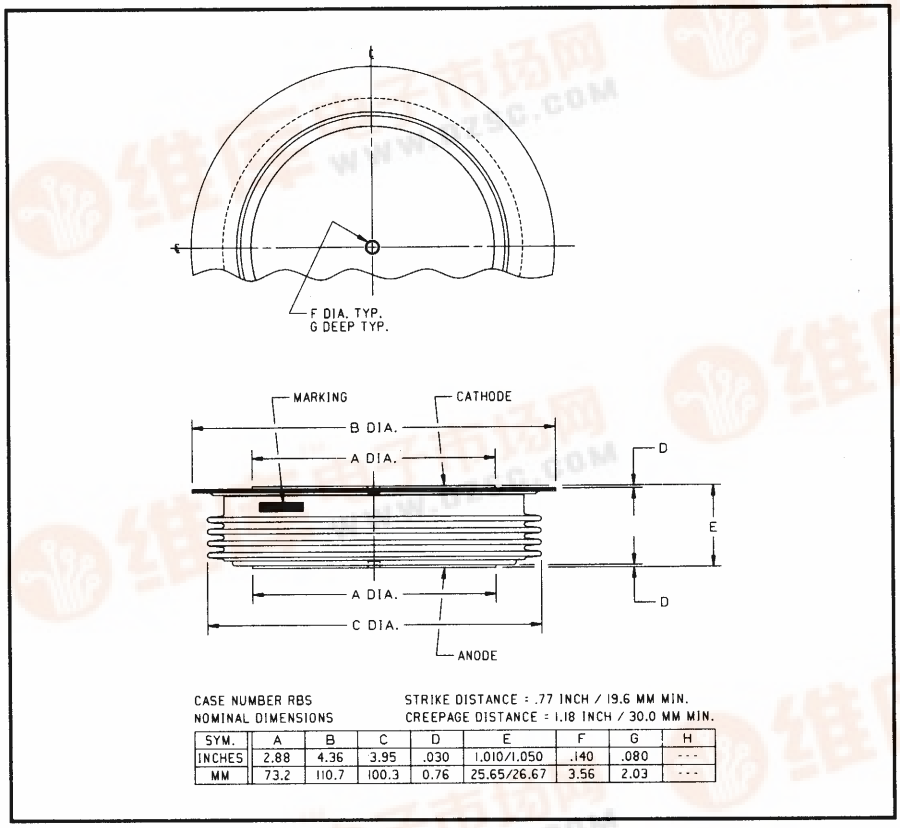
RBS8 7000A

Powerex, Inc., 200 Hillis Street, Youngwood, Pennsylvania 15697-1800 (412) 925-7272
Powerex, Europe, S.A. 428 Avenue G. Durand, BP107, 72003 Le Mans, France (43) 41.14.14

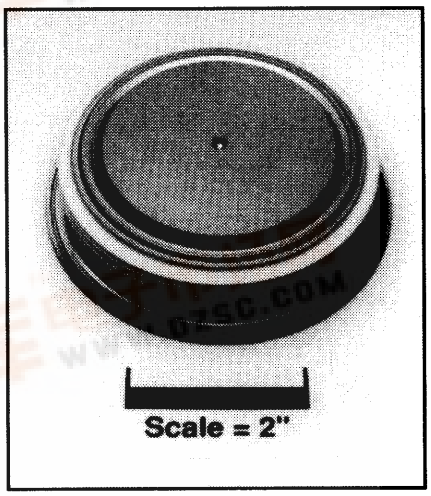
High Power General Purpose Rectifier

7000 Amperes Average
600 Volts



SYM.	A	B	C	D	E	F	G	H
INCHES	2.88	4.36	3.95	.030	1.010/1.050	.140	.080	---
MM	73.2	110.7	100.3	0.76	25.65/26.67	3.56	2.03	---

RBS8 7000A (Outline Drawing)



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High Power
General Purpose Rectifier
7000 Amperes Average, 600 Volts

Description:

The RBS8 is a low voltage, high current rectifier in a thin, low profile package with improved thermal capability. Powerex High Power Rectifiers are designed for use in applications requiring reliable general purpose rectification of high currents.

