LED Microsensor NT

Mid-Infrared (MIR) Light-Emitting Diode

1.03 - 1.07 µm

Lms10LED series

Device parameters	Symbol	Value	Units
Storage temperature	T_{stg}	-50..+60*	°C
Operating temperature	T_{opr}	-60..+90*	°C
Soldering temperature (can be applied for not more than 5 secs)	T_{sol}	+180	°C

*LED design for higher storage/operating temperature is available under request

LED parameters	Conditions	Symbol	Value	Units
Peak emission wavelength	I = 200 mA qCW	λ_p	1.03 - 1.07	µm
FWHM of the emission band	I = 200 mA qCW	FWHM	70 - 100	nm
Optical power	qCW mode* I = 200 mA	P_{qCW}	12 - 20	mW
	Pulse mode** I = 1 A	P_{pul}	30 - 40	mW
Maximum operating current	qCW mode*	I_{qCW}	200	mA
	Pulse mode**	I_{pul}	1	A
	DC mode***	I_{DC}	100	mA
Switching time	I = 20 mA DC	t	25 - 45	ns
Forward Voltage	I = 200 mA	V	1.1 - 1.4	V

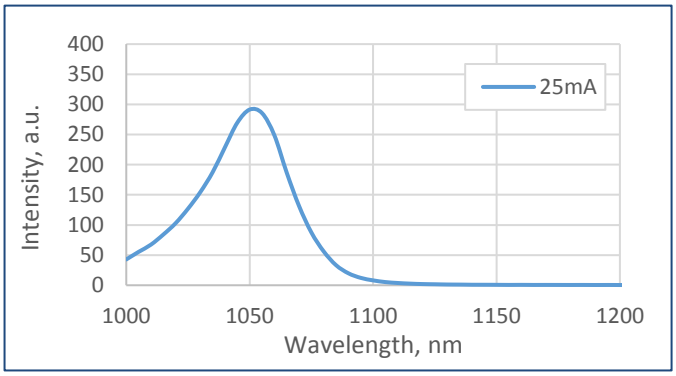
*qCW: repetition rate: 0.5 KHz, pulse duration: 1 ms, duty cycle: 50%

