THE DATASHEET OF

TFI153S-1000-13_26MM

	TET ESTEL AS ESTONIA	**October** **2014**

Series
TFI153S-1000

High Frequency Inverter grade Capsule Thyristor Type TFI153S-1000

Strong distributed amplified gate
and low turn-off time thyristor for
high frequency applications to 20 kHz

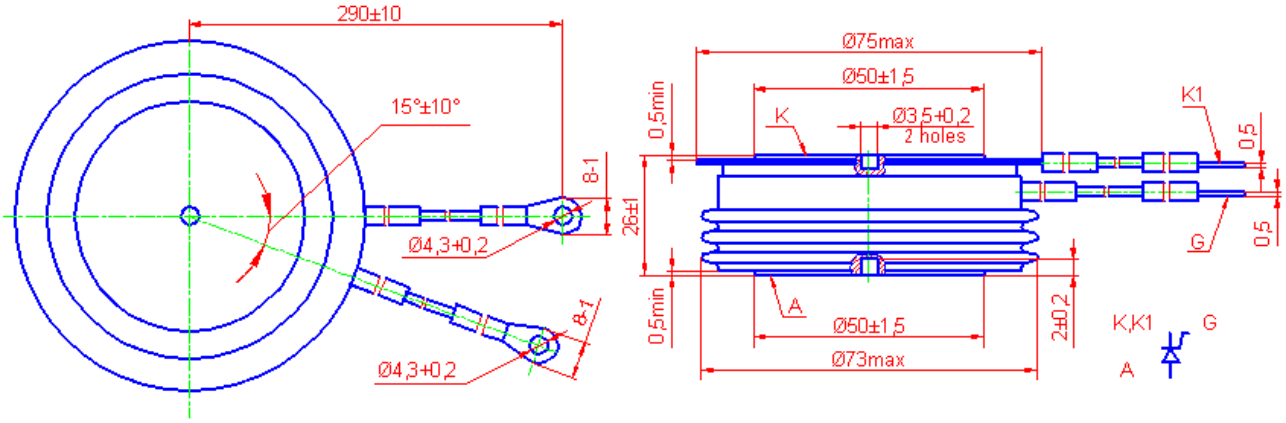
Maximum mean on-state current				I_{TAV}	**1000 A**	
Maximum repetitive peak off-state and reverse voltage				U_{DRM} U_{RRM}	**800 ÷1300 V**	
Turn-off time				**tq**	**8, 10; 12,5 µs**	
U_{DRM}, U_{RRM}, V	800	900	1000	1100	1200	1300
Voltage code	8	9	10	11	12	13
Tvj, °C	- 60 ÷ 125					

MAXIMUM ALLOWABLE RATINGS					
Symbols and parameters		Units	TFI153S-1000	Conditions	
I_{TAV}	Mean on-state current	A	1000 1370	Tc=78 °C, Tc=55 °C, 180° half-sine wave, 50 Hz	
I_{TRMS}	RMS on-state current	A	1570	Tc=78 °C	
I_{TSM}	Surge on-state current	kA	20,0 22,0	Tvj=125°C Tvj=25°C	tp=10 ms U_R=0
I^2t	Limiting load integral	kA^2s	2000 2420	Tvj=125°C Tvj=25°C	
U_{DRM},U_{RRM}	Repetitive peak off-state and reverse voltage	V	800÷1300	Tj min≤Tvj≤Tjm 180° half-sine wave, 50 Hz Gate open	
U_{DSM},U_{RSM}	Non-repetitive peak off-state and reverse voltage	V	880÷1400	Tj min≤Tvj≤Tjm 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	 1600 1000	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 min≤Tvj≤Tjm	
Tstg	Storage temperature	°C	-60÷80		
Tvj	Junction temperature	°C	-60÷125		
CHARACTERISTICS					
U_{TM}	Peak on-state voltage	V	2,6	Tvj=25°C, I_{TM}=3,14 I_{TAV}	
$U_{T(TO)}$	Threshold voltage	V	1,55	Tvj=125°C 1,57 I_{TAV}< I_T <4,71 I_{TAV}	
R_T	On-state slope resistance	mΩ	0,265		
I_{DRM} I_{RRM}	Repetitive peak off-state and reverse current	mA	 100 100	Tvj=125°C, U_D = U_{DRM} U_R= U_{RRM}	

CHARACTERISTICS					
Symbols and parameters		Units	TFI153S-1000	Conditions	
I_L	Latching current	A	20	Tvj=25°C,U_D=12V Gate pulse : 10V, 5Ω, 1 µs rise time, 10µs	
I_H	Holding current	A	0,5	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	0,35 0,90	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} = 1000 A Gate pulse : 10V, 5Ω, 1 µs rise time, 10µs	
tgt	Turn-on time	µs	2,5		
tq	Turn-off time	µs	8; 10; 12,5 10; 12,5; 16	Tvj=125°C, I_{TM}=1000 A di_R/dt =10 A/µs, U_R=100V U_D = 0,67 U_{DRM} du_D/dt=50 V/µs du_D/dt=200 V/µs	
Qrr	Recovered charge	µC	190	Tvj=125°C, I_{TM}=1000 A di_R/dt=50 A/µs, U_R=100V	
trr	Reverse recovery time	µs	3,0		
Irrm	Peak reverse recovery current	A	125		
$(du_D/dt)_{crit}$	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	0,021	Direct current, double side cooled	

ORDERING									
	TFI	**153**	**S**	**1000**	**12**	**7**	**8**	**3**	
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	

1. Fast thyristor with interdigitated gate structure.
2. Design version.
3. Strong distributed amplified gate.
4. Mean on-state current, A.
5. Voltage code (12=1200 V).
6. Critical rate of rise of off-state voltage (6 ≥ 500 V/µs, 7 ≥1000 V/µs).
7. Group of turn-off time (du_D/dt=50 V/µs, 8 ≤ 12,5 µs, A4 ≤ 10 µs, 9 ≤ 8 µs).
8. Group of turn-on time (3 ≤ 2,5 µs).



Mounting force : 19 ÷ 28 kN
Weight : 580 grams

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