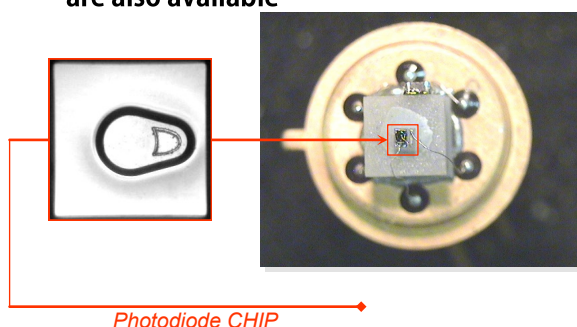


Features

- High reliability
- Superior linearity
- Thermo stability
- Easy-to-use detector/amplifier modules are also available



Description

Photodiode **PD36-01-TEC** is a model of [photodetector](#) for detection of radiation at room temperature in the Middle Infrared (Mid-IR) spectral range from 1500 to 3800 nm.

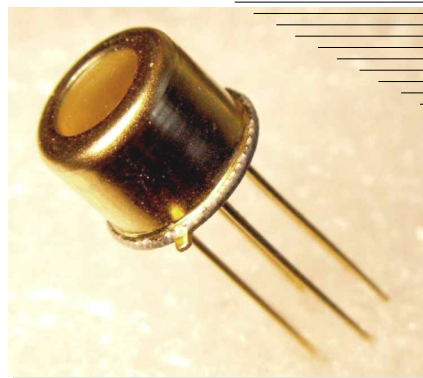
Photodiode **PD36-01-TEC** has thermo electric cooler (TEC) and thermistor for a control of temperature. Components are integrated inside the standard 9.2 mm TO-5 package with TEC.

Diameter of the photosensitive area of **PD36-01-TEC** is 100 μm . High speed of response makes it possible for detection of modulated radiation of laser diodes (LDs) and light-emitting diodes (LEDs).

Related products: **PD36-01-TEC** can be used in optical pair with our [LED29...LED36](#) and [LD290...LD360](#).

General characteristics

Package	Parameter	Symbol	Value	Unit
TO-5 with TEC	Sensitive area diameter	d	0.1	mm
	Weight	m	1.15	g
	Operating temperature	T _{opr}	- 20...+ 40	°C
	Window material	sapphire glass		
	Cooling	one-stage TE-cooled		
	Soldering temperature	T _s	+ 230	°C
	Storage temperature	T _{stg}	- 20...+ 50	°C
	Maximum reverse bias voltage	V	- 1.0	V
	Size	D	9.2	mm
		H	20.2	



Applications

- Environment measurements
- Infrared spectrophotometry
- Laser detection
- Analytical instruments

Accessories (optional)

- [Amplifier with temperature controller](#)
[AMT-07M](#)

Electrical and optical characteristics

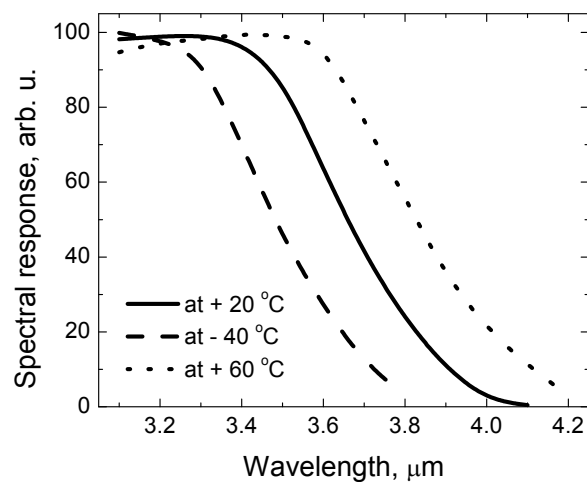
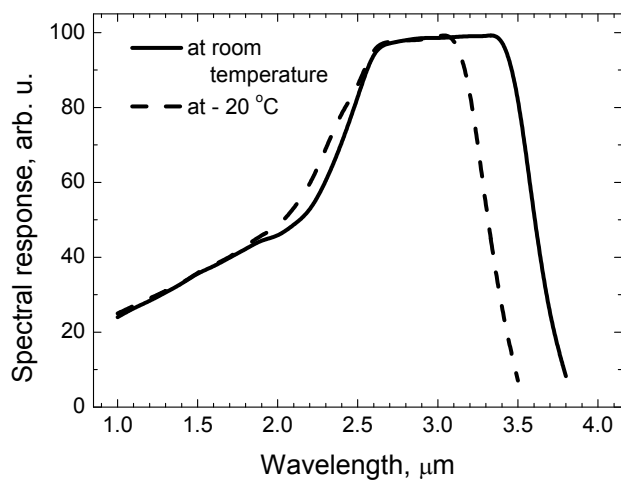
Parameter	Symbol	Condition	Element temperature			Unit
			- 10 °C	0 °C	+ 20 °C	
Spectral sensitivity range	λ	at level 10%	1.5* - 3.6	-	1.5* - 3.8	μm
Peak sensitivity wavelength	λ_p	at level 90%	2.5 - 3.3	-	2.6 - 3.4	μm
Photo sensitivity	S	at λ_p	0.9 - 1.0			A/W
Detectivity	D^*	at λ_p	$[4 - 8] \cdot 10^9$	-	$[2 - 5] \cdot 10^9$	$\text{cm} \cdot \text{Hz}^{1/2} \cdot \text{W}^{-1}$
Dark current	I_d	$V = -0.2 \text{ V}$	10 - 20	-	30 - 80	μA
		$V = -0.4 \text{ V}$	60 - 90	-	100 - 200	
Capacitance	C	$V = 0 \text{ V}$, $f = 1 \text{ MHz}$	15 - 30			pF
Rise time	t_r	$V = 0 \text{ V}$, $R_L = 50 \Omega$ $V = -0.5 \text{ V}$	10 - 20 / 2 - 10			ns
Fall time	t_f					
Shunt resistance	R_0	$V \approx -10 \text{ mV}$	4 - 12	-	1 - 3	k Ω
Noise equivalent power	NEP	at λ_p	$[4.4 - 2.2] \cdot 10^{-12}$	-	$[8.9 - 3.5] \cdot 10^{-12}$	$\text{W} \cdot \text{Hz}^{-1/2}$

