

Powerex General Purpose Rectifier Diodes are designed with high blocking 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: RDS83090XXOO is a 3000V-9000A 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
RDS8	3000V	30	9000A	90	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, $T_C=90^\circ\text{C}$	$I_{F(Avg.)}$	9000	A
RMS On-State Current, $T_C=90^\circ\text{C}$	$I_{F(RMS)}$	14137	A
Average On-State Current, $T_C=55^\circ\text{C}$	$I_{F(Avg.)}$	10500	A
RMS On-State Current, $T_C=55^\circ\text{C}$	$I_{F(RMS)}$	16493	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.



RDS8__90XX

GENERAL PURPOSE RECTIFIER DIODE

Powerex, Inc., 200 Hillis Street, Youngwood, PA 15697-1800 (724) 925-7272 WWW.PWRX.COM

9000 Amperes 3000 Volts

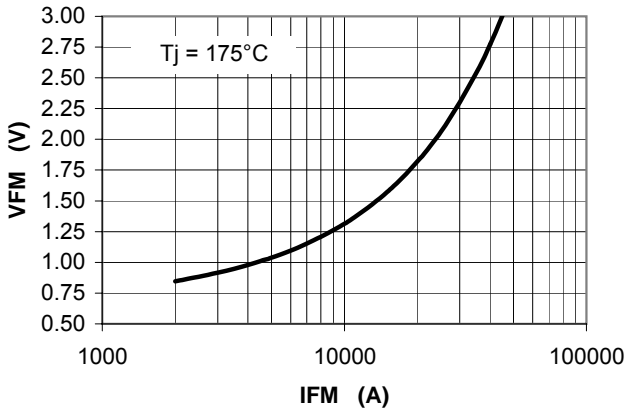
Electrical Characteristics, Tj=25°C unless otherwise specified

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

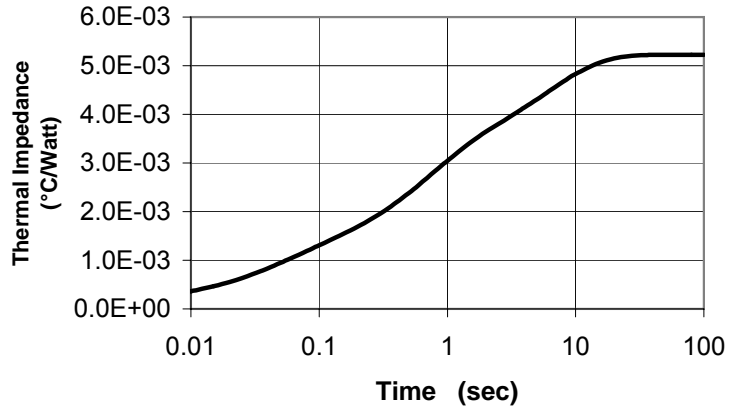
Thermal Characteristics

Characteristic	Symbol	Test Conditions	Rating			Units	
			min	typ	max		
Thermal Resistance							
Junction to Case	$R\theta_{jc}$	Double side cooled		0.0047	0.0052	°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	2.10E-03
			Tau(N) =	2.62E-03	4.31E-02	6.05E-01	6.00E+00

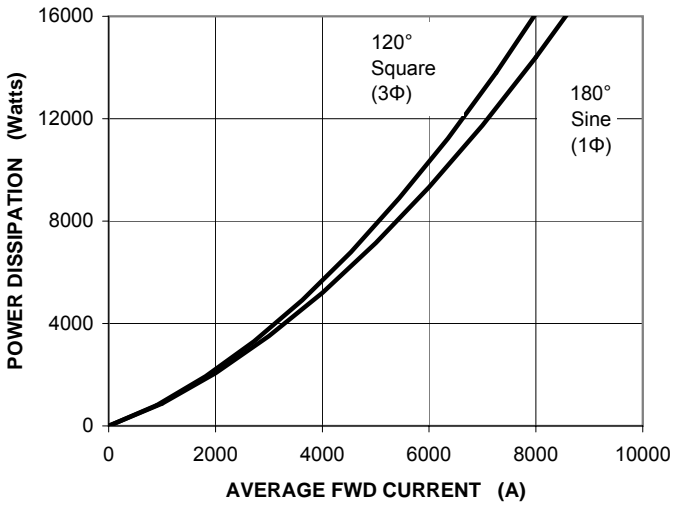
Maximum On-State Voltage Drop



MAXIMUM TRANSIENT THERMAL IMPEDANCE



POWER DISSIPATION



ALLOWABLE CASE TEMPERATURE

