

The T9S7 SCR employs a Dual-Bar 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^2t Ratings

APPLICATIONS:

- DC Power Supplies
- Plating Supplies
- Welding Supplies

ORDERING INFORMATION

Select the complete 12 digit Part Number using the table below.
 EXAMPLE: **T9S7321403DH** is an 3200V-1400A SCR with 200ma IGT and 12 inch gate and cathode potential leads.

PART	Voltage Rating $V_{DRM}-V_{RRM}$	Voltage Code	Current Rating I_{avg}	Current Code	Turn-Off T_q	Gate I_{GT}	Leads
T9S7	3200V	32	1400A	14	0	3	DH
	3000V	30					
	2600V	26			400us typ.	200ma	12"
	2400V	24					

Revised: 11/29/2012

Absolute Maximum Ratings

Characteristic	Symbol	Rating	Units
Repetitive Peak Voltage	$V_{DRM}-V_{RRM}$	2400 - 3200	Volts
Average On-State Current, $T_C=67^\circ C$	$I_{T(Avg.)}$	1400	A
RMS On-State Current, $T_C=67^\circ C$	$I_{T(RMS)}$	2199	A
Average On-State Current, $T_C=55^\circ C$	$I_{T(Avg.)}$	1500	A
RMS On-State Current, $T_C=55^\circ C$	$I_{T(RMS)}$	2356	A
Peak One Cycle Surge Current, 60Hz, $V_R=0V$	I_{TSM}	20,000	A
Peak One Cycle Surge Current, 50Hz, $V_R=0V$	I_{TSM}	19,600	A
Fuse Coordination I^2t , 60Hz	I^2t	1.67E+06	A ² s
Fuse Coordination I^2t , 50Hz	I^2t	1.92E+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	300	A/us
Critical Rate-of-Rise of Off-State Voltage $V_D = \frac{2}{3} \cdot V_{DRM}$	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	°C
Storage Temperature	$T_{Stg.}$	-50 to+150	°C
Approximate Weight		0.65	lb
		0.29	Kg
Mounting Force		5500-6000	lbs
		24.5 - 26.7	Knewtons

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.

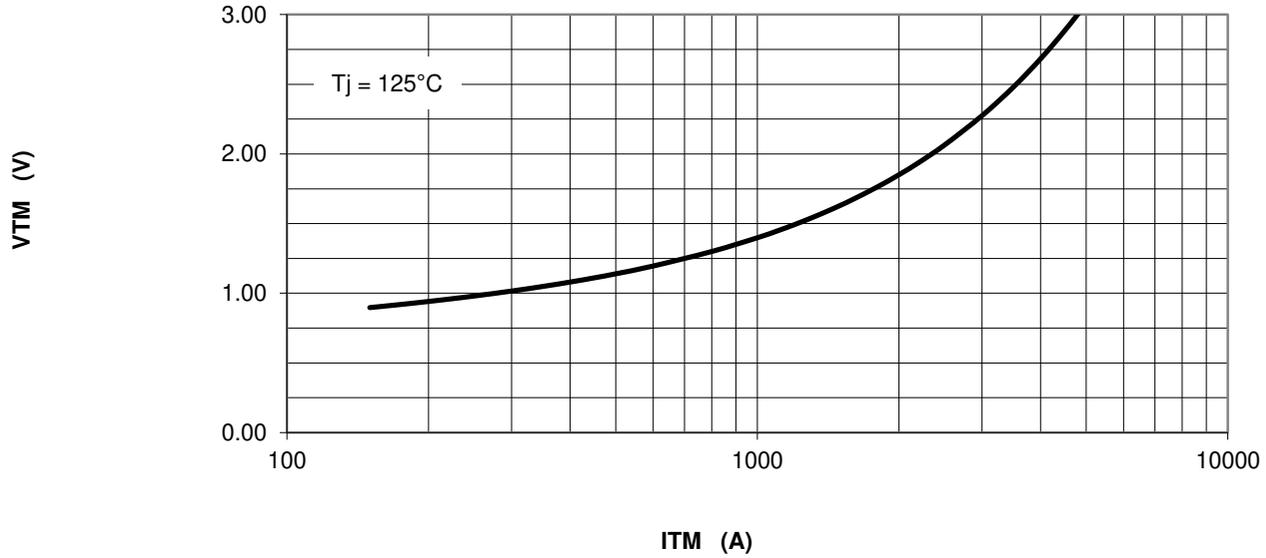
Electrical Characteristics, T_j=25°C unless otherwise specified

