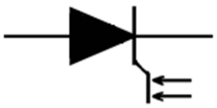
LIGHT TRIGGERING THYRISTOR

TLI193-2000

- V_{DRM} = **7000 - 7200 V**
- V_{RRM} = **7000 - 7200 V**
- $I_{T(AV)}$ = **2220 A** (T_C = 70 °C)
- I_{TRM} = **80 kA** (t_p = 700 µs)
- I_{TSM} = **40 kA** (T_j = 120 °C)
- P_{LM} = **40 mW**



- Light triggering
- Low on-state and switching losses
- High critical rate of rise of on-state current

MAXIMUM RATED VALUES

Parameter and conditions	Symbol	Values	Units
Repetitive peak off-state voltage, T_j = -40 …+ 120 °C	V_{DRM}	7000 - 7200	V
Repetitive peak reverse voltage, T_j = -40 …+ 120 °C	V_{RRM}	7000 - 7200	
Non-repetitive peak off-state voltage, T_j = -40 …+ 120 °C	V_{DSM}	7100 - 7300	
Non- repetitive peak reverse voltage, T_j = -40 …+ 120 °C	V_{RSM}	7100 - 7300	
Direct off-state voltage/ Direct reverse voltage, T_j = -40 …+ 120 °C	V_D/ V_R	5000	
Repetitive peak off-state current/ Repetitive peak reverse current, T_j = 120 °C, V_D / V_R = V_{DRM} / V_{RRM}	I_{DRM} / I_{RRM}	300	mA
Average on-state current, f = 50 Hz, double side cooling T_C = 85 °C T_C = 70 °C	$I_{T(AV)}$	 1780 2220	A
Repetitive peak on-state current, f = 50 Hz, t_p = 700 µs (single pulse) t_p = 10 ms (single pulse)	I_{TRM}	 80 25	kA
Surge non-repetitive on-state current, T_j = 120 °C, V_R = 0, t_p = 10 ms	I_{TSM}	40	kA
Critical rate of rise of on-state current, T_j = 120 °C, V_D = 0.67V_{DRM}, I_T = 4000 A, P_{LM} = 40 mW, t_L = 10 µs, f = 50 Hz	$(di_T/dt)_{crit}$	1000	A/µs
Critical rate of rise of off-state voltage, T_j = 120 °C, V_D = 0.67V_{DRM}	$(dv_D/dt)_{crit}$	1000	V/µs
Minimum gate trigger light power, T_j = 25 °C, V_D = 12 V	P_{LM}	40	mW
Operation junction temperature range	T_j	-40 … +120	°C
Storage temperature range	T_{stg}	-40 … +50	°C

