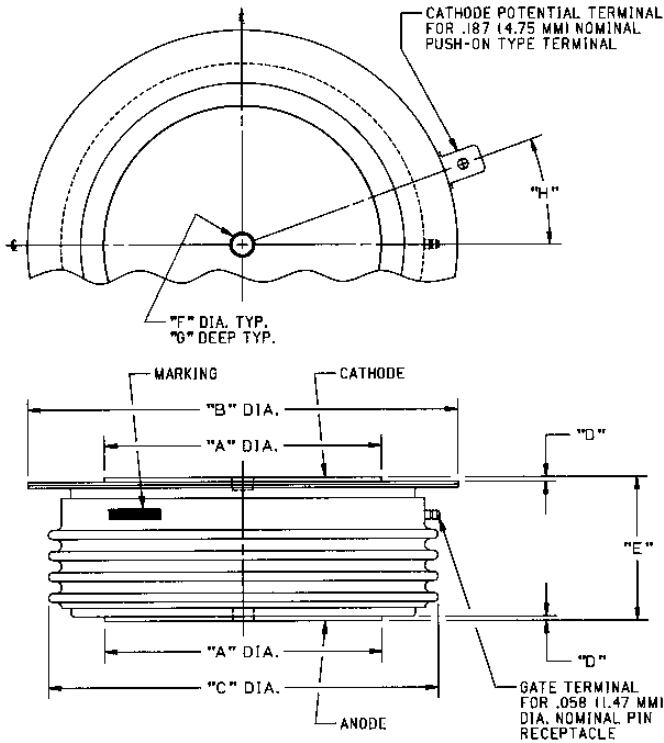


Phase Control Thyristor
1660 Amperes/Up to 1800 Volts



CASE NUMBER T9G STRIKE DISTANCE = .67 (17.0 MM) MIN.
NOMINAL DIMENSIONS CREEPAGE DISTANCE = 1.04 (26.4 MM) MIN.)

SYM.	A	B	C	D	E	F	G	H
INCHES	1.85	2.87	2.60	.030	1.040/1.080	.140	.085	20°
[MM]	47.0	72.9	66.0	0.76	26.42/27.43	3.56	2.16	20°

Description:

The T9G0 is a medium voltage, high current disc pack SCR employing a center fired, amplifying gate structure suitable for operation to 400 Hz. The amplifying gate allows this 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 Packaging
- Excellent Surge and I²t Ratings
- Replaces PRX C450 Thyristor

Applications:

- DC Power Supplies
- Motor Controls
- AC Switches

Ordering Information

Select the complete 10 digit device part number from the table below, ie. T9G0161603 is a 1600V 1660A Phase Control SCR.

	Voltage V _{DRM} V _{RRM}	Voltage Code	Current I _{T(avg)}	Current Code	Tq	I _{GT}
T9G0	1200V	12	1660A	16	0	3
	1400V	14				
	1600V	16				
	1800V	18				

Absolute Maximum Ratings

Characteristics	Symbol	Units
Repetitive Peak Reverse Voltage	V_{RRM} 1200 1400 1600 1800	V
Repetitive Peak Forward Voltage	V_{DRM} 1200 1400 1600 1800	V
RMS On-State Current, $T_C=70^\circ\text{C}$	$I_{T(RMS)}$ 2600	A
Average Current 180° Sine Wave, $T_C=70^\circ\text{C}$	$I_{T(AV)}$ 1660	A
RMS On-State Current, $T_C=55^\circ\text{C}$	$I_{T(RMS)}$ 3140	A
Average Current 180° Sine Wave, $T_C=55^\circ\text{C}$	$I_{T(AV)}$ 2000	A
Peak One Cycle Surge On-State Current (Non-Repetitive) 60Hz, $V_R = 0V$	I_{TSM} 29,000	A
Peak One Cycle Surge On-State Current (Non-Repetitive) 50Hz, $V_R = 0V$	I_{TSM} 27,400	A
Critical Rate-of-Rise of On-State Current (Non-Repetitive)*	di/dt 1000	A/ μs
Critical Rate-of-Rise of On-State Current (Repetitive)*	di/dt 400	A/ μs
I^2t for Fusing for One Cycle, 60 Hz	I^2t 3.54 x 10 ⁶	A ² s
I^2t for Fusing for One Cycle, 50 Hz	I^2t 3.75 x 10 ⁶	A ² s
Peak Gate Power Dissipation	P_{GM} 2000	W
Average Gate Power Dissipation	$P_{G(av)}$ 5	W
Operating Temperature	T_J -40 to 125°C	°C
Storage Temperature	T_{STG} -40 to 150°C	°C
Approximate Weight	1 0.45	lb. Kg
Mounting Force	5500 – 6000 2450 -- 2670	lb. Kg

