V_{DSM}	=	1600 V
I_{TAVM}	=	726 A
I_{TRMS}	=	1140 A
I_{TSM}	=	9240 A
V_{T0}	=	1.03 V
r_T	=	0.483 mΩ

Phase Control Thyristor

5STP 06E1600

Doc. No. 5SYA1054-01 Sep. 01

- **Designed for traction, energy and industrial applications**
- **Optimum power handling capability**
- **Industry standard housing**

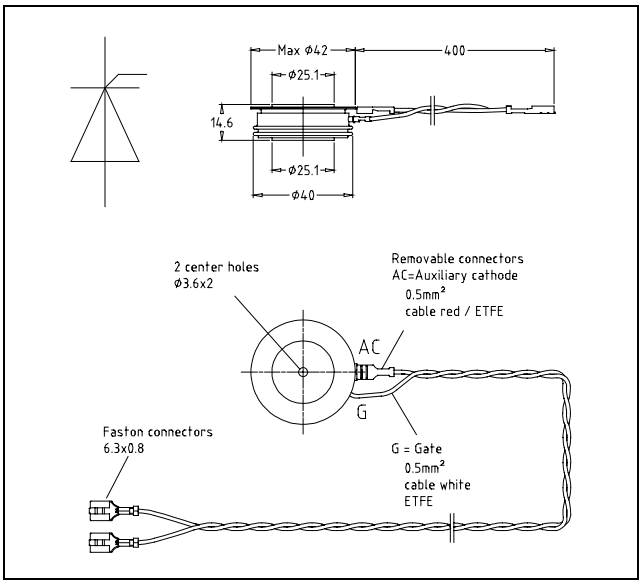
Blocking

Part Number	5STP 06E1600	5STP 06E1400	5STP 06E1200	Conditions	
V_{DRM} V_{RRM}	1600 V	1400 V	1200 V	f = 50 Hz, t_p = 10ms, Note 1	
V_{RSM1}	1700 V	1500 V	1300 V	t_p = 5ms, single pulse, Note 1	
I_{DRM}	≤ 40 mA			V_{DRM}	T_j = 125°C
I_{RRM}	≤ 40 mA			V_{RRM}	
dV/dt_{crit}	1000 V/µs			linear. to 0.67 x V_{DRM}, T_j = 125°C	

Note 1: Derating factor of 0.13% per °C is applicable for T_j below 25°C.

Mechanical data

F_M	Mounting force	nom.	8 kN
		min.	6 kN
		max.	10 kN
a	Acceleration		
	Device unclamped		50 m/s^2
	Device clamped		100 m/s^2
m	Weight		0.09 kg
D_S	Surface creepage distance		9 mm
D_a	Air strike distance		8 mm



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On-state

I_{TAVM}	Max. average on-state current	726 A	Half sine wave, T_C = 70°C	
I_{TRMS}	Max. RMS on-state current	1140 A		
I_{TSM}	Max. peak non-repetitive	9240 A	tp = 10 ms	T_j = 125°C
	surge current	9900 A	tp = 8.3 ms	After surge:
I^2t	Limiting load integral	427 kA^2s	tp = 10 ms	$V_D = V_R$ = 0V
		490 kA^2s	tp = 8.3 ms	
V_T	On-state voltage	1.51 V	I_T = 1000 A	
V_{T0}	Threshold voltage	1.03 V	I_T = 500 - 3000 A	T_j = 125°C
r_T	Slope resistance	0.483 mΩ		
I_H	Holding current	<500 mA	T_j = 25°C	
		>10 mA	T_j = 125°C	

Switching

di/dt_{crit}	Critical rate of rise of on-state current		500 A/µs	Cont. f = 50 Hz	$V_D \leq 0.67 \cdot V_{DRM}$, T_j = 125°C
			1000 A/µs	Single Pulse	I_{TRM} = 1500 A I_{FG} = 2 A, t_r = 0.5 µs
t_d	Delay time		≤ 3.0 µs	$V_D = 0.4 \cdot V_{DRM}$	I_{FG} = 2 A, t_r = 0.5 µs
t_q	Turn-off time		≤ 150 µs	$V_D \leq 0.67 \cdot V_{DRM}$ dv_D/dt = 20V/µs	I_{TRM} = 500 A, T_j = 125°C V_R = 50 V, di_T/dt = -10 A/µs
Q_{rr}	Recovery charge	min	540 µAs		
		max	580 µAs		

Triggering

V_{GT}	Gate trigger voltage	3.0 V	T_j = 25°, V_D = 10 A, I_T = 3 A
I_{GT}	Gate trigger current	150 mA	T_j = 25°, V_D = 10 A, I_T = 3 A
V_{GD}	Gate non-trigger voltage	0.25 V	T_j = 25°, $V_D = V_{DRM}$
I_{GD}	Gate non-trigger current	10 mA	T_j = 25°, $V_D = V_{DRM}$
V_{FGM}	Peak forward gate voltage	10 V	
I_{FGM}	Peak forward gate current	7.5 A	
V_{RGM}	Peak reverse gate voltage	5 V	
$P_{G(AV)}$	Mean forward gate power	2 W	
P_{GM}	Peak forward gate power	30 W	

Thermal

T_{jmax}	Max. operating junction temperature range	125 °C	
T_{stg}	Storage temperature range	-40…140 °C	
R_{thJC}	Thermal resistance junction to case	80 K/kW	Anode side cooled
		80 K/kW	Cathode side cooled
		40 K/kW	Double side cooled
R_{thCH}	Thermal resistance case to heat sink	20 K/kW	Single side cooled
		10 K/kW	Double side cooled

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