Extra Fast Recovery Diode
Type SA18JP0300S0

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Date: February, 2020
Data Sheet Issue: 1

ORDERING INFORMATION					(Please quote 12 to 15 digit code as below)	
SA	18	JP	0300	S	0	
-	Voltage Code	Outline Code	Current code	Type code	Special code	Optional code

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Absolute Maximum Ratings

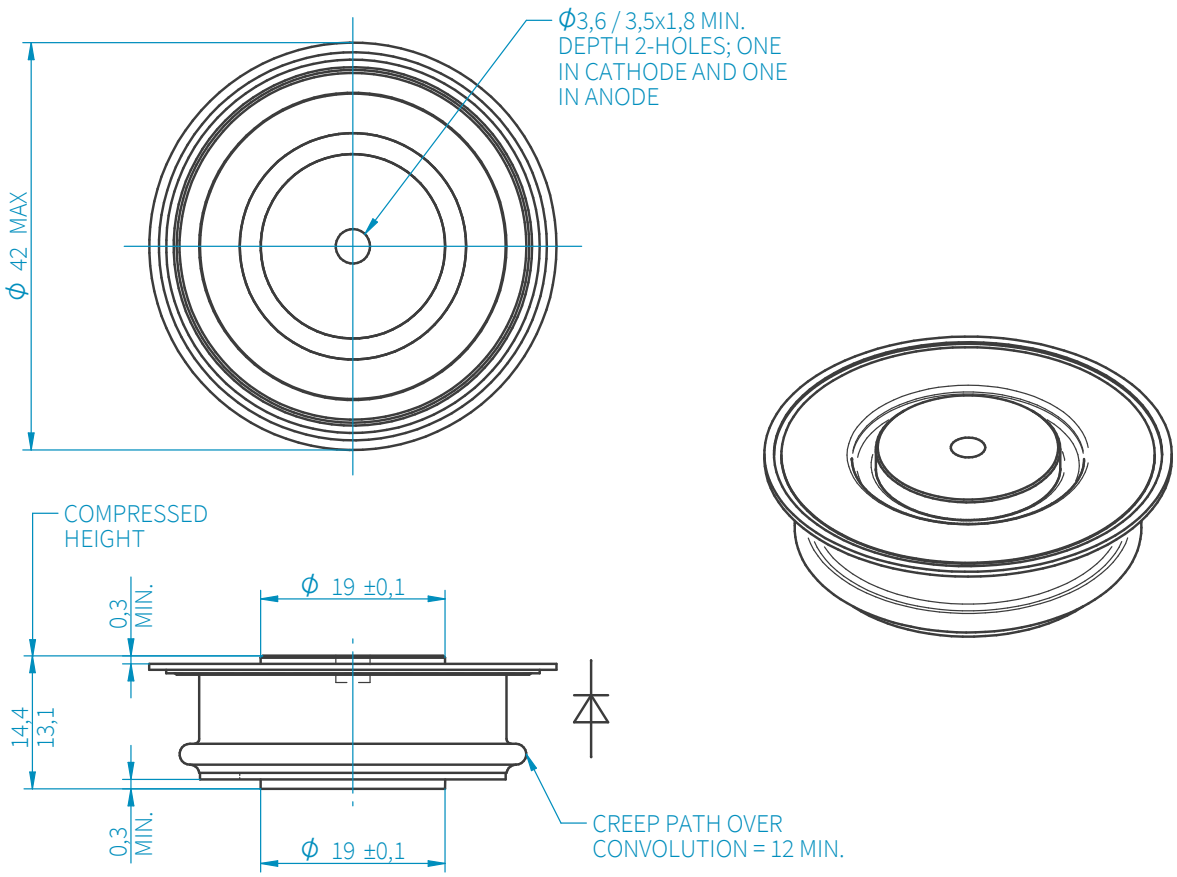
	VOLTAGE RATINGS	MAXIMUM LIMITS	UNITS
V_{RRM}	Repetitive peak reverse voltage, (note 1)	1800	V
V_{RSM}	Non-repetitive peak reverse voltage, (note 1)	1900	V
V_{RDC}	Maximum reverse D.C. Voltage, (note 1)	1150	V
note 1)	De-Rating factor of 0.13% per °C is applicable for T_j below 25°C		

