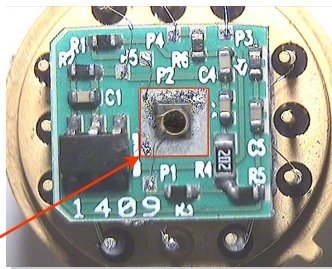


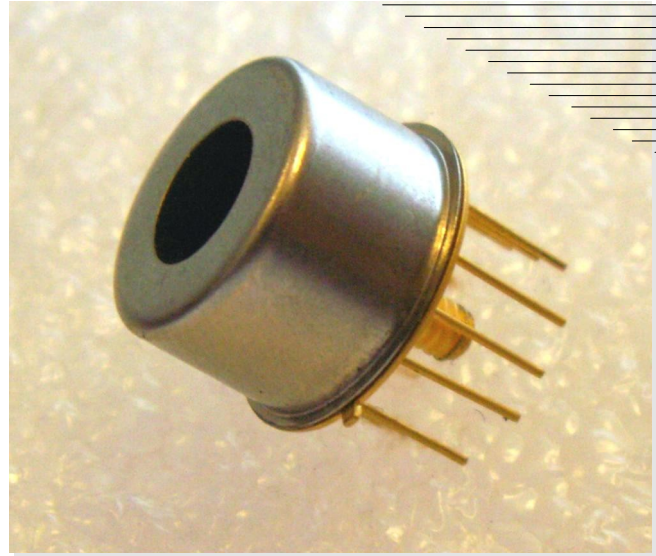


Features

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



Photodiode CHIP



Applications

- Optical measurement equipment
- Analytical instruments

Description

Photodiode amplifier with TEC **PD24-10-AMP-TEC** is a model of [photodetector](#), consist of [photodiode](#), pre-amplifier, thermoelectric cooler (TEC) and termistor for a control of temperature. Components are integrated inside the standard 15.2 mm TO-8 package with TEC.

Photodiode amplifier with TEC **PD24-10-AMP-TEC** is designed for detection of radiation in the Mid-IR (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 **PD24-10-AMP-TEC** is 1 mm. Fast response makes it possible for detection of modulated radiation of laser diodes (LDs) and light-emitting diodes (LEDs).

Related products: **PD24-10-AMP-TEC** can be used in optical pair with our [LED16...LED23](#) and [LD200...LD230](#).

General characteristics

Package	Parameter	Symbol	Value	Unit
TO-8 with TEC	Sensitive area diameter	d	1.0	mm
	Weight	m	4.0	g
	Operating temperature	t_{opr}	0...+ 30	$^{\circ}\text{C}$
	Window material	Sapphire glass		
	Cooling	One-stage TE-cooled		
	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%)	λ	1.15 - 2.40	μm
Peak sensitivity wavelength	λ_p	2.0 - 2.2	μm
Volt sensitivity	S_v	$4 \cdot 10^4$	V/A
Detection threshold (at λ_{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	Δf	0.15 - 100	kHz
Rise time	t_r	4	μs
Fall time	t_f	5	μs
Output impedance	R	20	Ω
Maximal amplitude of output signal	V_{amp}	≤ 2.5	V
External power supply	V_p	5 - 6 (stabilized)	V
Output noise voltage (peak to peak at $\Delta f \approx 100$ kHz)	V_N	10	mV
Type output signal		Impulse	
Output polarity		Negative	

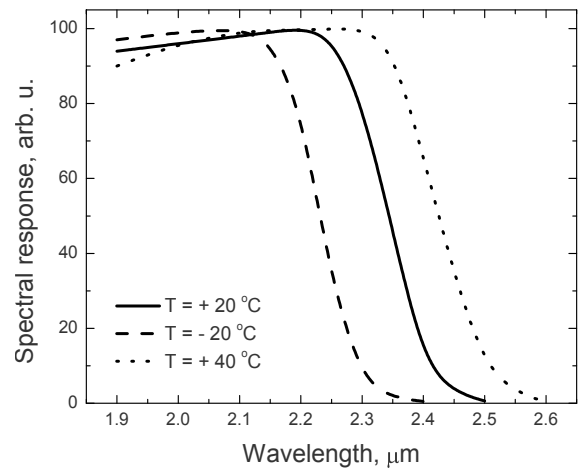
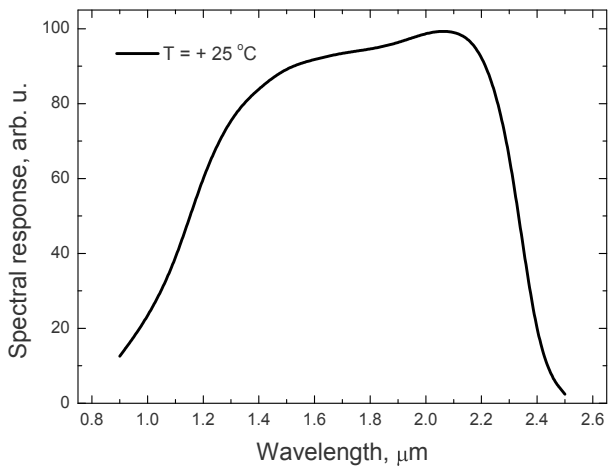
TEC 1MC06-018-08 parameters (without load)

