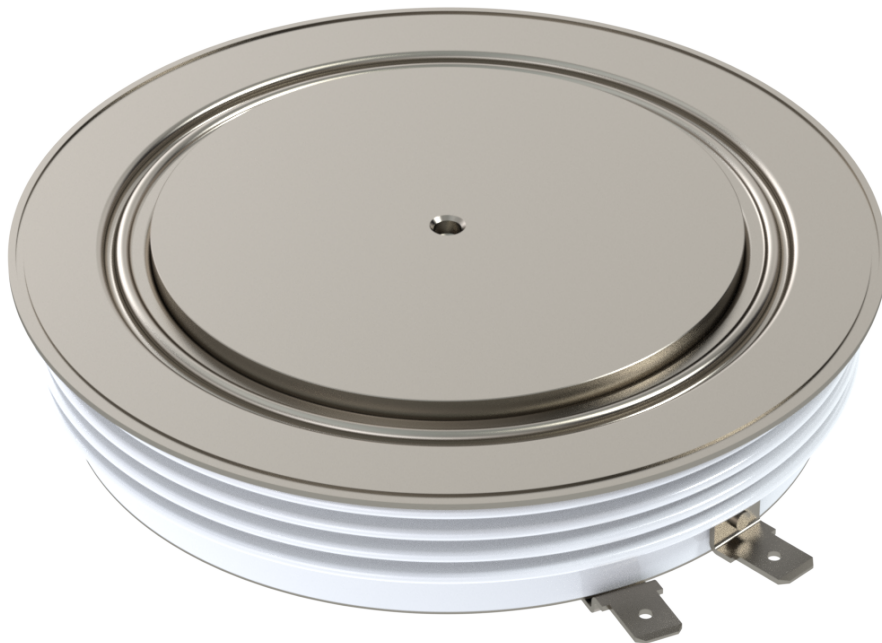


Anode Shorted Gate Turn-Off Thyristor Type SA25GS3000T0

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Date: June, 2020
Data Sheet Issue: 1



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SA	25	GS	3000	T	0	
-	Voltage Code	Outline Code	Current code	Type code	Special code	Optional code

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Absolute Maximum Ratings

VOLTAGE RATINGS		MAXIMUM LIMITS	UNITS
V_{DRM}	Repetitive peak off-state voltage, (note 1)	2500	V
V_{RSM}	Non-repetitive peak off-state voltage, (note 1)	2500	V
V_{RRM}	Repetitive peak reverse voltage	18	V
V_{RSM}	Non-repetitive peak reverse voltage	18	V
$V_{DC-link}$	Maximum continuous DC-link voltage	1250	V
note 1)	$V_{GK} = -2V$		

OTHER RATINGS		MAXIMUM LIMITS	UNITS
I_{TGQ}	Peak turn-off current (note 1)	3000	A
L_S	Snubber loop impedance, $I_{TM} = I_{TGQ}$ (note 1)	200	nH
$I_{T(AV)M}$	Mean on-state current, $T_{sink} = 55^{\circ}C$, (note 2)	1690	A
$I_{T(RMS)}$	Nominal RMS on-state current, $T_{sink} = 25^{\circ}C$ (note 2)	3460	A
I_{TSM}	Peak non-repetitive surge current $t_p = 10ms$ (note 3)	30	kA
I_{TSM2}	Peak non-repetitive surge current $t_p = 2ms$ (note 3)	40	kA
I^2t	I^2t capacity for fusing $t_p = 10ms$	$4.5 \cdot 10^6$	A^2s
$(di/dt)_{cr}$	Critical rate of rise of on-state current, (note 4)	500	$A/\mu s$
P_{FGM}	Peak forward gate power	200	W
P_{RGM}	Peak reverse gate power	21	kW
I_{FGM}	Peak forward gate current	100	A
V_{RGM}	Peak reverse gate voltage (note 5)	18	V
T_{jop}	Operating temperature range	-40 to +125	$^{\circ}C$
T_{stg}	Storage temperature range	-40 to +125	$^{\circ}C$
note 1)	$T_j = 125^{\circ}C$, $V_D = 1250V$, $V_{DM} \leq 2500V$, $di_{GQ}/dt = 40A/\mu s$, $I_{TGQ} = 3000A$ and $C_S = 5\mu F$		
note 2)	Double-side cooled, single phase, 50Hz, 180° half-sinewave.		
note 3)	$T_{j(initial)} = 125^{\circ}C$, single phase, 50Hz, 180° sinewave, re-applied voltage $V_D = V_R \leq 10V$		
note 4)	$I_T = 3000A$ repetitive, $I_{GM} = 30A$, $di_{GM}/dt = 40A/\mu s$. For $di/dt > 500A/\mu s$ please consult factory.		
note 5)	May exceed this value during turn-off avalanche period.		