* NON-JEDEC Test Conditions

Electrical Characteristics, T_J=25°C unless otherwise specified

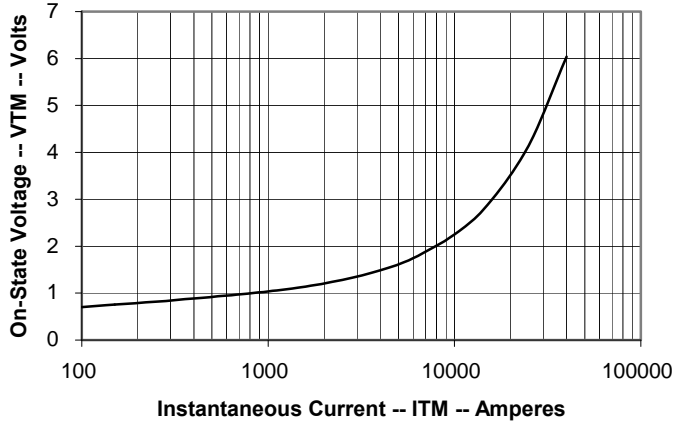
Characteristics	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Repetitive Peak Reverse Leakage Current	I _{RRM}	T _J =125°C, V _R =V _{RRM}			75	mA
Repetitive Peak Forward Leakage Current	I _{DRM}	T _J =125°C, V _D =V _{DRM}			75	mA
Peak On-State Voltage	V _{TM}	I _{TM} =1500A Duty Cycle < 0.01%			1.25	V
Threshold Voltage, Low-level Slope Resistance, Low-level	V _{(TO)1} r _{T1}	T _J =125°C, I = 15% I _{AV} to πI _{AV}		.834 .164		V mΩ
$V_{TM} = V_{TO} + r_T \times I_{TM}$						
Threshold Voltage, High-level Slope Resistance, High-level	V _{(TO)2} r _{T2}	T _J =125°C, I = πI _{AV} to I _{TSM}		.993 .126		V mΩ
$V_{TM} = V_{TO} + r_T \times I_{TM}$						
VTM Coefficients		T _J =125°C, I = 15% I _{AV} to I _{TSM}		A= .109 B= .136 C= 1.35-4 D= -.00457		
$V_{TM} = A + B \times \ln(I_{TM}) + C \times I_{TM} + D \times (I_{TM})^{1/2}$						
Typical Delay Time	t _d	V _D = V _{DRM} Gate Drive: 20V - 20Ω - 0.1μs		1		μs
Typical Turn-Off Time	t _q	T _J =125°C, I _T =400A, V _R >50V, reapplied dv/dt=20V/μs linear to 80% V _{DRM}		150		μs
Minimum Critical dv/dt - linear to V _{DRM}	dv/dt	T _J =125°C, V _{DRM} =80% rated Gate Open	400			V/μs
Gate Trigger Current	I _{GT}	T _J =25°C, V _D =12V	30	100	200	mA
Gate Trigger Voltage	V _{GT}	T _J =25°C, V _D =12V	0.8	1.5	3.0	V
Peak Reverse Gate Voltage	V _{GRM}				5	V

Thermal Characteristics

Characteristics	Symbol	Min.	Typ.	Max.	Units
Maximum Thermal Resistance, Double Sided Cooling					
Junction to Case	R _{θJC}			.023	°C/W
Case to Sink	R _{θCS}			.006	°C/W

