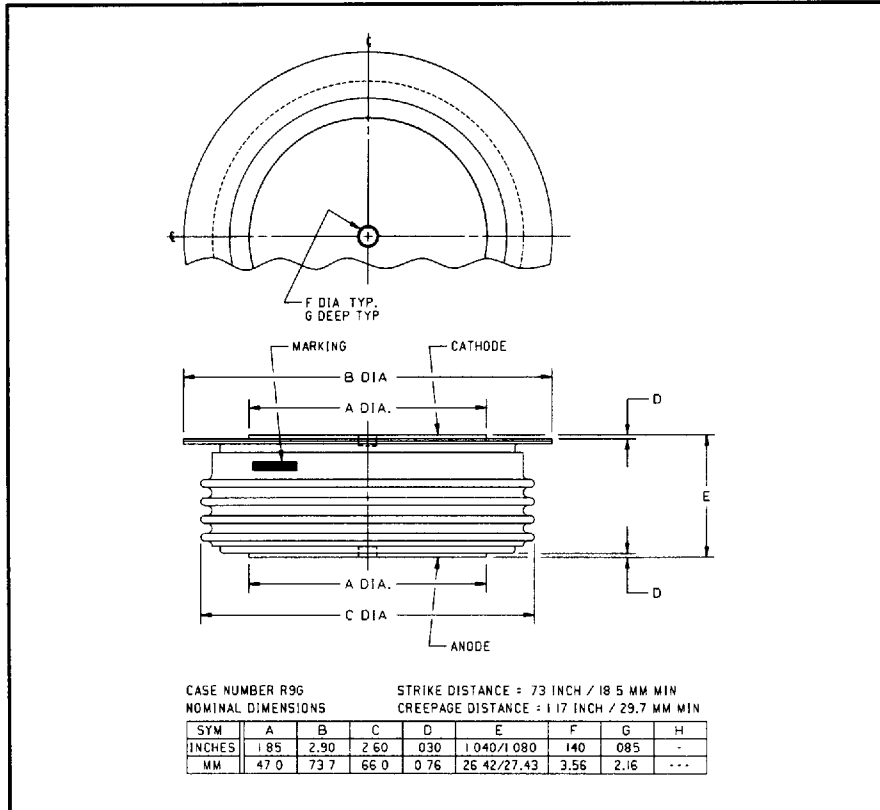


Powerex, Inc., 200 Hillis Street, Youngwood, Pennsylvania 15697-1800 (412) 925-7272
Powerex, Europe, S.A. 428 Avenue G. Durand, BP107, 72003 Le Mans, France (43) 41.14.14

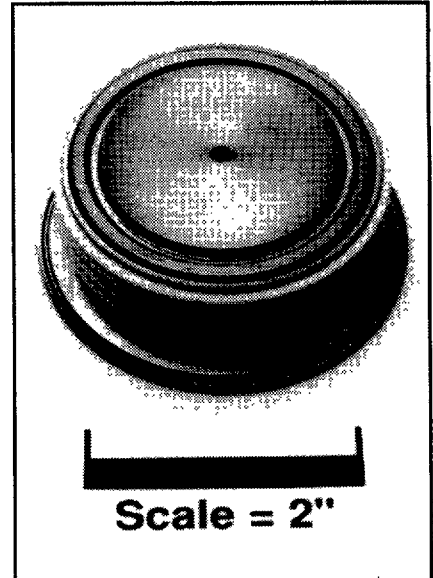
POWEREX INC

64E D

General Purpose Rectifier
2200 Amperes Average
1600 Volts



R9G0 2200A (Outline Drawing)



R9G0 1800A General Purpose Rectifier
2200 Amperes Average, 1600 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	01 through 16	22	XX
	100V through 1600V	2200A	15 μ sec

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R9G0 2200A**General Purpose Rectifier**

2200 Amperes Average, 1600 Volts

Absolute Maximum Ratings

Characteristics	Symbol	R9G0 2200A	Units
Non-repetitive Transient Peak Reverse Voltage	V_{RSM}	$V_{RRM} + 200V$	Volts
RMS Forward Current, $T_C = 134^{\circ}C$	$I_{F(rms)}$	3455	Amperes
Average Current 180° Sine Wave, $T_C = 134^{\circ}C$	$I_{F(av)}$	2200	Amperes
RMS Forward Current, $T_C = 55^{\circ}C$	$I_{F(rms)}$	5340	Amperes
Average Current 180° Sine Wave, $T_C = 55^{\circ}C$	$I_{F(av)}$	3400	Amperes
Peak One Cycle Surge Forward Current (Non-repetitive) 60Hz	I_{fsm}	30000	Amperes
Peak One Cycle Surge Forward Current (Non-repetitive) 50Hz	I_{fsm}	27400	Amperes
3 Cycle Surge Current	I_{fsm}	22000	Amperes
10 Cycle Surge Current	I_{fsm}	18500	Amperes
I^2t (for Fusing) for One Cycle, 60Hz	I^2t	3,700,000	A^2sec
Maximum I^2t of Package ($t = 8.3$ msec)	I^2t	90×10^6	A^2sec
Operating Temperature	T_j	-40 to +150°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 2200A

