Extra Fast Recovery Diode
Type SA45AP1300S0

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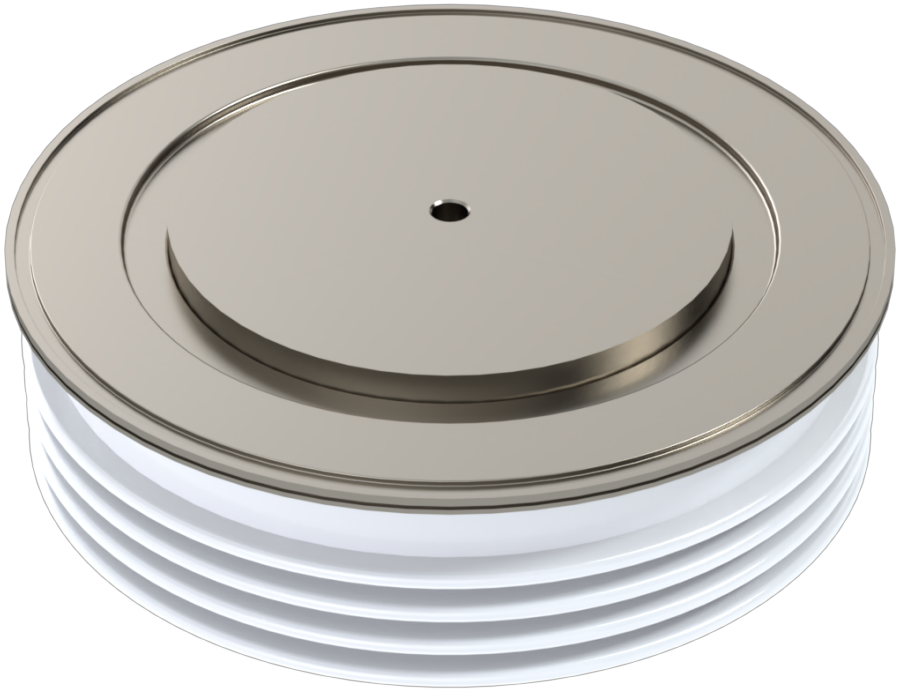

ORDERING INFORMATION				(Please quote 12 to 15 digit code as below)		
SA	45	AP	1300	S	0	
-	Voltage Code	Outline Code	Current code	Type code	Special code	Optional code

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Absolute Maximum Ratings

	VOLTAGE RATINGS	MAXIMUM LIMITS	UNITS
V_{RRM}	Repetitive peak reverse voltage, (note 1)	4500	V
V_{RSM}	Non-repetitive peak reverse voltage, (note 1)	4600	V
V_{RDC}	Maximum reverse D.C. Voltage, (note 1)	2300	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)	1346	A
$I_{F(AV)M}$	Maximum average forward current, T_{sink} = 100°C, (note 1)	767	A
$I_{F(AV)M}$	Maximum average forward current, T_{sink} = 100°C, (note 2)	435	A
$I_{F(RMS)}$	Nominal RMS forward current, T_{sink} = 25°C (note 1)	2615	A
$I_{f(d.c.)}$	D.C. forward current, T_{sink} = 25°C (note 3)	2130	A
I_{FSM}	Peak non-repetitive surge current t_p = 10ms, V_{RM} = 60%V_{RRM}, (note 4)	20.8	kA
I_{FSM2}	Peak non-repetitive surge current t_p = 10ms, $V_{RM} \leq$ 10V, (note 4)	22.9	kA
I^2t	I^2t capacity for fusing t_p = 10ms, V_{RM} = 60%V_{RRM}, (note 4)	$2.16 \cdot 10^6$	A^2s
I^2t	I^2t capacity for fusing t_p = 10ms, $V_{RM} \leq$ 10V, (note 4)	$2.62 \cdot 10^6$	A^2s
T_{jop}	Operating temperature range	-40 to +140	°C
T_{stg}	Storage temperature range	-40 to +140	°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, 140°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}=800A	-	-	1.75	V
		I_{FM}=1200A	-	-	1.95	V
V_{T0}	Threshold Voltage	Current range 1346-4038A (note 2)	-	-	1.569	V
r_T	Slope resistance		-	-	0.318	mΩ
V_{T01}	Threshold Voltage	Current range 1200-3600A (note 2)	-	-	1.539	V
r_{T1}	Slope resistance		-	-	0.332	mΩ
V_{FRM}	Maximum forward recovery voltage	di/dt = 1000A/µs, T_j = 25°C	-	-	120	V
		di/dt = 1000A/µs	-	-	230	V
I_{RRM}	Peak reverse current	Rated V_{RRM}	-	-	40	mA
		Rated V_{RRM}, T_j = 25°C	-	-	10	mA
Q_{rr}	Recovered charge	I_{FM} = 1000A, t_p = 1000µs, di/dt = 200A/µs, V_R = 100V, 50% Chord. (note 3)	-	2150	-	µC
Q_{ra}	Recovered charge, 50% Chord		-	1010	1300	µC
I_{rm}	Reverse recovery current		-	470	-	A
t_{rr}	Reverse recovery time, 50% Chord		-	4.3	-	µs
Q_{rr}	Recovered charge	I_{FM} = 1200A, t_p = 1000µs, di/dt = 200A/µs, V_R = 1500V, with 4.5Ω, 1µF snubber (note 3)	-	4680	-	µC
Q_{ra}	Recovered charge, 50% Chord		-	3680	4100	µC
I_{rm}	Reverse recovery current		-	560	-	A
t_{rr}	Reverse recovery time, 50% Chord		-	15	-	µs
R_{thJK}	Thermal resistance, junction to heatsink (note 4)	Double side cooled	-	-	0.024	K/W
		Single side cooled	-	-	0.048	K/W
F	Mounting force	note 4)	19	-	26	kN
W_t	Weight		-	510	-	g

