

Lms49PD-05-TEM

Device parameters	Symbol	Value	Units
Sensitive area size	d	0.5	mm
Reverse voltage	V_r	0.1	V
Operating/ storage temperature	T_{opr}/ T_{stg}	+5..+90*	$^{\circ}\text{C}$
Soldering temperature (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.

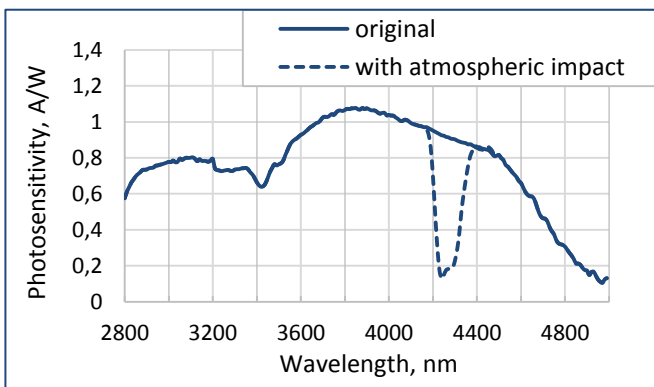
All parameters refer to photodiode operation at ambient temperature 25 $^{\circ}\text{C}$ unless otherwise stated.

Photodiode parameters	Conditions	Symbol	Value	Units
Cut-off wavelength (at 10% level) ¹	-	λ_{cut}	4.9 - 5.0	μm
Max. sensitivity range (at 80% level) ¹	-	λ_p	3.55 - 4.50	μm
Dark current (typical/ maximal) ²	$V_r = 0.1 \text{ V}$	I_d	typ 17 / max 25	mA
Shunt resistance (minimal/ typical) ²	$V_r = 10 \text{ mV}$	R_{sh}	min 4.5 / typ 6	Ω
Capacitance (typical/ maximal) ¹	$V_r = 10 \text{ mV}$	C	-	pF
Photosensitivity (minimal/ typical) ²	$\lambda = 4.1 \mu\text{m}$	S	min 0.85 / typ 1	A/W
Noise equivalent power (typical/ maximal) ²	$\lambda = 4.1 \mu\text{m}$	NEP	typ $5.2 \cdot 10^{-11}$ / max $7.1 \cdot 10^{-11}$	$\text{W}/\text{Hz}^{1/2}$
Detectivity (minimal/ typical) ²	$\lambda = 4.1 \mu\text{m}$	D^*	min $6 \cdot 10^8$ / typ $8 \cdot 10^8$	$\text{cm}^2 \cdot \text{Hz}^{1/2} \cdot \text{W}^{-1}$

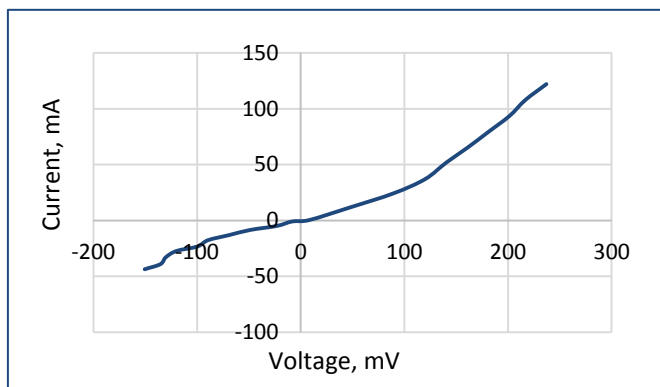
¹ Parameter tested for representative sampling.

² Parameter tested for each device.

