

Тиристор быстродействующий ТБ251-100-14



Mean on-state current				I_{TAV}		100 A		
Repetitive peak off-state voltage				U_{DRM}		500 - 1400 V		
Repetitive peak reverse voltage				U_{RRM}				
Turn-off time				t_q		20.0, 25.0 μ s		
U_{DRM}, U_{RRM}, V	500	600	700	800	900	1000	1200	1400
Voltage code	5	6	7	8	9	10	12	14
$T_j, ^\circ C$	-60 \div 125							

ПРЕДЕЛЬНО ДОПУСТИМЫЕ ЗНАЧЕНИЯ ПАРАМЕТРОВ

Symbols and parameters		Units	Values	Conditions
I_{TAV}	Mean on-state current	A	100	$T_c=90^\circ C$, 180° half-sine wave, 50 Hz
I_{TRMS}	RMS on-state current	A	157	$T_c=90^\circ C$
I_{TSM}	Surge on-state current	kA	2,0 2,82	$T_{vj}=125^\circ C$ $T_{vj}=25^\circ C$ $t_p=10$ ms $U_R=0$
I^2t	Limiting load integral	kA^2s	20,80 24,2	$T_{vj}=125^\circ C$ $T_{vj}=25^\circ C$
U_{DRM}, U_{RRM}	Repetitive peak off-state and reverse voltage	V	500 - 1400	$T_j \min \leq T_{vj} \leq T_{jm}$ 180° half-sine wave, 50 Hz Gate open
U_{DSM}, U_{RSM}	Non-repetitive peak off-state and reverse voltage	V	550 - 1500	$T_j \min \leq T_{vj} \leq T_{jm}$ 180° half-sine wave $t_p=10$ ms, Single pulse Gate open
$(di_T/dt)_{crit}$	Critical rate of rise of on-state current : non - repetitive	A/ μ s	1000 400	$T_{vj}=125^\circ C$; $U_D=0,67 U_{DRM}$, Gate pulse : 10V,5 Ω , 1 μ s rise time, 10 μ s
U_{RGM}	Peak reverse gate voltage	V	5	$T_j \min \leq T_{vj} \leq T_{jm}$
T_{stg}	Storage temperature	$^\circ C$	-60...+80	
T_{vj}	Junction temperature	$^\circ C$	-60...+125	
U_{TM}	Peak on-state voltage	V	1,8	$T_{vj}=25^\circ C$, $I_{TM}=3,14 I_{TAV}$
$U_{T(TO)}$	Threshold voltage	V	1,3	$T_{vj}=125^\circ C$
R_T	On-state slope resistance	$m\Omega$	1,5	1,57 $I_{TAV} < I_T < 4,71 I_{TAV}$
I_{DRM} I_{RRM}	Repetitive peak off-state and reverse current	mA	20 20	$T_{vj}=125^\circ C$, $U_D = U_{DRM}$ $U_R = U_{RRM}$

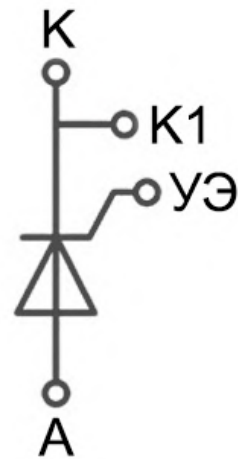
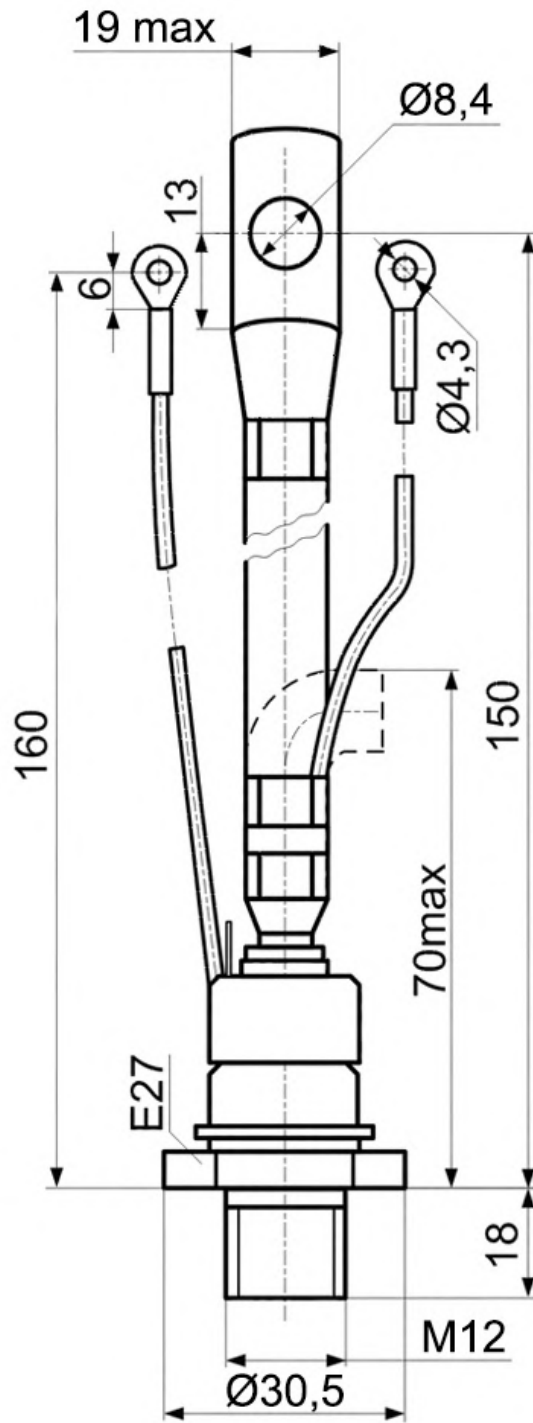
CHARACTERISTICS