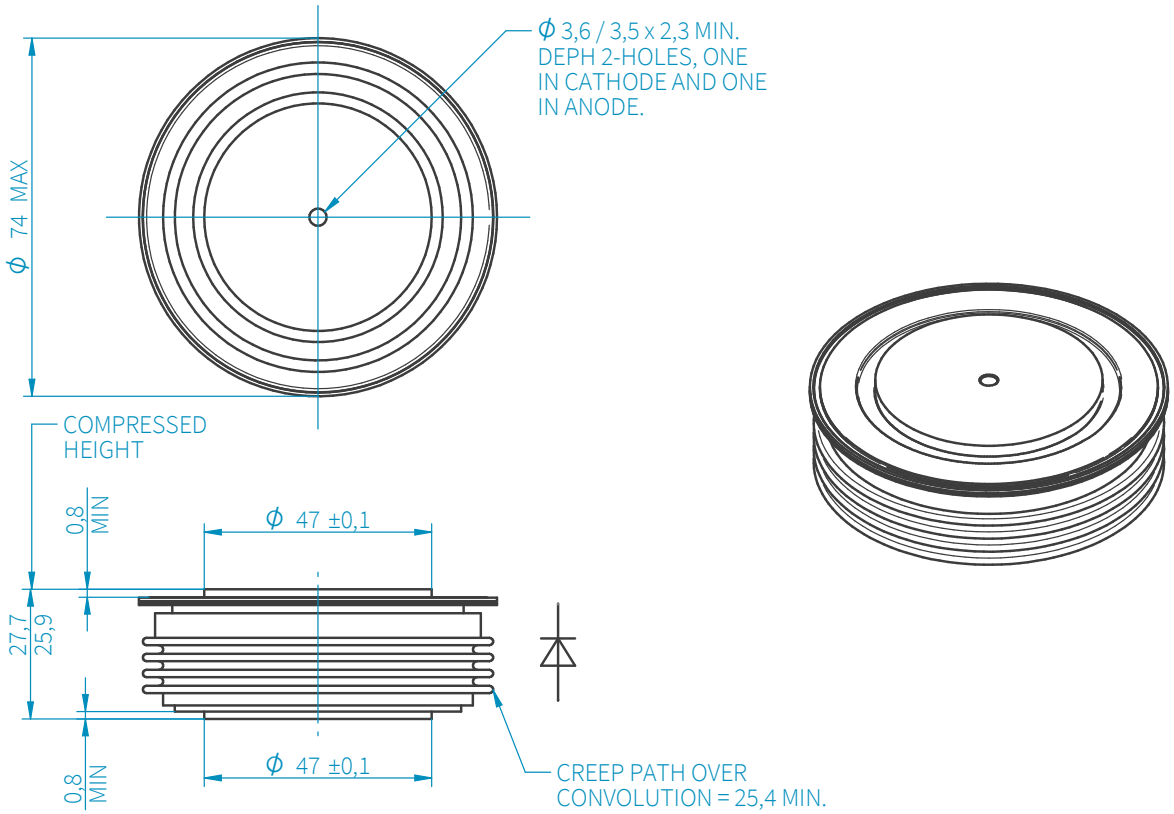
note 1) Unless otherwise indicated T_j = 140°C

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 clamp forces outside these limits, consult factory.

Outline Drawing



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