

The T9S0 SCR employs a Center-Fired amplifying gate structure which allows the SCR to be reliably operated at high di/dt and high dv/dt conditions in phase control applications.

FEATURES:

- Low On-State Voltage
- High di/dt Capability
- High dv/dt Capability
- Hermetic Ceramic Package
- Excellent Surge and I²t Ratings

APPLICATIONS:

- DC Power Supplies
- Plating Supplies
- Welding Supplies

ORDERING INFORMATION

Select the complete 12 digit Part Number using the table below.
EXAMPLE: **T9S0082803DH** is an 800V-2850A SCR with 200ma IGT and 12 inch gate and cathode potential leads.

| PART | Voltage Rating $V_{DRM}-V_{RRM}$ | Voltage Code | Current Rating I_{tavg} | Current Code | Turn-Off T_q | Gate I_{GT} | Leads |
|-------------|-------------------------------------|--------------|------------------------------|--------------|-------------------|------------------|-----------|
| T9S0 | 800V | 08 | 2850A | 28 | 0 | 3 | DH |
| | 600V | 06 | | | | | |
| | 400V | 04 | | | 400us typ. | 200ma | 12" |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

Revised: 9/22/2009

Absolute Maximum Ratings

| Characteristic | Symbol | Rating | Units |
|---|-------------------|-------------|------------------|
| Repetitive Peak Voltage | $V_{DRM}-V_{RRM}$ | 400 - 800 | Volts |
| Average On-State Current, $T_C=70^{\circ}C$ | $I_{T(Avg.)}$ | 2850 | A |
| RMS On-State Current, $T_C=72^{\circ}C$ | $I_{T(RMS)}$ | 4477 | A |
| Average On-State Current, $T_C=55^{\circ}C$ | $I_{T(Avg.)}$ | 3300 | A |
| RMS On-State Current, $T_C=55^{\circ}C$ | $I_{T(RMS)}$ | 5184 | A |
| Peak One Cycle Surge Current, 60Hz, $V_R=0V$ | I_{TSM} | 37,000 | A |
| Peak One Cycle Surge Current, 50Hz, $V_R=0V$ | I_{TSM} | 34,884 | A |
| Fuse Coordination I^2t , 60Hz | I^2t | 5.70E+06 | A ² s |
| Fuse Coordination I^2t , 50Hz | I^2t | 6.08E+06 | A ² s |
| Critical Rate-of-Rise of On-State Current Repetitive | di/dt | 100 | A/us |
| Critical Rate-of-Rise of On-State Current Non-Repetitive | di/dt | 200 | A/us |
| Critical Rate-of-Rise of Off-State Voltage Linear to $\frac{2}{3} \cdot V_{DRM}$ | dv/dt | 1000 | V/us |
| Peak Gate Power, 100us | P_{GM} | 16 | Watts |
| Average Gate Power | $P_{G(avg)}$ | 5 | Watts |
| Operating Temperature | T_j | -20 to +125 | $^{\circ}C$ |
| Storage Temperature | $T_{Stg.}$ | -50 to +150 | $^{\circ}C$ |
| Approximate Weight | | 0.65 | lb |
| | | 0.29 | Kg |
| Mounting Force | | 5500-6000 | lbs |
| | | 24.5 - 26.7 | Knewtons |

Information presented is based upon manufacturers testing and 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.

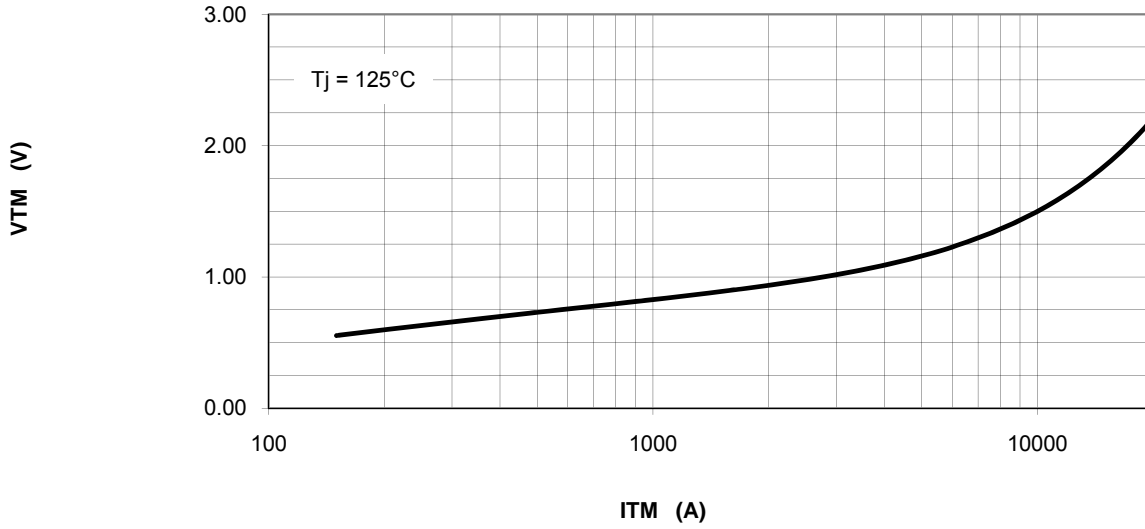
Electrical Characteristics, Tj=25°C unless otherwise specified

