

## Lms43LED series

Device parameters	Symbol	Value	Units
Operating/ storage temperature	$T_{\text{stg}}$	-60..+90*	$^{\circ}\text{C}$
Soldering temperature (can be applied for not more than 5 secs)	$T_{\text{sol}}$	+180	$^{\circ}\text{C}$

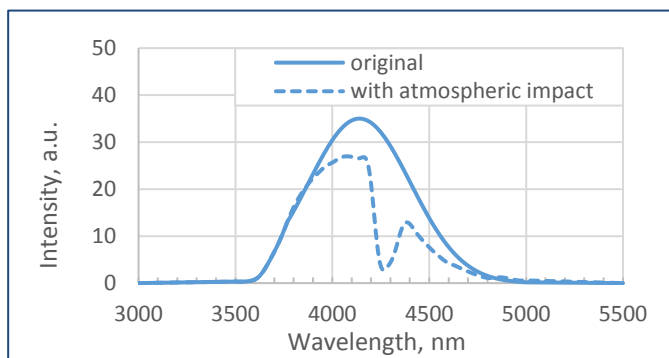
\*Temperature range may vary for different packaging types.



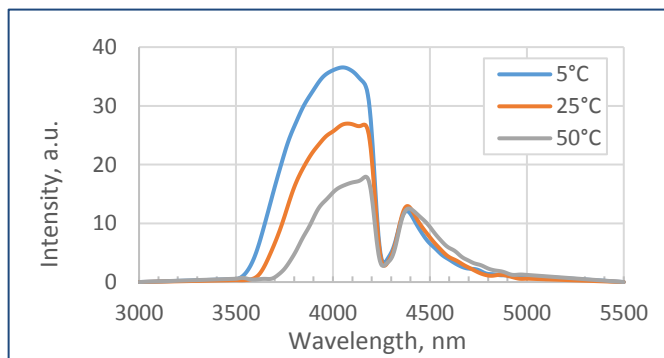
All parameters are for LED operation at 25 $^{\circ}\text{C}$  unless otherwise stated, measured on TO18 header (without cap/reflector).

LED parameters	Conditions	Symbol	Value	Units
Peak emission wavelength <sup>1</sup>	qCW mode <sup>3</sup> I = 150 mA	$\lambda_p$	4.10 - 4.30	$\mu\text{m}$
FWHM of the emission band <sup>1</sup>	qCW mode <sup>3</sup> I = 150 mA	FWHM	400 - 1200	nm
Average optical power (minimal / typical) <sup>1</sup>	qCW mode <sup>3</sup> I = 200 mA	$P_{\text{qcw}}$	min 15 / typ 30	$\mu\text{W}$
Peak optical power (minimal / typical) <sup>2</sup>	Pulse mode <sup>4</sup> I = 1 A	$P_{\text{pul}}$	min 120 / typ 200	$\mu\text{W}$
Maximum operating current	qCW mode <sup>3</sup>	$I_{\text{max qcw}}$	250	mA
	Pulse mode <sup>4</sup>	$I_{\text{max pulse}}$	2	A
Forward voltage <sup>1</sup>	qCW mode <sup>3</sup> I = 200 mA	V	0.2 - 0.8	V

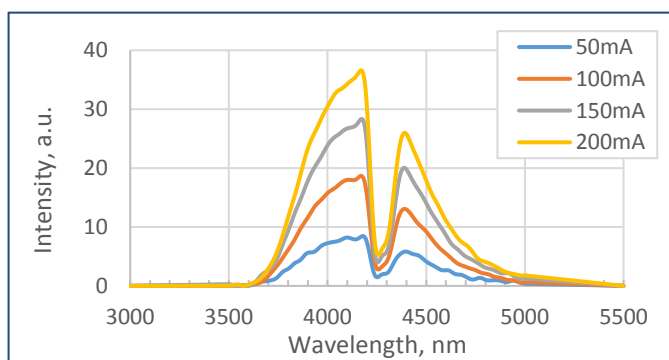
Typical spectrum (qCW<sup>3</sup>)



