



Optimum power handling
Low switching losses
Low reverse recovery charge
High power cycling capability

Fast Recovery Stud Diode
Type DF271-400-14

Mean on-state current	I_{FAV}		400 A				
Repetitive peak reverse voltage	V_{RRM}		800 ÷ 1400 V				
Reverse recovery time	t_{rr}		3.2 ÷ 6.3 μ s				
V_{RRM} , V	800	900	1000	1100	1200	1300	1400
Voltage code	8	9	10	11	12	13	14
T_j , °C	- 60 ÷ 150						

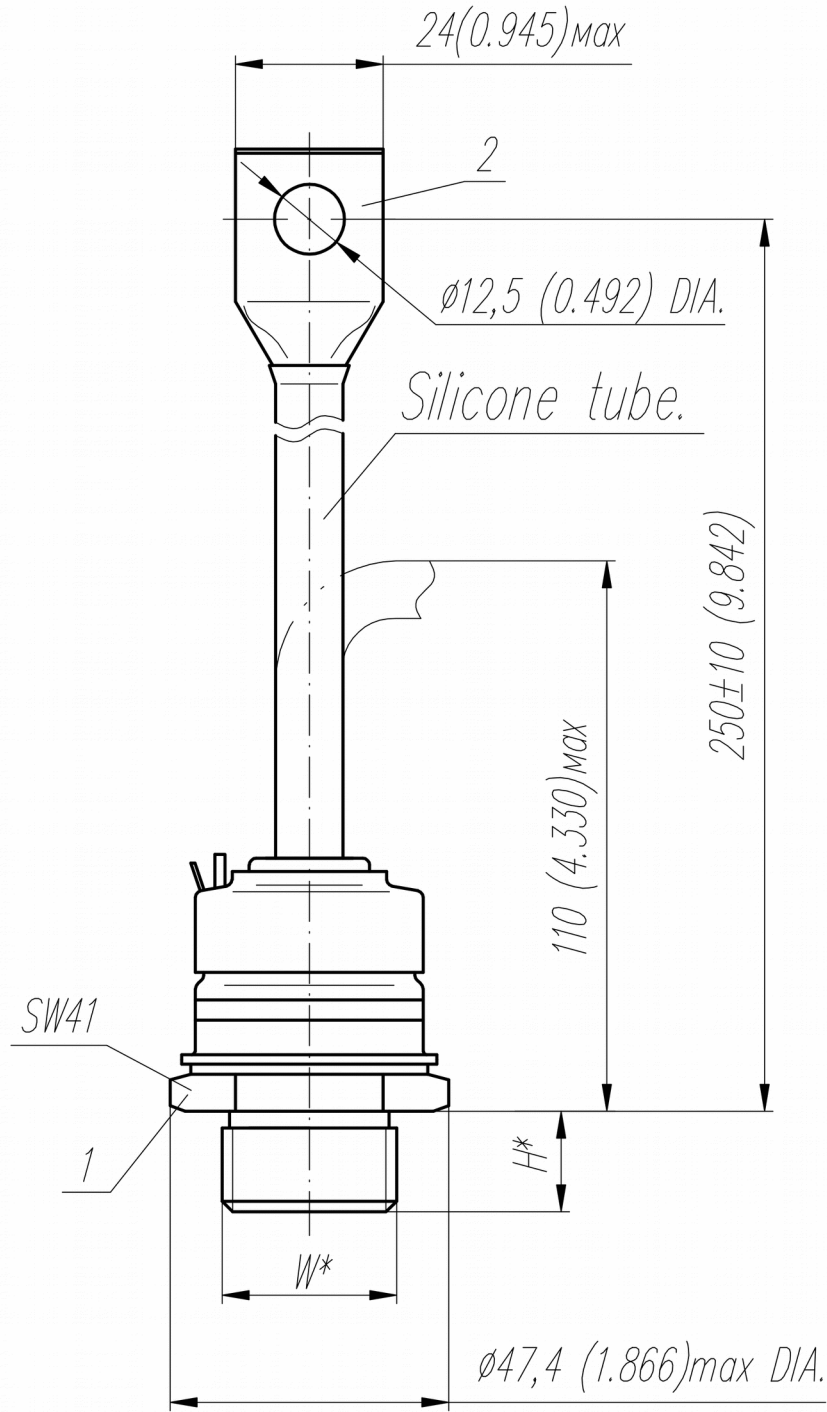
MAXIMUM ALLOWABLE RATINGS

Symbols and parameters		Units	Values	Test conditions
ON-STATE				
I_{FAV}	Average forward current	A	400 520	$T_c=85$ °C; $T_c=55$ °C; 180° half-sine wave; 50 Hz
I_{FRMS}	RMS forward current	A	628	$T_c=85$ °C; 180° half-sine wave; 50 Hz
I_{FSM}	Surge forward current	kA	8.0 9.2	$T_j=T_{j\max}$ $T_j=25$ °C 180° half-sine wave; 50 Hz ($t_p=10$ ms); single pulse; $V_R=0$ V;
			9.0 10.4	$T_j=T_{j\max}$ $T_j=25$ °C 180° half-sine wave; 60 Hz ($t_p=8.3$ ms); single pulse; $V_R=0$ V;
I^2t	Safety factor	$A^2s \cdot 10^3$	320 420	$T_j=T_{j\max}$ $T_j=25$ °C 180° half-sine wave; 50 Hz ($t_p=10$ ms); single pulse; $V_R=0$ V;
			335 445	$T_j=T_{j\max}$ $T_j=25$ °C 180° half-sine wave; 60 Hz ($t_p=8.3$ ms); single pulse; $V_R=0$ V;
BLOCKING				
V_{RRM}	Repetitive peak reverse voltages	V	800÷1400	$T_{j\min} < T_j < T_{j\max}$; 180° half-sine wave; 50 Hz;
V_{RSM}	Non-repetitive peak reverse voltages	V	900÷1500	$T_{j\min} < T_j < T_{j\max}$; 180° half-sine wave; 50 Hz; single pulse;
V_R	Reverse continuous voltages	V	$0.75 \cdot V_{RRM}$	$T_j=T_{j\max}$;
THERMAL				
T_{stg}	Storage temperature	°C	- 60 ÷ 50	
T_j	Operating junction temperature	°C	- 60 ÷ 150	
MECHANICAL				
M	Tightening torque	Nm	25 ÷ 35	
