

NEW PRODUCT

**Product Summary** (@T<sub>A</sub> = +25°C)

V <sub>RRM</sub> (V)	I <sub>O</sub> MAX (A)	V <sub>F</sub> MAX (V)	I <sub>R</sub> MAX (μA)
400, 600, 800, 1000	4	1.1	5

**Description and Applications**

Suitable for AC to DC bridge full wave rectification for AC/DC Power Supply, LED lighting, home appliances, office equipment, and telecommunication applications.

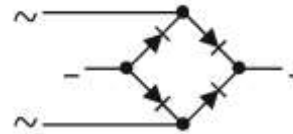
**Features and Benefits**

- Glass Passivated Die Construction
- Rating to 1000V PRV
- Low Reverse Leakage Current
- Surge Overload Rating to 130A Peak
- Ideal for Printed Circuit Board Applications
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**

**Mechanical Data**

- Case: KBP
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish – Tin. Plated Leads, Solderable per MIL-STD-202, Method 208
- Polarity: Marked on Body
- Weight: 1.52 grams (Approximate)

KBP



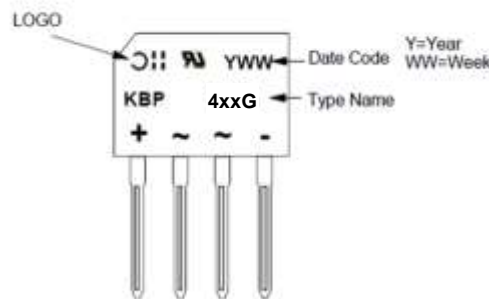
Equivalent Circuit

**Ordering Information** (Note 3)

Part Number	Compliance	Case	Packaging
KBP404G	Commercial	KBP	35 Pieces per Tube
KBP406G	Commercial	KBP	35 Pieces per Tube
KBP408G	Commercial	KBP	35 Pieces per Tube
KBP410G	Commercial	KBP	35 Pieces per Tube

- Notes:
1. EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant. All applicable RoHS exemptions applied.
  2. See <https://www.diodes.com/quality/lead-free/> for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
  3. For packaging details, go to our website at <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

**Marking Information**



**Maximum Ratings** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Single phase, half wave, 60Hz, resistive or inductive load.  
 For capacitive load, derate current by 20%.

Characteristic	Symbol	KBP404G	KBP406G	KBP408G	KBP410G	Unit
Peak Repetitive Reverse Voltage	V <sub>RRM</sub>	400	600	800	1000	V
Working Peak Reverse Voltage	V <sub>RWM</sub>					
DC Blocking Voltage	V <sub>RM</sub>					
RMS Reverse Voltage	V <sub>R(RMS)</sub>	280	420	560	700	V
Average Rectified Output Current @T <sub>C</sub> = +105°C (With Heatsink) (Without Heatsink)	I <sub>o</sub>	4.0 2.0				A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I <sub>FSM</sub>	130				A
Non-Repetitive Peak Forward Surge Current 1.0ms Single Half Sine-Wave Superimposed on Rated Load	I <sub>FSM</sub>	260				A
I <sup>2</sup> t Rating for Fusing (3ms ≤ t ≤ 8.3ms)	I <sup>2</sup> t	50				A <sup>2</sup> s

**Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance, Junction to Case (Note 4)	R <sub>θJC</sub>	6	°C/W
Typical Thermal Resistance, Junction to Lead (Note 4)	R <sub>θJL</sub>	8	°C/W
Typical Thermal Resistance, Junction to Ambient (Note 4)	R <sub>θJA</sub>	15	°C/W
Typical Thermal Resistance, Junction to Case (Note 5)	R <sub>θJC</sub>	14	°C/W
Typical Thermal Resistance, Junction to Lead (Note 5)	R <sub>θJL</sub>	20	°C/W
Typical Thermal Resistance, Junction to Ambient (Note 5)	R <sub>θJA</sub>	40	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150	°C

**Electrical Characteristics** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min		Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 6)	V <sub>(BR)R</sub>	1,000	KBP410G	—	—	V	I <sub>R</sub> = 5μA
		800	KBP408G				
		600	KBP406G				
		400	KBP404G				
Forward Voltage Drop per Element	V <sub>F</sub>	—		0.94	1.1	V	I <sub>F</sub> = 4.0A, T <sub>J</sub> = +25°C
Leakage Current (Note 6)	I <sub>R</sub>	—		—	5 500	μA	V <sub>R</sub> = 1000V, T <sub>J</sub> = +25°C V <sub>R</sub> = 1000V, T <sub>J</sub> = +125°C
Total Capacitance per Element	C <sub>T</sub>	—		40	—	pF	V <sub>R</sub> = 4.0V <sub>DC</sub> , f = 1MHz

- Notes:
4. Thermal resistance per element. Device mounted on 75mm x 75mm x 1.6mm Cu Plate Heatsink.
  5. Thermal resistance per element without heatsink.
  6. Short duration pulse test used to minimize self-heating effect.

