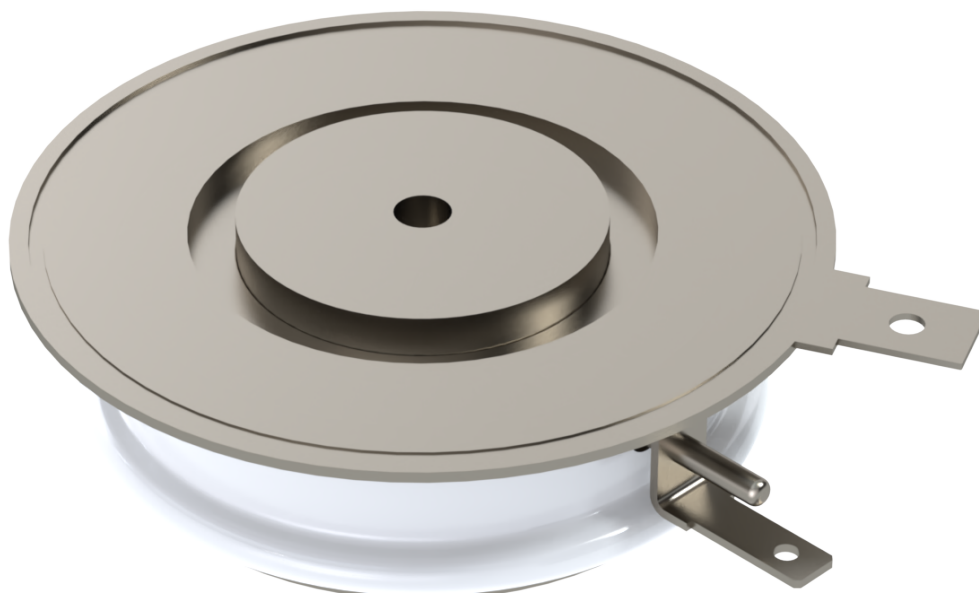


# Phase Control Thyristor Type SA14JA0495A0

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Date: October, 2020  
Data Sheet Issue: 1



## ORDERING INFORMATION

(Please quote 12 to 15 digit code as below)

SA	14	JA	0495	A	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)	1400	V
$V_{DSM}$	Non-repetitive peak off-state voltage, (note 1)	1500	V
$V_{DDC}$	Maximum DC of-state voltage, (note 1)	1050	V
$V_{RRM}$	Repetitive peak reverse voltage, (note 1)	1400	V
$V_{RSM}$	Non-repetitive peak reverse voltage, (note 1)	1500	V
$V_{RDC}$	Maximum DC reverse voltage, (note 1)	1050	V
note 1)	De-rating factor of 0.13%/°C is applicable for $T_j$ below 25°C		

OTHER RATINGS		MAXIMUM LIMITS	UNITS
$I_{T(AV)M}$	Maximum average on-state current, $T_{sink} = 55^\circ\text{C}$ , (note 1)	465	A
$I_{T(AV)M}$	Maximum average on-state current, $T_{sink} = 85^\circ\text{C}$ , (note 1)	315	A
$I_{T(AV)M}$	Maximum average on-state current, $T_{sink} = 85^\circ\text{C}$ , (note 2)	180	A
$I_{T(RMS)M}$	Nominal RMS on-state current, $T_{sink} = 25^\circ\text{C}$ (note 1)	920	A
$I_{T(d.c.)}$	D.C. on-state current, $T_{sink} = 25^\circ\text{C}$ , (note 3)	795	A
$I_{TSM}$	Peak non-repetitive surge current $t_p = 10\text{ms}$ , $V_{RM} = 60\%V_{RRM}$ , (note 4)	4.5	kA
$I_{TSM2}$	Peak non-repetitive surge current $t_p = 10\text{ms}$ , $V_{RM} \leq 10\text{V}$ , (note 4)	5.0	kA
$I^2t$	$I^2t$ capacity for fusing $t_p = 10\text{ms}$ , $V_{RM} = 60\%V_{RRM}$ , (note 4)	$101 \cdot 10^3$	$\text{A}^2\text{s}$
$I^2t$	$I^2t$ capacity for fusing $t_p = 10\text{ms}$ , $V_{RM} \leq 10\text{V}$ , (note 4)	$125 \cdot 10^3$	$\text{A}^2\text{s}$
$(di/dt)_{cr}$	Critical rate of rise of on-state current (continuous, 50Hz), (note 5)	125	$\text{A}/\mu\text{s}$
	Critical rate of rise of on-state current (non repetitive), (note 5)	250	$\text{A}/\mu\text{s}$
$V_{RGM}$	Peak reverse gate voltage	5	V
$P_{G(AV)}$	Mean forward gate power	3	W
$P_{GM}$	Peak forward gate power	30	W
$T_{jop}$	Operating temperature range	-60 to +125	°C
$T_{stg}$	Storage temperature range	-60 to +125	°C
note 1)	Double-side cooled, single phase, 50Hz, 180° half-sinewave.		
note 2)	Single-side cooled, single phase, 50Hz, 180° half-sinewave.		
note 3)	Double-side cooled		
note 4)	Half-sinewave, 125°C $T_j$ initial		
note 5)	$V_D = 67\%V_{DRM}$ , $I_{TM} = 800\text{A}$ , $I_{FG} = 2\text{A}$ , $t_R \leq 0.5\mu\text{s}$ , $T_{case} = 125^\circ\text{C}$		