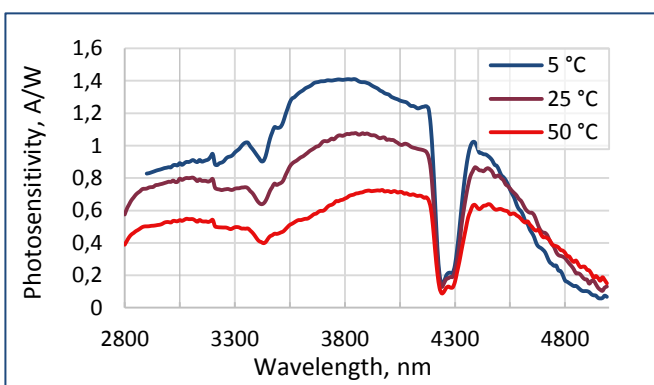
Typical spectral response



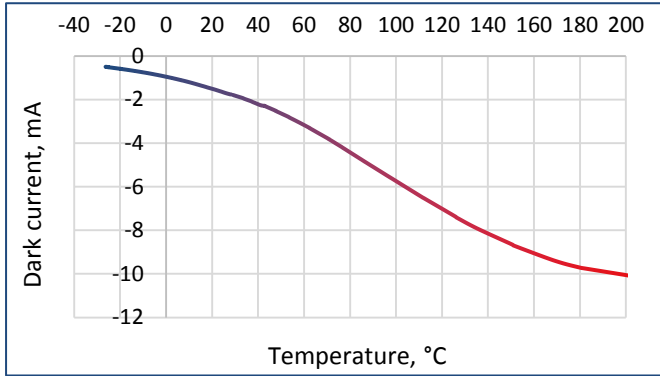
Typical current-voltage characteristic



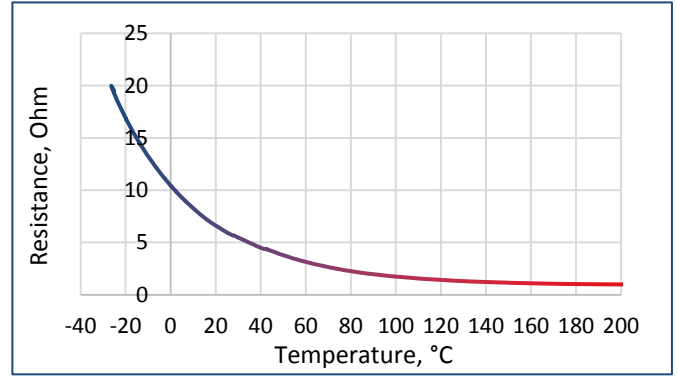
Temperature shift of spectral response



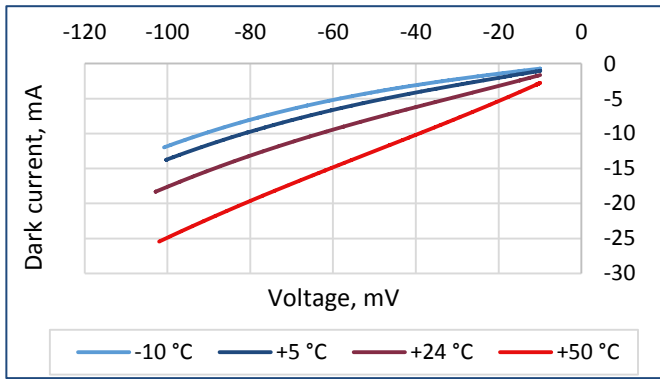
Dark current vs. temperature ($V_r = 0.1 \text{ V}$)



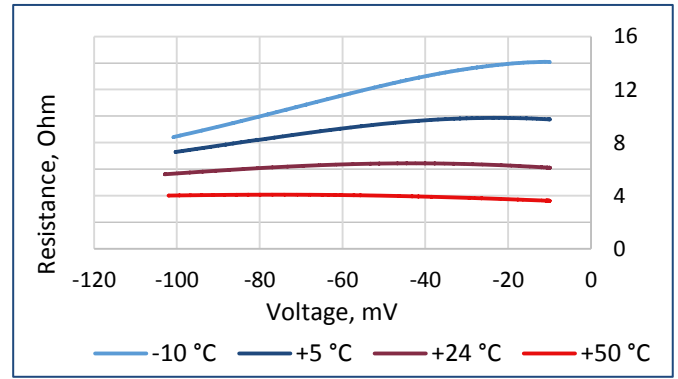
Shunt resistance vs. temperature ($V_r = 10 \text{ mV}$)



Dark current vs. voltage



Shunt resistance vs. voltage

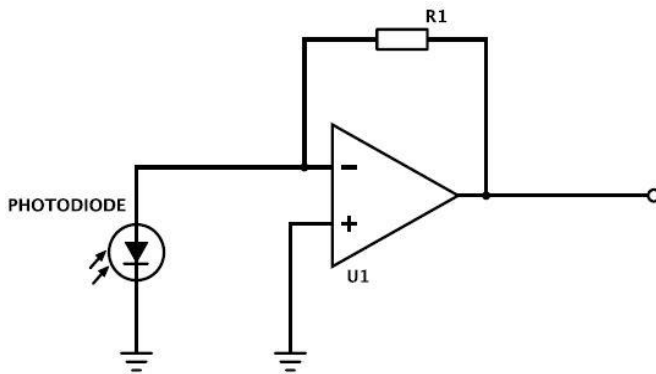


Packages*	Model
TO-18 with a cap without a glass window	Lms49PD-05
TO-18 with a parabolic reflector without a glass window	Lms49PD-05-R
TO-18 with a parabolic reflector with a glass window	Lms49PD-05-RW
TO-5 with a built-in thermocooler and thermoresistor, covered by a cap with a glass window	Lms49PD-05-TEM
TO-5 with a built-in thermocooler and thermoresistor, covered by a parabolic reflector with a glass window	Lms49PD-05-TEM-R
PD with a built-in preamplifier; TO-18 with a parabolic reflector without a window in an aluminum tube	Lms49PD-05-R-PA
PD with a built-in preamplifier; TO-18 with a parabolic reflector with a window in an aluminum tube	Lms49PD-05-RW-PA

