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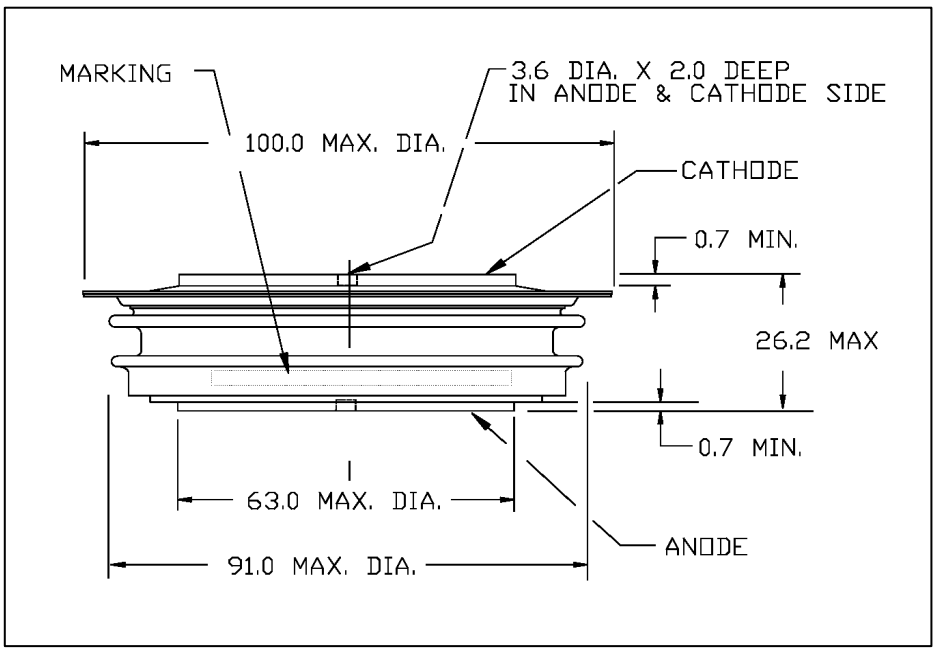
12,000 Amperes 400 Volts



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 I^2t 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	Voltage Code	Current Rating	Current Code	Reverse Recovery
	V_{DRM}-V_{RRM}		I_{tavg}		t_{RR}
RAS0	400V	**04**	12000A	**12**	**XX**
					25µs typical

Revised: 12/12/2013

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Absolute Maximum Ratings

Characteristic	Rating	Units
Repetitive Peak Reverse Voltage	400	Volts
Average On-State Current, T_c=68°C	12000	A
RMS On-State Current, T_c=68°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^2s
Peak One Cycle Surge Current, 50Hz, V_R=0V	57,300	A
Fuse Coordination I^2t, 50Hz	1.64E+07	A^2s
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

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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		15	100	ma
Peak On-State Voltage	V_{FM}	Tj=25°C, I_{FM}=4000A			1.00	V
V_{FM} Model, Low Level	V_0	Tj=175°C			0.978	V
$VFM = V_O + r \bullet I_{FM}$	r	15% I_{FM} - $\pi \bullet I_{FM}$			4.91E-03	mΩ
V_{FM} Model, High Level	V_0	Tj=175°C			0.749	V
$VFM = V_O + r \bullet I_{FM}$	r	$\pi \bullet I_{FM}$ - I_{FSM}			9.75E-03	mΩ
V_{FM} Model, 4-Term	A	Tj=175°C			0.325	
V_{FM}= A + B•Ln(I_{FM}) +	B	15%I_{FM} - I_{FSM}			0.113	
C•(I_{FM}) + D•(I_{FM})^{½}	C				0.0000172	
	D				-0.00514	
Reverse Recovery Time	t_{RR}	Tj=25°C, I_{FM}=400A 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			0.008	°C/Watt
Case to Sink	$R\Theta_{cs}$	Double side cooled			0.004	°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:

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

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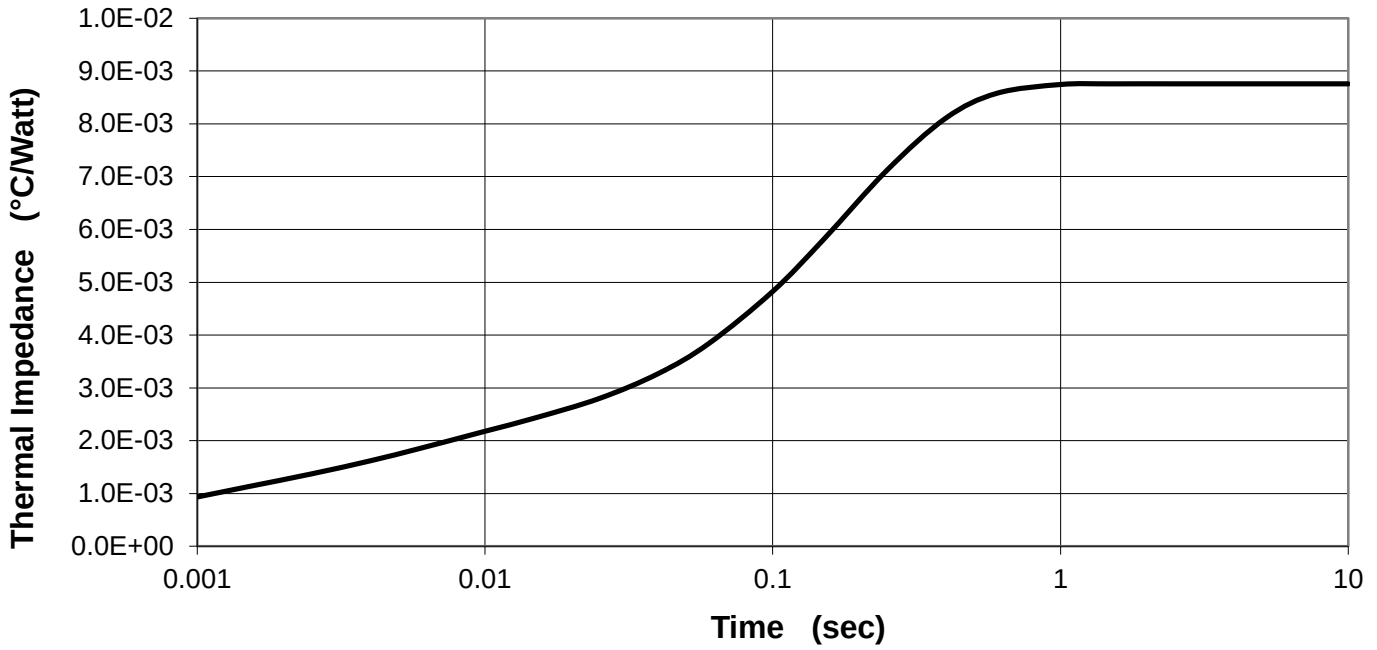
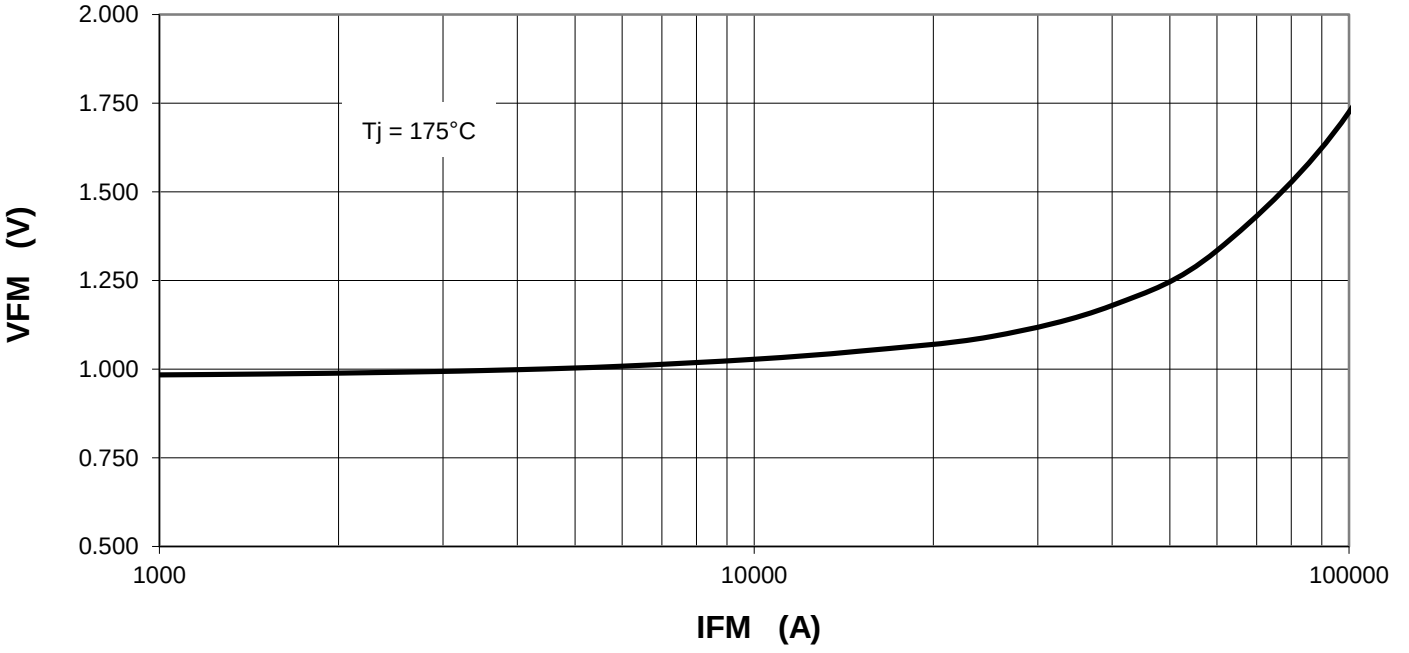
MAXIMUM TRANSIENT THERMAL IMPEDANCE



