

Optimum power handling
 Low on-state and switching losses
 Optimized for line frequency rectifiers
 Designed for traction and industrial applications

Avalanche Stud Diode Type DA171-320-18

Mean on-state current							I_{TAV}		320 A						
Repetitive peak reverse voltage							V_{RRM}		400 ÷ 1800 V						
V_{RRM} , V	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1800	
Voltage code	4	5	6	7	8	9	10	11	12	13	14	15	16	18	
T_j , °C	- 60 ÷ 150														

MAXIMUM ALLOWABLE RATINGS

Symbols and parameters		Units	Values	Test conditions	
ON-STATE					
I_{FAV}	Average forward current	A	320 475	$T_c=115\text{ °C};$ $T_c=100\text{ °C};$ 180° half-sine wave; 50 Hz	
I_{FRMS}	RMS forward current	A	502	$T_c=115\text{ °C};$ 180° half-sine wave; 50 Hz	
I_{FSM}	Surge forward current	kA	10.0 11.0	$T_j=T_{j\max}$ $T_j=25\text{ °C}$	180° half-sine wave; 50 Hz ($t_p=10\text{ ms}$); single pulse; $V_R=0\text{ V};$
			10.5 11.5	$T_j=T_{j\max}$ $T_j=25\text{ °C}$	180° half-sine wave; 60 Hz ($t_p=8.3\text{ ms}$); single pulse; $V_R=0\text{ V};$
I^2t	Safety factor	$A^2s \cdot 10^3$	500 601	$T_j=T_{j\max}$ $T_j=25\text{ °C}$	180° half-sine wave; 50 Hz ($t_p=10\text{ ms}$); single pulse; $V_R=0\text{ V};$
			458 550	$T_j=T_{j\max}$ $T_j=25\text{ °C}$	180° half-sine wave; 60 Hz ($t_p=8.3\text{ ms}$); single pulse; $V_R=0\text{ V};$
BLOCKING					
V_{RRM}	Repetitive peak reverse voltages	V	400÷1800	$T_{j\min} < T_j < T_{j\max};$ 180° half-sine wave; 50 Hz;	
V_{RSM}	Non-repetitive peak reverse voltages	V	500÷1900	$T_{j\min} < T_j < T_{j\max};$ 180° half-sine wave; 50 Hz; single pulse;	
$V_{(BR)}$	Breakdown voltage	V	500÷2250	$T_j = 25\text{ °C}; I_{br}=100\text{ mA};$ 180° half-sine wave; 50 Hz	
V_R	Reverse continuous voltages	V	$0.75 \cdot V_{RRM}$	$T_j=T_{j\max};$	
P_{RSM}	Surge reverse power dissipation	kW	16	$T_j= T_{j\max}; t_p = 100\text{ }\mu\text{s};$ 180° half-sine wave, 50 Hz, single pulse	
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		