**Pulse: repetition rate: 0.5 KHz, pulse duration: 20 µs, duty cycle: 1%

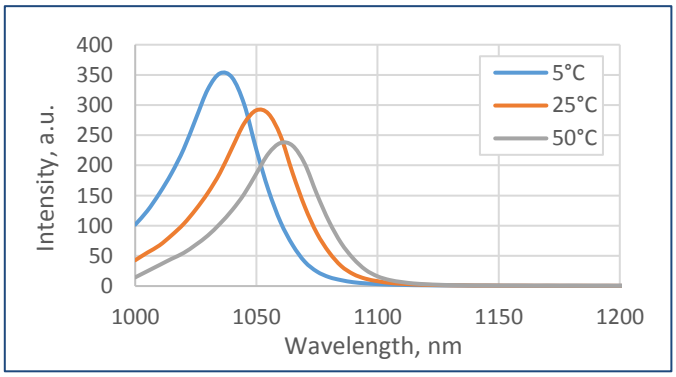
***DC: direct current

All specifications are for LED operation at 25°C unless otherwise stated

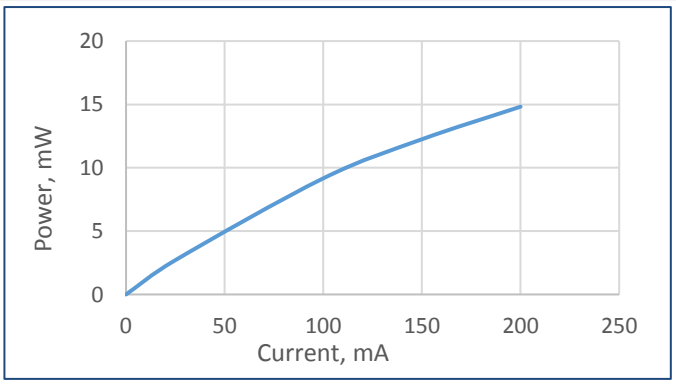
Spetrum at qCW mode



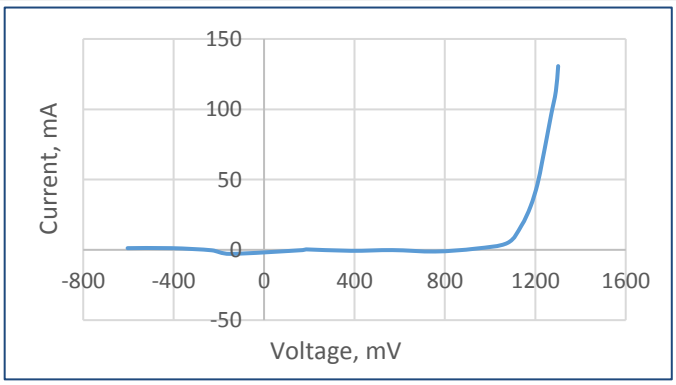
Spectra at different temperatures (qCW)



LED optical power characteristic (qCW)



LED typical current-voltage characteristic (qCW)



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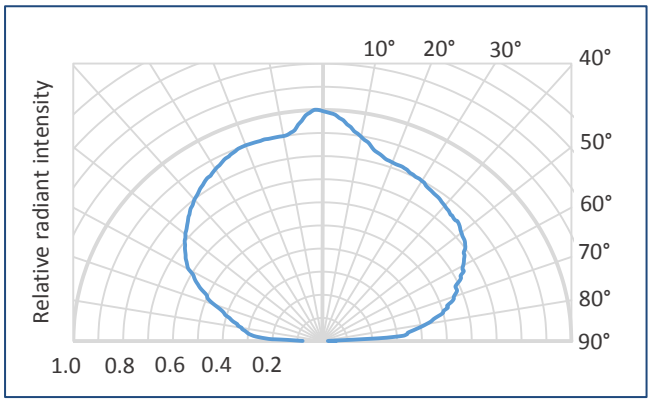
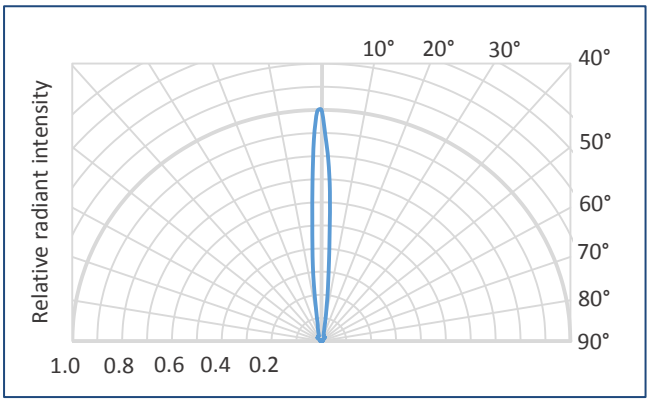
Radiant characteristics (far-field pattern)

TO-18 package



TO-18 package with a parabolic reflector



Related products:

- **Photodiodes Lms24PD series** - detectors of mid-infrared radiation;
- **LED drivers (D-41, D-51, minidrivers mD-1c, mD-1p)** - provide LED power supply in pulse modes.