TEC TO506.1MC0400710.TB103 parameters (without load)

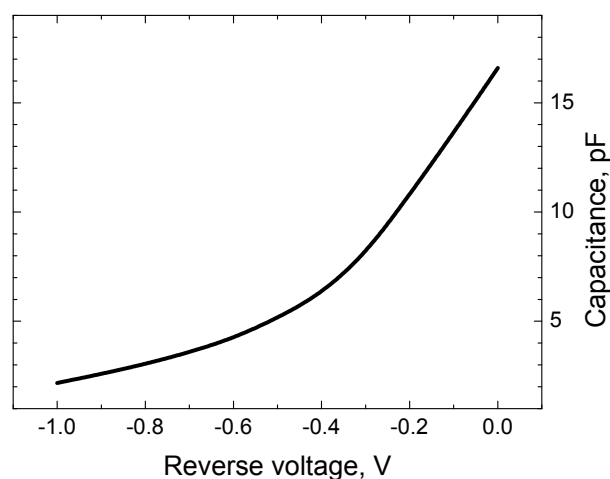
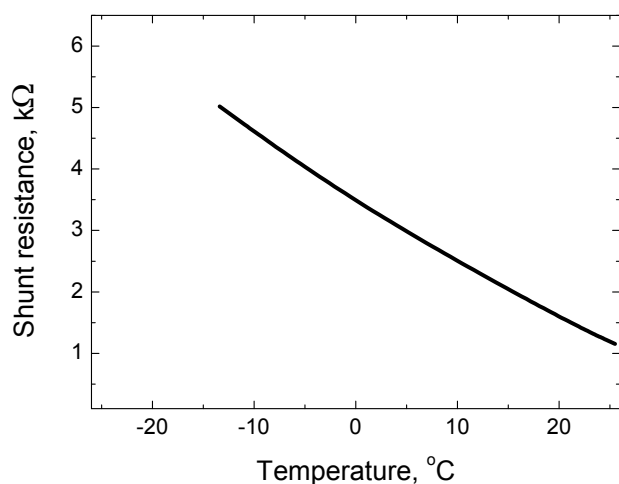
Parameter	Symbol	Condition	Value	Unit
Current	I_{max}	ΔT_{max}	1.50	A
Voltage	U_{max}	ΔT_{max}	0.80	V
Cooling energy	Q_{max}	-	1.30	W
Temperature range	ΔT_{max}	vacuum	70	K
Thermistor resistance	R_t	at + 20 °C	10.00	k Ω

