

The T9G0 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 I<sup>2</sup>t Ratings

#### APPLICATIONS:

- DC Power Supplies
- Plating Supplies
- Welding Supplies

#### ORDERING INFORMATION

Select the complete 12 digit Part Number using the table below.  
 EXAMPLE: **T9G0082403DH** is an 800V-2400A 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
<b>T9G0</b>	800V	<b>08</b>	2400A	<b>24</b>	<b>0</b>	<b>3</b>	<b>DH</b>
	600V	<b>06</b>					
	400V	<b>04</b>			400us typ.	200ma	12"

**Absolute Maximum Ratings**

Characteristic	Symbol	Rating	Units
Repetitive Peak Voltage	$V_{DRM}-V_{RRM}$	800	Volts
Average On-State Current, $T_C=75^\circ\text{C}$	$I_{T(Avg.)}$	2400	A
RMS On-State Current, $T_C=75^\circ\text{C}$	$I_{T(RMS)}$	3770	A
Average On-State Current, $T_C=55^\circ\text{C}$	$I_{T(Avg.)}$	2800	A
RMS On-State Current, $T_C=55^\circ\text{C}$	$I_{T(RMS)}$	4398	A
Peak One Cycle Surge Current, 60Hz, $V_R=0V$	$I_{TSM}$	27,000	A
Peak One Cycle Surge Current, 50Hz, $V_R=0V$	$I_{TSM}$	25,456	A
Fuse Coordination $I^2t$ , 60Hz	$I^2t$	3.04E+06	$A^2s$
Fuse Coordination $I^2t$ , 50Hz	$I^2t$	3.24E+06	$A^2s$
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
Peak Gate Power, 100us	$P_{GM}$	16	Watts
Average Gate Power	$P_{G(avg)}$	5	Watts
Operating Temperature	$T_j$	-20 to+140	$^\circ\text{C}$
Storage Temperature	$T_{Stg.}$	-50 to+150	$^\circ\text{C}$
Approximate Weight		1	lb
		0.45	Kg
Mounting Force		5500-6000	lbs
		24.5 - 26.7	Knewtons

Information presented is correct to the knowledge and capabilities of the manufacturer. 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.

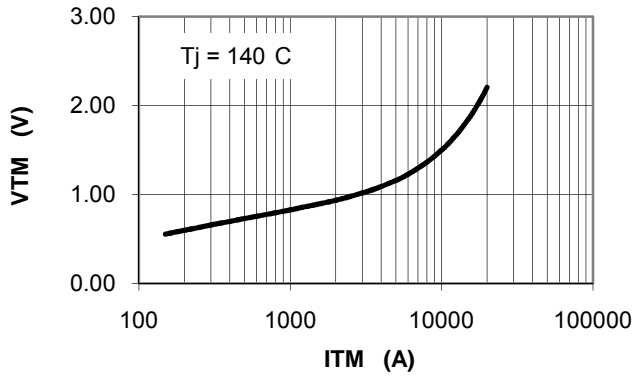
**Electrical Characteristics, Tj=25°C unless otherwise specified**

Characteristic	Symbol	Test Conditions	Rating			Units
			min	typ	max	
Repetitive Peak Forward Leakage Current	$I_{DRM}$	Tj=140°C, $V_{DRM}$ =Rated			150	ma
Repetitive Peak Reverse Leakage Current	$I_{RRM}$	Tj=140°C, $V_{RRM}$ =Rated			100	ma
Peak On-State Voltage	$V_{TM}$	Tj=25°C, $I_{TM}$ =1500A			1.10	V
$V_{TM}$ Model, Low Level	$V_0$	Tj=140°C			0.722	V
$V_{TM} = V_0 + r \cdot I_{TM}$	r	15% $I_{TM} - \pi \cdot I_{TM}$			8.83E-02	mΩ
$V_{TM}$ Model, High Level	$V_0$	Tj=140°C			0.784	V
$V_{TM} = V_0 + r \cdot I_{TM}$	r	$\pi \cdot I_{TM} - I_{TSM}$			7.11E-02	mΩ
$V_{TM}$ Model, 4-Term	A	Tj=140°C			-0.342	
$V_{TM} = A + B \cdot \ln(I_{TM}) +$	B	15% $I_{TM} - I_{TSM}$			0.199	
$C \cdot (I_{TM}) + D \cdot (I_{TM})^{1/2}$	C				9.66E-05	
	D				-9.62E-03	
Turn-On Delay Time	$t_d$	$V_D = 0.5 \cdot V_{DRM}$ Gate Drive: 40V - 20Ω			1.5	us
Turn-Off Time	tq	Tj=125°C dv/dt = 20V/us to 80% $V_{DRM}$			400	us
dv/dt <sub>(crit)</sub>	dv/dt	Tj=140°C Exp. Waveform $V_D = 80\%$ Rated			300	V/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

