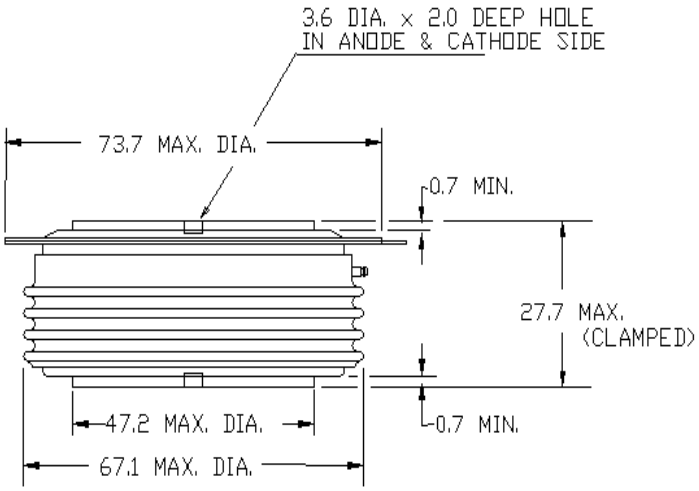
T9G0__2503

Phase Control Thyristor

Powerex, Inc., 173 Pavilion Ln, Youngwood, Pennsylvania 15697-1800 (724)925-7272 www.pwrx.com

2500 Amperes 1200 Volts



ALL DIMENSIONS IN MM.

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^2t Ratings

APPLICATIONS:

- DC Power Supplies
- Plating Supplies
- Welding Supplies

ORDERING INFORMATION

Select the complete 12 digit Part Number using the table below.
EXAMPLE: **T9G0122503DH** is an 1200V-2500A SCR with 200ma IGT and 12 inch gate and cathode potential leads.

PART	Voltage Rating	Voltage Code	Current Rating	Current Code	Turn-Off	Gate	Leads
	V_{DRM}-V_{RRM}		I_{tavg}		Tq	I_{GT}	
T9G0	600V	**06**	2500A	**25**	**0**	**3**	**DH**
	800V	**80**					
	1000V	**10**			500us typ.	200ma	12"
	1200V	**12**					

Revised: 1/7/2009

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Absolute Maximum Ratings

Characteristic	Symbol	Rating	Units
Repetitive Peak Voltage	V_{DRM}-V_{RRM}	1200	Volts
Average On-State Current, T_C=85°C	$I_{T(Avg.)}$	2500	A
RMS On-State Current, T_C=85°C	$I_{T(RMS)}$	3927	A
Average On-State Current, T_C=55°C	$I_{T(Avg.)}$	3100	A
RMS On-State Current, T_C=55°C	$I_{T(RMS)}$	4869	A
Peak One Cycle Surge Current, 60Hz, V_R=0V	I_{TSM}	27,200	A
Peak One Cycle Surge Current, 50Hz, V_R=0V	I_{TSM}	26,700	A
Fuse Coordination I^2t, 60Hz	I^2t	3.08E+06	A^2s
Fuse Coordination I^2t, 50Hz	I^2t	3.56E+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
Critical Rate-of-Rise of Off-State Voltage VD = ⅔•VDRM	dv/dt	400	V/us
Peak Gate Power, 100us	P_{GM}	16	Watts
Average Gate Power	$P_{G(avg)}$	5	Watts
Operating Temperature	Tj	-40 to+150	°C
Storage Temperature	$T_{Stg.}$	-50 to+150	°C
Approximate Weight		1	lb
		0.45	Kg
Mounting Force		5000-6000	lbs
		22.2 - 26.7	Knewtons

