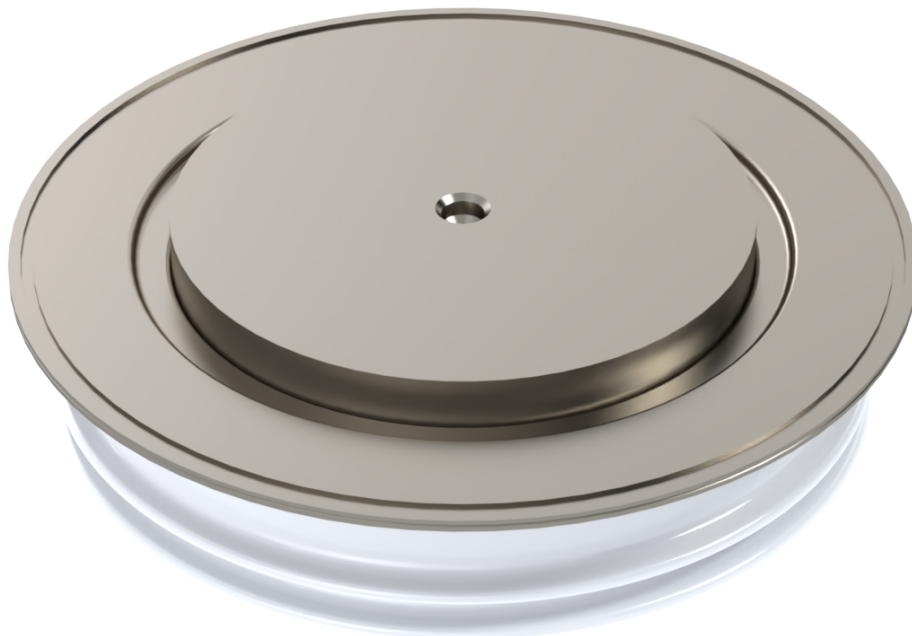


**Fast Recovery
Diode
Type SA42AQ1163Z0**

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Date: March, 2020
Data Sheet Issue: 1



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(Please quote 12 to 15 digit code as below)

SA	42	AQ	1163	Z	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_{RRM}	Repetitive peak reverse voltage, (note 1)	4200	V
V_{RSM}	Non-repetitive peak reverse voltage, (note 1)	4300	V
V_{RDC}	Maximum reverse D.C. Voltage, (note 1)	2040	V
note 1)	De-Rating factor of 0.13% per °C is applicable for T_j below 25°C		

OTHER RATINGS		MAXIMUM LIMITS	UNITS
$I_{F(AV)M}$	Maximum average forward current, $T_{sink} = 55^\circ\text{C}$, (note 1)	1163	A
$I_{F(AV)M}$	Maximum average forward current, $T_{sink} = 100^\circ\text{C}$, (note 1)	767	A
$I_{F(AV)M}$	Maximum average forward current, $T_{sink} = 100^\circ\text{C}$, (note 2)	473	A
$I_{F(RMS)}$	Nominal RMS forward current, $T_{sink} = 25^\circ\text{C}$ (note 1)	2165	A
$I_{f(d.c.)}$	D.C. forward current, $T_{sink} = 25^\circ\text{C}$ (note 3)	1912	A
I_{FSM}	Peak non-repetitive surge current $t_p = 10\text{ms}$, $V_{RM} = 60\%V_{RRM}$, (note 4)	10.8	kA
I_{FSM2}	Peak non-repetitive surge current $t_p = 10\text{ms}$, $V_{RM} \leq 10\text{V}$, (note 4)	11.9	kA
I^2t	I^2t capacity for fusing $t_p = 10\text{ms}$, $V_{RM} = 60\%V_{RRM}$, (note 4)	$583 \cdot 10^3$	A^2s
I^2t	I^2t capacity for fusing $t_p = 10\text{ms}$, $V_{RM} \leq 10\text{V}$, (note 4)	$708 \cdot 10^3$	A^2s
T_{jop}	Operating temperature range	-40 to +150	°C
T_{stg}	Storage temperature range	-40 to +150	°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, 150°C T_j initial.		

