

Powerex General Purpose, Low Profile Rectifier Diode designed with high blocking voltage capability and low forward voltage drop to minimize conduction losses. These are packaged in hermetic, ceramic Pow-R-Disc packages which can be mounted using commercially available clamps and heatsinks or fully assembled to a variety of air or water cooled heat exchangers.

FEATURES:

- Low On-State Voltage
- Hermetic Ceramic Package
- Excellent Surge and I^2t Ratings

APPLICATIONS:

- DC Power Supplies

ORDERING INFORMATION

Select the complete 12 digit Part Number using the table below.
 EXAMPLE: R9S02630XXOO is a 2600V-3000A General Purpose Diode with a typical reverse recovery time of 25 μ s.

| PART | Voltage Rating $V_{DRM}-V_{RRM}$ | Voltage Code | Current Rating I_{avg} | Current Code | Reverse Recovery t_{RR} | Lead Code |
|-------------|-------------------------------------|--------------|-----------------------------|--------------|------------------------------|-----------|
| R9S0 | 2600V | 26 | 3000A | 30 | XX | OO |
| | 2400V | 24 | | | | |
| | 2200V | 22 | | | 25 μ s typical | |
| | 2000V | 20 | | | | |
| | 1800V | 18 | | | | |

Revised: 8/16/2007

Absolute Maximum Ratings

| Characteristic | Symbol | Rating | Units |
|---|---------------|-------------|------------------|
| Repetitive Peak Reverse Voltage | V_{RRM} | 2600 | Volts |
| Average On-State Current, $T_C=115\text{ }^\circ\text{C}$ | $I_{F(Avg.)}$ | 3000 | A |
| RMS On-State Current, $T_C=115\text{ }^\circ\text{C}$ | $I_{F(RMS)}$ | 4712 | A |
| Average On-State Current, $T_C=85\text{ }^\circ\text{C}$ | $I_{F(Avg.)}$ | 3935 | A |
| RMS On-State Current, $T_C=85\text{ }^\circ\text{C}$ | $I_{F(RMS)}$ | 6181 | A |
| Peak One Cycle Surge Current [†] , 60Hz, $V_R=V_{RRM}$ | I_{FSM} | 22,000 | A |
| Fuse Coordination I^2t , 60Hz | I^2t | 2.02E+06 | A ² s |
| Peak One Cycle Surge Current [†] , 60Hz, $V_R=0V$ | I_{FSM} | 28,600 | A |
| Fuse Coordination I^2t , 50Hz | I^2t | 3.41E+06 | A ² s |
| Peak 3 Cycle Surge Current, 60Hz, $V_R=0V$ | I_{FSM} | 25,080 | A |
| Peak 10 Cycle Surge Current, 60Hz, $V_R=0V$ | I_{FSM} | 20,130 | A |
| Operating Temperature | T_J | -40 to+175 | °C |
| Storage Temperature | $T_{Stg.}$ | -50 to+200 | °C |
| Approximate Weight | | 0.6 | lb |
| | | 0.27 | Kg |
| Mounting Force | | 5500-6000 | lbs |
| | | 24.5 - 26.7 | Knewtons |

[†] Per NEMA Std. RS-282

Information presented is based upon limited testing or projected capabilities. This information is subject to change without notice. The manufacturer makes no claim as to suitability for use, reliability, capability or future availability of this product.



