

## Lms41PD-03-TEM

| Device parameters  | Symbol             | Value    | Units              |
|--|--------------------|----------|--------------------|
| Sensitive area size  | d                  | 0.3      | mm                 |
| Reverse voltage  | $V_r$              | 0.1      | V                  |
| Operating/ storage temperature                                     | $T_{opr}/ T_{stg}$ | +5..+90* | $^{\circ}\text{C}$ |
| Soldering temperature<br>(can be applied for not more than 5 secs) | $T_{sol}$          | +180     | $^{\circ}\text{C}$ |



\*Photodiode design for different storage/operating temperature range can be considered under request.

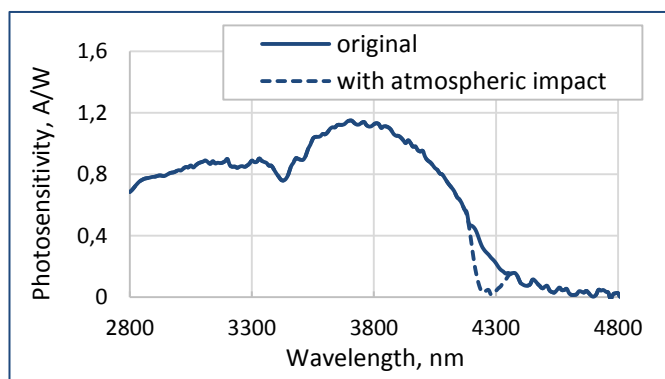
All parameters refer to photodiode operation at ambient temperature 25 $^{\circ}\text{C}$  unless otherwise stated.

| Photodiode parameters                                  | Conditions                  | Symbol          | Value   | Units   |
|--|-----------------------------|-----------------|---|---|
| Cut-off wavelength (at 10% level) <sup>1</sup>         | -                           | $\lambda_{cut}$ | 4.25 - 4.30   | $\mu\text{m}$   |
| Max. sensitivity range (at 80% level) <sup>1</sup>     | -                           | $\lambda_p$     | 3.5 - 4.0   | $\mu\text{m}$   |
| Dark current (typical/ maximal) <sup>2</sup>           | $V_r = 0.1 \text{ V}$       | $I_d$           | typ 5.0 / max 6.0                                   | mA  |
| Shunt resistance (minimal/ typical) <sup>2</sup>       | $V_r = 10 \text{ mV}$       | $R_{sh}$        | min 12 / typ 15                                     | $\Omega$  |
| Capacitance (typical/ maximal) <sup>1</sup>            | $V_r = 10 \text{ mV}$       | C               | -   | pF  |
| Photosensitivity (minimal/ typical) <sup>2</sup>       | $\lambda = 4.0 \mu\text{m}$ | S               | min 0.7 / typ 0.8                                   | A/W   |
| Noise equivalent power (typical/ maximal) <sup>2</sup> | $\lambda = 4.0 \mu\text{m}$ | NEP             | typ $4.1 \cdot 10^{-11}$ / max $5.3 \cdot 10^{-11}$ | $\text{W}/\text{Hz}^{1/2}$                              |
| Detectivity (minimal/ typical) <sup>2</sup>            | $\lambda = 4.0 \mu\text{m}$ | $D^*$           | min $5.8 \cdot 10^8$ / typ $7.4 \cdot 10^8$         | $\text{cm}^2 \cdot \text{Hz}^{1/2} \cdot \text{W}^{-1}$ |

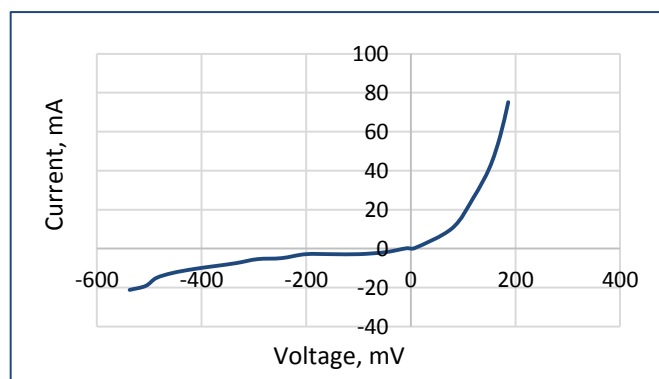
<sup>1</sup> Parameter tested for representative sampling.

