6121 Baker Road,
Suite 108
Minnetonka, MN 55345

www.chtechnology.com

Phone (952) 933-6190
Fax (952) 933-6223

1-800-274-4284

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Technical ● Application ● Assembly ● Availability ● Pricing

Phone – 1-800-274-4284

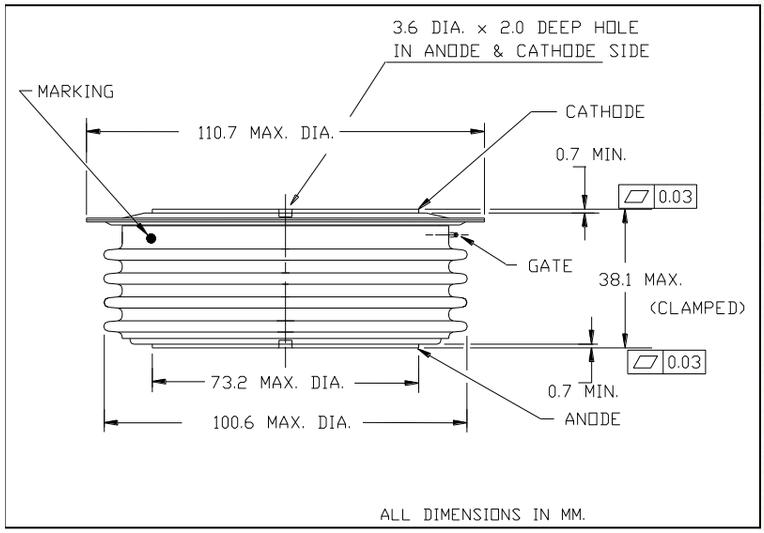
E-Mail – sales@chtechnology.com

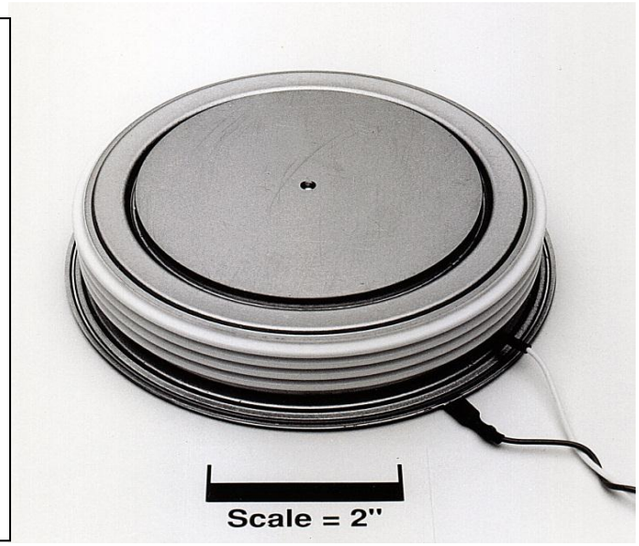
PRX C770__

Fast Switching Thyristor

Powerex, Inc., 173 Pavilion Lane, Youngwood, PA 15697-1800 724-925-7272 WWW.PWRX.COM

2100 Amperes 2000 Volts





The PRX C770 is a high voltage, high current disc pack SCR employing a high di/dt, distributed gate structure to optimize turn-on speed. This gate design allows the SCR to be reliably operated at high di/dt and dv/dt conditions in inverter applications to 1KHz operating frequency.

FEATURES:

- Fast Turn-Off Time
- High di/dt Capability
- High dv/dt Capability
- Hermetic Ceramic Package
- Excellent Surge and I^2t Ratings

APPLICATIONS:

- DC-AC Inverters
- Pulse Power Switches

ORDERING INFORMATION

Select the complete Part Number using the table below.
EXAMPLE: **PRX C770PN** is a 1800V - 2100A SCR with 250ma IGT and 12 inch gate and cathode potential leads.