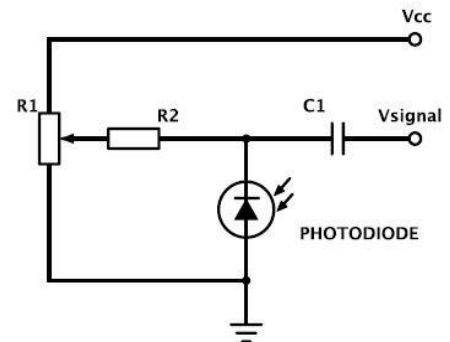
*Standard photodiode packaging is non-hermetical, so that condensation during device operation and storage must be prevented.

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:

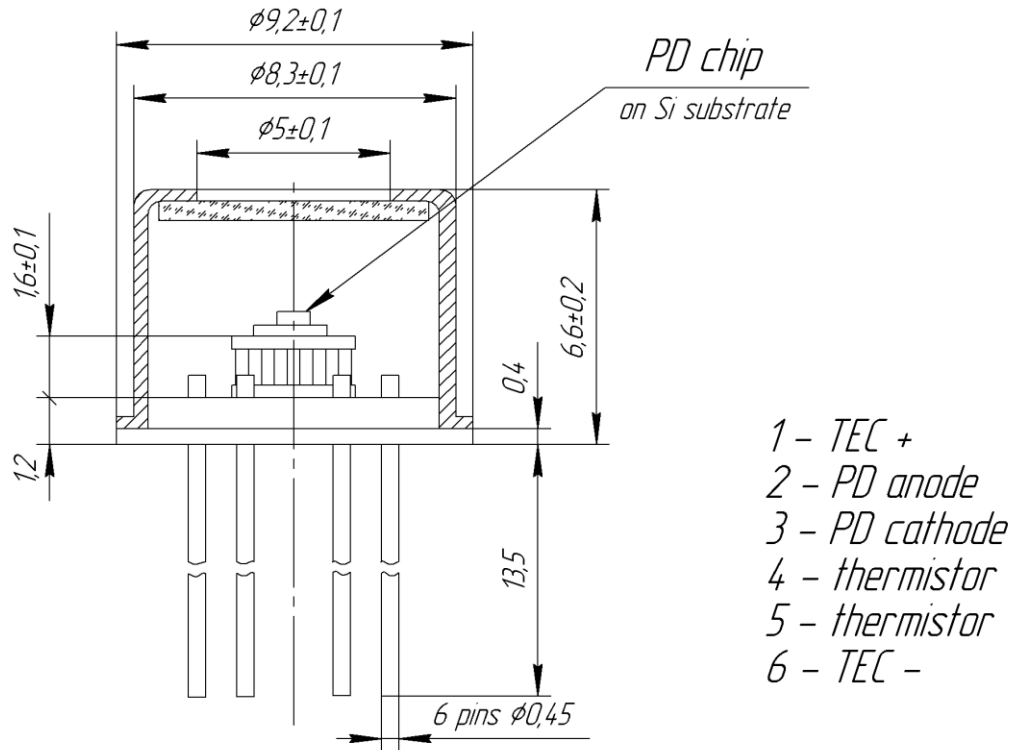
- please check your connection circuit before turning on the PD;
- please mind the PD polarity: PD anode is marked with a RED dot;
- please do not connect the PD to the multimeter.

Related products:

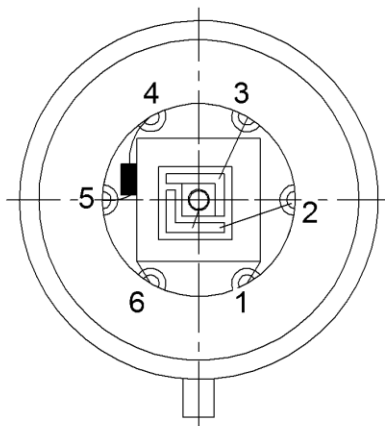
- **Light emitting diodes (LEDs)** - sources of IR radiation;
- **PAb preamplifier** - amplifies photocurrent generated by a PD and converts it into a voltage signal;
- **SDM synchronous detector** - enables synchronous operation of a PD coupled with a preamplifier and an LED coupled with a driver; performs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

Technical Drawings

Lms49PD-05-TEM



TOP VIEW



BOTTOM VIEW

