

Powerex General Purpose Rectifier Diodes are 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: R7S02215XXOO is a 2200V-1550A 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_{tavg} | Current Code | Reverse Recovery t_{RR} | Lead Code |
|------|---|--------------|------------------------------|--------------|------------------------------|-----------|
| R7S0 | 2400 | 24 | 1550 | 15 | XX | OO |
| | 2200 | 22 | | | | |
| | 2000 | 20 | | | 25 μ s typical | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

Absolute Maximum Ratings

| Characteristic | Symbol | Rating | Units |
|---|---------------|------------|------------------|
| Repetitive Peak Reverse Voltage | V_{RRM} | 2400 | Volts |
| Average On-State Current, $T_C=90\text{ }^\circ\text{C}$ | $I_{F(Avg.)}$ | 1550 | A |
| RMS On-State Current, $T_C=90\text{ }^\circ\text{C}$ | $I_{F(RMS)}$ | 2435 | A |
| Average On-State Current, $T_C=55\text{ }^\circ\text{C}$ | $I_{F(Avg.)}$ | 1830 | A |
| RMS On-State Current, $T_C=55\text{ }^\circ\text{C}$ | $I_{F(RMS)}$ | 2875 | A |
| Peak 1 Cycle Surge Current [†] , 60Hz, $V_R=0.6*V_{RRM}$ | I_{FSM} | 8,162 | A |
| Fuse Coordination I^2t , 60Hz | I^2t | 2.78E+05 | A^2s |
| Peak 1 Cycle Surge Current [†] , 60Hz, $V_R=0V$ | I_{FSM} | 10,600 | A |
| Fuse Coordination I^2t , 50Hz | I^2t | 4.68E+05 | A^2s |
| Peak 3 Cycle Surge Current, 60Hz, $V_R=0V$ | I_{FSM} | 8,056 | A |
| Peak 10 Cycle Surge Current, 60Hz, $V_R=0V$ | I_{FSM} | 5,936 | A |
| Operating Temperature | T_j | -40 to+200 | $^\circ\text{C}$ |
| Storage Temperature | $T_{Stg.}$ | -50 to+200 | $^\circ\text{C}$ |
| Approximate Weight | | 0.25 | lb |
| | | 0.11 | Kg |
| Mounting Force | | 2000-2400 | lbs |
| | | 8.9 - 10.6 | Knewtons |

[†] Per NEMA Std. RS-282

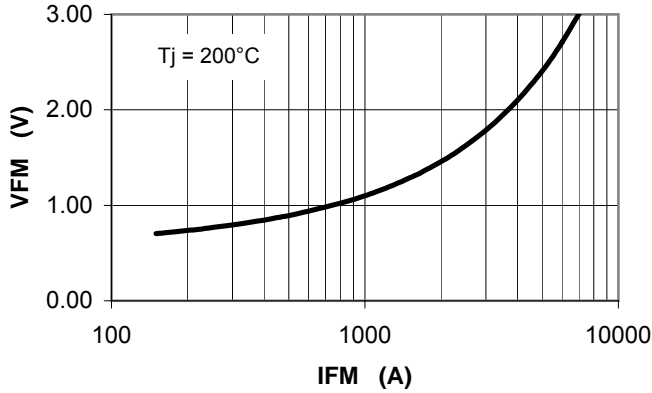
Electrical Characteristics, T_j=25°C unless otherwise specified

| Characteristic | Symbol | Test Conditions | Rating | | | Units |
|--|------------------|---|--------|-----|-----------|-------|
| | | | min | typ | max | |
| Repetitive Peak Reverse Leakage Current | I _{RRM} | T _j =200°C, V _{RRM} =Rated | | | 150 | ma |
| Peak On-State Voltage | V _{FM} | T _j =25°C, I _{FM} =1500A | | | 1.35 | V |
| V _{FM} Model, Low Level | V ₀ | T _j =200°C | | | 0.754 | V |
| V _{FM} = V ₀ + r•I _{FM} | r | 15% I _{FM} - π•I _{FM} | | | 0.336 | mΩ |
| V _{FM} Model, High Level | V ₀ | T _j =200°C | | | 0.946 | V |
| V _{FM} = V ₀ + r•I _{FM} | r | π•I _{FM} - I _{FSM} | | | 0.292 | mΩ |
| V _{FM} Model, 4-Term | A | T _j =200°C | | | 0.449 | |
| V _{FM} = A + B•Ln(I _{FM}) + | B | 15% I _{FM} - I _{FSM} | | | 0.0256 | |
| C•(I _{FM}) + D•(I _{FM}) ^{1/2} | C | | | | 2.454E-04 | |
| | D | | | | 0.00726 | |
| Reverse Recovery Time | t _{RR} | T _j =25°C, I _{FM} =1500A di _R /dt = 25 A/μs | | 25 | | μs |