| Characteristic | Symbol | Test Conditions | Rating | | | Units |
|-----------------------------------|--|--|---|-----|----------|-------|
| | | | min | typ | max | |
| Repetitive Peak Leakage Current | I_{DRM}/I_{RRM} | Tj=125°C, V _{DRM} =Rated | | | 150 | ma |
| Peak On-State Voltage | V _{TM} | Tj=25°C, I _{TM} =1500A | | | 1.15 | V |
| V _{TM} Model, Low Level | V _O | Tj=125°C | | | 0.722 | V |
| | V _{TM} = V _O + r•I _{TM} | r | 15% I _{TM} - π•I _{TM} | | 8.83E-02 | mΩ |
| V _{TM} Model, High Level | V _O | Tj=125°C | | | 0.784 | V |
| | V _{TM} = V _O + r•I _{TM} | r | π•I _{TM} - I _{TSM} | | 7.11E-02 | mΩ |
| V _{TM} Model, Hiç 4-Term | A | Tj=125°C | | | -0.342 | |
| | V _{TM} = A + B•Ln(I _{TM}) + | B | 15%I _{TM} - I _{TSM} | | 0.199 | |
| | C•(I _{TM}) + D•(I _{TM}) ^{1/2} | C | | | 9.66E-05 | |
| | | D | | | -0.00962 | |
| Turn-On Delay Time | t _d | V _D = 0.5•V _{DRM} Gate Drive: 40V - 20Ω | | 1.5 | | us |
| Turn-Off Time | t _q | Tj=125°C dv/dt = 20V/us to 80% V _{DRM} | | 400 | | us |
| Gate Trigger Current | I _{GT} | Tj=25°C V _D = 12V | 30 | 90 | 200 | ma |
| Gate Trigger Voltage | V _{GT} | | 0.6 | 1.6 | 3.0 | V |
| Peak Reverse Gate Voltage | V _{GRM} | | | | 5 | V |

