

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

Power Rectifier Avalanche Diodes Type DA173-3200-28

Average forward current		I_{FAV}	3200 A
Repetitive peak reverse voltage		V_{RRM}	2400 ÷ 2800 V
V_{RRM} , V	2400	2600	2800
Voltage code	24	26	28
T_j , °C	- 60 ÷ 175		

MAXIMUM ALLOWABLE RATINGS

Symbols and parameters		Units	Values	Test conditions
ON-STATE				
I_{FAV}	Average forward current	A	3200 3720	$T_c=115$ °C; Double side cooled; $T_c=100$ °C; Double side cooled; 180° half-sine wave; 50 Hz
I_{FRMS}	RMS forward current	A	5024	$T_c=115$ °C; Double side cooled; 180° half-sine wave; 50 Hz
I_{FSM}	Surge forward current	kA	45.0 49.5	$T_j=T_{jmax}$ $T_j=25$ °C 180° half-sine wave; $t_p=10$ ms; single pulse; $V_R=0$ V;
			47.3 52.0	$T_j=T_{jmax}$ $T_j=25$ °C 180° half-sine wave; $t_p=8.3$ ms; single pulse; $V_R=0$ V;
I^2t	Safety factor	$A^2s \cdot 10^3$	10125 12251	$T_j=T_{jmax}$ $T_j=25$ °C 180° half-sine wave; $t_p=10$ ms; single pulse; $V_R=0$ V;
			9265 11211	$T_j=T_{jmax}$ $T_j=25$ °C 180° half-sine wave; $t_p=8.3$ ms; single pulse; $V_R=0$ V;
BLOCKING				
V_{RRM}	Repetitive peak reverse voltages	V	2400÷2800	$T_{jmin} < T_j < T_{jmax}$; 180° half-sine wave; 50 Hz;
$V_{(BR)}$	Breakdown voltage	V	2850÷3250	$T_j=25$ °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	$T_j= T_{jmax}$; $t_p = 100$ μs; 180° half-sine current waveforms; single pulse
THERMAL				
T_{stg}	Storage temperature	°C	- 60 ÷ 50	
T_j	Operating junction temperature	°C	- 60 ÷ 175	
MECHANICAL				
F	Mounting force	kN	40.0 ÷ 50.0	
a	Acceleration	m/s^2	50	Device unclamped
			100	Device clamped

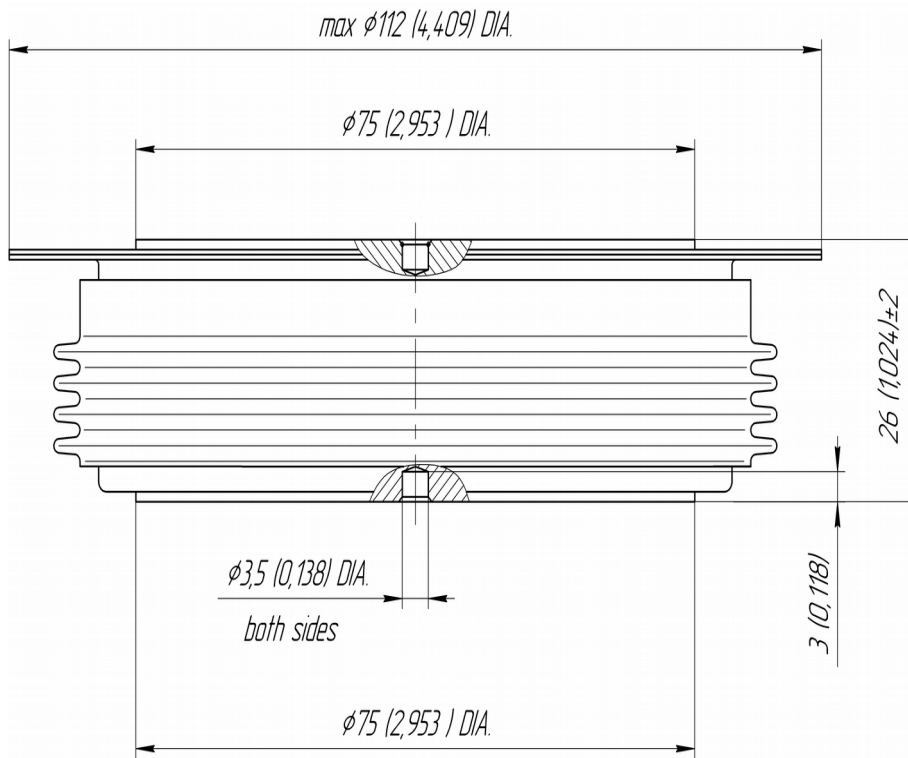
CHARACTERISTICS

Symbols and parameters		Units	Values	Conditions	
ON-STATE					
V_{FM}	Peak forward voltage, max	V	2.20	$T_j=25\text{ }^\circ\text{C}; I_{FM}=10048\text{ A}$	
$V_{F(TO)}$	Forward threshold voltage, max	V	1.00	$T_j=T_{j,max};$	
r_T	Forward slope resistance, max	$m\Omega$	0.150	$0.5 \pi I_{FAV} < I_T < 1.5 \pi I_{FAV}$	
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, max	$^\circ\text{C/W}$	0.0085	Direct current	Double side cooled
R_{thjc-A}			0.0187		Anode side cooled
R_{thjc-K}			0.0153		Cathode side cooled
R_{thck}	Thermal resistance, case to heatsink, max	$^\circ\text{C/W}$	0.0020	Direct current	
MECHANICAL					
w	Weight, typ	g	1500		
D_s	Surface creepage distance	mm (inch)	41.40 (1.630)		
D_a	Air strike distance	mm (inch)	23.10 (0.909)		

PART NUMBERING GUIDE

DA	173	3200	28	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)