	OTHER RATINGS	MAXIMUM LIMITS	UNITS
$I_{F(AV)M}$	Maximum average forward current, T_{sink} = 55°C, (note 1)	240	A
$I_{F(AV)M}$	Maximum average forward current, T_{sink} = 85°C, (note 1)	160	A
$I_{F(AV)M}$	Maximum average forward current, T_{sink} = 85°C, (note 2)	93	A
$I_{F(RMS)}$	Nominal RMS forward current, T_{sink} = 25°C (note 1)	481	A
$I_{f(d.c.)}$	D.C. forward current, T_{sink} = 25°C (note 3)	399	A
I_{FSM}	Peak non-repetitive surge current t_p = 10ms, V_{RM} = 60%V_{RRM}, (note 4)	2.7	kA
I_{FSM2}	Peak non-repetitive surge current t_p = 10ms, $V_{RM} \leq$ 10V, (note 4)	3.0	kA
I^2t	I^2t capacity for fusing t_p = 10ms, V_{RM} = 60%V_{RRM}, (note 4)	$36.5 \cdot 10^3$	A^2s
I^2t	I^2t capacity for fusing t_p = 10ms, $V_{RM} \leq$ 10V, (note 4)	$45.0 \cdot 10^3$	A^2s
T_{jop}	Operating temperature range	-40 to +125	°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, 125°C T_j initial.		
note 5)	Current (I_F) ratings have been calculated using V_{T0} and r_T (see page 3)		

Characteristics

	PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNITS
V_{FM}	Maximum peak forward voltage	I_{FM}=300A	-	-	2.45	V
		I_{FM}=600A	-	-	3.1	V
V_{T0}	Threshold Voltage	Current range 240-720A (note 2)	-	-	1.76	V
r_T	Slope resistance		-	-	2.21	mΩ
V_{T01}	Threshold Voltage	Current range 300-900A	-	-	1.841	V
r_{T1}	Slope resistance		-	-	2.044	mΩ
V_{FRM}	Maximum forward recovery voltage	di/dt = 1000A/µs	-	-	40	V
		di/dt = 1000A/µs, T_j = 25°C	-	-	80	V
I_{RRM}	Peak reverse current	Rated V_{RRM}	-	-	100	mA
		Rated V_{RRM}, T_j = 25°C	-	-	100	mA
Q_{ra}	Recovered charge, 50% Chord	I_{FM} = 300A, t_p = 500µs, di/dt = 2000A/µs, V_R = 400V, 50% Chord. (note 3)	-	75	-	µC
t_{rr}	Reverse recovery time, 50% Chord		-	0.3	-	µs
I_{rm}	Reverse recovery current		-	530	-	A
Q_{ra}	Recovered charge, 50% Chord	I_{FM} = 550A, t_p = 500µs, di/dt = 40A/µs, V_R = 50V, 50% Chord.	-	5	8	µC
t_{rr}	Reverse recovery time, 50% Chord		-	15	-	µs
I_{rm}	Reverse recovery current		-	0.7	-	A
R_{thJK}	Thermal resistance, junction to heatsink	Double side cooled	-	-	0.095	K/W
		Single side cooled	-	-	0.19	K/W
F	Mounting force	note 4)	3.3	-	5.5	kN
W_t	Weight		-	70	-	g
note 1)	Unless otherwise indicated T_j = 125°C					
note 2)	V_{T0} and r_T were used to calculate the current ratings illustrated on page 2.					
note 3)	Figures 4-7 were compiled using these conditions					
note 4)	For other clamp forces consult factory					

Outline Drawing



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