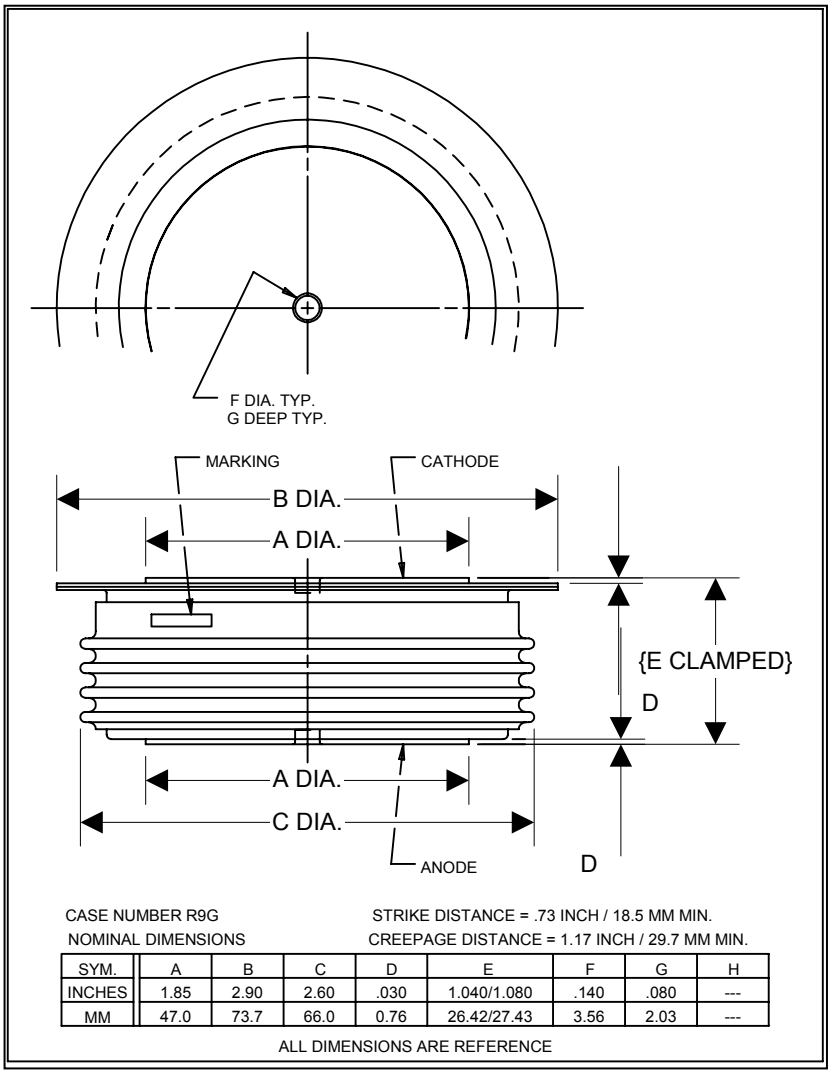
R9G0__21XX

GENERAL PURPOSE RECTIFIER DIODE

Powerex, Inc., 200 Hillis Street, Youngwood, Pennsylvania 15697-1800 (724)925-7272

2100 Amperes 2200 Volts



CASE NUMBER R9G
NOMINAL DIMENSIONS

STRIKE DISTANCE = .73 INCH / 18.5 MM MIN.
CREEPAGE DISTANCE = 1.17 INCH / 29.7 MM MIN.

SYM.	A	B	C	D	E	F	G	H
INCHES	1.85	2.90	2.60	.030	1.040/1.080	.140	.080	---
MM	47.0	73.7	66.0	0.76	26.42/27.43	3.56	2.03	---

ALL DIMENSIONS ARE REFERENCE

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: R9GO2221XXOO is a 2200V-2100A General Purpose Diode with a typical reverse recovery time of 25µs.