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LED Microsensor NT

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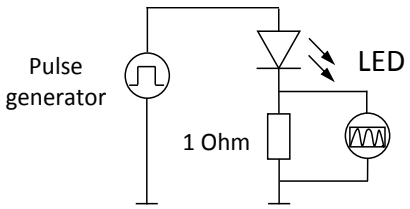
1.03 - 1.07 µm

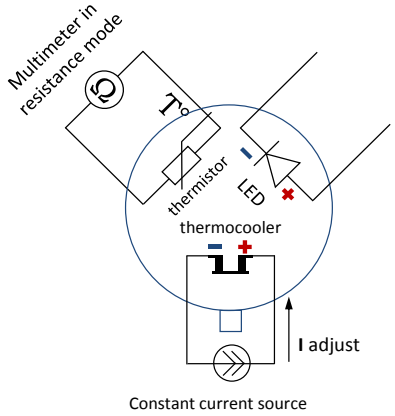
Packages	Model
TO-18 with a cap with a glass window	Lms10LED
TO-18 with a parabolic reflector without a glass window	Lms10LED-R
TO-18 with a parabolic reflector with a glass window	Lms10LED-RW
TO-5 with a built-in thermocooler and thermoresistor, covered by a cap with a glass window	Lms10LED-TEM
TO-5 with a built-in thermocooler and thermoresistor, covered by a parabolic reflector with a glass window	Lms10LED-TEM-R

To drive the LED we recommend using:

LED basic circuit connection

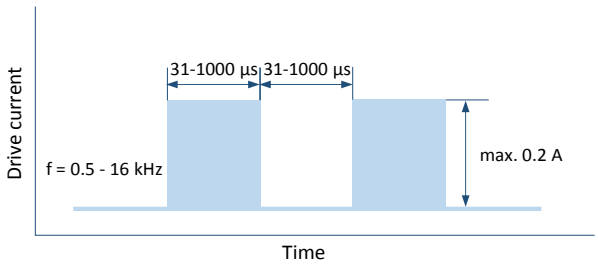


LED with thermoelectric module basic circuit connection

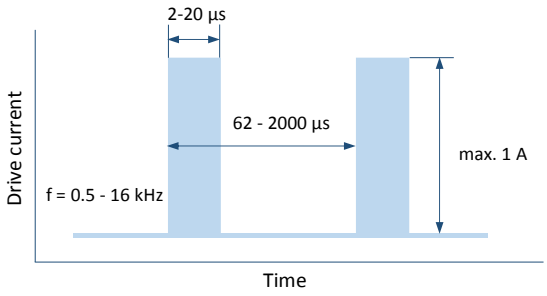


We recommend using **Quasi Continuous Wave (qCW) mode** with a duty cycle 50% or 25% to obtain maximum average optical power and short **Pulse modes** to obtain maximum peak power. Hard CW (continius wave) mode is NOT recommended.

Quasi Continuous Wave (qCW) mode



Pulse mode



IMPORTANT CAUTIONS:

- please check your connection circuit before turning on the LED;
- please mind the LED polarity: LED anode is marked with a RED dot;
- please do not connect the LED to the multimeter.

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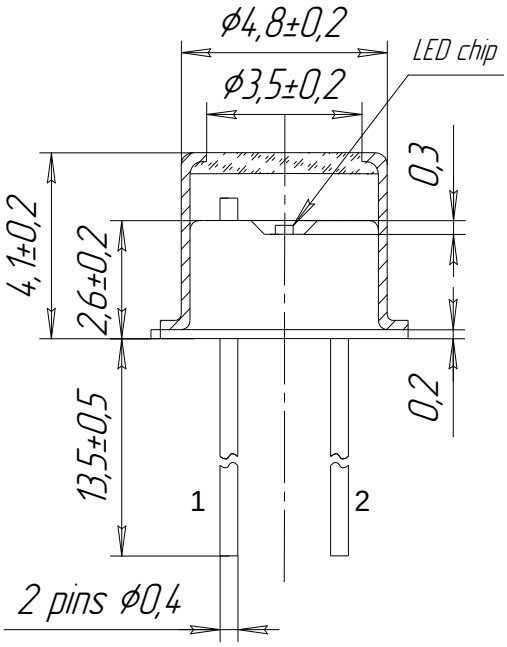
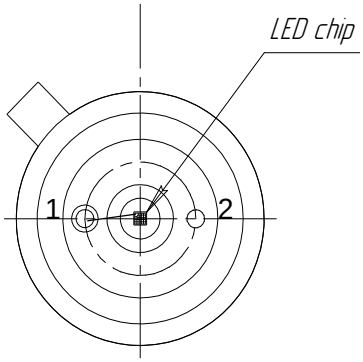
Technical Drawings