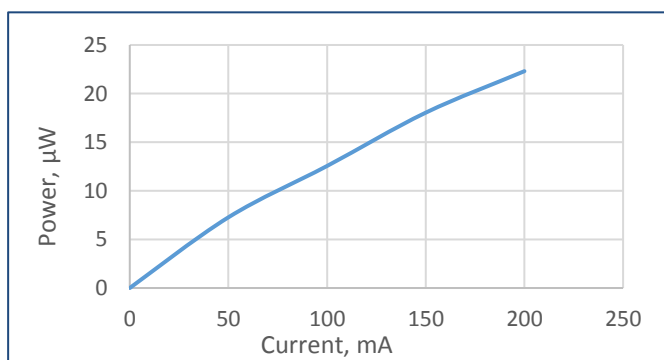
Spectra at different temperatures (qCW<sup>3</sup>, 150 mA)



Typical spectra at different currents (qCW<sup>3</sup>)



Typical optical power characteristic (qCW<sup>3</sup>)



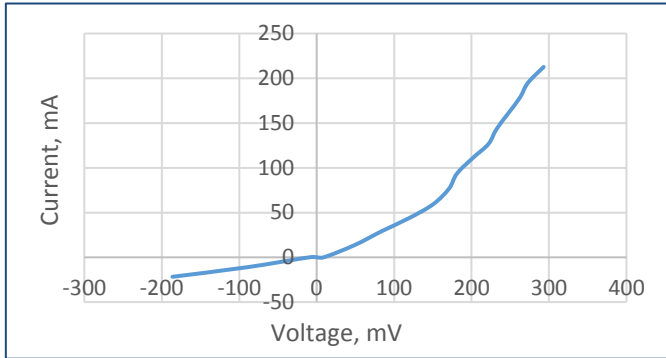
<sup>1</sup> Parameter tested for each device.

<sup>2</sup> Parameter tested for representative sampling.

<sup>3</sup> qCW mode: repetition rate: 0.5 KHz, pulse duration: 1 ms, duty cycle: 50%.

<sup>4</sup> Pulse mode: repetition rate: 0.5 KHz, pulse duration: 20  $\mu\text{s}$ , duty cycle: 1%.

### Typical current-voltage characteristic (qCW<sup>3</sup>)



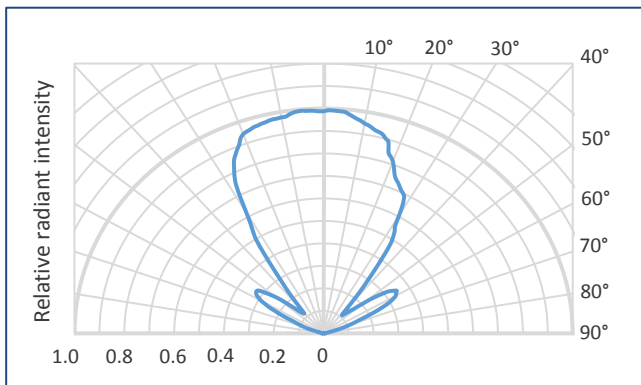
<sup>3</sup> qCW mode: repetition rate: 0.5 KHz, pulse duration: 1 ms, duty cycle: 50%.

Packages	Model
TO-18 with a cap without a glass window	Lms43LED
TO-18 with a parabolic reflector without a glass window	Lms43LED-R
TO-18 with a parabolic reflector with a glass window*	Lms43LED-RW
TO-5 with a built-in thermocooler and thermoresistor, covered by a cap with a glass window*	Lms43LED-TEM
TO-5 with a built-in thermocooler and thermoresistor, covered by a parabolic reflector with a glass window*	Lms43LED-TEM-R

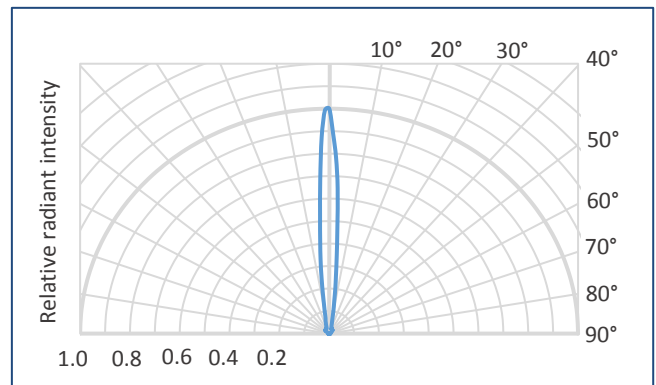
\*Hermeticity of standard packaging is NOT tested, condensation during device operation and storage must be prevented.

