



High power cycling capability
Low on-state and switching losses
Designed for traction and industrial applications

Phase Control Thyristor Type T373-2500-18

Mean on-state current			I _{TAV}	2500 A				
Repetitive peak off-state voltage			V _{DRM}	1000 ÷ 1800 V				
Repetitive peak reverse voltage			V _{RRM}					
Turn-off time			t _q	250, 320, 400, 500 µs				
V _{DRM} , V _{RRM} , V	1000	1100	1200	1300	1400	1500	1600	1800
Voltage code	10	11	12	13	14	15	16	18
T _j , °C	-60 ÷ 125							

MAXIMUM ALLOWABLE RATINGS

Symbols and parameters			Units	Values	Test conditions	
ON-STATE						
I _{TAV}	Mean on-state current	A	2500 2690	T _c =89 °C, Double side cooled T _c =85 °C, Double side cooled 180° half-sine wave; 50 Hz		
I _{TRMS}	RMS on-state current	A	3925	T _c =89 °C, Double side cooled 180° half-sine wave; 50 Hz		
I _{TSM}	Surge on-state current	kA	50.0 58.0	T _j =T _j max T _j =25 °C	180° half-sine wave; 50 Hz (t _p =10 ms); single pulse; V _D =V _R =0 V; Gate pulse: I _G =2 A; t _{GP} =50 µs; di _G /dt≥1 A/µs	
			53.0 61.0	T _j =T _j max T _j =25 °C	180° half-sine wave; 60 Hz (t _p =8.3 ms); single pulse; V _D =V _R =0 V; Gate pulse: I _G =2 A; t _{GP} =50 µs; di _G /dt≥1 A/µs	
I ² t	Safety factor	A ² s·10 ³	12500 16820	T _j =T _j max T _j =25 °C	180° half-sine wave; 50 Hz (t _p =10 ms); single pulse; V _D =V _R =0 V; Gate pulse: I _G =2 A; t _{GP} =50 µs; di _G /dt≥1 A/µs	
			11655 15440	T _j =T _j max T _j =25 °C	180° half-sine wave; 60 Hz (t _p =8.3 ms); single pulse; V _D =V _R =0 V; Gate pulse: I _G =2 A; t _{GP} =50 µs; di _G /dt≥1 A/µs	
BLOCKING						
V _{DRM} , V _{RRM}	Repetitive peak off-state and Repetitive peak reverse voltages	V	1000÷1800	T _{j min} < T _j < T _{j max} ; 180° half-sine wave; 50 Hz; Gate open		
V _{DSM} , V _{RSM}	Non-repetitive peak off-state and Non-repetitive peak reverse voltages	V	1100÷1900	T _{j min} < T _j < T _{j max} ; 180° half-sine wave; 50 Hz;single pulse; Gate open		
V _D , V _R	Direct off-state and Direct reverse voltages	V	0.75·V _{DRM} 0.75·V _{RRM}	T _j =T _j max; Gate open		

