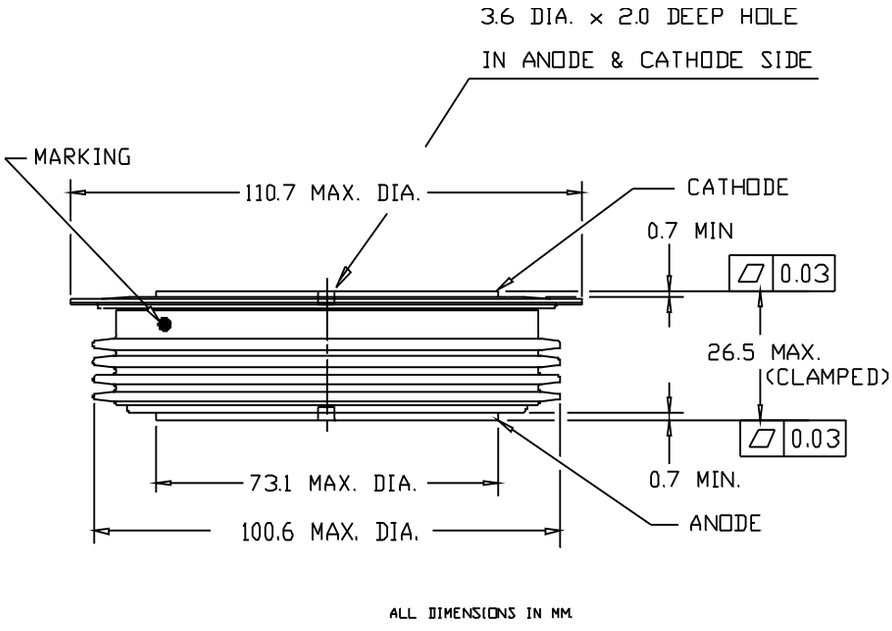
RBT8_ _43XX

GENERAL PURPOSE RECTIFIER DIODE

Powerex, Inc., 173 Pavilion Ln, Youngwood, PA 15697-1800 (724)925-7272 www.pwrx.com

4350 Amperes 4000 Volts



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 35µs.

PART	Voltage Rating	Voltage Code	Current Rating	Current Code	Reverse Recovery	Lead Code
	V_{DRM}-V_{RRM}		I_{tavg}		t_{RR}	
RBT8	4000	**40**	4350	**43**	**XX**	**OO**
	3600	**36**				
	3200	**32**			35µs typical	

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Absolute Maximum Ratings

Characteristic	Symbol	Rating	Units
Repetitive Peak Reverse Voltage	V_{RRM}	4000	Volts
Average On-State Current, T_C=85°C	$I_{F(Avg.)}$	4350	A
RMS On-State Current, T_C=85°C	$I_{F(RMS)}$	6833	A
Average On-State Current, T_C=55°C	$I_{F(Avg.)}$	5200	A
RMS On-State Current, T_C=55°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^2s
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^2s
Operating Temperature	Tj	-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, 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		100	150	ma
Peak On-State Voltage	V_{FM}	Tj=175°C, I_{FM}=4000A			1.30	V
V_{FM} Model, Low Level	V_0	Tj=175°C			0.75	V
$VFM = V_O + r \bullet I_{FM}$	r	15% I_{FM} - π•I_{FM}			0.133	mΩ
V_{FM} Model, High Level	V_0	Tj=175°C			0.88	V
$VFM = V_O + r \bullet I_{FM}$	r	π•I_{FM} - I_{FSM}			0.122	mΩ
V_{FM} Model, 4-Term	A	Tj=175°C			0.597	
$V_{FM}= A + B \bullet Ln(I_{FM}) +$	B	15%I_{FM} - I_{FSM}			0.0131	
$C \bullet (I_{FM}) + D \bullet (I_{FM})^{½}$	C				1.15E-04	
	D				0.00212	
Reverse Recovery Time	t_{RR}	Tj=25°C, I_{FM}=2000A 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		0.0085	0.0095	°C/Watt
Case to Sink	$R\Theta_{cs}$	Double side cooled		0.0015	0.002	°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) =	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

