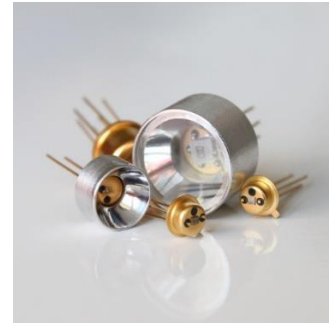


## Lms41PD-03 series



Device parameters	Symbol	Value	Units
Sensitive area diameter	d	0.3	mm
Storage temperature	T <sub>stg</sub>	-50..+60*	°C
Operating temperature	T <sub>opr</sub>	-60..+90*	°C
Reverse voltage	V <sub>r</sub>	0.1	V

\*Operating temperature for a PD with a built-in preamplifier is 0..+50 °C

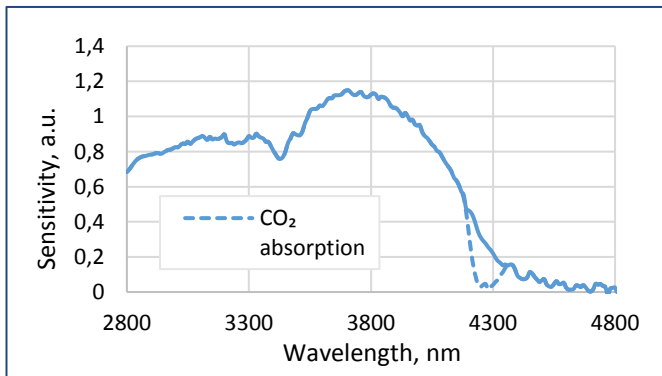
\*PD design for higher storage/operating temperature is available under request

Photodiode parameters	Conditions	Symbol	Value	Units
Cut-off wavelength	T = 25 °C	$\lambda_{\text{cut}}$	4.25 - 4.30	$\mu\text{m}$
Max. sensitivity range (>80%)	T = 25 °C	$\lambda_p$	3.5 - 4.0	$\mu\text{m}$
Dark current	T = 25 °C; V <sub>r</sub> = 0.1 V	I <sub>d</sub>	1.5 - 5.5	mA
Shunt resistance	T = 25 °C; V <sub>r</sub> = 10 mV	R <sub>sh</sub>	13 - 30	$\Omega$
Capacitance	T = 25 °C; $\lambda = \lambda_p$	C	---	pF
Sensitivity	T = 25 °C; $\lambda = \lambda_p$	S	0.9 - 1.1	A/W
Noise equivalent power	T = 25 °C; $\lambda = \lambda_p$	NEP	(2.1-4.0)*10 <sup>-11</sup>	W/Hz <sup>1/2</sup>
Detectivity	T = 25 °C; $\lambda = \lambda_p$	D*	(0.8-1.4)*10 <sup>9</sup>	cm Hz <sup>1/2</sup> ·W <sup>-1</sup>

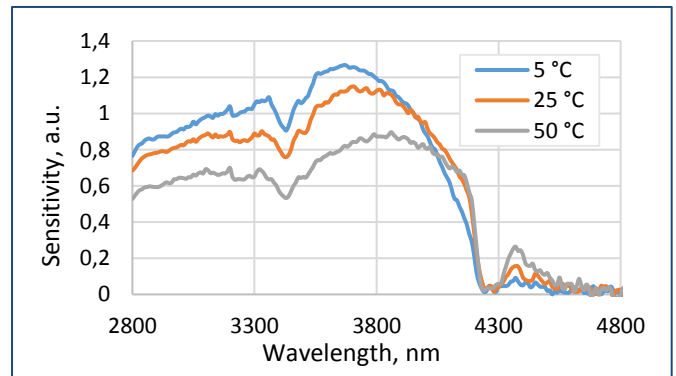
Photodiodes Lms41PD-03 series are fabricated from narrow band-gap InAsSbP/InAs-based heterostructures lattice matched to InAs substrate.

