



# PROTON-ELECTROTEX RUSSIA

Optimum power handling  
Low on-state and switching losses  
Designed for traction and industrial applications

## Rectifier Stud Diode Type D271-400-18

Mean on-state current		$I_{FAV}$		400 A	
Repetitive peak reverse voltage		$V_{RRM}$		1000 ÷ 1800V	
$V_{RRM}, V$	1000	1200	1400	1600	1800
Voltage code	10	12	14	16	18
$T_{jv}, ^\circ C$	- 60 ÷ 190				

### MAXIMUM ALLOWABLE RATINGS

Symbols and parameters		Units	Values	Test conditions	
<b>ON-STATE</b>					
$I_{FAV}$	Average forward current	A	400 635	$T_c=143\ ^\circ C$ ; $T_c=100\ ^\circ C$ ; 180° half-sine wave; 50 Hz	
$I_{FRMS}$	RMS forward current	A	628	$T_c=143\ ^\circ C$ ; 180° half-sine wave; 50 Hz	
$I_{FSM}$	Surge forward current	kA	14.0 16.0	$T_j=T_{j\ max}$ $T_j=25\ ^\circ C$ 180° half-sine wave; 50 Hz ( $t_p=10\ ms$ ); single pulse; $V_R=0\ V$ ;	
			15.0 17.0	$T_j=T_{j\ max}$ $T_j=25\ ^\circ C$ 180° half-sine wave; 60 Hz ( $t_p=8.3\ ms$ ); single pulse; $V_R=0\ V$ ;	
$I^2t$	Safety factor	$A^2s \cdot 10^3$	980 1280	$T_j=T_{j\ max}$ $T_j=25\ ^\circ C$ 180° half-sine wave; 50 Hz ( $t_p=10\ ms$ ); single pulse; $V_R=0\ V$ ;	
			930 1195	$T_j=T_{j\ max}$ $T_j=25\ ^\circ C$ 180° half-sine wave; 60 Hz ( $t_p=8.3\ ms$ ); single pulse; $V_R=0\ V$ ;	
<b>BLOCKING</b>					
$V_{RRM}$	Repetitive peak reverse voltages	V	1000÷1800	$T_{j\ min} < T_j < T_{j\ max}$ ; 180° half-sine wave; 50 Hz;	
$V_{RSM}$	Non-repetitive peak reverse voltages	V	1100÷1900	$T_{j\ min} < T_j < T_{j\ max}$ ; 180° half-sine wave; 50 Hz; single pulse;	
$V_R$	Reverse continuous voltages	V	$0.75 \cdot V_{RRM}$	$T_j = T_{j\ max}$ ;	
<b>THERMAL</b>					
$T_{stg}$	Storage temperature	$^\circ C$	- 60 ÷ 190		
$T_j$	Operating junction temperature	$^\circ C$	- 60 ÷ 190		
<b>MECHANICAL</b>					
M	Tightening torque	Nm	25 ÷ 35		
a	Acceleration	$m/s^2$	100		

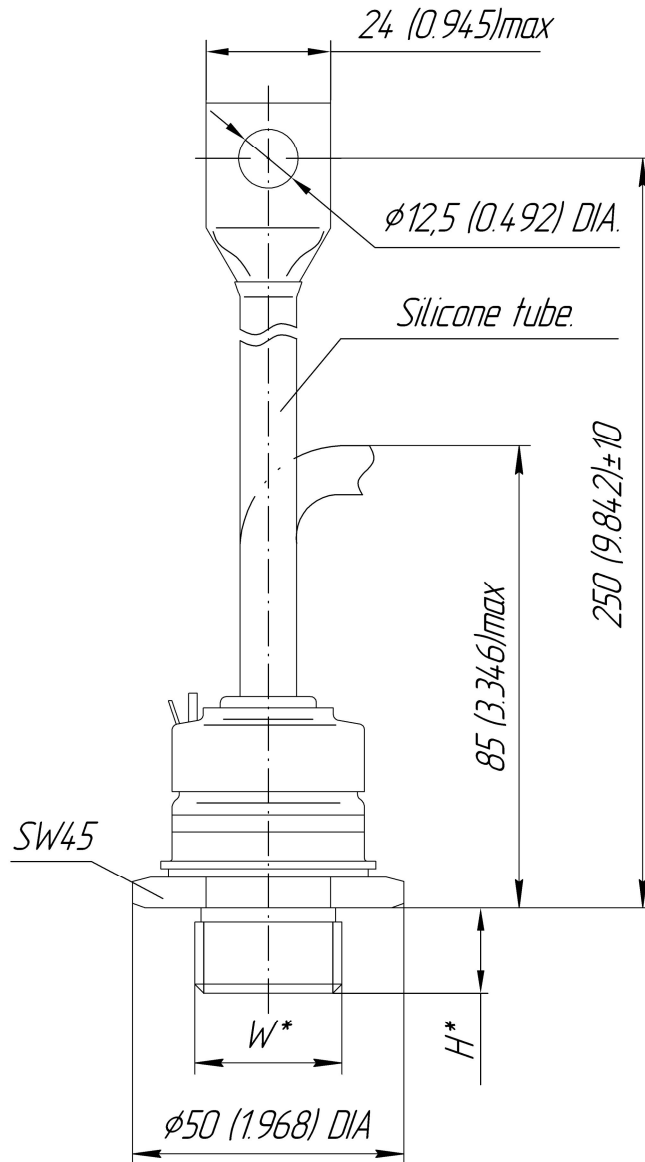
## CHARACTERISTICS

Symbols and parameters		Units	Values	Conditions
<b>ON-STATE</b>				
$V_{FM}$	Peak forward voltage, max	V	1.45	$T_j=25\text{ }^\circ\text{C}; I_{FM}=1256\text{ A}$
$V_{F(TO)}$	Forward threshold voltage, max	V	0.90	$T_j=T_{j\text{ max}}$
$r_T$	Forward slope resistance, max	$m\Omega$	0.560	$0.5 \pi I_{FAV} < I_T < 1.5 \pi I_{FAV}$
<b>BLOCKING</b>				
$I_{RRM}$	Repetitive peak reverse current, max	mA	70	$T_j=T_{j\text{ max}}$ $V_R=V_{RRM}$
<b>THERMAL</b>				
$R_{thjc}$	Thermal resistance, junction to case, max	$^\circ\text{C/W}$	0.0800	Direct current
<b>MECHANICAL</b>				
w	Weight, typ	g	470	
$D_s$	Surface creepage distance	mm (inch)	12.4 (4.882)	
$D_a$	Air strike distance	mm (inch)	12.4 (4.882)	

### PART NUMBERING GUIDE

D	271	400		18	N
1	2	3	4	5	6

1. D — Rectifier Diode
2. Design version
3. Average forward current, A
4. Polarity: X – Cathode to Stud; Anode to Stud – no symbol
5. Voltage code
6. Ambient conditions: N – normal; T – tropical



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

Polarity		Example of code designation	Reference designation	Colors	
				Anode	Cathode
Normal	Anode to stud	D271-400-18		-	Red tube
Reverse	Cathode to stud	D271-400X-18		Black tube	-

All dimensions in millimeters (inches)