

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 [†] , 60Hz, $V_R=V_{RRM}$	I_{FSM}	22,000	A
Fuse Coordination I^2t , 60Hz	I^2t	2.02E+06	A ² s
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 ² 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

[†] Per NEMA Std. RS-282



R9G0_21XX

GENERAL PURPOSE RECTIFIER DIODE

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

2100 Amperes 2200 Volts

Electrical Characteristics, $T_j=25^\circ\text{C}$ unless otherwise specified

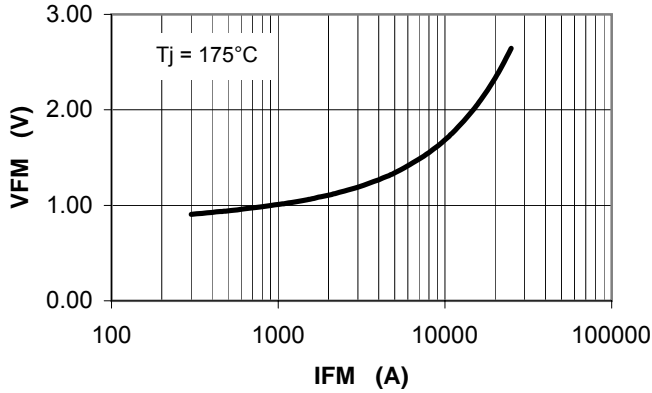
Characteristic	Symbol	Test Conditions	Rating			Units
			min	typ	max	
Repetitive Peak Reverse Leakage Current	I_{RRM}	$T_j=175^\circ\text{C}$, $V_{RRM}=\text{Rated}$			75	ma
Peak On-State Voltage	V_{FM}	$T_j=25^\circ\text{C}$, $I_{FM}=4000\text{A}$			1.24	V
V_{FM} Model, Low Level	V_0	$T_j=175^\circ\text{C}$			0.912	V
$V_{FM} = V_0 + r \cdot I_{FM}$	r	$15\% I_{FM} - \pi \cdot I_{FM}$			8.85E-05	Ω
V_{FM} Model, High Level	V_0	$T_j=175^\circ\text{C}$			1.059	V
$V_{FM} = V_0 + r \cdot I_{FM}$	r	$\pi \cdot I_{FM} - I_{FSM}$			6.32E-05	Ω
V_{FM} Model, 4-Term	A	$T_j=175^\circ\text{C}$			0.652	
$V_{FM} = A + B \cdot \ln(I_{FM}) +$	B	$15\% I_{FM} - I_{FSM}$			0.0381	
$C \cdot (I_{FM}) + D \cdot (I_{FM})^{1/2}$	C				5.730E-05	
	D				0.00111	
Reverse Recovery Time	t_{RR}	$T_j=25^\circ\text{C}$, $I_{FM}=1500\text{A}$ $di_R/dt = 25 \text{ A}/\mu\text{s}$		25		μs

Thermal Characteristics

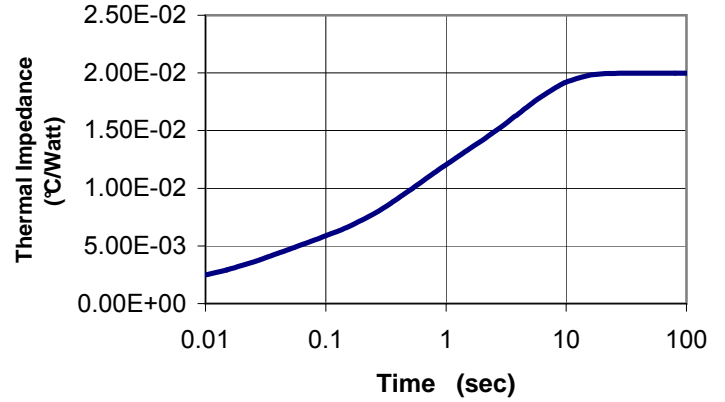
Characteristic	Symbol	Test Conditions	Rating			Units
			min	typ	max	
Thermal Resistance						
Junction to Case	$R\theta_{jc}$	Double side cooled		0.018	0.02	$^\circ\text{C}/\text{Watt}$
Case to Sink	$R\theta_{cs}$	Double side cooled		0.004	0.006	$^\circ\text{C}/\text{Watt}$

Characteristic	Symbol	Test Conditions	min	typ	max	Units
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			
			$A(N) = 1.418\text{E-}03 \quad 2.968\text{E-}03 \quad 6.066\text{E-}03 \quad 9.527\text{E-}03$			
			$\text{Tau}(N) = 5.947\text{E-}05 \quad 2.762\text{E-}02 \quad 4.011\text{E-}01 \quad 4.012\text{E+}00$			

Maximum On-State Voltage Drop

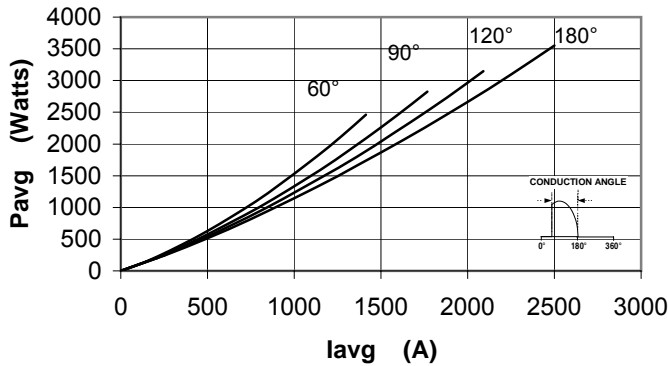


MAXIMUM TRANSIENT THERMAL IMPEDANCE



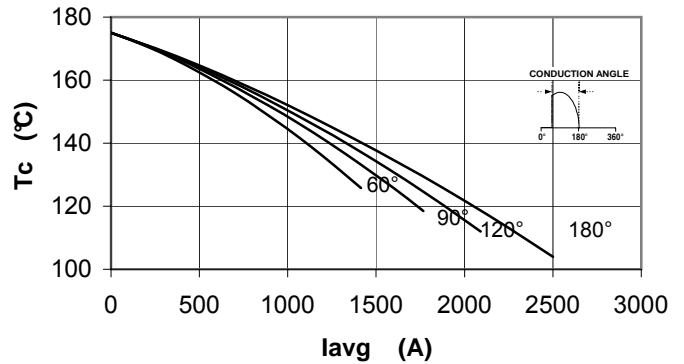
Maximum On-State Power Dissipation

Sinusoidal Waveform



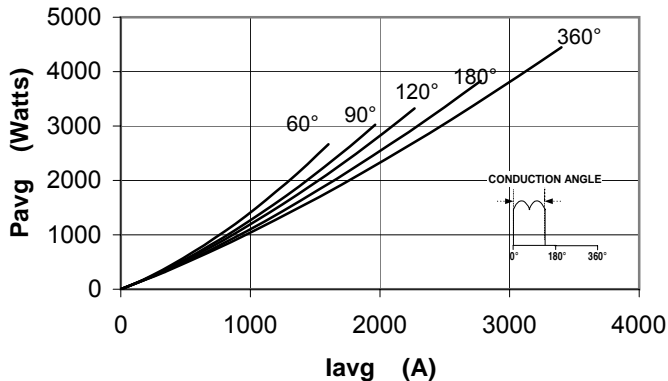
Maximum Allowable Case Temperature

Sinusoidal Waveform



Maximum On-State Power Dissipation

Square Waveform



Maximum Allowable Case Temperature

Square Waveform