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

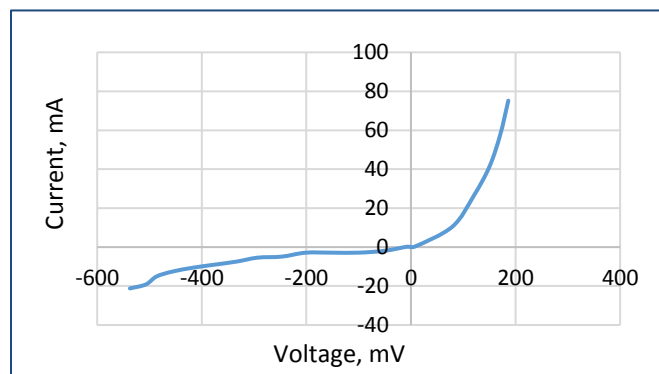
Typical spectral response



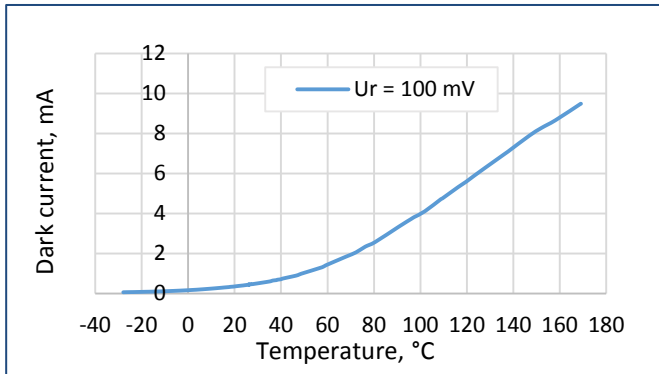
Temperature shift of spectral response



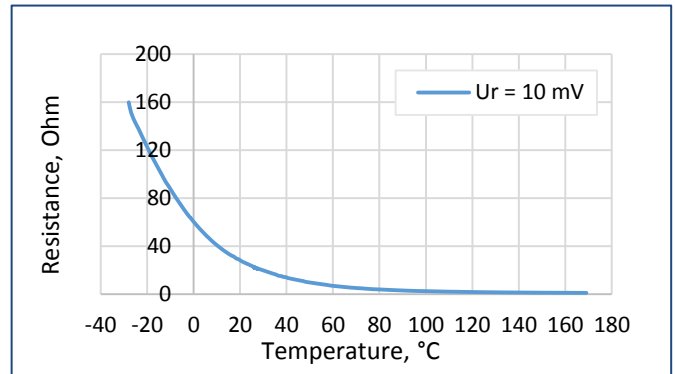
Typical current-voltage characteristic



Dark current vs. temperature



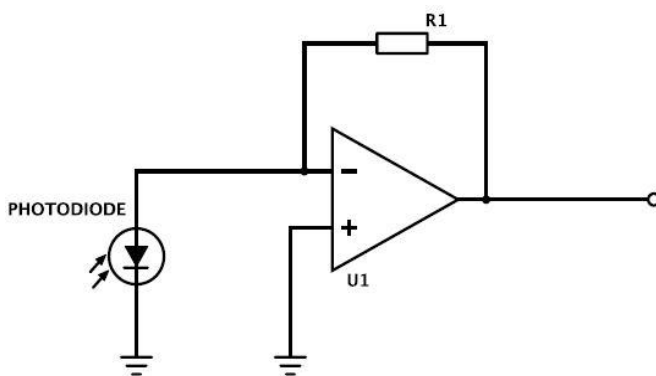
Shunt resistance vs. temperature



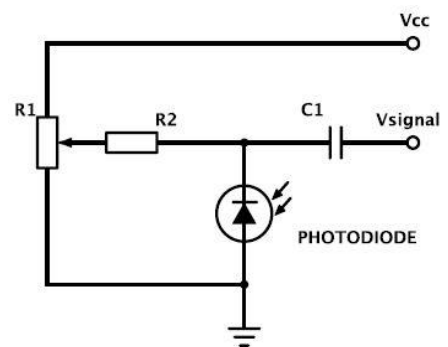
Packages	Model
TO-18 with a cap without a glass window	Lms41PD-03
TO-18 with a parabolic reflector without a glass window	Lms41PD-03-R
TO-18 with a parabolic reflector with a glass window	Lms41PD-03-RW
TO-5 with a built-in thermocooler and thermoresistor, covered by a cap with a glass window	Lms41PD-03-TEM