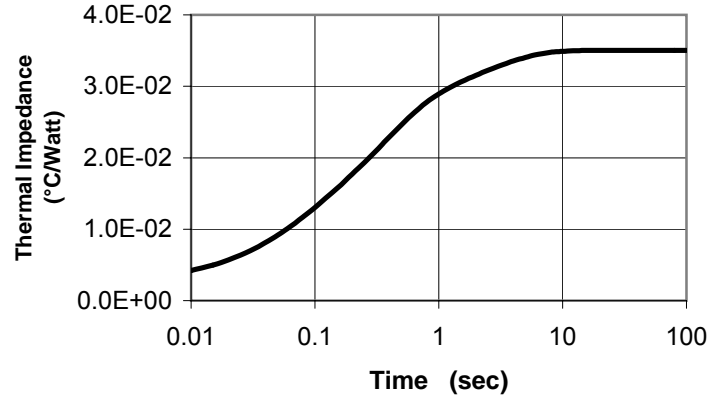
Thermal Characteristics

| Characteristic | Symbol | Test Conditions | Rating | | | Units | |
|---|------------------|--------------------|----------|----------|----------|----------|----------|
| | | | min | typ | max | | |
| Thermal Resistance | | | | | | | |
| Junction to Case | Rθ _{jc} | Double side cooled | | 0.03 | 0.035 | °C/Watt | |
| Case to Sink | Rθ _{cs} | Double side cooled | | 0.018 | 0.02 | °C/Watt | |
| Thermal Impedance Model | Zθ _{jc} | Double side cooled | | | | | |
| Zθ _{jc} (t) = Σ(A(N)•(1-exp(-t/Tau(N)))) | | where: | N = | 1 | 2 | 3 | 4 |
| | | | A(N) = | 2.54E-03 | 6.39E-03 | 1.82E-02 | 7.91E-03 |
| | | | Tau(N) = | 7.99E-04 | 5.29E-02 | 3.30E-01 | 2.39E+00 |

Maximum On-State Voltage Drop

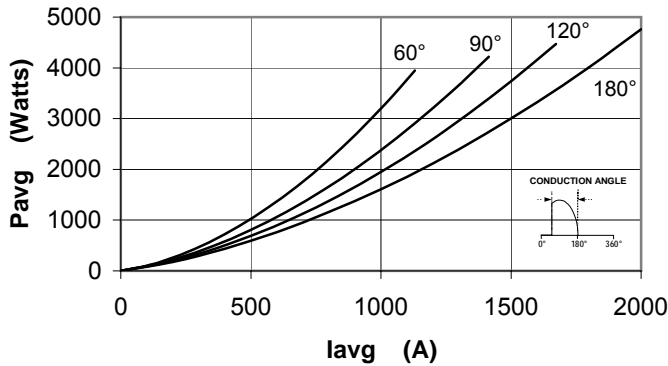


MAXIMUM TRANSIENT THERMAL IMPEDANCE



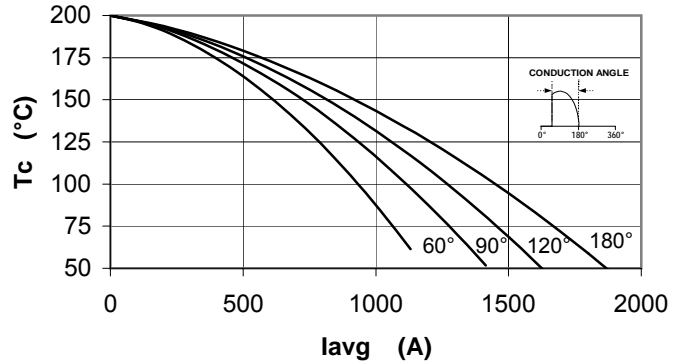
Maximum On-State Power Dissipation

Sinusoidal



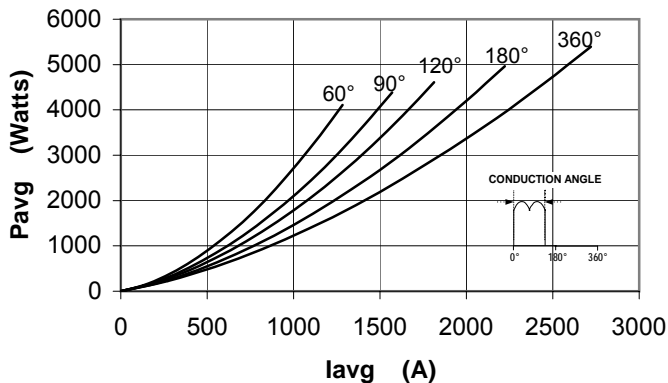
Maximum Allowable Case Temperature

Sinusoidal Waveform



Maximum On-State Power Dissipation

Square Waveform



Maximum Allowable Case Temperature

Square Waveform

