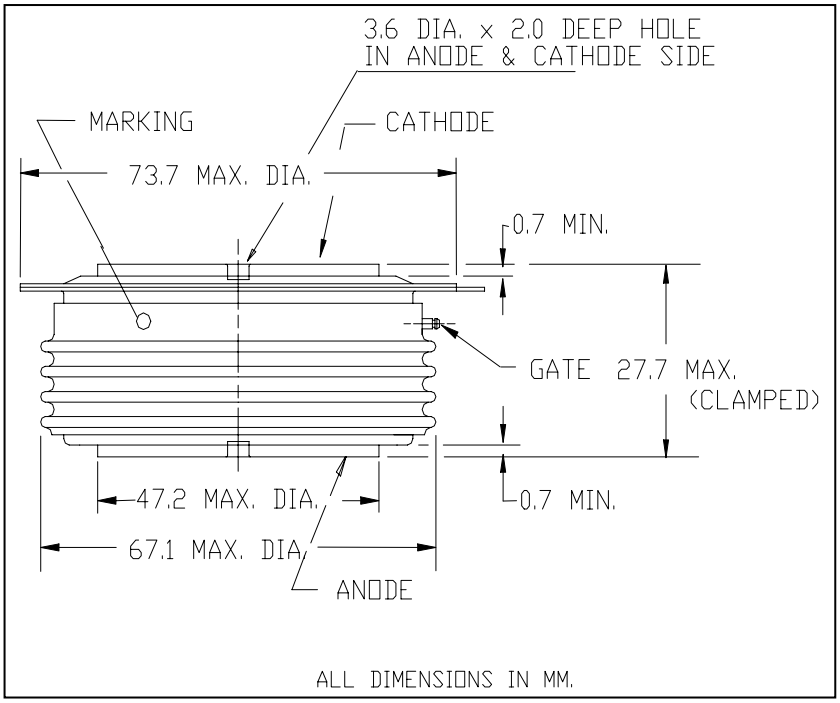
T9G0__1203 Select

Phase Control Thyristor

1200 Amperes 1800 Volts

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



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 I^2t 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_{DRM}-V_{RRM}	Voltage Code	Current Rating I_{tavg}	Current Code	Turn-Off Tq	Gate I_{GT}	Leads
T9GO	1800V*	**18**	1200A	**12**	**0**	**3**	**DH**
	1600V	**16**					
	1400V	**14**			400us typ.	200ma	12"
	1200V	**12**					
	***** limited availability						

Revised: 12/14/2004

Absolute Maximum Ratings

Characteristic	Symbol	Rating	Units
Repetitive Peak Voltage	V_{DRM}-V_{RRM}	1800	Volts
Average On-State Current, T_C=70°C	$I_{T(Avg.)}$	1750	A
RMS On-State Current, T_C=70°C	$I_{T(RMS)}$	2749	A
Average On-State Current, T_S=55°C	$I_{T(Avg.)}$	1800	A
RMS On-State Current, T_S=55°C	$I_{T(RMS)}$	2827	A
Peak One Cycle Surge Current, 50Hz, VR=0V	I_{TSM}	34,000	A
Fuse Coɑdination I^2t, 50Hz	I^2t	5.78E+06	A^2s
Critical Rate-of-Rise of On-State Current	di/dt	150	A/us
Repetitive			
Critical Rate-of-Rise of On-State Current	di/dt	300	A/us
Non-Repetitive			
Peak Gate Power, 100us	P_{GM}	16	Watts
Average Gate Power	$P_{G(avg)}$	3	Watts
Operating Temperature	Tj	-40 to+125	°C
Storage Temperature	$T_{Stg.}$	-50 to+150	°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 min	Rating typ	Rating max	Units
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
VTM = V_O + r•I_{TM}	r	15% I_{TM} - π•I_{TM}			3.74E-04	Ω
V_{TM} Model, 4-Term	A	Tj=125°C			0.437	
V_{TM}= A + B•Ln(I_{TM}) +	B	15%I_{TM} - I_{TSM}			0.056	
C•(I_{TM}) + D•(I_{TM})^{½}	C				1.14E-04	
	D				2.18E-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=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 min	Rating typ	Rating max	Units
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				

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

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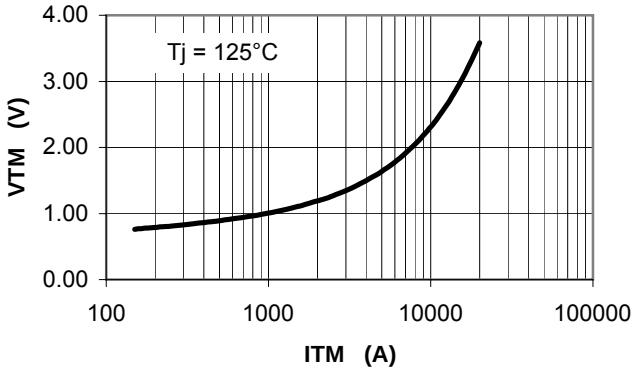
Maximum On-State Voltage Drop



MAXIMUM TRANSIENT THERMAL IMPEDANCE