TO-5 with a built-in thermocooler and thermoresistor, covered by a parabolic reflector with a glass window	Lms41PD-03-TEM-R
PD with a built-in preamplifier; TO-18 with a parabolic reflector without a window in an aluminum tube	Lms41PD-03-R-PA
PD with a built-in preamplifier; TO-18 with a parabolic reflector with a window in an aluminum tube	Lms41PD-03-RW-PA

### Recommended modes of PD operation

#### PD used as a current source (photovoltaic mode)



#### PD used in a photoconductive mode (under reverse bias)



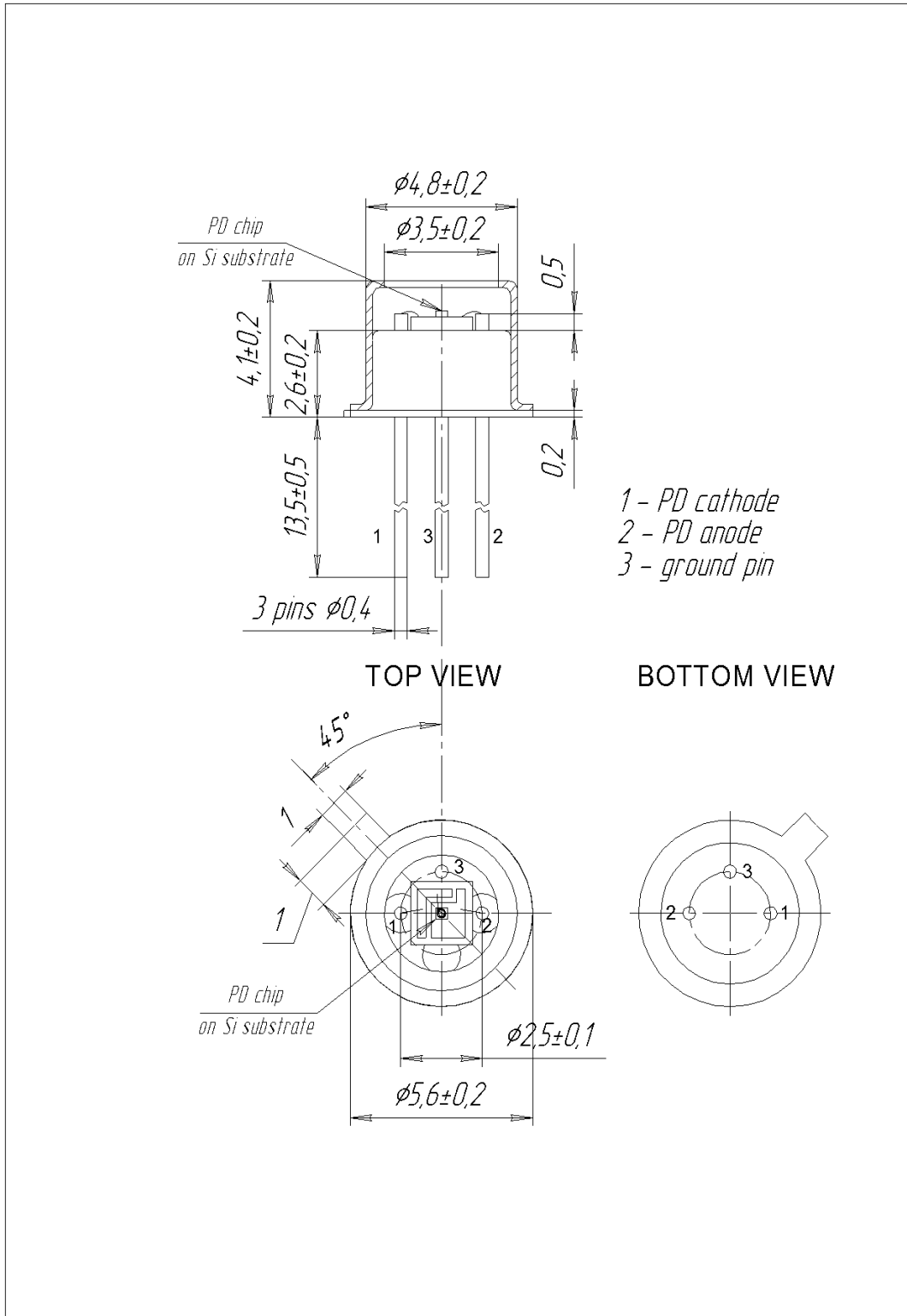
We recommend using **photovoltaic mode**, when PD is used under no reverse bias.  
Use photoconductive mode (mode with reverse bias) with caution.

