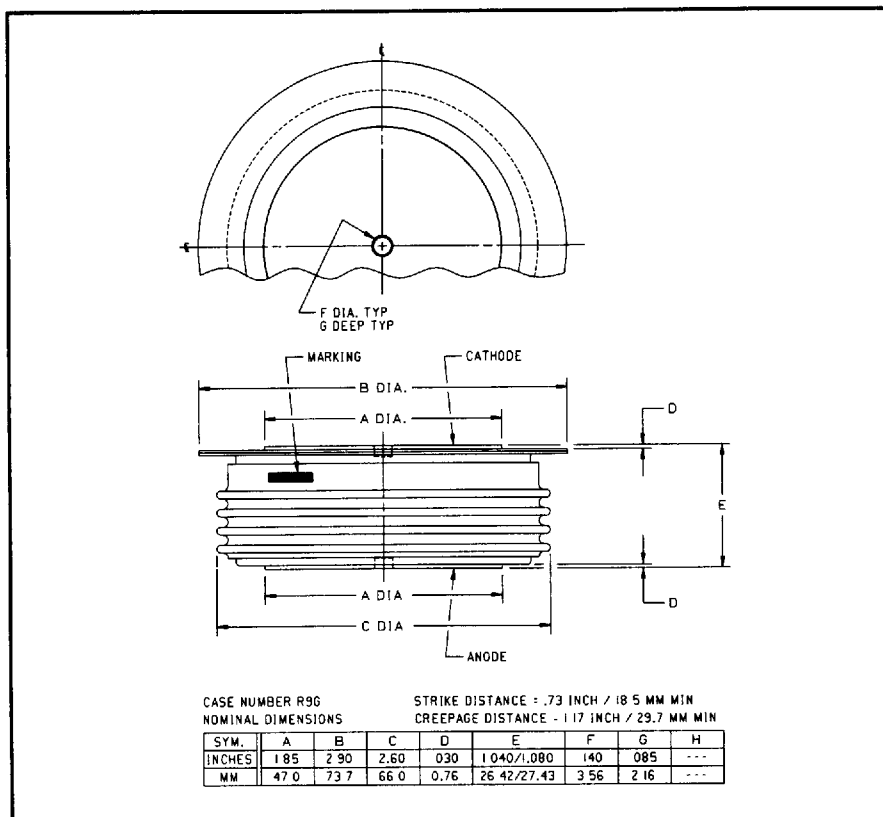


Powerex, Inc., 200 Hillis Street, Youngwood, Pennsylvania 15697-1800 (412) 925-7272
 Powerex, Europe, S.A. 428 Avenue G. Durand, BP107, 72003 Le Mans, France (43) 41.14.14

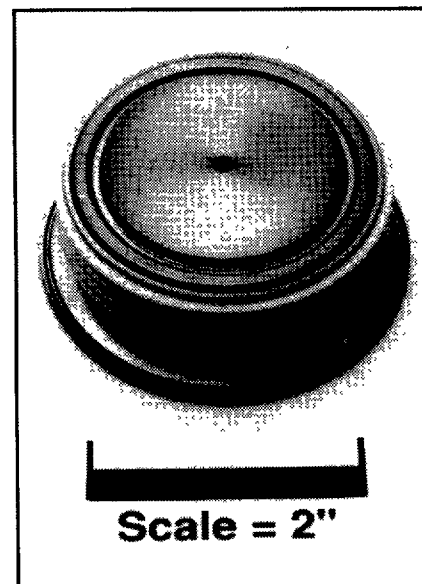
POWEREX INC

64E D

General Purpose Rectifier
1800 Amperes Average
2400 Volts



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} (μ sec)
R9G0	06 through 24	18	XX
	600V through 2400V	1800A	20 μ sec

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****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, $T_C = 110^\circ C$	$I_{F(rms)}$	2825	Amperes
Average Current 180° Sine Wave, $T_C = 110^\circ C$	$I_{F(av)}$	1800	Amperes
RMS Forward Current, $T_C = 55^\circ C$	$I_{F(rms)}$	3970	Amperes
Average Current 180° Sine Wave, $T_C = 55^\circ C$	$I_{F(av)}$	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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R9G0 1800A

General Purpose Rectifier

1800 Amperes Average, 2400 Volts

Electrical Characteristics, $T_j = 25^\circ\text{C}$ Unless Otherwise Specified

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

Thermal Characteristics

Maximum Thermal Resistance, Double Sided Cooling

Junction-to-Case	$R_{\theta(j-c)}$	0.020	$^\circ\text{C/W}$
Case-to-Sink	$R_{\theta(c-s)}$	0.0075	$^\circ\text{C/W}$

