

Powerex General Purpose Rectifier Diodes are designed with high blocking 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
- Input Rectifiers
- Plating Supplies

### ORDERING INFORMATION

Select the complete 12 digit Part Number using the table below.  
EXAMPLE: RBT84043XXOO is a 4000V-4350A General Purpose Diode with a typical reverse recovery time of 35 $\mu$ s.

PART	Voltage Rating $V_{DRM}-V_{RRM}$	Voltage Code	Current Rating $I_{tavg}$	Current Code	Reverse Recovery $t_{RR}$	Lead Code
<b>RBT8</b>	4000	<b>40</b>	4350	<b>43</b>	<b>XX</b>	<b>OO</b>
	3600	<b>36</b>				
	3200	<b>32</b>			35 $\mu$ s typical	

Revised:

10/5/2012

**Absolute Maximum Ratings**

Characteristic	Symbol	Rating	Units
Repetitive Peak Reverse Voltage	$V_{RRM}$	4000	Volts
Average On-State Current, $T_C=85^\circ\text{C}$	$I_{F(Avg.)}$	4350	A
RMS On-State Current, $T_C=85^\circ\text{C}$	$I_{F(RMS)}$	6833	A
Average On-State Current, $T_C=55^\circ\text{C}$	$I_{F(Avg.)}$	5200	A
RMS On-State Current, $T_C=55^\circ\text{C}$	$I_{F(RMS)}$	8168	A
Peak One Cycle Surge Current, 60Hz, $V_R=0$	$I_{FSM}$	70,000	A
Fuse Coordination $I^2t$ , 60Hz	$I^2t$	2.04E+07	A <sup>2</sup> s
Peak One Cycle Surge Current, 50Hz, $V_R=0V$	$I_{FSM}$	64,500	A
Fuse Coordination $I^2t$ , 50Hz	$I^2t$	2.08E+07	A <sup>2</sup> s
Operating Temperature	$T_j$	-40 to+175	°C
Storage Temperature	$T_{Stg.}$	-50 to+200	°C
Approximate Weight		2.5	lb
		1.13	Kg
Mounting Force		6,000 - 10,000	lbs
		26.6 - 44.4	Knewtons

Information presented is based upon limited testing or 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.

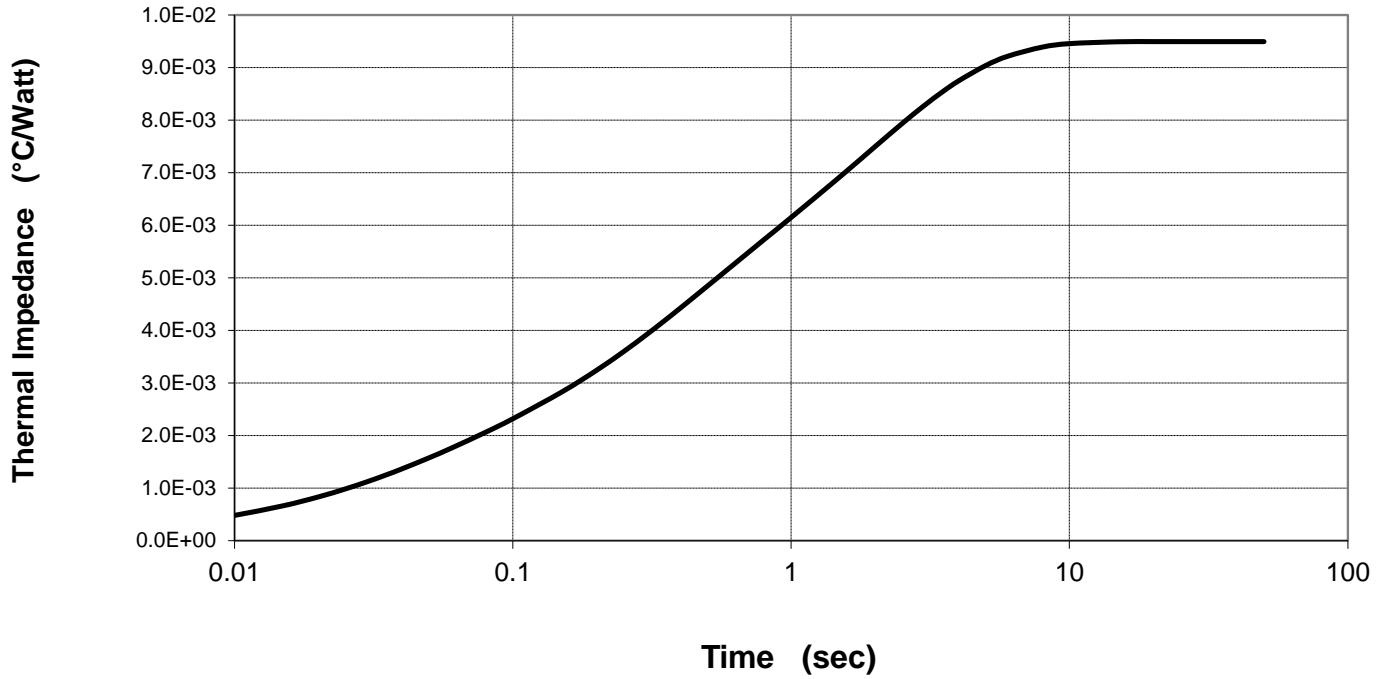
**Electrical Characteristics, T<sub>j</sub>=25°C unless otherwise specified**

