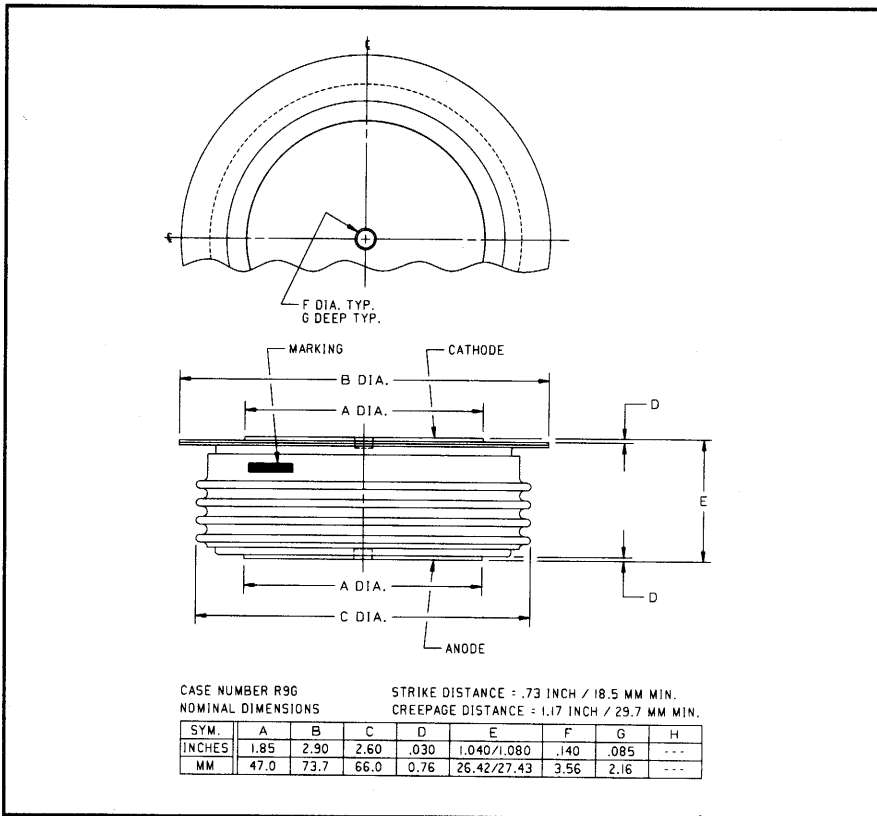


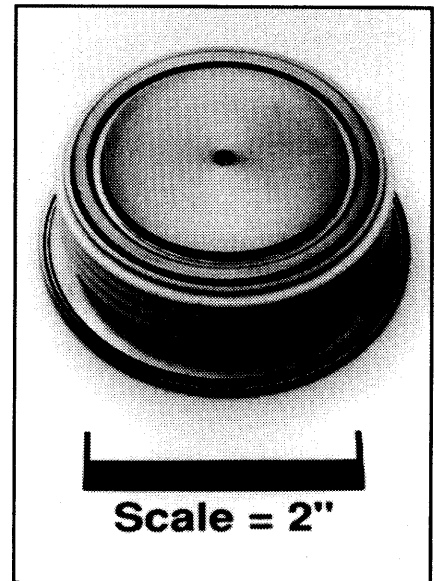
Powerex, Inc., 200 Hillis Street, Youngwood, Pennsylvania 15697-1800 (412) 925-7272  
 Powerex, Europe, S.A. 428 Avenue G. Durand, BP107, 72003 Le Mans, France (43) 41.14.14

### General Purpose Rectifier

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	Current	Typical Recovery Time
	$V_{RRM}$ (Volts)	$I_T(av)$ (A)	$t_{rr}$ ( $\mu$ sec)
R9G0	01 through 16  100V through 1600V	22  2200A	XX  15 $\mu$ 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)	$i^2t$	$90 \times 10^6$	$A^2sec$
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.

**R9G0 2200A**  
**General Purpose Rectifier**  
 2200 Amperes Average, 1600 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%			1.10	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	$\text{m}\Omega$
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	$\text{m}\Omega$
$V_{TM}$ 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	$t_{rr}$	$T_C = 25^\circ\text{C}$ , $I_{FM} = 1500\text{A}$ , $di_R/dt = 25\text{A}/\mu\text{sec}$ , $t_p = 190\mu\text{sec}$		15		$\mu\text{sec}$