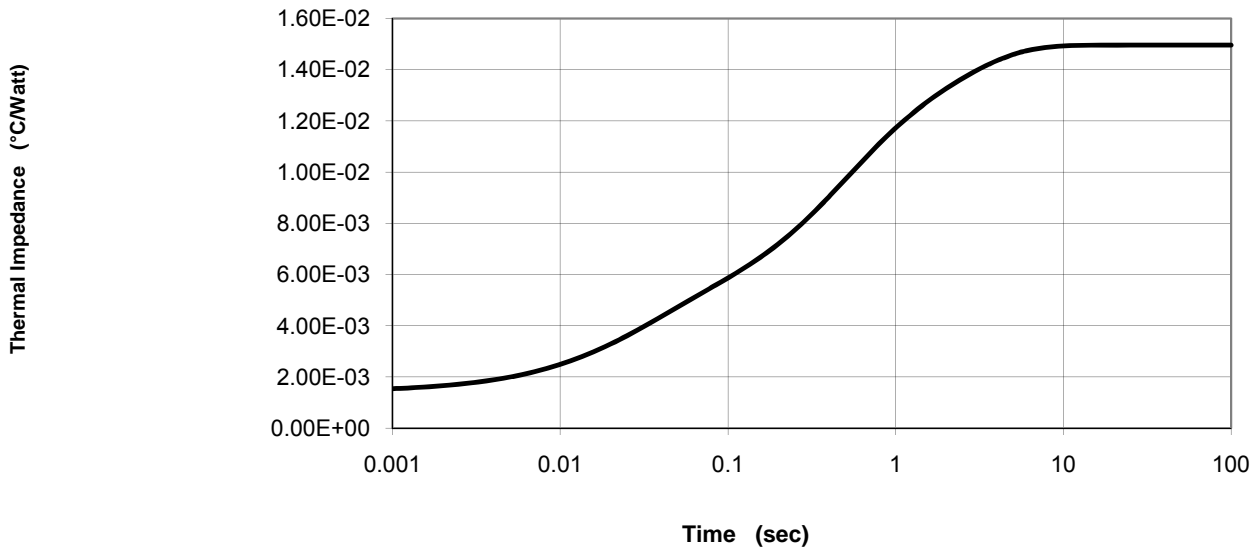
Thermal Characteristics

| Characteristic | Symbol | Test Conditions | Rating | | | | |
|---|------------------|--------------------|--------|----------|----------|----------|----------|
| | | | max | Units | | | |
| Thermal Resistance | | | | | | | |
| Junction to Case | Rθ _{jc} | Double side cooled | 0.015 | °C/Watt | | | |
| Case to Sink | Rθ _{cs} | Double side cooled | 0.0025 | °C/Watt | | | |
| Thermal Impedance Model | | | | | | | |
| | Zθ _{jc} | Double side cooled | | | | | |
| $Z_{\theta_{jc}}(t) = \sum(A(N) \cdot (1 - \exp(-t/\tau(N))))$ where: | | | | | | | |
| | | | N = | 1 | 2 | 3 | 4 |
| | | | A(N) = | 1.42E-03 | 2.97E-03 | 6.07E-03 | 4.50E-03 |
| | | | τ(N) = | 5.95E-05 | 2.76E-02 | 4.01E-01 | 2.00E+00 |