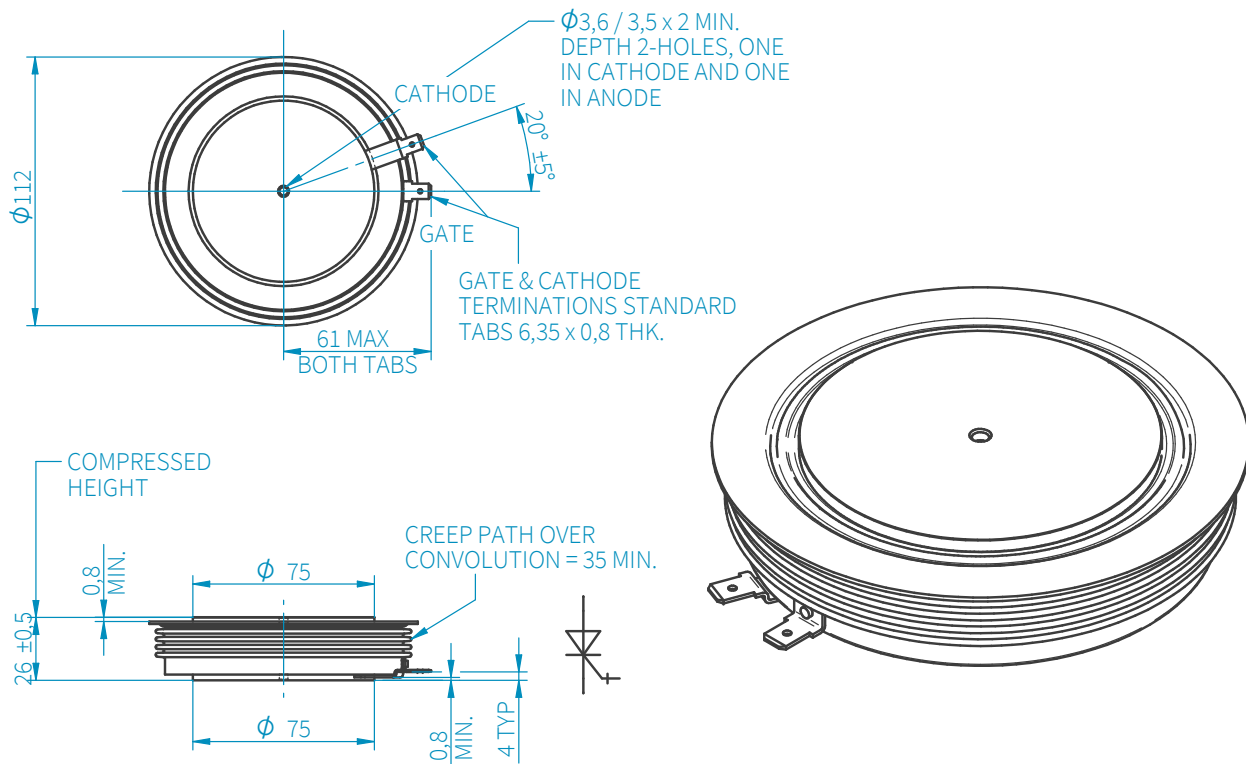
Characteristics

PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNITS	
V_{TM}	Maximum peak on-state voltage			2.5	V	
I_L	Latching current		40	-	A	
I_H	Holding current		40	-	A	
$(dv/dt)_{cr}$	Critical rate of rise of off-state voltage	1000	-	-	V/ μ s	
I_{DRM}	Peak off-state current			60	mA	
I_{RRM}	Peak reverse current			20	mA	
I_{GKM}	Peak negative gate leakage current			20	mA	
V_{GT}	Gate trigger voltage	$T_j = -40^\circ\text{C}, V_D = 25\text{V}, R_L = 25\text{m}\Omega$	-	1.0	-	V
		$T_j = 25^\circ\text{C}, V_D = 25\text{V}, R_L = 25\text{m}\Omega$	-	0.7	1.0	V
		$T_j = 125^\circ\text{C}, V_D = 25\text{V}, R_L = 25\text{m}\Omega$	-	0.5	-	V
I_{GT}	Gate trigger current	$T_j = -40^\circ\text{C}, V_D = 25\text{V}, R_L = 25\text{m}\Omega$	-	7.40	9.0	A
		$T_j = 25^\circ\text{C}, V_D = 25\text{V}, R_L = 25\text{m}\Omega$	-	2.75	4.0	A
		$T_j = 125^\circ\text{C}, V_D = 25\text{V}, R_L = 25\text{m}\Omega$	-	0.60	1.0	A
t_d	Delay time	$V_D = 1250\text{V}, I_{TGQ} = 3000\text{A},$	-	1.0	2.0	μ s
t_{gt}	Turn-on time	$di_T/dt = 300\text{A}/\mu\text{s}, I_{GM} = 40\text{A},$	-	3.5	5.0	μ s
E_{on}	Turn-on energy	$di_G/dt = 30\text{A}/\mu\text{s}, C_S = 5\mu\text{F}, R_S = 5\Omega$	-	0.4	-	J
t_f	Fall time		-	1.5	-	μ s
t_s	Storage time		-	20	25	μ s
t_{gq}	Turn-off time		-	26	30	μ s
I_{GQM}	Peak turn-off gate current	$V_{DM} = 2000\text{V}, di_{GQ}/dt = 40\text{A}/\mu\text{s},$ $I_{TGQ} = 3000\text{A}, V_{GR} = -16\text{V}, C_S = 5\mu\text{F}$	-	800	-	A
Q_{GQ}	Turn-off gate charge		-	12	-	mC
t_{tail}	Tail time		-	12	-	μ s
E_{off}	Turn-off energy		-	3.5	-	J
R_{thJK}	Thermal resistance, junction to sink	Double side cooled	-	12	-	K/kW
		Cathode side cooled	-	26	-	K/kW
		Anode side cooled	-	22	-	K/kW
F	Mounting force	(note 2)	30	-	44	kN
W_t	Weight		-	1500	-	g
note 1)	Unless otherwise indicated $T_j = 125^\circ\text{C}$					
note 2)	For other clamping forces, consult factory.					

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