TRIGGERING				
I _{FGM}	Peak forward gate current	A	10	T _j =T _j max
V _{RGM}	Peak reverse gate voltage	V	5	
P _G	Gate power dissipation	W	5	T _j =T _j max for DC gate current
SWITCHING				
(di _T /dt) _{crit}	Critical rate of rise of on-state current non-repetitive (f=1 Hz)	A/μs	630	T _j =T _j max; V _D =0.67·V _{DRM} ; I _{TM} =2 I _{TAV} ; Gate pulse: I _G =2 A; t _{GP} =50 μs; di _G /dt≥2 A/μs
THERMAL				
T _{stg}	Storage temperature	°C	-60÷50	
T _j	Operating junction temperature	°C	-60÷125	
MECHANICAL				
F	Mounting force	kN	40.0÷50.0	
a	Acceleration	m/s ²	50 100	Device unclamped Device clamped
CHARACTERISTICS				
Symbols and parameters		Units	Values	Conditions
ON-STATE				
V _{TM}	Peak on-state voltage, max	V	1.55	T _j =25 °C; I _{TM} =7850 A
V _{T(TO)}	On-state threshold voltage, max	V	0.88	T _j =T _j max;
r _T	On-state slope resistance, max	mΩ	0.092	0.5 π I _{TAV} < I _T < 1.5 π I _{TAV}
I _L	Latching current, max	mA	1500	T _j =25 °C; V _D =12 V; Gate pulse: I _G =2 A; t _{GP} =50 μs; di _G /dt≥1 A/μs
I _H	Holding current, max	mA	300	T _j =25 °C; V _D =12 V; Gate open
BLOCKING				
I _{DRM} , I _{RRM}	Repetitive peak off-state and Repetitive peak reverse currents, max	mA	300	T _j =T _j max; V _D =V _{DRM} ; V _R =V _{RRM}
(dv _D /dt) _{crit}	Critical rate of rise of off-state voltage ¹⁾ , min	V/μs	200, 320, 500, 1000	T _j =T _j max; V _D =0.67V _{DRM} ; Gate open
TRIGGERING				
V _{GT}	Gate trigger direct voltage, max	V	5.00 3.00 2.00	T _j = T _j min T _j =25 °C T _j = T _j max
I _{GT}	Gate trigger direct current, max	mA	500 300 200	T _j = T _j min T _j = 25 °C T _j = T _j max
V _{GD}	Gate non-trigger direct voltage, min	V	0.35	T _j =T _j max; V _D =0.67V _{DRM} ;
I _{GD}	Gate non-trigger direct current, min	mA	15.00	Direct gate current
SWITCHING				
t _{gd}	Delay time	μs	2.00	T _j =25 °C; V _D =0.4V _{DRM} ; I _{TM} =2000 A; Gate pulse: I _G =2 A; t _{GP} =50 μs; di _G /dt≥2 A/μs
t _q	Turn-off time ²⁾ , max	μs	250, 320, 400, 500	dv _D /dt=50 V/μs; T _j =T _j max; I _{TM} =2000 A; di _R /dt=-10 A/μs; V _R =100V; V _D =0.67V _{DRM}

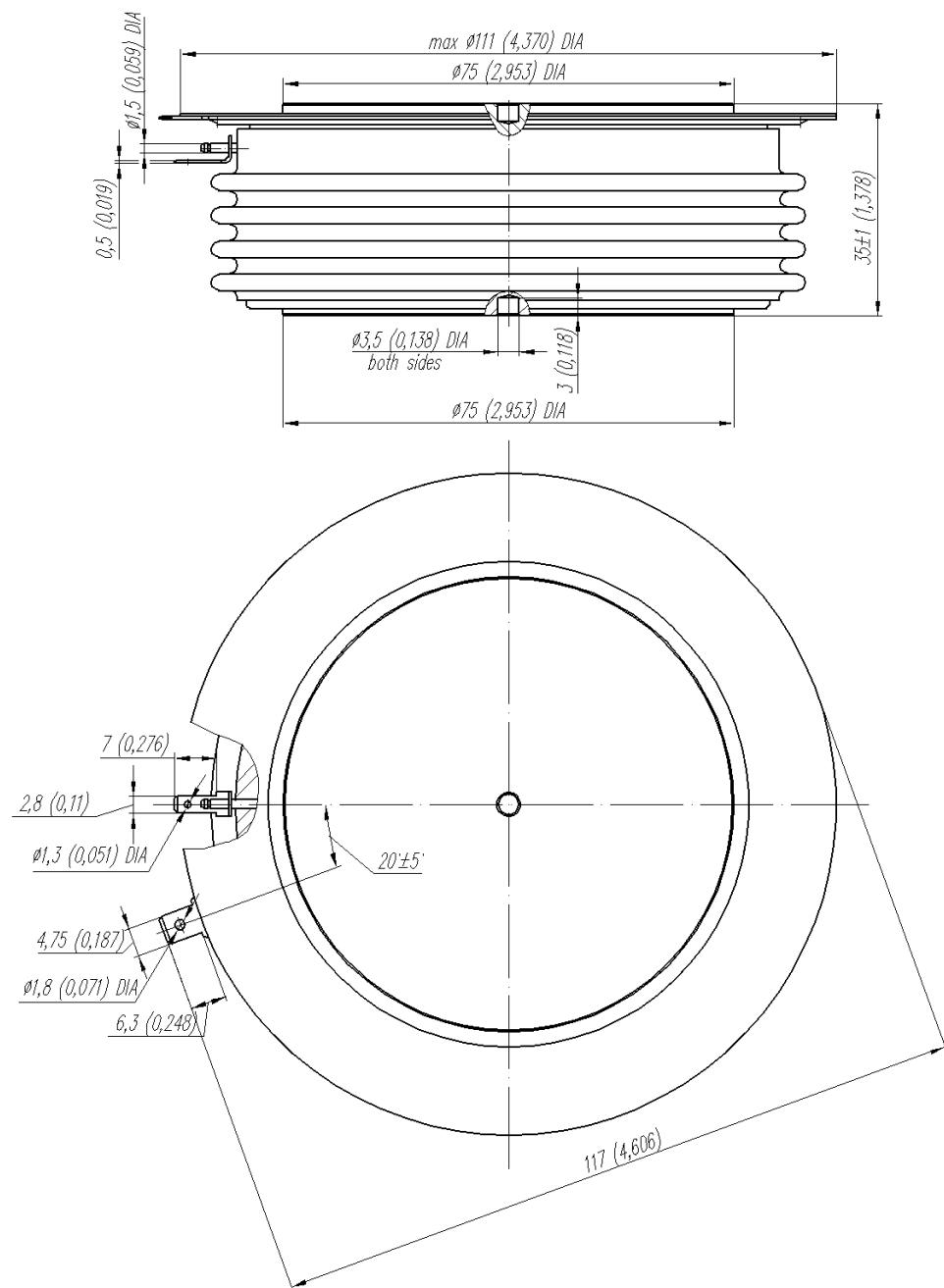
THERMAL						
R_{thjc}	Thermal resistance, junction to case, max		$^{\circ}\text{C}/\text{W}$	0.010	Direct current	Double side cooled
R_{thjc-A}				0.022		Anode side cooled
R_{thjc-K}				0.018		Cathode side cooled
R_{thck}	Thermal resistance, case to heatsink, max		$^{\circ}\text{C}/\text{W}$	0.002	Direct current	