Characteristic	Symbol	Test Conditions	Rating			Units
			min	typ	max	
Repetitive Peak Leakage Current	I _{DRM} /I _{RRM}	T _j =125°C, V _{DRM} =Rated			150	ma
Peak On-State Voltage	V _{TM}	T _j =25°C, I _{TM} =1500A			1.60	V
V _{TM} Model, Low Level	V ₀	T _j =125°C			0.923	V
V _{TM} = V ₀ + r•I _{TM}	r	15% I _{TM} - π•I _{TM}			0.449	mΩ
V _{TM} Model, High Level	V ₀	T _j =125°C			1.198	V
V _{TM} = V ₀ + r•I _{TM}	r	π•I _{TM} - I _{TSM}			0.383	mΩ
V _{TM} Model, Hiç 4-Term	A	T _j =125°C			0.456	
V _{TM} = A + B•Ln(I _{TM}) +	B	15%I _{TM} - I _{TSM}			0.0696	
C•(I _{TM}) + D•(I _{TM}) ^{1/2}	C				0.000363	
	D				0.00314	
Turn-On Delay Time	t _d	V _D = 0.5•V _{DRM} Gate Drive: 40V - 20Ω		1.5		us
Turn-Off Time	t _q	T _j =125°C dv/dt = 20V/us to 80% V _{DRM}		400		us
Gate Trigger Current	I _{GT}	T _j =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

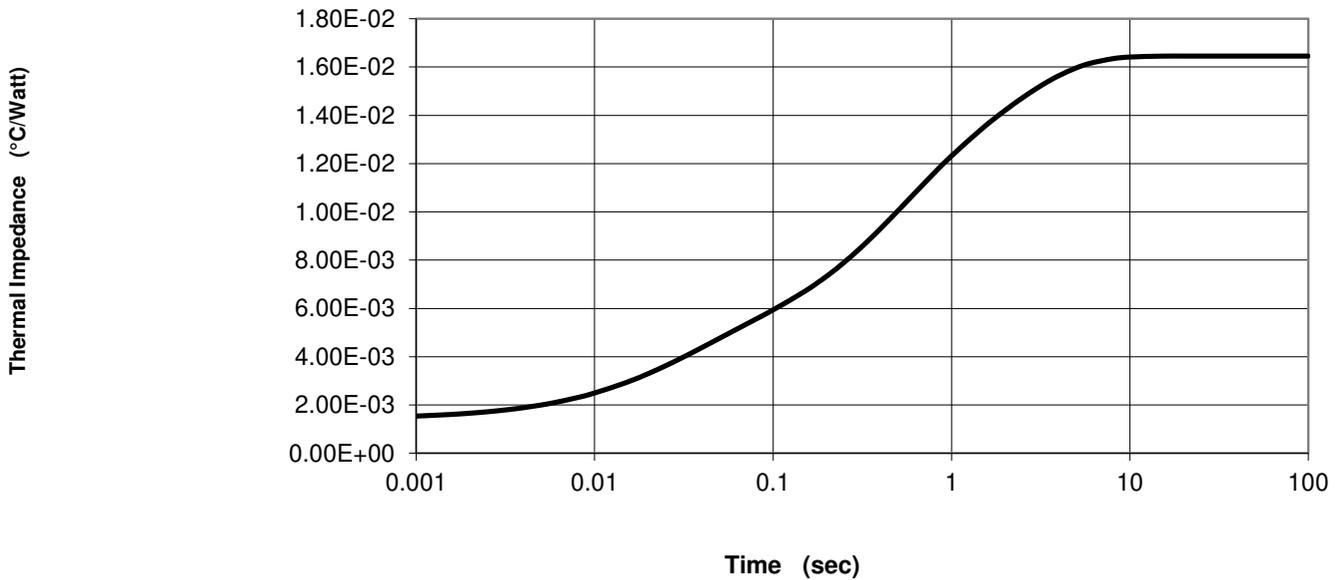
Thermal Characteristics

Characteristic	Symbol	Test Conditions	Rating				
			max	Units			
Thermal Resistance							
Junction to Case	Rθ _{jc}	Double side cooled	0.0165	°C/Watt			
Case to Sink	Rθ _{cs}	Double side cooled	0.0025	°C/Watt			
Thermal Impedance Model	Zθ _{jc}	Double side cooled					
$Z_{\theta_{jc}}(t) = \sum(A(N) \cdot (1 - \exp(-t/\text{Tau}(N))))$		where:	N =	1	2	3	4
			A(N) =	1.42E-03	2.97E-03	6.07E-03	6.00E-03
			Tau(N) =	5.95E-05	2.76E-02	4.01E-01	2.00E+00

