

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

## Rectifier Diode Type D233-1000-18

Average forward current				$I_{FAV}$		1000 A		
Repetitive peak reverse voltage				$V_{RRM}$		1000 ÷ 1800 V		
$V_{RRM}, V$	1000	1100	1200	1300	1400	1500	1600	1800
Voltage code	10	11	12	13	14	15	16	18
$T_j, ^\circ C$	-60 ÷ 190							

### MAXIMUM ALLOWABLE RATINGS

Symbols and parameters		Units	Values	Test conditions	
<b>ON-STATE</b>					
$I_{FAV}$	Average forward current	A	1000 1155	$T_c=117\text{ }^\circ C$ ; Double side cooled; $T_c=100\text{ }^\circ C$ ; Double side cooled; 180° half-sine wave; 50 Hz	
$I_{FRMS}$	RMS forward current	A	1570	$T_c=117\text{ }^\circ C$ ; Double side cooled; 180° half-sine wave; 50 Hz	
$I_{FSM}$	Surge forward current	kA	16.0 18.0	$T_j=T_{j\text{ max}}$ $T_j=25\text{ }^\circ C$	180° half-sine wave; 50 Hz ( $t_p=10\text{ ms}$ ); single pulse; $V_R=0\text{ V}$ ;
			17.0 20.0	$T_j=T_{j\text{ max}}$ $T_j=25\text{ }^\circ C$	180° half-sine wave; 60 Hz ( $t_p=8.3\text{ ms}$ ); single pulse; $V_R=0\text{ V}$ ;
$I^2t$	Safety factor	$A^2s \cdot 10^3$	1280 1620	$T_j=T_{j\text{ max}}$ $T_j=25\text{ }^\circ C$	180° half-sine wave; 50 Hz ( $t_p=10\text{ ms}$ ); single pulse; $V_R=0\text{ V}$ ;
			1195 1660	$T_j=T_{j\text{ max}}$ $T_j=25\text{ }^\circ C$	180° half-sine wave; 60 Hz ( $t_p=8.3\text{ ms}$ ); single pulse; $V_R=0\text{ V}$ ;
<b>BLOCKING</b>					
$V_{RRM}$	Repetitive peak reverse voltages	V	1000 ÷ 1800	$T_{j\text{ min}} < T_j < T_{j\text{ max}}$ ; 180° half-sine wave; 50 Hz;	
$V_{RSM}$	Non-repetitive peak reverse voltages	V	1100 ÷ 1900	$T_{j\text{ min}} < T_j < T_{j\text{ max}}$ ; 180° half-sine wave; 50 Hz; single pulse;	
$V_R$	Reverse continuous voltages	V	$0.75 \cdot V_{RRM}$	$T_j = T_{j\text{ max}}$ ;	
<b>THERMAL</b>					
$T_{stg}$	Storage temperature	$^\circ C$	-60 ÷ 50		
$T_j$	Operating junction temperature	$^\circ C$	-60 ÷ 190		
<b>MECHANICAL</b>					
F	Mounting force	kN	9.0 ÷ 11.0		
a	Acceleration	$m/s^2$	50	Device unclamped	
			100	Device clamped	

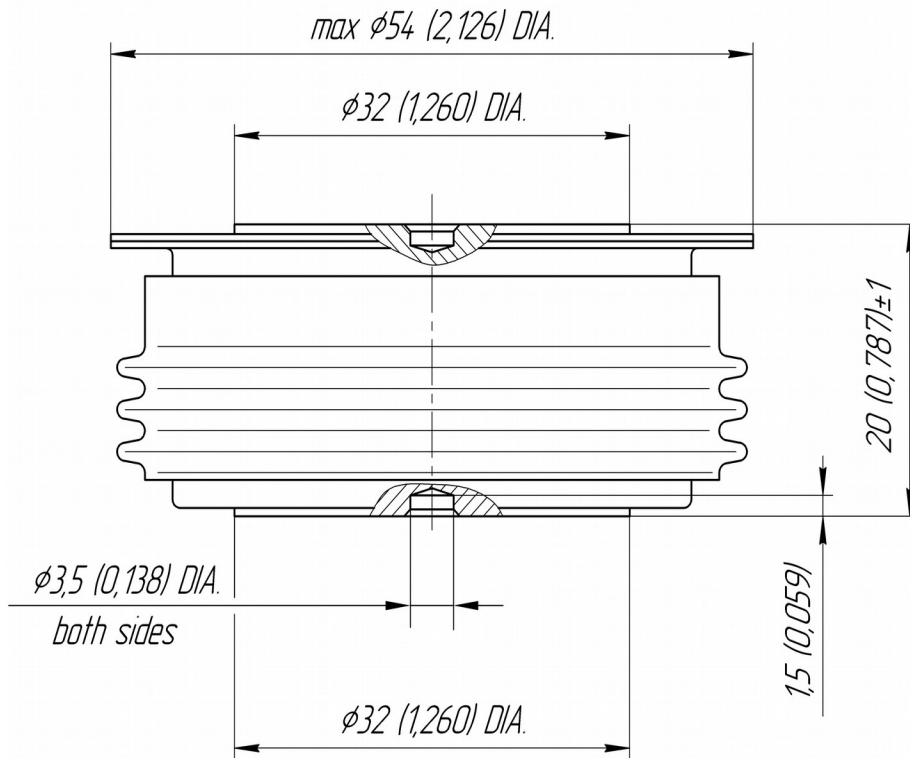
## CHARACTERISTICS

Symbols and parameters		Units	Values	Conditions	
<b>ON-STATE</b>					
$V_{FM}$	Peak forward voltage, max	V	1.60	$T_j=25\text{ }^\circ\text{C}; I_{FM}=3140\text{ A}$	
$V_{F(TO)}$	Forward threshold voltage, max	V	0.95	$T_j=T_{j\text{ max}}$ ;	
$r_T$	Forward slope resistance, max	m $\Omega$	0.350	$0.5\pi I_{FAV} < I_T < 1.5\pi I_{FAV}$	
<b>BLOCKING</b>					
$I_{RRM}$	Repetitive peak reverse current, max	mA	50	$T_j=T_{j\text{ max}}$ ; $V_R=V_{RRM}$	
<b>THERMAL</b>					
$R_{thjc}$	Thermal resistance, junction to case, max	$^\circ\text{C/W}$	0.040	Direct current	
$R_{thjc-A}$			0.088		Anode side cooled
$R_{thjc-K}$			0.072		Cathode side cooled
$R_{thck}$	Thermal resistance, case to heatsink, max	$^\circ\text{C/W}$	0.008	Direct current	
<b>MECHANICAL</b>					
w	Weight, typ	g	180		
$D_s$	Surface creepage distance	mm (inch)	23.69 (0.933)		
$D_a$	Air strike distance	mm (inch)	19.10 (0.752)		

### PART NUMBERING GUIDE

D	233	1000	18	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



All dimensions in millimeters (inches)