Ordering Information:

Select the complete 8 digit part number you desire from the table below.

Type	Voltage V_{RRM} (Volts)	Current $I_{T(av)}$ (A)	Typical Recovery Time t_{rr} (µsec)
RBS8	02 04 06	70	XX
	200V 400V 600V	7000A	25µsec

Features:

- ☐ Low Forward Voltage
- ☐ Low Thermal Impedance
- ☐ Low Profile Package
- ☐ Hermetic Packaging
- ☐ Excellent Surge and I^2t Ratings

Applications:

- ☐ Power Supplies
- ☐ AC and DC Motor Control
- ☐ VAR Generators

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Absolute Maximum Ratings

Characteristics	Symbol	RBS8 7000A	Units
Non-repetitive Transient Peak Reverse Voltage	V_{RSM}	V_{RRM} + 200V	Volts
RMS Forward Current, T_C = 79°C	$I_{F(rms)}$	11000	Amperes
Average Current 180° Sine Wave, T_C = 79°C	$I_{F(av)}$	7000	Amperes
RMS Forward Current, T_C = 55°C	$I_{F(rms)}$	12440	Amperes
Average Current 180° Sine Wave, T_C = 55°C	$I_{F(av)}$	7925	Amperes
Peak One Cycle Surge Forward Current (Non-repetitive) 60Hz	I_{fsm}	60000	Amperes
Peak One Cycle Surge Forward Current (Non-repetitive) 50Hz	I_{fsm}	55000	Amperes
I^2t (for Fusing) for One Cycle, 60Hz	I^2t	15×10^6	A^2sec
Operating Temperature	T_j	-40 to +175°C	°C
Storage Temperature	T_{stg}	-40 to +175°C	°C
Approximate Weight		2.5	lb.
		1.1	kg
Mounting Force		6000 to 10000	lb.
		26.6 to 44.4	kN

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Electrical Characteristics, T_j = 25°C Unless Otherwise Specified

Characteristics	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Peak Reverse Leakage Current	I_{RRM}	T_j = 175°C, $V_R = V_{RRM}$			100	mA
Forward Voltage Drop	V_{FM}	I_{FM} = 3000A, Duty Cycle < 0.1%			0.90	Volts
Threshold Voltage, Low-level	$V_{(TO)1}$	T_j = 125°C, I = 15%, $I_{T(av)}$ to $\pi I_{T(av)}$			0.64564	Volts
Slope Resistance, Low-level	r_{T1}				0.04421	mΩ
Threshold Voltage, High-level	$V_{(TO)2}$	T_j = 125°C, I = $\pi I_{T(av)}$ to I_{TSM}			0.64880	Volts
Slope Resistance, High-level	r_{T2}				0.04539	mΩ
V_{TM} Coefficients, Low-level		T_j = 125°C, I = 15% $I_{T(av)}$ to $\pi I_{T(av)}$				
					A_1 = 0.042466	
					B_1 = 0.12757	
					C_1 = 7.653E-05	
					D_1 = -0.009271	
V_{TM} Coefficients, High-level		T_j = 125°C, I = $\pi I_{T(av)}$ to I_{TSM}				
					A_2 = 1.7705	
					B_2 = -0.24559	
					C_2 = 6.379E-06	
					D_2 = 0.01468	
Typical Reverse Recovery Time	t_{rr}	T_C = 25°C, I_{FM} = 1500A, di_R/dt = 25A/µsec		25		µsec

Thermal Characteristics

Maximum Thermal Resistance, Double Sided Cooling						
Junction-to-Case	$R_{\theta(j\text{-}c)}$				0.0095	°C/W
Case-to-Sink	$R_{\theta(c\text{-}s)}$				0.002	°C/W