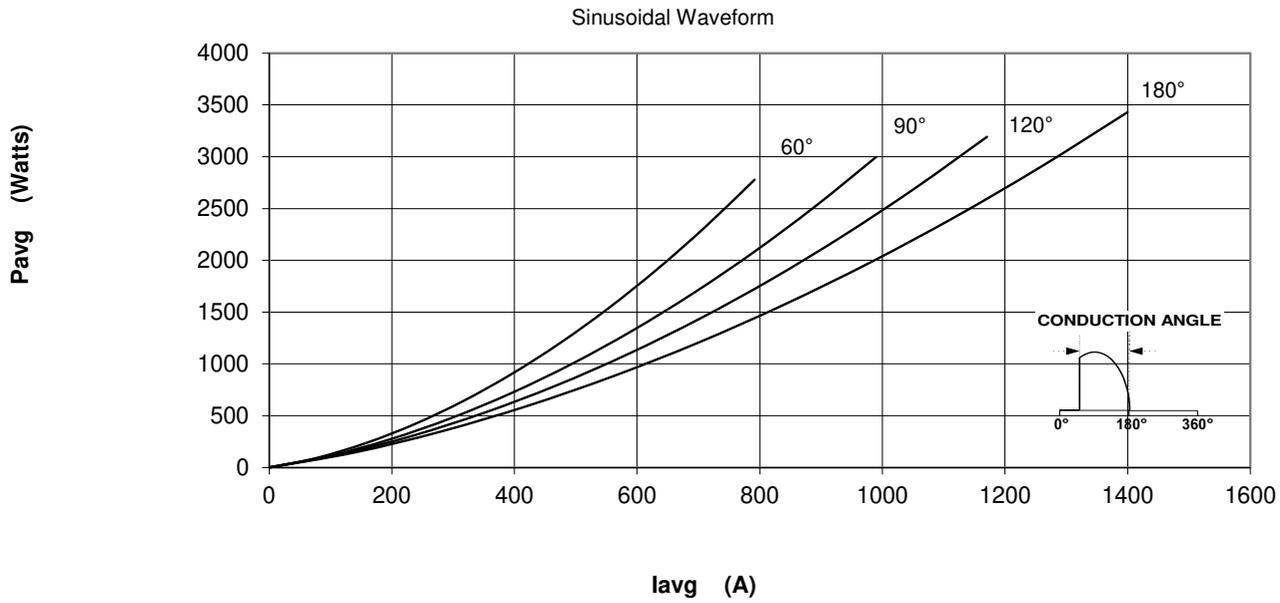
Maximum On-State Voltage Drop



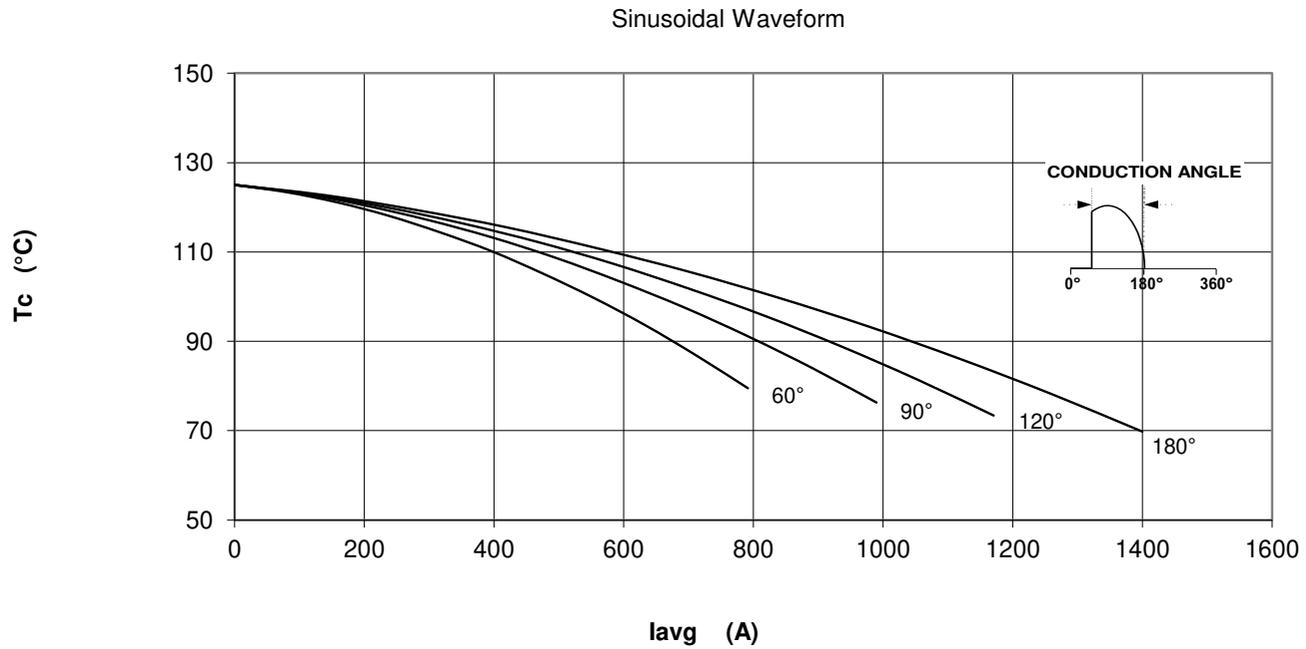
MAXIMUM TRANSIENT THERMAL IMPEDANCE



Maximum On-State Power Dissipation

