Low switching losses
Low reverse recovery charge
High power cycling capability

Fast Recovery Diode
Type DF973-1600-46

Average forward current	I_{FAV}	1600 A
Repetitive peak reverse voltage	V_{RRM}	4600 V
Reverse recovery time	t_{rr}	5.0 μs

V_{RRM}	4600
Voltage code	
T_j, °C	– 60 ÷ 150

MAXIMUM ALLOWABLE RATINGS

Symbols and parameters		Units	Values	Test conditions	
ON-STATE					
I_{FAV}	Average forward current	A	1600 2245	T_c=94 °C; Double side cooled; T_c=55 °C; Double side cooled; 180° half-sine wave; 50 Hz	
I_{FRMS}	RMS forward current	A	2512	T_c=94 °C; Double side cooled; 180° half-sine wave; 50 Hz	
I_{FSM}	Surge forward current	kA	26.0 30.0	T_j=$T_{j\,max}$ T_j=25 °C	180° half-sine wave; 50 Hz (t_p=10 ms); single pulse; V_R=0 V
			28.0 32.0	T_j=$T_{j\,max}$ T_j=25 °C	180° half-sine wave; 60 Hz (t_p=8.3 ms); single pulse; V_R=0 V
I^2t	Safety factor	$A^2s\cdot10^3$	3380 4500	T_j=$T_{j\,max}$ T_j=25 °C	180° half-sine wave; 50 Hz (t_p=10 ms); single pulse; V_R=0 V
			3250 4245	T_j=$T_{j\,max}$ T_j=25 °C	180° half-sine wave; 60 Hz (t_p=8.3 ms); single pulse; V_R=0 V
BLOCKING					
V_{RRM}	Repetitive peak reverse voltage	V	4600	$T_{j\,min}$< T_j <$T_{j\,max}$; 180° half-sine wave; 50 Hz;	
V_{RSM}	Non-repetitive peak reverse voltage	V	4700	$T_{j\,min}$< T_j <$T_{j\,max}$; 180° half-sine wave; 50 Hz;single pulse;	
V_R	Reverse continuous voltage	V	0.75·V_{RRM}	T_j=$T_{j\,max}$;	
THERMAL					
T_{stg}	Storage temperature	°C	– 60 ÷ 150		
T_j	Operating junction temperature	°C	– 60 ÷ 150		
MECHANICAL					
F	Mounting force	kN	40.0 ÷ 50.0		
a	Acceleration	m/s^2	50 100	Device unclamped Device clamped	

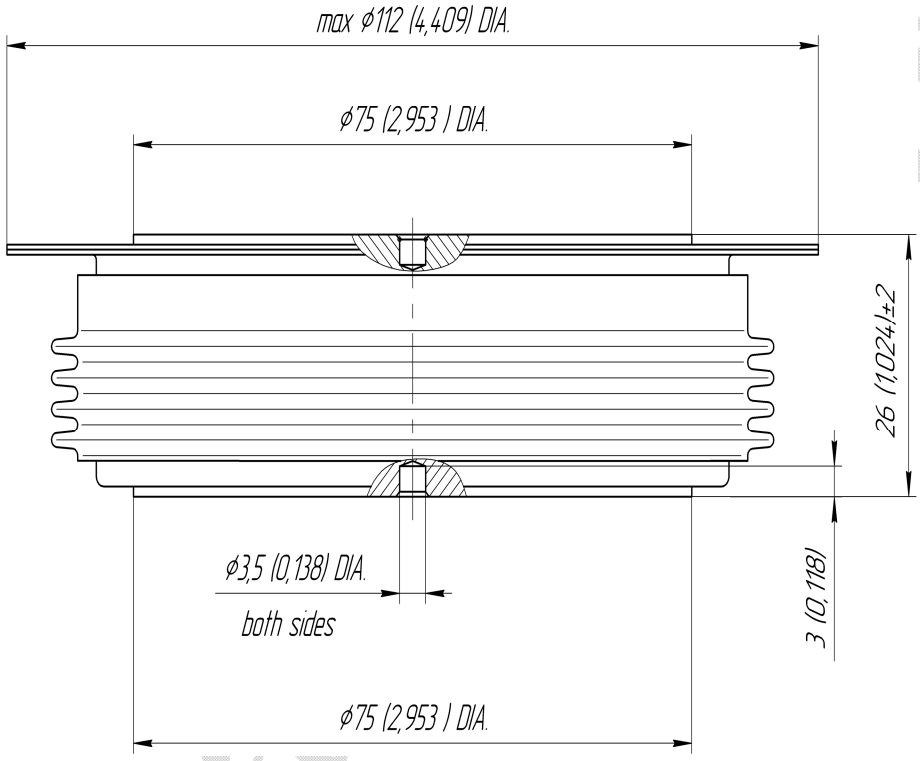
CHARACTERISTICS

Symbols and parameters		Units	Values	Conditions	
ON-STATE					
V_{FM}	Peak forward voltage, max	V	2.00	$T_j = T_{j\,max}$; I_{FM}=2000 A	
BLOCKING					
I_{RRM}	Repetitive peak reverse current, max	mA	200	$T_j=T_{j\,max}$; $V_R=V_{RRM}$	
SWITCHING					
Q_{rr}	Total recovered charge, max	μC	1000	$T_j=T_{j\,max}$; I_{FM}=2000 A di_R/dt=-100 A/μs; V_R=1600 V	
t_{rr}	Reverse recovery time, max	μs	5.0		
THERMAL					
R_{thjc}	Thermal resistance, junction to case, max	°C/W	0.0080	Direct current	Double side cooled
R_{thjc-A}			0.0176		Anode side cooled
R_{thjc-K}			0.0144		Cathode side cooled
R_{thck}	Thermal resistance, case to heatsink, max	°C/W	0.0020	Direct current	
MECHANICAL					
w	Weight, typ	g	1500		
D_s	Surface creepage distance	mm (inch)	41.40 (1.630)		
D_a	Air strike distance	mm (inch)	23.10 (0.909)		

DF	97	16	4		
1	2	3	4	5	6

1. Fast recovery diode
2. Design version
3. Average forward current, A
4. Voltage code
5. Group of reverse recovery time
6. Ambient conditions: N – normal; T – tropical

t_{rr}, μs	5.0


max ø112 (4,409) DIA.
ø75 (2,953) DIA.
26 (1,024)±2
ø3,5 (0,138) DIA.
both sides
3 (0,118)
ø75 (2,953) DIA.