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

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

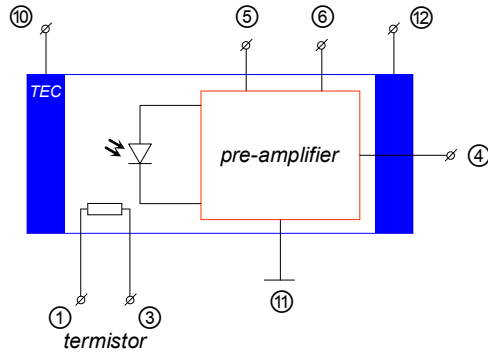


▀ Spectral response





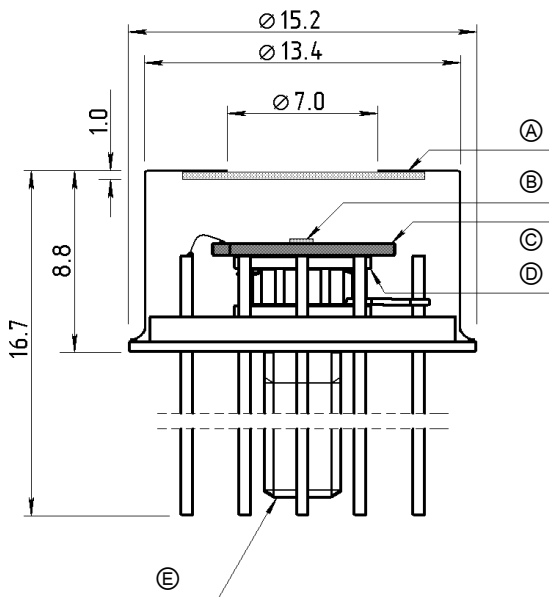
Photodiode amplifier with TEC PD24-10-AMP-TEC



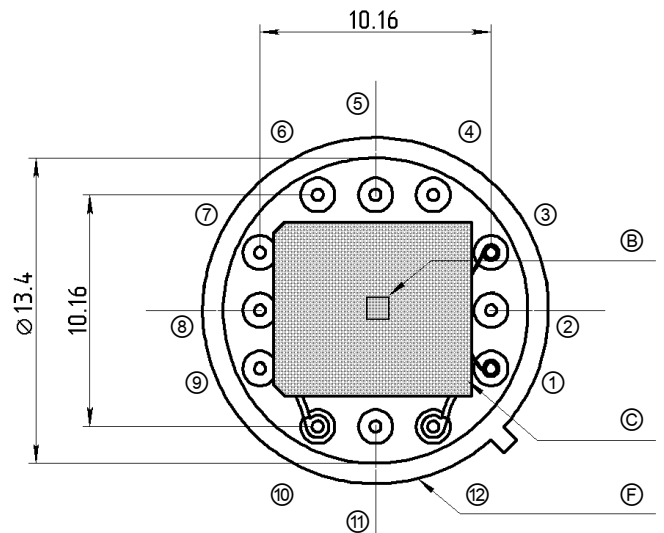
Pin	Description
①	Termistor TC103
③	
④	Signal output
⑤	+ 5 V
⑥	0 V
⑩	TEC -
⑫	TEC +
⑪	GND
②, ⑦, ⑧, ⑨	Not applicable

Package dimensions (unit: mm)

PROFILE SIDE VIEW



TOP SIDE VIEW (without cap)



- Ⓐ WINDOW
- Ⓑ Photodiode CHIP
- Ⓒ Pre-amplifier

- Ⓓ TEC 1MC06-018-08
- Ⓔ 4-40 UNC
- Ⓕ TO-8 12 pin header

