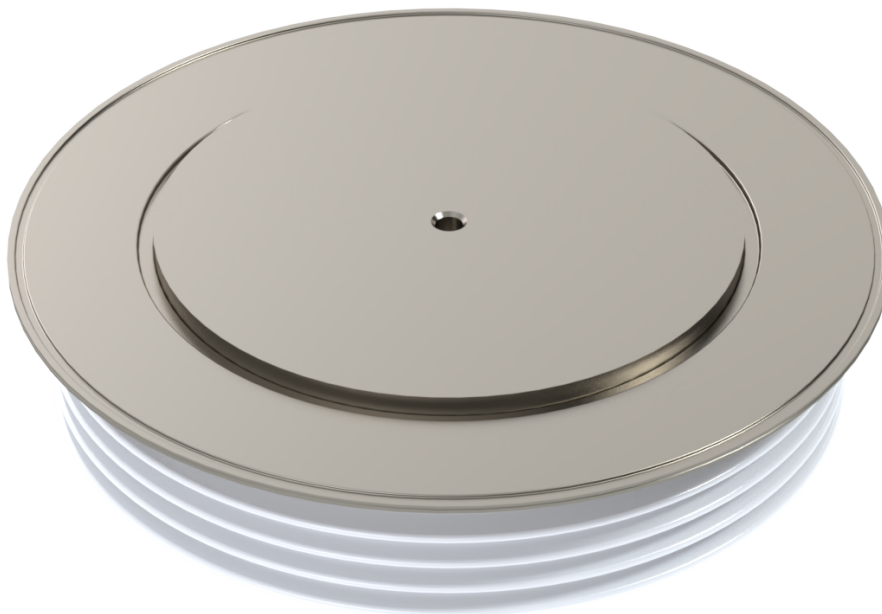


Fast Recovery Diode Type SA24MQ3770Z0

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Date: February, 2020
Data Sheet Issue: 1



ORDERING INFORMATION

(Please quote 12 to 15 digit code as below)

SA	24	MQ	3770	Z	0	
-	Voltage Code	MQ = standard capsule MI = rupture rated capsule	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)	2400	V
V_{RSM}	Non-repetitive peak reverse voltage, (note 1)	2500	V
V_{RDC}	Maximum reverse D.C. Voltage, (note 1)	1450	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)	3770	A
$I_{F(AV)M}$	Maximum average forward current, $T_{sink} = 100^\circ\text{C}$, (note 1)	2402	A
$I_{F(AV)M}$	Maximum average forward current, $T_{sink} = 100^\circ\text{C}$, (note 2)	1416	A
$I_{F(RMS)}$	Nominal RMS forward current, $T_{sink} = 25^\circ\text{C}$ (note 1)	7109	A
$I_{f(d.c.)}$	D.C. forward current, $T_{sink} = 25^\circ\text{C}$ (note 3)	5991	A
I_{FSM}	Peak non-repetitive surge current $t_p = 10\text{ms}$, $V_{RM} = 60\%V_{RRM}$, (note 4)	44.0	kA
I_{FSM2}	Peak non-repetitive surge current $t_p = 10\text{ms}$, $V_{RM} \leq 10\text{V}$, (note 4)	48.4	kA
I^2t	I^2t capacity for fusing $t_p = 10\text{ms}$, $V_{RM} = 60\%V_{RRM}$, (note 4)	$9.68 \cdot 10^6$	A^2s
I^2t	I^2t capacity for fusing $t_p = 10\text{ms}$, $V_{RM} \leq 10\text{V}$, (note 4)	$11.7 \cdot 10^6$	A^2s
T_{jop}	Operating temperature range	-40 to +150	°C
T_{stg}	Storage temperature range	-55 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.		