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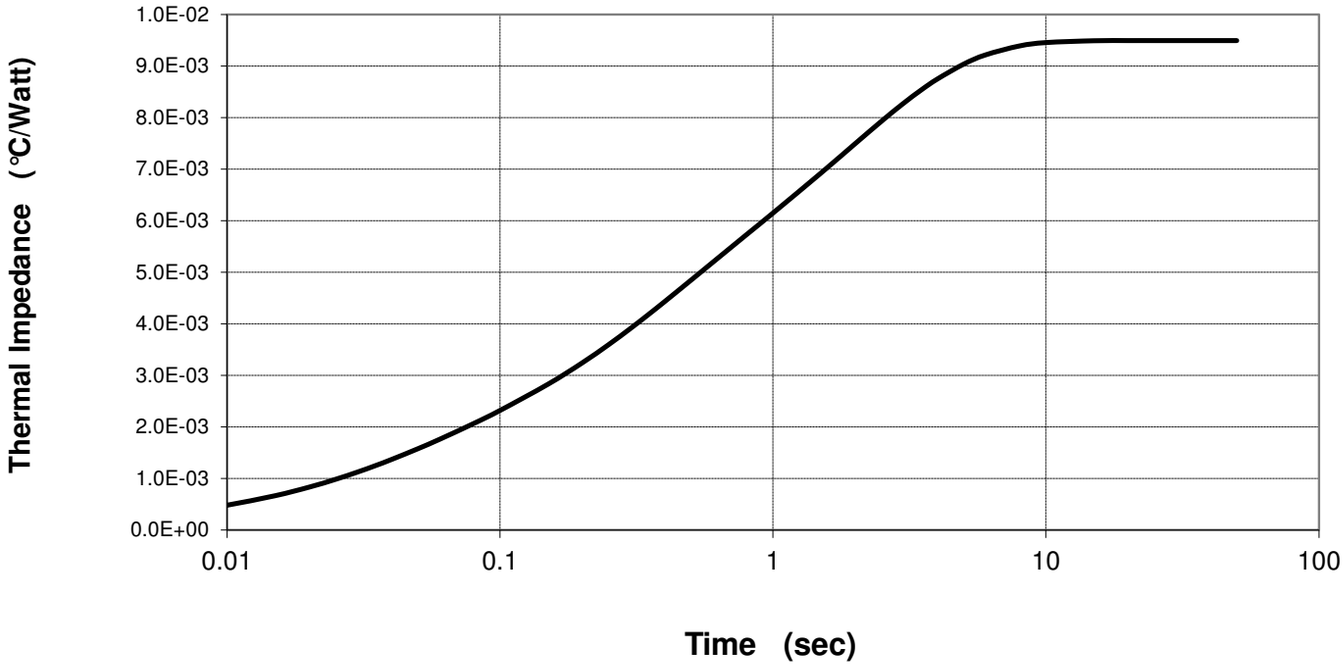
