



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 Chip Type DR80-6300-20

Maximum allowable average forward current ¹⁾					I_{FAV}		6300 A		
Repetitive peak reverse voltage					V_{RRM}		1000...2000 V		
V_{RRM} , V	1000	1100	1200	1300	1400	1500	1600	1800	2000
Voltage code	10	11	12	13	14	15	16	18	20
T_j , °C	-60...+175								

MAXIMUM ALLOWABLE RATINGS

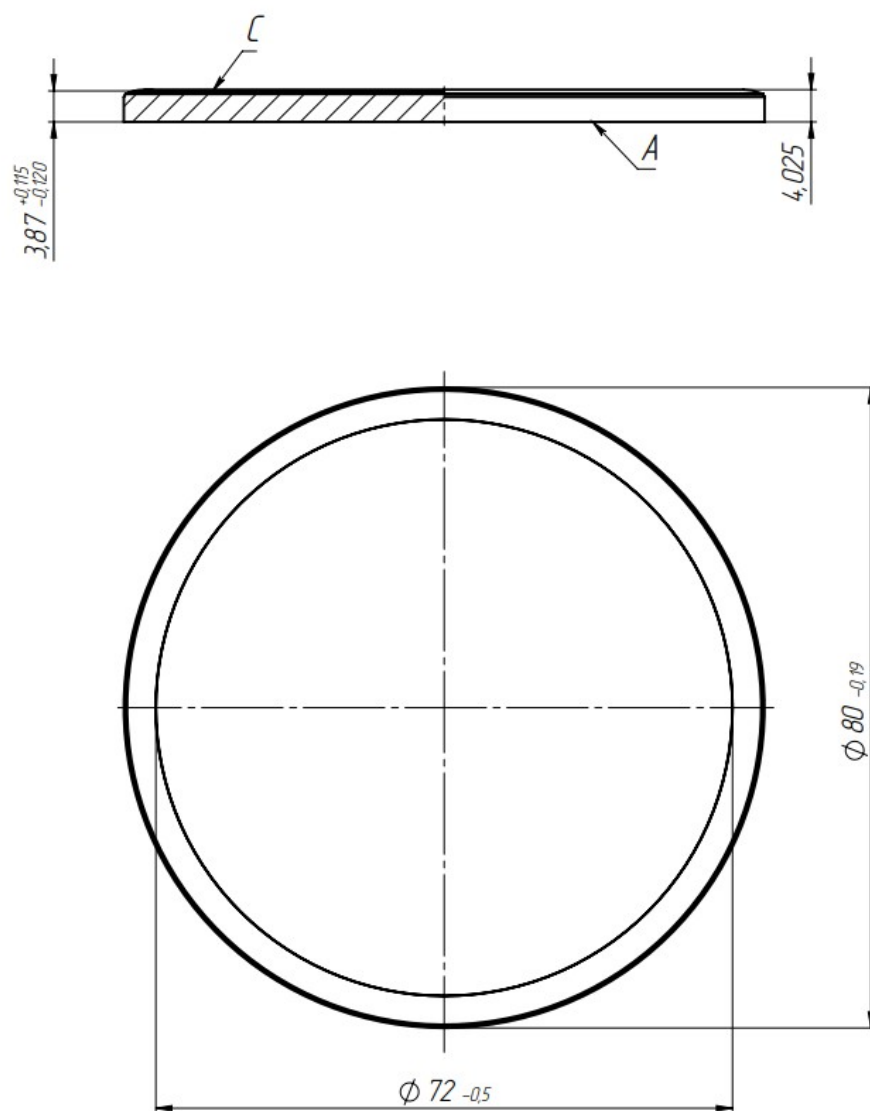
Symbols and parameters		Units	Values	Test conditions	
ON-STATE					
I_{FAV}	Maximum allowable average forward current ¹⁾	A	6300 6868	$T_c=108^{\circ}\text{C}$; Double side cooled; $T_c=100^{\circ}\text{C}$; Double side cooled; 180° half-sine wave; 50 Hz	
I_{FRMS}	RMS forward current ¹⁾	A	9891	$T_c=108^{\circ}\text{C}$; Double side cooled; 180° half-sine wave; 50 Hz	
I_{FSM}	Surge forward current ¹⁾	kA	90.0 108.0	$T_j=T_{j\max}$ $T_j=25^{\circ}\text{C}$	180° half-sine wave; $t_p=10\text{ ms}$; single pulse; $V_R=0\text{ V}$
			95.0 114.0	$T_j=T_{j\max}$ $T_j=25^{\circ}\text{C}$	180° half-sine wave; $t_p=8.3\text{ ms}$; single pulse; $V_R=0\text{ V}$
I^2t	Safety factor ¹⁾	$\text{A}^2\text{s}\cdot 10^3$	40500 58300	$T_j=T_{j\max}$ $T_j=25^{\circ}\text{C}$	180° half-sine wave; $t_p=10\text{ ms}$; single pulse; $V_R=0\text{ V}$
			37400 53900	$T_j=T_{j\max}$ $T_j=25^{\circ}\text{C}$	180° half-sine wave; $t_p=8.3\text{ ms}$; single pulse; $V_R=0\text{ V}$
BLOCKING					
V_{RRM}	Repetitive peak reverse voltages	V	1000...2000	$T_{j\min}<T_j<T_{j\max}$; 180° half-sine wave; 50 Hz	
V_{RSM}	Non-repetitive peak reverse voltages	V	1100...2100	$T_{j\min}<T_j<T_{j\max}$; 180° half-sine wave; single pulse	
V_R	Reverse continuous voltages	V	$0.6\cdot V_{RRM}$	$T_j=T_{j\max}$	
THERMAL					
T_{stg}	Storage temperature	°C	−60...+50		
T_j	Operating junction temperature	°C	−60...+175		
MECHANICAL					
F	Mounting force ¹⁾	kN	40...50		

CHARACTERISTICS

Symbols and parameters		Units	Values	Conditions	
ON-STATE					
V _{FM}	Peak forward voltage ¹⁾ , max	V	1.40	T _j =25 °C; I _{FM} =12560 A	
V _{F(TO)}	Forward threshold voltage, max	V	0.763	T _j =T _{j max} ;	
r _T	Forward slope resistance ¹⁾ , max	mΩ	0.031	0.5 π I _{FAV} < I _T < 1.5 π I _{FAV}	
BLOCKING					
I _{RRM}	Repetitive peak reverse current, max	mA	150	T _j =T _{j max} ; V _R =V _{RRM}	
THERMAL					
R _{thjc}	Thermal resistance, junction to case ¹⁾ , max	°C/W	0.0085	Direct current	Double side cooled
R _{thjc-A}			0.0187		Anode side cooled
R _{thjc-K}			0.0153		Cathode side cooled
MECHANICAL					
m	Weight, max	g	194		

PART NUMBERING GUIDE		NOTES
DR 80 6300 20 1 2 3 4 1. Rectifier Diode Chip 2. Maximum diameter, mm 3. Average forward current, A 4. Voltage code		¹⁾ Depending on the specifications of the housing used. The specified values are relevant when using the Proton-Electrotex D.F1 housing.

OVERALL DIMENSIONS



All dimensions in millimeters

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