Electro Optical Components, Inc.
5464 Skylane Boulevard, Suite D, Santa Rosa, CA 95403
Toll Free: 855-EOC-6300
www.eoc-inc.com | info@eoc-inc.com

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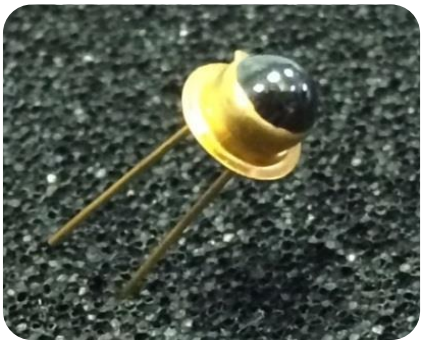
LED Microsensor NT

Mid-Infrared (MIR) Photodiode
Series with a glass cover
Lms43PD-05-CG series

2.6 - 4.6 µm



Device parameters	Symbol	Value	Units
Sensitive area diameter	d	0,5	mm
Storage temperature	T_{stg}	0..+50	°C
Operating temperature	T_{opr}	0..+50	°C
Lead soldering temperature (time < 3 seconds, 3 mm from case)	T_{sol}	+180	°C
Reverse voltage	V_r	0.1	V

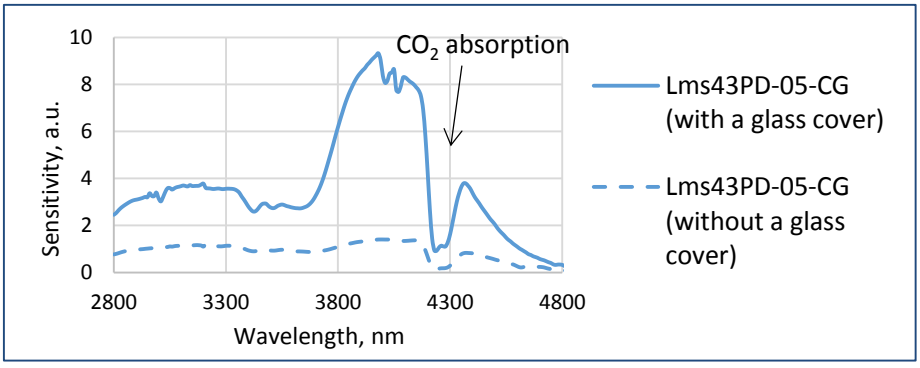
Photodiode parameters	Conditions	Symbol	Value	Units
Cut-off wavelength	T = 25 °C	λ_{cut}	4.5 - 4.8	µm
Max. sensitivity range (>80%)	T = 25 °C	λ_p	3.5 - 4.2	µm
Dark current	T = 25 °C; $V_{reverse}$ = 0.1 V	I_d	8 - 25	mA
Shunt resistance	T = 25 °C; $V_{reverse}$ = 10 mV	R_{sh}	4 - 6	Ω
Capacitance	T = 25 °C; $\lambda = \lambda_p$	C	- - -	pF

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

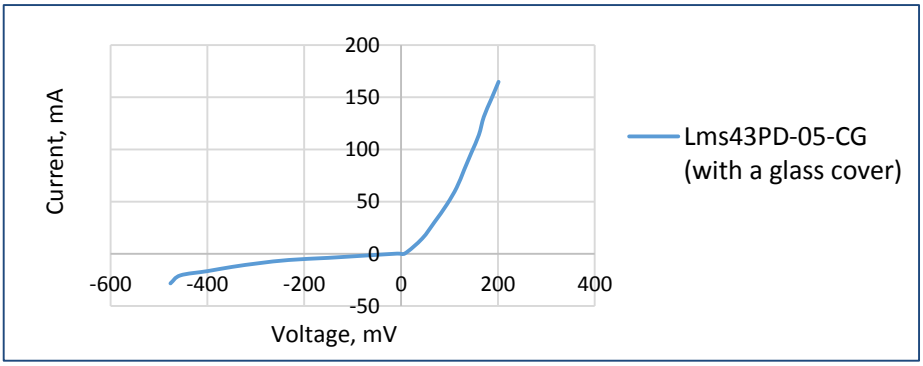
Photodiodes Lms43PD-05-CG series are fabricated from narrow band-gap InAsSbP/InAs-based heterostructures lattice matched to InAs substrate.

