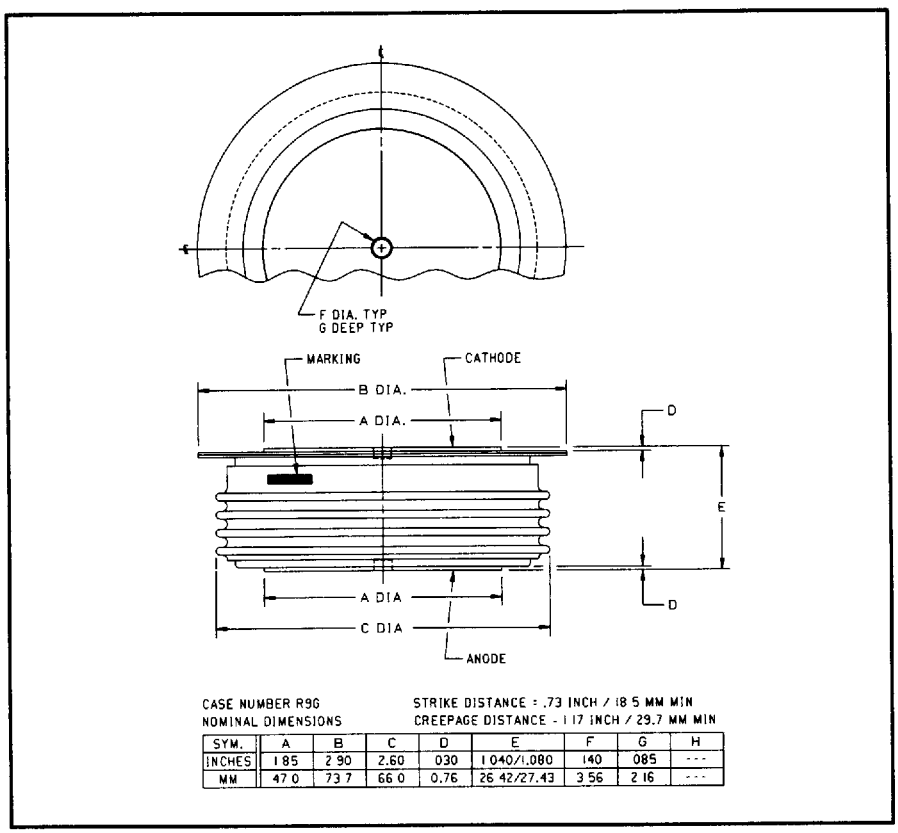
Powerex, Inc., 200 Hillis Street, Youngwood, Pennsylvania 15697-1800 (412) 925-7272
Powerex, Europe, S.A. 428 Avenue G. Durand, BP107, 72003 Le Mans, France (43) 41.14.14

General Purpose Rectifier

1800 Amperes Average
2400 Volts

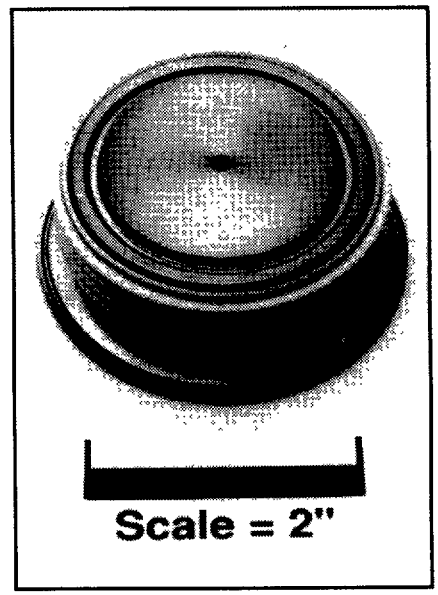


CASE NUMBER R9G
NOMINAL DIMENSIONS

STRIKE DISTANCE = .73 INCH / 18 5 MM MIN
CREEPAGE DISTANCE - 1 17 INCH / 29.7 MM MIN

SYM.	A	B	C	D	E	F	G	H
INCHES	1 85	2 90	2.60	030	1 040/1.080	140	085	---
MM	47 0	73 7	66 0	0.76	26 42/27.43	3 56	2 16	---

R9G0 1800A (Outline Drawing)



R9G0 1800A General Purpose Rectifier
1800 Amperes Average, 2400 Volts

Description:
Powerex General Purpose Rectifiers are designed for high blocking voltage capability with low forward voltage to minimize conduction losses. These hermetic Pow-R-Disc devices can be mounted using commercially available clamps and heatsinks.

