AS ENERGI

Thyristor
T143-630-16

Average forward current			I_{TAV}		630 A		
Repetitive pulse voltage in closed state			V_{DRM}		400 - 1600 V		
Repetitive pulsed reverse voltage			V_{RRM}				
Turn-off time			t_q		160 µs		
V_{DRM}, V_{RRM}, V	400	600	800	1000	1200	1400	1600
Voltage class	4	6	8	10	12	14	16
T_j, °C	– 60 ÷ 125						

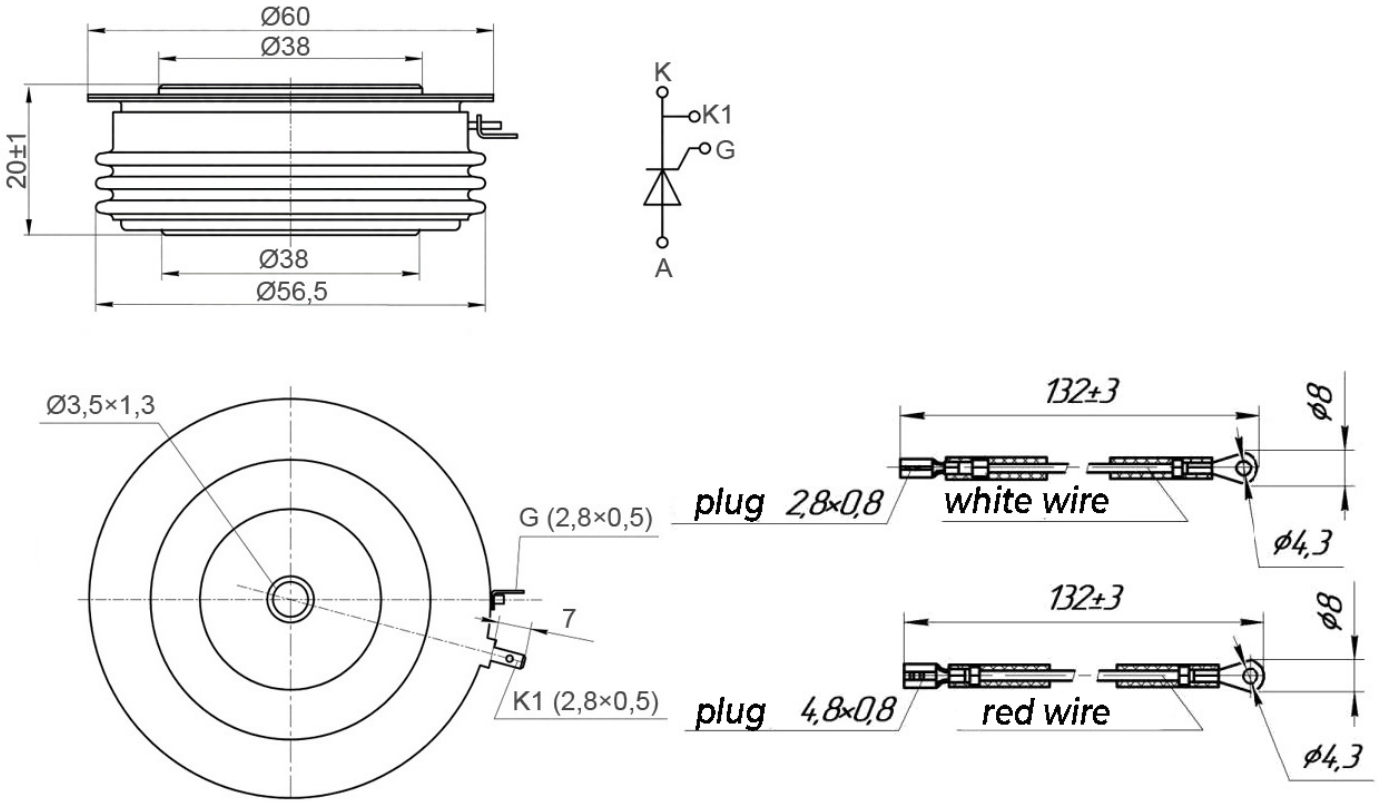
MAXIMUM ALLOWABLE VALUES OF PARAMETERS

Parameter name	Conditional designation	Values parameters	Unit
Repetitive pulse voltage in closed state, T_j = -60 …+ 125°C	V_{DRM}	400-1600	V
Repetitive pulsed reverse voltage, T_j = -60 …+ 125°C	V_{RRM}	400-1600	
Non-repeating pulse voltage in closed state, T_j = -60 …+ 125°C	V_{DSM}	500-1700	
Non-repeating pulse reverse voltage, T_j = -60 …+ 125°C	V_{RSM}	500-1700	
Repetitive pulse current in closed state / Repetitive pulse reverse current, T_j = 125°C, V_D/ V_R=V_{DRM}/ V_{RRM}	I_{DRM} / I_{RRM}	30	mA
Maximum permissible average current in open state, f = 50 Hz, T_C = 85 °C T_C = 70 °C	$I_{T(AV)}$	680 937	A
Operating current in open state, T_C = 70 °C, f = 50 Hz	I_{TRMS}	850	A
Surge non-repetitive current, T_j = 125°C °V_R= 0, t_p = 10 ms	I_{TSM}	13	kA
Safety factor	I^2t	$8.45 \cdot 10^5$	A^2s
Critical rate of current rise in the open state, T_j = 125°C, V_D = 0.67V_{DRM}, I_T= 1260 A, I_{FG} = 2A, t_r = 1 µs, f = 50 Hz	$(di_T/dt)_{crit}$	200	A/µs
Critical rate of voltage rise in the closed state, T_j = 125°C, V_D = 0.67V_{DRM}	$(dv_D/dt)_{crit}$	1600	V/µs
Maximum control power, direct current	P_{GM}	4	W
Transition temperature	T_j	-60… +125	°C
Storage temperature	T_{stg}	-60… +50	

ELECTRICAL CHARACTERISTICS					
Parameter name	Conditional designation	Parameter values			Unit