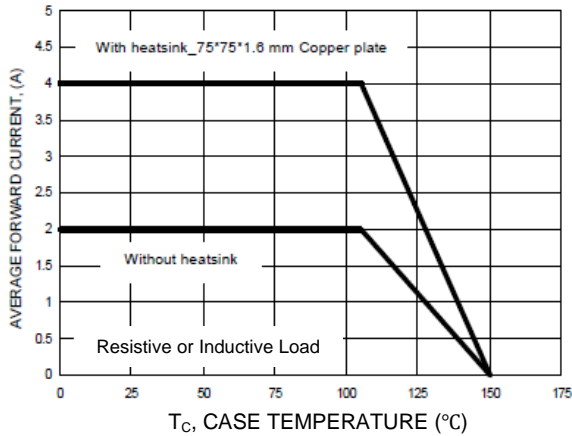


Figure 1. Forward Current Derating Curve

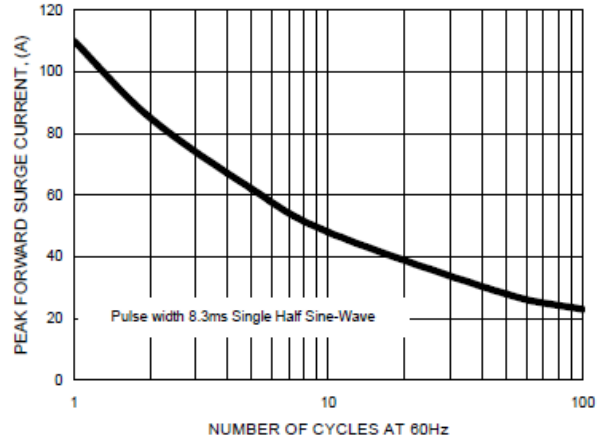


Figure 2. Maximum Non-repetitive Surge Current

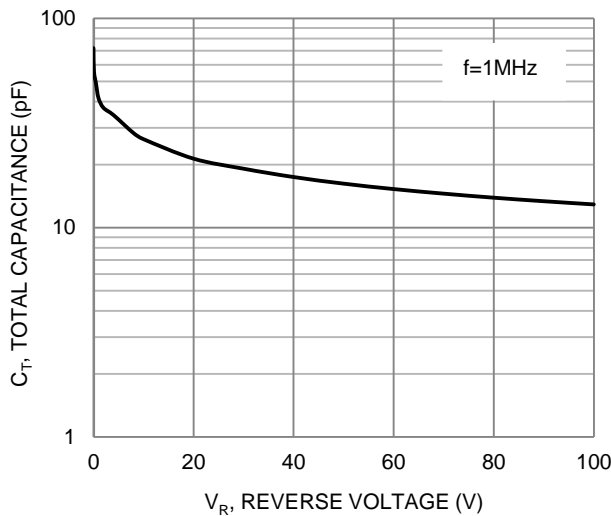


Figure 3. Typical Total Capacitance (Per Element)