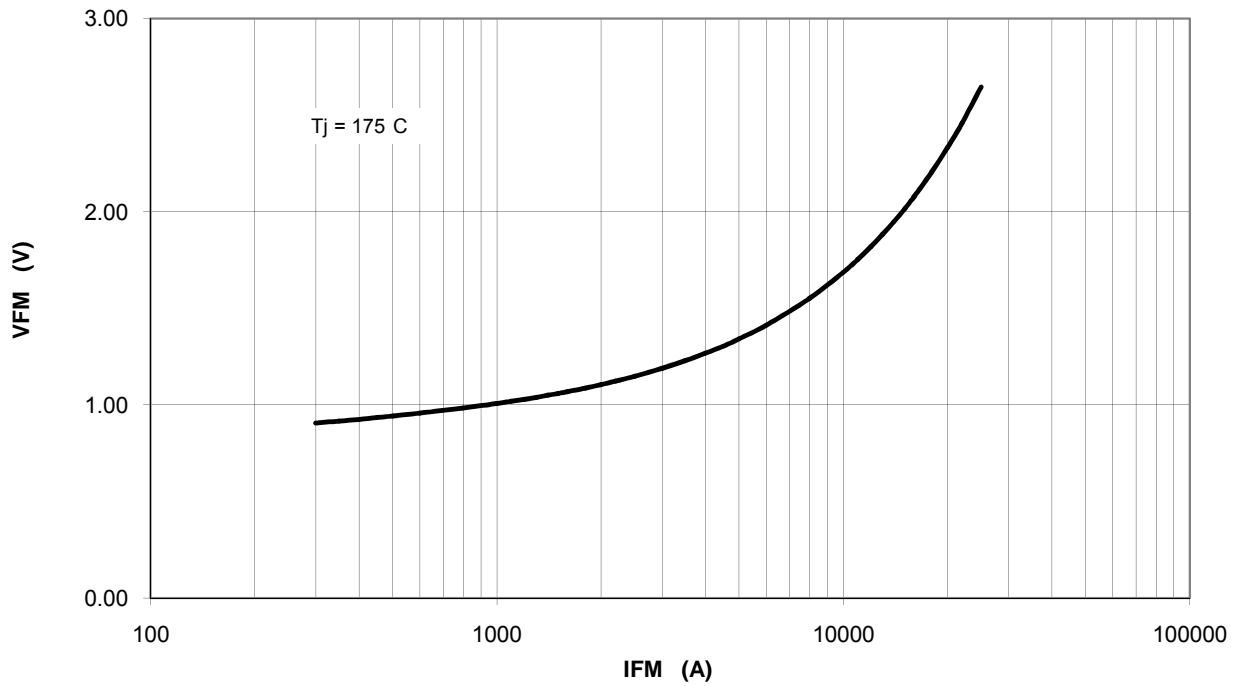
Electrical Characteristics, Tj=25°C unless otherwise specified

| Characteristic | Symbol | Test Conditions | Rating | | | Units |
|---|-----------|--|--------|-----|-----------|-------|
| | | | min | typ | max | |
| Repetitive Peak Reverse Leakage Current | I_{RRM} | Tj=175°C, V_{RRM} =Rated | | | 75 | ma |
| Peak On-State Voltage | V_{FM} | Tj=25°C, I_{FM} =1500A | | | 1.10 | V |
| V_{FM} Model, Low Level | V_0 | Tj=175°C | | | 0.912 | V |
| $V_{FM} = V_0 + r \cdot I_{FM}$ | r | 15% $I_{FM} - \pi \cdot I_{FM}$ | | | 8.85E-02 | mΩ |
| V_{FM} Model, High Level | V_0 | Tj=175°C | | | 1.059 | V |
| $V_{FM} = V_0 + r \cdot I_{FM}$ | r | $\pi \cdot I_{FM} - I_{FSM}$ | | | 6.32E-02 | mΩ |
| V_{FM} Model, 4-Term | A | Tj=175°C | | | 0.652 | |
| $V_{FM} = A + B \cdot \ln(I_{FM}) +$ | B | 15% $I_{FM} - I_{FSM}$ | | | 0.0381 | |
| $C \cdot (I_{FM}) + D \cdot (I_{FM})^{1/2}$ | C | | | | 5.730E-05 | |
| | D | | | | 0.00111 | |
| Reverse Recovery Time | t_{RR} | Tj=25°C, I_{FM} =1500A $di_R/dt = 25 A/\mu s$ | | | 25 | μs |

