



Type SF033-xx40

High Frequency Inverter grade Capsule Thyristor

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

Maximum mean on-state current						I_{FAV}	400 A		
Maximum repetitive peak off-state and reverse voltage						U_{DRM}	300 ÷ 1000 V		
Turn-off time						U_{RRM}	8; 10; 12,5; 16 μs		
U_{DRM}, U_{RRM}, V		300	400	500	600	700	800	900	1000
Voltage code - XX		03	04	05	06	07	08	09	10
T_{vj}, °C	- 60 ÷ 125								

MAXIMUM ALLOWABLE RATINGS

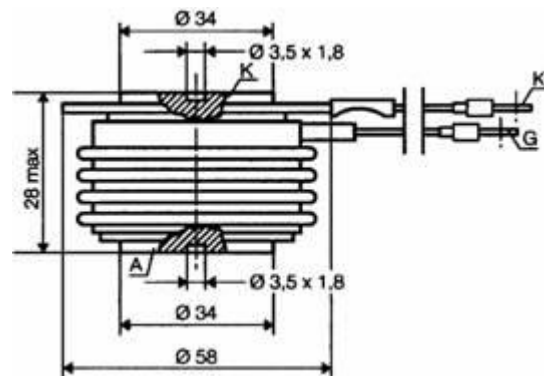
Symbols and parameters		Units	SF033-xx40	Conditions
I _{FAV}	Mean on-state current	A	400 720	T _c =85°C, T _c =55°C, 180° half-sine wave, 50 Hz
I _{TRMS}	RMS on-state current	A	628	T _c =85 °C, 50 Hz
I _{TSM}	Surge on-state current	kA	10	T _{vj} =125°C U _R =0 tp=10 ms
(di/dt) _{cr}	Critical rate of 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	SF033xx40	Conditions
U _{TM}	Peak on-state voltage	V	2,35	T _{vj} =25°C, I _{TM} =3,14 I _{TAV}
U _{T(TO)}	Threshold voltage	V	1,40	T _{vj} =125°C
r _T	Slope resistance	mΩ	0,57	T _{vj} =125°C
I _{DRM}	Repetitive peak off-state and reverse current	mA	50	T _{vj} =125°C, U _D = U _{DRM}
I _{RRM}			50	U _R = U _{RRM}

I _L	Latching current	A	5	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	2,0	T _{vj} =25°C, U _D =500V, I _{TM} =400A Gate pulse: 10V, 5Ω, 1μs rise time, 10μs
t _{gt}	Turn-on time	μs	3,2	
t _q	Turn-off time	μs	8÷16 10÷20	T _{vj} =125°C, I _{TM} =400A, 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	100	T _{vj} =125°C, I _{TM} =400A, 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	0,04	Direct current, double side cooled

Mounting force : 10 ÷ 15 kN
Weight : 250 gram



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