



**Fast Recovery**  
**Avalanche Diode**  
**Type DFA233-200-15**

Low switching losses  
Low reverse recovery charge  
High power cycling capability

Average forward current		$I_{FAV}$	200 A
Repetitive peak reverse voltage		$V_{RRM}$	1300...1500 V
Reverse recovery time		$t_{rr}$	1.25, 1.60, 2.00, 2.50 $\mu$ s
$V_{RRM}, V$	1300	1400	1500
Voltage code	13	14	15
$T_j, ^\circ C$	-60...+125		

**MAXIMUM ALLOWABLE RATINGS**

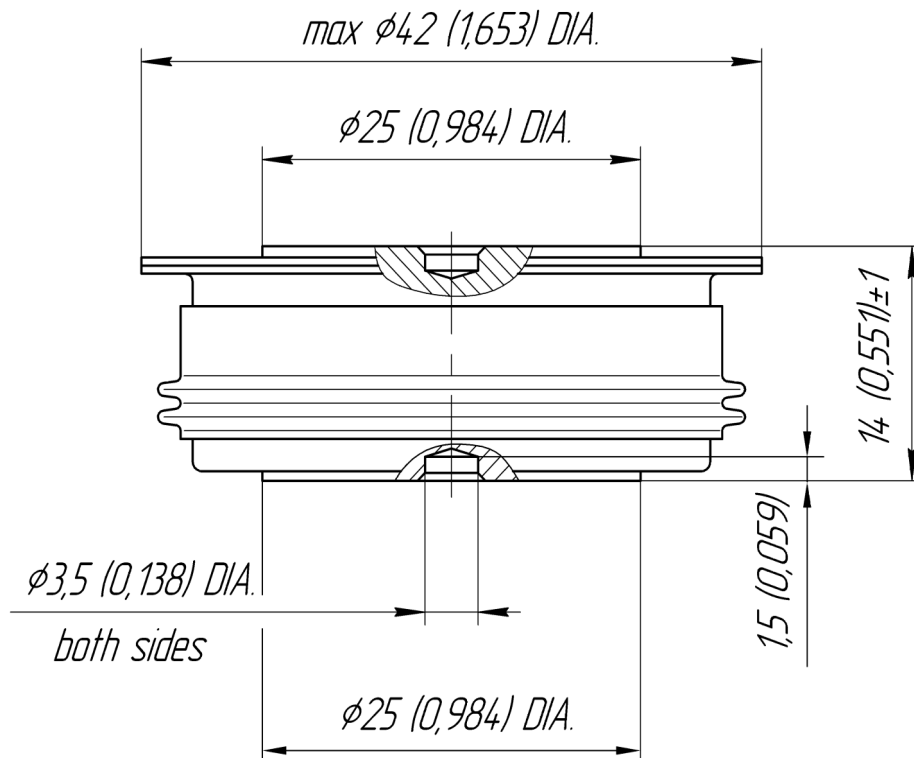
Symbols and parameters		Units	Values	Test conditions
<b>ON-STATE</b>				
$I_{FAV}$	Average forward current	A	200	$T_c=90^\circ C$ ; Double side cooled; 180° half-sine wave; 50 Hz
$I_{FRMS}$	RMS forward current	A	314	$T_c=90^\circ C$ ; Double side cooled; 180° half-sine wave; 50 Hz
$I_{FSM}$	Surge forward current	kA	4.8 5.5	$T_j=T_{jmax}$ $T_j=25^\circ C$ 180° half-sine wave; $t_p=10$ ms; single pulse; $V_R=0$ V;
			5.0 6.0	$T_j=T_{jmax}$ $T_j=25^\circ C$ 180° half-sine wave; $t_p=8.3$ ms; single pulse; $V_R=0$ V;
$I^2t$	Safety factor	$A^2s \cdot 10^3$	110 150	$T_j=T_{jmax}$ $T_j=25^\circ C$ 180° half-sine wave; $t_p=10$ ms; single pulse; $V_R=0$ V;
			100 140	$T_j=T_{jmax}$ $T_j=25^\circ C$ 180° half-sine wave; $t_p=8.3$ ms; single pulse; $V_R=0$ V;
<b>BLOCKING</b>				
$V_{RRM}$	Repetitive peak reverse voltages	V	1300...1500	$T_{jmin} < T_j < T_{jmax}$ ; 180° half-sine wave; 50 Hz;
$V_{RSM}$	Non-repetitive peak reverse voltages	V	1400...1600	$T_{jmin} < T_j < T_{jmax}$ ; 180° half-sine wave; single pulse;
$V_{(BR)}$	Breakdown voltage	V	1500...1700	$T_j=25^\circ C$ ; $I_{br}=100$ mA; $t_p = 10$ ms; 5 Hz
$V_R$	Reverse continuous voltages	V	$0.6 \cdot V_{RRM}$	$T_j=T_{jmax}$ ;
$P_{RSM}$	Surge reverse power dissipation	kW	16	$T_j= T_{jmax}$ ; $t_p = 100$ $\mu$ s; 180° half-sine current waveforms; single pulse
<b>THERMAL</b>				
$T_{stg}$	Storage temperature	$^\circ C$	-60...+55	
$T_j$	Operating junction temperature	$^\circ C$	-60...+125	
<b>MECHANICAL</b>				
F	Mounting force	kN	9.0...11.0	
a	Acceleration	$m/s^2$	50	Device clamped