Maximum On-State Voltage Drop



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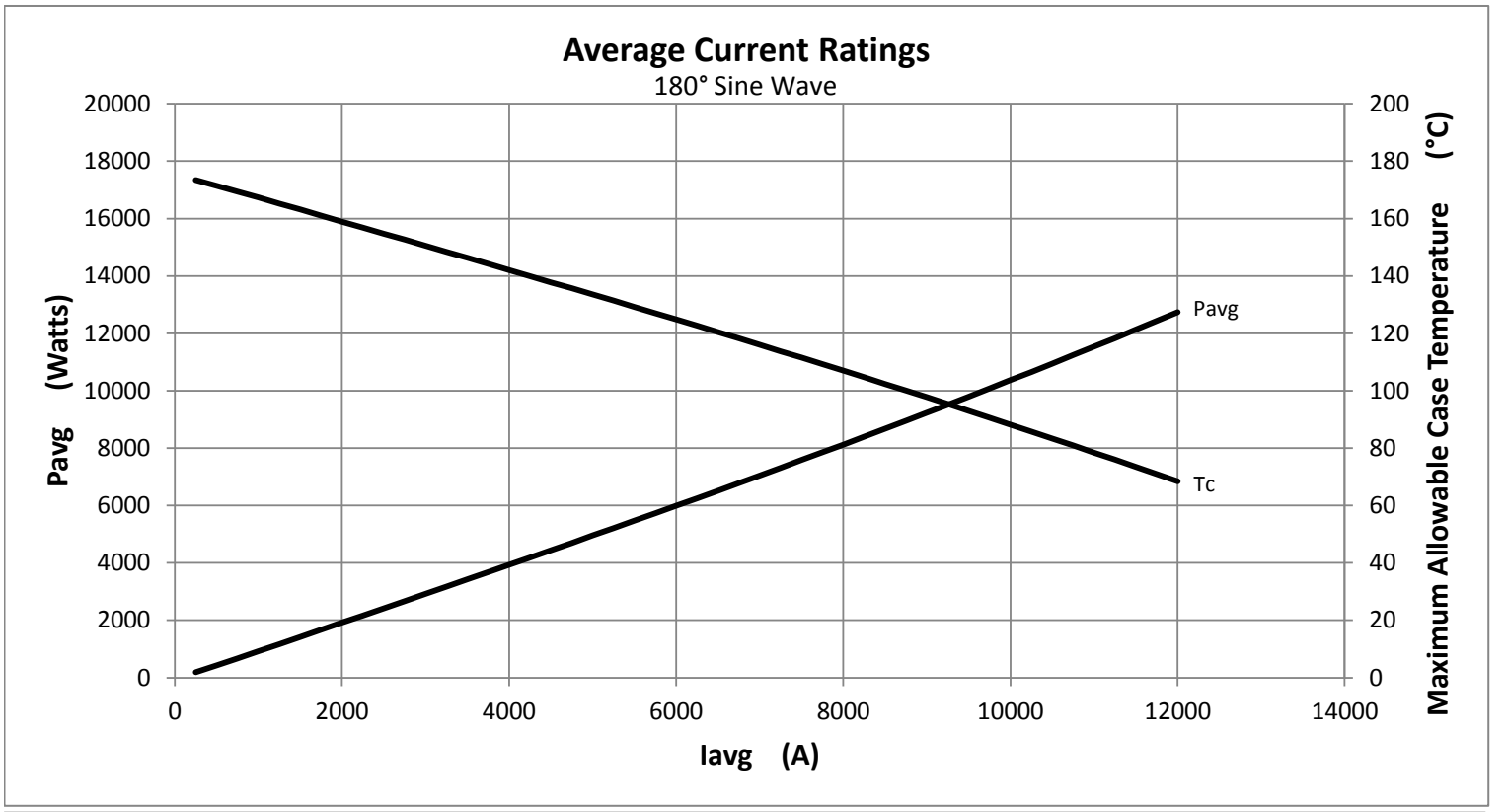

