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 DR56-1600-24

Maximum allowable average forward current[1)]		I_{FAV}	1600 A	
Repetitive peak reverse voltage		V_{RRM}	1800...2400 V	
V_{RRM}, V	1800	2000	2200	2400
Voltage code	18	20	22	24
T_j, °C	–60...+190			

MAXIMUM ALLOWABLE RATINGS

Symbols and parameters		Units	Values	Test conditions	
ON-STATE					
I_{FAV}	Maximum allowable average forward current[1)]	A	1600 2720	T_c=148 °C; Double side cooled; T_c=100 °C; Double side cooled; 180° half-sine wave; 50 Hz	
I_{FRMS}	RMS forward current[1)]	A	2512	T_c=148 °C; Double side cooled; 180° half-sine wave; 50 Hz	
I_{FSM}	Surge forward current[1)]	kA	36.0 43.0	T_j=$T_{j\,max}$ T_j=25 °C	180° half-sine wave; t_p=10 ms; single pulse; V_R=0 V
			38.0 46.0	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)]	$A^2s\cdot10^3$	6400 9200	T_j=$T_{j\,max}$ T_j=25 °C	180° half-sine wave; t_p=10 ms; single pulse; V_R=0 V;
			5900 8700	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	1800...2400	$T_{j\,min}$< T_j <$T_{j\,max}$; 180° half-sine wave; 50 Hz	
V_{RSM}	Non-repetitive peak reverse voltages	V	1900...2500	$T_{j\,min}$< 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...+190		
MECHANICAL					
F	Mounting force[1)]	kN	24.0...28.0		

CHARACTERISTICS

Symbols and parameters		Units	Values	Conditions	
ON-STATE					
V_{FM}	Peak forward voltage[1], max	V	1.50	T_j=25 °C; I_{FM}=5024 A	
$V_{F(TO)}$	Forward threshold voltage, max	V	0.858	$T_j=T_{j\,max}$; $0.5\ \pi\ I_{FAV} < I_T < 1.5\ \pi\ I_{FAV}$	
r_T	Forward slope resistance[1], max	mΩ	0.147		
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	0.0180	Direct current	Double side cooled
R_{thjc-A}			0.0396		Anode side cooled
R_{thjc-K}			0.0324		Cathode side cooled
MECHANICAL					
m	Weight, max	g	70.70		

PART NUMBERING GUIDE

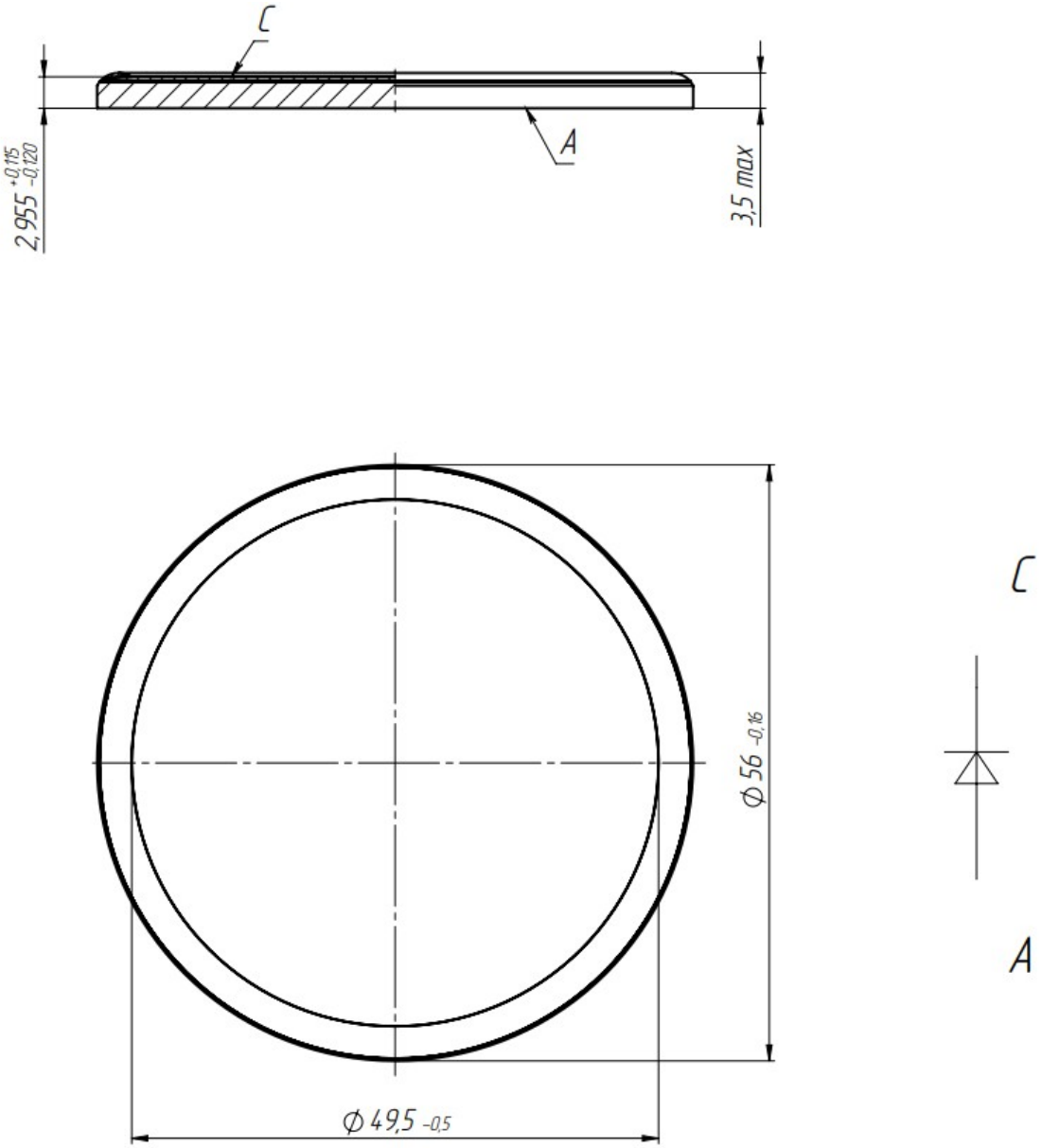
DR	56	1600	24
1	2	3	4

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.D3 housing.

OVERALL DIMENSIONS



All dimensions in millimeters

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