Photodiode with a glass cover provides a signal that is minimum 3 times higher than the signal from the same photodiode without a glass cover due to:
- increase of the photodiode effective sensitive area with a glass cover
- increase of the emission got inside the PD crystal

Typical spectral response



Typical current-voltage characteristic



LED Microsensor NT

Mid-Infrared (MIR) Photodiode

2.6 - 4.6 µm

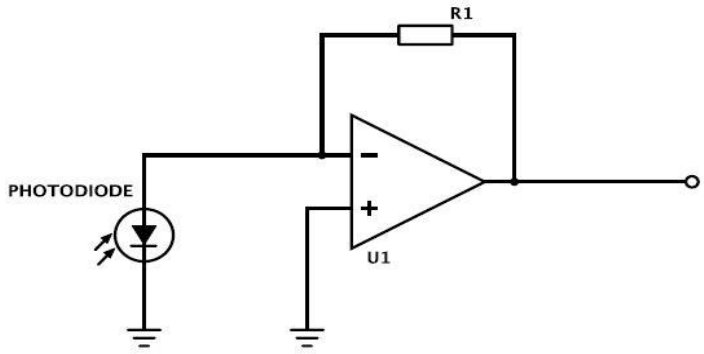
Series with a glass cover

Lms43PD-05-CG series

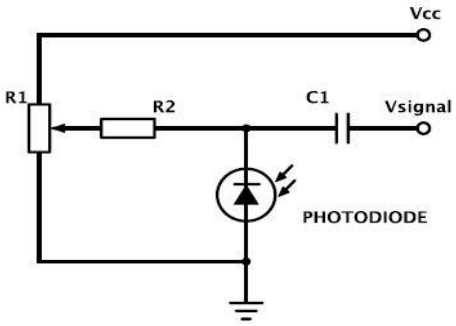
Packages	Model
TO-18 with a glass covering	Lms MIR PD-05-CG
PD with a built-in preamplifier; TO-18 with a glass covering and a parabolic reflector without a window in an aluminium tube	Lms MIR PD-05-CG-R-PA

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:

- check your connection circuit before turning on the PD;
- mind the PD polarity: PD anode is marked with a RED dot;
- do not connect the PD to the multimeter;
- do not touch the glass covering and do not apply any force to it;
- observe the allowable operating temperature range, exceeding this eange may cause irreparable damage of the glass cover