### Radiant characteristics (far-field pattern)

TO-18 package with a cap



TO-18 package with a parabolic reflector

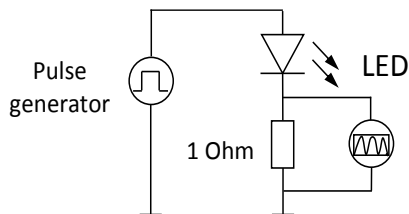


### Related products:

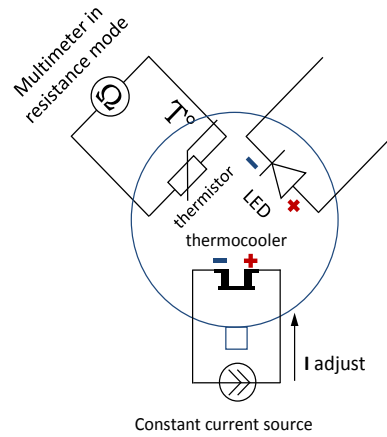
- **Photodiodes Lms43PD, Lms49PD series** - detectors of mid-infrared radiation;
- **LED drivers (D-41i, D-51i, minidrivers mD-1c, mD-1p )** - provide LED power supply in pulse modes.

To drive the LED we recommend the following basic circuit connections:

### LED basic circuit connection

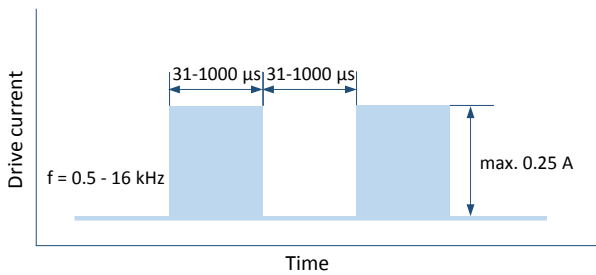


### LED with thermoelectric module basic circuit connection

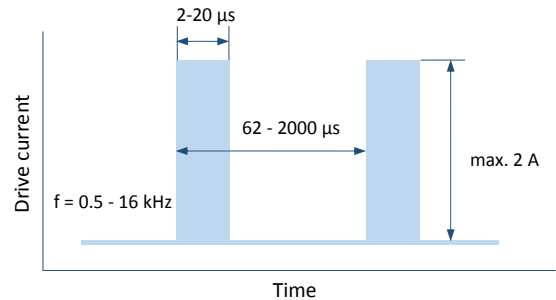


We recommend using **Quasi Continuous Wave (qCW) mode** with a duty cycle 50% or 25% to obtain maximum average optical power and short **Pulse modes** to obtain maximum peak power. Hard CW (continuous wave) mode is NOT recommended.