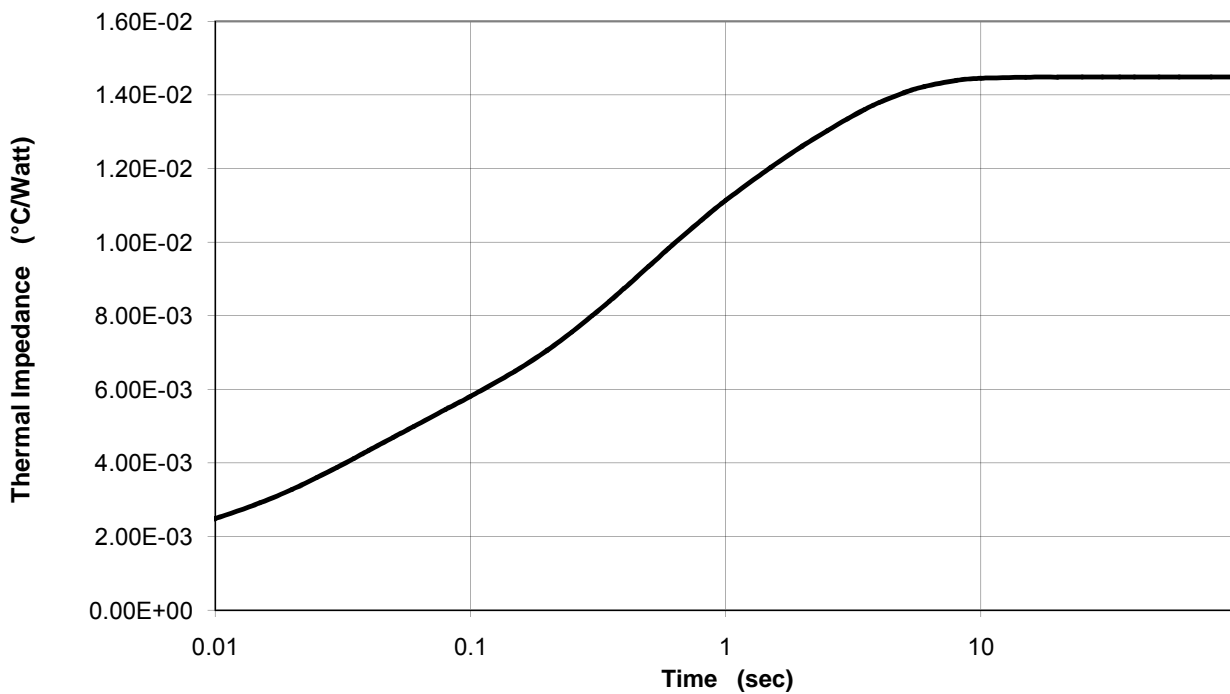
Thermal Characteristics

| Characteristic | Symbol | Test Conditions | Rating | | | Units | | | | | | | | | | | | | | | |
|--|----------------|--------------------|-----------|-----------|--------|---------|-----|---|---|---|---|--------|-----------|-----------|-----------|-----------|----------|-----------|-----------|-----------|-----------|
| | | | min | typ | max | | | | | | | | | | | | | | | | |
| Thermal Resistance | | | | | | | | | | | | | | | | | | | | | |
| Junction to Case | $R\theta_{jc}$ | Double side cooled | | 0.012 | 0.0145 | °C/Watt | | | | | | | | | | | | | | | |
| Case to Sink | $R\theta_{cs}$ | Double side cooled | | 0.004 | 0.006 | °C/Watt | | | | | | | | | | | | | | | |
| Thermal Impedance Model | $Z\theta_{jc}$ | Double side cooled | | | | | | | | | | | | | | | | | | | |
| $Z\theta_{jc}(t) = \sum(A(N) \cdot (1 - \exp(-t/\text{Tau}(N))))$ where: <table style="display: inline-table; vertical-align: middle;"> <tr> <td>N =</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> </tr> <tr> <td>A(N) =</td> <td>1.418E-03</td> <td>2.968E-03</td> <td>6.066E-03</td> <td>9.527E-03</td> </tr> <tr> <td>Tau(N) =</td> <td>5.947E-05</td> <td>2.762E-02</td> <td>4.011E-01</td> <td>4.012E+00</td> </tr> </table> | | | | | | | N = | 1 | 2 | 3 | 4 | A(N) = | 1.418E-03 | 2.968E-03 | 6.066E-03 | 9.527E-03 | Tau(N) = | 5.947E-05 | 2.762E-02 | 4.011E-01 | 4.012E+00 |
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Maximum On-State Voltage Drop

