

LIGHT TRIGGERING THYRISTOR TL193-2500

<ul style="list-style-type: none"> ◆ $V_{DRM} = \underline{6000 - 6400\text{ V}}$ ◆ $V_{RRM} = \underline{6000 - 6400\text{ V}}$ ◆ $I_{T(AV)} = \underline{2520\text{ A}}$ ($T_C = 70\text{ }^\circ\text{C}$) ◆ $I_{T(AV)} = \underline{2005\text{ A}}$ ($T_C = 85\text{ }^\circ\text{C}$) ◆ $I_{TSM} = \underline{55\text{ kA}}$ ($T_j = 120\text{ }^\circ\text{C}$) ◆ $P_{LM} = \underline{40\text{ mW}}$ 		
<ul style="list-style-type: none"> ◆ Light triggering ◆ Low on-state and switching losses 		

MAXIMUM RATED VALUES

Parameter and conditions	Symbol	Values	Units
Repetitive peak off-state voltage, $T_j = -40 \dots +120\text{ }^\circ\text{C}$	V_{DRM}	6000 - 6400	V
Repetitive peak reverse voltage, $T_j = -40 \dots +120\text{ }^\circ\text{C}$	V_{RRM}	6000 - 6400	
Non-repetitive peak off-state voltage, $T_j = -40 \dots +120\text{ }^\circ\text{C}$	V_{DSM}	6100 - 6500	
Non-repetitive peak reverse voltage, $T_j = -40 \dots +120\text{ }^\circ\text{C}$	V_{RSM}	6100 - 6500	
Repetitive peak off-state current/ Repetitive peak reverse current, $T_j = 120\text{ }^\circ\text{C}$, $V_D / V_R = V_{DRM} / V_{RRM}$	I_{DRM} / I_{RRM}	500	mA
Average on-state current, $f = 50\text{ Hz}$, double side cooling $T_C = 85\text{ }^\circ\text{C}$ $T_C = 70\text{ }^\circ\text{C}$	$I_{T(AV)}$	2005 2520	A
RMS on-state current, $T_C = 70\text{ }^\circ\text{C}$, $f = 50\text{ Hz}$	I_{TRMS}	3956	A
Surge non-repetitive on-state current, $T_j = 120\text{ }^\circ\text{C}$, $V_R = 0$, $t_p = 10\text{ ms}$	I_{TSM}	55	kA
Safety factor	I^2t	$1.5 \cdot 10^7$	A^2s
Critical rate of rise of on-state current, $T_j = 120\text{ }^\circ\text{C}$, $V_D = 0.67V_{DRM}$, $I_T = 5000\text{ A}$, $P_{LM} = 40\text{ mW}$, $t_L = 10\text{ } \mu\text{s}$, $f = 50\text{ Hz}$	$(di_T/dt)_{crit}$	300	$A/\mu\text{s}$
Critical rate of rise of off-state voltage, $T_j = 120\text{ }^\circ\text{C}$, $V_D = 0.67V_{DRM}$	$(dv_D/dt)_{crit}$	1000 - 2000	$V/\mu\text{s}$
Minimum gate trigger light power, $T_j = 25\text{ }^\circ\text{C}$, $V_D = 12\text{ V}$	P_{LM}	40	mW
Operation junction temperature range	T_j	-40 ... +120	$^\circ\text{C}$
Storage temperature range	T_{stg}	-40 ... +50	$^\circ\text{C}$

