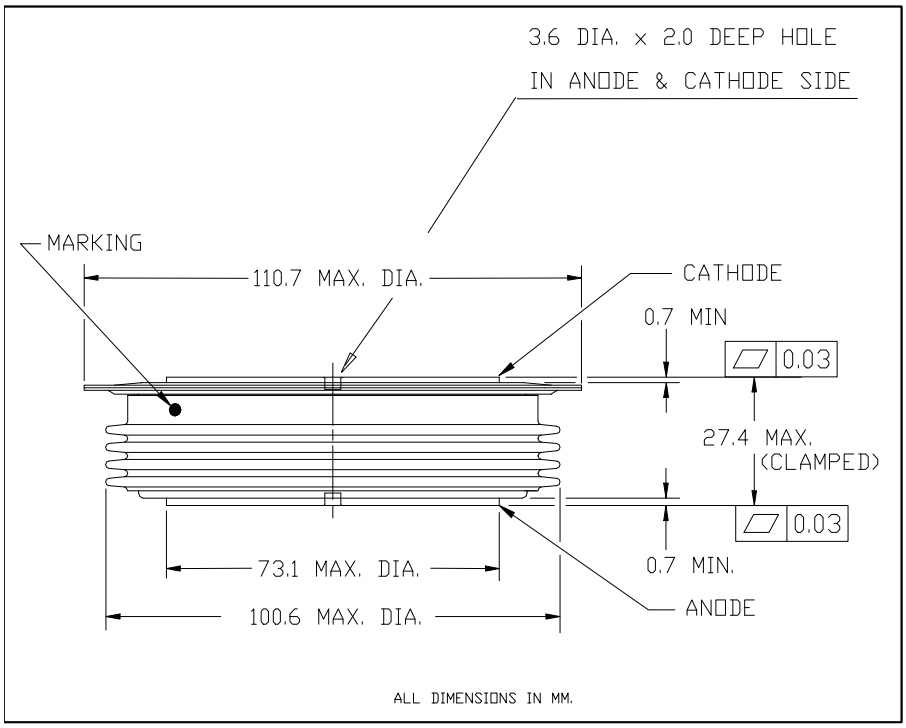
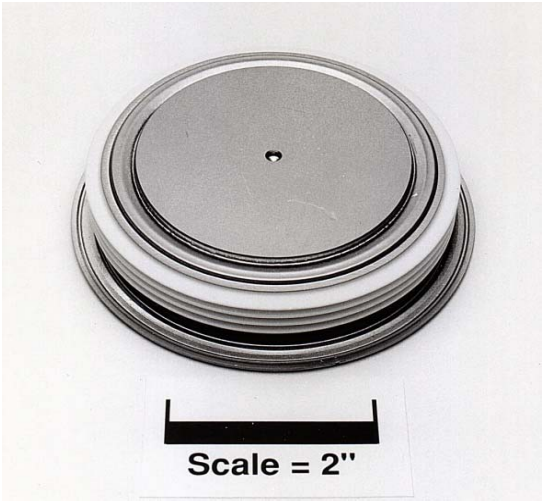
RBS8__45XX

GENERAL PURPOSE RECTIFIER DIODE

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

4500 Amperes 3200 Volts





Powerex General Purpose Rectifier Diodes are designed with high locking 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

ORDERING INFORMATION

Select the complete 10 digit Part Number using the table below.
EXAMPLE: RBS83245XX is a 3200V-4500A General Purpose Diode with a typical reverse recovery time of 25µs.

PART	Voltage Rating	Voltage Code	Current Rating	Current Code	Reverse Recovery	Lead Code
	V_{DRM}-V_{RRM}		I_{tavg}		t_{RR}	
RBS8	3200V	**32**	4500A	**45**	**XX**	
	3000V	**30**				
	2600V	**26**			25µs typical	
	2400V	**24**				
	2200V	**22**				

Revised: 6/8/2009

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Absolute Maximum Ratings

Characteristic	Symbol	Rating	Units
Repetitive Peak Reverse Voltage	V_{RRM}	3200	Volts
Non-repetitive Transient Peak Reverse Voltage	V_{RSM}	V_{RRM} + 100	Volts
Average On-State Current, T_C=94°C	$I_{F(Avg.)}$	4500	A
RMS On-State Current, T_C=94°C	$I_{F(RMS)}$	7069	A
Peak One Cycle Surge Current, 60Hz, V_R=V_{RRM}	I_{FSM}	67,500	A
Fuse Coordination I^2t, 60Hz	I^2t	1.90E+07	A^2s
Peak One Cycle Surge Current, 50Hz, V_R=0V	I_{FSM}	62,438	A
Fuse Coordination I^2t, 50Hz	I^2t	1.95E+07	A^2s
Peak 3 Cycle Surge Current, 60Hz, V_R=0V	I_{FSM}	76,950	A
Peak 10 Cycle Surge Current, 60Hz, V_R=0V	I_{FSM}	61,763	A
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

