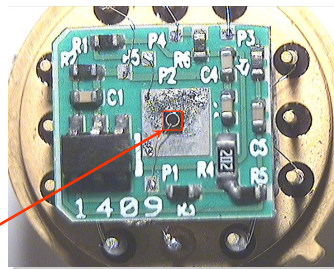




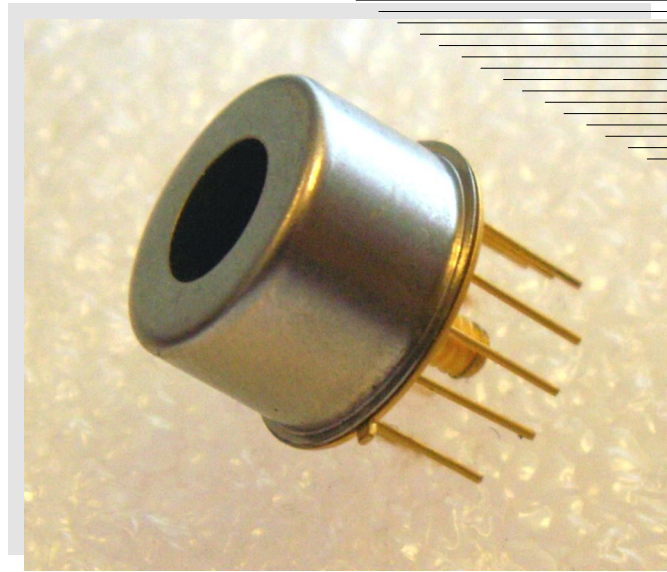
# Photodiode amplifier with TEC PD24-05-AMP-TEC

## Features

- High sensitivity
- High reliability
- Superior linearity
- Thermo stability



Photodiode CHIP



## Applications

- Optical measurement equipment
- Analytical instruments

## Description

Photodiode amplifier with TEC **PD24-05-AMP-TEC** is a model of **photodetector**, consist of **photodiode**, pre-amplifier, thermo cooler (TEC) and termistor for a control inside condition. Components integrated inside the standard 15.2 mm TO8 package.

Photodiode amplifier with TEC **PD24-05-AMP-TEC** is designed for detection of radiation in the Middle Infrared (Mid-IR) spectral range from 1150 to 2400 nm. **Heterostructures** with the InGaAsSb active layer and the AlGaAsSb "window" are grown on GaSb substrates.

Diameter of the photosensitive area of **PD24-05-AMP-TEC** is 500  $\mu\text{m}$ . Fast response makes it possible for detection of modulated radiation of laser diodes (LDs) and light-emitting diodes (LEDs).

Related products: **PD24-05-AMP-TEC** can be used in optical pair with our **LED16...LED23** and **LD200...LD230**.

## General characteristics

Package	Parameter	Symbol	Value	Unit
TO8 with TEC	Sensitive area diameter	d	0.5	mm
	Weight	m	4	g
	Operating temperature	$t_{opr}$	0...+ 30	$^{\circ}\text{C}$
	Soldering temperature	$t_s$	230	$^{\circ}\text{C}$
	Storage temperature	$t_{stg}$	- 20...+ 40	$^{\circ}\text{C}$
	Size	D	15.2	mm
H		16		