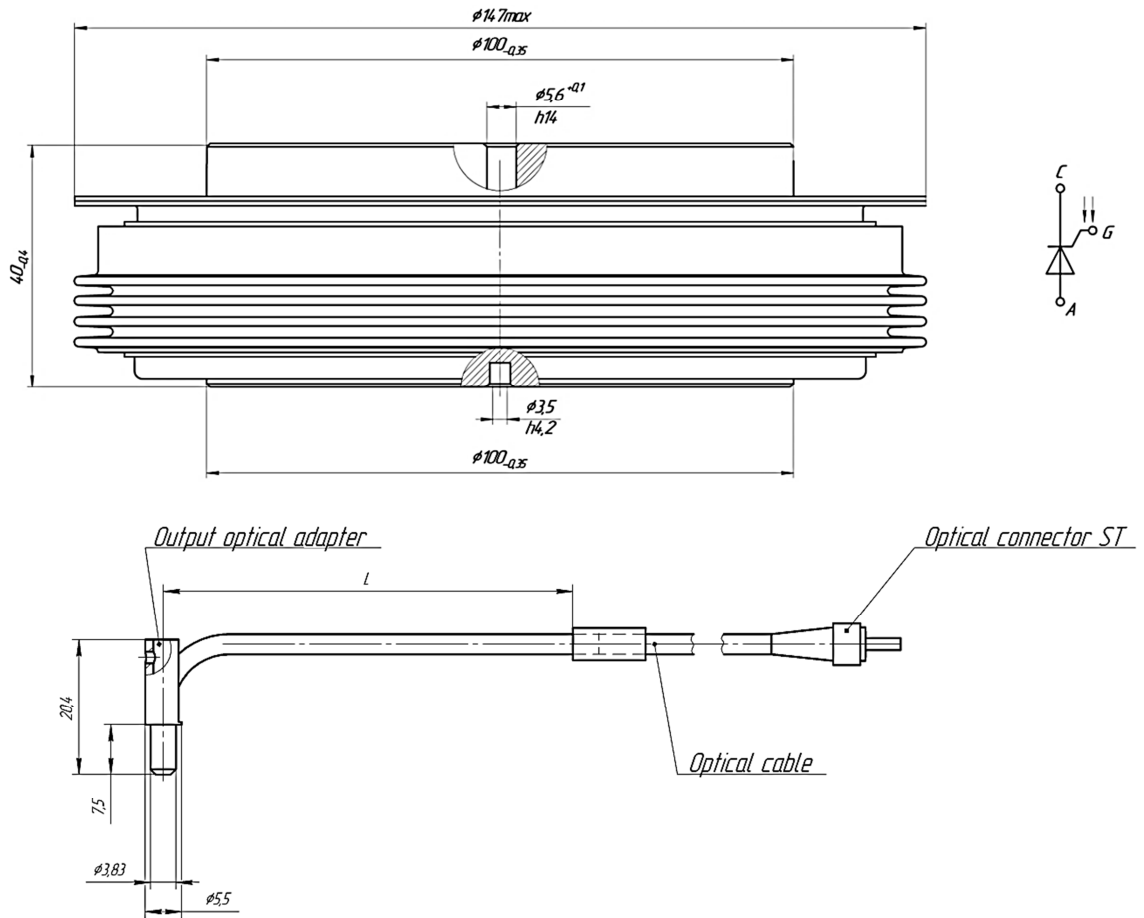


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ELECTRICAL CHARACTERISTICS					
Parameter and conditions	Symbol	Values			Units
		min	typ.	max	
Peak on-state voltage, $T_j = 25\text{ }^\circ\text{C}$, $I_T = 7850\text{ A}$	V_{TM}	-	-	2.75	V
On-state threshold voltage, $T_j = 120\text{ }^\circ\text{C}$, $I_T = 4000 - 12000\text{ A}$	$V_{T(TO)}$	-	-	1.22	
On-state slope resistance, $T_j = 120\text{ }^\circ\text{C}$, $I_T = 4000 - 12000\text{ A}$	r_T	-	-	0.28	m Ω
Delay time, $T_j = 25\text{ }^\circ\text{C}$, $V_D = 1000\text{ V}$, $I_T = 2500\text{ A}$, $P_{LM} = 40\text{ mW}$, $t_L = 10\text{ }\mu\text{s}$, $t_r = 0.5\text{ }\mu\text{s}$	t_d	-	-	5.0	μs
Turn off-time, $T_j = 120\text{ }^\circ\text{C}$, $I_T = 2500\text{ A}$, $di_T/dt = -5\text{ A}/\mu\text{s}$, $V_R \geq 100\text{ V}$, $V_D = 0.67V_{DRM}$, $dv_D/dt = 50\text{ V}/\mu\text{s}$	t_q	-	630	-	
Reverse recovery charge, $T_j = 120\text{ }^\circ\text{C}$, $I_T = 2500\text{ A}$, $di_T/dt = -5\text{ A}/\mu\text{s}$, $V_R \geq 100\text{ V}$	Q_{RR}	-	-	6000	μAs
Holding current, $T_j = 25\text{ }^\circ\text{C}$, $V_D = 12\text{ V}$	I_H	-	-	300	mA
Latching current, $T_j = 25\text{ }^\circ\text{C}$, $V_D = 12\text{ V}$, $P_{LM} = 40\text{ mW}$, $t_L = 10\text{ }\mu\text{s}$, $t_r = 0.5\text{ }\mu\text{s}$	I_L	-	-	1000	
THERMAL PARAMETERS					
Thermal junction to case resistance, sin 180°: double side cooled DC: double side cooled	$R_{th(j-c)}$ $R_{th(j-c)}$	-	-	0.0067 0.0064	$^\circ\text{C}/\text{W}$
Thermal resistance case to heatsink, double side cooled single side cooled	$R_{th(c-h)}$	-	-	0.0015 0.0030	
MECHANICAL PARAMETERS					
Weight	w	-	3.2	-	kg
Clamping force	F	70	-	90	kN
Maximum acceleration (at nominal mounting force)	a	-	-	50	m/s ²
Minimal cathode-anode distance on insulator surface	D_s	-	62	-	mm
Air strike distance	D_a	-	27	-	mm



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Designation	L, mm
Optical adapter OA57	57
Optical adapter OA65	65

C – Cathode, A – Anode, G – Gate

Device Outline Drawing (dimensions in mm)

Recommended optical interface cable – OA65.



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