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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			125	ma
Peak On-State Voltage	V_{FM}	Tj=175°C, I_{FM}=2000A			1.00	V
V_{FM} Model, Low Level	V_0	Tj=175°C			0.786	V
VFM = V_O + r•I_{FM}	r	15% I_{FM} - π•I_{FM}			9.97E-05	Ω
V_{FM} Model, High Level	V_0	Tj=175°C			0.972	V
VFM = V_O + r•I_{FM}	r	π•I_{FM} - I_{FSM}			8.63E-05	Ω
V_{FM} Model, 4-Term	A	Tj=175°C			0.510	
V_{FM}= A + B•Ln(I_{FM}) +	B	15%I_{FM} - I_{FSM}			3.10E-02	
C•(I_{FM}) + D•(I_{FM})^{½}	C				8.00E-05	
	D				2.00E-03	
Reverse Recovery Time	t_{RR}	Tj=25°C, I_{FM}=1500A 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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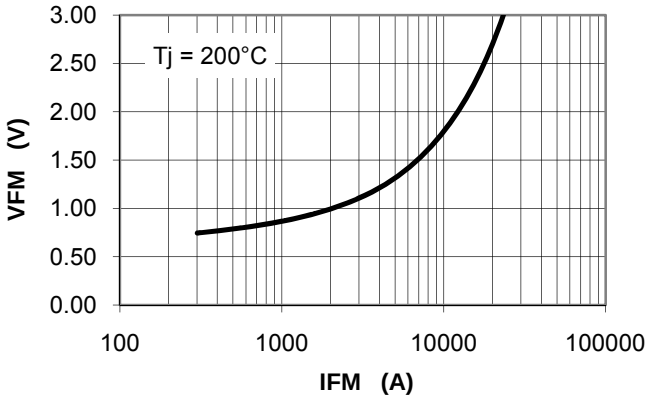
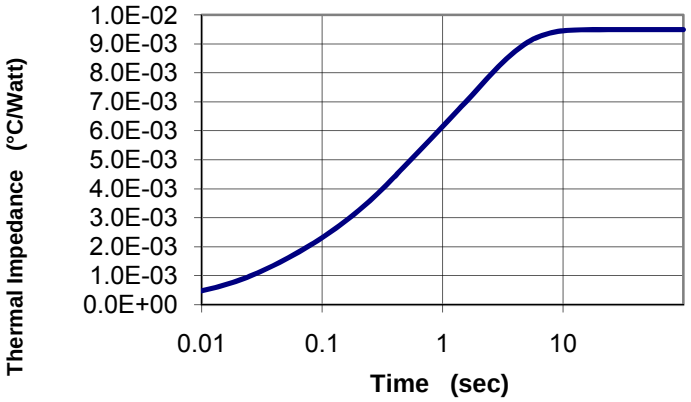
Maximum On-State Voltage Drop

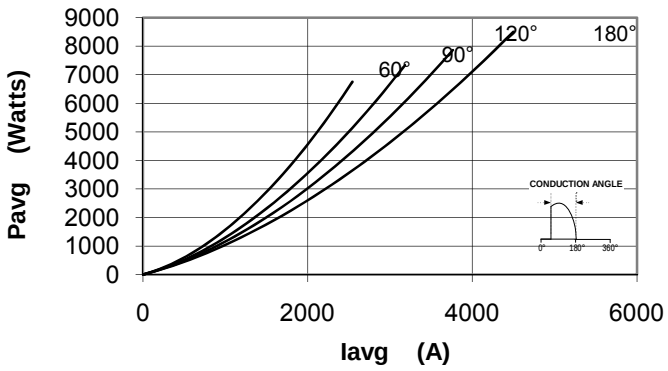


MAXIMUM TRANSIENT THERMAL IMPEDANCE



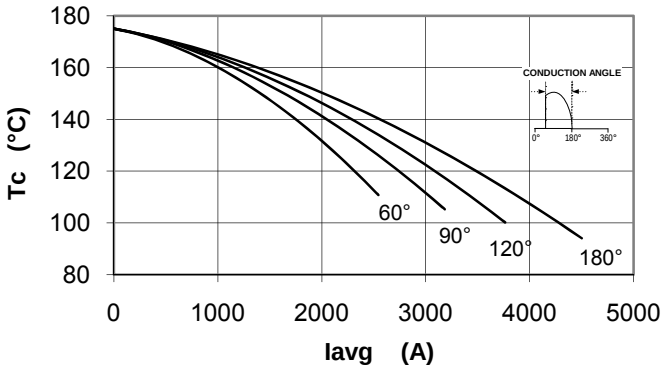
Maximum On-State Power Dissipation

Sinusoidal



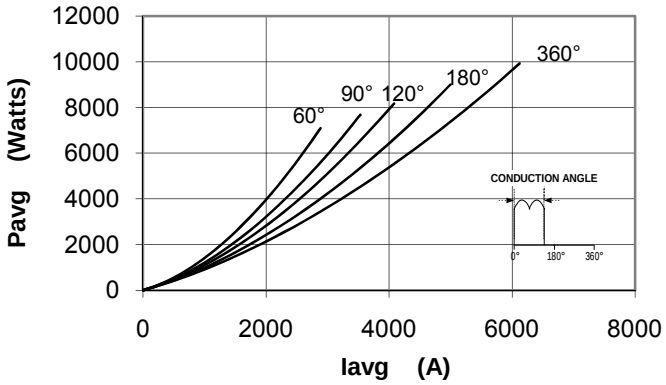
Maximum Allowable Case Temperature

Sinusoidal Waveform



Maximum On-State Power Dissipation

Square Waveform



Maximum Allowable Case Temperature

Square Waveform