

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

**ORDERING INFORMATION**

Select the complete 12 digit Part Number using the table below.  
EXAMPLE: R9G02221XXOO is a 2200V-2100A General Purpose Diode with a typical reverse recovery time of 25 $\mu$ s.

PART	Voltage Rating $V_{DRM}$ - $V_{RRM}$	Voltage Code	Current Rating $I_{TAVG}$	Current Code	Reverse Recovery $t_{RR}$	Lead Code
<b>R9G0</b>	2200V	<b>22</b>	2100A	<b>21</b>	<b>XX</b>	<b>OO</b>
	2000V	<b>20</b>				
	1800V	<b>18</b>			25 $\mu$ s typical	

**Absolute Maximum Ratings**

Characteristic	Symbol	Rating	Units
Repetitive Peak Reverse Voltage	$V_{RRM}$	2200	Volts
Average On-State Current, $T_C=118\text{ }^\circ\text{C}$	$I_{F(Avg.)}$	2100	A
RMS On-State Current, $T_C=118\text{ }^\circ\text{C}$	$I_{F(RMS)}$	3299	A
Average On-State Current, $T_C=84\text{ }^\circ\text{C}$	$I_{F(Avg.)}$	3000	A
RMS On-State Current, $T_C=84\text{ }^\circ\text{C}$	$I_{F(RMS)}$	4712	A
Peak One Cycle Surge Current <sup>†</sup> , 60Hz, $V_R=V_{RRM}$	$I_{FSM}$	22,000	A
Fuse Coordination $I^2t$ , 60Hz	$I^2t$	2.02E+06	A <sup>2</sup> s
Peak One Cycle Surge Current <sup>†</sup> , 60Hz, $V_R=0V$	$I_{FSM}$	28,600	A
Fuse Coordination $I^2t$ , 50Hz	$I^2t$	3.41E+06	A <sup>2</sup> s
Peak 3 Cycle Surge Current, 60Hz, $V_R=0V$	$I_{FSM}$	25,080	A
Peak 10 Cycle Surge Current, 60Hz, $V_R=0V$	$I_{FSM}$	20,130	A
Operating Temperature	$T_j$	-40 to+175	°C
Storage Temperature	$T_{Stg.}$	-50 to+200	°C
Approximate Weight		1.0	lb
		0.45	Kg
Mounting Force		5500-6000	lbs
		24.5 - 26.7	Knewtons

<sup>†</sup> Per NEMA Std. RS-282

**Electrical Characteristics, T<sub>j</sub>=25°C unless otherwise specified**

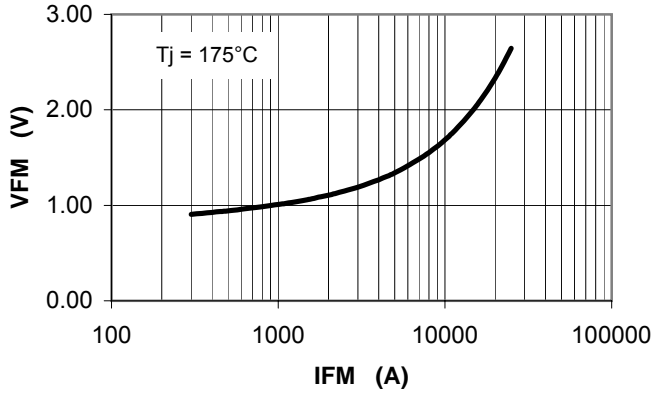
Characteristic	Symbol	Test Conditions	Rating			Units
			min	typ	max	
Repetitive Peak Reverse Leakage Current	I <sub>RRM</sub>	T <sub>j</sub> =175°C, V <sub>RRM</sub> =Rated			75	ma
Peak On-State Voltage	V <sub>FM</sub>	T <sub>j</sub> =25°C, I <sub>FM</sub> =4000A			1.24	V
V <sub>FM</sub> Model, Low Level	V <sub>0</sub>	T <sub>j</sub> =175°C			0.912	V
V <sub>FM</sub> = V <sub>0</sub> + r•I <sub>FM</sub>	r	15% I <sub>FM</sub> - π•I <sub>FM</sub>			8.85E-05	Ω
V <sub>FM</sub> Model, High Level	V <sub>0</sub>	T <sub>j</sub> =175°C			1.059	V
V <sub>FM</sub> = V <sub>0</sub> + r•I <sub>FM</sub>	r	π•I <sub>FM</sub> - I <sub>FSM</sub>			6.32E-05	Ω
V <sub>FM</sub> Model, 4-Term	A	T <sub>j</sub> =175°C			0.652	
V <sub>FM</sub> = A + B•Ln(I <sub>FM</sub> ) +	B	15% I <sub>FM</sub> - I <sub>FSM</sub>			0.0381	
C•(I <sub>FM</sub> ) + D•(I <sub>FM</sub> ) <sup>1/2</sup>	C				5.730E-05	
	D				0.00111	
Reverse Recovery Time	t <sub>RR</sub>	T <sub>j</sub> =25°C, I <sub>FM</sub> =1500A di <sub>R</sub> /dt = 25 A/μs		25		μs

