

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: RBK81663XXOO is a 1600V-6300A General Purpose Diode with a typical reverse recovery time of 25 μ s.

PART	Voltage Rating $V_{DRM}-V_{RRM}$	Voltage Code	Current Rating I_{TAVG}	Current Code	Reverse Recovery t_{RR}	Lead Code
RBK8	1600	16	6300	63	XX	OO
	1400	14				
	1200	12			25 μ s typical	

Revised: 10/3/2005

Absolute Maximum Ratings

Characteristic	Symbol	Rating	Units
Repetitive Peak Reverse Voltage	V_{RRM}	1600	Volts
Average On-State Current, $T_C=100^{\circ}\text{C}$	$I_{F(Avg.)}$	6300	A
RMS On-State Current, $T_C=100^{\circ}\text{C}$	$I_{F(RMS)}$	9896	A
Average On-State Current, $T_C=75^{\circ}\text{C}$	$I_{F(Avg.)}$	7500	A
RMS On-State Current, $T_C=75^{\circ}\text{C}$	$I_{F(RMS)}$	11781	A
Peak One Cycle Surge Current, 60Hz, $V_R=0.6*V_{RRM}$	I_{FSM}	95,000	A
Fuse Coordination I^2t , 60Hz	I^2t	3.76E+07	A^2s
Peak One Cycle Surge Current, 50Hz, $V_R=0V$	I_{FSM}	115,900	A
Fuse Coordination I^2t , 50Hz	I^2t	6.72E+07	A^2s
Operating Temperature	T_j	-40 to+190	$^{\circ}\text{C}$
Storage Temperature	$T_{Stg.}$	-50 to+200	$^{\circ}\text{C}$
Approximate Weight		2.5	lb
		1.13	Kg
Mounting Force		6,000 - 10,000	lbs
		26.6 - 44.4	Knewtons

The information on this datasheet is based upon Powerex testing and projected ratings and is subject to change without notice. Powerex makes no implicit or explicit claim to reliability, capability, performance or suitability of this product for a users application. Powerex makes no guarantee of future availability of this product.

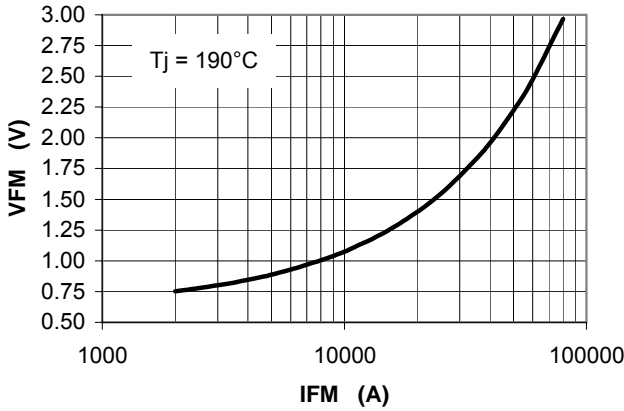
Electrical Characteristics, Tj=25°C unless otherwise specified

Characteristic	Symbol	Test Conditions	Rating			Units
			min	typ	max	
Repetitive Peak Reverse Leakage Current	I_{RRM}	Tj=190°C, V_{RRM} =Rated		100	150	ma
Peak On-State Voltage	V_{FM}	Tj=190°C, I_{FM} =4000A			0.85	V
V_{FM} Model, Low Level	V_0	Tj=190°C			0.688	V
$V_{FM} = V_0 + r \cdot I_{FM}$	r	15% $I_{FM} - \pi \cdot I_{FM}$			3.62E-05	Ω
V_{FM} Model, High Level	V_0	Tj=190°C			0.920	V
$V_{FM} = V_0 + r \cdot I_{FM}$	r	$\pi \cdot I_{FM} - I_{FSM}$			2.58E-05	Ω
V_{FM} Model, 4-Term	A	Tj=190°C			0.700	
$V_{FM} = A + B \cdot \ln(I_{FM}) +$	B	15% $I_{FM} - I_{FSM}$			-0.0209	
$C \cdot (I_{FM}) + D \cdot (I_{FM})^{1/2}$	C				1.730E-05	
	D				0.00395	
Reverse Recovery Time	t_{RR}	Tj=25°C, I_{FM} =400A $di_R/dt = 25 A/\mu s$		25		μs