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

Applications:
- ☐ Power Supplies
- ☐ Motor Control
- ☐ Free Wheeling Diode
- ☐ Battery Chargers
- ☐ Resistance Welding

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)
R9G0	06 through 24	18	XX
	600V through 2400V	1800A	20 µsec

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R9G0 1800A
General Purpose Rectifier
1800 Amperes Average, 2400 Volts

Absolute Maximum Ratings

Characteristics	Symbol	R9G0 1800A	Units
Non-repetitive Transient Peak Reverse Voltage	V_{RSM}	V_{RRM} + 200V	Volts
RMS Forward Current, T_C = 110°C	$I_{F(rms)}$	2825	Amperes
Average Current 180° Sine Wave, T_C = 110°C	$I_{F(av)}$	1800	Amperes
RMS Forward Current, T_C = 55°C	$I_{F(rms)}$	3970	Amperes
Average Current 180° Sine Wave, T_C = 55°C	$I_{F(av)}$	2530	Amperes
Peak One Cycle Surge Forward Current (Non-repetitive) 60Hz	I_{fsm}	21500	Amperes
Peak One Cycle Surge Forward Current (Non-repetitive) 50Hz	I_{fsm}	19600	Amperes
3 Cycle Surge Current	I_{fsm}	16000	Amperes
10 Cycle Surge Current	I_{fsm}	13300	Amperes
I^2t (for Fusing) for One Cycle, 60Hz	I^2t	1,925,000	A^2sec
Maximum I^2t of Package (t = 8.3 msec)	I^2t	90×10^6	A^2sec
Operating Temperature	T_j	-40 to +175°C	°C
Storage Temperature	T_{stg}	-40 to +190°C	°C
Approximate Weight		1	lb.
		454	g
Mounting Force		5000 to 6000	lb.
		2270 to 2700	kg.

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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 = 125°C, $V_R = V_{RRM}$			150	mA
Forward Voltage Drop	V_{FM}	I_{FM} = 1500A, Duty Cycle < 0.1%			1.20	Volts
Threshold Voltage, Low-level	$V_{(TO)1}$	T_j = 175°C, I = 15%, $I_{T(av)}$ to $\pi I_{T(av)}$			0.81366	Volts
Slope Resistance, Low-level	r_{T1}				0.2242	mΩ
Threshold Voltage, High-level	$V_{(TO)2}$	T_j = 175°C, I = $\pi I_{T(av)}$ to I_{TSM}			1.0255	Volts
Slope Resistance, High-level	r_{T2}				0.1982	mΩ
V_{TM} Coefficients, Low-level		T_j = 175°C, I = 15% $I_{T(av)}$ to $\pi I_{T(av)}$			A_1 = 1.0126 B_1 = -0.041567 C_1 = 2.149E-04 D_1 = 0.002882	
V_{TM} Coefficients, High-level		T_j = 175°C, I = $\pi I_{T(av)}$ to I_{TSM}			A_2 = 6.0046 B_2 = -0.90954 C_2 = 6.61E-05 D_2 = 0.04744	
Typical Reverse Recovery Time	t_{rr}	T_C = 25°C, I_{FM} = 1500A, di_R/dt = 25A/µsec, t_p = 190µsec		20		µsec

Thermal Characteristics

Maximum Thermal Resistance, Double Sided Cooling						
Junction-to-Case	$R_{\theta(j-c)}$				0.020	°C/W
Case-to-Sink	$R_{\theta(c-s)}$				0.0075	°C/W