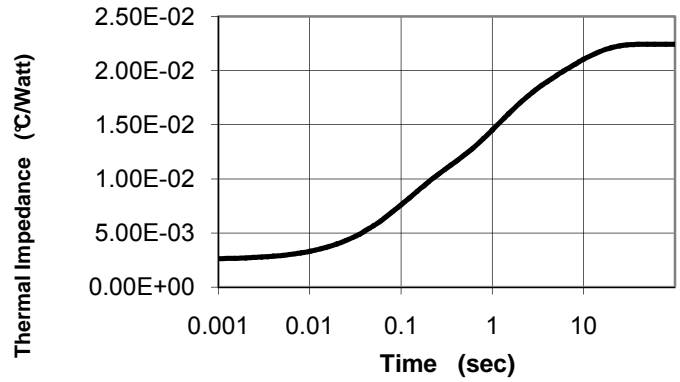
**Thermal Characteristics**

Characteristic	Symbol	Test Conditions	Rating			Units															
			min	typ	max																
Thermal Resistance																					
Junction to Case	$R\theta_{jc}$	Double side cooled		0.021	0.023	°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>2.55E-03</td> <td>6.19E-03</td> <td>7.75E-03</td> <td>5.95E-03</td> </tr> <tr> <td>Tau(N) =</td> <td>4.04E-05</td> <td>8.75E-02</td> <td>9.79E-01</td> <td>6.88E+00</td> </tr> </table>							N =	1	2	3	4	A(N) =	2.55E-03	6.19E-03	7.75E-03	5.95E-03	Tau(N) =	4.04E-05	8.75E-02	9.79E-01	6.88E+00
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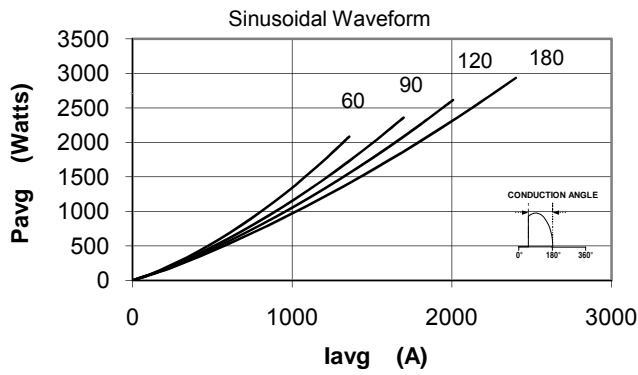
#### Maximum On-State Voltage Drop



#### MAXIMUM TRANSIENT THERMAL IMPEDANCE

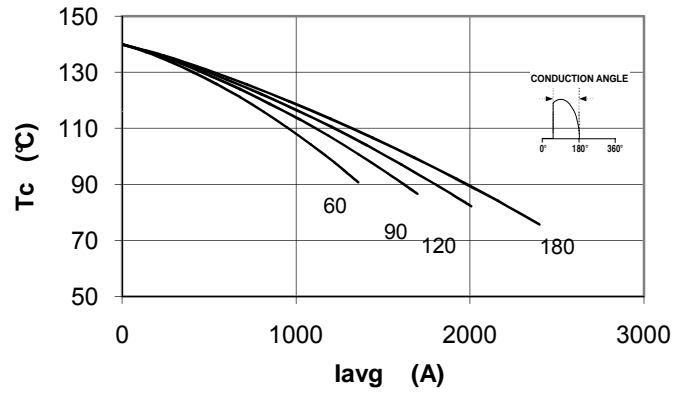


#### Maximum On-State Power Dissipation

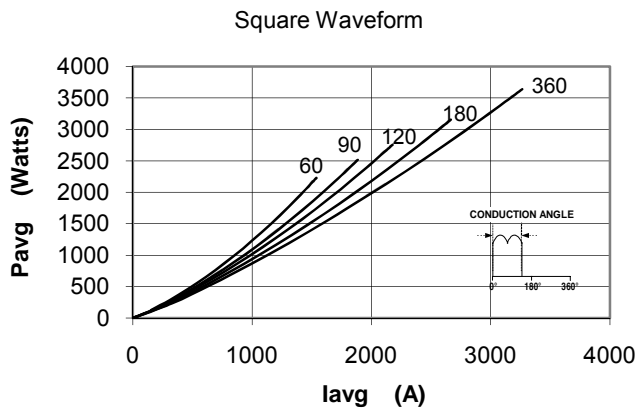


#### Maximum Allowable Case Temperature

Sinusoidal Waveform



#### Maximum On-State Power Dissipation



#### Maximum Allowable Case Temperature

Square Waveform