## CHARACTERISTICS

Symbols and parameters		Units	Values	Conditions
<b>ON-STATE</b>				
$V_{FM}$	Peak forward voltage, max	V	3.50	$T_j=25\text{ }^\circ\text{C}; I_{FM}=628\text{ A}$
$V_{F(TO)}$	Forward threshold voltage, max	V	1.10	$T_j=T_{j\text{ max}};$ $0.5\pi I_{FAV} < I_T < 1.5\pi I_{FAV}$
$r_T$	Forward slope resistance, max	m $\Omega$	6.70	
<b>BLOCKING</b>				
$I_{RRM}$	Repetitive peak reverse current, max	mA	40	$T_j=T_{j\text{ max}};$ $V_R=V_{RRM}$
<b>SWITCHING</b>				
$Q_{rr}$	Total recovered charge, max	$\mu\text{C}$	tbd*	$T_j=T_{j\text{ max}}; I_{FM}=I_{FAV};$ $di_R/dt=-100\text{ A}/\mu\text{S};$ $V_R=100\text{ V};$
$t_{rr}$	Reverse recovery time <sup>1)</sup> , max	$\mu\text{S}$	1.25, 1.60, 2.00, 2.50	
$I_{rrM}$	Peak reverse recovery current, max	A	tbd*	
<b>THERMAL</b>				
$R_{thjc}$	Thermal resistance, junction to case, max	$^\circ\text{C}/\text{W}$	0.040	Double side cooled
$R_{thjc-A}$			0.088	Direct current
$R_{thjc-K}$			0.072	Cathode side cooled
$R_{thck}$	Thermal resistance, case to heatsink, max	$^\circ\text{C}/\text{W}$	0.009	Direct current
<b>MECHANICAL</b>				
w	Weight, max	g	90	
$D_s$	Surface creepage distance	mm (inch)	11.10 (0.437)	
$D_a$	Air strike distance	mm (inch)	11.60 (0.457)	

\* **tbd** – data will be refined as additional tests are conducted and statistics are collected.

PART NUMBERING GUIDE						NOTES										
DFA	233	200	15	M4	N	<sup>1)</sup> Reverse recovery time <table border="1"> <thead> <tr> <th>Symbol of group</th> <th>X4</th> <th>T4</th> <th>P4</th> <th>M4</th> </tr> </thead> <tbody> <tr> <td><math>t_{rr}, \mu\text{S}</math></td> <td>1.25</td> <td>1.60</td> <td>2.00</td> <td>2.50</td> </tr> </tbody> </table>	Symbol of group	X4	T4	P4	M4	$t_{rr}, \mu\text{S}$	1.25	1.60	2.00	2.50
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$t_{rr}, \mu\text{S}$	1.25	1.60	2.00	2.50												
1	2	3	4	5	6											
1. DFA – Fast recovery avalanche diode 2. Design version 3. Average forward current, A 4. Voltage code 5. Group of reverse recovery time 6. Ambient conditions: N – normal; T – tropical																



All dimensions in millimeters (inches)