MECHANICAL						
W	Weight, typ			g	1600	
D_s	Surface creepage distance			mm (inch)	55.13 (2.170)	
D_a	Air strike distance			mm (inch)	25.10 (0.988)	

PART NUMBERING GUIDE							NOTES																								
T	373	2500	18	A2	M2	N	1) Critical rate of rise of on-state current non-repetitive <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <th>Symbol of Group</th> <th>P2</th> <th>K2</th> <th>E2</th> <th>A2</th> </tr> <tr> <td>$(dv_D/dt)_{crit}, \text{V}/\mu\text{s}$</td> <td>200</td> <td>320</td> <td>500</td> <td>1000</td> </tr> </table> 2) Turn-off time ($dv_D/dt=50 \text{ V}/\mu\text{s}$) <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <th>Symbol of Group</th> <th>M2</th> <th>K2</th> <th>H2</th> <th>E2</th> </tr> <tr> <td>$t_q, \mu\text{s}$</td> <td>250</td> <td>320</td> <td>400</td> <td>500</td> </tr> </table>					Symbol of Group	P2	K2	E2	A2	$(dv_D/dt)_{crit}, \text{V}/\mu\text{s}$	200	320	500	1000	Symbol of Group	M2	K2	H2	E2	$t_q, \mu\text{s}$	250	320	400	500
Symbol of Group	P2	K2	E2	A2																											
$(dv_D/dt)_{crit}, \text{V}/\mu\text{s}$	200	320	500	1000																											
Symbol of Group	M2	K2	H2	E2																											
$t_q, \mu\text{s}$	250	320	400	500																											
1	2	3	4	5	6	7																									
1. Phase Control Thyristor																															
2. Design version																															
3. Mean on-state current, A																															
4. Voltage code																															
5. Critical rate of rise of on-state current non-repetitive, $\text{V}/\mu\text{s}$																															
6. Turn-off time ($dv_D/dt=50 \text{ V}/\mu\text{s}$)																															
7. Ambient conditions: N – normal; T – tropical																															

OVERALL DIMENSIONS

Package type: T.F5



All dimensions in millimeters (inches)

The information contained herein is confidential and protected by Copyright.
In the interest of product improvement, Proton-Electrotex reserves the right to change data sheet without notice.