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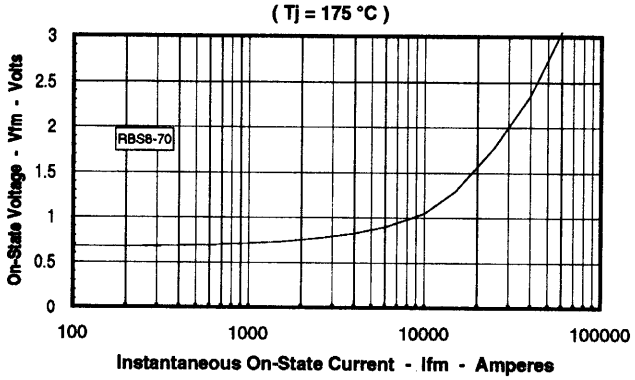
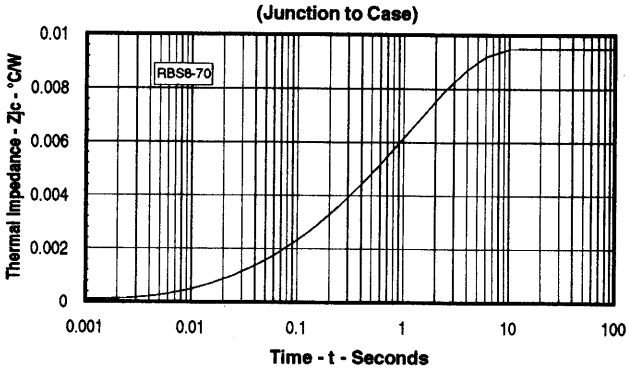
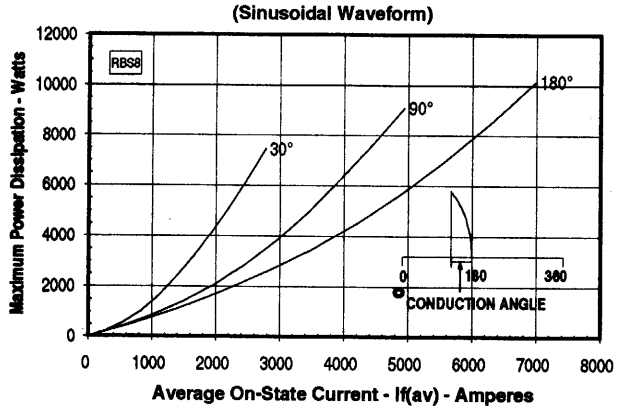
Maximum On-State Forward Voltage Drop
(Tj = 175 °C)



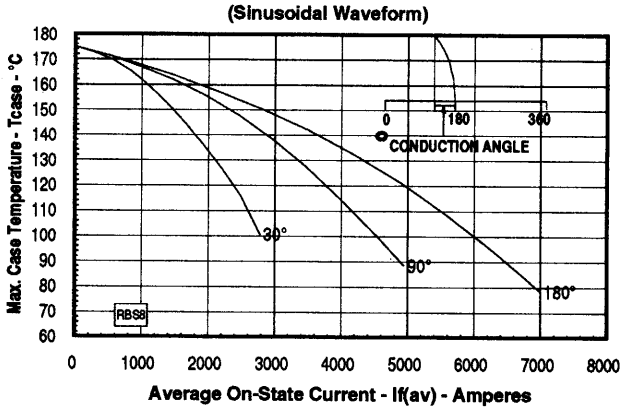
Maximum Transient Thermal Impedance
(Junction to Case)



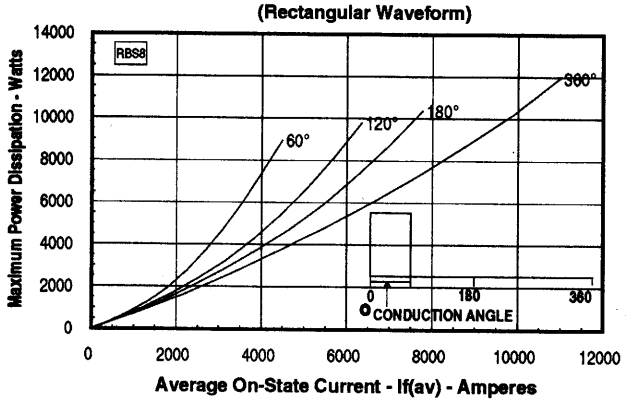
Maximum On-State Power Dissipation
(Sinusoidal Waveform)



Maximum Allowable Case Temperature
(Sinusoidal Waveform)



Maximum On-State Power Dissipation
(Rectangular Waveform)



Maximum Allowable Case Temperature
(Rectangular Waveform)