### Quasi Continuous Wave (qCW) mode



### Pulse mode

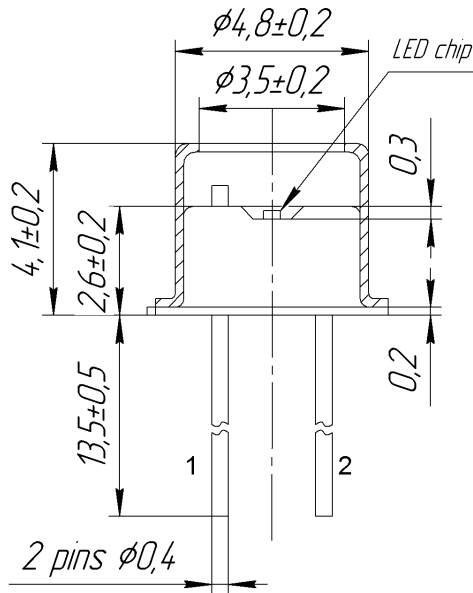


### IMPORTANT CAUTIONS:

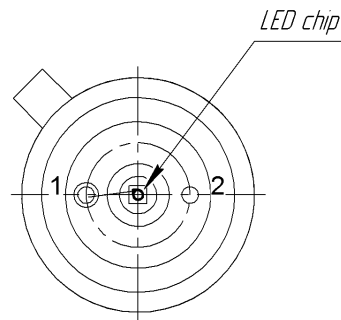
- please check your connection circuit before turning on the LED;
- please mind the LED polarity: anode is marked with a RED dot; REVERSE voltage applying is FORBIDDEN;
- please do not connect the LED to the multimeter;
- please control the CURRENT applied to the LED in order NOT to EXCEED the maximum allowable values.

