

## Type SF73-xx20

### High Frequency Inverter grade Capsule Thyristor

Distributed amplified gate for high di/dt and low switching losses

Maximum mean on-state current				$I_{TAV}$	<b>2000 A</b>	
Maximum repetitive peak off-state and reverse voltage				$U_{DRM}$	<b>1200 ÷ 2200 V</b>	
Turn-off time				$U_{RRM}$		
				<b>tq</b>	<b>32; 40; 50 μs</b>	
$U_{DRM}, U_{RRM}, V$	1200	1400	1600	1800	2000	2200
Voltage code - <b>XX</b>	12	14	16	18	20	22
$T_{vj}, °C$	- 60 ÷ 125					

#### MAXIMUM ALLOWABLE RATINGS

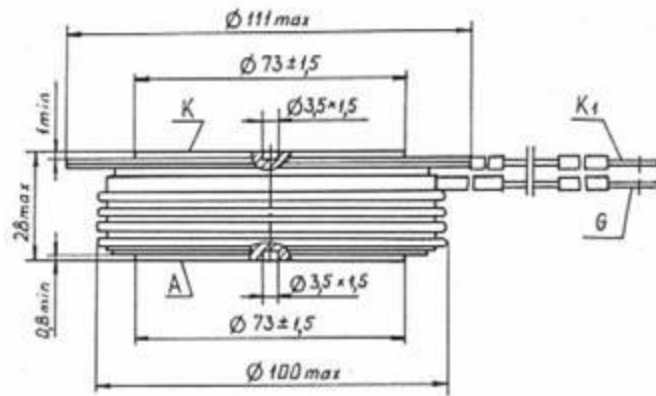
Symbols and parameters		Units	SF73-xx20	Conditions
$I_{TAV}$	Mean on-state current	A	2000 2890	$T_c=85°C$ , $T_c=55°C$ , 180° half-sine wave, 50 Hz
$I_{TRMS}$	RMS on-state current	A	<b>3140</b>	$T_c=80°C$ , 50 Hz
$I_{TSM}$	Surge on-state current	kA	40	$T_{vj}=125°C$ $U_R=0$ $t_p=10$ ms
(di/dt) cr	Critical rate of rise of on-state current: non – repetitive repetitive	A/μs	1600 1000	$T_{vj}=125°C$ ; $U_D=0,67 U_{DRM}$ , Gate pulse : 10V,5Ω, 1μs rise time, 10μs
$U_{RGM}$	Peak reverse gate voltage	V	5	
$T_{stg}$	Storage temperature	°C	-60 ÷ 125	
$T_{vj}$	Junction temperature	°C	-60 ÷ 125	

#### CHARACTERISTICS

Symbols and parameters		Units	SF73xx20	Conditions
$U_{TM}$	Peak on-state voltage	V	2,2	$T_{vj}=25°C$ , $I_{TM}=3,14 I_{TAV}$
$U_{T(TO)}$	Threshold voltage	V	1,3	$T_{vj}=125°C$
$r_T$	Slope resistance	mΩ	0,125	$T_{vj}=125°C$
$I_{DRM}$	Repetitive peak off-state and reverse current	mA	150	$T_{vj}=125°C$ , $U_D= U_{DRM}$ $U_R= U_{RRM}$
$I_{RRM}$			150	
$I_H$	Holding current	A	1,0	$T_{vj}=25°C$ ; $U_D=12$ , Gate open
$U_{GT}$	Gate trigger direct voltage	V	2,5	$T_{vj}=25°C$ ; $U_D=12V$

I <sub>GT</sub>	Gate trigger direct current	A	0,35	T <sub>vj</sub> =25°C; U <sub>D</sub> =12V
U <sub>GD</sub>	Gate non-trigger direct voltage	V	0,25	T <sub>vj</sub> =125°C; U <sub>D</sub> =0,67 U <sub>DRM</sub>
t <sub>gd</sub>	Delay time	μs	2,5	T <sub>vj</sub> =25°C, U <sub>D</sub> =500V, I <sub>TM</sub> =2000A Gate pulse: 10V, 5Ω, 1μs rise time, 10μs
t <sub>gt</sub>	Turn-on time	μs	4,0	
t <sub>q</sub>	Turn-off time	μs	32÷50 40÷63	T <sub>vj</sub> =125°C, I <sub>TM</sub> =2000A, di <sub>R</sub> /dt= 10 A/μs U <sub>R</sub> =100V U <sub>D</sub> =0,67 U <sub>DRM</sub> Di <sub>D</sub> /dt= 50 A/μs Di <sub>D</sub> /dt= 200 A/μs
Q <sub>rr</sub>	Recovered charge	μC	800	T <sub>vj</sub> =125°C, I <sub>TM</sub> =2000A, di <sub>R</sub> /dt= 50 A/μs, U <sub>R</sub> =100V
(di <sub>D</sub> /dt) cr	Critical rate of rise of off-state voltage	V/μs	500 1000	T <sub>vj</sub> =125°C; U <sub>D</sub> =0,67 U <sub>DRM</sub> Gate open
R <sub>thjc</sub>	Thermal resistance junction to case	°C/W	0,011	Direct current, double side cooled

Mounting force : 36 – 46 kN  
Weight : 1600 grams



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