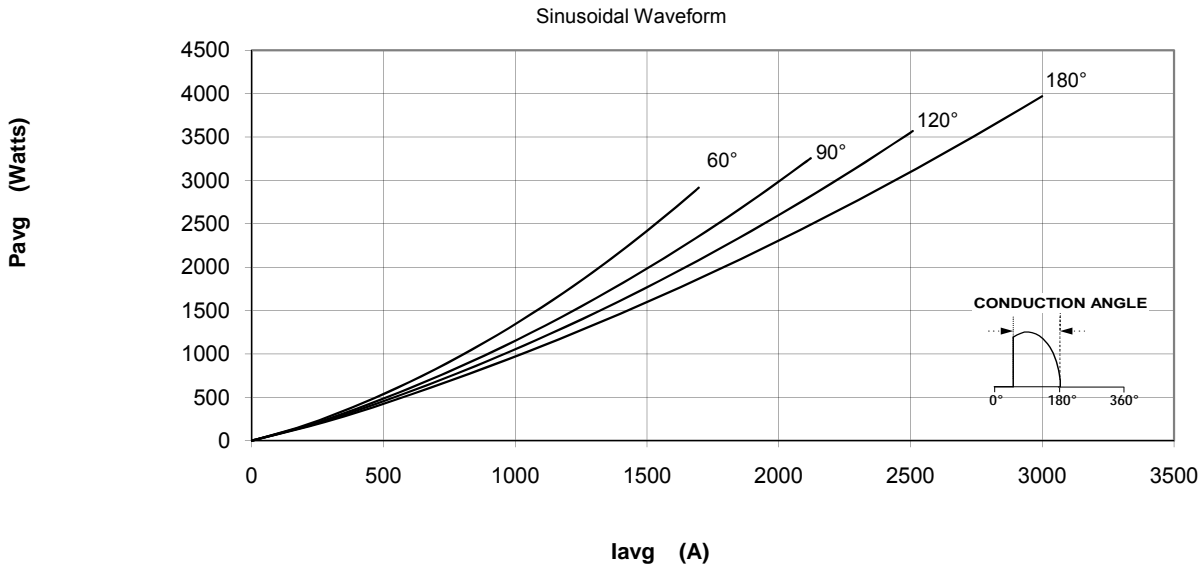
Maximum On-State Voltage Drop



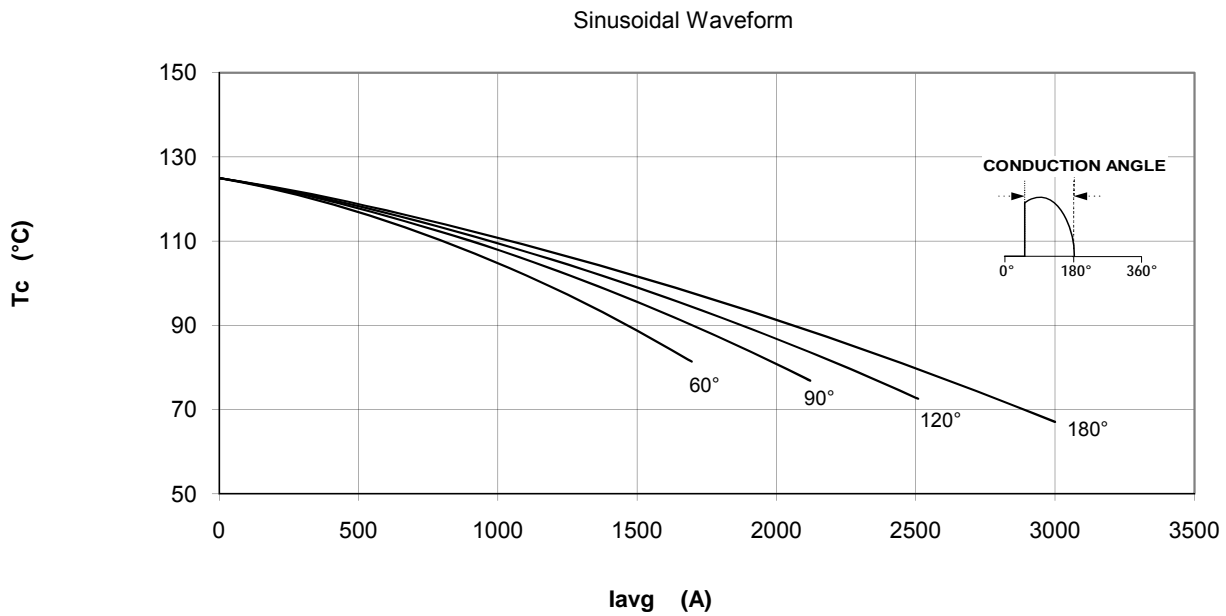
MAXIMUM TRANSIENT THERMAL IMPEDANCE



Maximum On-State Power Dissipation

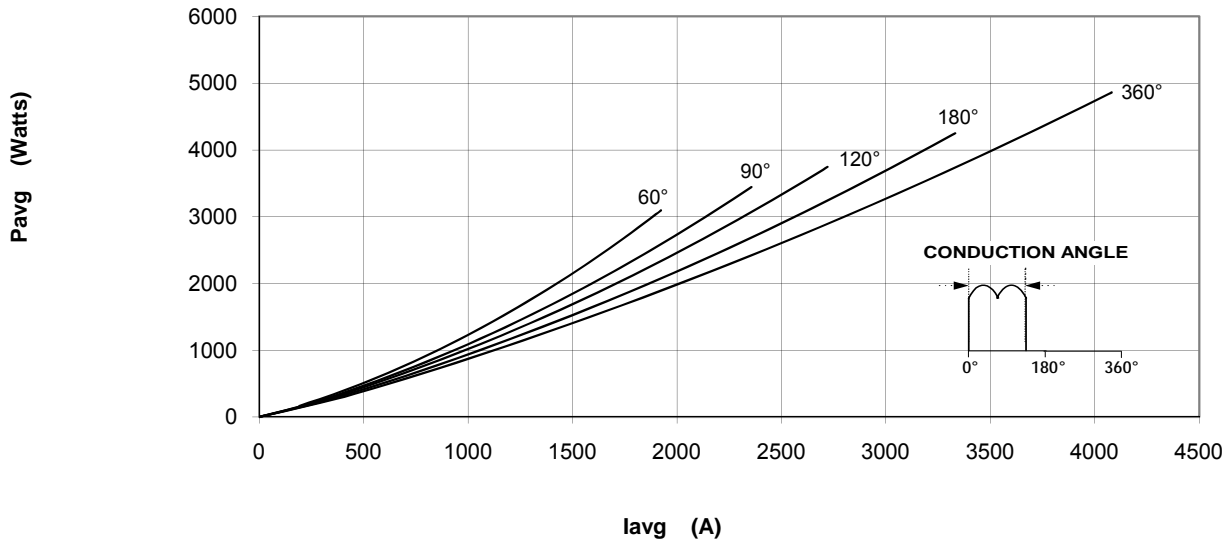


Maximum Allowable Case Temperature



Maximum On-State Power Dissipation

Square Waveform



Maximum Allowable Case Temperature

Square Waveform