Technical Drawings

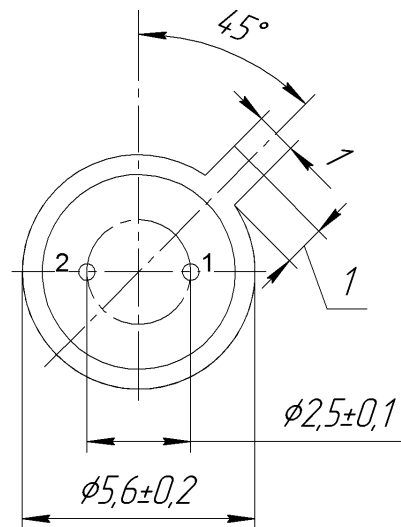
Lms43LED



TOP VIEW



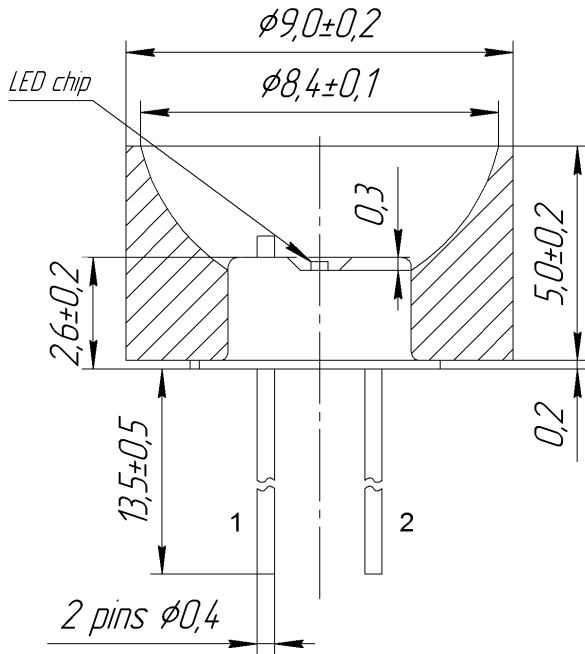
BOTTOM VIEW



*NOTE: LED anode is marked with a RED dot.  
All dimensions are pointed in mm.*

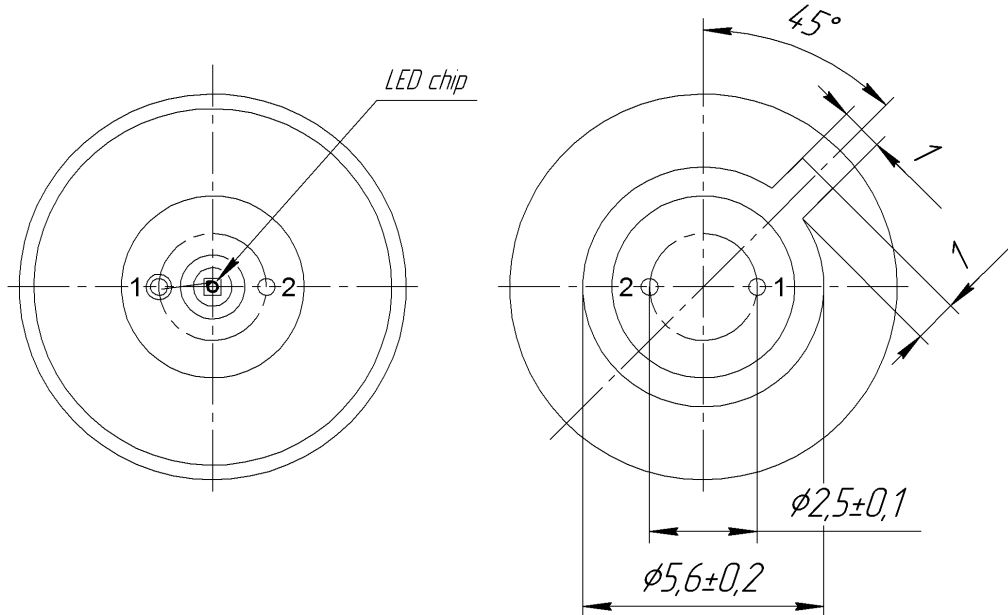
Technical Drawings

Lms43LED-R



TOP VIEW

BOTTOM VIEW

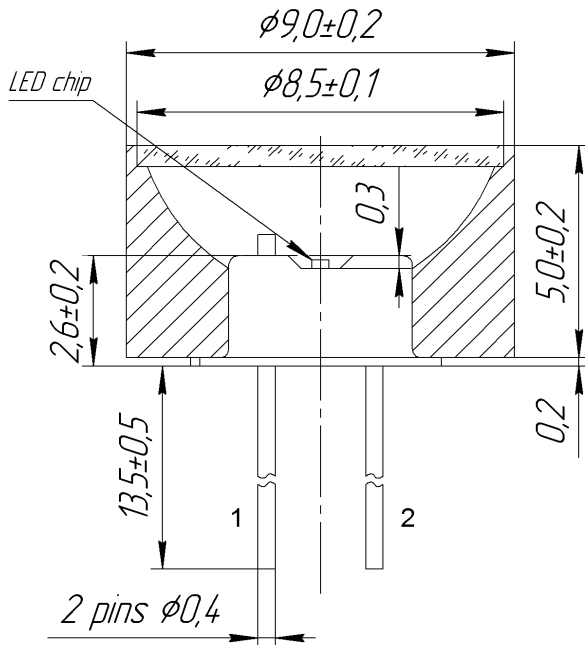