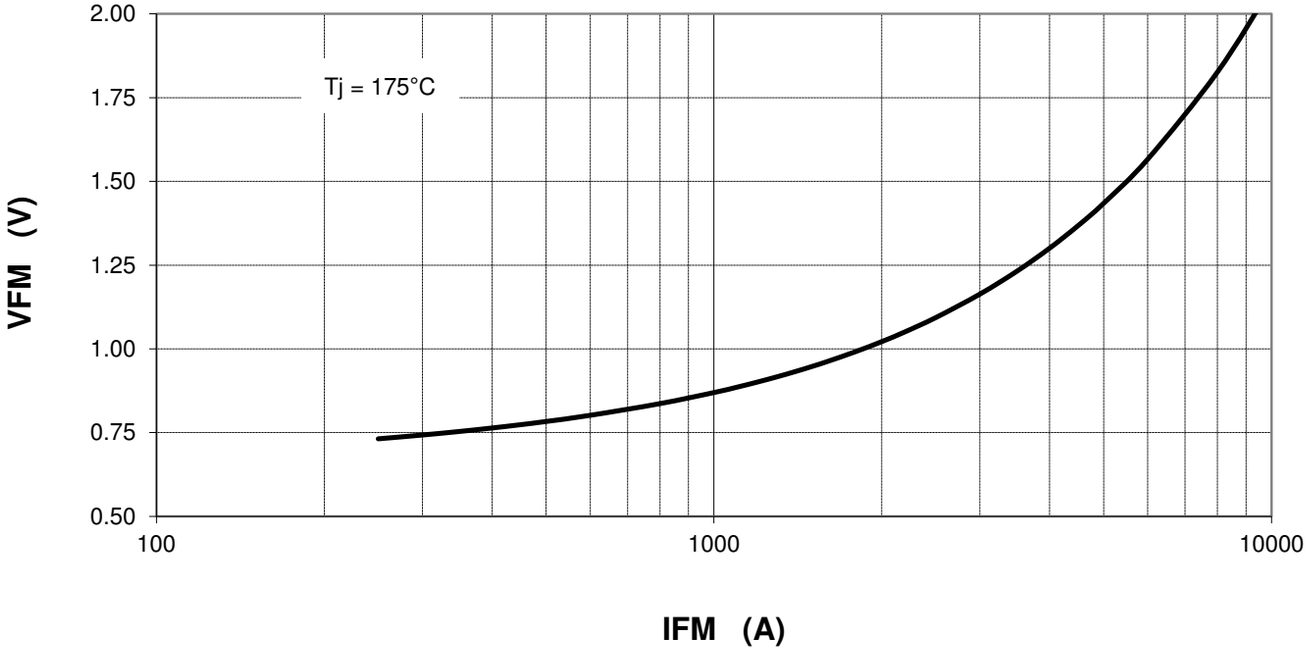
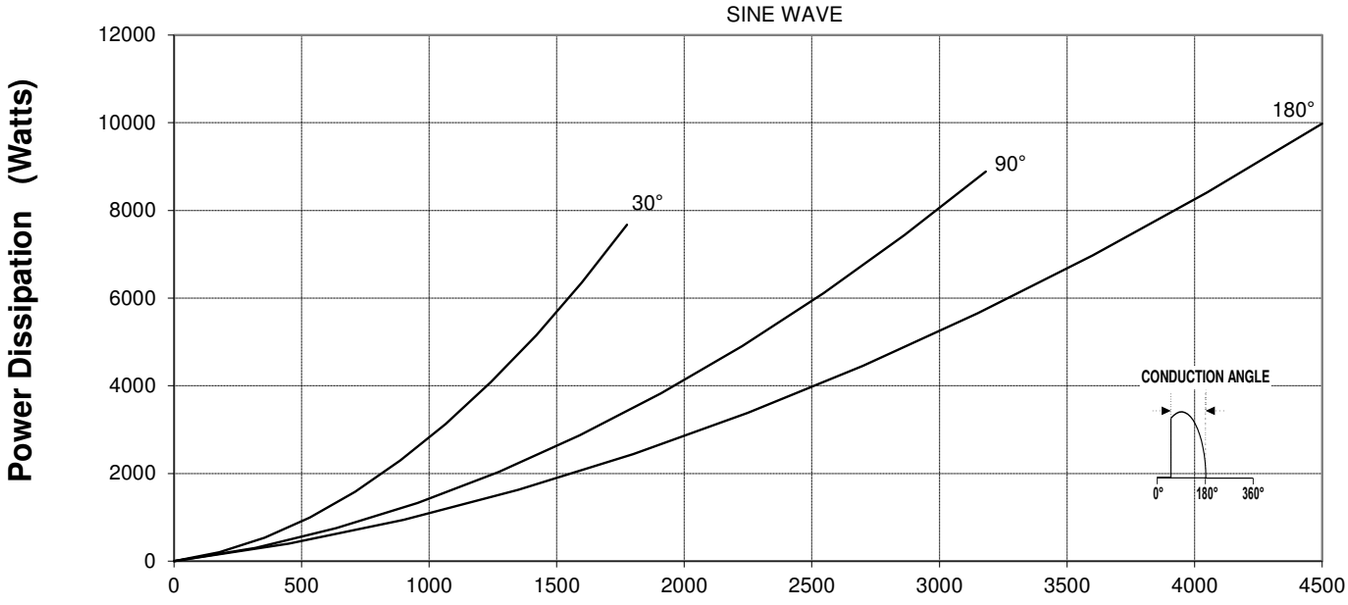
MAXIMUM TRANSIENT THERMAL IMPEDANCE