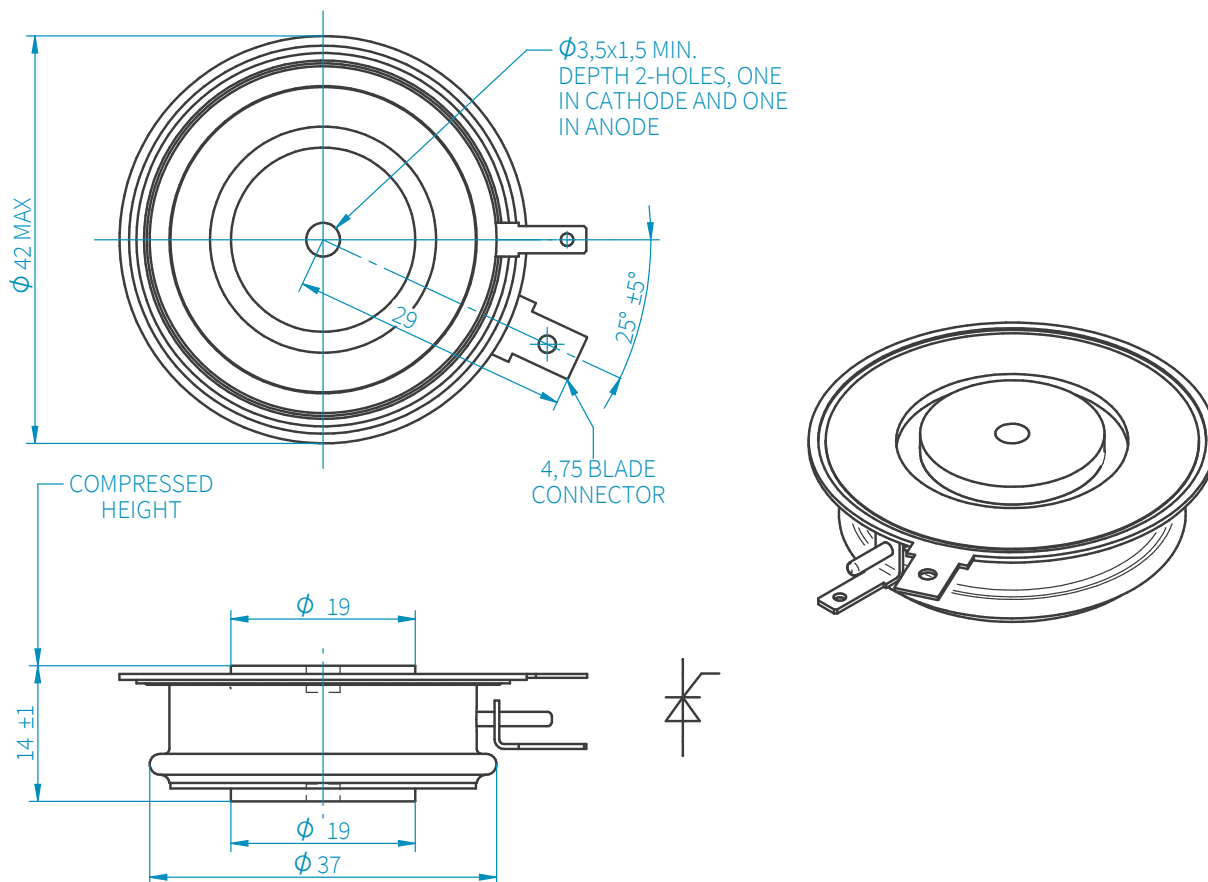
## Characteristics

PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNITS	
V <sub>TM</sub>	Maximum peak on-state voltage			1.30	V	
		I <sub>TM</sub> = 465A	-	-		
		I <sub>TM</sub> = 1400A	-	-	2.09 V	
V <sub>T0</sub>	Threshold voltage	-	-	0.90	V	
r <sub>T</sub>	Slope resistance	-	-	0.85	mΩ	
(dv/dt) <sub>CR</sub>	Critical rate of rise of off-state voltage	V <sub>D</sub> = 67%V <sub>DRM</sub> , linear ramp, gate o/c	1000	-	-	V/μs
I <sub>DRM</sub>	Peak off-state current	Rated V <sub>DRM</sub>	-	-	50	mA
I <sub>RRM</sub>	Peak reverse current	Rated V <sub>RRM</sub>	-	-	50	mA
V <sub>GT</sub>	Gate trigger voltage		-	-	2.5	V
I <sub>GT</sub>	Gate trigger current	T <sub>j</sub> = 25°C, V <sub>D</sub> = 10V, I <sub>T</sub> = 3A	-	-	250	mA
V <sub>GD</sub>	Gate non-trigger voltage	Rated V <sub>DRM</sub>	-	-	0.25	V
I <sub>H</sub>	Holding current	T <sub>j</sub> = 25°C	-	-	250	mA
t <sub>GD</sub>	Gate controlled turn-on delay time	V <sub>D</sub> = 67%V <sub>DRM</sub> , I <sub>TM</sub> = 450A, di/dt = 10A/μs, I <sub>FG</sub> = 2A, t <sub>r</sub> = 0.5μs, T <sub>j</sub> = 25°C	-	-	2.0	μs
