

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

ORDERING INFORMATION

Select the complete 12 digit Part Number using the table below.
 EXAMPLE: R9G06514XXOO is a 6500V-1360A General Purpose Diode with a typical reverse recovery time of 25 μ s.

PART	Voltage Rating $V_{DRM}-V_{RRM}$	Voltage Code	Current Rating I_{tavg}	Current Code	Reverse Recovery t_{RR}	Lead Code
R9G0	6500V	65	1360A	14	XX	OO
	6200V	62				
	6000V	60			25 μ s typical	

Absolute Maximum Ratings

Characteristic	Symbol	Rating	Units
Repetitive Peak Reverse Voltage	V_{RRM}	6000 - 6500	Volts
Average On-State Current, $T_C=80\text{ }^\circ\text{C}$	$I_{F(Avg.)}$	1360	A
RMS On-State Current, $T_C=80\text{ }^\circ\text{C}$	$I_{F(RMS)}$	2136	A
Average On-State Current, $T_C=55\text{ }^\circ\text{C}$	$I_{F(Avg.)}$	1640	A
RMS On-State Current, $T_C=55\text{ }^\circ\text{C}$	$I_{F(RMS)}$	2576	A
Peak One Cycle Surge Current [†] , 60Hz, $V_R=V_{RRM}$	I_{FSM}	12,500	A
Fuse Coordination I^2t , 60Hz	I^2t	6.51E+05	A ² s
Peak One Cycle Surge Current [†] , 50Hz, $V_R=0V$	I_{FSM}	15,250	A
Fuse Coordination I^2t , 50Hz	I^2t	1.16E+06	A ² s
Operating Temperature	T_J	-40 to+150	°C
Storage Temperature	$T_{Stg.}$	-50 to+200	°C
Approximate Weight		1.0	lb
		0.45	Kg
Mounting Force		5000-6000	lbs
		22.7 - 27.0	Knewtons

[†] Per NEMA Std. RS-282

Information presented is based upon projected capabilities. This information is subject to change without notice. The manufacturer makes no claim as to suitability for use, reliability, capability or future availability of this product.

Electrical Characteristics, T_j=25°C unless otherwise specified

Characteristic	Symbol	Test Conditions	Rating			Units
			min	typ	max	
Repetitive Peak Reverse Leakage Current	I _{RRM}	T _j =150°C, V _{RRM} =Rated		100	150	ma
Peak On-State Voltage	V _{FM}	T _j =25°C, I _{FM} =1500A			1.55	V
V _{FM} Model, Low Level	V ₀	T _j =150°C			0.793	V
V _{FM} = V ₀ + r•I _{FM}	r	15% I _{FM} - π•I _{FM}			5.21E-01	mΩ
V _{FM} Model, High Level	V ₀	T _j =150°C			0.924	V
V _{FM} = V ₀ + r•I _{FM}	r	π•I _{FM} - I _{FSM}			4.84E-01	mΩ
V _{FM} Model, 4-Term	A	T _j =150°C			0.071	
V _{FM} = A + B•Ln(I _{FM}) +	B	15% I _{FM} - I _{FSM}			0.1374	
C•(I _{FM}) + D•(I _{FM}) ^{1/2}	C				4.970E-04	
	D				-0.00540	
Reverse Recovery Time	t _{RR}	T _j =25°C, I _{FM} =1500A di _R /dt = 25 A/μs		25		μs

Thermal Characteristics

Characteristic	Symbol	Test Conditions	Rating			Units
			min	typ	max	
Thermal Resistance						
Junction to Case	Rθ _{jc}	Double side cooled		0.018	0.020	°C/Watt
Case to Sink	Rθ _{cs}	Double side cooled		0.004	0.006	°C/Watt

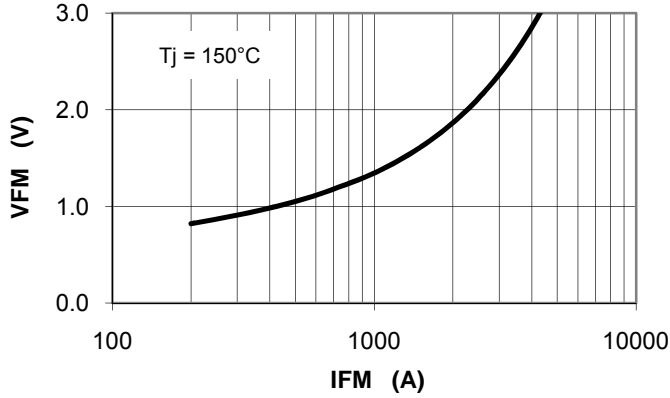
Thermal Impedance Model Zθ_{jc} Double side cooled

$$Z\theta_{jc}(t) = \sum(A(N) \cdot (1 - \exp(-t/\text{Tau}(N))))$$

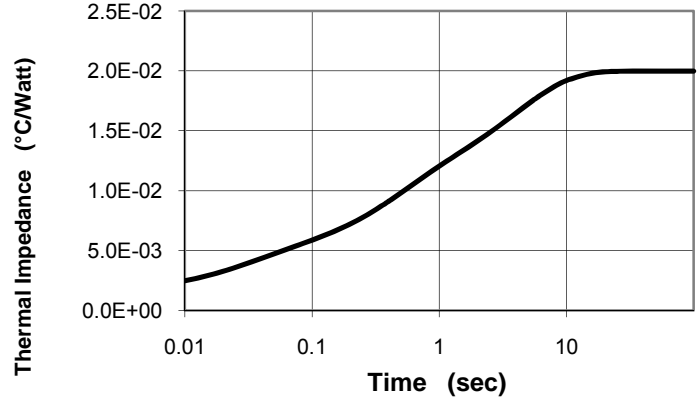
where:

N =	1	2	3	4
A(N) =	1.418E-03	2.968E-03	6.066E-03	9.527E-03
Tau(N) =	5.947E-05	2.762E-02	4.011E-01	4.012E+00

Maximum On-State Voltage Drop

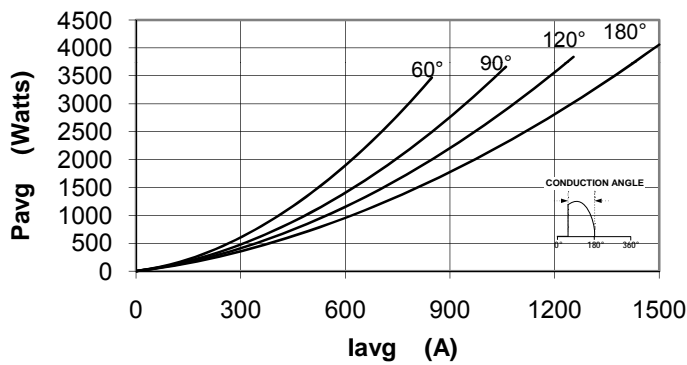


MAXIMUM TRANSIENT THERMAL IMPEDANCE



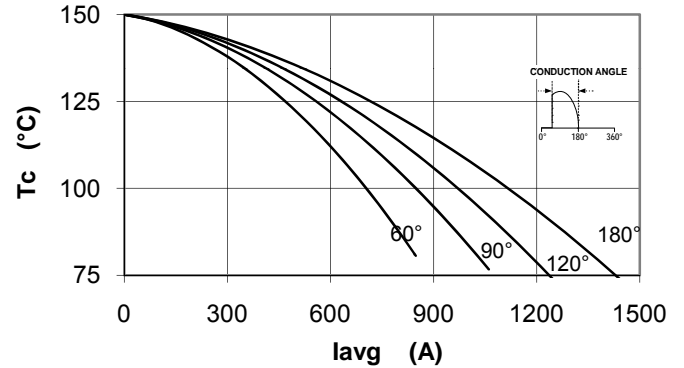
Maximum On-State Power Dissipation

Sinusoidal Waveform



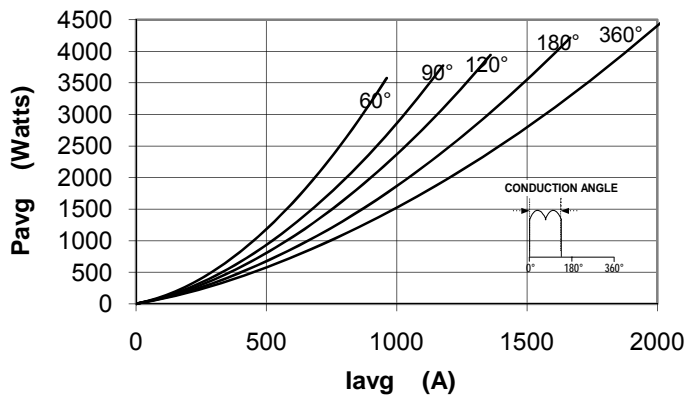
Maximum Allowable Case Temperature

Sinusoidal Waveform



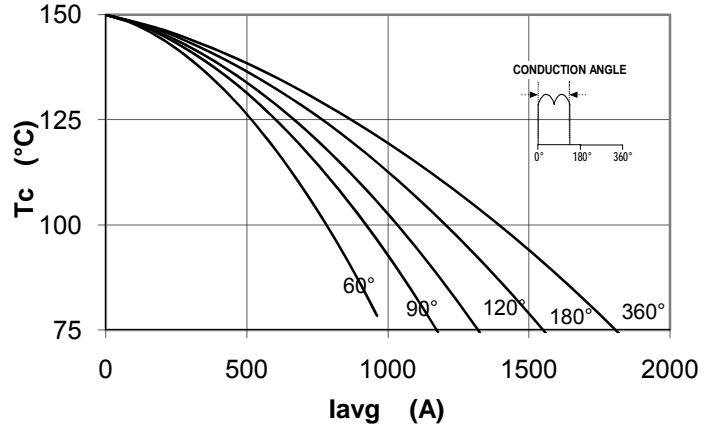
Maximum On-State Power Dissipation

Square Waveform

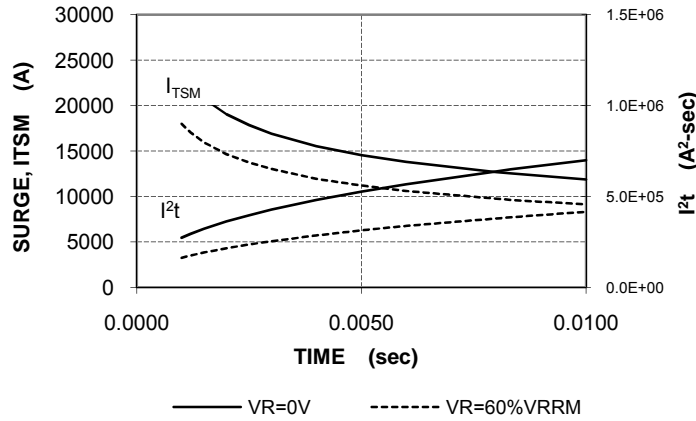


Maximum Allowable Case Temperature

Square Waveform



SUB-CYCLE SURGE -- I^2t



MULTI-CYCLE SURGE