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		100	150	ma
Peak On-State Voltage	V <sub>FM</sub>	T <sub>j</sub> =175°C, I <sub>FM</sub> =4000A			1.30	V
V <sub>FM</sub> Model, Low Level	V <sub>0</sub>	T <sub>j</sub> =175°C			0.75	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>			0.133	mΩ
V <sub>FM</sub> Model, High Level	V <sub>0</sub>	T <sub>j</sub> =175°C			0.88	V
V <sub>FM</sub> = V <sub>0</sub> + r•I <sub>FM</sub>	r	π•I <sub>FM</sub> - I <sub>FSM</sub>			0.122	mΩ
V <sub>FM</sub> Model, 4-Term	A	T <sub>j</sub> =175°C			0.597	
V <sub>FM</sub> = A + B•Ln(I <sub>FM</sub> ) +	B	15% I <sub>FM</sub> - I <sub>FSM</sub>			0.0131	
C•(I <sub>FM</sub> ) + D•(I <sub>FM</sub> ) <sup>1/2</sup>	C				1.15E-04	
	D				0.00212	
Reverse Recovery Time	t <sub>RR</sub>	T <sub>j</sub> =25°C, I <sub>FM</sub> =2000A di <sub>R</sub> /dt = 25 A/μs		25		μs

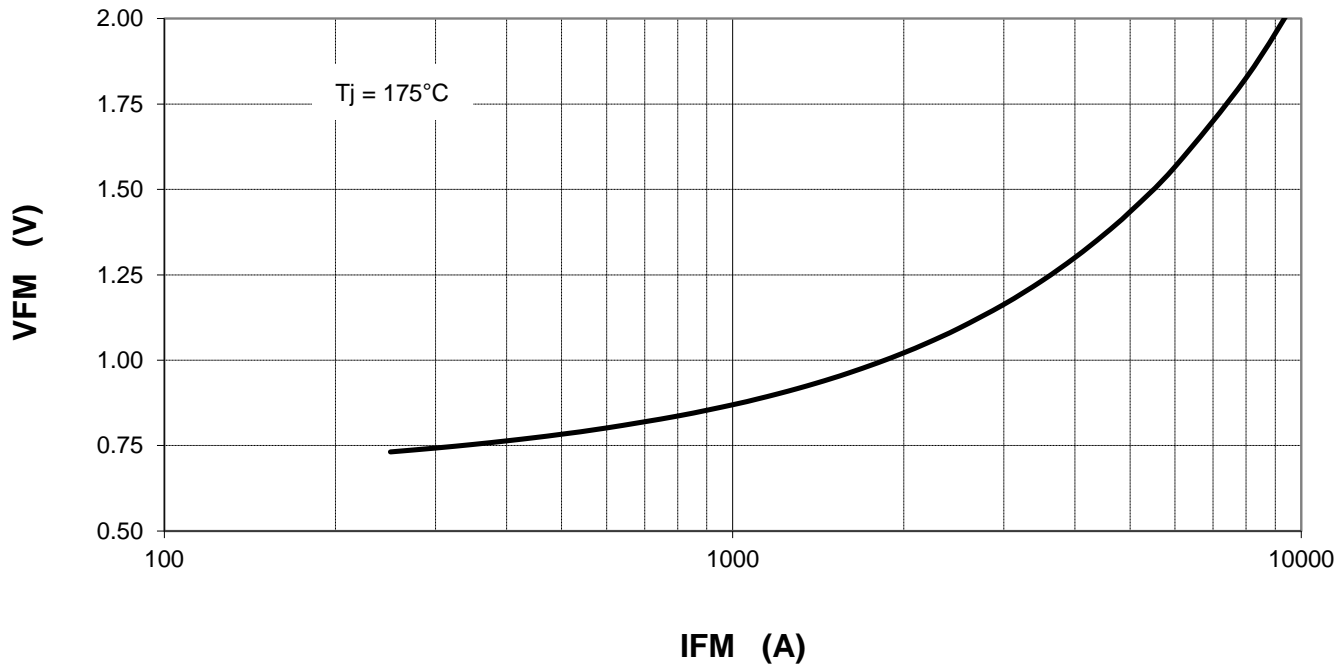
**Thermal Characteristics**

Characteristic	Symbol	Test Conditions	Rating			Units	
			min	typ	max		
Thermal Resistance							
Junction to Case	Rθ <sub>jc</sub>	Double side cooled		0.0085	0.0095	°C/Watt	
Case to Sink	Rθ <sub>cs</sub>	Double side cooled		0.0015	0.002	°C/Watt	
Thermal Impedance Model	Zθ <sub>jc</sub>	Double side cooled					
Zθ <sub>jc</sub> (t) = Σ(A(N)•(1-exp(-t/Tau(N))))		where:	N =	1	2	3	4
			A(N) =	5.22E-05	1.19E-03	2.91E-03	5.35E-03
			Tau(N) =	2.65E-06	3.43E-02	2.74E-01	2.03E+00