Lms10LED

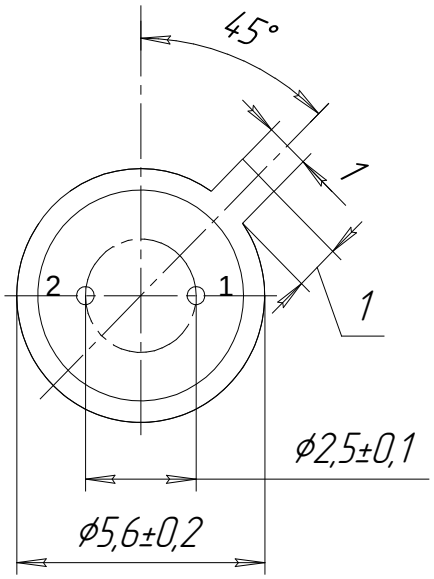


1 – LED anode
2– LED cathode

TOP VIEW



BOTTOM VIEW



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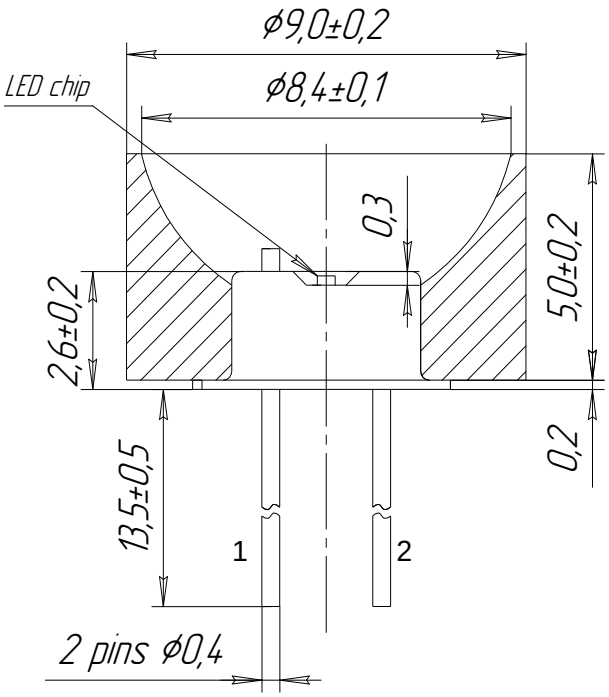
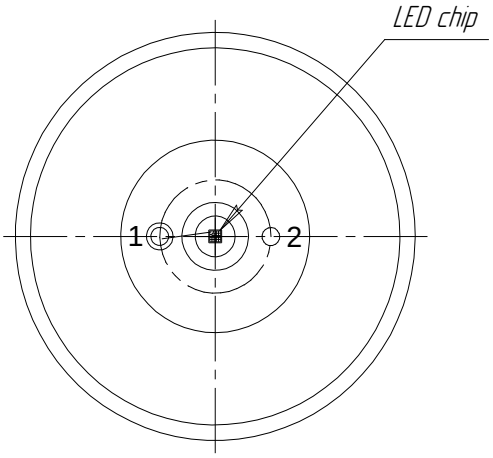
Technical Drawings