* Not at level 10%

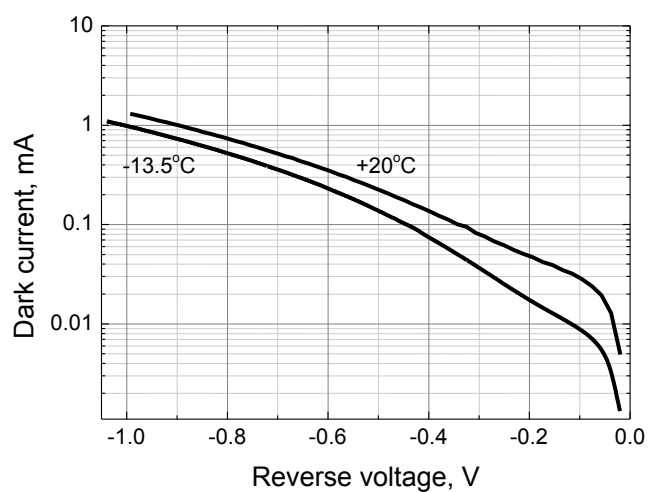
▼ Spectral response



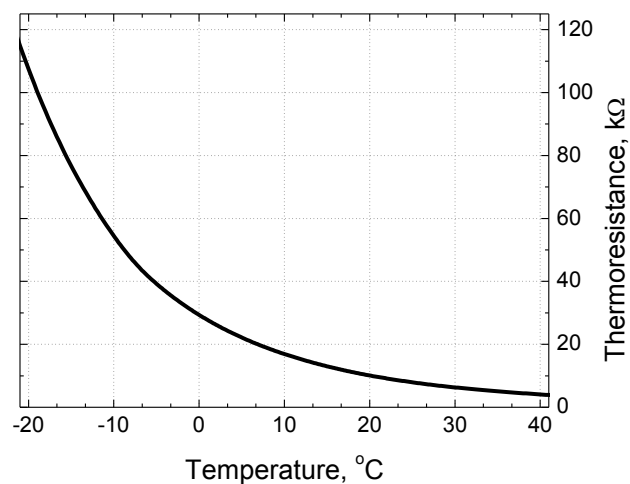
▼ Shunt resistance vs. element temperature ▼ Capacitance vs. reverse voltage



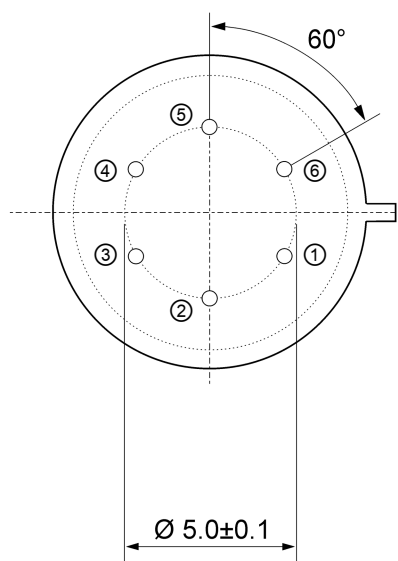
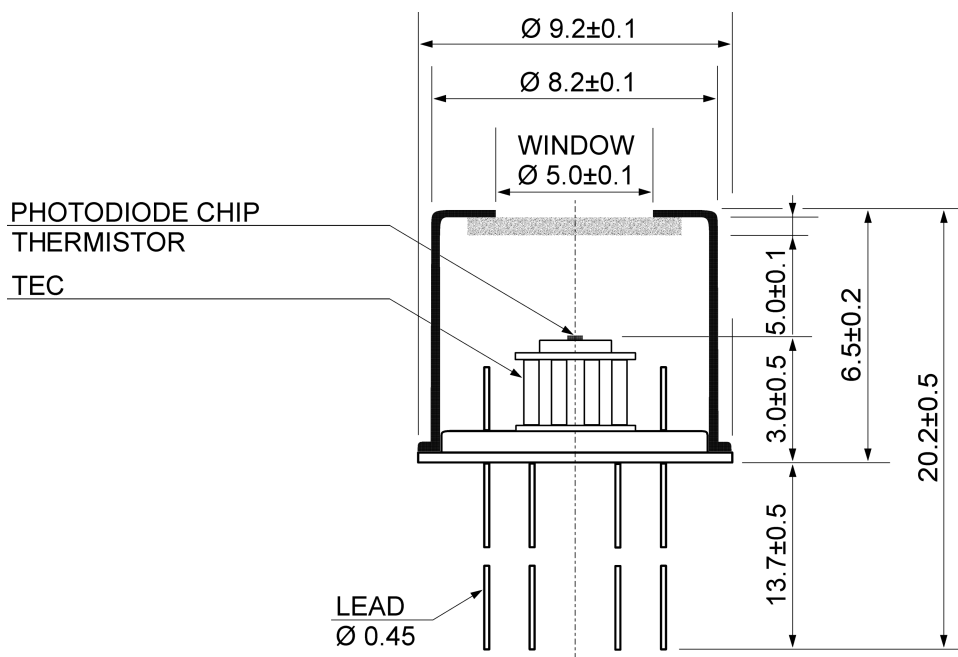
Dark current vs. reverse voltage



Thermoresistance vs. temperature



▼ TO-5 package with TEC dimensions (unit: mm)



Pin	Description
①	TEC (anode)
②	Detector (anode)*
③	Detector (cathode)*
④	Thermistor TC103
⑤	
⑥	TEC (catnode)

*Special order: the pin polarity can be changed.