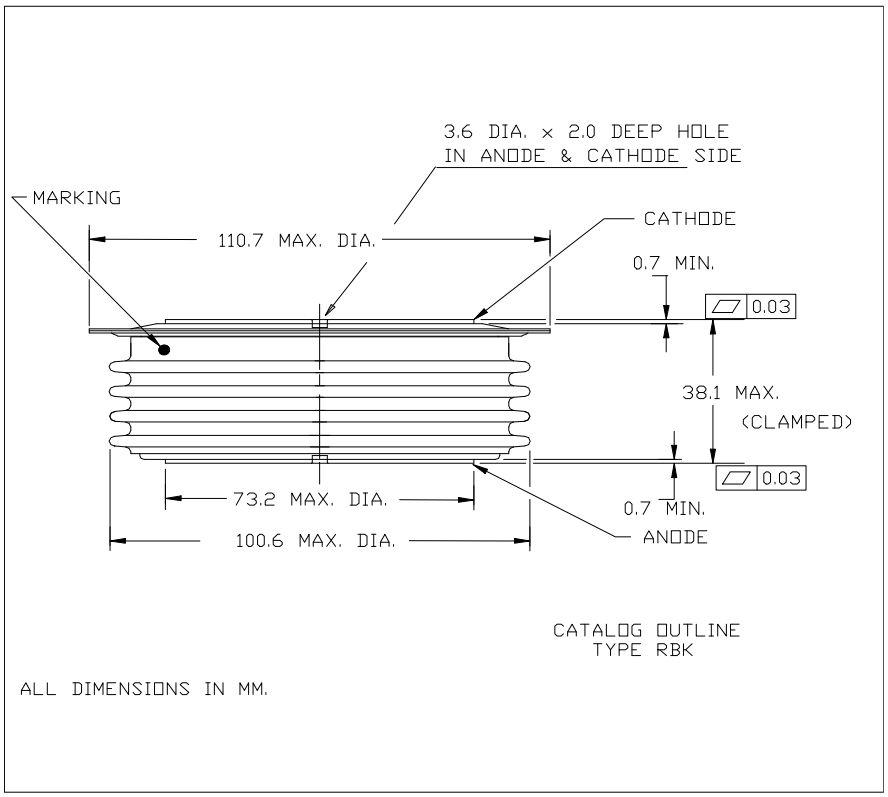
RBK8_ _25XX

GENERAL PURPOSE RECTIFIER DIODE

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

2500 Amperes 6500 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
- Input Rectifiers
- Plating Supplies

ORDERING INFORMATION

Select the complete 12 digit Part Number using the table below.
EXAMPLE: RBK86525XXOO is a 6500V-2500A 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}	
RBK8	6500	**65**	2500	**25**	**XX**	**OO**
	6000	**60**				
	5600	**56**			35µs typical	

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Absolute Maximum Ratings

Characteristic	Symbol	Rating	Units
Repetitive Peak Reverse Voltage	V_{RRM}	6500	Volts
Average On-State Current, T_C=85°C	$I_{F(Avg.)}$	2500	A
RMS On-State Current, T_C=85°C	$I_{F(RMS)}$	3927	A
Average On-State Current, T_C=55°C	$I_{F(Avg.)}$	3200	A
RMS On-State Current, T_C=55°C	$I_{F(RMS)}$	5027	A
Peak One Cycle Surge Current, 60Hz, V_R=0.6*V_{RRM}	I_{FSM}	50,000	A
Fuse Coordination I^2t, 60Hz	I^2t	1.04E+07	A^2s
Peak One Cycle Surge Current, 50Hz, V_R=0V	I_{FSM}	61,000	A
Fuse Coordination I^2t, 50Hz	I^2t	1.86E+07	A^2s
Operating Temperature	Tj	-40 to+150	°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

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=150°C, V_{RRM}=Rated		100	150	ma
Peak On-State Voltage	V_{FM}	Tj=25°C, I_{FM}=3000A			1.55	V
V_{FM} Model, Low Level	V_0	Tj=150°C			0.79	V
VFM = V_O + r•I_{FM}	r	15% I_{FM} - π•I_{FM}			0.238	mΩ
V_{FM} Model, High Level	V_0	Tj=150°C			1.47	V
VFM = V_O + r•I_{FM}	r	π•I_{FM} - I_{FSM}			0.151	mΩ
V_{FM} Model, 4-Term	A	Tj=150°C			0.509	
V_{FM}= A + B•Ln(I_{FM}) +	B	15%I_{FM} - I_{FSM}			0.0019	
C•(I_{FM}) + D•(I_{FM})^{½}	C				1.100E-04	
	D				0.01289	
Reverse Recovery Time	t_{RR}	Tj=25°C, I_{FM}=2000A di_R/dt = 25 A/µs		25		µs