Q <sub>RR</sub>	Recovered charge		-	700	800	μC
Q <sub>RA</sub>	Recovered charge, 50% Chord	I <sub>TM</sub> = 300A, t <sub>p</sub> = 500μs, di/dt = 10A/μs, V <sub>R</sub> = 100V	-	650	-	μC
I <sub>RR</sub>	Reverse recovery current		-	85	-	A
t <sub>RR</sub>	Reverse recovery time, 50% Chord		-	15	-	μs
t <sub>GQ</sub>	Turn-off time	I <sub>TM</sub> = 300A, t <sub>p</sub> = 500μs, di/dt = 10A/μs, V <sub>R</sub> = 100V, V <sub>DR</sub> = 67%V <sub>DRM</sub> , dV <sub>DR</sub> /dt = 20V/μs	-	-	120	μs
		I <sub>TM</sub> = 300A, t <sub>p</sub> = 500μs, di/dt = 10A/μs, V <sub>R</sub> = 100V, V <sub>DR</sub> = 67%V <sub>DRM</sub> , dV <sub>DR</sub> /dt = 200V/μs	-	-	150	μs
R <sub>thJK</sub>	Thermal resistance, junction to sink	Double-side cooled	-	-	0.080	K/W
		Anode-side cooled	-	-	0.174	K/W
		Cathode-side cooled	-	-	0.146	K/W
F	Mounting force	(note 2)	5	-	7	kN
W <sub>t</sub>	Weight		-	70	-	g
note 1)	Unless otherwise indicated T <sub>j</sub> = 125°C					
note 2)	For other clamp forces, please consult factory					

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## Outline Drawing



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