Electrical Characteristics, Tj=25°C unless otherwise specified

Characteristic	Symbol	Test Conditions	Rating min	Rating typ	Rating max	Units
Repetitive Peak Leakage Current	I_{DRM}/I_{RRM}	Tj=150°C, V_{DRM}=Rated			150	ma
Peak On-State Voltage	V_{TM}	Tj=25°C, I_{TM}=1500A			1.25	V
V_{TM} Model, Low Level	V_0	Tj=150°C			0.848	V
VTM = V_O + r•I_{TM}	r	15% I_{TM} - π•I_{TM}			0.159	mΩ
V_{TM} Model, High Level	V_0	Tj=150°C			1.153	V
VTM = V_O + r•I_{TM}	r	π•I_{TM} - I_{TSM}			0.116	mΩ
V_{TM} Model, Hi 4-Term	A	Tj=150°C			0.679	
V_{TM}= A + B•Ln(I_{TM}) +	B	15%I_{TM} - I_{TSM}			-0.00257	
C•(I_{TM}) + D•(I_{TM})^{½}	C				8.34E-05	
	D				8.12E-03	
Turn-On Delay Time	t_d	V_D = 0.5•V_{DRM} Gate Drive: 40V - 20Ω		1.5		us
Turn-Off Time	tq	Tj=150°C dv/dt = 20V/us to 80% V_{DRM}		500		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	$R\Theta_{jc}$	Double side cooled	0.015	°C/Watt
Case to Sink	$R\Theta_{cs}$	Double side cooled	0.006	°C/Watt
Thermal Impedance Model	$Z\Theta_{jc}$	Double side cooled		

$$Z\Theta_{jc}(t) = \Sigma(A(N)\bullet(1-\exp(-t/Tau(N))))$$ where:

N =	1	2	3	4
A(N) =	1.42E-03	2.98E-03	6.31E-03	4.28E-03
Tau(N) =	5.93E-05	2.78E-02	4.14E-01	2.14E+00

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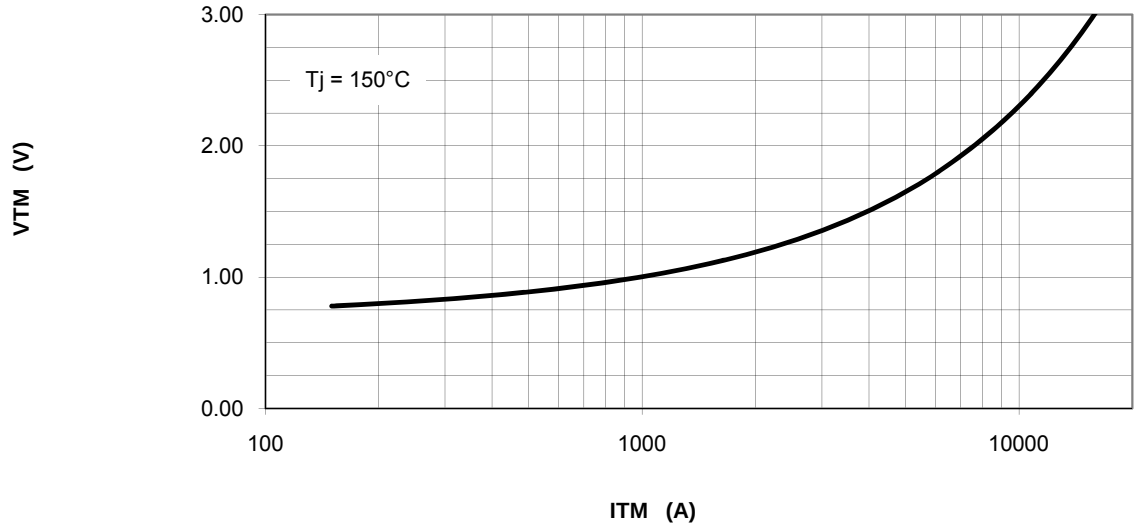
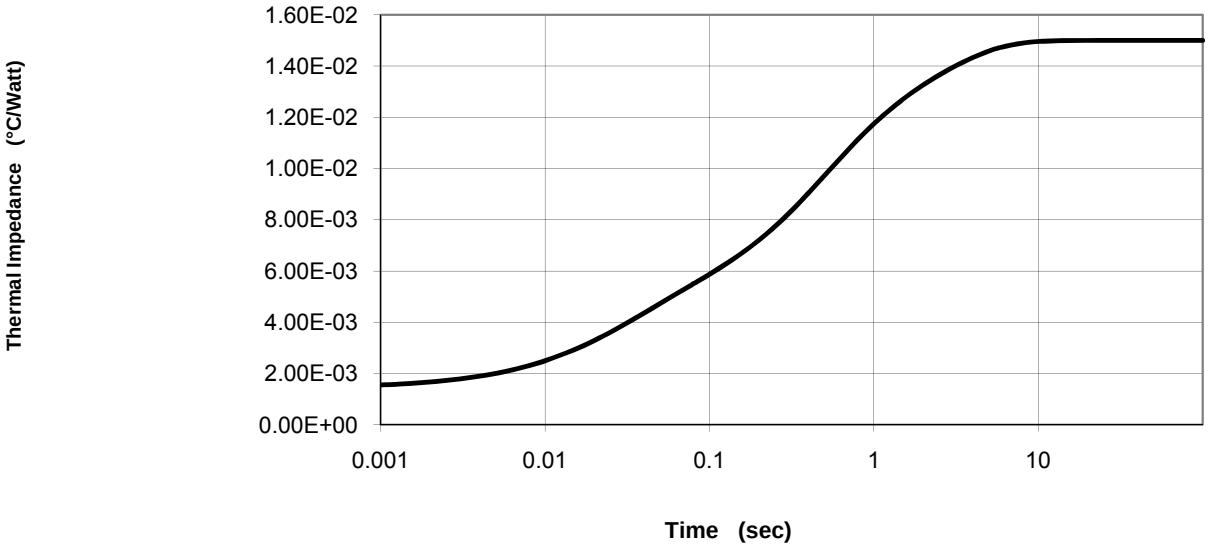
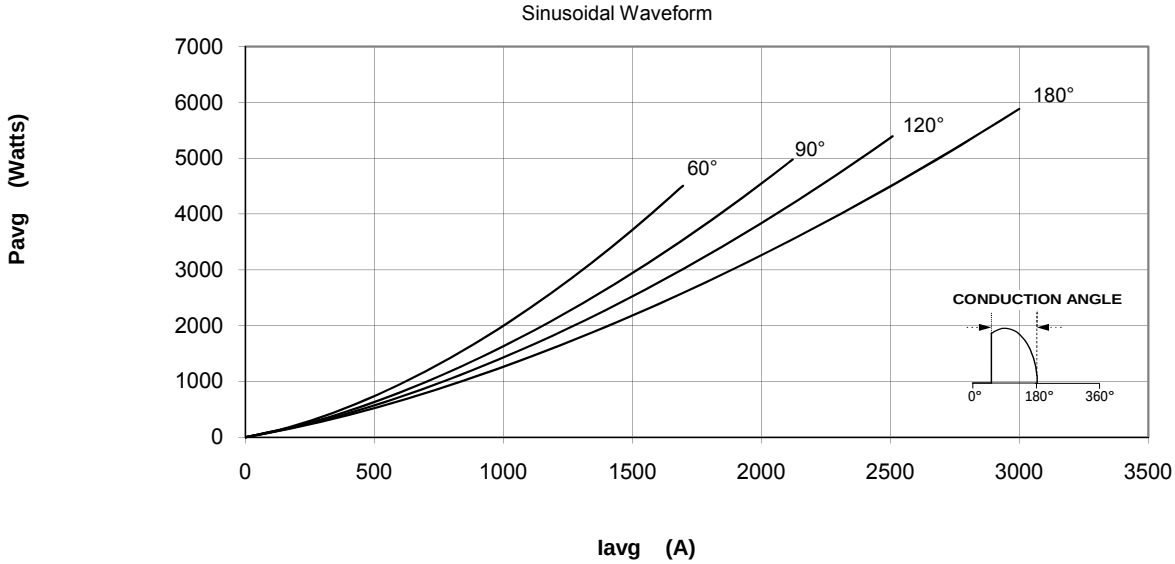
Maximum On-State Voltage Drop



