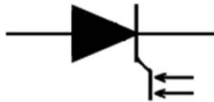




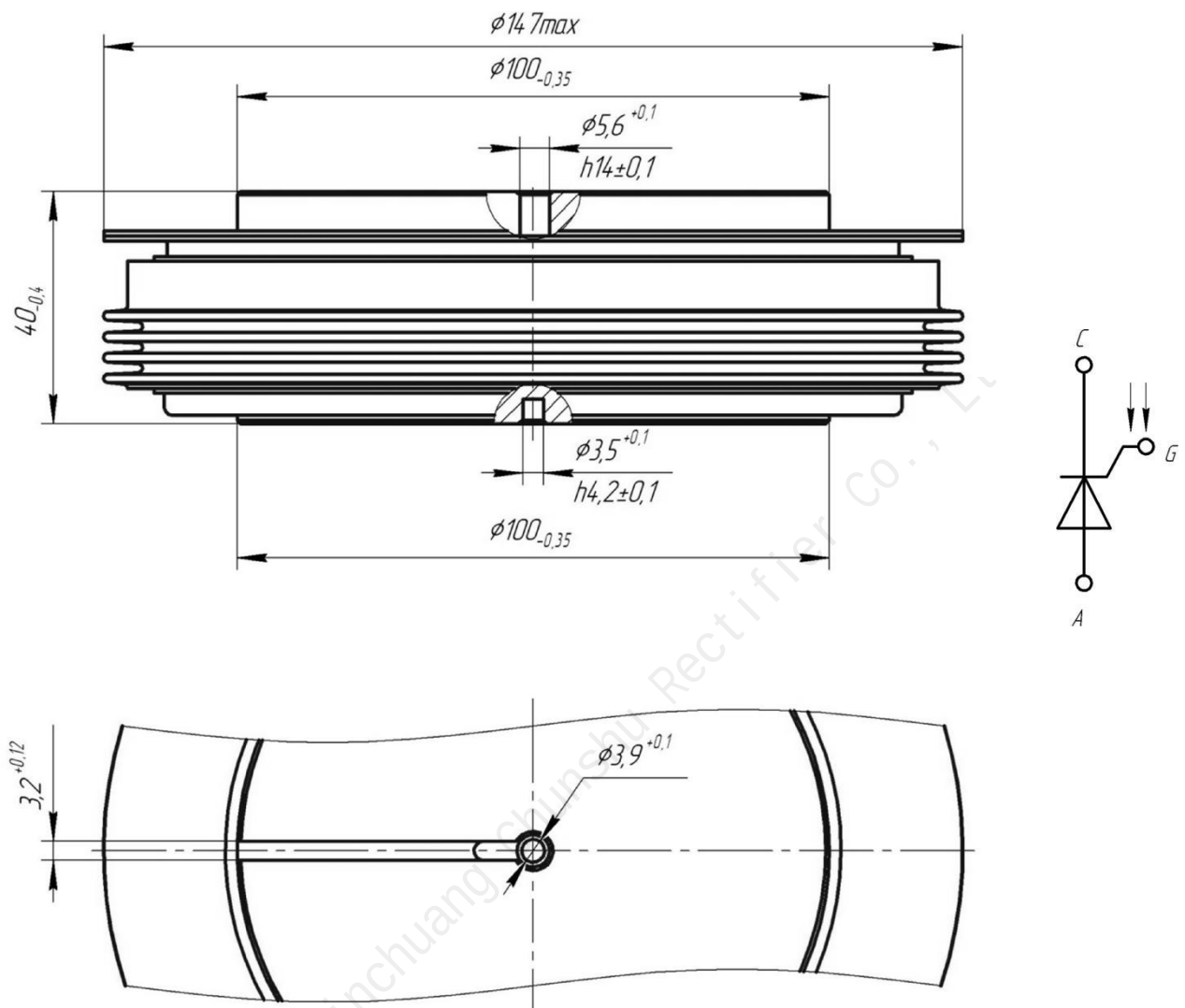
High-end Power Semiconductor Manufacturer

