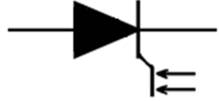



LIGHT TRIGGERING THYRISTOR TL273-1000

| | | |
|--|--|---|
| <ul style="list-style-type: none"> ◆ $V_{DRM} = \mathbf{6000 - 6400\ V}$ ◆ $V_{RRM} = \mathbf{6000 - 6400\ V}$ ◆ $I_{T(AV)} = \mathbf{1360\ A}$ ($T_C = 70\ ^\circ\text{C}$) ◆ $I_{T(AV)} = \mathbf{1090\ A}$ ($T_C = 85\ ^\circ\text{C}$) ◆ $I_{TSM} = \mathbf{24\ kA}$ ($T_j = 120\ ^\circ\text{C}$) ◆ $P_{LM} = \mathbf{40\ mW}$ |  |  |
| <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, $T_j = -40 \dots +120\ ^\circ\text{C}$ | V_{DRM} | 6000 - 6400 | V |
| Repetitive peak reverse voltage, $T_j = -40 \dots +120\ ^\circ\text{C}$ | V_{RRM} | 6000 - 6400 | |
| Non-repetitive peak off-state voltage, $T_j = -40 \dots +120\ ^\circ\text{C}$ | V_{DSM} | 6100 - 6500 | |
| Non-repetitive peak reverse voltage, $T_j = -40 \dots +120\ ^\circ\text{C}$ | V_{RSM} | 6100 - 6500 | |
| Repetitive peak off-state current/ Repetitive peak reverse current, $T_j = 120\ ^\circ\text{C}$, $V_D / V_R = V_{DRM} / V_{RRM}$ | I_{DRM} / I_{RRM} | 200 | mA |
| Average on-state current, $f = 50\ \text{Hz}$, double side cooling $T_C = 85\ ^\circ\text{C}$ $T_C = 70\ ^\circ\text{C}$ | $I_{T(AV)}$ | 1090 1360 | A |
| RMS on-state current, $T_C = 70\ ^\circ\text{C}$, $f = 50\ \text{Hz}$ | I_{TRMS} | 2143 | A |
| Surge non-repetitive on-state current, $T_j = 120\ ^\circ\text{C}$, $V_R = 0$, $t_p = 10\ \text{ms}$ | I_{TSM} | 24 | kA |
| Safety factor | I^2t | $2.9 \cdot 10^6$ | A^2s |
| Critical rate of rise of on-state current, $T_j = 120\ ^\circ\text{C}$, $V_D = 0.67V_{DRM}$, $I_T = 2000\ \text{A}$, $P_{LM} = 40\ \text{mW}$, $t_L = 10\ \mu\text{s}$, $f = 50\ \text{Hz}$ | $(di_T/dt)_{crit}$ | 300 | $\text{A}/\mu\text{s}$ |
| Critical rate of rise of off-state voltage, $T_j = 120\ ^\circ\text{C}$, $V_D = 0.67V_{DRM}$ | $(dv_D/dt)_{crit}$ | 1000 - 2000 | $\text{V}/\mu\text{s}$ |
| Minimum gate trigger light power, $T_j = 25\ ^\circ\text{C}$, $V_D = 12\ \text{V}$ | P_{LM} | 25 | mW |
| Operation junction temperature range | T_j | -40 ... +120 | $^\circ\text{C}$ |
| Storage temperature range | T_{stg} | -40 ... +50 | $^\circ\text{C}$ |

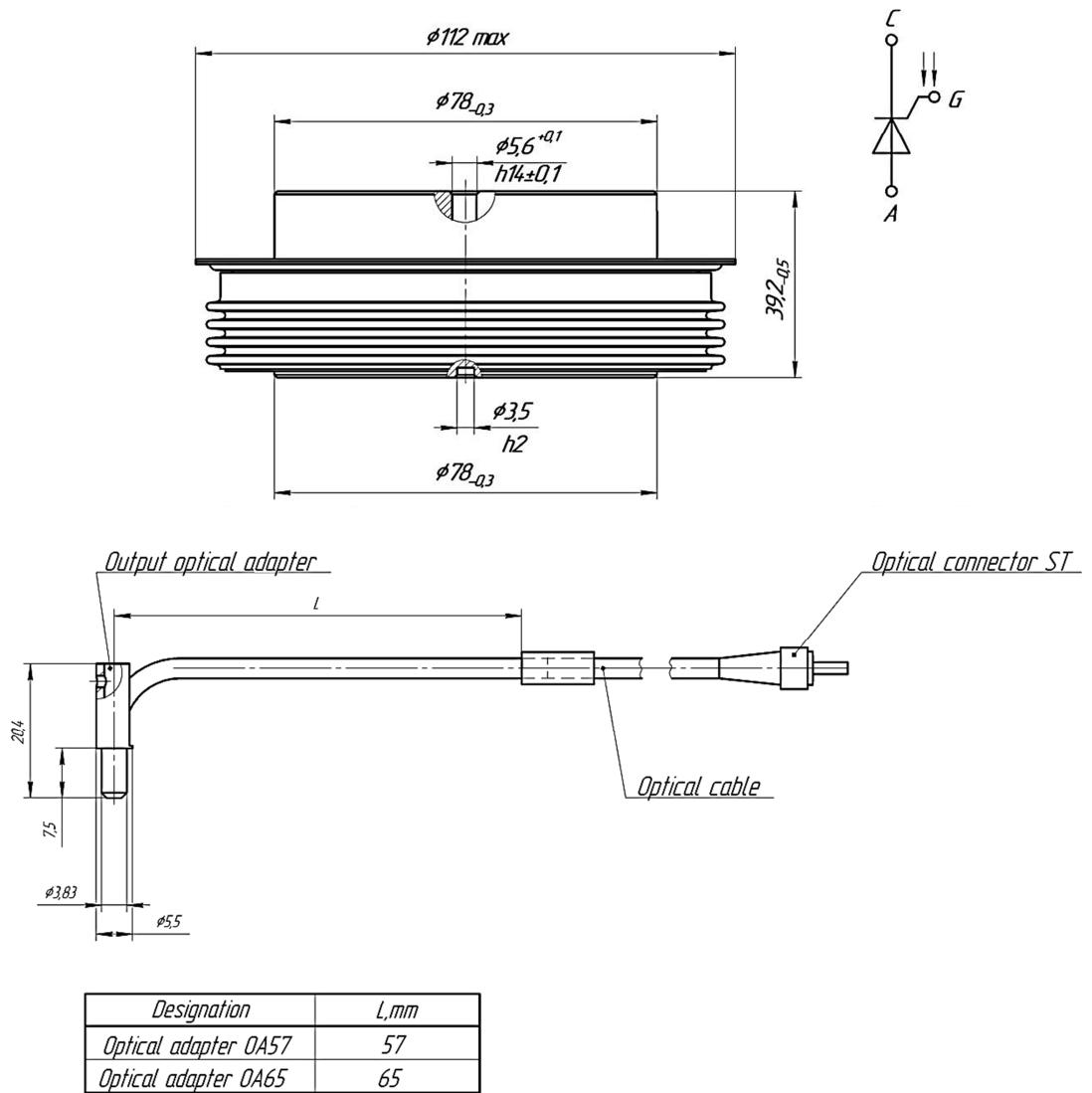


TL273-1000

| 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 | °C/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



C – Cathode, A – Anode, G – Gate

Device Outline Drawing (dimensions in mm)

Recommended optical interface cable – OA65.



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