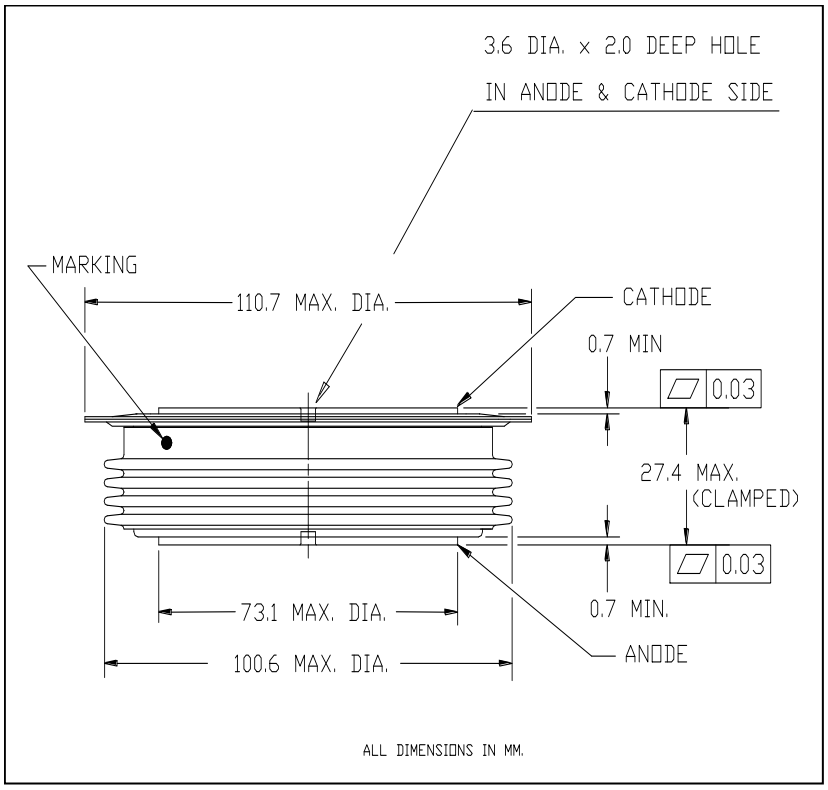
RBS8__56XX

Powerex, Inc., 173 Pavilion Lane, Youngwood, Pennsylvania 15697 (724) 925-7272
www.pwrx.com

General Purpose Rectifier
5680 Amperes Average
2400 Volts



RBS8__56XX
General Purpose Rectifier Diode
5680 Amperes / 2400 Volts

Ordering Information:

Select the complete twelve-digit part number from the table below.
Example: RBS82456XXOO is a 2400V, 5680 Ampere General Purpose Diode with a typical reverse recovery time of 25 µC.

Type	Voltage Rating V_{DRM} - V_{RRM}	Voltage Code	Current Rating I_{tav}	Current Code	Reverse Recovery t_{rr}	Lead Code
RBS8	2400	**24**	5680	**56**	**XX**	**OO**
	2200	**22**			25 µs Typical	No Leads
	2000	**20**				
	1800	**18**				

Description:

Powerex General Purpose Rectifier Diodes are designed with high blocking voltage capability and low forward voltage drop to minimize conduction losses. The hermetic ceramic Pow-R-Disc packages 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

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Absolute Maximum Ratings

Characteristics	Conditions	Symbol		Units
Non-Repetitive Transient Peak Reverse Voltage		V_{RSM}	V_{RRM} + 200V	V
Average On-State Current	180° Conduction, T_C=78°C, 60 Hz	$I_{F(AV)}$	8922	A
RMS On-State Current	180° Conduction, T_C=78°C, 60 Hz	$I_{F(RMS)}$	5680	A
Peak One Cycle Surge Current, Non-Repetitive	60 Hz, 100% V_{RRM} reapplied, T_j= $T_{j\,max}$	I_{FSM}	72,000	A
	50 Hz, 0V reapplied, T_j= $T_{j\,max}$	I_{FSM}	98,500	A
I^2t for Fusing for One Cycle	60 Hz, 100% V_{RRM} reapplied, T_j= $T_{j\,max}$	I^2t	2.16 x 10^7	A^2 sec
	50 Hz, 0V reapplied, T_j= $T_{j\,max}$	I^2t	4.86 x 10^7	A^2 sec
Operating Temperature		T_J	-40 to +175	°C
Storage Temperature		T_{stg}	-50 to +200	°C
Approximate Weight			1.13	kg
			2.5	lb
Mounting Force			6000 – 10,000	lbs
			26.6 - 44.4	kN

Information presented is based upon manufacturers testing and projected capabilities.
This information is subject to change without notice.
The manufacturer makes no claim as to the suitability of use, reliability, capability,
or future availability of this product.

