



Type SF053-xx12

High Frequency Inverter grade Capsule Thyristor

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

Maximum mean on-state current						I_{FAV}	1250 A		
Maximum repetitive peak off-state and reverse voltage						U_{DRM}	800 ÷ 1500 V		
Turn-off time						U_{RRM}			
						t_q	20; 25; 32 μs		
U_{DRM}, U_{RRM}, V		800	900	1000	1100	1200	1300	1400	1500
Voltage code - XX		08	09	10	11	12	13	14	15
T_{vj}, °C	- 60 ÷ 125								

MAXIMUM ALLOWABLE RATINGS

Symbols and parameters		Units	SF053-xx12	Conditions
I_{FAV}	Mean on-state current	A	1250 1500	T _c =70°C, T _c =55°C, 180° half-sine wave, 50 Hz
I_{TRMS}	RMS on-state current	A	1960	T _c =70 °C, 50 Hz
I_{TSM}	Surge on-state current	kA	21	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	2000 1250	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	SF053xx12	Conditions
U_{TM}	Peak on-state voltage	V	2,15	T _{vj} =25°C, I _{TM} =3,14 I _{TAV}
U_{T(TO)}	Threshold voltage	V	1,33	T _{vj} =125°C
r_T	Slope resistance	mΩ	0,24	T _{vj} =125°C
I_{DRM}	Repetitive peak off-state and reverse current	mA	70	T _{vj} =125°C,
I_{RRM}			70	U _D = U _{DRM} U _R = U _{RRM}

I _L	Latching current	A	15	T _{vj} =25°C; U _D =12V, Gate pulse: 10V, 5Ω, 1μs rise time, 10μs
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 _{GT}	Gate trigger direct current	A	0,3	T _{vj} =25°C; U _D =12V
U _{GD}	Gate non-trigger direct voltage	V	0,25	T _{vj} =125°C; U _D =0,67 U _{DRM}
t _{gd}	Delay time	μs	2,5	T _{vj} =25°C, U _D =500V, I _{TM} =1250A Gate pulse: 10V, 5Ω, 1μs rise time, 10μs
t _{gt}	Turn-on time	μs	4,0	
t _q	Turn-off time	μs	20÷32 25÷40	T _{vj} =125°C, I _{TM} =1250A, di _R /dt= 10 A/μs U _R =100V U _D =0,67 U _{DRM} Di _D /dt= 50 A/μs Di _D /dt= 200 A/μs
Q _{rr}	Recovered charge	μC	400	T _{vj} =125°C, I _{TM} =1250A, di _R /dt= 50 A/μs, U _R =100V
(di _D /dt) cr	Critical rate of rise of off-state voltage	V/μs	500 1000	T _{vj} =125°C; U _D =0,67 U _{DRM} Gate open
R _{thjc}	Thermal resistance junction to case	°C/W	0,021	Direct current, double side cooled

Mounting force : 19 – 28 kN
Weight : 580 gram

