Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!

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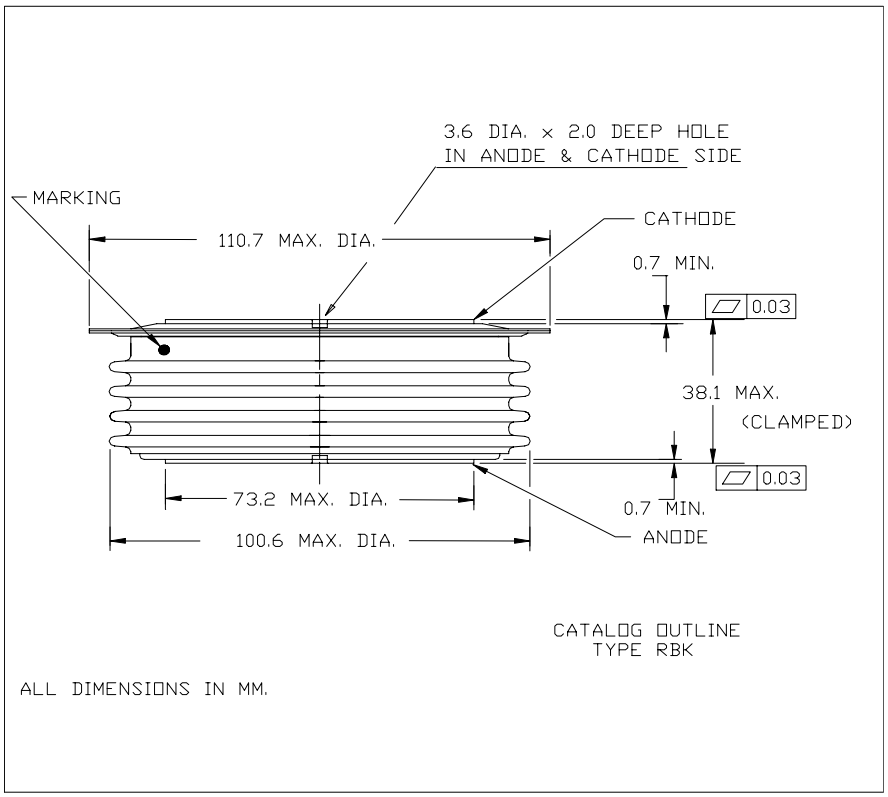
Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China

RBK8_ _40XX

GENERAL PURPOSE RECTIFIER DIODE

Powerex, Inc., 173 Pavilion Ln, Youngwood, PA 15697-1800 724 925-7272 www.pwrx.com

4000 Amperes 4500 Volts



Powerex General Purpose Rectifier Diodes are designed with high locking voltage capability and low forward voltage drop to minimize conduction losses. These are packaged in hermetic, ceramic Pow-R-Disc packages which can be mounted using commercially available clamps and heatsinks or fully assembled to a variety of air or water cooled heat exchangers.

FEATURES:

- Low On-State Voltage
- Hermetic Ceramic Package
- Excellent Surge and I^2t Ratings

APPLICATIONS:

- DC Power Supplies
- Input Rectifiers
- Plating Supplies

ORDERING INFORMATION

Select the complete 12 digit Part Number using the table below.
EXAMPLE: RBK84540XXOO is a 4500V-4000A General Purpose Diode with a typical reverse recovery time of 30µs.

PART	Voltage Rating	Voltage Code	Current Rating	Current Code	Reverse Recovery	Lead Code
	V_{DRM}-V_{RRM}		I_{tavg}		t_{RR}	
RBK8	4500	**45**	4000	**40**	**XX**	**OO**
	4400	**44**				
	4200	**42**			30µs typical	
	4000	**40**				

