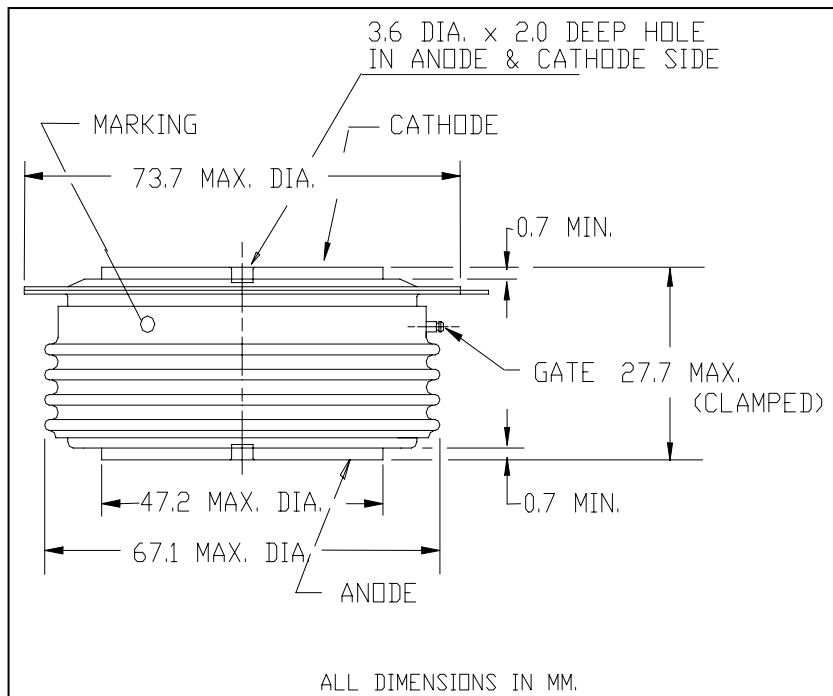




The T9K7 is an upgraded version of the C702 medium voltage, high current disc pack SCR employing a Bar gate, amplifying gate structure. This amplifying gate design allows the SCR to be reliably operated at high di/dt and high dv/dt conditions in phase control applications.

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
Motor Controls
AC Soft-Starters

ORDERING INFORMATION

Select the complete 12 digit Part Number using the table below.
EXAMPLE: T9GO161203DH is a 1600V-1200A SCR with 200ma IGT and 12 inch gate and cathode potential leads.

PART	Voltage Rating $V_{\text{DRM}}-V_{\text{RRM}}$	Voltage Code	Current Rating I_{Tavg}	Current Code	Turn-Off T_q	Gate I_{GT}	Leads
T9GO	1800V*	18	1200A	12	0	3	DH
	1600V	16					
	1400V	14			400us typ.	200ma	12"
	1200V	12					
	* limited availability						



Powerex, Inc., 200 Hillis Street, Youngwood, Pennsylvania 15697-1800 (724)925-7272

T9G0__1203 Select

Phase Control Thyristor

1200 Amperes 1800 Volts

Absolute Maximum Ratings

Characteristic	Symbol	Rating	Units
Repetitive Peak Voltage	$V_{\text{DRM}}-V_{\text{RRM}}$	1800	Volts
Average On-State Current, $T_C=70^{\circ}\text{C}$	$I_{\text{T(Avg.)}}$	1750	A
RMS On-State Current, $T_C=70^{\circ}\text{C}$	$I_{\text{T(RMS)}}$	2749	A
Average On-State Current, $T_S=55^{\circ}\text{C}$	$I_{\text{T(Avg.)}}$	1800	A
RMS On-State Current, $T_S=55^{\circ}\text{C}$	$I_{\text{T(RMS)}}$	2827	A
Peak One Cycle Surge Current, 50Hz, $V_R=0\text{V}$	I_{TSM}	34,000	A
Fuse Cordination I^2t , 50Hz	I^2t	5.78E+06	A^2s
Critical Rate-of-Rise of On-State Current Repetitive	di/dt	150	A/us
Critical Rate-of-Rise of On-State Current Non-Repetitive	di/dt	300	A/us
Peak Gate Power, 100us	P_{GM}	16	Watts
Average Gate Power	$P_{\text{G(avg)}}$	3	Watts
Operating Temperature	T_j	-40 to+125	$^{\circ}\text{C}$
Storage Temperature	$T_{\text{Stg.}}$	-50 to+150	$^{\circ}\text{C}$
Approximate Weight		1	lb
		0.45	Kg
Mounting Force		5000-5500	lbs
		22.7 - 25.0	Knewtons

