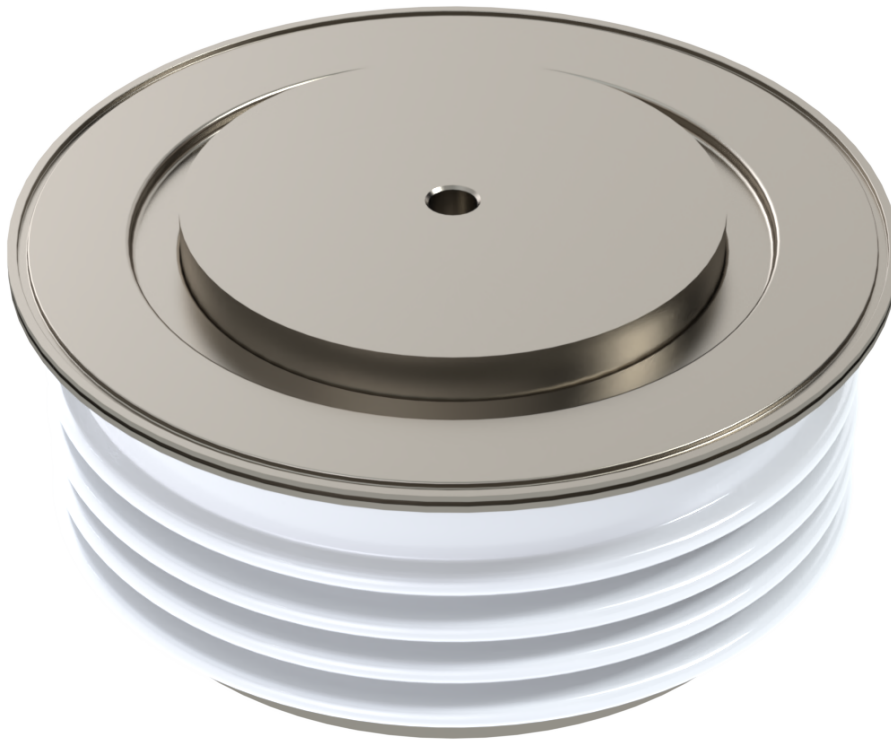


**Extra Fast Recovery
Diode
Type SA12YP1000S0**

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Data Sheet Issue: 1



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SA	12	YP	1000	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)	1200	V
V_{RSM}	Non-repetitive peak reverse voltage, (note 1)	1300	V
V_{RDC}	Maximum reverse D.C. Voltage, (note 1)	600	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)	826	A
$I_{F(AV)M}$	Maximum average forward current, $T_{sink} = 85^\circ\text{C}$, (note 1)	549	A
$I_{F(AV)M}$	Maximum average forward current, $T_{sink} = 85^\circ\text{C}$, (note 2)	318	A
$I_{F(RMS)}$	Nominal RMS forward current, $T_{sink} = 25^\circ\text{C}$ (note 1)	1659	A
$I_{f(d.c.)}$	D.C. forward current, $T_{sink} = 25^\circ\text{C}$ (note 3)	1371	A
I_{FSM}	Peak non-repetitive surge current $t_p = 10\text{ms}$, $V_{RM} = 60\%V_{RRM}$, (note 4)	8.5	kA
I_{FSM2}	Peak non-repetitive surge current $t_p = 10\text{ms}$, $V_{RM} \leq 10\text{V}$, (note 4)	9.2	kA
I^2t	I^2t capacity for fusing $t_p = 10\text{ms}$, $V_{RM} = 60\%V_{RRM}$, (note 4)	$361 \cdot 10^3$	A^2s
I^2t	I^2t capacity for fusing $t_p = 10\text{ms}$, $V_{RM} \leq 10\text{V}$, (note 4)	$423 \cdot 10^3$	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)		