<sup>2</sup> Parameter tested for each device.

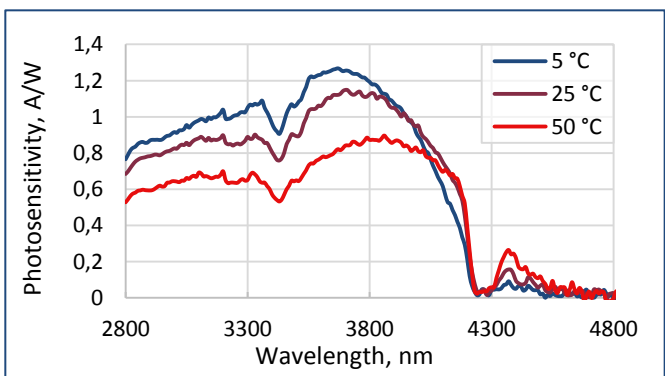
Typical spectral response



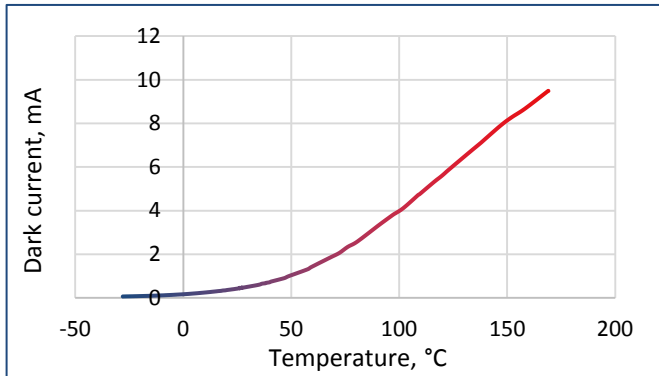
Typical current-voltage characteristic



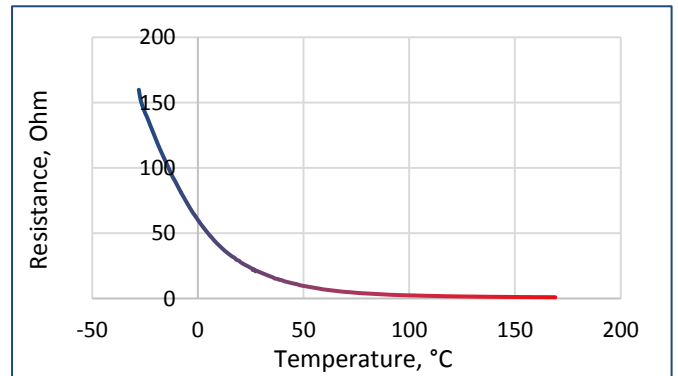
Temperature shift of spectral response



Dark current vs. temperature ( $V_r = 0.1 \text{ V}$ )



Shunt resistance vs. temperature ( $V_r = 10 \text{ mV}$ )

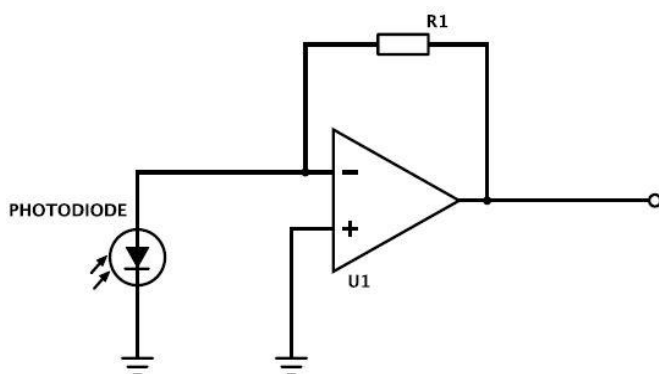


| Packages*  | Model            |
|--|------------------|
| TO-18 with a cap without a glass window  | Lms41PD-03       |
| TO-18 with a parabolic reflector without a glass window  | Lms41PD-03-R     |
| TO-18 with a parabolic reflector with a glass window   | Lms41PD-03-RW    |
| TO-5 with a built-in 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 |

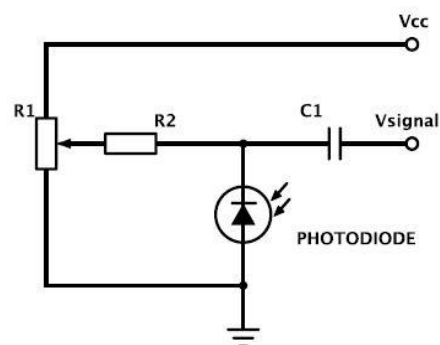
\*Standard photodiode packaging is non-hermetical, so that condensation during device operation and storage must be prevented.