Symbols and parameters		Units	Values	Conditions
I_L	Latching current	A	0,7	$T_{vj}=25^{\circ}\text{C}, U_D=12\text{V}$ Gate pulse : 10V, 5 Ω , 1 μs rise time, 10 μs
I_H	Holding current	A	0,3	$T_{vj}=25^{\circ}\text{C}, U_D=12\text{V}$, Gate open
U_{GT}	Gate trigger direct voltage	V	2,5 5,0	$T_{vj}=25^{\circ}\text{C}$, $T_{vj}=-60^{\circ}\text{C}$
I_{GT}	Gate trigger direct current	A	0,2 0,5	$T_{vj}=25^{\circ}\text{C}$, $T_{vj}=-60^{\circ}\text{C}$
U_{GD}	Gate non-trigger direct voltage	V	0,25	$T_{vj}=125^{\circ}\text{C}, U_D = 0,67 U_{DRM}$
I_{GD}	Gate non-trigger direct current	mA	10	Direct gate current
tgd	Delay time	μs	1,6	$T_{vj}=25^{\circ}\text{C}, U_D=500\text{V}$ $I_{TM} = 80\text{ A}$
tgt	Turn-on time	μs	3,2	Gate pulse : 10V, 5 Ω , 1 μs rise time, 10 μs
tq	Turn-off time	μs	20; 25 25; 32	$T_{vj}=125^{\circ}\text{C}, I_{TM}=80\text{ A}$ $di_R/dt=10\text{ A}/\mu\text{s}, U_R=100\text{V}$ $U_D = 0,67 U_{DRM}$ $du_D/dt=50\text{ V}/\mu\text{s}$ $du_D/dt=200\text{ V}/\mu\text{s}$
Qrr	Recovered charge	μC	150	$T_{vj}=125^{\circ}\text{C}, I_{TM}=80\text{ A}$ $di_R/dt=50\text{ A}/\mu\text{s}, U_R=100\text{V}$
trr	Reverse recovery time	μs	2,5	
Irrm	Peak reverse recovery current	A	120	
(du_D/dt)crit	Critical rate of rise of off-state voltage	V/ μs	500 1000	$T_{vj}=125^{\circ}\text{C}, U_D = 0,67 U_{DRM}$ Gate open
Rthjc	Thermal resistance junction to case	$^{\circ}\text{C}/\text{W}$	0,21	Direct current

PART NUMBERING GUIDE								NOTES																					
ТБ	251	100	14	A2	P3	K4	УХЛ2	¹⁾ Critical rate of rise of off-state voltage <table border="1" style="width: 100%;"> <tr> <td>Symbol of Group</td> <td>K2</td> <td>E2</td> <td>A2</td> </tr> <tr> <td>(dv_D/dt)_{crit}, V/ms</td> <td>320</td> <td>500</td> <td>1000</td> </tr> </table> ²⁾ Turn-on time <table border="1" style="width: 100%;"> <tr> <td>Symbol of Group</td> <td>K4</td> </tr> <tr> <td>t_{gt}, ms</td> <td>3.20</td> </tr> </table> ³⁾ Turn-off time ($dv_D/dt=50\text{ V/ms}$) <table border="1" style="width: 100%;"> <tr> <td>Symbol of Group</td> <td>P3</td> <td>M3</td> </tr> <tr> <td>t_q, ms</td> <td>20.0</td> <td>25.0</td> </tr> </table>				Symbol of Group	K2	E2	A2	(dv_D/dt) _{crit} , V/ms	320	500	1000	Symbol of Group	K4	t _{gt} , ms	3.20	Symbol of Group	P3	M3	t _q , ms	20.0	25.0
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1. TF (ТБ) — fast thyristor 2. Design version 3. Mean on-state current, A 4. Voltage code 5. Critical rate of rise of off-state voltage 6. Group of turn-off time ($dv_D/dt=50\text{ V/ms}$) 7. Group of turn-on time 8. Ambient conditions: УХЛ2, T2																													

OVERALL DIMENSIONS

Package type: ST5



All dimensions in millimeters

- K – cathode;
- A – anode;
- K1 – auxiliary cathode;
- УЭ – gate;