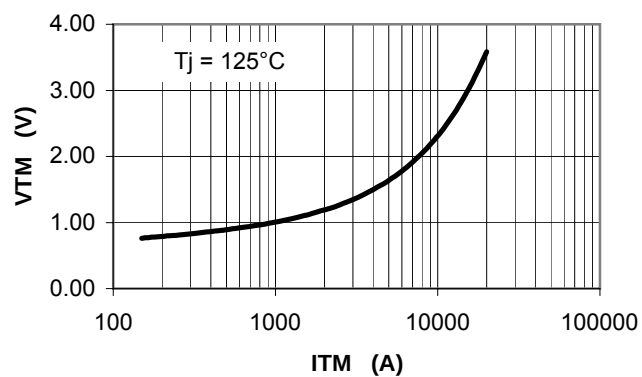
Electrical Characteristics, Tj=25°C unless otherwise specified

Characteristic	Symbol	Test Conditions	Rating			Units
			min	typ	max	
Repetitive Peak Forward Leakage Current	I_{DRM}	Tj=125°C, V_{DRM} =Rated			75	ma
Repetitive Peak Reverse Leakage Current	I_{RRM}	Tj=125°C, V_{RRM} =Rated			75	ma
Peak On-State Voltage	V_{TM}	Tj=25°C, I_{TM} =1500A			1.20	V
V_{TM} Model, Low Level	V_0	Tj=125°C			0.881	V
$V_{TM} = V_0 + r \cdot I_{TM}$	r	15% $I_{TM} - \pi \cdot I_{TM}$			3.74E-04	Ω
V_{TM} Model, 4-Term	A	Tj=125°C			0.437	
$V_{TM} = A + B \cdot \ln(I_{TM}) +$	B	15% $I_{TM} - I_{TSM}$			0.056	
$C \cdot (I_{TM}) + D \cdot (I_{TM})^{1/2}$	C				1.14E-04	
	D				2.18E-03	
Turn-On Delay Time	t_d	$V_D = 0.5 \cdot V_{DRM}$ Gate Drive: 40V - 20 Ω		1.5		us
Turn-Off Time	t_q	Tj=125°C $dv/dt = 20V/us$ to 80% V_{DRM}		400		us
$dv/dt_{(Crit)}$	dv/dt	Tj=125°C Exp. Waveform $V_D = 80\%$ Rated	800	1000		V/us
Gate Trigger Current	I_{GT}	Tj=25°C $V_D = 12V$	30	100	200	ma
Gate Trigger Voltage	V_{GT}		0.8	2.0	4.5	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 Centerline Test Method			0.020	°C/Watt
Case to Sink	$R\theta_{cs}$				0.004	°C/Watt
Thermal Impedance Model	$Z\theta_{jc}$	Double side cooled				
$Z\theta_{jc}(t) = \Sigma(A(N) \cdot (1 - \exp(-t/\text{Tau}(N))))$ where: N = 1 2 3 4						
A(N) = 8.83E-04 2.32E-03 4.86E-03 1.20E-02						
Tau(N) = 1.48E-03 1.16E-02 8.12E-02 5.00E-01						

Maximum On-State Voltage Drop



MAXIMUM TRANSIENT THERMAL IMPEDANCE