*NOTE: LED anode is marked with a RED dot.*

*All dimensions are pointed in mm.*

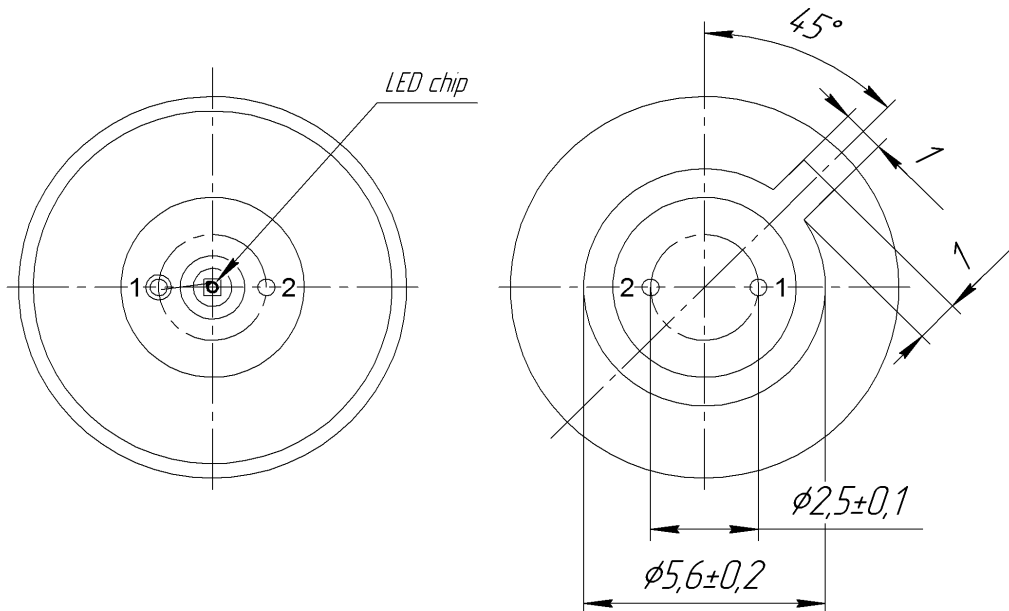
Technical Drawings

Lms43LED-RW



TOP VIEW

BOTTOM VIEW

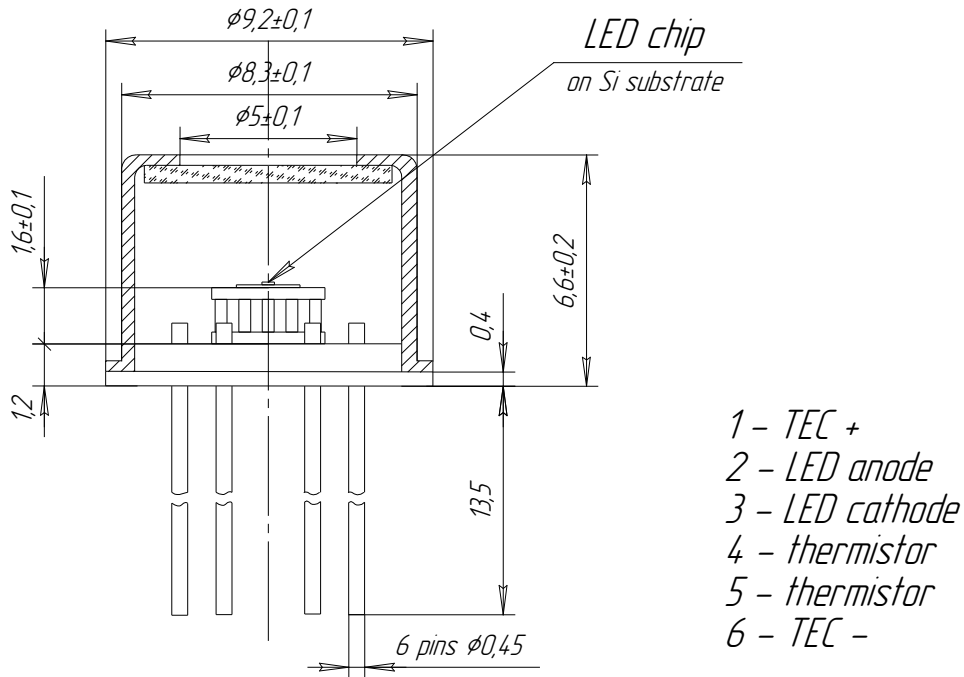


*NOTE: LED anode is marked with a RED dot.*

*All dimensions are pointed in mm.*

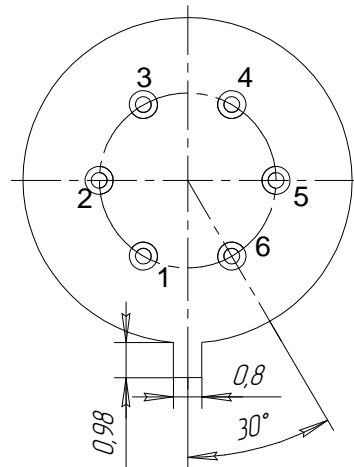
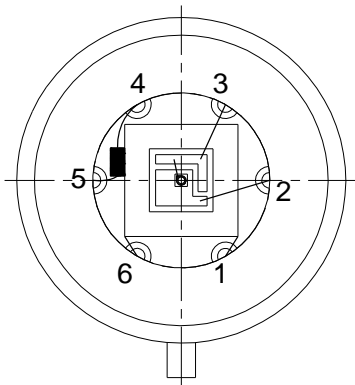
Technical Drawings

