 724)



ISO/TS 16949 : 2002  
 Certificate No. 05103

ISO 14001:2004  
 Certificate No. 7116

ISO 9001:2000  
 Certificate No. 0506098

Dated : 15/02/2006 H