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

Rectifier Diode
Type D173-3200-36

Average forward current		I_{FAV}	3200 A	
Repetitive peak reverse voltage		V_{RRM}	3000 ÷ 3600 V	
V_{RRM}, V	3000	3200	3400	3600
Voltage code	30	32	34	36
T_j, °C	-60 ÷ 160			

MAXIMUM ALLOWABLE RATINGS

Symbols and parameters		Units	Values	Test conditions	
ON-STATE					
I_{FAV}	Average forward current	A	3200 4240	T_c=109 °C; Double side cooled; T_c=85 °C; Double side cooled; 180° half-sine wave; 50 Hz	
I_{FRMS}	RMS forward current	A	5024	T_c=109 °C; Double side cooled; 180° half-sine wave; 50 Hz	
I_{FSM}	Surge forward current	kA	50.0 58.0	T_j=$T_{j\,max}$ T_j=25 °C	180° half-sine wave; 50 Hz (t_p=10 ms); single pulse; V_R=0 V;
			53.0 61.0	T_j=$T_{j\,max}$ T_j=25 °C	180° half-sine wave; 60 Hz (t_p=8.3 ms); single pulse; V_R=0 V;
I^2t	Safety factor	$A^2s\cdot10^3$	12500 16820	T_j=$T_{j\,max}$ T_j=25 °C	180° half-sine wave; 50 Hz (t_p=10 ms); single pulse; V_R=0 V;
			11655 15440	T_j=$T_{j\,max}$ T_j=25 °C	180° half-sine wave; 60 Hz (t_p=8.3 ms); single pulse; V_R=0 V;
BLOCKING					
V_{RRM}	Repetitive peak reverse voltages	V	3000÷3600	$T_{j\,min}$< T_j <$T_{j\,max}$; 180° half-sine wave; 50 Hz;	
V_{RSM}	Non-repetitive peak reverse voltages	V	3100÷3700	$T_{j\,min}$< T_j <$T_{j\,max}$; 180° half-sine wave; 50 Hz;single pulse;	
V_R	Reverse continuous voltages	V	0.75·V_{RRM}	T_j=$T_{j\,max}$;	
THERMAL					
T_{stg}	Storage temperature	°C	-60÷50		
T_j	Operating junction temperature	°C	-60÷160		
MECHANICAL					
F	Mounting force	kN	40÷50		
a	Acceleration	m/s^2	50 100	Device unclamped Device clamped	

CHARACTERISTICS

Symbols and parameters		Units	Values	Conditions	
ON-STATE					
V_{FM}	Peak forward voltage, max	V	1.80	T_j=25 °C; I_{FM}=10048 A	
$V_{F(TO)}$	Forward threshold voltage, max	V	1.25	$T_j=T_{j\,max}$;	
r_T	Forward slope resistance, max	mΩ	0.080	0.5 π I_{FAV} < I_T < 1.5 π I_{FAV}	
BLOCKING					
I_{RRM}	Repetitive peak reverse current, max	mA	150	$T_j=T_{j\,max}$; $V_R=V_{RRM}$	
SWITCHING					
Q_{rr}	Total recovered charge, max	μC	6750	$T_j=T_{j\,max}$; I_{TM}=2000 A ; di_R/dt=-5 A/μs ; V_R=100 V	
t_{rr}	Reverse recovery time, max	μs	75		
I_{rrM}	Peak reverse recovery current, max	A	180		
THERMAL					
R_{thjc}	Thermal resistance, junction to case, 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
R_{thck}	Thermal resistance, case to heatsink, max	°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)		

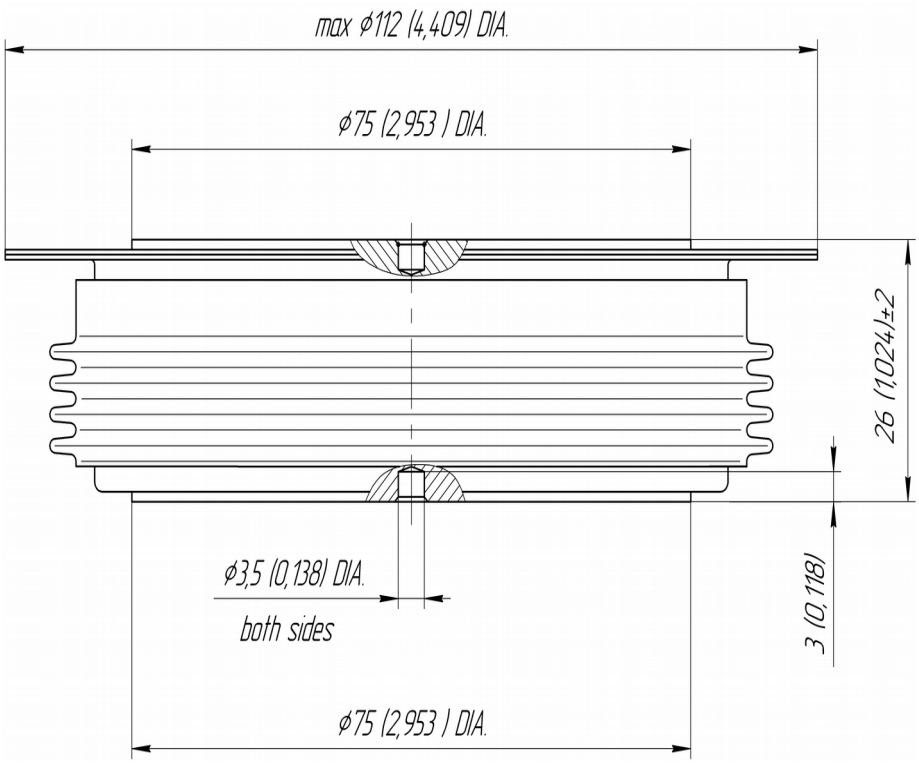
PART NUMBERING GUIDE

D	173	3200	36	N
1	2	3	4	5

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

OVERALL DIMENSIONS

Package type: D.F1



All dimensions in millimeters (inches)