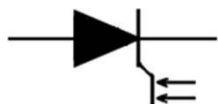




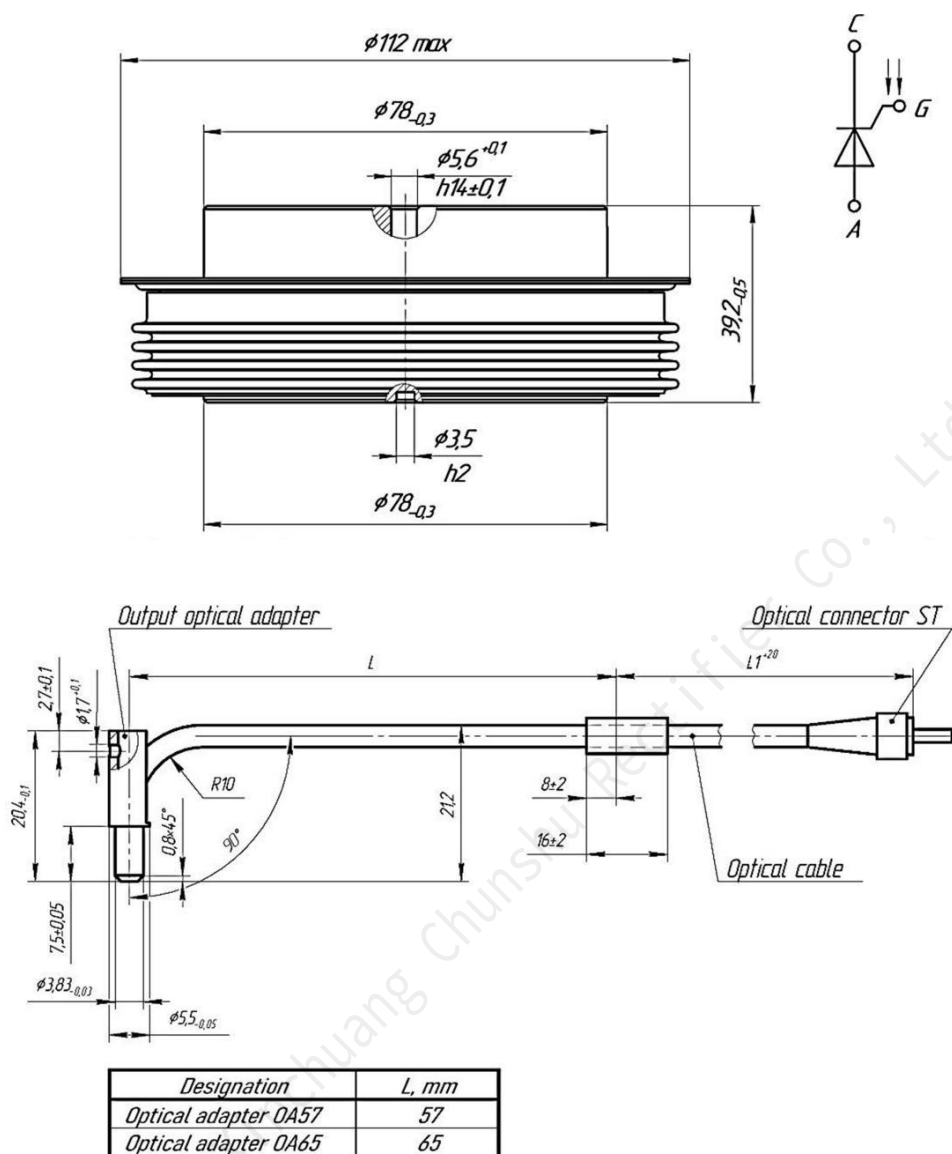
High-end Power Semiconductor Manufacturer