Lms10LED-R

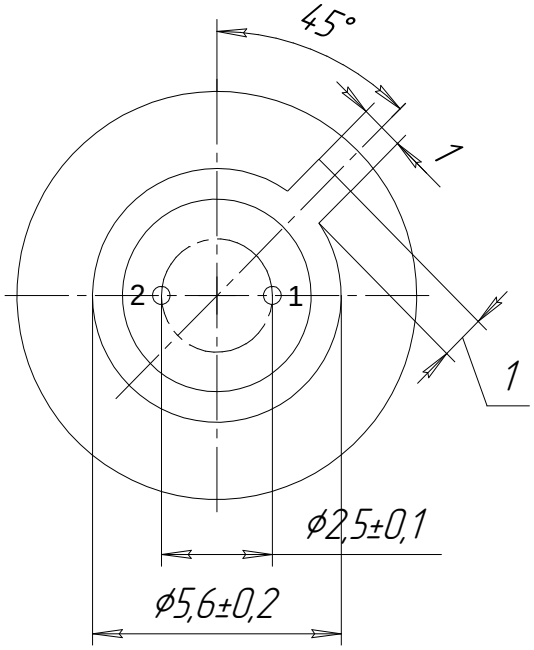


1 – LED anode
2– LED cathode

TOP VIEW



BOTTOM VIEW



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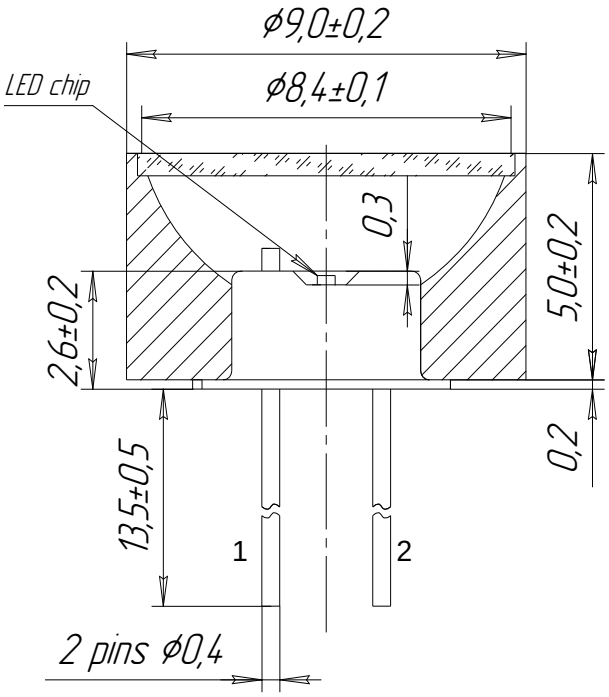
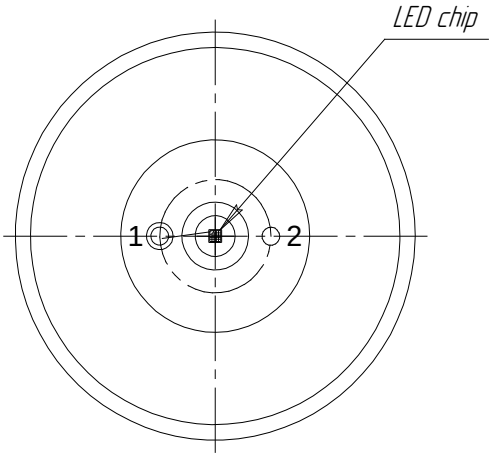
Technical Drawings

