

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: RDK83085XXOO is a 3000V-8500A General Purpose Diode with a typical reverse recovery time of 35 $\mu$ s.

PART	Voltage Rating $V_{DRM}-V_{RRM}$	Voltage Code	Current Rating $I_{TAVG}$	Current Code	Reverse Recovery $t_{RR}$	Lead Code
<b>RDK8</b>	3000V	<b>30</b>	8500A	<b>85</b>	<b>XX</b>	<b>OO</b>
	2600V	<b>26</b>				
	2400V	<b>24</b>			35 $\mu$ s typical	

Revised: 9/30/2005

**Absolute Maximum Ratings**

Characteristic	Symbol	Rating	Units
Repetitive Peak Reverse Voltage	$V_{RRM}$	3000	Volts
Average On-State Current, $T_C=90^\circ\text{C}$	$I_{F(Avg.)}$	8500	A
RMS On-State Current, $T_C=90^\circ\text{C}$	$I_{F(RMS)}$	13352	A
Average On-State Current, $T_C=55^\circ\text{C}$	$I_{F(Avg.)}$	10000	A
RMS On-State Current, $T_C=55^\circ\text{C}$	$I_{F(RMS)}$	15708	A
Peak One Cycle Surge Current, 60Hz, $V_R=V_{RRM}$	$I_{FSM}$	100,000	A
Fuse Coordination $I^2t$ , 60Hz	$I^2t$	4.17E+07	A <sup>2</sup> s
Peak One Cycle Surge Current, 50Hz, $V_R=0V$	$I_{FSM}$	92,500	A
Fuse Coordination $I^2t$ , 50Hz	$I^2t$	4.28E+07	A <sup>2</sup> s
Operating Temperature	$T_j$	-40 to+160	°C
Storage Temperature	$T_{Stg.}$	-50 to+190	°C
Approximate Weight		6.5	lb
		2.95	Kg
Mounting Force		16,000 - 20,000	lbs
		71.2 - 89.0	Knewtons

The information on this datasheet is based upon Powerex testing and projected ratings and is subject to change without notice. Powerex makes no implicit or explicit claim to reliability, capability, performance or suitability of this product for a users application. Powerex makes no guarantee of future availability of this product.



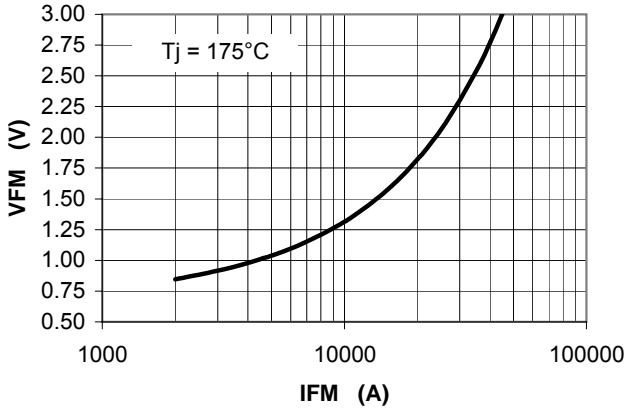
**Electrical Characteristics, Tj=25°C unless otherwise specified**

Characteristic	Symbol	Test Conditions	Rating			Units
			min	typ	max	
Repetitive Peak Reverse Leakage Current	$I_{RRM}$	Tj=160°C, $V_{RRM}$ =Rated		150	300	ma
Peak On-State Voltage	$V_{FM}$	Tj=160°C, $I_{FM}$ =4000A			0.82	V
$V_{FM}$ Model, Low Level	$V_0$	Tj=160°C			0.762	V
$V_{FM} = V_0 + r \cdot I_{FM}$	r	15% $I_{FM} - \pi \cdot I_{FM}$			5.28E-02	mΩ
$V_{FM}$ Model, High Level	$V_0$	Tj=160°C			0.937	V
$V_{FM} = V_0 + r \cdot I_{FM}$	r	$\pi \cdot I_{FM} - I_{FSM}$			4.58E-02	mΩ
$V_{FM}$ Model, 4-Term	A	Tj=160°C			0.462	
$V_{FM} = A + B \cdot \ln(I_{FM}) +$	B	15% $I_{FM} - I_{FSM}$			3.10E-02	
$C \cdot (I_{FM}) + D \cdot (I_{FM})^{1/2}$	C				4.24E-05	
	D				1.43E-03	
Reverse Recovery Time	$t_{RR}$	Tj=25°C, $I_{FM}$ =400A $di_R/dt = 25 A/\mu s$		35		μs

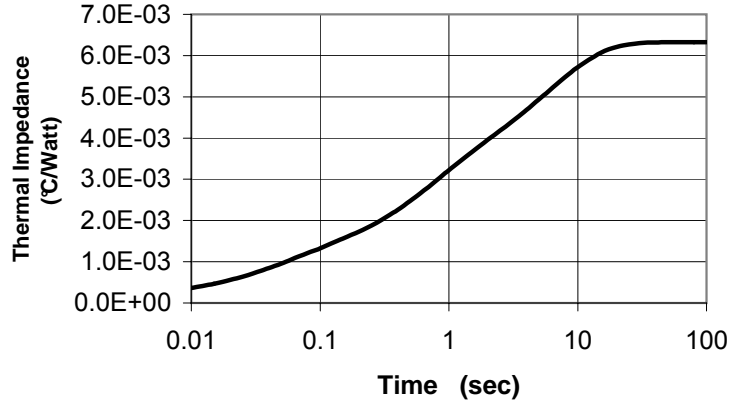
**Thermal Characteristics**

Characteristic	Symbol	Test Conditions	Rating			Units	
			min	typ	max		
Thermal Resistance							
Junction to Case	$R\theta_{jc}$	Double side cooled		0.006	0.0063	°C/Watt	
Case to Sink	$R\theta_{cs}$	Double side cooled		0.0008	0.001	°C/Watt	
Thermal Impedance Model	$Z\theta_{jc}$	Double side cooled					
$Z\theta_{jc}(t) = \sum(A(N) \cdot (1 - \exp(-t/\text{Tau}(N))))$		where:	N =	1	2	3	4
			A(N) =	1.43E-04	9.08E-04	2.07E-03	3.20E-03
			Tau(N) =	2.62E-03	4.31E-02	6.05E-01	6.00E+00

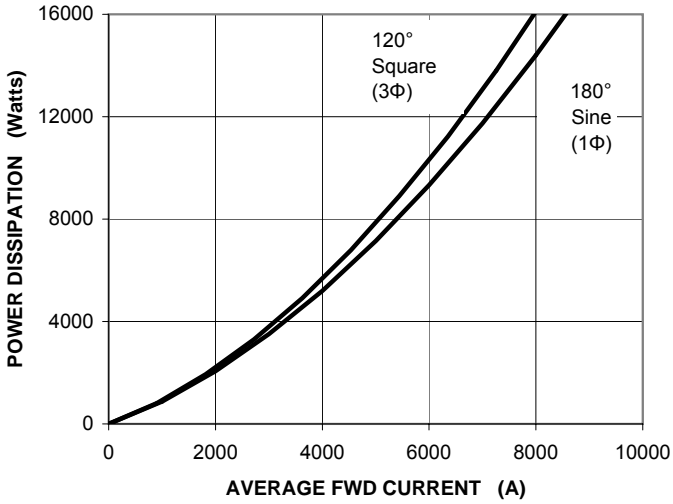
**Maximum On-State Voltage Drop**



**MAXIMUM TRANSIENT THERMAL IMPEDANCE**



**POWER DISSIPATION**



**ALLOWABLE CASE TEMPERATURE**