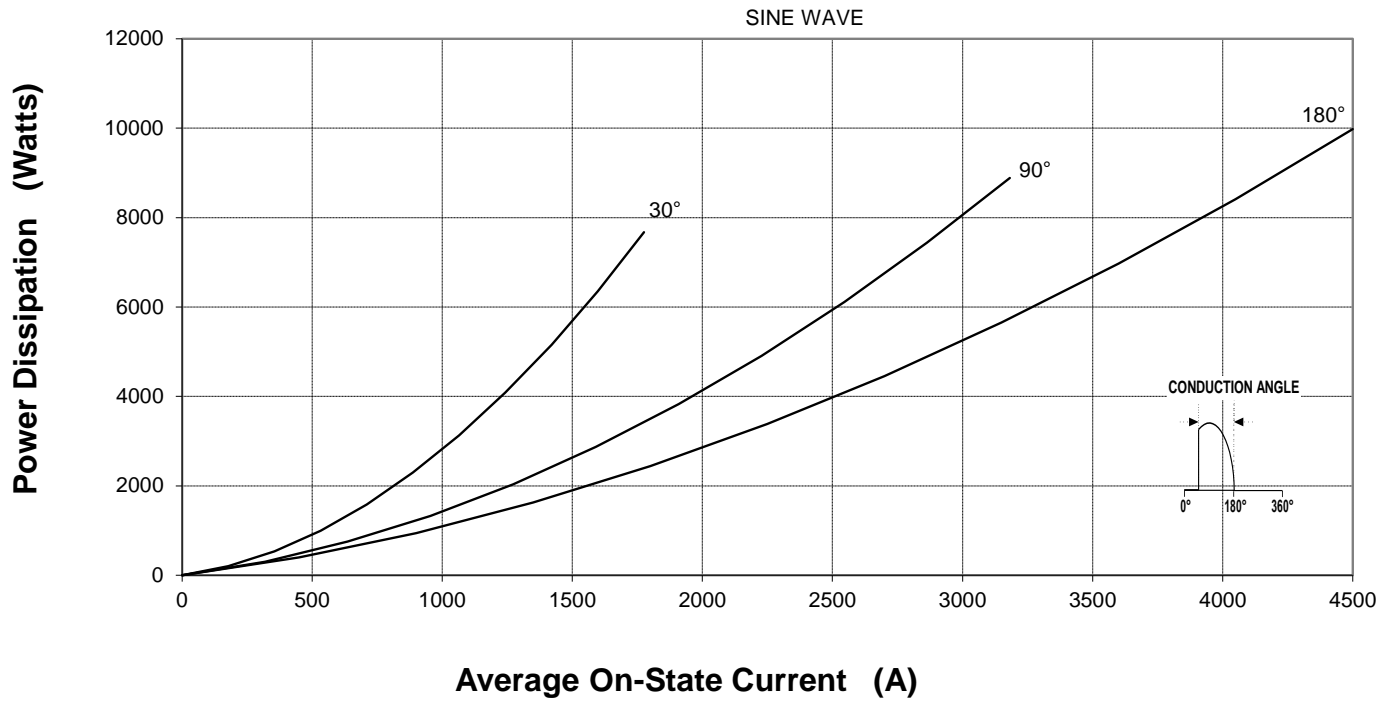
### MAXIMUM TRANSIENT THERMAL IMPEDANCE



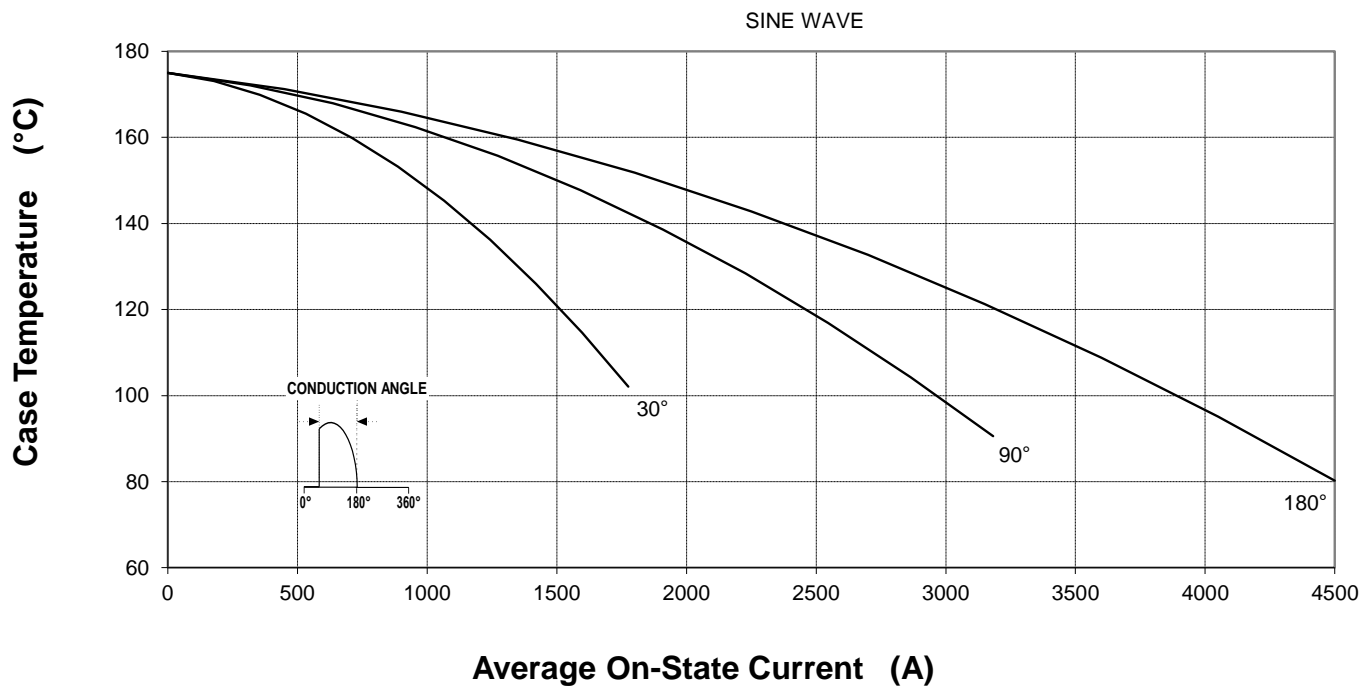