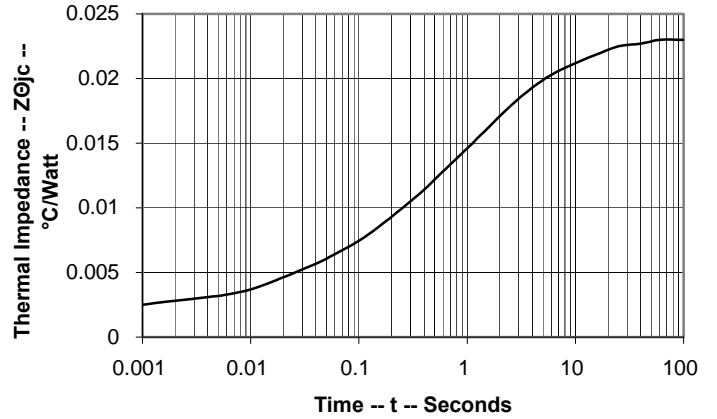
Maximum On-State Forward Voltage Drop

($T_j = 125^\circ\text{C}$)



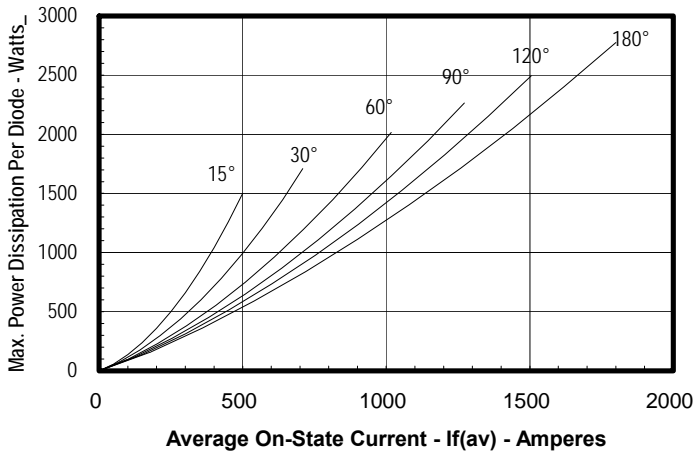
Maximum Transient Thermal Impedance

(Junction to Case)



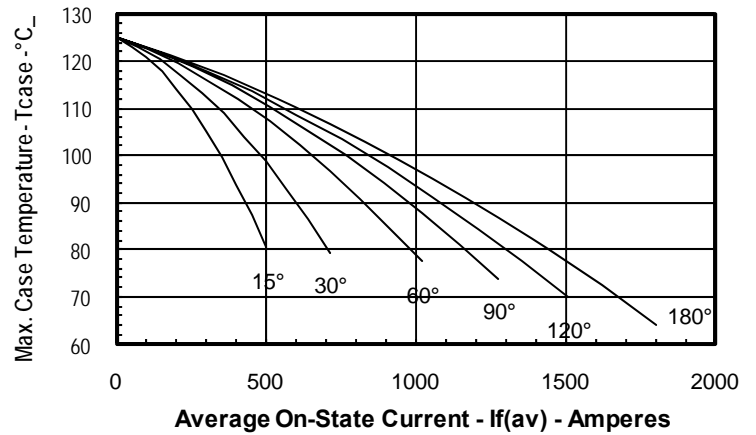
Maximum On-State Power Dissipation

(Sinusoidal Waveform)



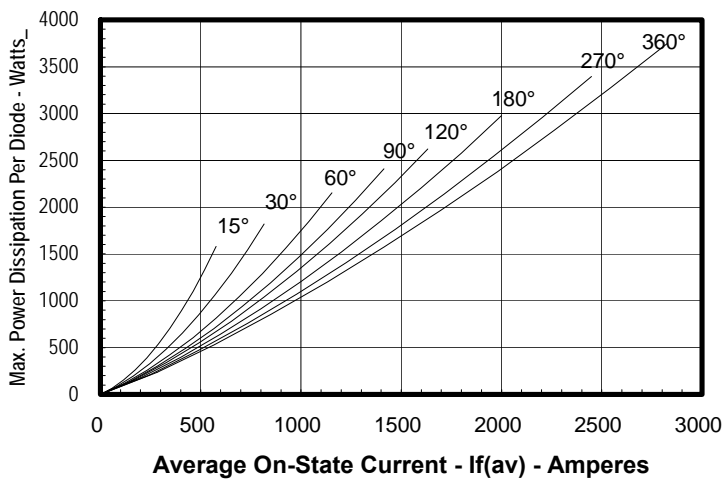
Maximum Allowable Case Temperature

(Sinusoidal Waveform)



Maximum On-State Power Dissipation

(Rectangular Waveform)



Maximum Allowable Case Temperature

(Rectangular Waveform)