TL273-1000**Light Triggered Thyristor**

◆ $V_{\text{DRM}} = \underline{6000 - 6400\text{ V}}$ ◆ $V_{\text{RRM}} = \underline{6000 - 6400\text{ V}}$ ◆ $I_{\text{T(AV)}} = \underline{1360\text{ A}}$ ($T_{\text{C}} = 70\text{ }^{\circ}\text{C}$) ◆ $I_{\text{T(AV)}} = \underline{1090\text{ A}}$ ($T_{\text{C}} = 85\text{ }^{\circ}\text{C}$) ◆ $I_{\text{TSM}} = \underline{24\text{ kA}}$ ($T_{\text{j}} = 120\text{ }^{\circ}\text{C}$) ◆ $P_{\text{LM}} = \underline{40\text{ mW}}$			
◆ Light triggering ◆ Low on-state and switching losses			
MAXIMUM RATED VALUES			
Parameter and conditions	Symbol	Values	Units
Repetitive peak off-state voltage, $T_{\text{j}} = -40 \dots +120\text{ }^{\circ}\text{C}$	V_{DRM}	6000 - 6400	V
Repetitive peak reverse voltage, $T_{\text{j}} = -40 \dots +120\text{ }^{\circ}\text{C}$	V_{RRM}	6000 - 6400	
Non-repetitive peak off-state voltage, $T_{\text{j}} = -40 \dots +120\text{ }^{\circ}\text{C}$	V_{DSM}	6100 - 6500	
Non-repetitive peak reverse voltage, $T_{\text{j}} = -40 \dots +120\text{ }^{\circ}\text{C}$	V_{RSM}	6100 - 6500	
Repetitive peak off-state current/ Repetitive peak reverse current, $T_{\text{j}} = 120\text{ }^{\circ}\text{C}$, $V_{\text{D}} / V_{\text{R}} = V_{\text{DRM}} / V_{\text{RRM}}$	$I_{\text{DRM}} / I_{\text{RRM}}$	200	mA
Average on-state current, $f = 50\text{ Hz}$, double side cooling $T_{\text{C}} = 85\text{ }^{\circ}\text{C}$ $T_{\text{C}} = 70\text{ }^{\circ}\text{C}$	$I_{\text{T(AV)}}$	1090 1360	A
RMS on-state current, $T_{\text{C}} = 70\text{ }^{\circ}\text{C}$, $f = 50\text{ Hz}$	I_{TRMS}	2143	A
Surge non-repetitive on-state current, $T_{\text{j}} = 120\text{ }^{\circ}\text{C}$, $V_{\text{R}} = 0$, $t_{\text{p}} = 10\text{ ms}$	I_{TSM}	24	kA
Safety factor	I^2t	$2.9 \cdot 10^6$	A^2s
Critical rate of rise of on-state current, $T_{\text{j}} = 120\text{ }^{\circ}\text{C}$, $V_{\text{D}} = 0.67V_{\text{DRM}}$, $I_{\text{T}} = 2000\text{ A}$, $P_{\text{LM}} = 40\text{ mW}$, $t_{\text{L}} = 10\text{ }\mu\text{s}$, $f = 50\text{ Hz}$	$(di_{\text{T}}/dt)_{\text{crit}}$	300	$\text{A}/\mu\text{s}$
Critical rate of rise of off-state voltage, $T_{\text{j}} = 120\text{ }^{\circ}\text{C}$, $V_{\text{D}} = 0.67V_{\text{DRM}}$	$(dv_{\text{D}}/dt)_{\text{crit}}$	1000 - 2000	$\text{V}/\mu\text{s}$
Minimum gate trigger light power, $T_{\text{j}} = 25\text{ }^{\circ}\text{C}$, $V_{\text{D}} = 12\text{ V}$	P_{LM}	40	mW
Operation junction temperature range	T_{j}	$-40 \dots +120$	$^{\circ}\text{C}$
Storage temperature range	T_{stg}	$-40 \dots +50$	$^{\circ}\text{C}$

ELECTRICAL CHARACTERISTICS					
Parameter and conditions	Symbol	Values			Units
		min	typ.	max	
Peak on-state voltage, $T_J = 25\text{ }^{\circ}\text{C}$, $I_T = 3140\text{ A}$	V_{TM}	-	-	2.62	V
On-state threshold voltage, $T_J = 120\text{ }^{\circ}\text{C}$, $I_T = 1500 - 5000\text{ A}$	$V_{T(TO)}$	-	-	1.20	
On-state slope resistance, $T_J = 120\text{ }^{\circ}\text{C}$, $I_T = 1500 - 5000\text{ A}$	r_T	-	-	0.55	mΩ
Delay time, $T_J = 25\text{ }^{\circ}\text{C}$, $V_D = 1000\text{ V}$, $I_T = 1000\text{ A}$, $P_{LM} = 40\text{ mW}$, $t_L = 10\text{ }\mu\text{s}$, $t_r = 0.5\text{ }\mu\text{s}$	t_d	-	-	5.0	μs
Turn off-time, $T_J = 120\text{ }^{\circ}\text{C}$, $I_T = 1000\text{ A}$, $di_T/dt = -5\text{ A}/\mu\text{s}$, $V_R \geq 100\text{ V}$, $V_D = 0.67V_{DRM}$, $dV_D/dt = 50\text{ V}/\mu\text{s}$	t_q	-	630	-	
Reverse recovery charge, $T_J = 120\text{ }^{\circ}\text{C}$, $I_T = 1000\text{ A}$, $di_T/dt = -5\text{ A}/\mu\text{s}$, $V_R \geq 100\text{ V}$	Q_{RR}	-	-	4000	μAs
Holding current, $T_J = 25\text{ }^{\circ}\text{C}$, $V_D = 12\text{ V}$	I_H	-	-	100	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	$R_{th(j-c)}$ $R_{th(j-c)}$	-	-	0.0120 0.0112	$^{\circ}\text{C}/\text{W}$
Thermal resistance case to heatsink, double side cooled single side cooled	$R_{th(c-h)}$	-	-	0.003 0.006	
MECHANICAL PARAMETERS					
Weight	w	-	1.65	-	kg
Clamping force	F	40	-	48	kN
Maximum acceleration (at nominal mounting force)	a	-	-	50	m/s ²
Minimal cathode-anode distance on insulator surface	D _s	-	41	-	mm
Air strike distance	D _a	-	21.8	-	mm

TL273-1000---PACKAGE DETAILS



C – Cathode, A – Anode, G –Gate **Device**

Outline Drawing (dimensions in mm)

Recommended optical interface cable – OA65.