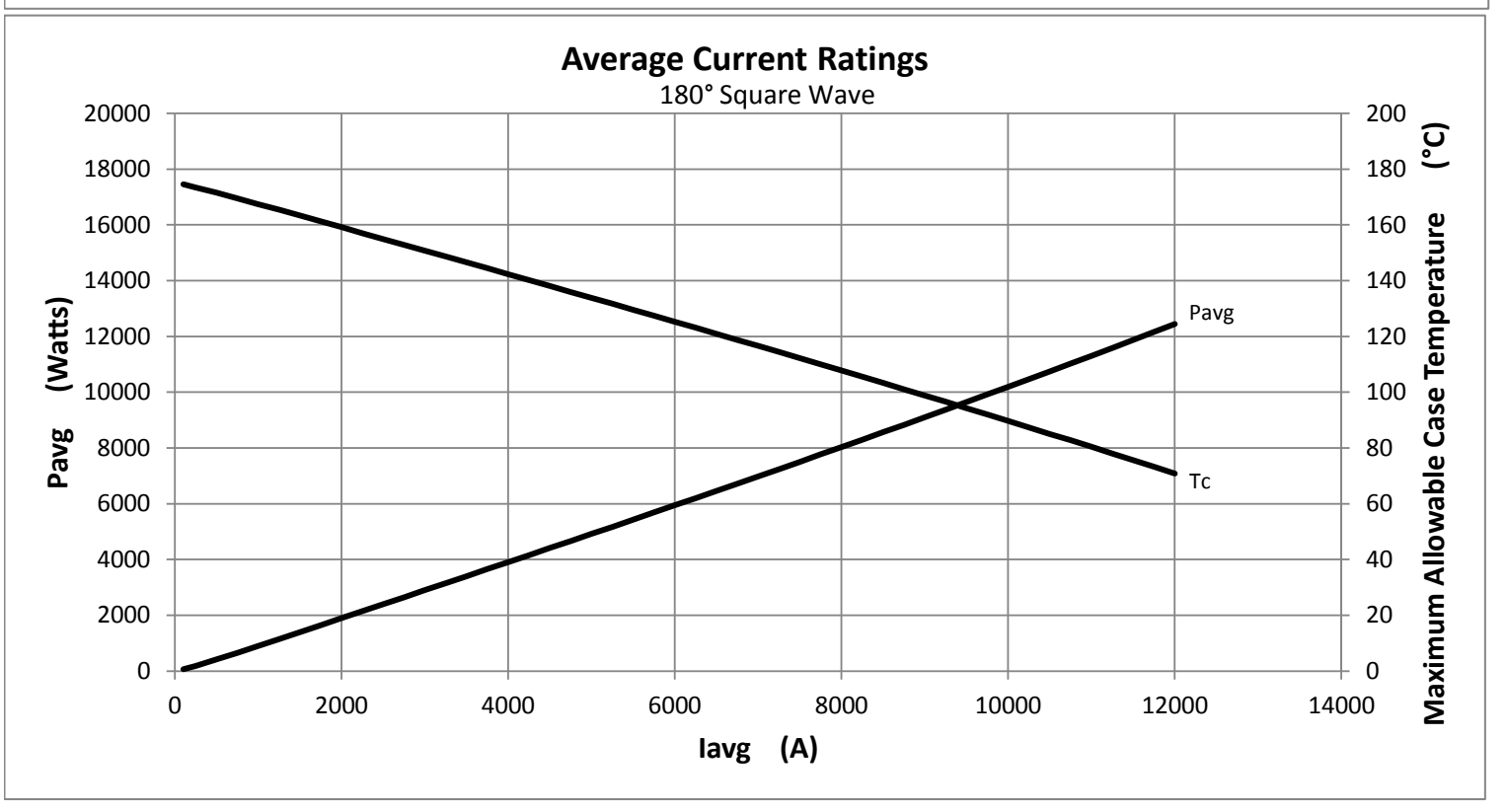

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