### Maximum On-State Voltage Drop



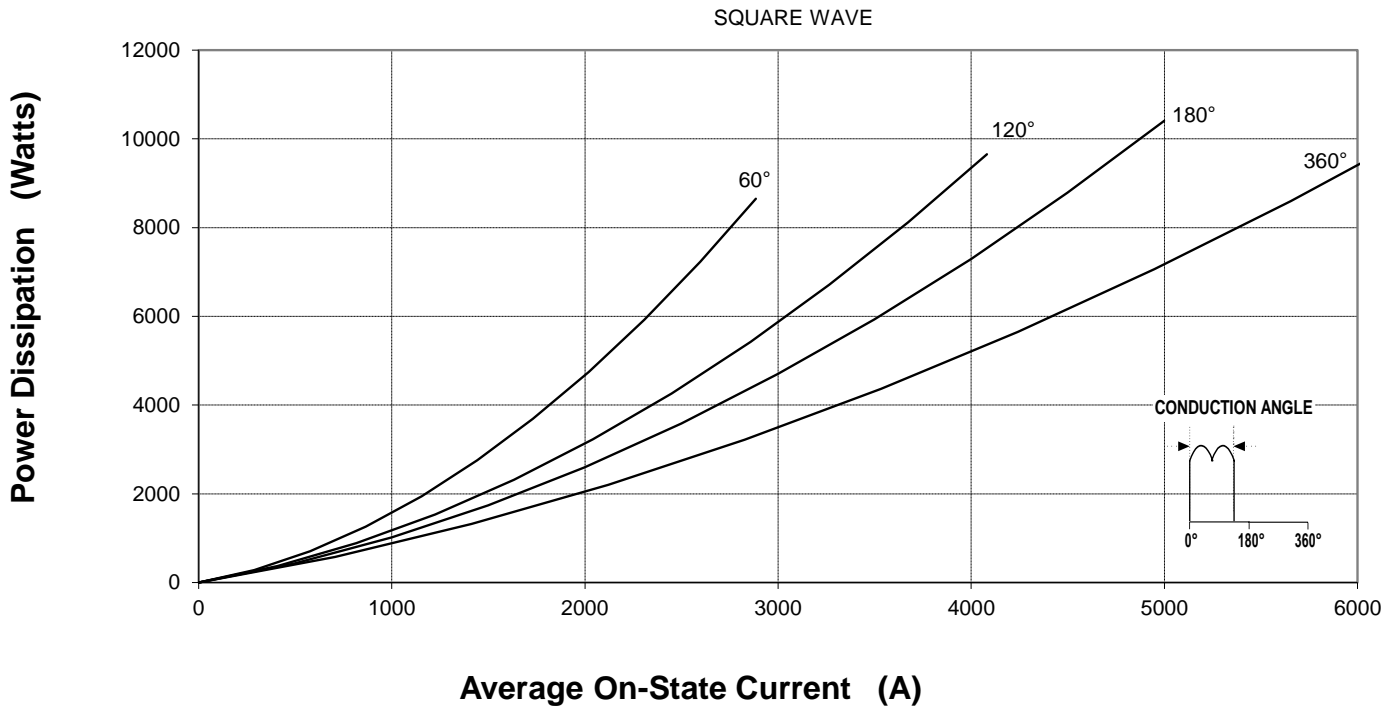
### Maximum On-State Power Dissipation



### Maximum Allowable Case Temperature



**Maximum On-State Power Dissipation**



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**Maximum Allowable Case Temperature**