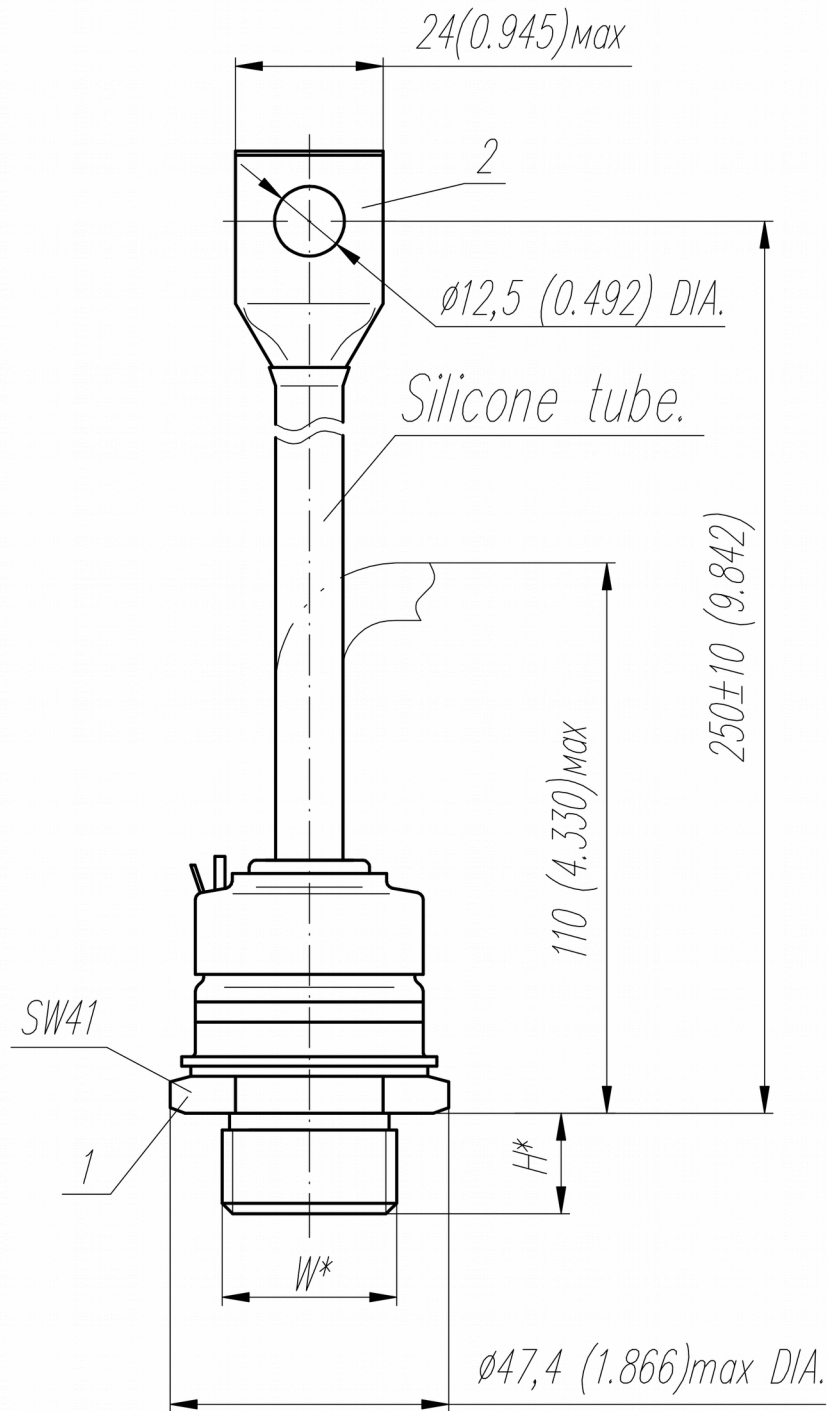
CHARACTERISTICS

Symbols and parameters		Units	Values	Conditions
ON-STATE				
V_{FM}	Peak forward voltage, max	V	1.40	$T_j=25\text{ }^\circ\text{C}; I_{FM}=1005\text{ A}$
$V_{F(TO)}$	Forward threshold voltage, max	V	0.80	$T_j=T_{j,max};$ $0.5\pi I_{FAV} < I_T < 1.5\pi I_{FAV}$
r_T	Forward slope resistance, max	m Ω	0.440	
BLOCKING				
I_{RRM}	Repetitive peak reverse current, max	mA	25	$T_j=T_{j,max};$ $V_R=V_{RRM}$
THERMAL				
R_{thjc}	Thermal resistance, junction to case, max	$^\circ\text{C}/\text{W}$	0.085	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

DA	171	320	18	N
1	2	3	4	5

1. DA — Avalanche Diode
2. Design version
3. Average forward current, A
4. Voltage code
5. Ambient conditions: N – normal; T – tropical



Type of screw	W	H
Metric Screw Type C	M24x1,5 – 8g	19
Metric Screw Type B (upon request)	M20x1,5 – 8g	15

Polarity		Example of code designation	Reference designation	Colors	
				Anode	Cathode
Normal	Anode to stud	DA171-320-18	∇	-	Red tube
Reverse	Cathode to stud	DA171-320X-18	∇	Black tube	-

All dimensions in millimeters (inches)