



PROTON-ELECTROTEX RUSSIA

Avalanche Stud Diode Type DA171-320-18

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

Mean on-state current		I_{TAV}		320 A	
Repetitive peak reverse voltage		V_{RRM}		1000 ÷ 1800V	
V_{RRM}, V	1000	1200	1400	1600	1800
Voltage code	10	12	14	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	$T_c=120 °C$; $T_c=100 °C$; 180° half-sine wave; 50 Hz
I_{FRMS}	RMS forward current	A	503	$T_c=120 °C$; 180° half-sine wave; 50 Hz
I_{FSM}	Surge forward current	kA	11.0 12.7	$T_j=T_{jmax}$ $T_j=25 °C$ 180° half-sine wave; 50 Hz ($t_p=10 ms$); single pulse; $V_R=0 V$;
			12.0 13.8	$T_j=T_{jmax}$ $T_j=25 °C$ 180° half-sine wave; 60 Hz ($t_p=8.3 ms$); single pulse; $V_R=0 V$;
I^2t	Safety factor	$A^2s \cdot 10^3$	605 805	$T_j=T_{jmax}$ $T_j=25 °C$ 180° half-sine wave; 50 Hz ($t_p=10 ms$); single pulse; $V_R=0 V$;
			595 790	$T_j=T_{jmax}$ $T_j=25 °C$ 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	1000÷1800	$T_{jmin} < T_j < T_{jmax}$; 180° half-sine wave; 50 Hz;
V_{RSM}	Non-repetitive peak reverse voltages	V	1100÷1900	$T_{jmin} < T_j < T_{jmax}$; 180° half-sine wave; 50 Hz; single pulse;
V_R	Reverse continuous voltages	V	$0.75 \cdot V_{RRM}$	$T_j=T_{jmax}$;
P_{RSM}	Surge reverse power dissipation	kW	16	$T_j=T_{jmax}$; $t_p = 100 \mu s$; 180° half-sine wave, 50 Hz, single pulse
THERMAL				
T_{stg}	Storage temperature	°C	- 60 ÷ 150	
T_j	Operating junction temperature	°C	- 60 ÷ 150	
MECHANICAL				
M	Tightening torque	Nm	25 ÷ 35	
a	Acceleration	m/s^2	100	

JSC "PROTON-ELECTROTEX"

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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	$T_j=T_{j\text{ max}};$ $0.5 \pi I_{FAV} < I_T < 1.5 \pi I_{FAV}$
r_T	Forward slope resistance, max	m Ω	0.440	
BLOCKING				
I_{RRM}	Repetitive peak reverse current, max	mA	25	$T_j=T_{j\text{ max}};$ $V_R=V_{RRM}$
THERMAL				
R_{thjc}	Thermal resistance, junction to case, max	$^\circ\text{C/W}$	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

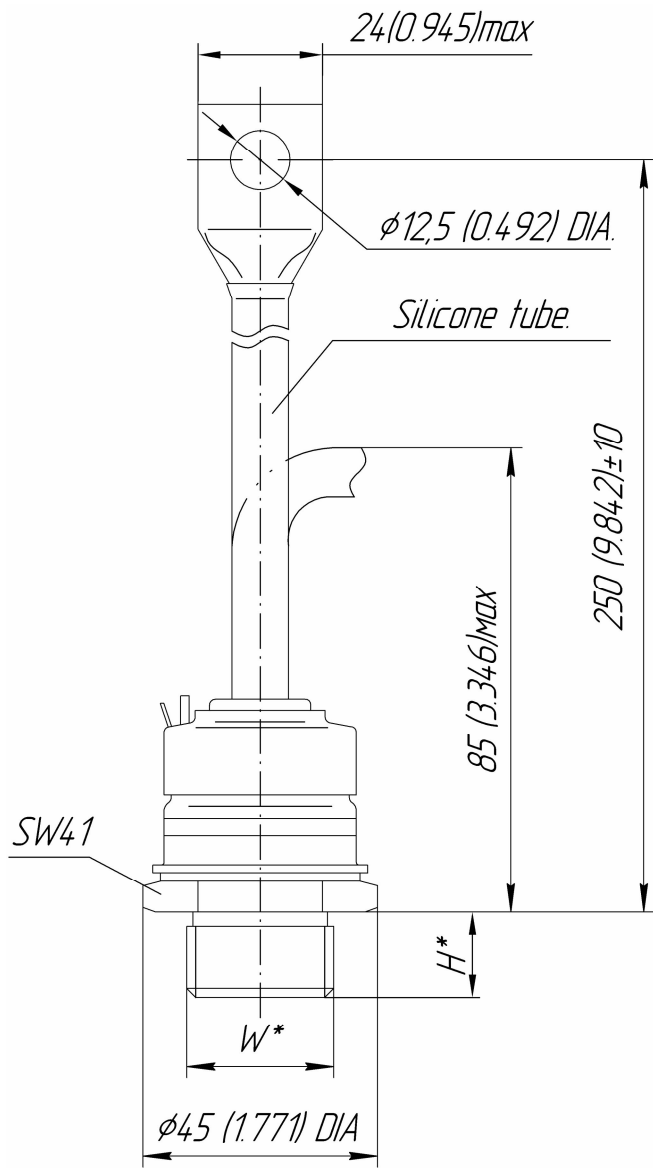
DA	171	320	18	N
1	2	3	4	5

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

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Type of screw	W	H
Metric Screw Type C	M24x1,5	18
Metric Screw Type B(upon request)	M20x1,5	18

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)

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 In the interest of product improvement, Proton-Electrotex reserves the right to change data sheet without notice.

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