		min	typ	max	
Pulse voltage in open state, T_j = 25 °C, I_T =1980 A	V_{TM}	-	-	1.65	V
Threshold voltage, T_j =125°C, I_T=990-2970 A	$V_{T(TO)}$	-	-	1.10	
Dynamic resistance, T_j = 125°C, I_T =990-2970 A	r_T	-	-	0.37	mΩ
Switch-on delay time, T_j=25 °C, V_D=0.67V_{DRM}, I_T=630A, I_{FG}=2 A, t_r = 0.5µs	t_d	-	-	3.0	µs
Shutdown time, T_j= 125°C, I_T = 630 A, di_T/dt = - 5 A/µs, V_R≥ 100 V, V_D = 0.67V_{DRM}, dv_D/dt = 50 V/µs	t_q	-	-	160	
Reverse recovery charge, T_j= 125°C, I_T= 630A, di_T/dt = - 5 A/µs, V_R≥ 100 V	Q_{RR}	-	-	800	µCl
Holding current, T_j = 25 °C, V_D = 12 V	I_H	-	-	300	mA
Latching current, T_j = 25 °C, V_D = 12 V, I_{FG} = 2 A, t_r = 0.5 µs	I_L	-	-	1500	mA
Unlocking DC control voltage, V_D = 12V, T_j = -60°C T_j = 25°C T_j =125°C	V_{GT}	-	-	 4.5 3.5 2.5	V
Unlocking DC control current, V_D = 12 V, T_j = -60°C T_j = 25 °C T_j =125°C	I_{GT}	-	-	 450 250 200	mA
Non-opening DC control voltage, T_j =125°C, V_D = 0.67V_{DRM}	V_{GD}	0.25	-	-	V
Non-opening DC control current, T_j =125°C, V_D = 0.67V_{DRM}	I_{GD}	15	-	-	mA
THERMAL PARAMETERS					
Thermal resistance of the junction - case, DC: double-sided DC: anode side DC: cathode side	 $R_{th(j-c)}$ $R_{th(j-cA)}$ $R_{th(j-cK)}$	-	-	 0.03 0.06 0.06	°C/W
Thermal resistance of the case - heatsink, double-sided cooling single-sided cooling	$R_{th(c-h)}$	-	-	 0.01 0.02	
MECHANICAL PARAMETERS					
Weight	w	-	0.24	-	kg
Clamping force	F	14	-	16	kN
Maximum allowable acceleration (in compressed condition)	a	-	-	100	m/s^2
Distance across the insulator surface from cathode to anode	D_s	-	18.4	-	mm

DIMENSIONS

Housing type: PT42, T.C2



K – cathode;

A – anode;

K1 – auxiliary cathode;

G – control electrode;

All dimensions in millimeters