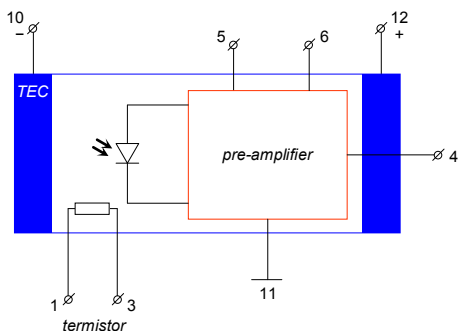


## Electrical and optical characteristics (absolute maximum values at 20 °C)

Parameter	Symbol	Value	Unit
Spectral sensitivity range (at level 10%)	$\lambda$	1.15 - 2.40	$\mu\text{m}$
Peak sensitivity wavelength	$\lambda_p$	2.0 - 2.2	$\mu\text{m}$
Volt sensitivity	$S_v$	$4 \cdot 10^4$	V/A
Detection threshold (at $\lambda_{\text{max}}$ )	P	$10^{-7}$	W
Detectivity	$D^*$	$[0.7 - 1.0] \cdot 10^{11}$	$\text{cm} \cdot \text{Hz}^{1/2} \cdot \text{W}^{-1}$
Frequency range	$\Delta f$	0.15 - 350	kHz
Rise time	$t_r$	1	$\mu\text{s}$
Fall time	$t_f$	1	$\mu\text{s}$
Output impedance	R	20	$\Omega$
Maximal amplitude of output signal	A	< 5	V
External power supply	U	5 - 6 (stabilized)	V
Output noise voltage (peak to peak at $\Delta f \approx 350$ kHz)	$U_N$	3	mV
Type output signal		Impulse	
Output polarity		Negative	

## TEC 1MC06-018-08 parameters (without load)

Parameter	Symbol	Value	Unit
Current power ( $\Delta t_{\text{max}}$ )	$I_{\text{max}}$	2.20	A
Voltage ( $\Delta t_{\text{max}}$ )	$U_{\text{max}}$	2.20	V
Cooling energy	$Q_{\text{max}}$	2.65	W
Temperature range (vacuum)	$\Delta T_{\text{max}}$	70	K
Termistor resistance ( $t = 20$ °C)	$R_t$	10.00	k $\Omega$



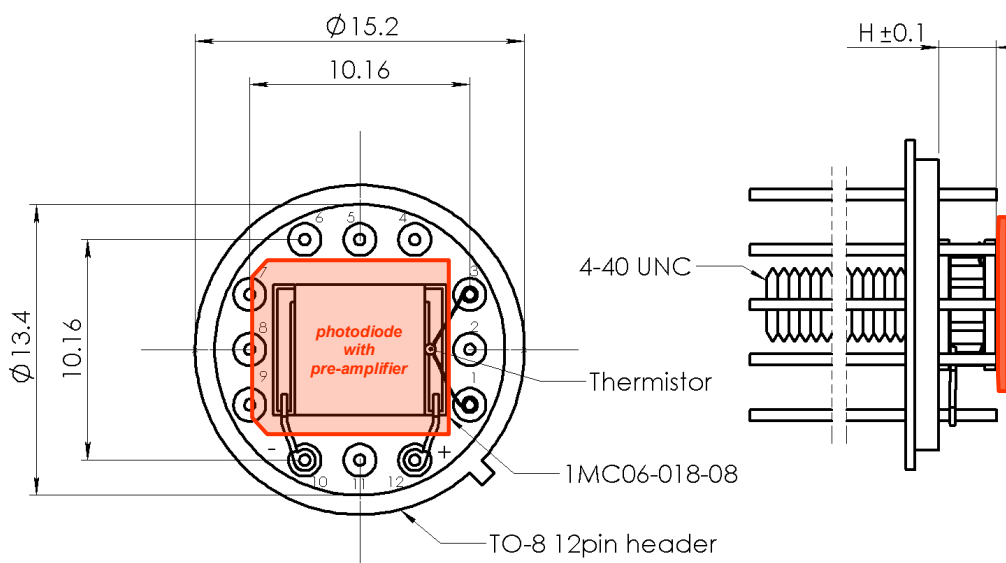
Pin	Description
1	Termistor TC103
3	
4	Signal output
5	+ 5 V
6	0 V
10	TEC 1MC06-018-08
12	
11	GND
2, 7, 8, 9	Not applicable

### Package dimensions (unit: mm)

TOP SIDE VIEW

PROFILE SIDE VIEW

(without window)



\* Recommend to use all capacitances type of TKE: "X7R"



▼ Spectral response (PD24-05-AMP-TEC)