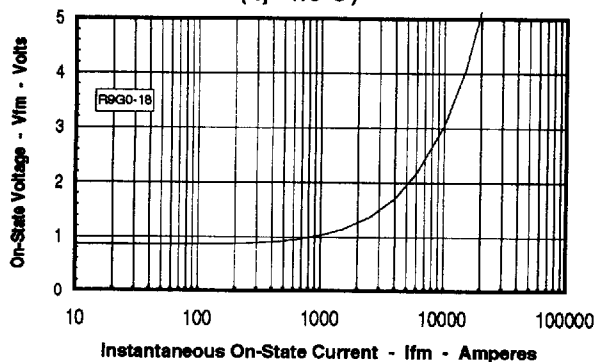
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R9G0 1800A

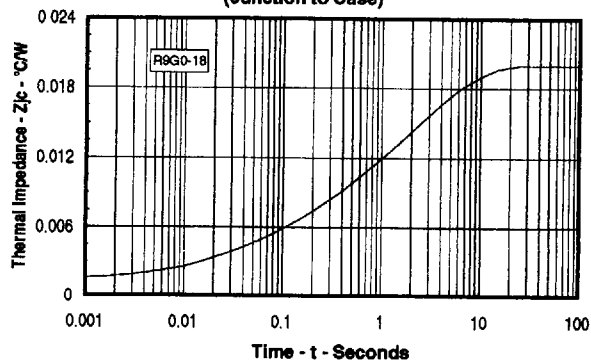
General Purpose Rectifier

1800 Amperes Average, 2400 Volts

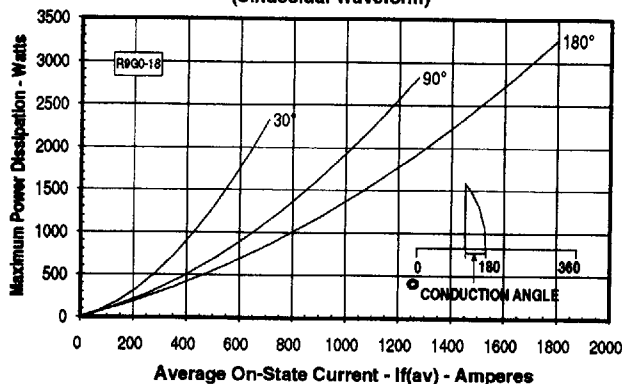
Maximum On-State Forward Voltage Drop
($T_J = 175^\circ\text{C}$)



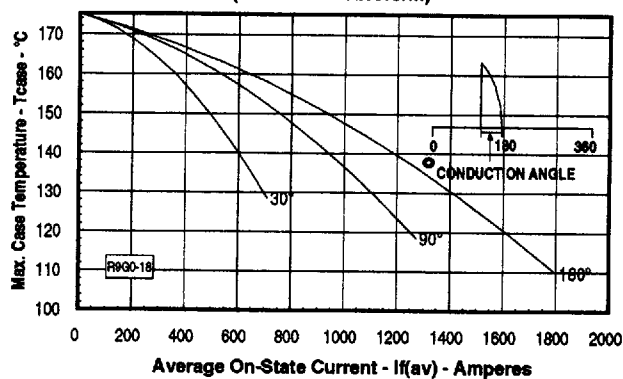
Maximum Transient Thermal Impedance
(Junction to Case)



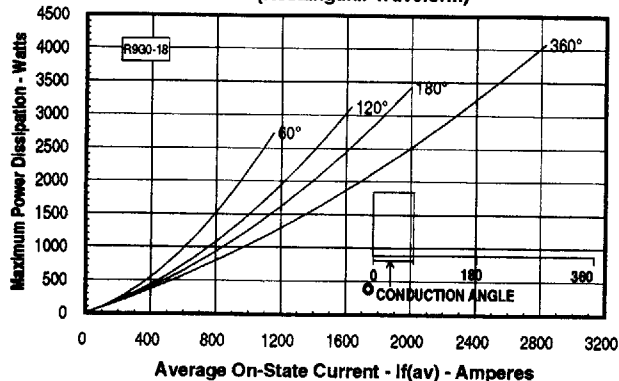
Maximum On-State Power Dissipation
(Sinusoidal Waveform)



Maximum Allowable Case Temperature
(Sinusoidal Waveform)



Maximum On-State Power Dissipation
(Rectangular Waveform)



Maximum Allowable Case Temperature
(Rectangular Waveform)