General Purpose Rectifier

2200 Amperes Average, 1600 Volts

POWEREX INC

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 $< 0.1\%$			1.10	Volts
Threshold Voltage, Low-level	$V_{(TO)1}$	$T_J = 150^\circ\text{C}$, $I = 15\%$, $I_{T(av)}$ to $\pi I_{T(av)}$			0.79109	Volts
Slope Resistance, Low-level	r_{T1}				0.08773	m Ω
Threshold Voltage, High-level	$V_{(TO)2}$	$T_J = 150^\circ\text{C}$, $I = \pi I_{T(av)}$ to I_{TSM}			0.73267	Volts
Slope Resistance, High-level	r_{T2}				0.09978	m Ω
V_{TM} Coefficients, Low-level		$T_J = 150^\circ\text{C}$, $I = 15\%$ $I_{T(av)}$ to $\pi I_{T(av)}$			$A_1 = 0.87442$ $B_1 = -0.02263$ $C_1 = 6.427\text{E-}05$ $D_1 = 3.061\text{E-}03$	
V_{TM} Coefficients, High-level		$T_J = 150^\circ\text{C}$, $I = \pi I_{T(av)}$ to I_{TSM}			$A_2 = 6.40712$ $B_2 = -0.87093$ $C_2 = 4.383\text{E-}05$ $D_2 = 0.02888$	
Typical Reverse Recovery Time	t_{rr}	$T_C = 25^\circ\text{C}$, $I_{FM} = 1500\text{A}$, $di_F/dt = 25\text{A}/\mu\text{sec}$, $t_p = 190\mu\text{sec}$		15		μsec

Thermal Characteristics

Maximum Thermal Resistance, Double Sided Cooling

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

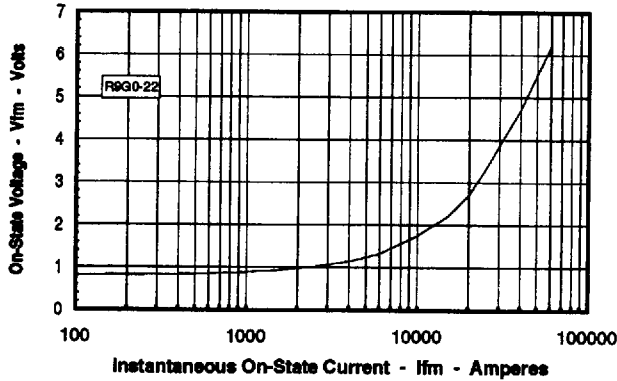
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R9G0 2200A

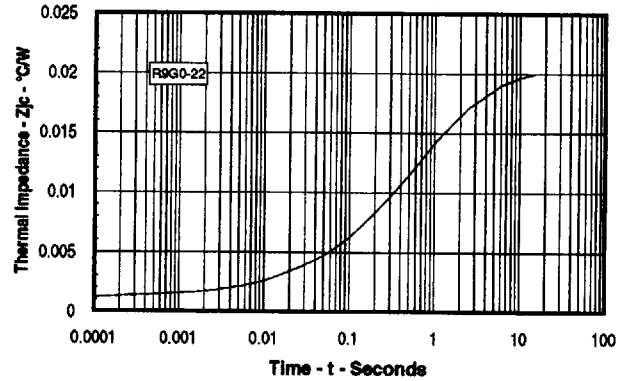
General Purpose Rectifier

2200 Amperes Average, 1600 Volts

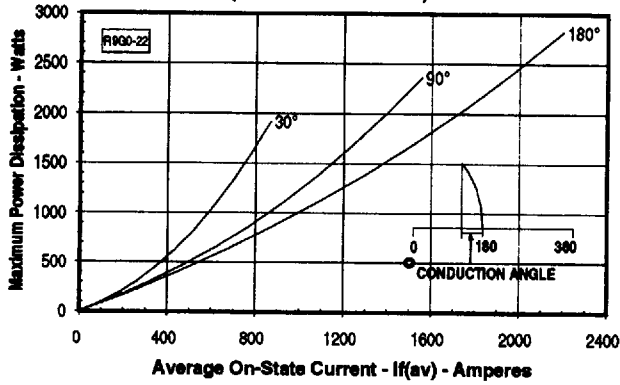
Maximum On-State Forward Voltage Drop
 ($T_J = 180^\circ\text{C}$)



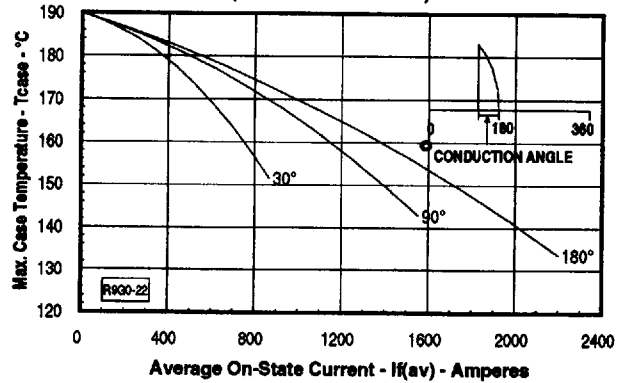
Maximum Transient Thermal Impedance
 (Junction to Case)



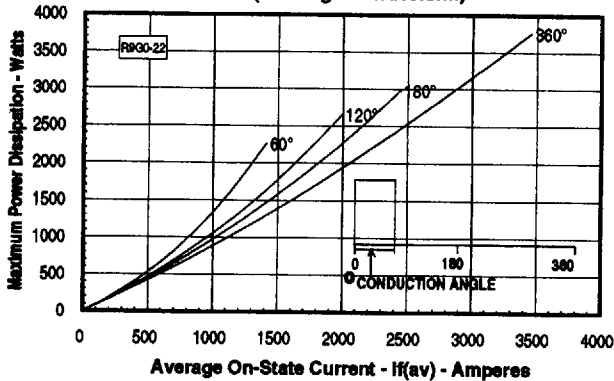
Maximum On-State Power Dissipation
 (Sinusoidal Waveform)



Maximum Allowable Case Temperature
 (Sinusoidal Waveform)



Maximum On-State Power Dissipation
 (Rectangular Waveform)



Maximum Allowable Case Temperature
 (Rectangular Waveform)