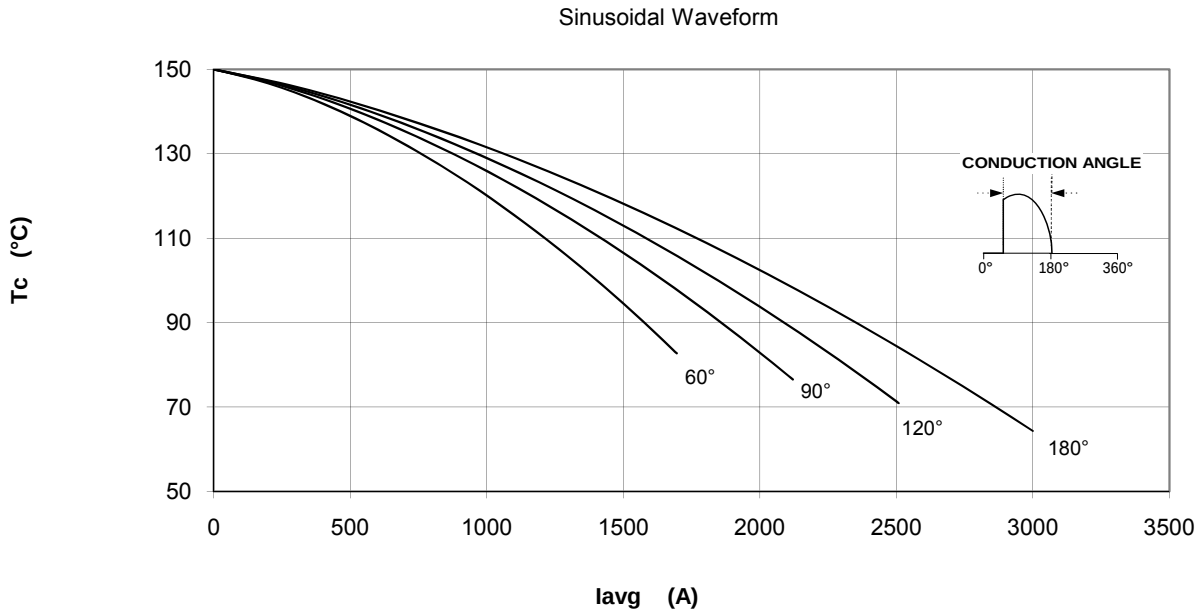
MAXIMUM TRANSIENT THERMAL IMPEDANCE



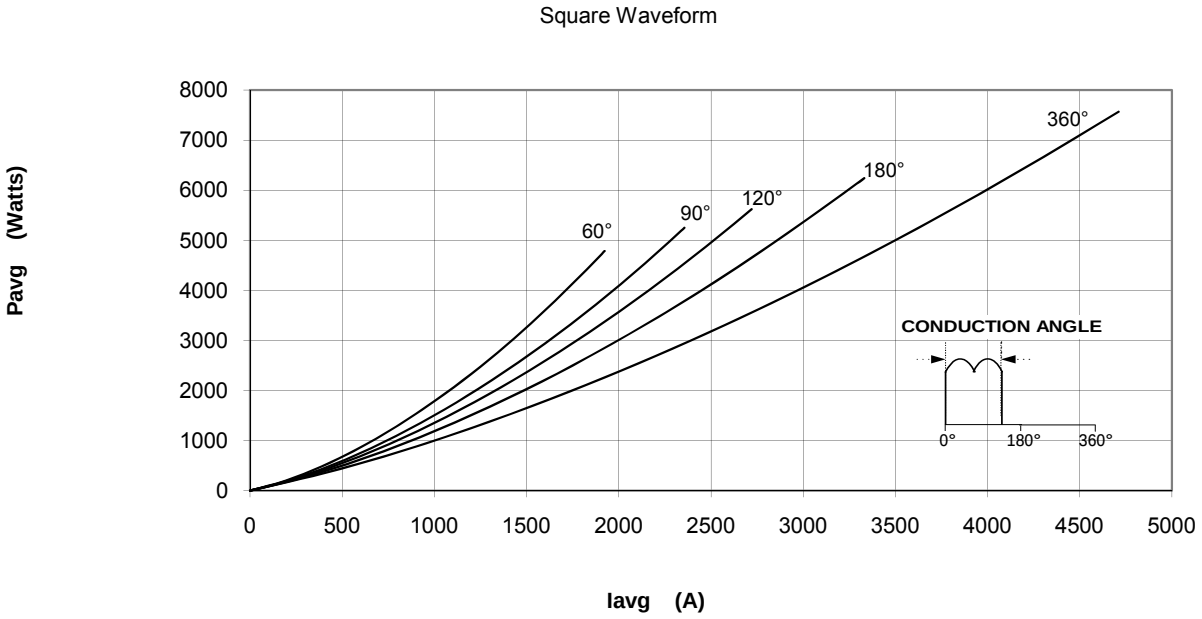
Maximum On-State Power Dissipation



Maximum Allowable Case Temperature



Maximum On-State Power Dissipation



Maximum Allowable Case Temperature