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R9G0 1800A
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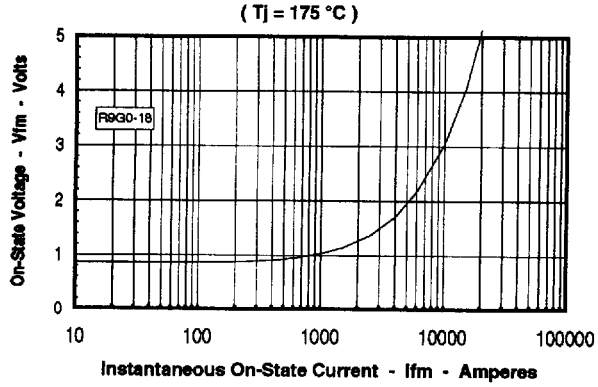
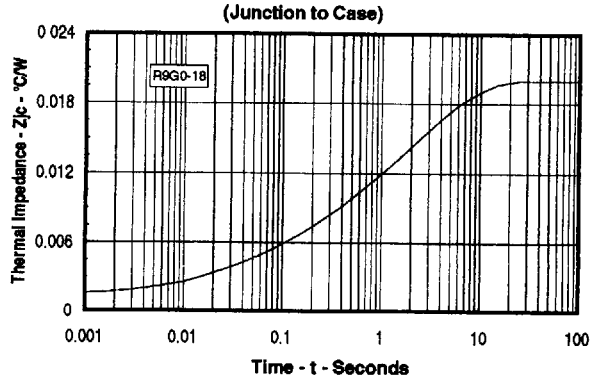
1800 Amperes Average, 2400 Volts

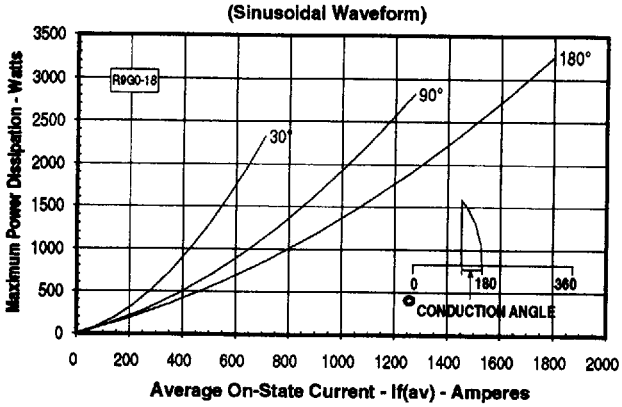
Maximum On-State Forward Voltage Drop
(TJ = 175 °C)



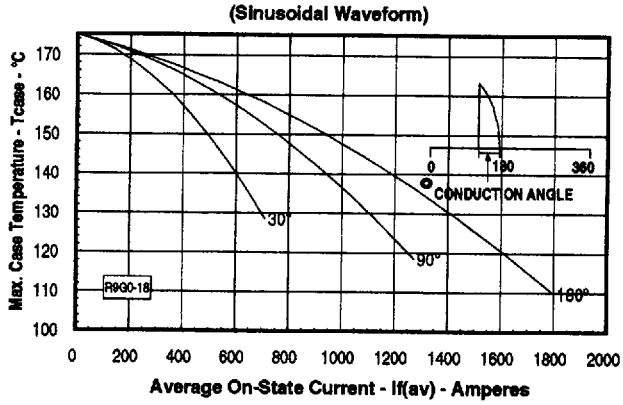
Maximum Transient Thermal Impedance
(Junction to Case)



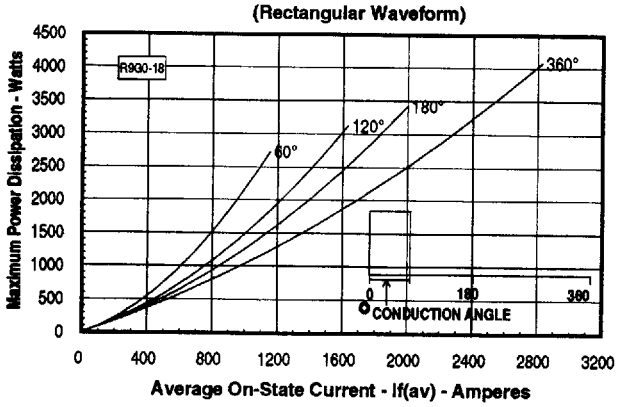
Maximum On-State Power Dissipation
(Sinusoidal Waveform)



Maximum Allowable Case Temperature
(Sinusoidal Waveform)



Maximum On-State Power Dissipation
(Rectangular Waveform)



Maximum Allowable Case Temperature
(Rectangular Waveform)