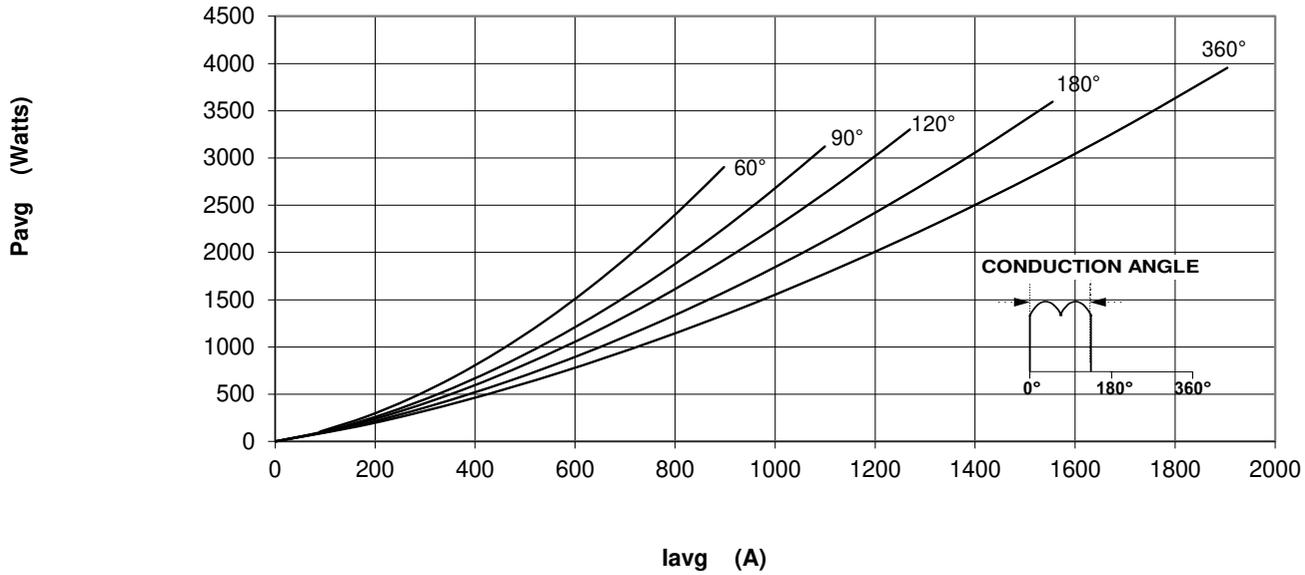


Maximum Allowable Case Temperature



Maximum On-State Power Dissipation

Square Waveform



Maximum Allowable Case Temperature

Square Waveform