Lms43LED-TEM



TOP VIEW

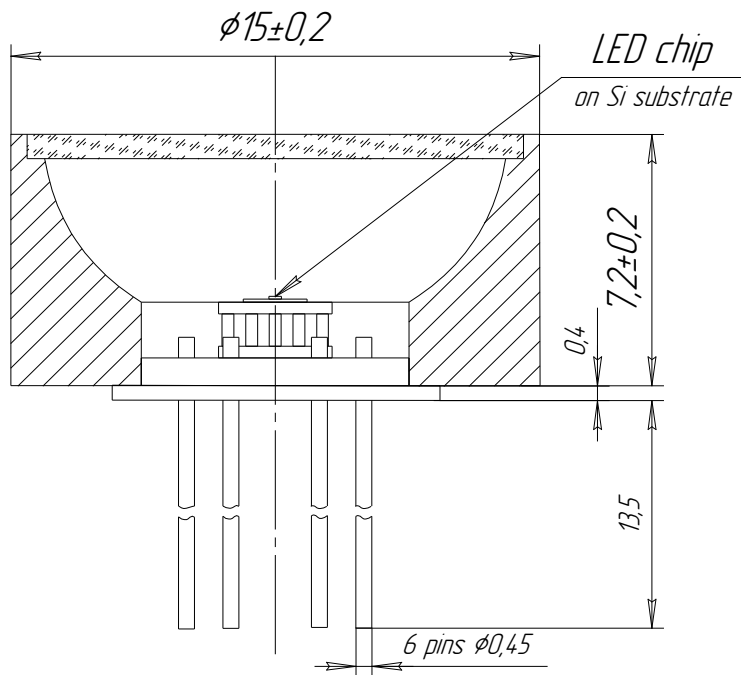
BOTTOM VIEW



*All dimensions are pointed in mm.*

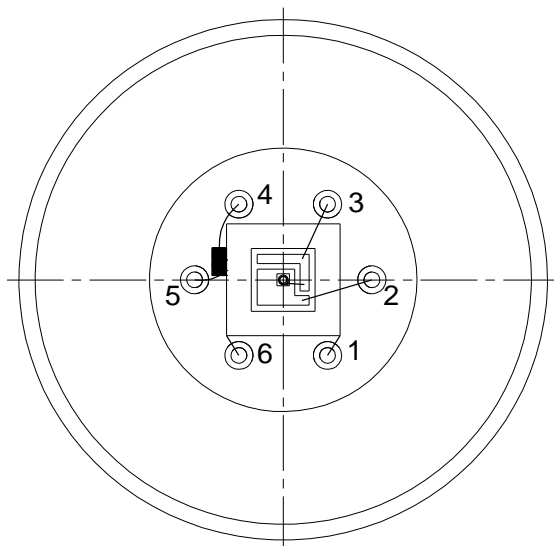
Technical Drawings

Lms43LED-TEM-R

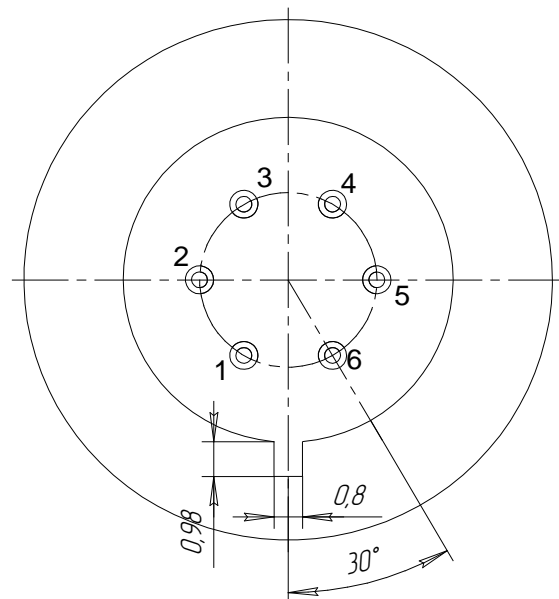


- 1 - TEC +
- 2 - LED anode
- 3 - LED cathode
- 4 - thermistor
- 5 - thermistor
- 6 - TEC -

TOP VIEW



BOTTOM VIEW



All dimensions are pointed in mm.