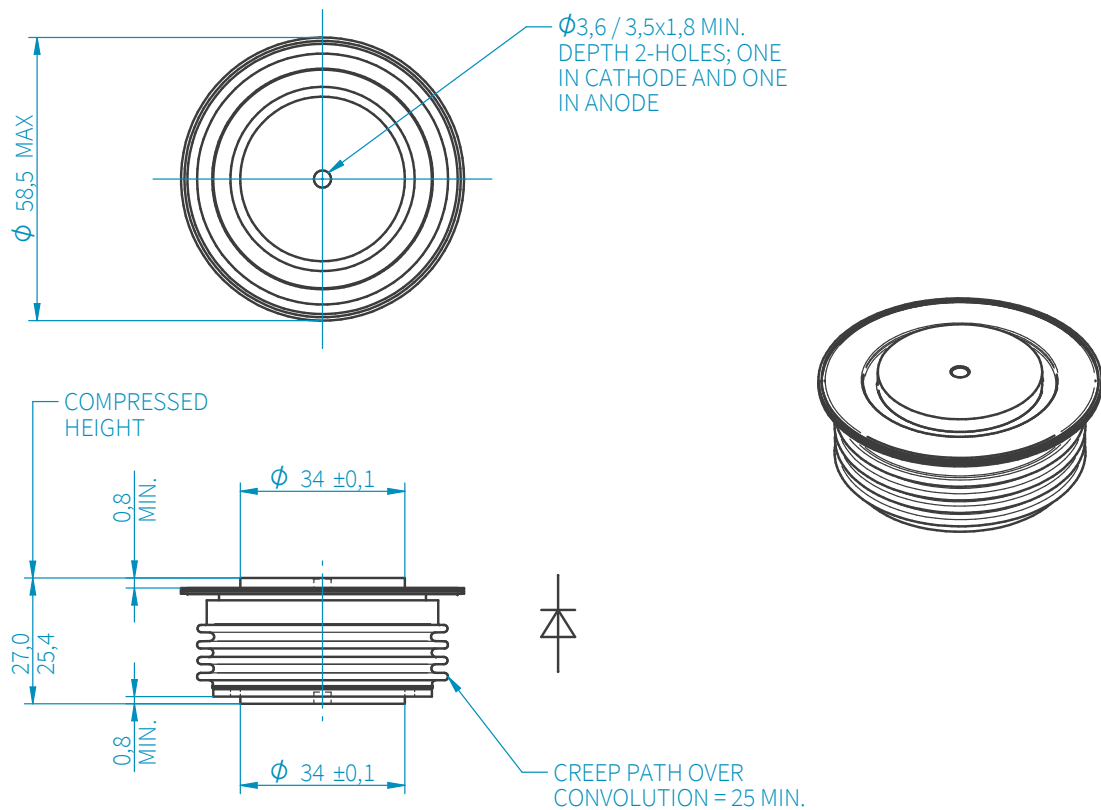
Characteristics

	PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNITS
V _{FM}	Maximum peak forward voltage	I _{FM} =500A	-	-	1.72	V
		I _{FM} =1000A	-	-	2.1	V
V _{T0}	Threshold Voltage	Current range 826-2478A (note 2)	-	-	1.35	V
r _T	Slope resistance		-	-	0.547	mΩ
V _{T01}	Threshold Voltage	Current range 1000-3000A (note 2)	-	-	1.589	V
r _{T1}	Slope resistance		-	-	0.511	mΩ
V _{FRM}	Maximum forward recovery voltage	di/dt = 1000A/μs	-	-	40	V
		di/dt = 1000A/μs, T _j = 25°C	-	-	65	V
I _{RRM}	Peak reverse current	Rated V _{RRM}	-	-	150	mA
		Rated V _{RRM} , T _j = 25°C	-	-	30	mA
Q _{rr}	Recovered charge	I _{FM} = 1000A, t _p = 500μs, di/dt = 800A/μs, V _R = 800V, 50% Chord.	-	250	-	μC
t _{rr}	Reverse recovery time, 50% Chord		-	1.6	-	μs
I _{rm}	Reverse recovery current		-	320	-	A
Q _{rr}	Recovered charge	I _{FM} = 1000A, t _p = 1000μs, di/dt = 60A/μs, V _R = 50V, 50% Chord.	-	15	25	μC
t _{rr}	Reverse recovery time, 50% Chord		-	1.0	-	μs
I _{rm}	Reverse recovery current		-	30	-	A
R _{thJK}	Thermal resistance, junction to sink	Double side cooled	-	-	0.032	K/W
		Single side cooled	-	-	0.064	K/W
F	Mounting force	note 4)	10	-	20	kN
W _t	Weight		-	340	-	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					

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