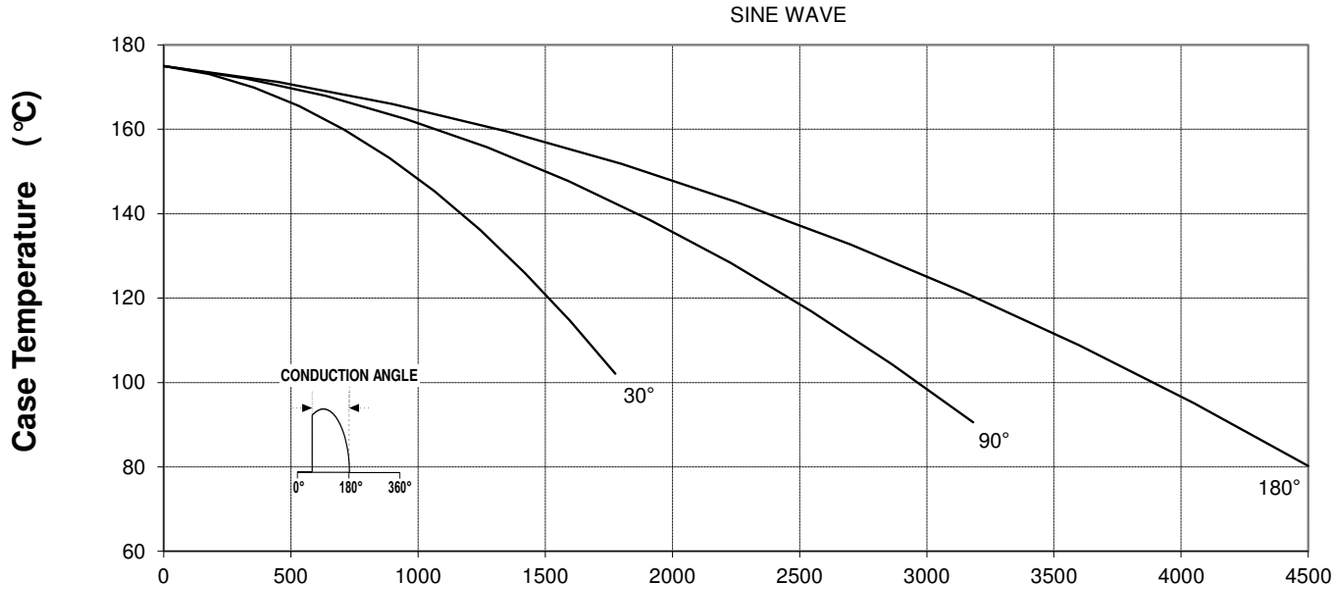
Maximum On-State Voltage Drop



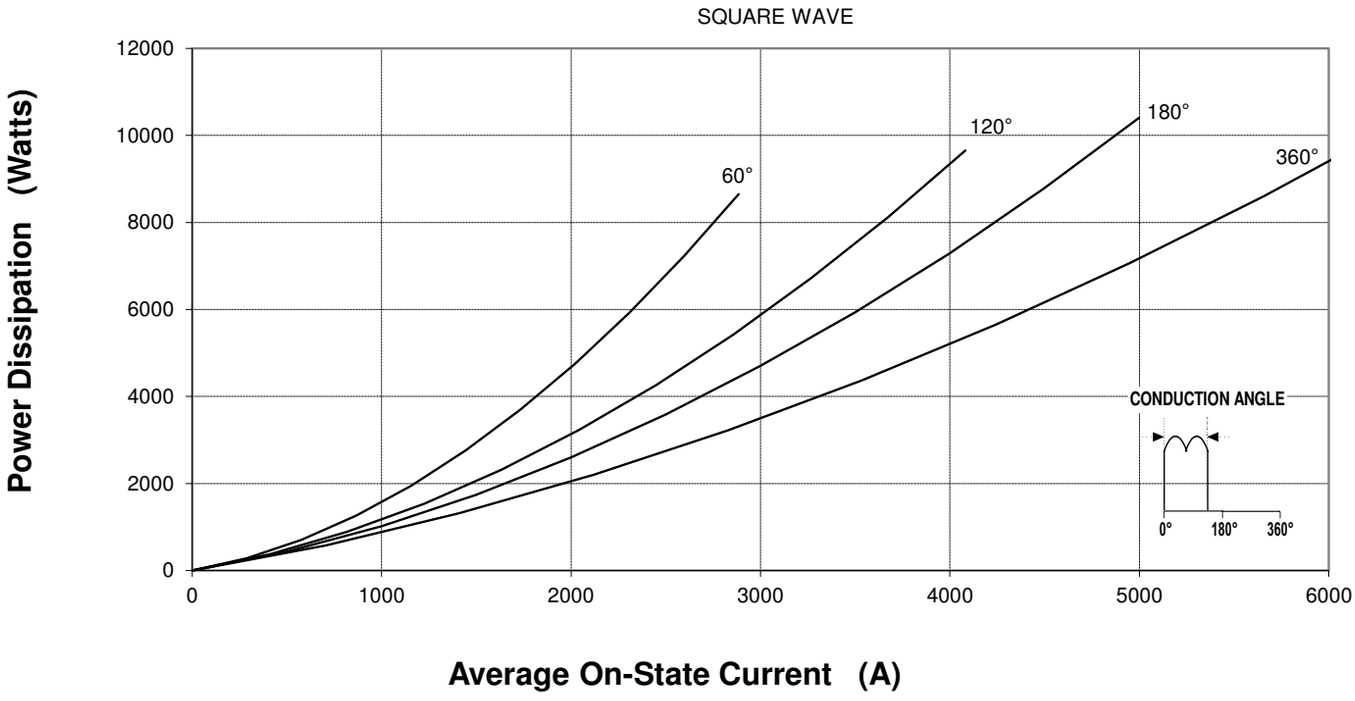
Maximum On-State Power Dissipation



Maximum Allowable Case Temperature



Maximum On-State Power Dissipation



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Maximum Allowable Case Temperature