

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 μ s.

PART	Voltage Rating $V_{DRM}-V_{RRM}$	Voltage Code	Current Rating I_{TAVG}	Current Code	Reverse Recovery t_{RR}	Lead Code
RDK8	3000V	30	8500A	85	XX	OO
	2600V	26				
	2400V	24			35 μ 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 ² 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 ² 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.



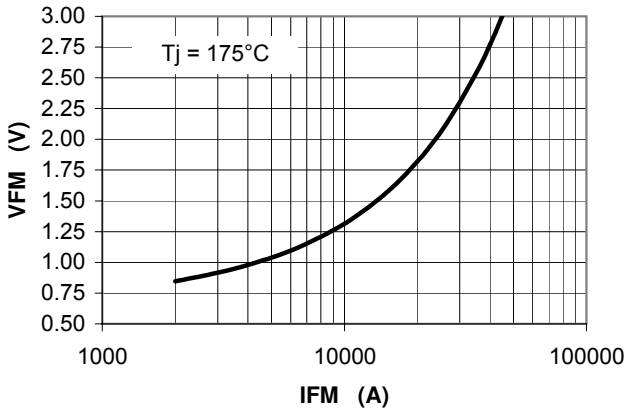
Electrical Characteristics, Tj=25°C unless otherwise specified

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

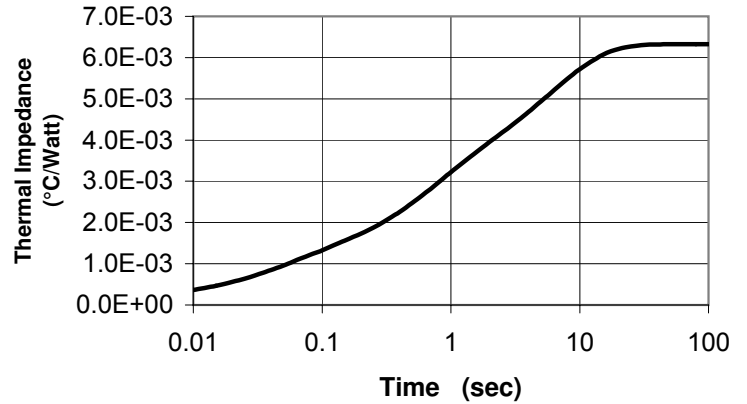
Thermal Characteristics

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

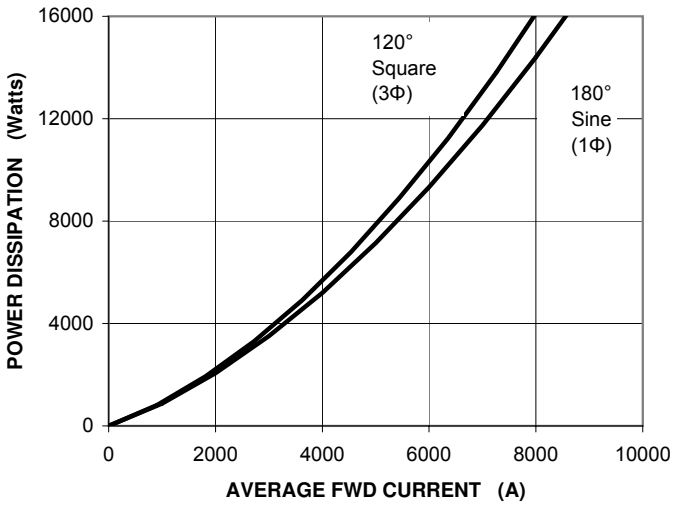
Maximum On-State Voltage Drop



MAXIMUM TRANSIENT THERMAL IMPEDANCE



POWER DISSIPATION



ALLOWABLE CASE TEMPERATURE