TLI193-2000

ELECTRICAL CHARACTERISTICS

Parameter and conditions	Symbol	Values			Units
		min	typ.	max	
Peak on-state voltage, T_j = 25 °C, I_T = 6280 A	V_{TM}	-	-	2.80	V
On-state threshold voltage, T_j = 120 °C, I_T = 3140 - 9400 A	$V_{T(TO)}$	-	-	1.22	
On-state slope resistance, T_j = 120 °C, I_T = 3140 - 9400 A	r_T	-	-	0.39	mΩ
Delay time, T_j = 25 °C, V_D = 1000 V, I_T = 2000 A, P_{LM} = 40 mW, t_p = 10 µs, t_r = 0.5 µs	t_d	-	-	5.0	µs
Turn off-time, T_j = 120 °C, I_T = 2000 A, di_T/dt = - 5 A/µs, $V_R \geq$ 100 V, V_D = 0.67V_{DRM}, dv_D/dt = 50 V/µs	t_q	-	800	-	
Reverse recovery charge, T_j = 120 °C, I_T = 2000 A, di_T/dt = - 5 A/µs, $V_R \geq$ 100 V	Q_{RR}	-	-	6000	µAs
Holding current, T_j = 25 °C, V_D = 12 V	I_H	-	-	300	mA
Latching current, T_j = 25 °C, V_D = 12 V, P_{LM} = 40 mW, t_p = 10 µs, t_r = 0.5 µs	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	°C/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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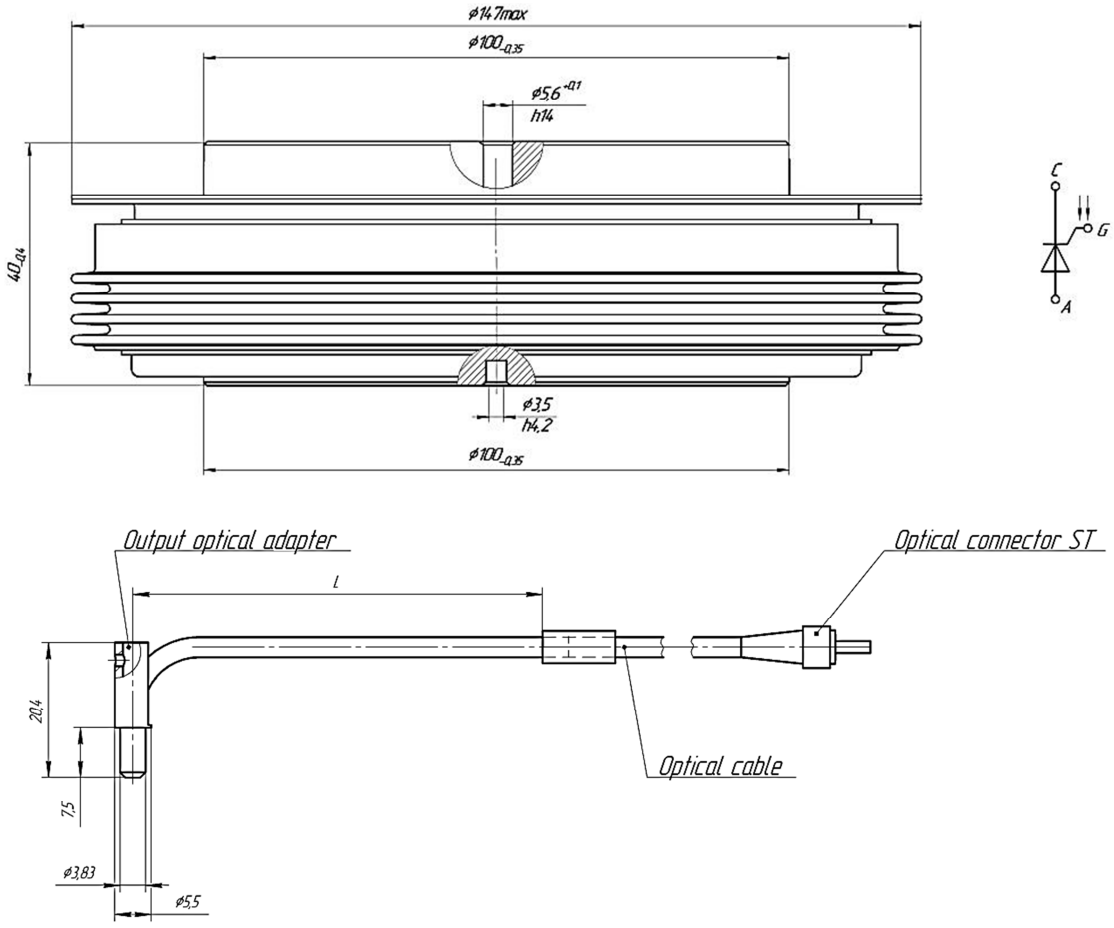

Designation	L,mm
Optical adapter OA57	57
Optical adapter OA65	65

C – Cathode, A – Anode, G –Gate

Device Outline Drawing

(dimensions in mm)

Recommended optical interface cable – OA65.

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