### IMPORTANT CAUTIONS:

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

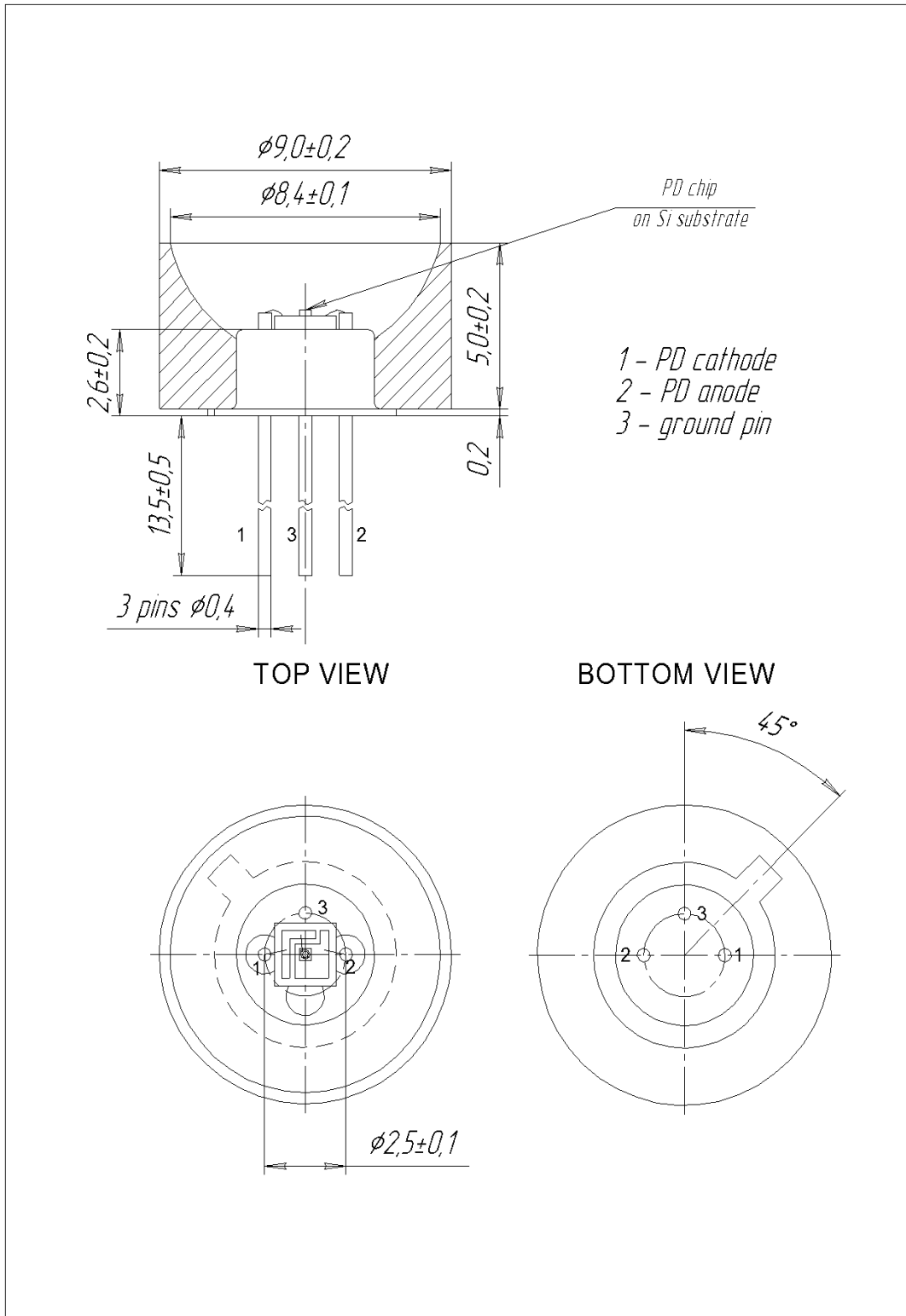
Technical Drawings