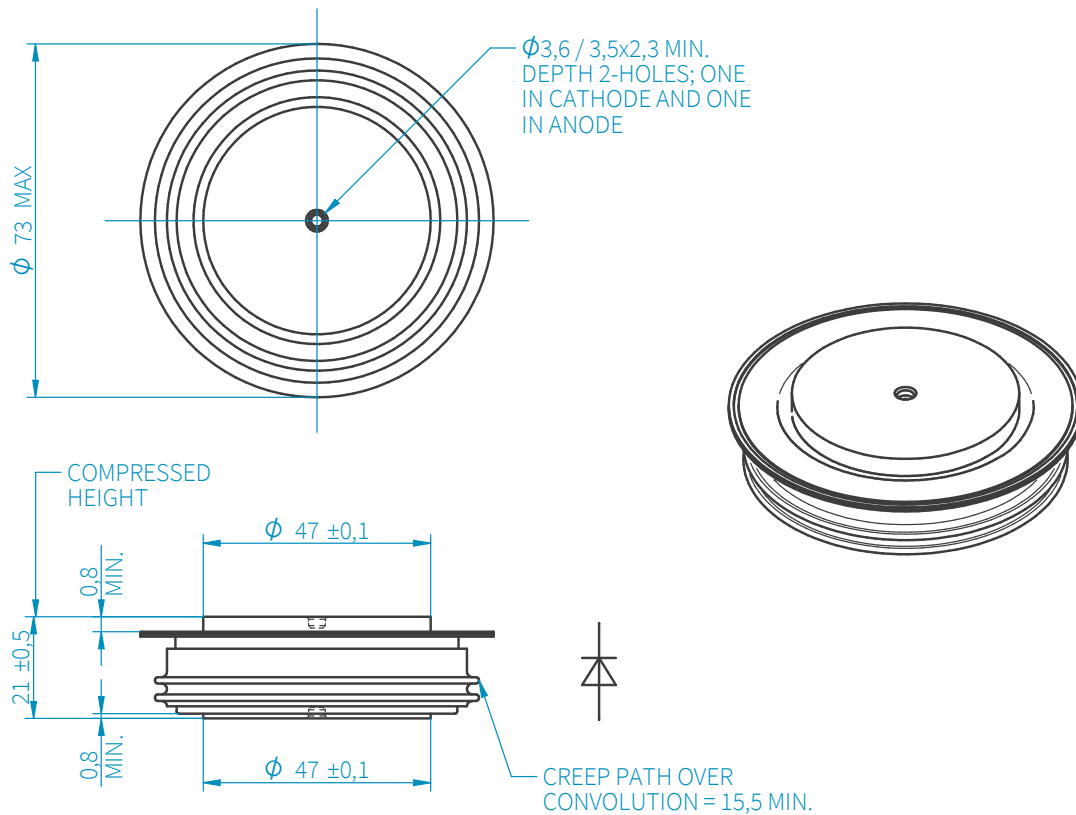
Characteristics

PARAMETER		TEST CONDITIONS	MIN	TYP	MAX	UNITS
V _{FM}	Maximum peak forward voltage	I _{FM} =1500A	-	-	2.65	V
		I _{FM} =2350A	-	-	3.20	V
V _{T0}	Threshold Voltage		-	-	1.50	V
r _T	Slope resistance		-	-	0.77	mΩ
V _{FRM}	Maximum forward recovery voltage	di/dt = 1000A/μs, T _j = 25°C	-	-	65	V
		di/dt = 1000A/μs	-	-	150	V
I _{RPM}	Peak reverse current	Rated V _{RPM}	-	-	150	mA
Q _{rr}	Recovered charge		-	1200	-	μC
Q _{ra}	Recovered charge, 50% Chord	I _{FM} = 1000A, t _p = 1000μs, di/dt = 60A/μs, V _R = 50V, 50% Chord.	-	700	800	μC
I _{rm}	Reverse recovery current		-	220	-	A
t _{rr}	Reverse recovery time, 50% Chord		-	6.4	-	μs
R _{thJK}	Thermal resistance, junction to heatsink	Double side cooled	-	-	0.022	K/W
		Single side cooled	-	-	0.044	K/W
F	Mounting force	note 2)	19	-	26	kN
note 1)	Unless otherwise indicated T _j = 150°C					
note 1)	Unless otherwise indicated T _j = 150°C					

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