## 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:

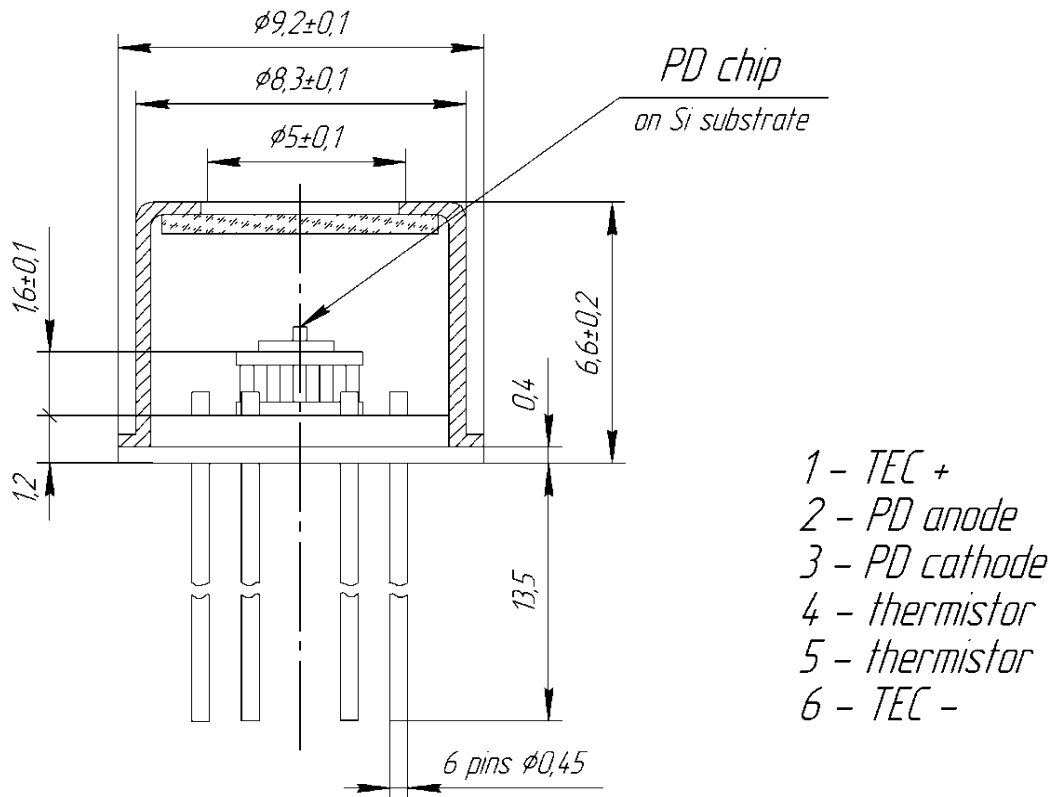
- please check your connection circuit before turning on the PD;
- please mind the PD polarity: PD anode is marked with a RED dot;
- please do not connect the PD to the multimeter.

## Related products:

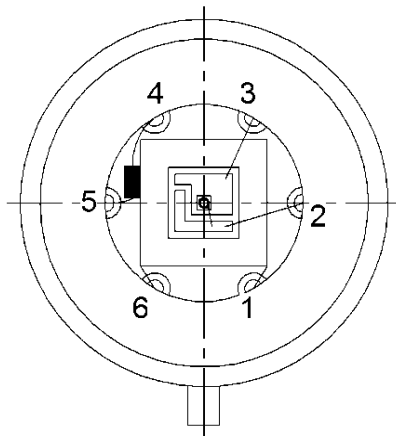
- **Light emitting diodes (LEDs)** - sources of IR radiation;
- **PAb preamplifier** - amplifies photocurrent generated by a PD and converts it into a voltage signal;
- **SDM synchronous detector** - enables synchronous operation of a PD coupled with a preamplifier and an LED coupled with a driver; performs conversion of an output PD preamplifier signal into DC voltage signal.

Technical Drawing

Lms41PD-03-TEM



TOP VIEW



BOTTOM VIEW