a	Acceleration	m/s^2	100	

CHARACTERISTICS

Symbols and parameters		Units	Values	Conditions
ON-STATE				
V_{FM}	Peak forward voltage, max	V	2.30	$T_j=25\text{ }^\circ\text{C}; I_{FM}=1256\text{ A}$
$V_{F(TO)}$	Forward threshold voltage, max	V	1.20	$T_j=T_{j\text{ max}};$
r_T	Forward slope resistance, max	m Ω	0.800	$0.5\pi I_{FAV} < I_T < 1.5\pi I_{FAV}$
BLOCKING				
I_{RRM}	Repetitive peak reverse current, max	mA	70	$T_j=T_{j\text{ max}};$ $V_R=V_{RRM}$
SWITCHING				
Q_{rr}	Total recovered charge, max	μC	350	$T_j=T_{j\text{ max}}; I_{FM}=400\text{ A};$
t_{rr}	Reverse recovery time, max	μs	3.2 ÷ 6.3	$di_R/dt=-100\text{ A}/\mu\text{s};$
I_{rrM}	Peak reverse recovery current, typ	A	219	$V_R=100\text{ V};$
THERMAL				
R_{thjc}	Thermal resistance, junction to case, max	$^\circ\text{C}/\text{W}$	0.0800	Direct current
MECHANICAL				
w	Weight, typ	g	440	
D_s	Surface creepage distance	mm (inch)	12.4 (4.882)	
D_a	Air strike distance	mm (inch)	12.4 (4.882)	

PART NUMBERING GUIDE							GROUP OF RECOVERY TIME				
DF	271	400		14	K4	N	Group Symbol	K4	H4	E4	C4
1	2	3	4	5	6	7	$t_{rr}, \mu\text{s}$	3.2	4	5	6.3
1. Fast recovery diode 2. Design version 3. Average forward current, A 4. Polarity: X – Cathode to Stud; Anode to Stud – no symbol 5. Voltage code 6. Group of reverse recovery time 7. Ambient conditions: N – normal; T – tropical											



Type of screw	W	H
Metric Screw	M24x1,5 – 8g	19

Polarity		Example of code designation	Reference designation	Colors	
				Anode	Cathode
Normal	Anode to stud	DF271-400-14	∇	-	Red tube
Reverse	Cathode to stud	DF271-400X-14	∇	Black tube	-

All dimensions in millimeters (inches)

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