

Powerex General Purpose Rectifier Diodes are designed for low forward voltage drop to minimize conduction losses. They are made with molybdenum anode and cathode contacts to minimize thermal stresses during operation.

FEATURES:

- Low On-State Voltage
- Excellent Surge and I²t Ratings

APPLICATIONS:

- Welding Supplies
- DC Power Supplies
- Plating Supplies

ORDERING INFORMATION

Select the complete 10 digit Part Number using the table below.
 Example: RAS00412XX is a 400V 12,000A Welding 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}
RAS0	400V	04	12000A	12	XX
					25µs typical

Revised: 12/12/2013

Absolute Maximum Ratings

Characteristic	Rating	Units
Repetitive Peak Reverse Voltage	400	Volts
Average On-State Current, $T_c=68^\circ\text{C}$	12000	A
RMS On-State Current, $T_c=68^\circ\text{C}$	18850	A
Peak One Cycle Surge Current, 60Hz, $V_R=V_{RRM}$	60,000	A
Fuse Coordination I^2t , 60Hz	1.50E+07	A ² s
Peak One Cycle Surge Current, 50Hz, $V_R=0V$	57,300	A
Fuse Coordination I^2t , 50Hz	1.64E+07	A ² s
Operating Temperature	-40 to+175	°C
Storage Temperature	-50 to+200	°C
Approximate Weight	1.8	lb
	0.82	Kg
Mounting Force	9,000 - 11,000	lbs
	40 - 48.9	Knewtons

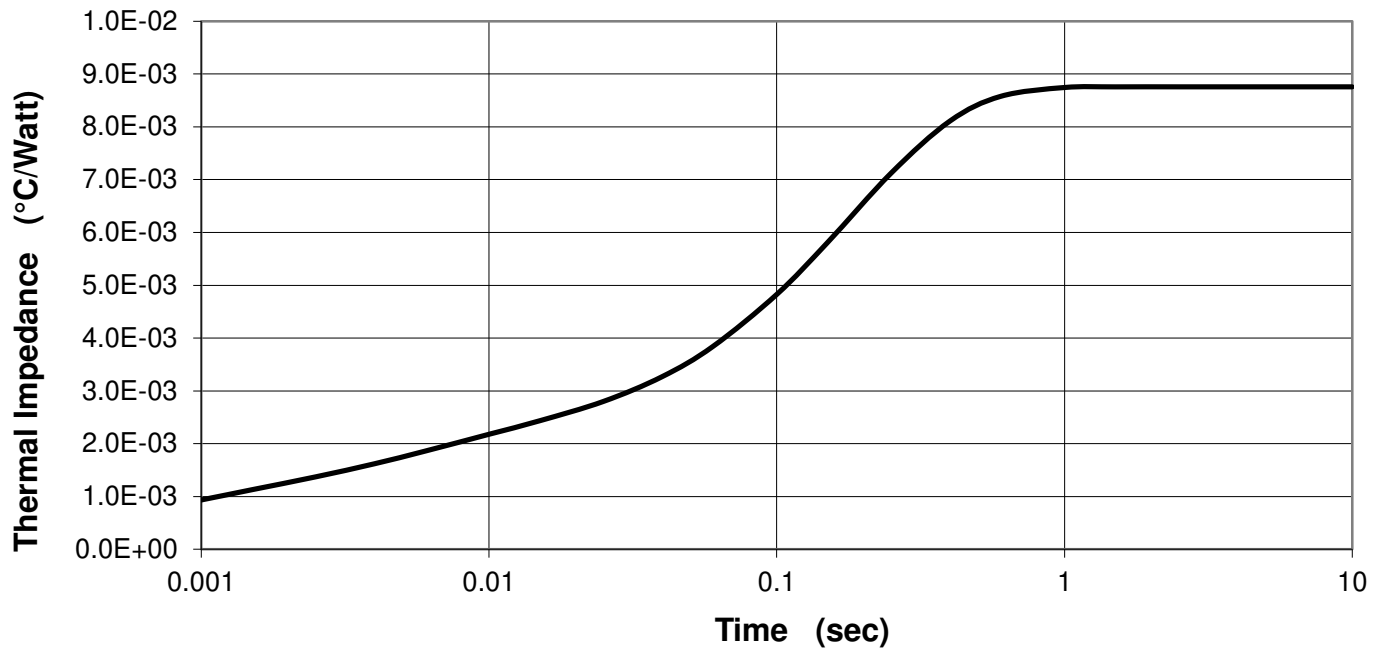
Information presented is based upon manufacturers testing and projected capabilities. This information is subject to change without notice. The manufacturer makes no claim as to suitability for use, reliability, capability or future availability of this product.

Electrical Characteristics, Tj=25°C unless otherwise specified

Characteristic	Symbol	Test Conditions	Rating			Units
			min	typ	max	
Repetitive Peak Reverse Leakage Current						
Leakage Current	I_{RRM}	Tj=175°C, V_{RRM} =Rated		15	100	ma
Peak On-State Voltage	V_{FM}	Tj=25°C, I_{FM} =4000A			1.00	V
V _{FM} Model, Low Level						
$V_{FM} = V_0 + r \cdot I_{FM}$	V_0	Tj=175°C			0.978	V
	r	15% $I_{FM} - \pi \cdot I_{FM}$			4.91E-03	mΩ
V _{FM} Model, High Level						
$V_{FM} = V_0 + r \cdot I_{FM}$	V_0	Tj=175°C			0.749	V
	r	$\pi \cdot I_{FM} - I_{FSM}$			9.75E-03	mΩ
V _{FM} Model, 4-Term						
$V_{FM} = A + B \cdot \ln(I_{FM}) + C \cdot (I_{FM}) + D \cdot (I_{FM})^{1/2}$	A	Tj=175°C			0.325	
	B	15% $I_{FM} - I_{FSM}$			0.113	
	C				0.0000172	
	D				-0.00514	
Reverse Recovery Time	t_{RR}	Tj=25°C, I_{FM} =400A $di_R/dt = 25 \text{ A}/\mu\text{s}$		25		μs

Thermal Characteristics

Characteristic	Symbol	Test Conditions	Rating			Units
			min	typ	max	
Thermal Resistance						
Junction to Case	$R\theta_{jc}$	Double side cooled			0.008	°C/Watt
Case to Sink	$R\theta_{cs}$	Double side cooled			0.004	°C/Watt
Thermal Impedance Model						
$Z\theta_{jc}(t) = \sum(A(N) \cdot (1 - \exp(-t/\text{Tau}(N))))$	$Z\theta_{jc}$	Double side cooled				
		where:	1	2	3	4
			8.117E-04	1.144E-03	-2.274E-02	2.954E-02
			5.632E-04	4.583E-03	1.292E-01	1.394E-01

MAXIMUM TRANSIENT THERMAL IMPEDANCE**Maximum On-State Voltage Drop**