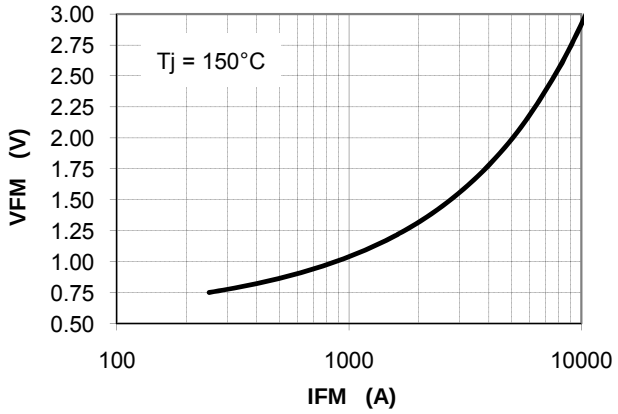
Thermal Characteristics

Characteristic	Symbol	Test Conditions	Rating min	Rating typ	Rating max	Units
Thermal Resistance						
Junction to Case	$R\Theta_{jc}$	Double side cooled		0.010	0.0115	°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				

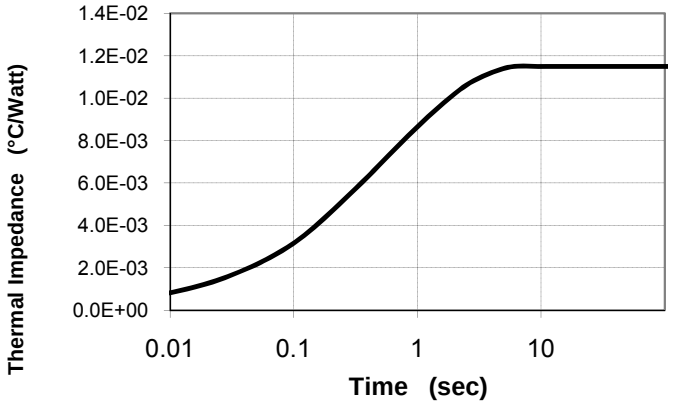
$Z\Theta_{jc}(t) = \Sigma(A(N)\bullet(1-\exp(-t/Tau(N))))$ where:

N =	1	2	3	4
A(N) =	1.02E-05	8.79E-04	4.15E-03	6.43E-03
Tau(N) =	5.86E-04	1.41E-02	1.81E-01	1.21E+00

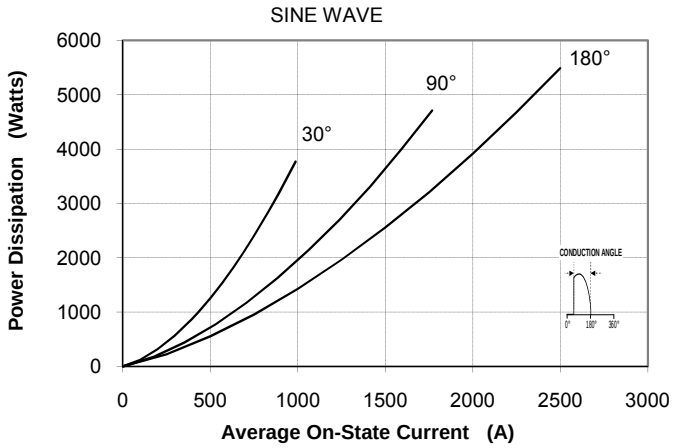
Maximum On-State Voltage Drop



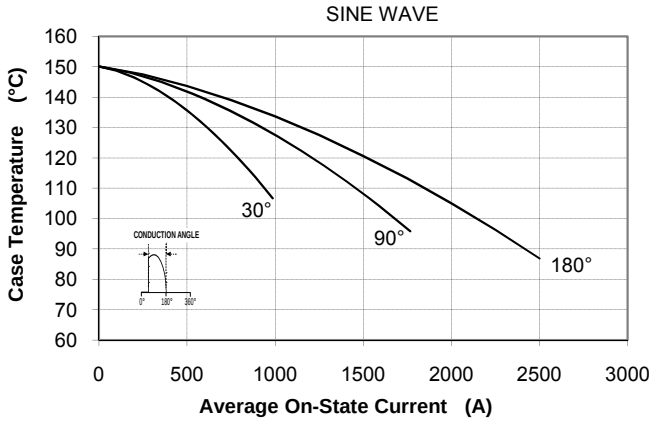
MAXIMUM TRANSIENT THERMAL IMPEDANCE



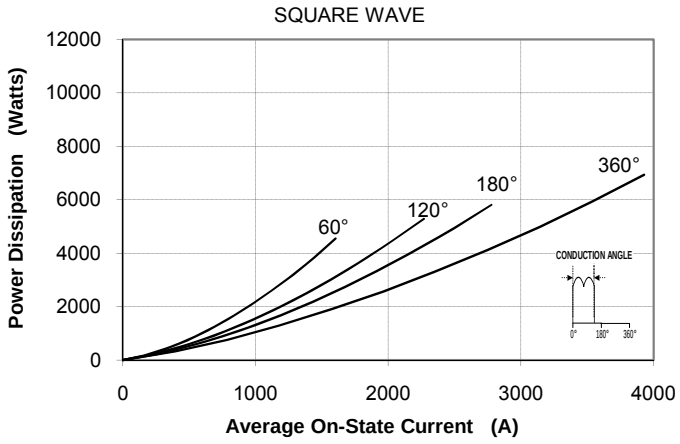
Maximum On-State Power Dissipation



Maximum Allowable Case Temperature



Maximum On-State Power Dissipation



Maximum Allowable Case Temperature