Lms41PD-03



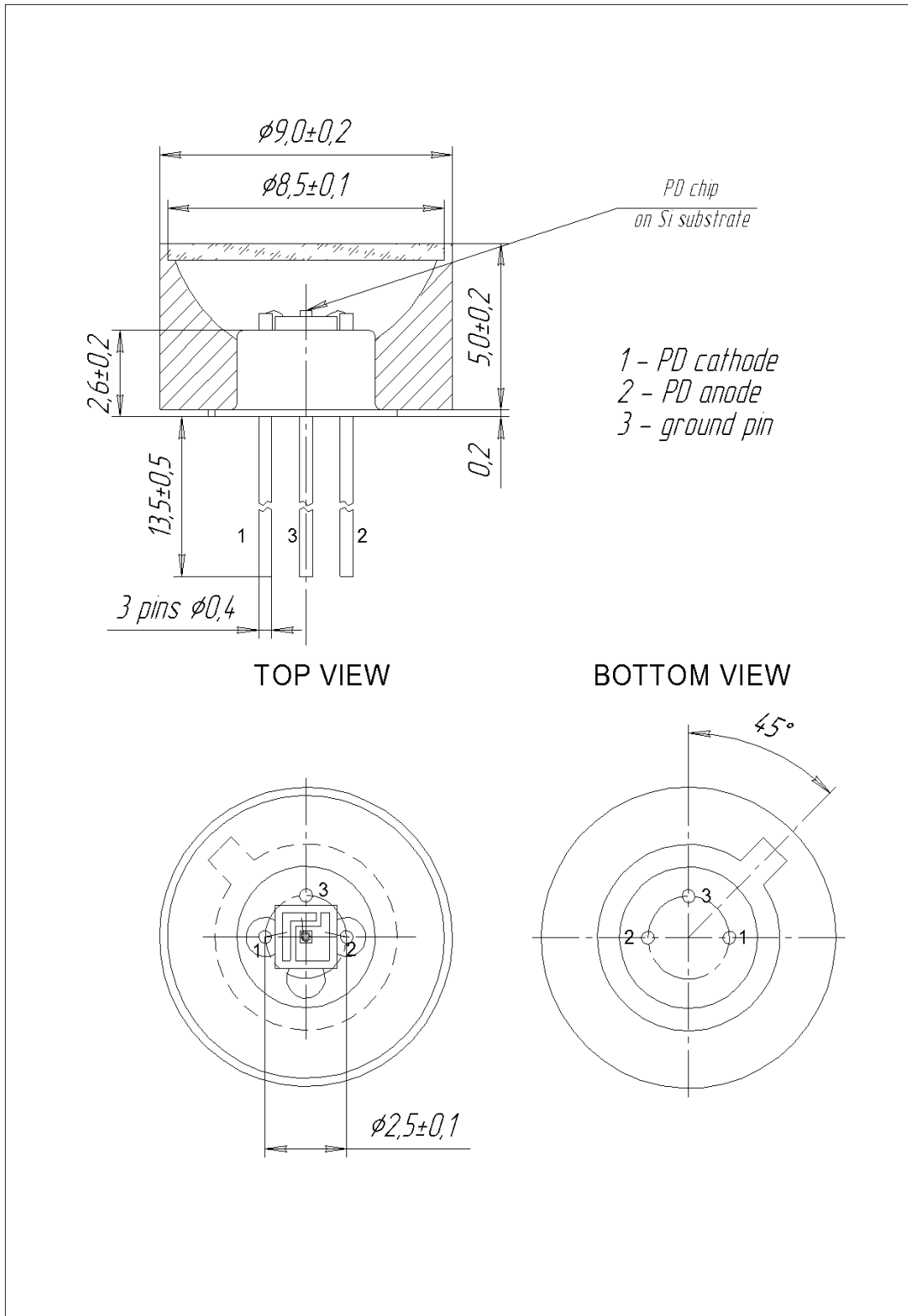
Technical Drawings

Lms41PD-03-R



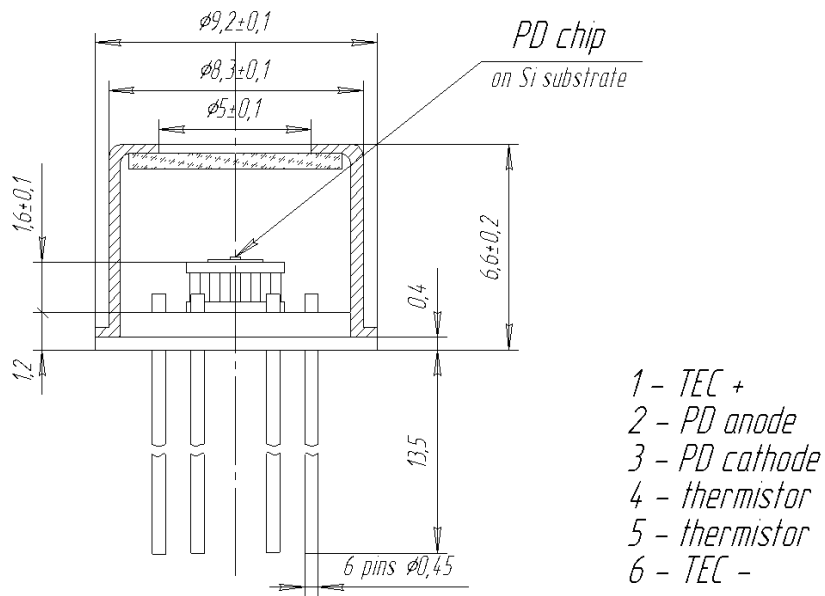
Technical Drawings

Lms41PD-03-RW



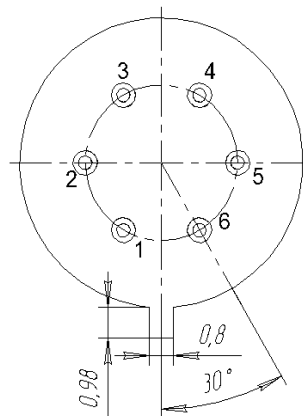
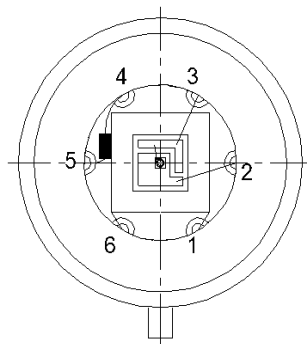
Technical Drawings

