



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 D343-1250-18

Average forward current		I_{FAV}		1250 A	
Repetitive peak reverse voltage		V_{RRM}		1000 ÷ 1800 V	
V_{RRM} , V	1000	1200	1400	1600	1800
Voltage code	10	12	14	16	18
T_{jv} , °C	-60 ÷ 190				

MAXIMUM ALLOWABLE RATINGS

Symbols and parameters		Units	Values	Test conditions
ON-STATE				
I_{FAV}	Average forward current	A	1250 1415	$T_c=114$ °C; Double side cooled; $T_c=100$ °C; Double side cooled; 180° half-sine wave; 50 Hz
I_{FRMS}	RMS forward current	A	1963	$T_c=114$ °C; Double side cooled; 180° half-sine wave; 50 Hz
I_{FSM}	Surge forward current	kA	20.0 23.0	$T_j=T_{jmax}$ $T_j=25$ °C 180° half-sine wave; 50 Hz ($t_p=10$ ms); single pulse; $V_R=0$ V;
			21.0 24.0	$T_j=T_{jmax}$ $T_j=25$ °C 180° half-sine wave; 60 Hz ($t_p=8.3$ ms); single pulse; $V_R=0$ V;
I^2t	Safety factor	$A^2s \cdot 10^3$	2000 2645	$T_j=T_{jmax}$ $T_j=25$ °C 180° half-sine wave; 50 Hz ($t_p=10$ ms); single pulse; $V_R=0$ V;
			1830 2390	$T_j=T_{jmax}$ $T_j=25$ °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	$0.75 \cdot V_{RRM}$	$T_j = T_{jmax}$;
THERMAL				
T_{stg}	Storage temperature	°C	-60 ÷ 190	
T_j	Operating junction temperature	°C	-60 ÷ 190	
MECHANICAL				
F	Mounting force	kN	14.0 ÷ 16.0	
a	Acceleration	m/s^2	50	Device unclamped
			100	Device clamped

JSC "PROTON-ELECTROTEX"

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CHARACTERISTICS

Symbols and parameters		Units	Values	Conditions	
ON-STATE					
V_{FM}	Peak forward voltage, max	V	1.65	$T_j=25\text{ }^\circ\text{C}; I_{FM}=3925\text{ A}$	
$V_{F(TO)}$	Forward threshold voltage, max	V	0.95	$T_j=T_{j\text{ max}};$	
r_T	Forward slope resistance, max	m Ω	0.250	$0.5\pi I_{FAV} < I_T < 1.5\pi I_{FAV}$	
BLOCKING					
I_{RRM}	Repetitive peak reverse current, max	mA	70	$T_j=T_{j\text{ max}};$ $V_R=V_{RRM}$	
THERMAL					
R_{thjc}	Thermal resistance, junction to case, max	$^\circ\text{C/W}$	0.035	Direct current	Double side cooled
R_{thjc-A}			0.077		Anode side cooled
R_{thjc-K}			0.063		Cathode side cooled
R_{thck}	Thermal resistance, case to heatsink, max	$^\circ\text{C/W}$	0.006	Direct current	
MECHANICAL					
w	Weight, typ	g	280		
D_s	Surface creepage distance	mm (inch)	33.30 (1.311)		
D_a	Air strike distance	mm (inch)	22.50 (0.886)		

PART NUMBERING GUIDE

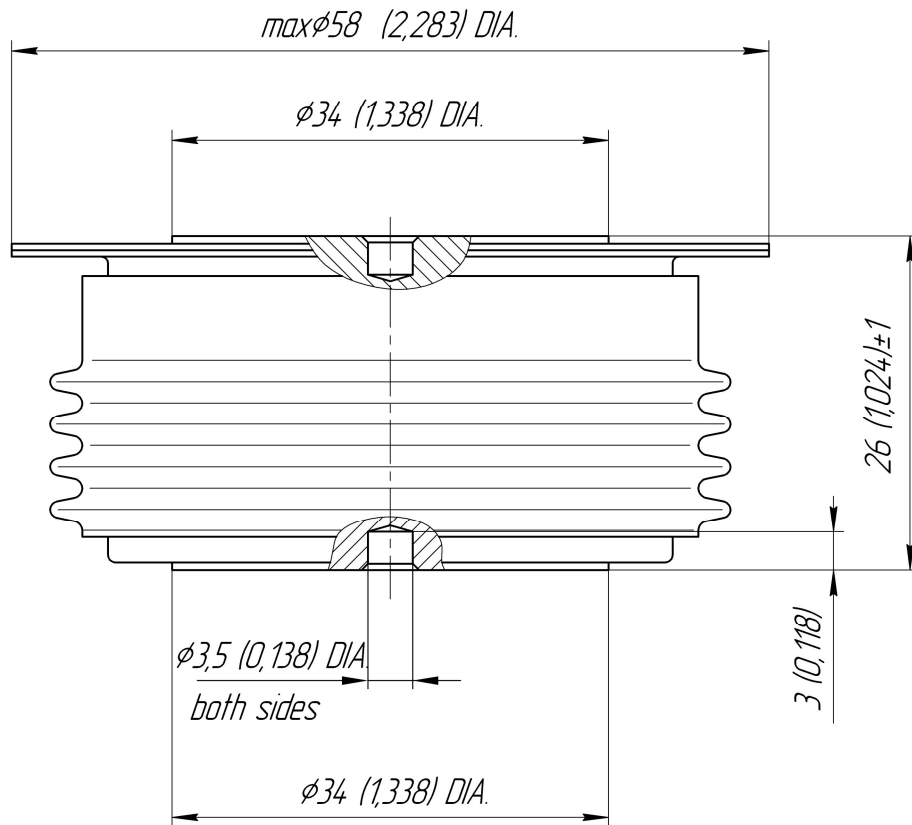
D	343	1250	18	N
1	2	3	4	5

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

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All dimensions in millimeters (inches)

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