SHANDOR Ltd. Plovdiv, Bulgaria

Type SF053S-xx10

High Frequency Inverter grade Capsule Thyristor

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 ÷1400 V**		
Turn-off time				**tq**	**10; 12,5 µs**		
U_{DRM}, U_{RRM}, V	800	900	1000	1100	1200	1300	1400
Voltage code - **XX**	8	9	10	11	12	13	14
Tvj, °C	- 60 ÷ 125						

MAXIMUM ALLOWABLE RATINGS

Symbols and parameters		Units	SF053S-xx10	Conditions
I_{TAV}	Mean on-state current	A	1000 1395	Tc=80 °C, Tc=55 °C, 180° half-sine wave, 50 Hz
I_{TRMS}	RMS on-state current	A	1570	Tc=80 °C
I_{TSM}	Surge on-state current	kA	20	Tvj=125°C U_R=0 tp=10 ms
$(di_T/dt)_{cr}$	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	
Tstg	Storage temperature	°C	-60 ÷ 80	
Tvj	Junction temperature	°C	-60 ÷ 125	

CHARACTERISTICS

Symbols and parameters		Units	SF053S-xx10	Conditions
U_{TM}	Peak on-state voltage	V	2,3	Tvj=25°C, I_{TM}=3,14 I_{TAV}
$U_{T(TO)}$	Threshold voltage	V	1,35	Tvj=125°C
R_T	On-state slope resistance	mΩ	0,3	Tvj=125°C
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}

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	1,0	Tvj=25°C,U_D=12V, Gate open
U_{GT}	Gate trigger direct voltage	V	2,5	Tvj=25°C, U_D=12V
I_{GT}	Gate trigger direct current	A	0,3	
U_{GD}	Gate non-trigger direct voltage	V	0,25	Tvj=125°C, U_D = 0,67 U_{DRM}
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	10÷12,5 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	250	Tvj=125°C, I_{TM} =1000 A di_R/dt =50 A/µs, U_R=100V
$(du_D/dt)_{crit}$	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	0,022	Direct current, double side cooled

Mounting force : 19 – 28 kN
Weight : 580 gram