

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<sup>2</sup>t Ratings

**APPLICATIONS:**

- DC Power Supplies
- Input Rectifiers
- Plating Supplies

**ORDERING INFORMATION**

Select the complete 12 digit Part Number using the table below.  
 EXAMPLE: RDS82280XXOO is a 2200V-8000A General Purpose Diode with a typical reverse recovery time of 25µs.

PART	Voltage Rating V <sub>DRM</sub> -V <sub>RPM</sub>	Voltage Code	Current Rating I <sub>tavg</sub>	Current Code	Reverse Recovery t <sub>RR</sub>	Lead Code
<b>RDS8</b>	2500V	<b>25</b>	8000A	<b>80</b>	<b>XX</b>	<b>OO</b>
	2400V	<b>24</b>				
	2200V	<b>22</b>			25µs typical	
	2000V	<b>20</b>				

Revised: 916/2002

**Absolute Maximum Ratings**

Characteristic	Symbol	Rating	Units
Repetitive Peak Reverse Voltage	$V_{RRM}$	2500	Volts
Non-repetitive Transient Peak Reverse Voltage	$V_{RSM}$	$V_{RRM} + 100$	Volts
Average On-State Current, $T_C=90^\circ\text{C}$	$I_{F(Avg.)}$	8000	A
RMS On-State Current, $T_C=90^\circ\text{C}$	$I_{F(RMS)}$	12566	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	$I^2t$	3.57E+07	A <sup>2</sup> s
Operating Temperature	$T_j$	-40 to+175	°C
Storage Temperature	$T_{Stg.}$	-50 to+200	°C
Approximate Weight		6.5	lb
		2.95	Kg
Mounting Force		16,000 - 20,000	lbs
		71.2 - 89.0	Knewtons

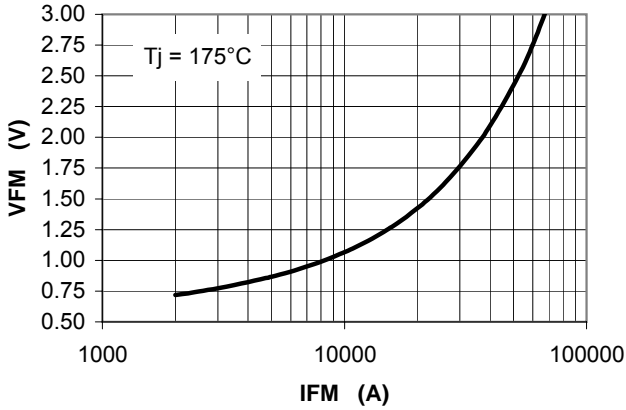
**Electrical Characteristics, Tj=25°C unless otherwise specified**

Characteristic	Symbol	Test Conditions	Rating			Units
			min	typ	max	
Repetitive Peak Reverse Leakage Current	$I_{RRM}$	Tj=175°C, $V_{RRM}$ =Rated		150	300	ma
Peak On-State Voltage	$V_{FM}$	Tj=175°C, $I_{FM}$ =4000A			0.82	V
$V_{FM}$ Model, Low Level	$V_0$	Tj=175°C			0.654	V
$V_{FM} = V_0 + r \cdot I_{FM}$	r	15% $I_{FM} - \pi \cdot I_{FM}$			3.82E-05	$\Omega$
$V_{FM}$ Model, High Level	$V_0$	Tj=175°C			0.786	V
$V_{FM} = V_0 + r \cdot I_{FM}$	r	$\pi \cdot I_{FM} - I_{FSM}$			3.27E-05	$\Omega$
$V_{FM}$ Model, 4-Term	A	Tj=175°C			0.218	
$V_{FM} = A + B \cdot \ln(I_{FM}) +$	B	15% $I_{FM} - I_{FSM}$			5.70E-02	
$C \cdot (I_{FM}) + D \cdot (I_{FM})^{1/2}$	C				3.14E-05	
	D				8.51E-05	
Reverse Recovery Time	$t_{RR}$	Tj=25°C, $I_{FM}$ =400A $di_R/dt = 25 A/\mu s$		25		$\mu s$

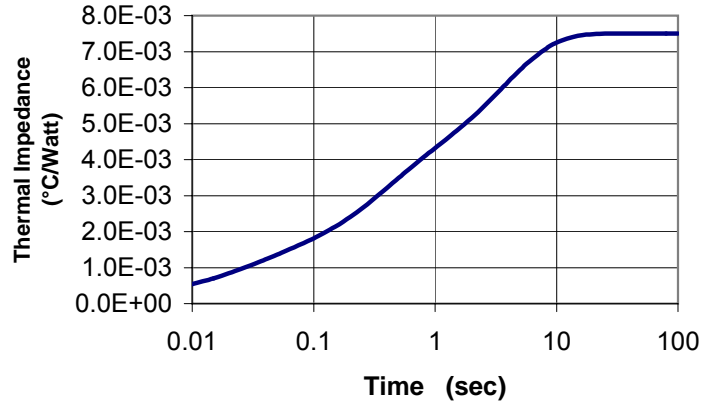
**Thermal Characteristics**

Characteristic	Symbol	Test Conditions	Rating			Units	
			min	typ	max		
Thermal Resistance							
Junction to Case	$R\theta_{jc}$	Double side cooled		0.007	0.0075	°C/Watt	
Case to Sink	$R\theta_{cs}$	Double side cooled		0.001	0.0015	°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) =	1.426E-04	9.077E-04	2.373E-03	4.080E-03
			Tau(N) =	2.622E-03	2.313E-02	3.049E-01	3.600E+00

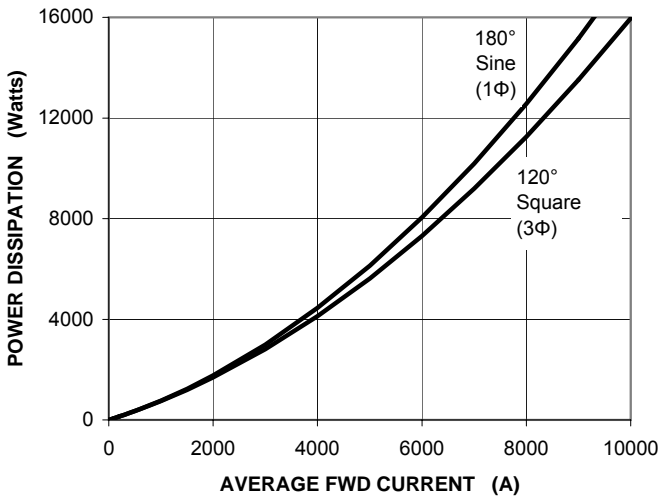
**Maximum On-State Voltage Drop**



**MAXIMUM TRANSIENT THERMAL IMPEDANCE**



**POWER DISSIPATION**



**ALLOWABLE CASE TEMPERATURE**

