

High Power Sonic Fast Recovery Diode Type SA65US0770RF

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SA	65	RF	0770	R	F	
-	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)	6500	V
V_{RSM}	Non-repetitive peak reverse voltage, (note 1)	6600	V
V_{RDC}	Maximum reverse D.C. Voltage, (note 1)	3600	V
note 1)	De-Rating factor of 0.13% per °C is applicable for T_j below 25°C		

OTHER RATINGS		MAXIMUM LIMITS	UNITS
$I_{F(AV)M}$	Mean forward current, $T_{sink} = 55^\circ\text{C}$, (note 1)	617	A
$I_{F(AV)M}$	Mean average forward current, $T_{sink} = 100^\circ\text{C}$, (note 1)	302	A
$I_{F(AV)M}$	Mean average forward current, $T_{sink} = 100^\circ\text{C}$, (note 2)	124	A
$I_{F(AV)M}$	Mean average forward current, $T_{sink} = 100^\circ\text{C}$, (note 3)	225	A
$I_{F(RMS)}$	Nominal RMS forward current, $T_{sink} = 25^\circ\text{C}$ (note 1)	776	A
$I_{f(d.c.)}$	D.C. forward current, $T_{sink} = 25^\circ\text{C}$ (note 4)	1054	A
I_{FSM}	Peak non-repetitive surge current $t_p = 10\text{ms}$, $V_{RM} = 60\%V_{RRM}$, (note 5)	6.97	kA
I_{FSM2}	Peak non-repetitive surge current $t_p = 10\text{ms}$, $V_{RM} \leq 10\text{V}$, (note 5)	7.67	kA
I^2t	I^2t capacity for fusing $t_p = 10\text{ms}$, $V_{RM} = 60\%V_{RRM}$, (note 5)	$243 \cdot 10^3$	A^2s
I^2t	I^2t capacity for fusing $t_p = 10\text{ms}$, $V_{RM} \leq 10\text{V}$, (note 5)	$294 \cdot 10^3$	A^2s
P_{rr}	Maximum non-repetitive peak reverse recovery power, (note 7)	3.6	MW
T_{jop}	Operating temperature range	-40 to +125	°C
T_{stg}	Storage temperature range	-40 to +125	°C
note 1)	Double-side cooled, single phase, 50Hz, 180° half-sinewave.		
note 2)	Anode side cooled, single phase, 50Hz, 180° half-sinewave.		
note 3)	Cathode side cooled, single phase, 50Hz, 180° half-sinewave.		
note 4)	Double-side cooled.		
note 5)	Half-sinewave, 125°C T_j initial.		
note 6)	Current (I_F) ratings have been calculated using V_{T0} and r_T (see page 3)		
note 7)	$T_j = T_{jop}$, $I_F = 770\text{A}$, $di/dt = 2000\text{A}/\mu\text{s}$, $V_r = 3600\text{V}$, and $L_s = 200\text{nH}$. Test circuit and sample waveform are shown in diagram 1. IGBT type SA65QS0770GE used as switch.		