PART	Voltage Rating	Voltage Code	Current Rating	Turn-Off	Gate	Leads
	V_{DRM}-V_{RRM}		I_{tavg}	Tq	I_{GT}	
PRX C770__	2000	**L**	2100	60us	250ma	12"
	1800	**PN**				
	1600	**PM**				
	1400	**PD**				

Revised: 7/24/2012

Absolute Maximum Ratings

Characteristic	Symbol	Rating	Units
Repetitive Peak Voltage	V_{DRM}-V_{RRM}	1400 - 2000	Volts
Average On-State Current, T_C=70°C	$I_{T(Avg.)}$	2100	A
RMS On-State Current, T_C=70°C	$I_{T(RMS)}$	3299	A
Average On-State Current, T_C=50°C	$I_{T(Avg.)}$	2600	A
RMS On-State Current, T_C=50°C	$I_{T(RMS)}$	4084	A
Peak One Cycle Surge Current, 60Hz, V_R=0V	I_{TSM}	35,000	A
Peak One Cycle Surge Current, 50Hz, V_R=0V	I_{TSM}	32,998	A
Fuse Coordination I^2t, 60Hz	I^2t	5.10E+06	A^2s
Fuse Coordination I^2t, 50Hz	I^2t	5.44E+06	A^2s
Critical Rate-of-Rise of On-State Current	di/dt	300	A/us
Repetitive .67•VDRM			
Critical Rate-of-Rise of On-State Current	di/dt	500	A/us
Non-Repetitive .67•VDRM			
Peak Gate Power, 100us	P_{GM}	44	Watts
Average Gate Power	$P_{G(avg)}$	12	Watts
Operating Temperature	Tj	-40 to+125	°C
Storage Temperature	$T_{Stg.}$	-50 to+150	°C
Approximate Weight		3.5	lb
		1.6	Kg
Mounting Force		9000-10000	lbs
		40 - 44.5	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			150	ma
Repetitive Peak Reverse Leakage Current	I_{RRM}	Tj=125°C, V_{RRM}=Rated			150	ma
Peak On-State Voltage	V_{TM}	Tj=125°C, I_{TM}=2000A			1.85	V
V_{TM} Model, Low Level	V_0	Tj=125°C			1.271	V
VTM = V_O + r•I_{TM}	r	15% I_{TM} - π•I_{TM}			0.255	mΩ
V_{TM} Moc 4-Term	A	Tj=125°C			-1.657	
V_{TM}= A + B•Ln(I_{TM}) +	B	15%I_{TM} - I_{TSM}			0.527	
C•(I_{TM}) + D•(I_{TM})^{½}	C				0.000243	
	D				-0.02197	
Turn-On Delay Time	t_d	V_D = 0.5•V_{DRM} Gate Drive: 40V - 20Ω		2		us
Turn-Off Time	tq	Tj=125°C dv/dt = 400V/us to 80% V_{DRM}		60		us
Reverse Recovery Current	$I_{R(Rec)}$	Tj=125°C 1500A -10A/us				A
Reverse Recovery Charge	Q_{RR}					uCoul
$dv/dt_{(Crit)}$	dv/dt	Tj=125°C Exp. Waveform V_D =80% Rated	1000			V/us
Gate Trigger Current	I_{GT}	Tj=25°C V_D = 12V	30	150	250	ma
Gate Trigger Voltage	V_{GT}		0.8	2.0	4.0	V
Peak Reverse Gate Voltage	V_{GRM}				10	V

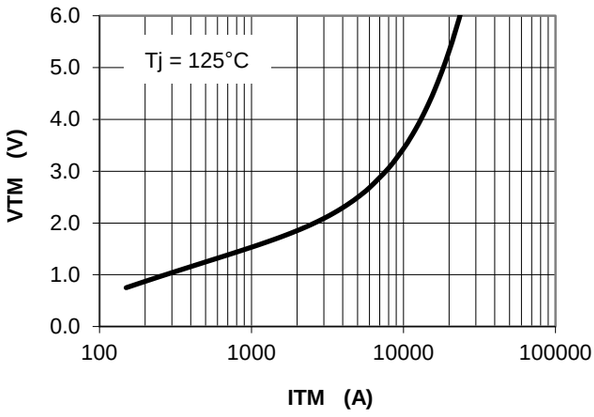
Thermal Characteristics

Characteristic	Symbol	Test Conditions	Rating min	Rating typ	Rating max	Units
Thermal Resistance						
Junction to Case	$R\Theta_{jc}$	Double side cooled		0.009	0.010	°C/Watt
Case to Sink	$R\Theta_{cs}$	Double side cooled		0.0015	0.002	°C/Watt
Thermal Impedance Model	$Z\Theta_{jc}$	Double side cooled				

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

N =	1	2	3	4
A(N) =	1.13E-04	7.51E-04	3.53E-03	5.61E-03
Tau(N) =	6.54E-04	1.48E-02	1.89E-01	1.20E+00

Maximum On-State Voltage Drop



MAXIMUM TRANSIENT THERMAL IMPEDANCE