PART	Voltage Rating V_{DRM}-V_{RRM}	Voltage Code	Current Rating I_{tavg}	Current Code	Reverse Recovery t_{RR}	Lead Code
R9G0	2200V	**22**	2100A	**21**	**XX**	**OO**
	2000V	**20**				
	1800V	**18**			25µs typical	

Revised: 3/31/2003

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Absolute Maximum Ratings

Characteristic	Symbol	Rating	Units
Repetitive Peak Reverse Voltage	V_{RRM}	2200	Volts
Average On-State Current, T_C= 118 °C	$I_{F(Avg.)}$	2100	A
RMS On-State Current, T_C= 118 °C	$I_{F(RMS)}$	3299	A
Average On-State Current, T_C= 84 °C	$I_{F(Avg.)}$	3000	A
RMS On-State Current, T_C= 84 °C	$I_{F(RMS)}$	4712	A
Peak One Cycle Surge Current†, 60Hz, V_R=V_{RRM}	I_{FSM}	22,000	A
Fuse Coordination I^2t, 60Hz	I^2t	2.02E+06	A^2s
Peak One Cycle Surge Current†, 60Hz, V_R=0V	I_{FSM}	28,600	A
Fuse Coordination I^2t, 50Hz	I^2t	3.41E+06	A^2s
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	Tj	-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

† Per NEMA Std. RS-282

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Electrical Characteristics, Tj=25°C unless otherwise specified

Characteristic	Symbol	Test Conditions	Rating min	Rating typ	Rating max	Units
Repetitive Peak Reverse Leakage Current	I_{RRM}	Tj=175°C, V_{RRM}=Rated			75	ma
Peak On-State Voltage	V_{FM}	Tj=25°C, I_{FM}=4000A			1.24	V
V_{FM} Model, Low Level	V_0	Tj=175°C			0.912	V
VFM = V_O + r•I_{FM}	r	15% I_{FM} - π•I_{FM}			8.85E-05	Ω
V_{FM} Model, High Level	V_0	Tj=175°C			1.059	V
VFM = V_O + r•I_{FM}	r	π•I_{FM} - I_{FSM}			6.32E-05	Ω
V_{FM} Model, 4-Term	A	Tj=175°C			0.652	
V_{FM}= A + B•Ln(I_{FM}) +	B	15%I_{FM} - I_{FSM}			0.0381	
C•(I_{FM}) + D•(I_{FM})^{½}	C				5.730E-05	
	D				0.00111	
Reverse Recovery Time	t_{RR}	Tj=25°C, I_{FM}=1500A di_R/dt = 25 A/µs		25		µs

Thermal Characteristics

Characteristic	Symbol	Test Conditions	Rating min	Rating typ	Rating max	Units
Thermal Resistance						
Junction to Case	$R\Theta_{jc}$	Double side cooled		0.018	0.02	°C/Watt
Case to Sink	$R\Theta_{cs}$	Double side cooled		0.004	0.006	°C/Watt
Thermal Impedance Model	$Z\Theta_{jc}$	Double side cooled				

$Z\Theta_{jc}(t) = \Sigma(A(N)\bullet(1-\exp(-t/Tau(N))))$ 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