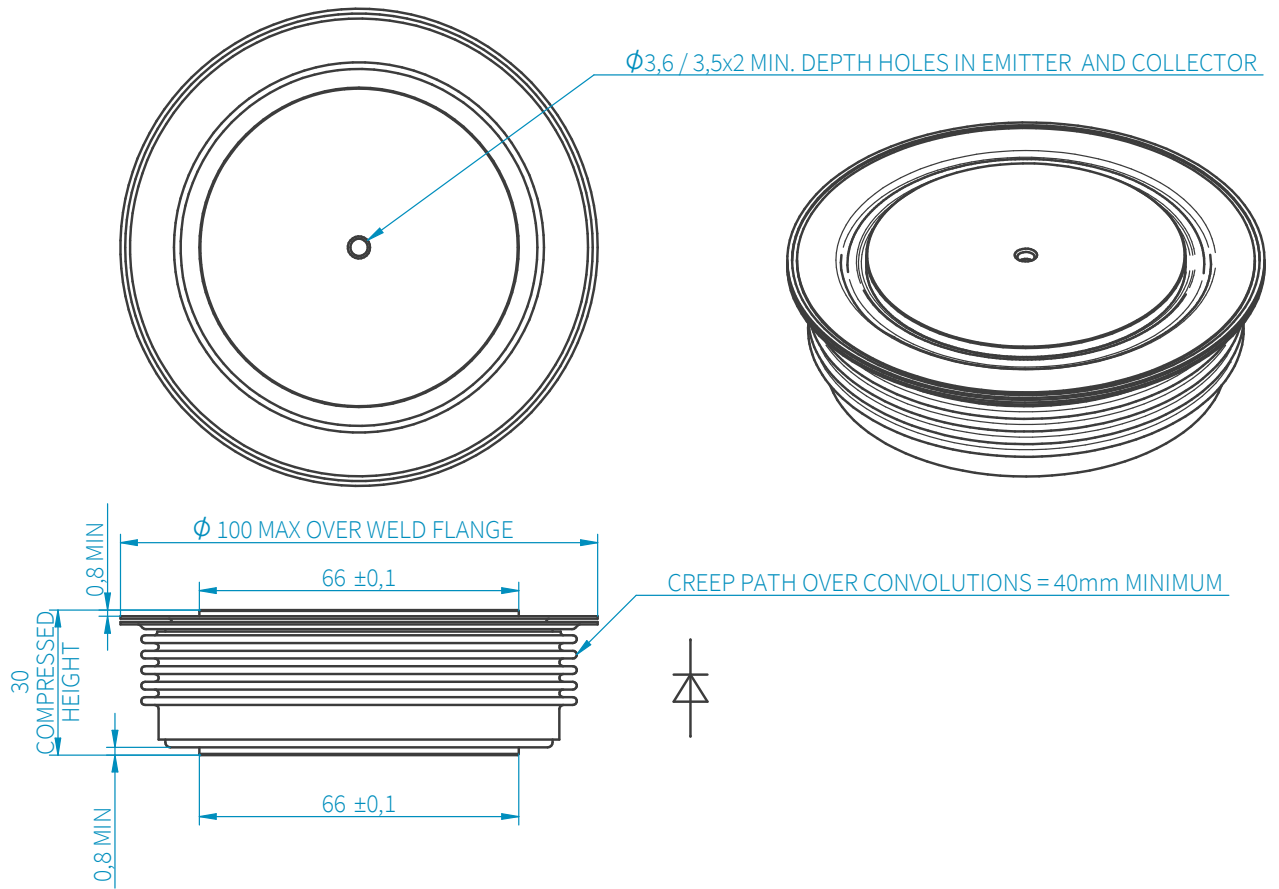
Characteristics

PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNITS
V _{FM}	Maximum peak forward voltage				
	I _{FM} =770A	-	4.15	4.43	V
	I _{FM} =1540A	-	-	6.02	V
V _{T0}	Threshold Voltage				
r _T	Slope resistance				
	Current range 617A - 1851A (note 2)	-	-	2.777	V
V _{T01}	Threshold Voltage				
r _{T1}	Slope resistance				
	Current range 770A - 2310A	-	-	3.031	V
V _{FRM}	Maximum forward recovery voltage				
	di/dt = 4000A/μs	-	-	845	V
	di/dt = 4000A/μs, T _j = 25°C	-	-	520	V
I _{RRM}	Peak reverse current				
	Rated V _{RRM}	-	-	25	mA
	Rated V _{RRM} , T _j = 25°C	-	-	2	mA
Q _{rr}	Recovered charge				
		-	735	850	μC
Q _{ra}	Recovered charge, 50% Chord				
I _{rm}	Reverse recovery current				
	I _{FM} = 770A, t _p = 1ms, di/dt = 2000A/μs, V _R = 3600V, 50% Chord. (note 3)	-	264	-	μC
t _{rr}	Reverse recovery time, 50% Chord				
		-	600	700	A
E _{rr}	Reverse recovery loss				
		-	0.88	-	μs
		-	1.34	1.6	J
R _{thJK}	Thermal resistance, junction to heatsink				
	Double side cooled	-	-	0.0193	K/W
	Anode side cooled	-	-	0.0595	K/W
	Cathode side cooled	-	-	0.0285	K/W
F	Mounting force				
	note 4)	15	-	20	kN
W _t	Weight				
		-	0.83	-	Kg
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 3-7 were compiled using these conditions. Test circuit and sample waveform are shown in diagram 1.				
note 4)	For other clamp forces consult factory				

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