Lms10LED-RW

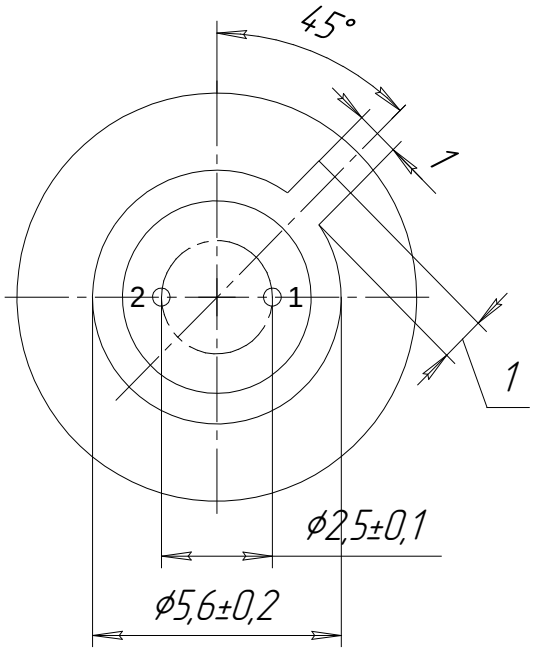


1 – LED anode
2– LED cathode

TOP VIEW



BOTTOM VIEW



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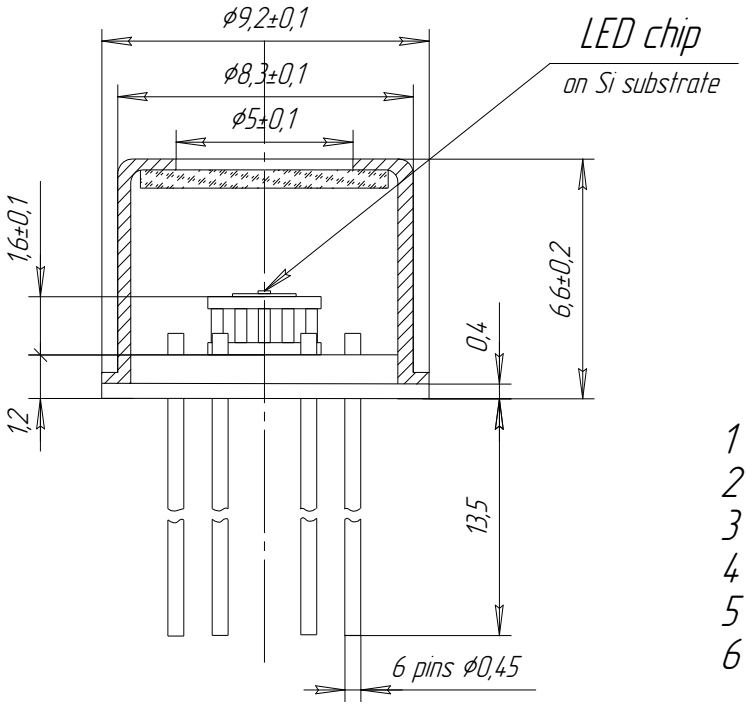
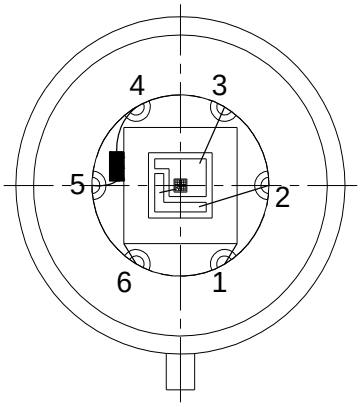
Technical Drawings