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Electrical Characteristics, T_J=25°C unless otherwise specified

Characteristics	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Repetitive Peak Reverse Leakage Current	I_{RRM}	T_J= 175°C , V_R= V_{RRM}		100	150	mA
Peak On-State Voltage	V_{FM}	T_J= 175°C, I_{FM}= 3000 A			0.95	V
Threshold Voltage, Low-level	$V_{(TO)1}$	T_J = 175°C, I = 15%$I_{F(AV)}$ to π$I_{F(AV)}$			0.68	V
Slope Resistance, Low-level	r_{T1}				0.08	mΩ
Threshold Voltage, High-level	$V_{(TO)2}$	T_J = 175°C, I = π$I_{F(AV)}$ to I_{FSM}			0.87	V
Slope Resistance, High-level	r_{T2}				0.07	mΩ
V_{TM} Coefficients		T_J = 175°C, I = 15%$I_{F(AV)}$ to I_{FSM}		A =	0.8682	
				B =	-0.0377	
		V_{FM} = A+ B*Ln(I) +C*I + D*Sqrt(I)		C =	6.98E-05	
				D =	0.00298	
Reverse Recovery Time	t_{RR}	T_J = 25°C, I_{FM}= 400 A, di_R/dt = 25 A/µs		25		µs

Thermal Characteristics

Characteristics	Symbol		Typ.	Max.	Units
Thermal Resistance, Junction to Case	$R_{ΘJ-C}$	Double side cooled	0.0085	0.0095	°C/W
Thermal Resistance, Case to Sink	$R_{ΘC-S}$	Double side cooled	0.0015	0.002	°C/W
Thermal Impedance Coefficients	$Z_{ΘJ-C}$	$Z_{ΘJ-C}$= K_1 (1-exp(-t/t_1))	K_1 = 5.224E-05	t_1 = 2.648E-06	
		+ K_2 (1-exp(-t/t_2))	K_2 = 1.186E-03	t_2 = 3.427E-02	
		+ K_3 (1-exp(-t/t_3))	K_3 = 2.905E-03	t_3 = 2.736E-01	
		+ K_4 (1-exp(-t/t_4))	K_4 = 5.351E-03	t_4 = 2.030	

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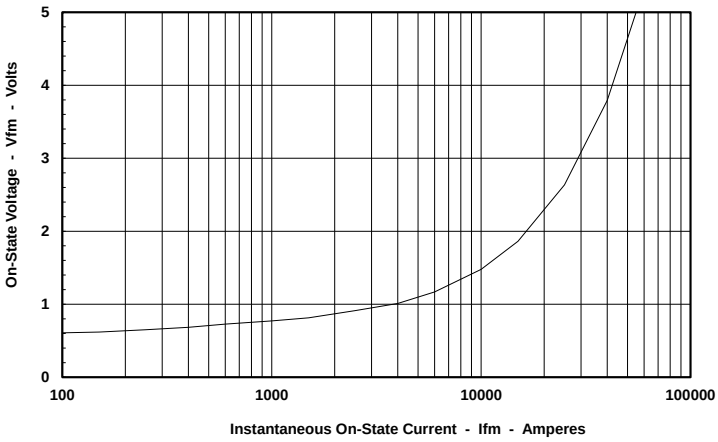
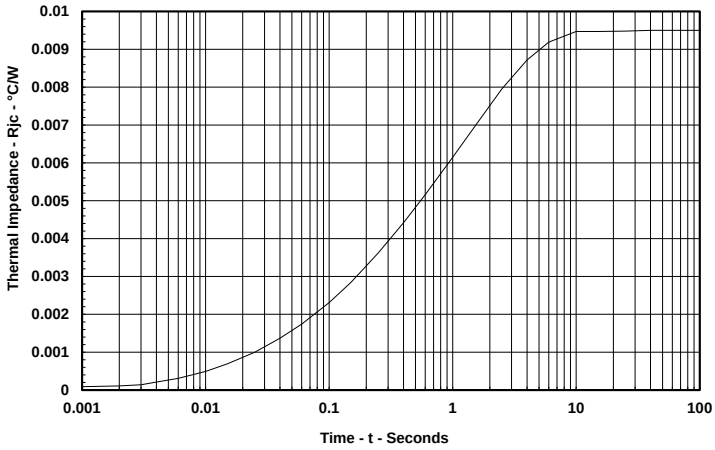
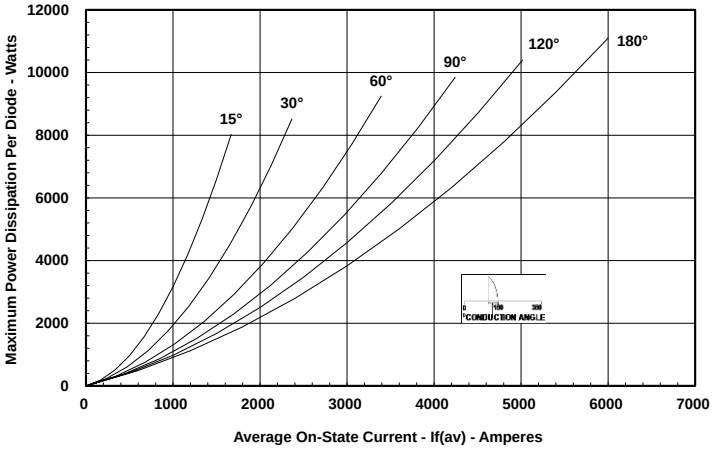
Maximum On-State Forward Voltage Drop
(Tj = 175 °C)