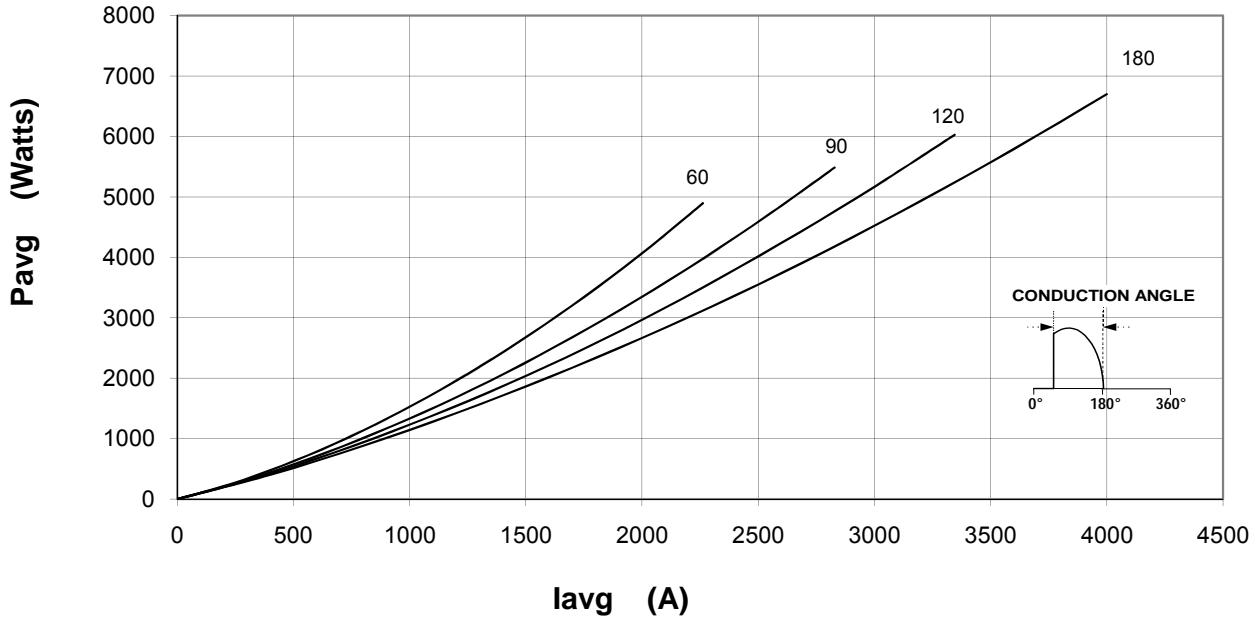


MAXIMUM TRANSIENT THERMAL IMPEDANCE



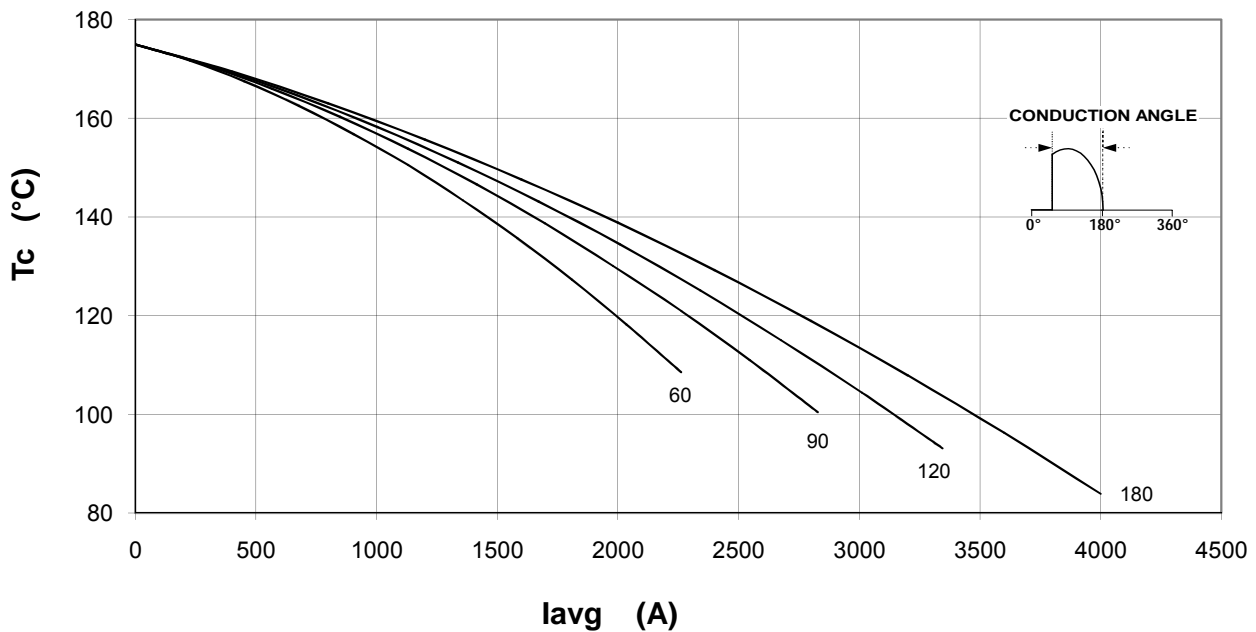
Maximum On-State Power Dissipation