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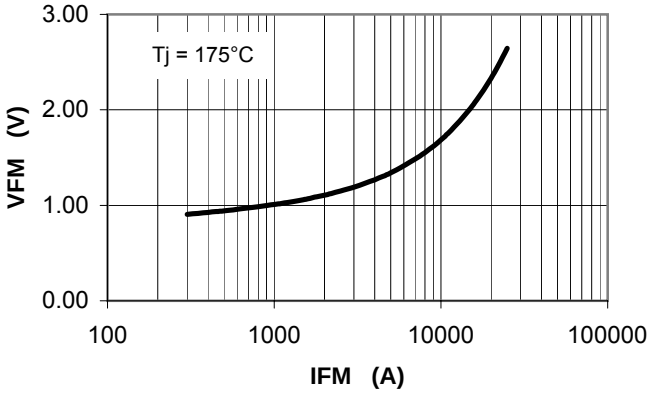
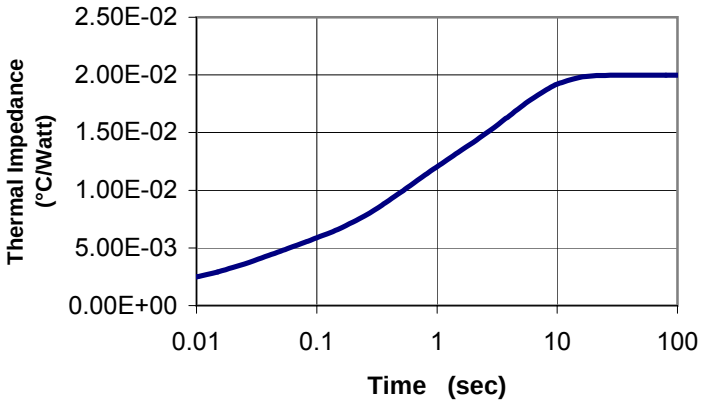
Maximum On-State Voltage Drop

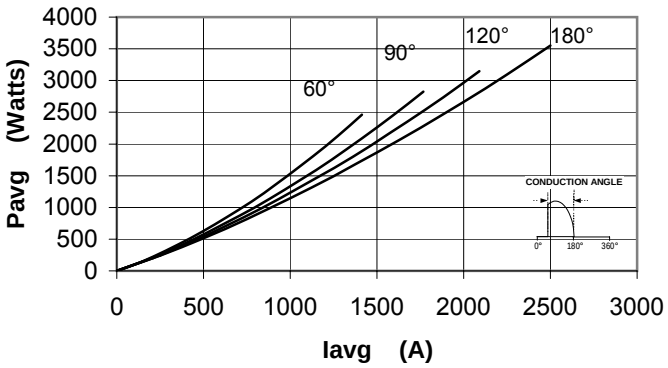


MAXIMUM TRANSIENT THERMAL IMPEDANCE



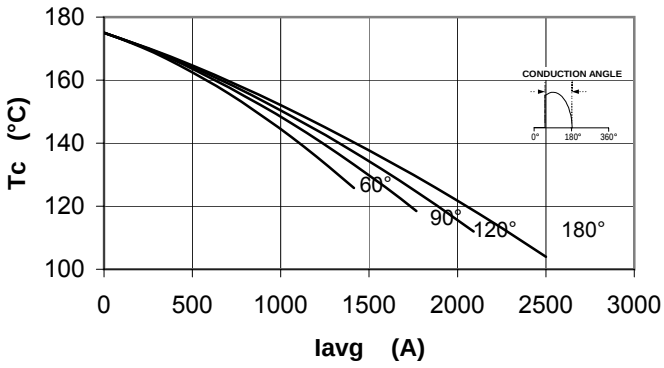
Maximum On-State Power Dissipation

Sinusoidal Waveform



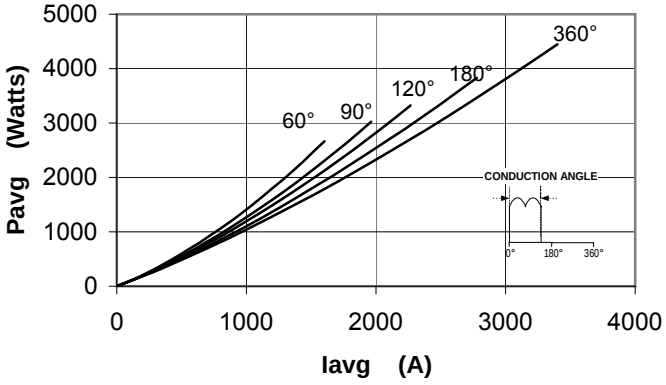
Maximum Allowable Case Temperature

Sinusoidal Waveform



Maximum On-State Power Dissipation

Square Waveform



Maximum Allowable Case Temperature

Square Waveform