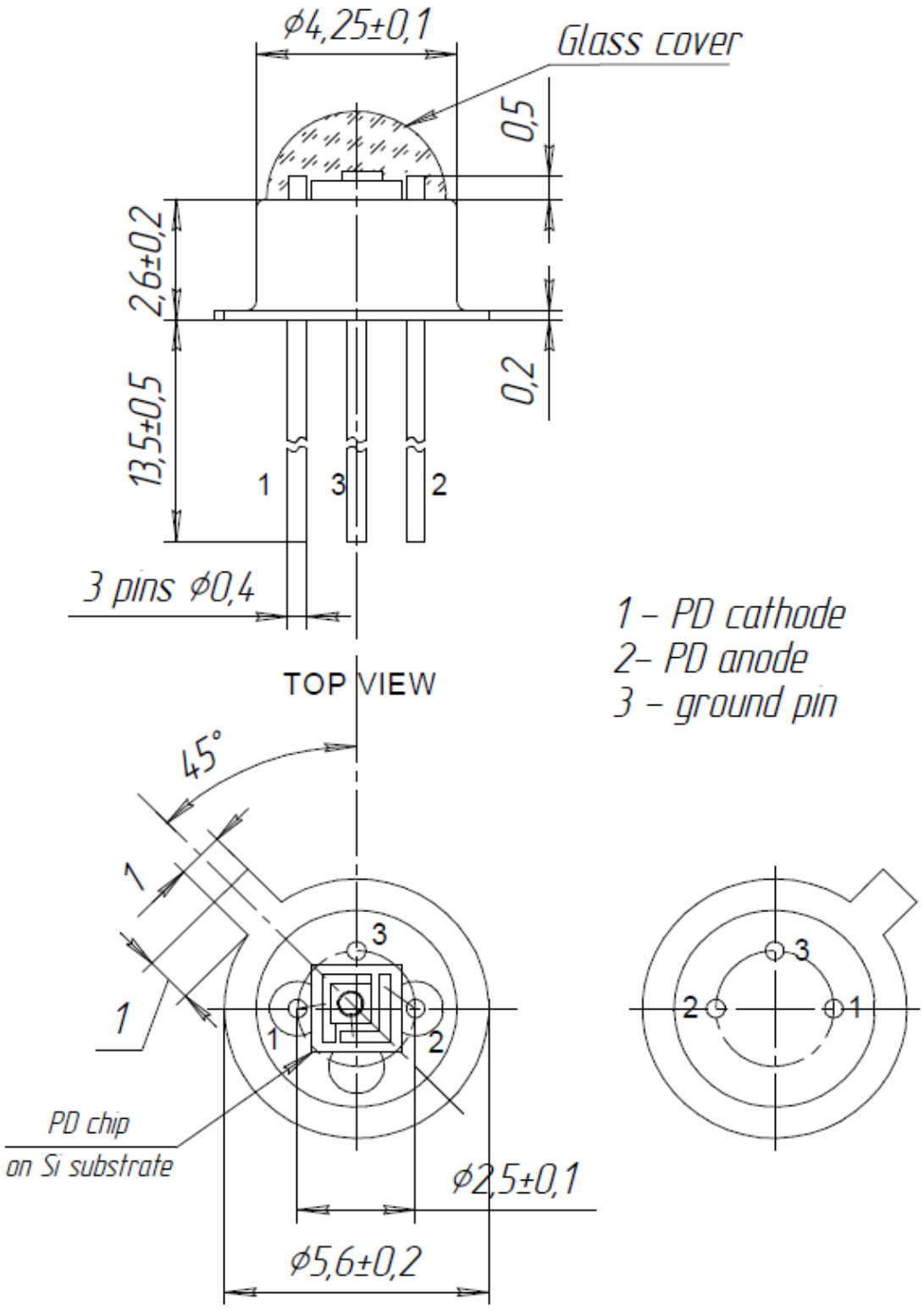
Related products:

- **LEDs** - sources of mid-infrared radiation;
- **SDM** - synchronous detector for PD models with preamplifiers - Lms MIR PD-XX-CG-R-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.

Lms43PD-05-CG series

Technical Drawing

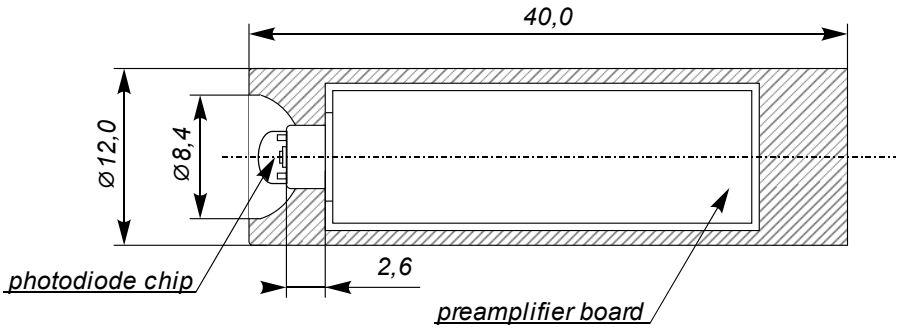
Lms MIR PD-05-CG



Lms43PD-05-CG series

Technical Drawing

Lms MIR PD-05-CG-R-PA



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.