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 DR80-4000-28

Maximum allowable average forward current[1)]		I_{FAV}	4000 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_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	4000 4552	T_c=113°C; Double side cooled; T_c=100°C; Double side cooled; 180° half-sine wave; 50 Hz	
I_{FRMS}	RMS forward current[1)]	A	6280	T_c=113°C; Double side cooled; 180° half-sine wave; 50 Hz	
I_{FSM}	Surge forward current[1)]	kA	65.0 78.0	T_j=$T_{j\,max}$ T_j=25 °C	180° half-sine wave; t_p=10 ms; single pulse; V_R=0 V
			68.0 82.0	T_j=$T_{j\,max}$ T_j=25 °C	180° half-sine wave; t_p=8.3 ms; single pulse; V_R=0 V
I^2t	Safety factor[1)]	$A^2s{\cdot}10^3$	21100 30400	T_j=$T_{j\,max}$ T_j=25 °C	180° half-sine wave; t_p=10 ms; single pulse; V_R=0 V
			19100 27900	T_j=$T_{j\,max}$ T_j=25 °C	180° half-sine wave; t_p=8.3 ms; single pulse; V_R=0 V
BLOCKING					
V_{RRM}	Repetitive peak reverse voltages	V	2000...2800	$T_{j\,min}$< T_j <$T_{j\,max}$; 180° half-sine wave; 50 Hz	
V_{RSM}	Non-repetitive peak reverse voltages	V	2100...2900	$T_{j\,min}$< T_j <$T_{j\,max}$; 180° half-sine wave; single pulse	
V_R	Reverse continuous voltages	V	0.6·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	1.80	T_j=25 °C; I_{FM}=12560 A	
$V_{F(TO)}$	Forward threshold voltage, max	V	0.979	$T_j=T_{j\,max}$; 0.5 π I_{FAV} < I_T < 1.5 π I_{FAV}	
r_T	Forward slope resistance[1], max	mΩ	0.086		
BLOCKING					
I_{RRM}	Repetitive peak reverse current, max	mA	100	$T_j=T_{j\,max}$; $V_R=V_{RRM}$	
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

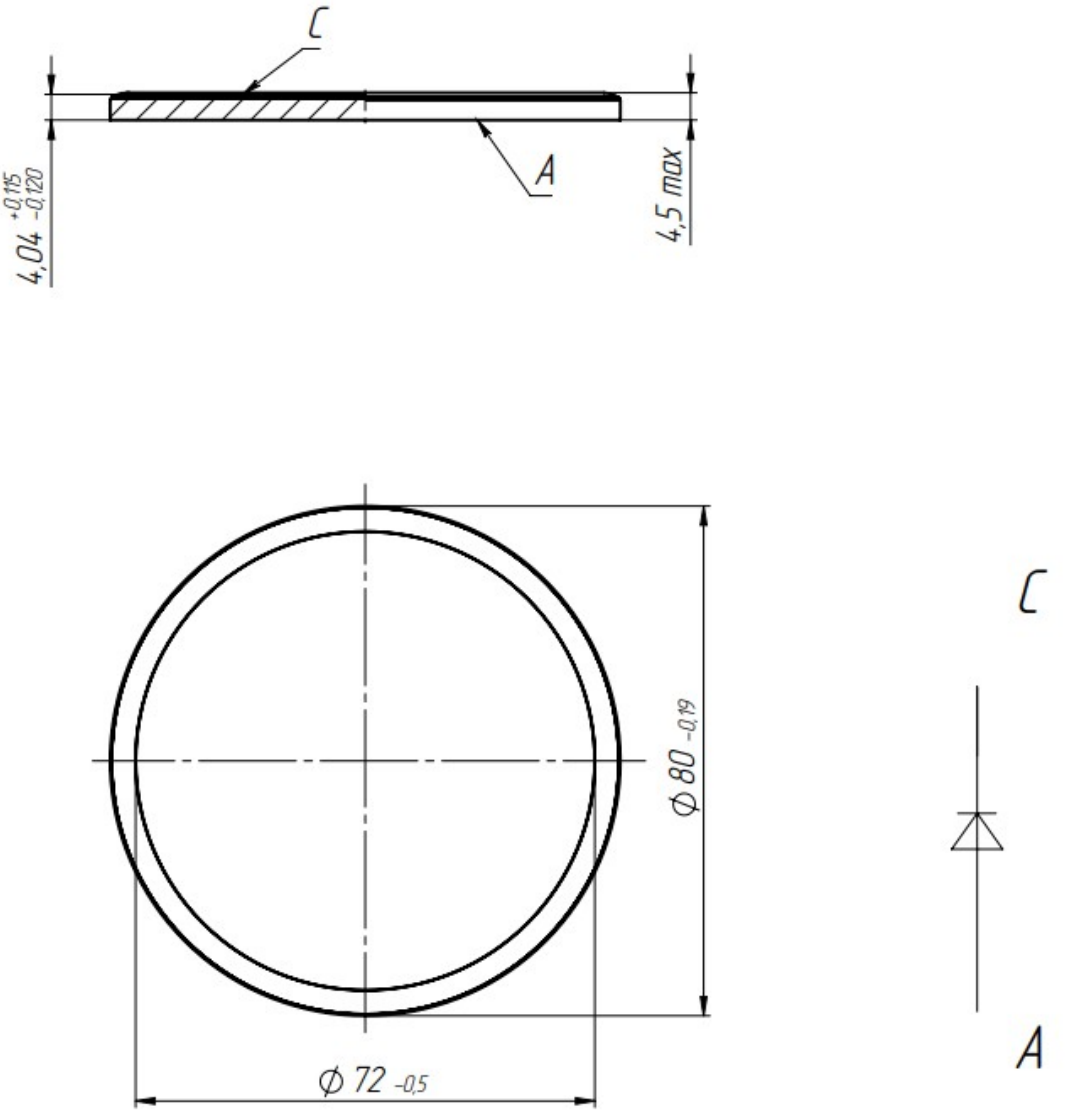
DR	80	4000	28
1	2	3	4

1. Rectifier Diode Chip
2. Maximum diameter, mm
3. Average forward current, A
4. Voltage code

NOTES

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