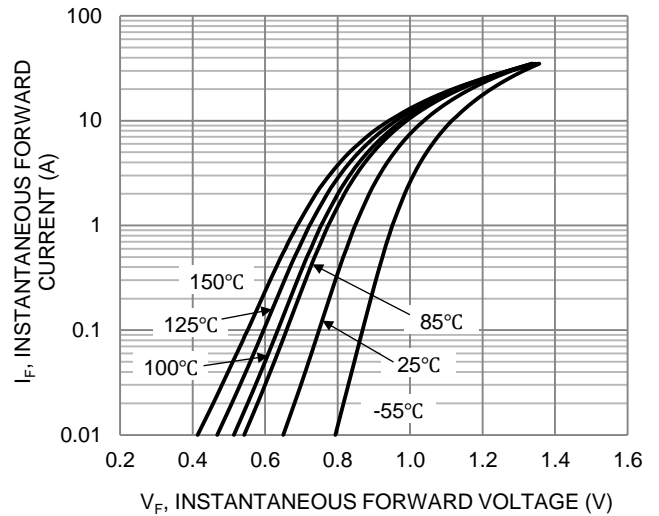


Figure 4. Typical Forward Characteristics

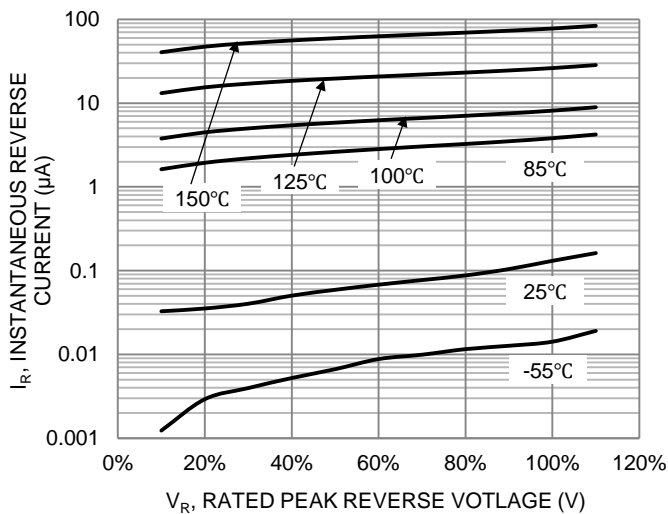


Figure 5. Typical Reverse Characteristics

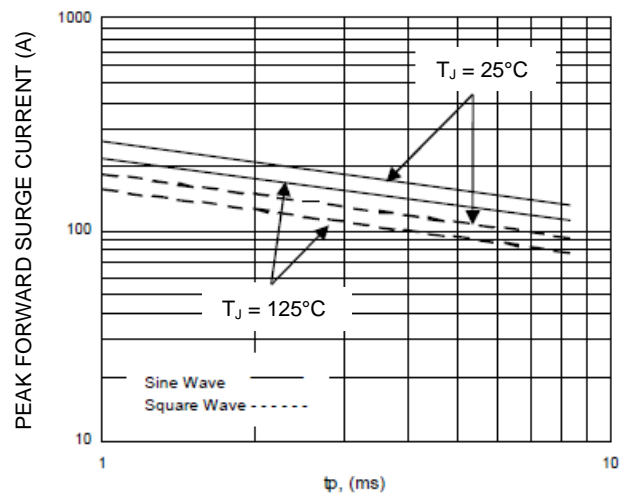
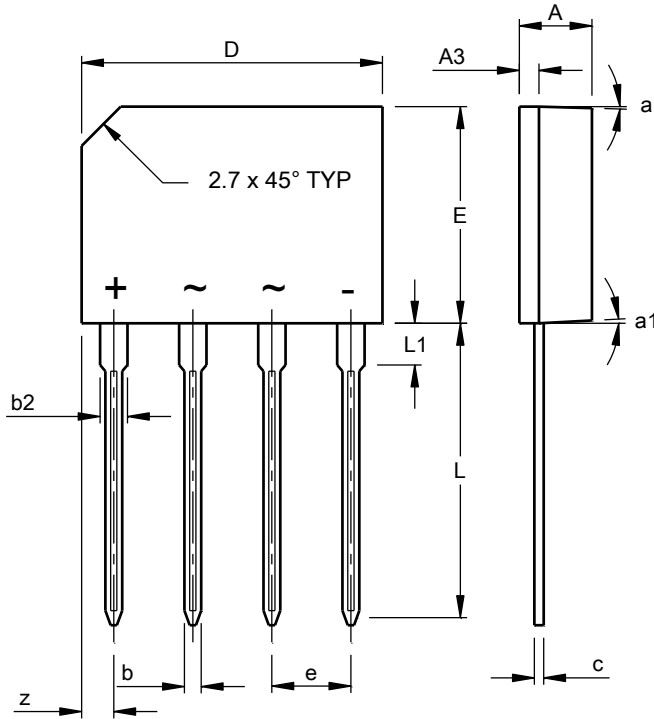


Figure 6. Non-repetitive Surge Current

**Package Outline Dimensions**

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

**KBP**



KBP			
Dim	Min	Max	Typ
A	3.35	3.65	-
A3	0.80	1.10	-
b	0.76	0.86	-
b2	1.22	1.42	-
c	0.35	0.55	-
D	14.25	14.75	-
E	10.20	10.60	-
e	3.56	4.06	-
L	14.25	14.73	-
L1	1.80	2.20	-
z	1.40	1.70	-
a	-	-	3°
a1	-	-	2°
All Dimensions in mm			

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