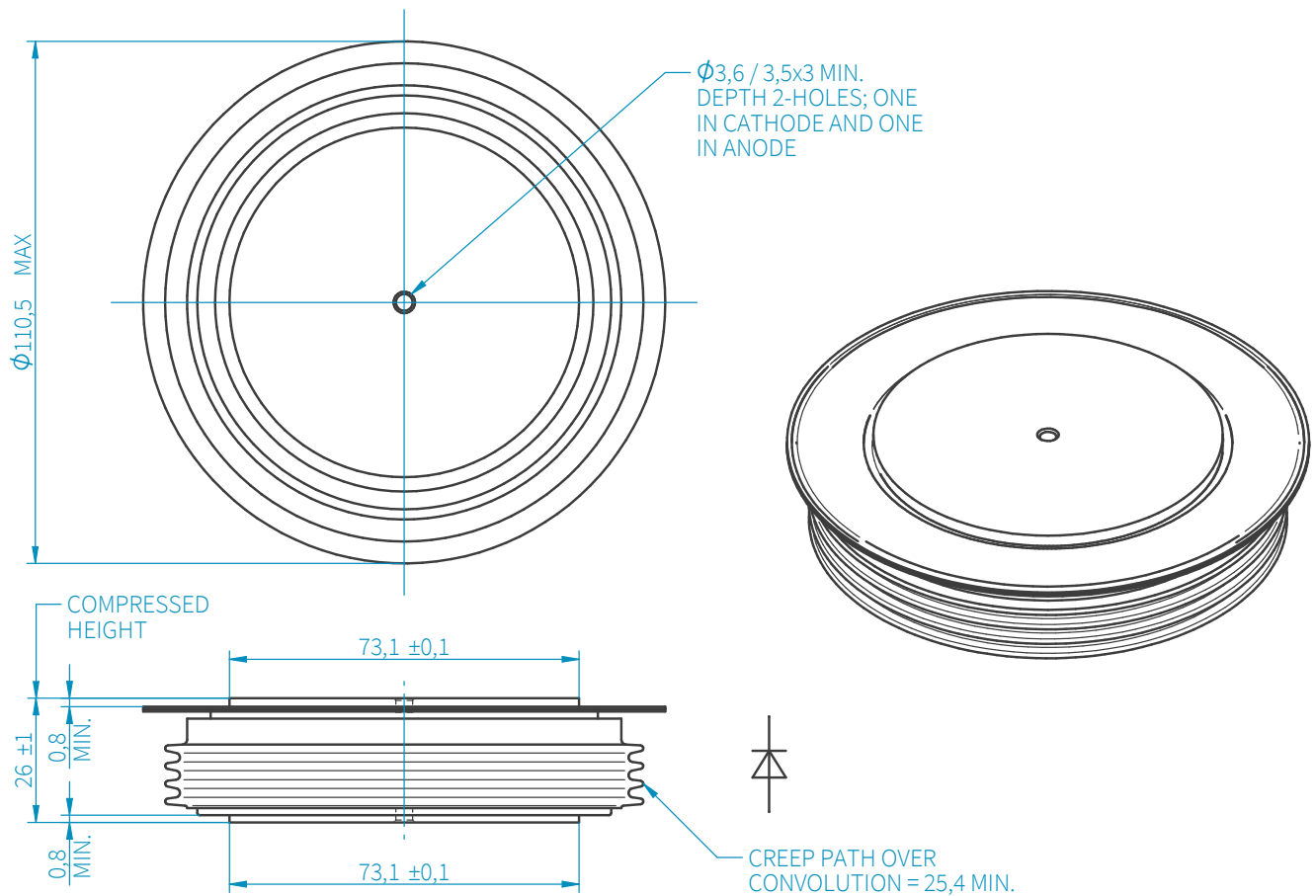
Characteristics

PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNITS	
V _{FM}	Maximum peak forward voltage			1.74	V	
		I _{FM} =4700A	-	-		
		I _{FM} =7500A	-	-	2.05 V	
V _{T0}	Threshold Voltage	-	-	1.190	V	
r _T	Slope resistance	-	-	0.118	mΩ	
V _{FRM}	Maximum forward recovery voltage	di/dt = 1000A/μs, T _j = 25°C	-	-	18	V
		di/dt = 1000A/μs	-	-	24	V
I _{RRM}	Peak reverse current			150	mA	
		Rated V _{RRM}	-	-		
Q _{rr}	Recovered charge		2000	-	μC	
Q _{ra}	Recovered charge, 50% Chord	I _{FM} = 1000A, t _p = 1000μs, di/dt = 60A/μs, V _R = 50V, 50% Chord.	-	1100	330	μC
I _{rm}	Reverse recovery current		-	320	-	A
t _{rr}	Reverse recovery time, 50% Chord		-	7	-	μs
R _{thJK}	Thermal resistance, junction to heatsink	Double side cooled	-	-	0.011	K/W
		Single side cooled	-	-	0.022	K/W
F	Mounting force	note 2)	27	-	47	kN
W _t	Weight		-	1700	-	g
note 1)	Unless otherwise indicated T _j = 150°C					
note 2)	For other clamp forces consult factory					

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SANCONA GmbH

An der Hebemärchte 26
D-04316 Leipzig

// ☎ +49 341 652355-0
 // 📠 +49 341 652355-99
 // ✉ info@sancona.com
 // 🌐 www.sancona.com

// Registry Court: Leipzig HRB 32946
 VAT Reg No.: DE308741810
 Tax number: 232/118/085686

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