Revised: 10/15/2007

Absolute Maximum Ratings

Characteristic	Symbol	Rating	Units
Repetitive Peak Reverse Voltage	V_{RRM}	4500	Volts
Average On-State Current, T_C=80°C	$I_{F(Avg.)}$	4000	A
RMS On-State Current, T_C=80°C	$I_{F(RMS)}$	6283	A
Average On-State Current, T_C=55°C	$I_{F(Avg.)}$	4600	A
RMS On-State Current, T_C=55°C	$I_{F(RMS)}$	7226	A
Peak One Cycle Surge Current, 60Hz, V_R=0.6*V_{RRM}	I_{FSM}	53,700	A
Fuse Coordination I^2t, 60Hz	I^2t	1.20E+07	A^2s
Peak One Cycle Surge Current, 50Hz, V_R=0V	I_{FSM}	65,514	A
Fuse Coordination I^2t, 50Hz	I^2t	1.79E+07	A^2s
Operating Temperature	Tj	-40 to+175	°C
Storage Temperature	$T_{Stg.}$	-50 to+200	°C
Approximate Weight		2.5	lb
		1.13	Kg
Mounting Force		6,000 - 10,000	lbs
		26.6 - 44.4	Knewtons

Electrical Characteristics, Tj=25°C unless otherwise specified

Characteristic	Symbol	Test Conditions	Rating min	typ	max	Units
Repetitive Peak Reverse Leakage Current	I_{RRM}	Tj=175°C, V_{RRM}=Rated		100	150	ma
Peak On-State Voltage	V_{FM}	Tj=25°C, I_{FM}=3000A			1.17	V
V_{FM} Model, Low Level	V_0	Tj=175°C			0.75	V
$VFM = V_O + r \bullet I_{FM}$	r	15% I_{FM} - $\pi \bullet I_{FM}$			0.133	mΩ
V_{FM} Model, High Level	V_0	Tj=175°C			0.88	V
$VFM = V_O + r \bullet I_{FM}$	r	$\pi \bullet I_{FM}$ - I_{FSM}			0.122	mΩ
V_{FM} Model, 4-Term	A	Tj=175°C			0.597	
$V_{FM} = A + B \bullet Ln(I_{FM}) +$	B	15%I_{FM} - I_{FSM}			0.0131	
$C \bullet (I_{FM}) + D \bullet (I_{FM})^{½}$	C				1.153E-04	
	D				0.00212	
Reverse Recovery Time	t_{RR}	Tj=25°C, I_{FM}=2000A di_R/dt = 25 A/µs		30		µs

Thermal Characteristics

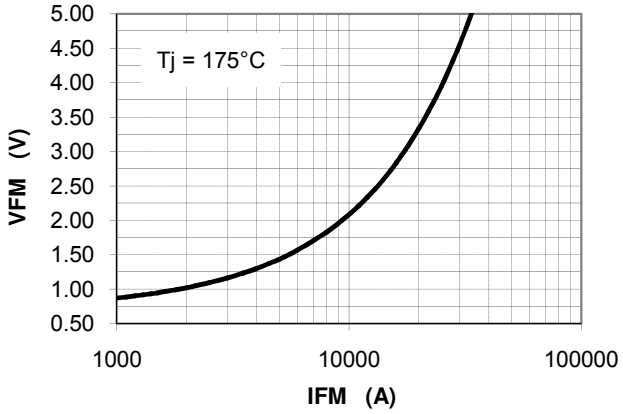
Characteristic	Symbol	Test Conditions	Rating min	typ	max	Units
Thermal Resistance						
Junction to Case	$R\Theta_{jc}$	Double side cooled		0.010	0.0115	°C/Watt
Case to Sink	$R\Theta_{cs}$	Double side cooled		0.0015	0.002	°C/Watt
Thermal Impedance Model	$Z\Theta_{jc}$	Double side cooled				

$$Z\Theta_{jc}(t) = \Sigma(A(N) \bullet (1-\exp(-t/Tau(N))))$$

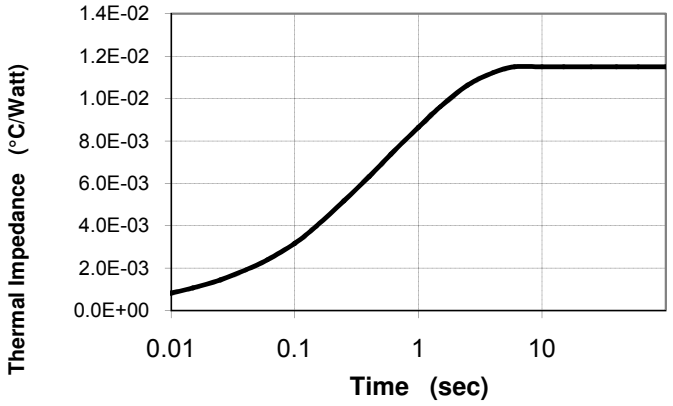
where:

N =	1	2	3	4
A(N) =	1.020E-05	8.786E-04	4.154E-03	6.431E-03
Tau(N) =	5.860E-04	1.409E-02	1.814E-01	1.208E+00

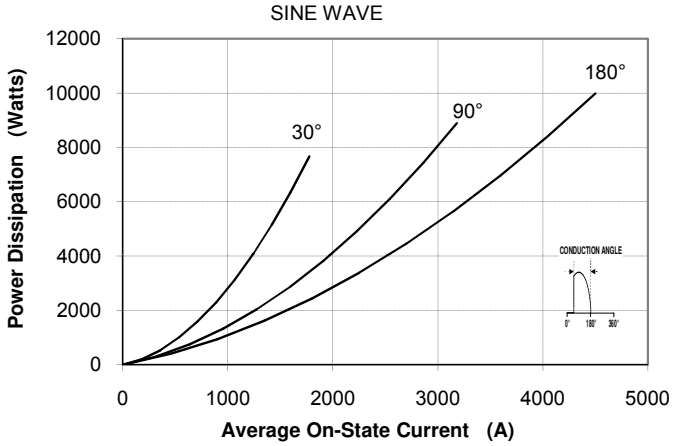
Maximum On-State Voltage Drop



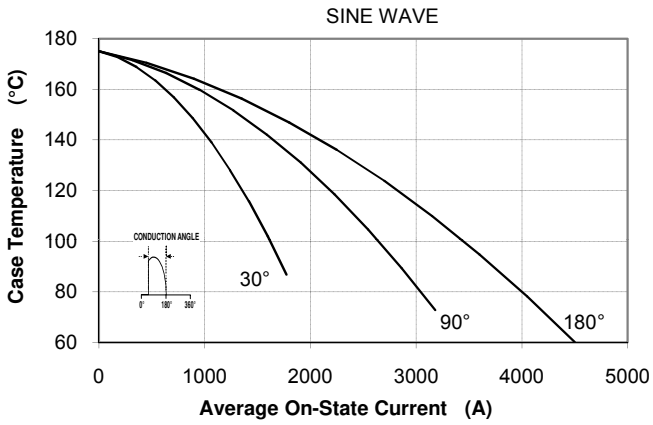
MAXIMUM TRANSIENT THERMAL IMPEDANCE



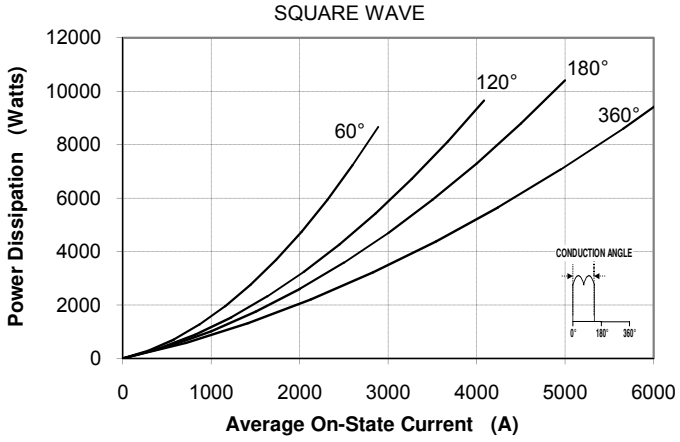
Maximum On-State Power Dissipation



Maximum Allowable Case Temperature



Maximum On-State Power Dissipation



Maximum Allowable Case Temperature