Lms10LED-TEM

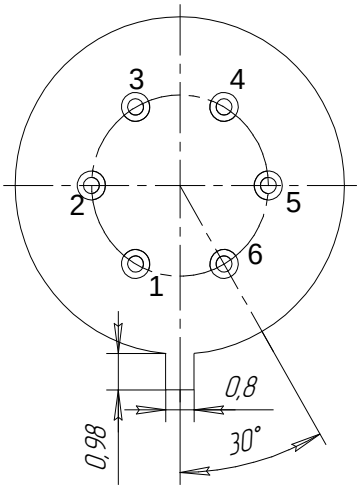


1 – TEC +
2 – LED anode
3 – LED cathode
4 – thermistor
5 – thermistor
6 – TEC –

TOP VIEW



BOTTOM VIEW



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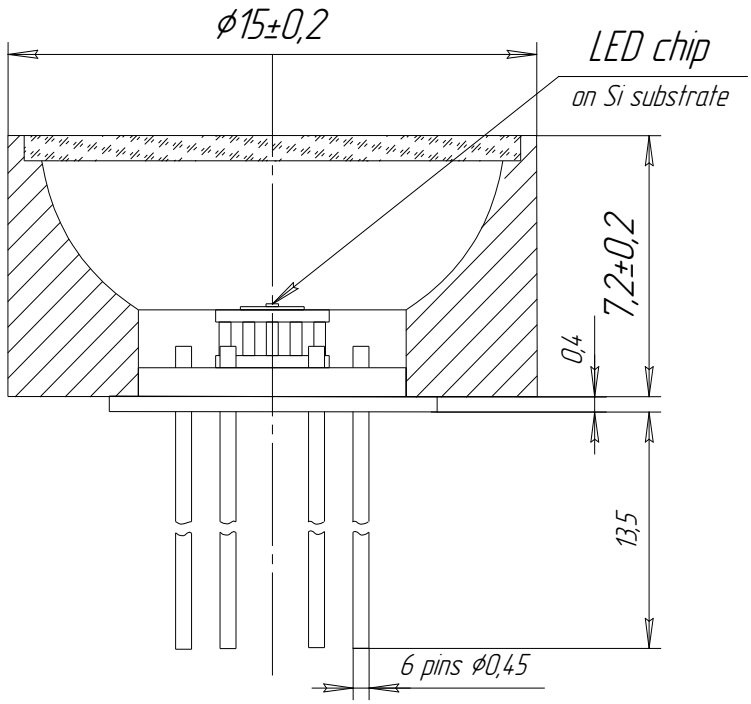
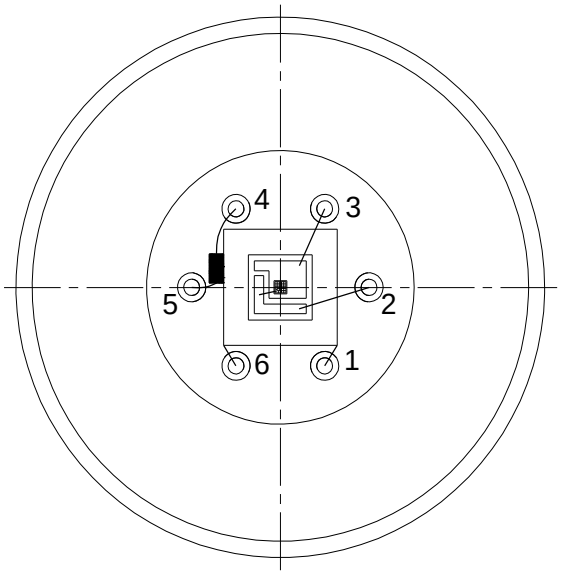
Technical Drawings

Lms10LED-TEM-R

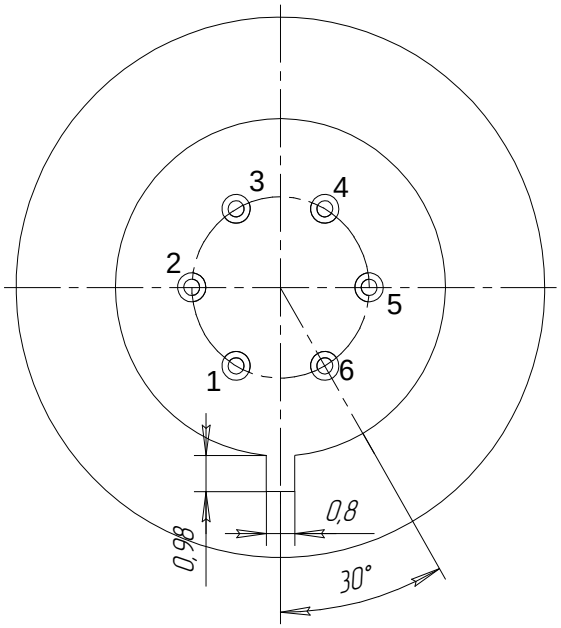


1 – TEC +
2 – LED anode
3 – LED cathode
4 – thermistor
5 – thermistor
6 – TEC –

TOP VIEW



BOTTOM VIEW



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