TLI193-2500**High Power Light Triggered Thyristor**

◆ $V_{\text{DRM}} = \underline{4200-4600\text{ V}}$ ◆ $V_{\text{RRM}} = \underline{4200-4600\text{ V}}$ ◆ $I_{\text{TRM}} = \underline{100\text{ kA}}$ ($t_p = 700\text{ }\mu\text{s}$) ◆ $I_{\text{T(AV)}} = \underline{3064\text{ A}}$ ($T_C = 70\text{ }^\circ\text{C}$) ◆ $I_{\text{TSM}} = \underline{55\text{ kA}}$ ($T_j = 120\text{ }^\circ\text{C}$) ◆ $P_{\text{LM}} = \underline{25\text{ mW}}$			
◆ Light triggering ◆ Low on-state and switching losses			
MAXIMUM RATED VALUES			
Parameter and conditions	Symbol	Values	Units
Repetitive peak off-state voltage, $T_j = -60 \dots + 120\text{ }^\circ\text{C}$	V_{DRM}	4200-4600	V
Repetitive peak reverse voltage, $T_j = -60 \dots + 120\text{ }^\circ\text{C}$	V_{RRM}	4200-4600	
Direct off-state voltage, $T_j = -60 \dots + 120\text{ }^\circ\text{C}$	V_{D}	3000	
Direct reverse voltage, $T_j = -60 \dots + 120\text{ }^\circ\text{C}$	V_{R}	3000	
Repetitive peak off-state current/ Repetitive peak reverse current, $T_j = 120\text{ }^\circ\text{C}$, $V_{\text{D}} / V_{\text{R}} = V_{\text{DRM}} / V_{\text{RRM}}$	$I_{\text{DRM}} / I_{\text{RRM}}$	300	mA
Average on-state current, $f = 50\text{ Hz}$, double side cooling $T_C = 85\text{ }^\circ\text{C}$ $T_C = 70\text{ }^\circ\text{C}$	$I_{\text{T(AV)}}$	2420 3064	A
Repetitive peak on-state current, $T_j = 25\text{ }^\circ\text{C}$, $V_{\text{D}} = V_{\text{DRM}}$, $t_p = 700\text{ }\mu\text{s}$ (single pulse) $t_p = 10\text{ ms}$ (single pulse)	I_{TRM}	100 30	kA
Surge non-repetitive on-state current, $T_j = 120\text{ }^\circ\text{C}$, $V_{\text{R}} = 0$, $t_p = 10\text{ ms}$	I_{TSM}	55	kA
Safety factor	I^2t	15216	kA ² s
Critical rate of rise of on-state current, $T_j = 120\text{ }^\circ\text{C}$, $V_{\text{D}} = 0,67V_{\text{DRM}}$, $I_{\text{T}} = 5000\text{ A}$, $P_{\text{LM}} = 25\text{ mW}$, $t_{\text{L}} = 10\text{ }\mu\text{s}$, $f = 1\text{ Hz}$ $f = 50\text{ Hz}$	$(di_{\text{T}}/dt)_{\text{crit}}$	5000 1000	A/ μs
Critical rate of rise of off-state voltage, $T_j = 120\text{ }^\circ\text{C}$, $V_{\text{D}} = 0,67V_{\text{DRM}}$	$(dv_{\text{D}}/dt)_{\text{crit}}$	1600-2000	V/ μs
Minimum gate trigger light power, $T_j = 25\text{ }^\circ\text{C}$, $V_{\text{D}} = 12\text{ V}$	P_{LM}	25	mW
Operation junction temperature range	T_j	-40 ... +120	$^\circ\text{C}$
Storage temperature range	T_{stg}	-40 ... +50	$^\circ\text{C}$

ELECTRICAL CHARACTERISTICS					
Parameter and conditions	Symbol	Values			Units
		min	typ.	max	
Peak on-state voltage, T _j = 25 °C, I _T = 7850 A	V _{TM}	-	-	2,40	V
On-state threshold voltage, T _j = 120 °C, I _T = 4000 - 12000 A	V _{T(TO)}	-	-	1,15	
On-state slope resistance, T _j = 120 °C, I _T = 4000 - 12000 A	r _T	-	-	0,18	mΩ
Delay time, T _j = 25 °C, V _D = 1000 V, I _T = 2500 A, P _{LM} = 25 mW, t _L = 10 μs, t _{rise} = 0,5 μs	t _d	-	-	5,0	μs
Turn off-time, T _j = 120 °C, I _T = 2500 A, di _T /dt = - 5 A/μs, V _R ≥ 100 V, V _D = 0,67V _{DRM} , dv _D /dt = 50 V/μs	t _q	-	630	-	
Reverse recovery charge, T _j = 120 °C, I _T = 2500 A, di _T /dt = - 5 A/μs, V _R ≥ 100 V	Q _{RR}	-	-	2200	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} = 25 mW, t _L = 10 μs, t _{rise} = 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)}	-	-	0,0065 0,0062	°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	-	3,0	-	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

TLI193-2500---PACKAGE DETAILS



C – Cathode, A – Anode, G –Gate

Fig. 1. Device Outline Drawing (dimensions in mm)

Recommended optical interface cable – OA65.