**Thermal Characteristics**

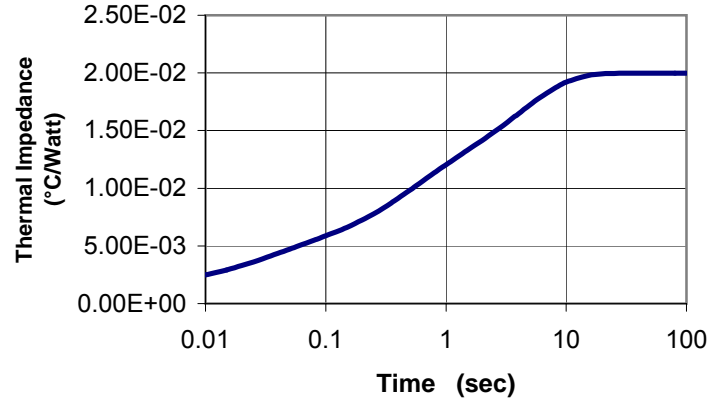
Characteristic	Symbol	Test Conditions	Rating			Units
			min	typ	max	
Thermal Resistance						
Junction to Case	R <sub>Θ<sub>jc</sub></sub>	Double side cooled		0.018	0.02	°C/Watt
Case to Sink	R <sub>Θ<sub>cs</sub></sub>	Double side cooled		0.004	0.006	°C/Watt

Thermal Impedance Model	Z <sub>Θ<sub>jc</sub></sub>	Test Conditions	Rating					
Z <sub>Θ<sub>jc</sub></sub> (t) = Σ(A(N)•(1-exp(-t/Tau(N))))		Double side cooled	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**

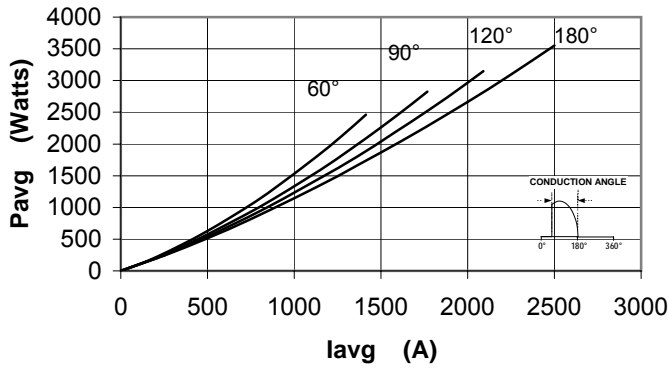


**MAXIMUM TRANSIENT THERMAL IMPEDANCE**



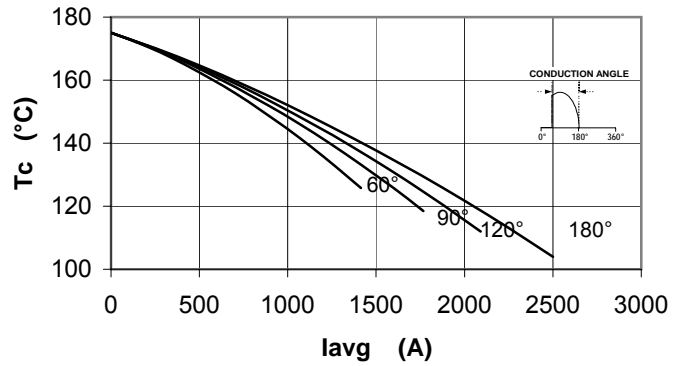
**Maximum On-State Power Dissipation**

Sinusoidal Waveform



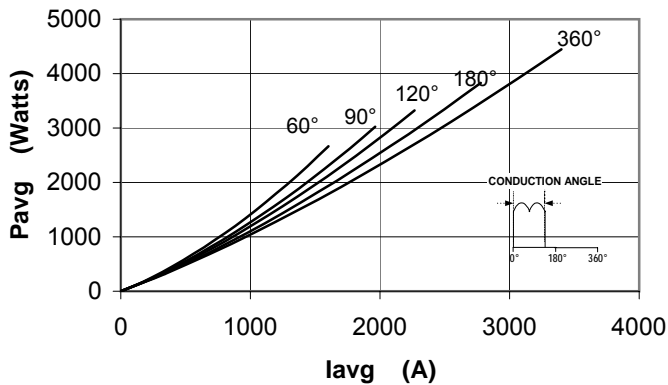
**Maximum Allowable Case Temperature**

Sinusoidal Waveform



**Maximum On-State Power Dissipation**

Square Waveform



**Maximum Allowable Case Temperature**

Square Waveform