Lms41PD-03-TEM



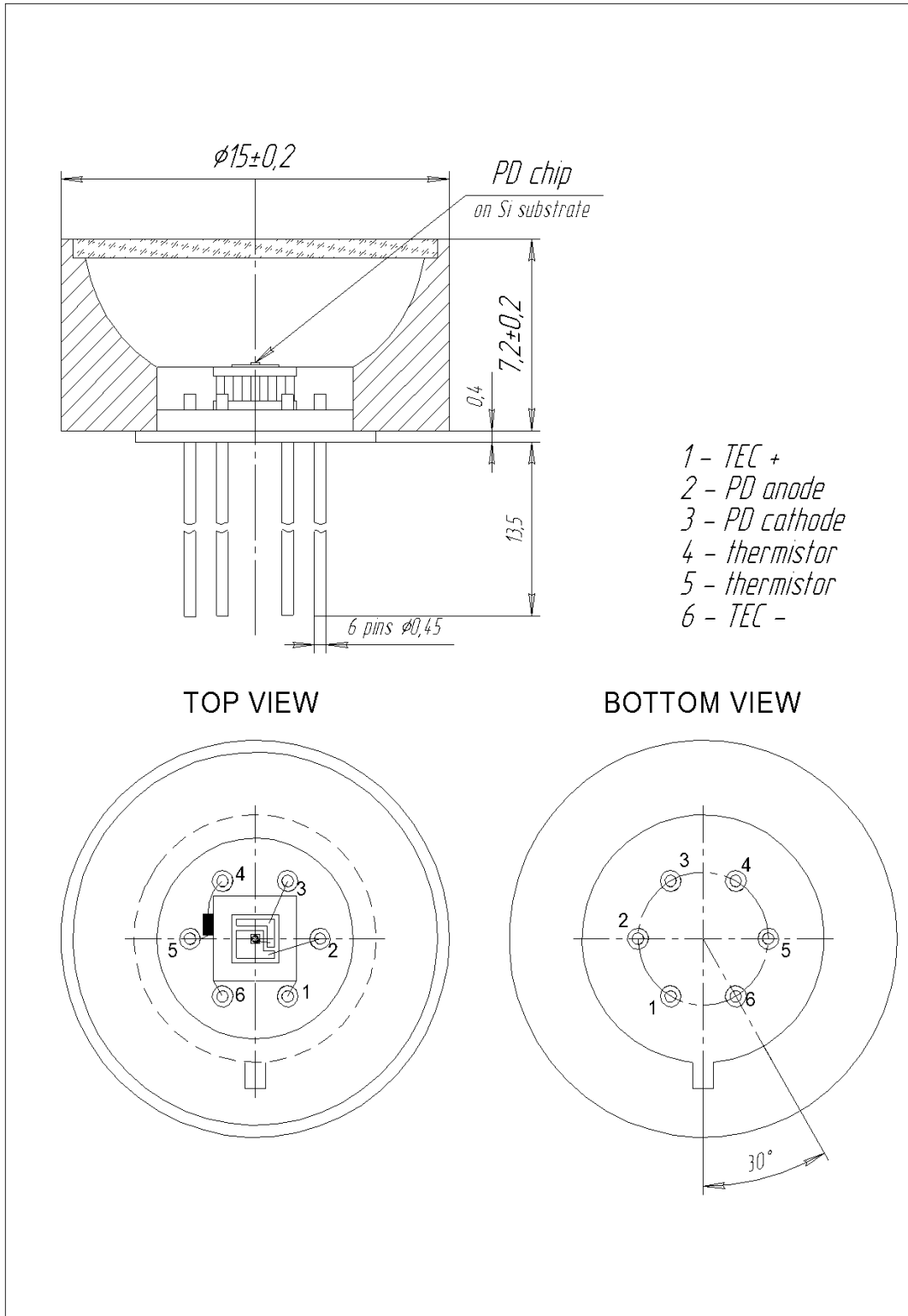
TOP VIEW

BOTTOM VIEW



Technical Drawings

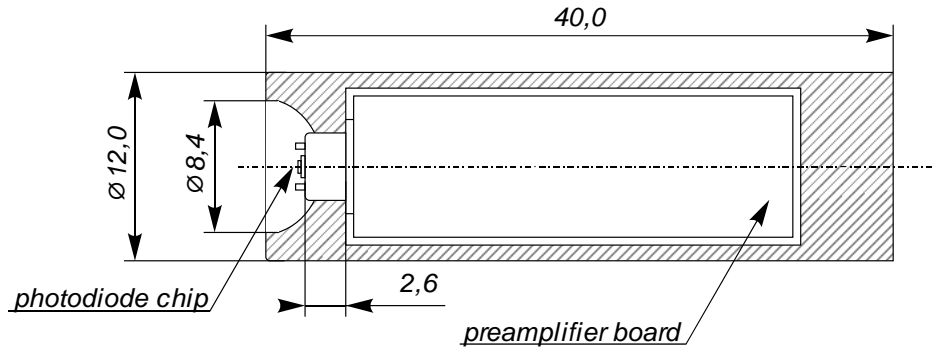
Lms41PD-03-TEM-R



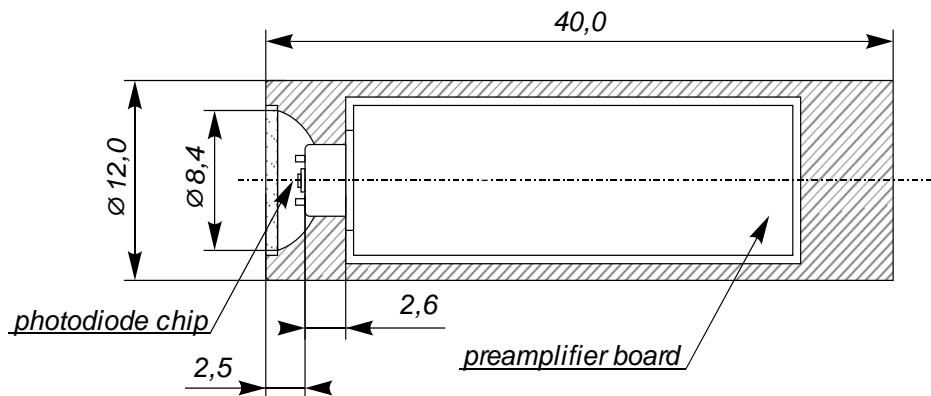


Technical Drawings

Lms41PD-03-R-PA



Lms41PD-03-RW-PA



**Power input voltage:** +5 V, stabilized;

**Connections:**

The output of PD with a built-in preamplifier has four wires:

- "+" power input (to the "+" of the power output terminal block of the SDM synchronous detector);
- "-" power input (to the "-" of the power output terminal block of the SDM synchronous detector);
- output photodiode signal (to the "-" of the signal input terminal block of the SDM synchronous detector);
- output photodiode signal (to the "+" of the signal input terminal block of the SDM synchronous detector).

For the proper connection mind colours of the wires pointed in the technical data provided with the photodiode.

Related products:

- **LEDs** - sources of mid-infrared radiation;
- **SDM** - synchronous detector for PD models with preamplifiers - Lms MIR PD-XX-R-PA and Lms MIR PD-XX-RW-PA. SDM synchronous detector measures the voltage signal from the output of photodiode preamplifier and converts it to the DC voltage signal proportional to amplitude of voltage from input.