



## Type SF053-xx80

### High Frequency Inverter grade Capsule Thyristor

Strong distributed amplified gate and low turn-off time thyristor  
for high frequency applications to 10 kHz

Maximum mean on-state current						<b>I<sub>FAV</sub></b>	<b>800 A</b>		
Maximum repetitive peak off-state and reverse voltage						<b>U<sub>DRM</sub></b>	<b>800 ÷ 1500 V</b>		
Turn-off time						<b>U<sub>RRM</sub></b>			
						<b>t<sub>q</sub></b>	<b>16; 20; 25; μs</b>		
<b>U<sub>DRM</sub>, U<sub>RRM</sub>, V</b>		800	900	1000	1100	1200	1300	1400	1500
Voltage code - <b>XX</b>		08	09	10	11	12	13	14	15
<b>T<sub>vj</sub>, °C</b>	- 60 ÷ 125								

#### MAXIMUM ALLOWABLE RATINGS

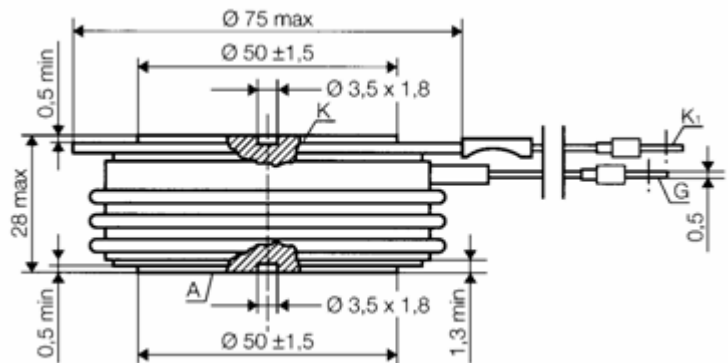
Symbols and parameters		Units	SF053-xx80	Conditions
<b>I<sub>FAV</sub></b>	Mean on-state current	A	800 1375	T <sub>c</sub> =88°C, T <sub>c</sub> =55°C, 180° half-sine wave, 50 Hz
<b>I<sub>RMS</sub></b>	RMS on-state current	A	<b>1255</b>	T <sub>c</sub> =85 °C, 50 Hz
<b>I<sub>TSM</sub></b>	Surge on-state current	kA	20	T <sub>vj</sub> =125°C U <sub>R</sub> =0 t <sub>p</sub> =10 ms
(di <sub>T</sub> /dt) cr	Critical rate of rise of on-state current: non – repetitive repetitive	A/μs	1600 1000	T <sub>vj</sub> =125°C; U <sub>D</sub> =0,67 U <sub>DRM</sub> , Gate pulse : 10V,5Ω, 1μs rise time, 10μs
<b>U<sub>RGM</sub></b>	Peak reverse gate voltage	V	5	
<b>T<sub>stg</sub></b>	Storage temperature	°C	-60 ÷ 80	
<b>T<sub>vj</sub></b>	Junction temperature	°C	-60 ÷ 125	

#### CHARACTERISTICS

Symbols and parameters		Units	SF053xx80	Conditions
<b>U<sub>TM</sub></b>	Peak on-state voltage	V	2,1	T <sub>vj</sub> =25°C, I <sub>TM</sub> =3,14 I <sub>TAV</sub>
<b>U<sub>T(TO)</sub></b>	Threshold voltage	V	1,42	T <sub>vj</sub> =125°C
<b>r<sub>T</sub></b>	Slope resistance	mΩ	0,26	T <sub>vj</sub> =125°C
	Repetitive peak off-state			T <sub>vj</sub> =125°C,

$I_{DRM}$ $I_{RRM}$	and reverse current	mA	70	$U_D = U_{DRM}$ $U_R = U_{RRM}$
$I_L$	Latching current	A	20	$T_{vj}=25^\circ\text{C}$ ; $U_D=12\text{V}$ , Gate pulse: 10V, 5 $\mu\text{s}$ , 1 $\mu\text{s}$ rise time, 10 $\mu\text{s}$
$I_H$	Holding current	A	1,0	$T_{vj}=25^\circ\text{C}$ ; $U_D=12$ , Gate open
$U_{GT}$	Gate trigger direct voltage	V	2,5	$T_{vj}=25^\circ\text{C}$ ; $U_D=12\text{V}$
$I_{GT}$	Gate trigger direct current	A	0,3	$T_{vj}=25^\circ\text{C}$ ; $U_D=12\text{V}$
$U_{GD}$	Gate non-trigger direct voltage	V	0,25	$T_{vj}=125^\circ\text{C}$ ; $U_D=0,67 U_{DRM}$
tgd	Delay time	$\mu\text{s}$	1,6	$T_{vj}=25^\circ\text{C}$ , $U_D=500\text{V}$ , $I_{TM}=800\text{A}$ Gate pulse: 10V, 5 $\mu\text{s}$ , 1 $\mu\text{s}$ rise time, 10 $\mu\text{s}$
tgt	Turn-on time	$\mu\text{s}$	2,5	
tq	Turn-off time	$\mu\text{s}$	8÷12,5 10÷16	$T_{vj}=125^\circ\text{C}$ , $I_{TM}=800\text{A}$ , $di_R/dt = 10 \text{ A}/\mu\text{s}$ $U_R=100\text{V}$ $U_D=0,67 U_{DRM}$ $Di_D/dt = 50 \text{ A}/\mu\text{s}$ $Di_D/dt = 200 \text{ A}/\mu\text{s}$
Qrr	Recovered charge	$\mu\text{C}$	200	$T_{vj}=125^\circ\text{C}$ , $I_{TM}=800\text{A}$ , $di_R/dt = 50 \text{ A}/\mu\text{s}$ , $U_R=100\text{V}$
( $di_D/dt$ ) cr	Critical rate of rise of off-state voltage	V/ $\mu\text{s}$	500 1000	$T_{vj}=125^\circ\text{C}$ ; $U_D=0,67 U_{DRM}$ Gate open
Rthjc	Thermal resistance junction to case	$^\circ\text{C}/\text{W}$	0,022	Direct current, double side cooled

Mounting force : 19 – 28 kN  
Weight : 580 gram



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