



PROTON-ELECTROTEX RUSSIA

High power cycling capability
Low on-state and switching losses
Optimized for line frequency rectifiers
Designed for traction and industrial applications

Rectifier Diode Type D333-630-28

Average forward current		I_{FAV}	630 A		
Repetitive peak reverse voltage		V_{RRM}	2000 ÷ 2800 V		
V_{RRM} , V	2000	2200	2400	2600	2800
Voltage code	20	22	24	26	28
T_{jv} , °C	-60 ÷ 175				

MAXIMUM ALLOWABLE RATINGS

Symbols and parameters		Units	Values	Test conditions	
ON-STATE					
I_{FAV}	Average forward current	A	630 890	$T_c=128\text{ }^{\circ}\text{C}$; Double side cooled; $T_c=100\text{ }^{\circ}\text{C}$; Double side cooled; 180° half-sine wave; 50 Hz	
I_{FRMS}	RMS forward current	A	989	$T_c=128\text{ }^{\circ}\text{C}$; Double side cooled; 180° half-sine wave; 50 Hz	
I_{FSM}	Surge forward current	kA	10.0 12.0	$T_j=T_{j\text{ max}}$ $T_j=25\text{ }^{\circ}\text{C}$	180° half-sine wave; 50 Hz ($t_p=10\text{ ms}$); single pulse; $V_R=0\text{ V}$;
			11.0 13.0	$T_j=T_{j\text{ max}}$ $T_j=25\text{ }^{\circ}\text{C}$	180° half-sine wave; 60 Hz ($t_p=8.3\text{ ms}$); single pulse; $V_R=0\text{ V}$;
I^2t	Safety factor	$A^2s\cdot10^3$	500 720	$T_j=T_{j\text{ max}}$ $T_j=25\text{ }^{\circ}\text{C}$	180° half-sine wave; 50 Hz ($t_p=10\text{ ms}$); single pulse; $V_R=0\text{ V}$;
			500 700	$T_j=T_{j\text{ max}}$ $T_j=25\text{ }^{\circ}\text{C}$	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	2000÷2800	$T_{j\text{ min}}<T_j<T_{j\text{ max}}$; 180° half-sine wave; 50 Hz;	
V_{RSM}	Non-repetitive peak reverse voltages	V	2100÷2900	$T_{j\text{ min}}<T_j<T_{j\text{ max}}$; 180° half-sine wave; 50 Hz;single pulse;	
V_R	Reverse continuous voltages	V	$0.75\cdot V_{RRM}$	$T_j=T_{j\text{ max}}$;	
THERMAL					
T_{stg}	Storage temperature	$^{\circ}\text{C}$	-60÷175		
T_j	Operating junction temperature	$^{\circ}\text{C}$	-60÷175		
MECHANICAL					
F	Mounting force	kN	9.0÷11.0		
a	Acceleration	m/s^2	50 100	Device unclamped Device clamped	