Sinusoidal Waveform

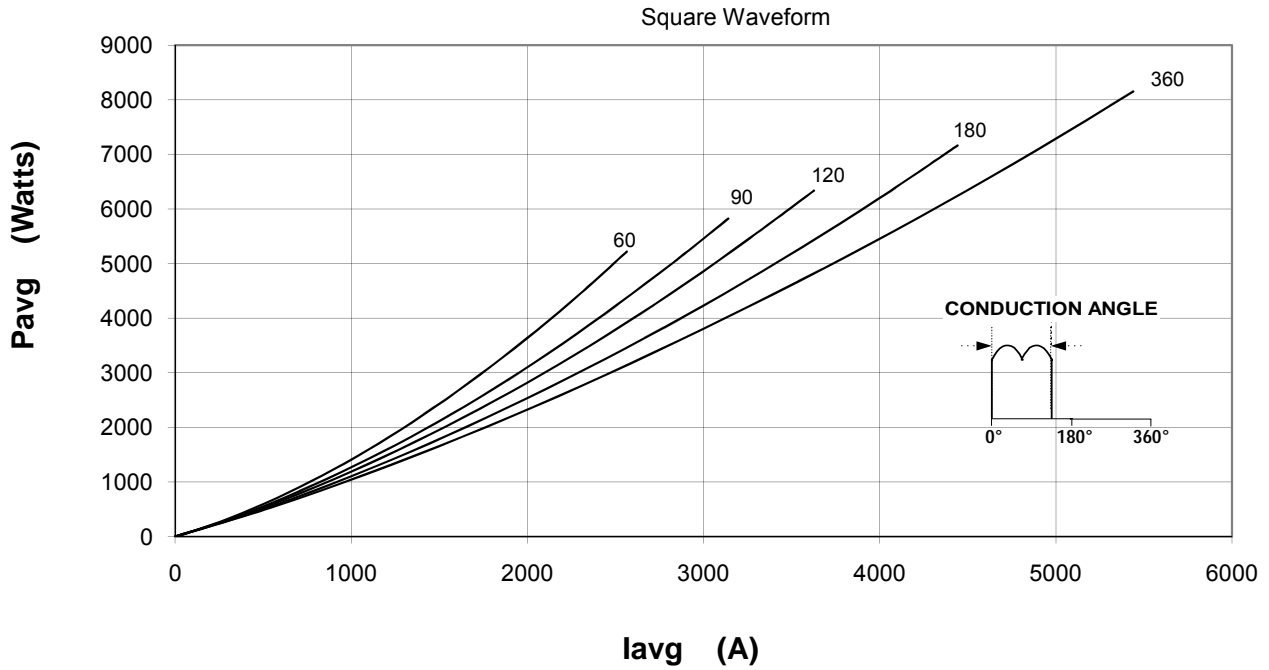


Maximum Allowable Case Temperature

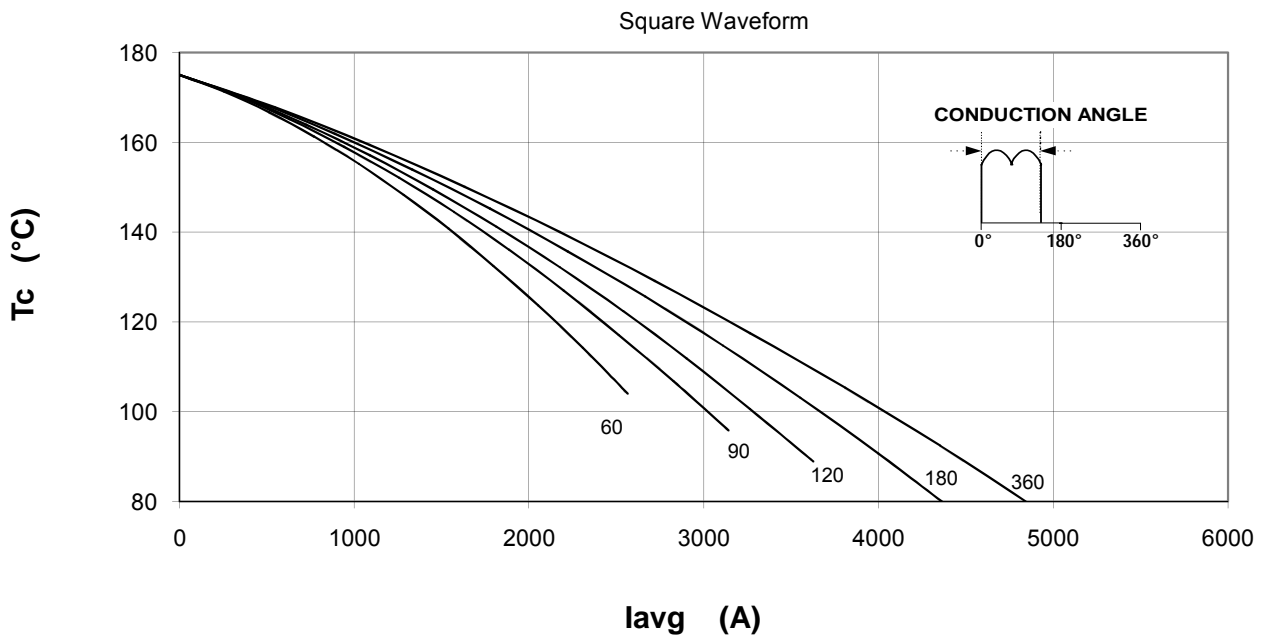
Sinusoidal Waveform



Maximum On-State Power Dissipation



Maximum Allowable Case Temperature



MULTI-CYCLE SURGE



SUB-CYCLE SURGE -- I^2t