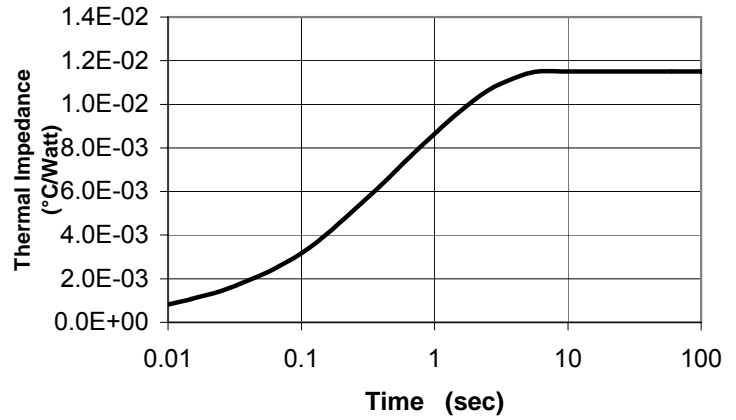
Thermal Characteristics

Characteristic	Symbol	Test Conditions	Rating			Units
			min	typ	max	
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				
$Z\theta_{jc}(t) = \sum(A(N) \cdot (1 - \exp(-t/\text{Tau}(N))))$ where:						
		N =	1	2	3	4
		A(N) =	1.220E-04	8.786E-04	4.154E-03	6.843E-03
		Tau(N) =	5.860E-04	1.409E-02	1.814E-01	1.208E+00

Maximum On-State Voltage Drop

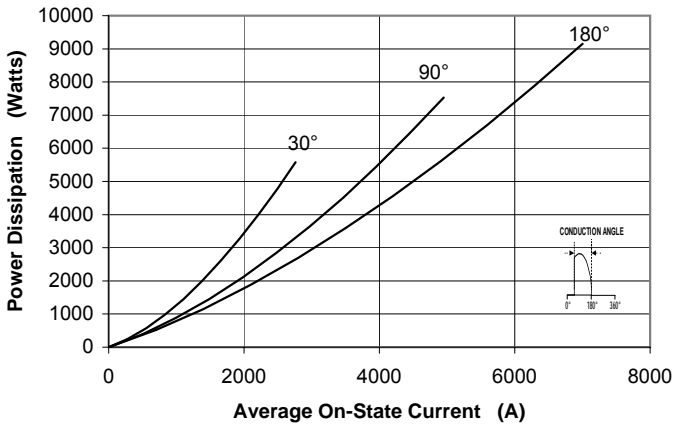


MAXIMUM TRANSIENT THERMAL IMPEDANCE



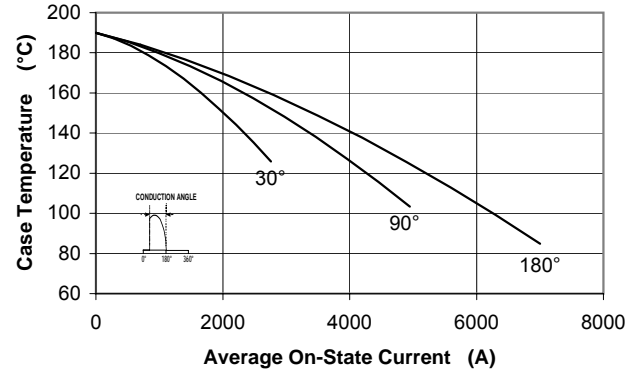
Maximum On-State Power Dissipation

SINE WAVE



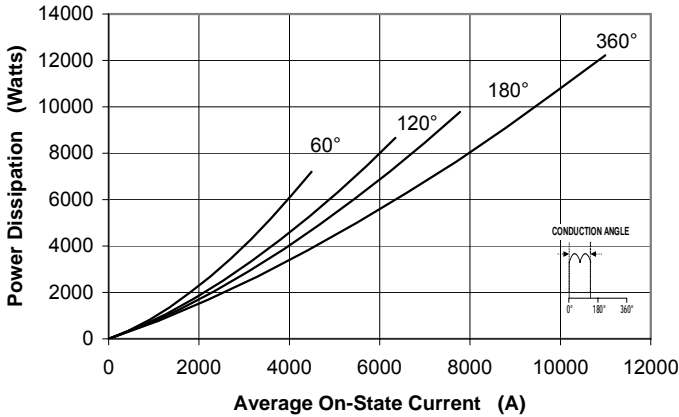
Maximum Allowable Case Temperature

SINE WAVE



Maximum On-State Power Dissipation

SQUARE WAVE



Maximum Allowable Case Temperature

SQUARE WAVE