## Thermal Characteristics

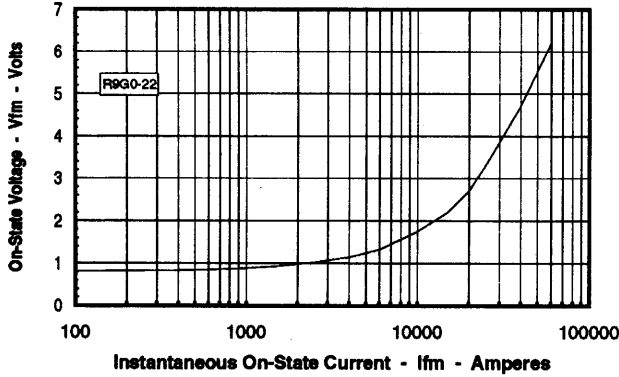
Maximum Thermal Resistance, Double Sided Cooling

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

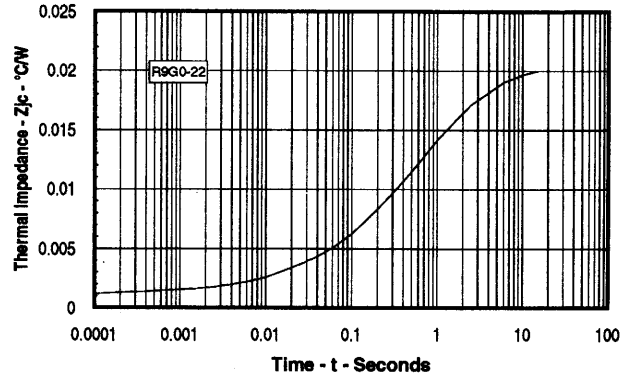
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**R9G0 2200A**  
**General Purpose Rectifier**  
 2200 Amperes Average, 1600 Volts

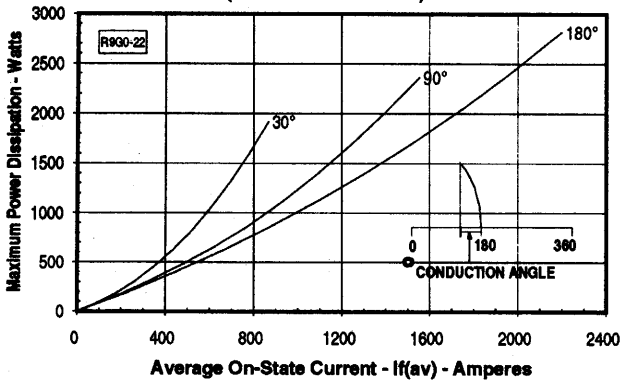
**Maximum On-State Forward Voltage Drop**  
 ( $T_J = 190^\circ\text{C}$ )



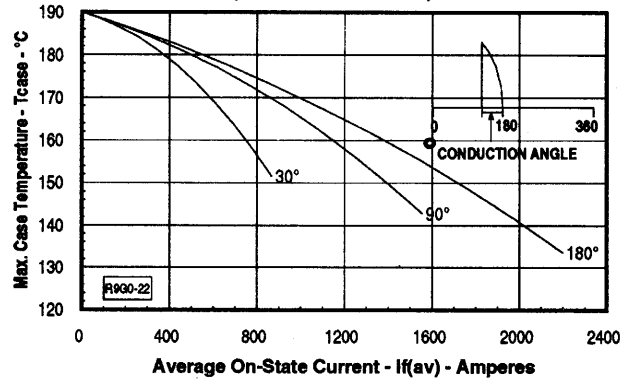
**Maximum Transient Thermal Impedance**  
 (Junction to Case)



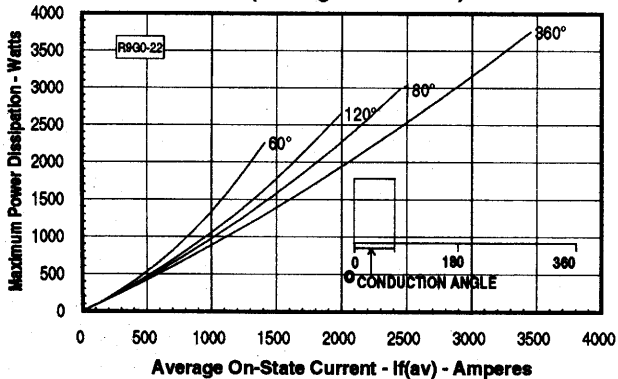
**Maximum On-State Power Dissipation**  
 (Sinusoidal Waveform)



**Maximum Allowable Case Temperature**  
 (Sinusoidal Waveform)



**Maximum On-State Power Dissipation**  
 (Rectangular Waveform)



**Maximum Allowable Case Temperature**  
 (Rectangular Waveform)

