	TET ESTEL AS ESTONIA	**June 2013**

Series
T161-200

Phase Control Stud Mounted Thyristor
Type T161-200

Center amplifying gate
Low on-state and switching losses
Designed for traction and industrial applications

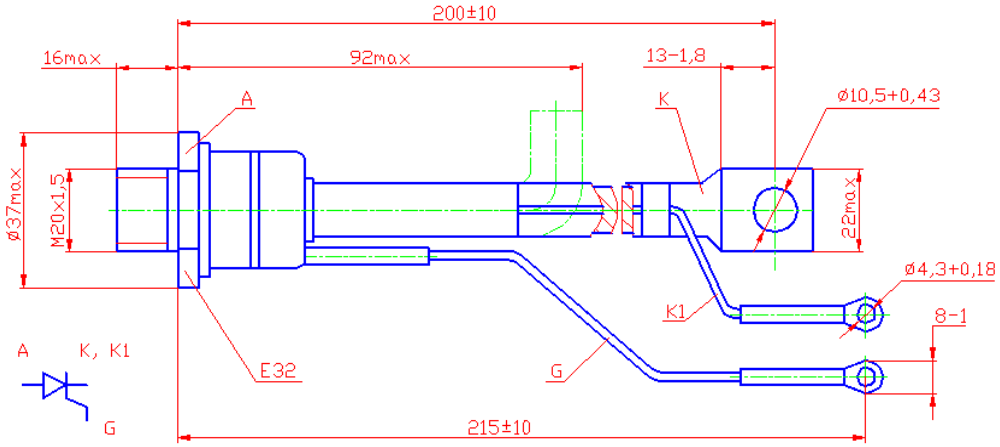
Maximum mean on-state current						I_{TAV}	**200 A**			
Maximum repetitive peak off-state and reverse voltage						U_{DRM} U_{RRM}	**800 ÷1800 V**			
Turn-off time						**tq**	**200; 250; 320 µs**			
U_{DRM}, U_{RRM}, V	800	900	1000	1100	1200	1300	1400	1500	1600	1800
Voltage code	8	9	10	11	12	13	14	15	16	18
Tvj, °C	- 60 ÷ 125									

MAXIMUM ALLOWABLE RATINGS					
Symbols and parameters		Units	T161-200	Conditions	
I_{TAV}	Mean on-state current	A	200 280	Tc=87 °C, Tc=70 °C 180° half-sine wave, 50 Hz	
I_{TRMS}	RMS on-state current	A	314	Tc=87 °C	
I_{TSM}	Surge on-state current	kA	5,0 5,5	Tvj=125°C Tvj=25°C	tp=10 ms U_R=0
I^2t	Limiting load integral	kA^2s	125 151	Tvj=125°C Tvj=25°C	
U_{DRM},U_{RRM}	Repetitive peak off-state and reverse voltage	V	800÷1800	Tj мin≤Tvj≤Tjм 180° half-sine wave, 50 Hz Gate open	
U_{DSM},U_{RSM}	Non-repetitive peak off-state and reverse voltage	V	900÷1900	Tj мin≤Tvj≤Tjм 180° half-sine wave tp=10 ms, Single pulse Gate open	
(di$_T$/dt) crit	Critical rate of rise of on-state current : non - repetitive repetitive	A/µs	 250 125	Tvj=125°C ; U_D=0,67 U_{DRM}, Gate pulse : 10V,5 Ω, 1µs rise time, 10 µs	
U_{RGM}	Peak reverse gate voltage	V	5	Tj мin≤Tvj≤Tjм	
Tstg	Storage temperature	°C	-60÷80		
Tvj	Junction temperature	°C	-60÷125		
CHARACTERISTICS					
U_{TM}	Peak on-state voltage	V	1,6	Tvj=25°C, I_{TM}=3,14 I_{TAV}	
$U_{T(TO)}$	Threshold voltage	V	0,84	Tvj=125°C 1,57 I_{TAV}< I_T <4,71 I_{TAV}	
R_T	On-state slope resistance	mΩ	0,96		
I_{DRM} I_{RRM}	Repetitive peak off-state and reverse current	mA	 30 30	Tvj=125°C, U_D = U_{DRM} U_R= U_{RRM}	

CHARACTERISTICS					
Symbols and parameters		Units	T161-200	Conditions	
I_L	Latching current	A	0,5	Tvj=25°C,U_D=12V Gate pulse : 10V, 5Ω, 1 µs rise time, 10µs	
I_H	Holding current	A	0,25	Tvj=25°C,U_D=12V, Gate open	
U_{GT}	Gate trigger direct voltage	V	2,5 5,0	Tvj=25°C, Tvj=-60°C	U_D=12V
I_{GT}	Gate trigger direct current	A	0,3 0,85	Tvj=25°C, Tvj=-60°C	
U_{GD}	Gate non-trigger direct voltage	V	0,25	Tvj=125°C, U_D = 0,67 U_{DRM}	
I_{GD}	Gate non-trigger direct current	mA	10	Direct gate current	
tgd	Delay time	µs	1,6	Tvj=25°C,U_D=500V I_{TM} = 200 A Gate pulse : 10V, 5Ω, 1 µs rise time, 10µs	
tgt	Turn-on time	µs	3,2		
tq	Turn-off time	µs	200÷320	Tvj=125°C, I_{TM}=200 A di_R/dt =10 A/µs, U_R=100V U_D = 0,67 U_{DRM} du_D/dt=50 V/µs	
Qrr	Recovered charge	µC	700	Tvj=125°C, I_{TM}=200 A di_R/dt =10 A/µs, U_R=100V	
trr	Reverse recovery time	µs	21		
I_{RRM}	Peak reverse recovery current	A	67		
$(du_D/dt)_{crit}$	Critical rate of rise of off-state voltage	V/µs	500 1000	Tvj=125°C, U_D = 0,67 U_{DRM} Gate open	
Rthjc	Thermal resistance junction to case	°C/W	0,13	Direct current	

ORDERING							
	T	**161**	**200**	**16**	**7**	**2**	
	1	**2**	**3**	**4**	**5**	**6**	

1. Phase control thyristor.
2. Design version.
3. Mean on-state current, A.
4. Voltage code (16=1600 V).
5. Critical rate of rise of off-state voltage (6 ≥ 500 V/µs, 7 ≥ 1000 V/µs).
6. Group of turn-off time (du_D/dt=50 V/µs, K2 ≤ 320 µs, 2 ≤ 250 µs, P2 ≤ 200 µs).



Tightening torgue : 25 ÷ 35 Nm. Weight : 250 grams

Thyristors can be supplied in the packages with the framework of M16x1,5 in accordance to the customer.