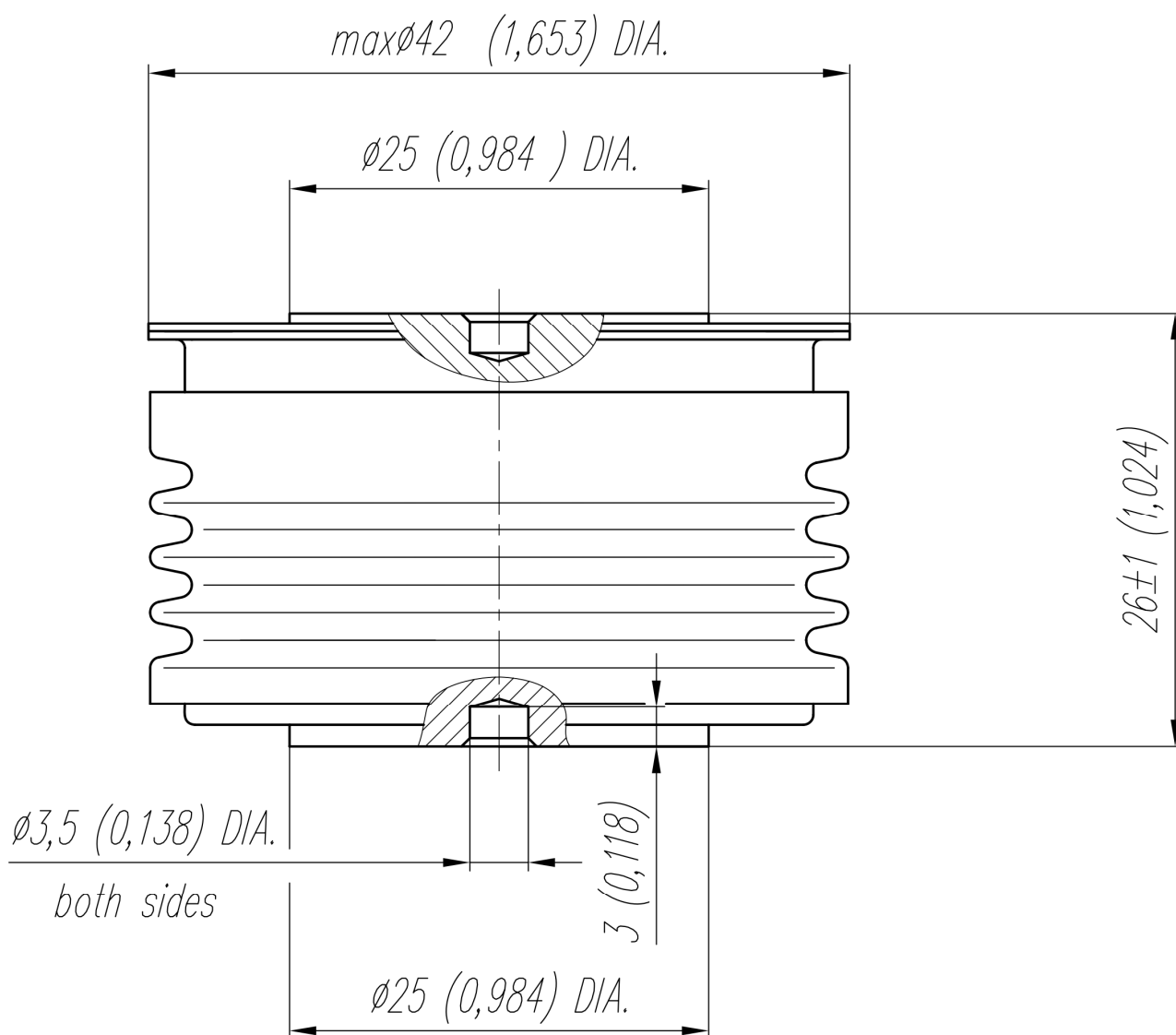
CHARACTERISTICS

Symbols and parameters		Units	Values	Conditions	
ON-STATE					
V _{FM}	Peak forward voltage, max	V	1.60	T _j =25 °C; I _{FM} =1978 A	
V _{F(TO)}	Forward threshold voltage, max	V	1.10	T _j =T _{j max} ;	
r _T	Forward slope resistance, max	mΩ	0.350	0.5 π I _{FAV} < I _T < 1.5 π I _{FAV}	
BLOCKING					
I _{RRM}	Repetitive peak reverse current, max	mA	50	T _j =T _{j max} ; V _R =V _{RRM}	
THERMAL					
R _{thjc}	Thermal resistance, junction to case, max	°C/W	0.045	Direct current	Double side cooled
R _{thjc-A}			0.099		Anode side cooled
R _{thjc-K}			0.081		Cathode side cooled
R _{thck}	Thermal resistance, case to heatsink, max	°C/W	0.009	Direct current	
MECHANICAL					
w	Weight, typ	g	210		
D _s	Surface creepage distance	mm (inch)	30.77 (1.211)		
D _a	Air strike distance	mm (inch)	24.40 (0.960)		

PART NUMBERING GUIDE

D	333	630	28	N
1	2	3	4	5

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



All dimensions in millimeters (inches)