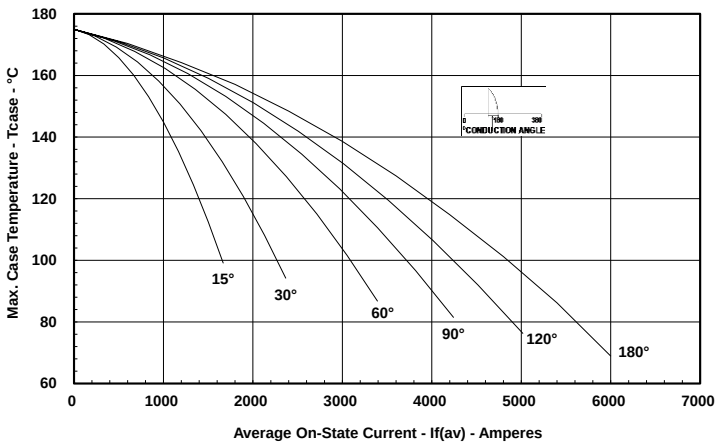
Maximum Transient Thermal Impedance
(Junction to Case)



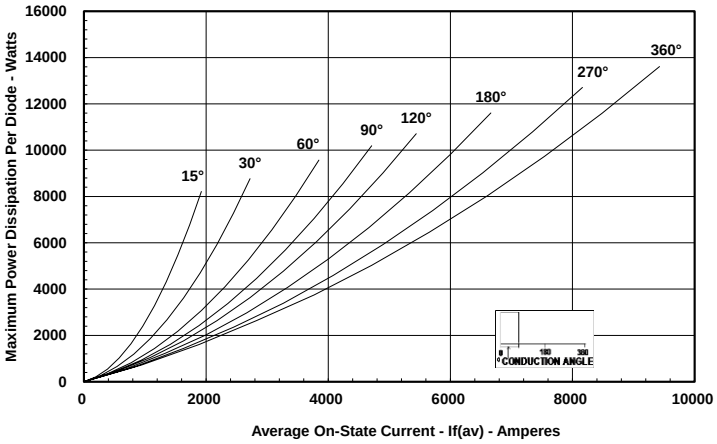
Maximum On-State Power Dissipation
(Sinusoidal Waveform)



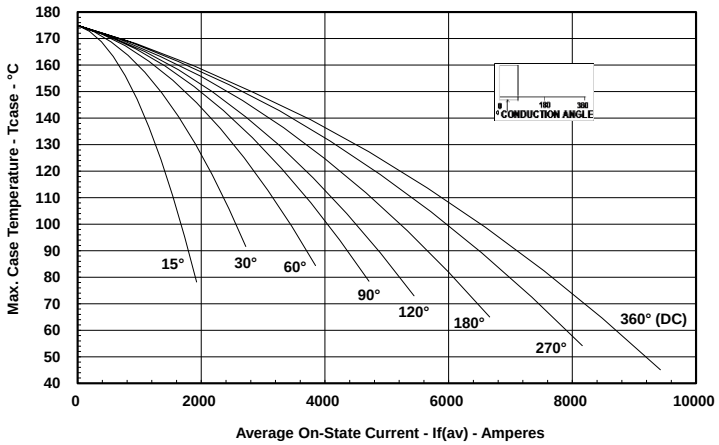
Maximum Allowable Case Temperature
(Sinusoidal Waveform)



Maximum On-State Power Dissipation
(Rectangular Waveform)



Maximum Allowable Case Temperature
(Rectangular Waveform)



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