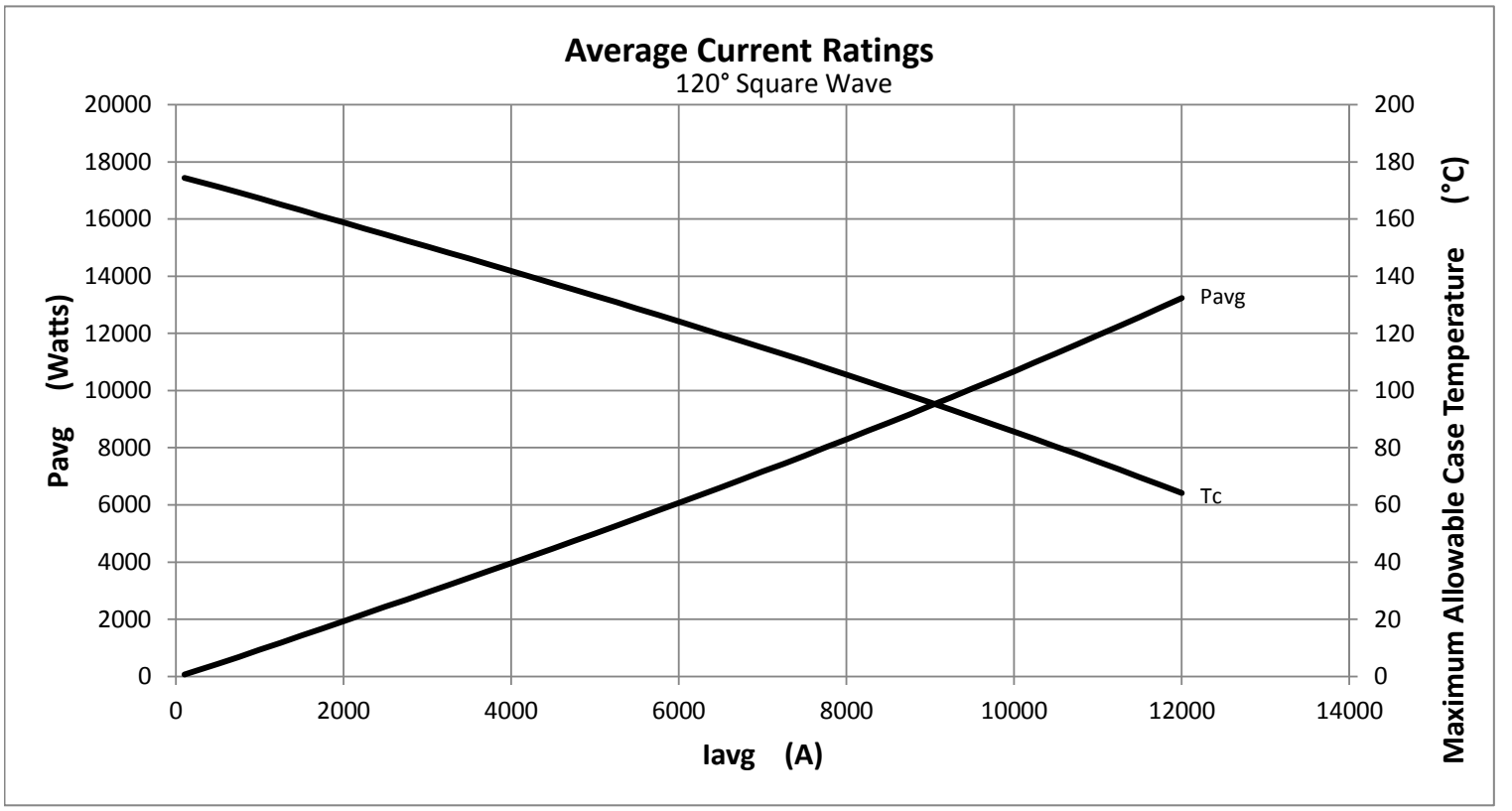

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