



Power Rectifier
Avalanche Diodes
Type DA343-630-36

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

Average forward current		I_{FAV}		630 A	
Repetitive peak reverse voltage		V_{RRM}		2800 ÷ 3600 V	
V_{RRM}, V	2800	3000	3200	3400	3600
Voltage code	28	30	32	34	36
$T_j, °C$	- 60 ÷ 150				

MAXIMUM ALLOWABLE RATINGS

Symbols and parameters		Units	Values	Test conditions
ON-STATE				
I_{FAV}	Average forward current	A	630	$T_c=100 °C$; Double side cooled; 180° half-sine wave; 50 Hz
I_{FRMS}	RMS forward current	A	989	
I_{FSM}	Surge forward current	kA	12.0 14.0	$T_j=T_{jmax}$ $T_j=25 °C$ 180° half-sine wave; $t_p=10 ms$; single pulse; $V_R=0 V$;
			13.0 15.0	$T_j=T_{jmax}$ $T_j=25 °C$ 180° half-sine wave; $t_p=8.3 ms$; single pulse; $V_R=0 V$;
I^2t	Safety factor	$A^2s \cdot 10^3$	720 980	$T_j=T_{jmax}$ $T_j=25 °C$ 180° half-sine wave; $t_p=10 ms$; single pulse; $V_R=0 V$;
			700 930	$T_j=T_{jmax}$ $T_j=25 °C$ 180° half-sine wave; $t_p=8.3 ms$; single pulse; $V_R=0 V$;
BLOCKING				
V_{RRM}	Repetitive peak reverse voltages	V	2800÷3600	$T_{jmin} < T_j < T_{jmax}$; 180° half-sine wave; 50 Hz;
$V_{(BR)}$	Breakdown voltage	V	3250÷4050	$T_j=25 °C$; $I_{br}=100 mA$; $t_p = 10 ms$; 5 Hz
V_R	Reverse continuous voltages	V	$0.75 \cdot V_{RRM}$	$T_j=T_{jmax}$;
P_{RSM}	Surge reverse power dissipation	kW	16	$T_j= T_{jmax}$; $t_p = 100 \mu s$; 180° half-sine current waveforms; single pulse
THERMAL				
T_{stg}	Storage temperature	°C	- 60 ÷ 50	
T_j	Operating junction temperature	°C	- 60 ÷ 150	
MECHANICAL				
F	Mounting force	kN	14.0 ÷ 16.0	
a	Acceleration	m/s^2	50	Device unclamped
			100	Device clamped

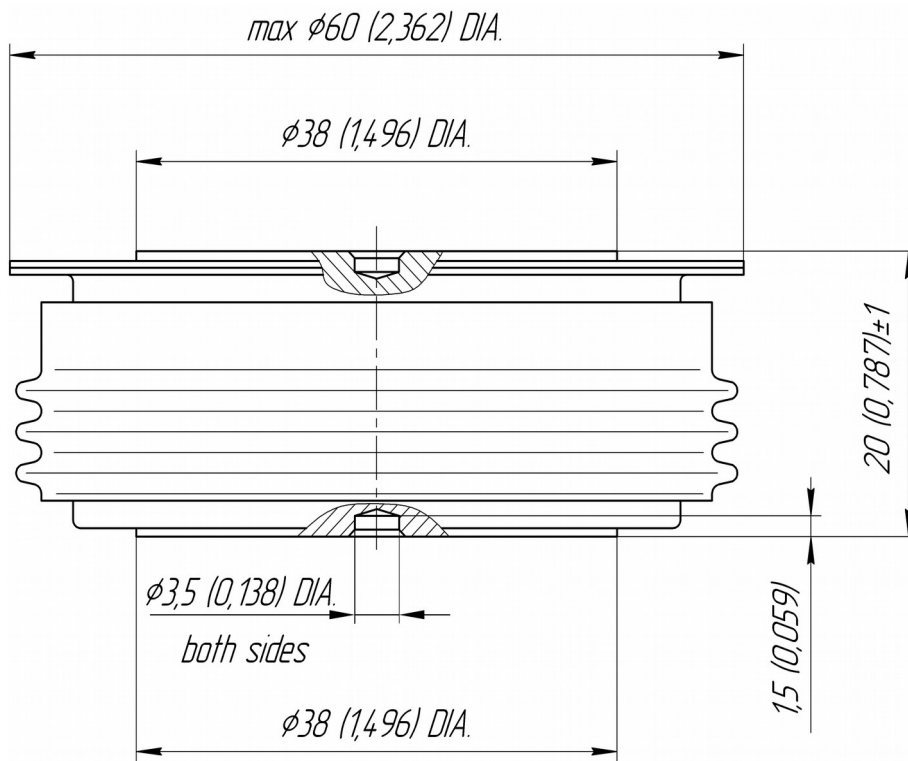
CHARACTERISTICS

Symbols and parameters		Units	Values	Conditions
ON-STATE				
V_{FM}	Peak forward voltage, max	V	1.90	$T_j=25\text{ }^\circ\text{C}; I_{FM}=1978\text{ A}$
$V_{F(TO)}$	Forward threshold voltage, max	V	1.00	$T_j=T_{j\text{ max}};$
r_T	Forward slope resistance, max	$m\Omega$	1.070	$0.5\pi I_{FAV} < I_T < 1.5\pi I_{FAV}$
BLOCKING				
I_{RRM}	Repetitive peak reverse current, max	mA	50	$T_j=T_{j\text{ max}};$ $V_R=V_{RRM}$
THERMAL				
R_{thjc}	Thermal resistance, junction to case, max	$^\circ\text{C/W}$	0.0300	Double side cooled
R_{thjc-A}			0.0660	Direct current Anode side cooled
R_{thjc-K}			0.0540	Cathode side cooled
R_{thck}	Thermal resistance, case to heatsink, max	$^\circ\text{C/W}$	0.0060	Direct current
MECHANICAL				
w	Weight, typ	g	260	
D_s	Surface creepage distance	mm (inch)	23.69 (0.933)	
D_a	Air strike distance	mm (inch)	19.10 (0.752)	

PART NUMBERING GUIDE

DA	343	630	36	N
1	2	3	4	5

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



All dimensions in millimeters (inches)