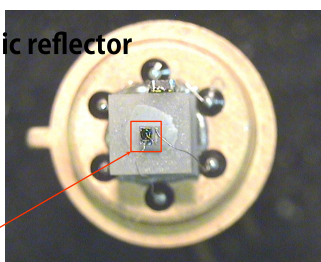


Features

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



Photodiode CHIP

Description

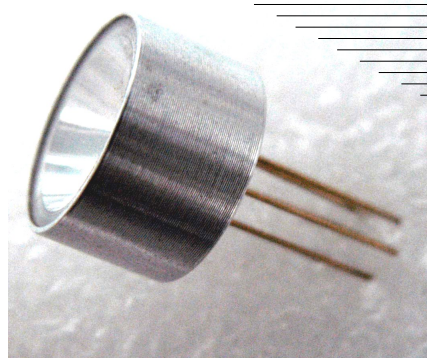
Photodiode **PD36-03-TEC-PRW** is a model of [photodetector](#) for detection of radiation at room temperature in the Middle Infrared (Mid-IR) spectral range from 1500 to 3800 nm.

Photodiode **PD36-03-TEC-PRW** 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**, parabolic reflector (**PR**) and window (**W**).

Diameter of the photosensitive area of **PD36-03-TEC-PRW** is 300 μm . High speed of response makes it possible for detection of modulated radiation of laser diodes (LDs) and light-emitting diodes (LEDs). **PR** allows to increase detectivity of the photodiode by a factor of 10 in the case of parallel beam of radiation.

General characteristics

Package	Parameter	Symbol	Value	Unit
TO-5 with TEC PR W	Sensitive area diameter	d	0.3	mm
	Weight	m	3.65	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	10.5	mm
		H	23.0	



Applications

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

Accessories (optional)

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

▼ Electrical and optical characteristics

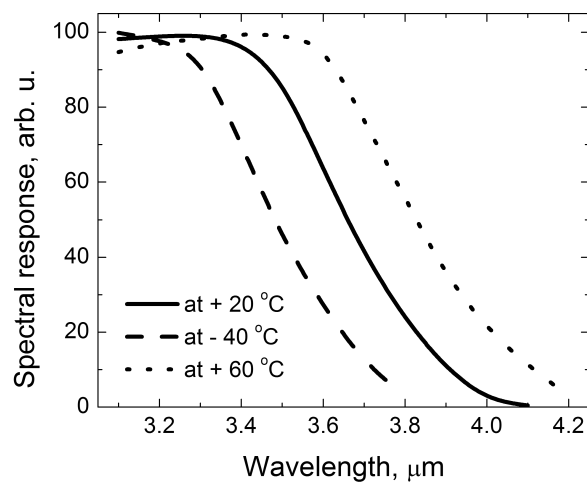
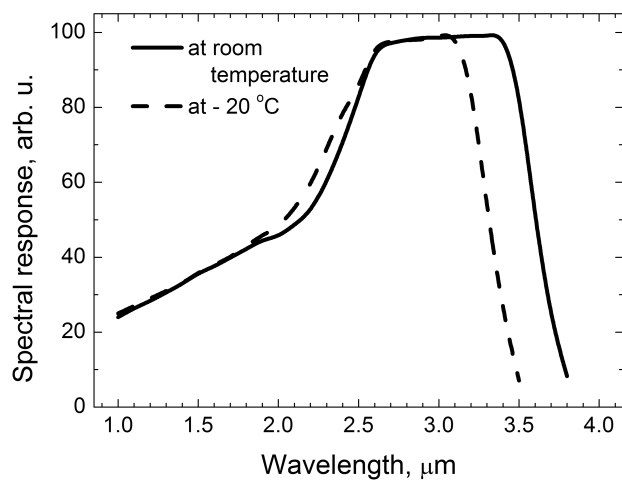
Parameter	Symbol	Condition	Element temperature			Unit
			-20°C	0°C	+20°C	
Spectral sensitivity range	λ	at level 10%	1.5* - 3.6	-	1.5* - 3.8	μm
Peak sensitivity wavelength	λ_p	at level 90%	2.5 - 3.3	-	2.6 - 3.4	μm
Photo sensitivity	S	at λ_p	1.0 - 1.2			A/W
Detectivity	D^*	at λ_p	$[0.6 - 1.0] \cdot 10^{10}$	-	$[3 - 6] \cdot 10^9$	$\text{cm} \cdot \text{Hz}^{1/2} \cdot \text{W}^{-1}$
Dark current	I_d	$V = -0.2 \text{ V}$	40 - 90	-	150 - 350	μA
		$V = -0.4 \text{ V}$	90 - 150	-	200 - 500	
Capacitance	C	$V = 0 \text{ V}$, $f = 1 \text{ MHz}$	70 - 1000			pF
Rise time	t_r	$V = 0 \text{ V}$, $R_L = 50 \Omega$	20 - 120			ns
Fall time	t_f					
Shunt resistance	R_0	$V \approx -10 \text{ mV}$	900 - 6700	-	100 - 1200	Ω
Noise equivalent power	NEP	at D^*	$[8.9 - 5.3] \cdot 10^{-12}$	-	$[1.8 - 1.0] \cdot 10^{-11}$	$\text{W} \cdot \text{Hz}^{-1/2}$

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

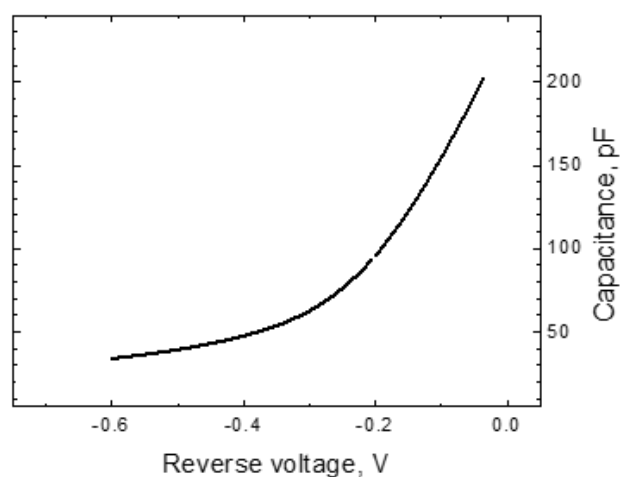
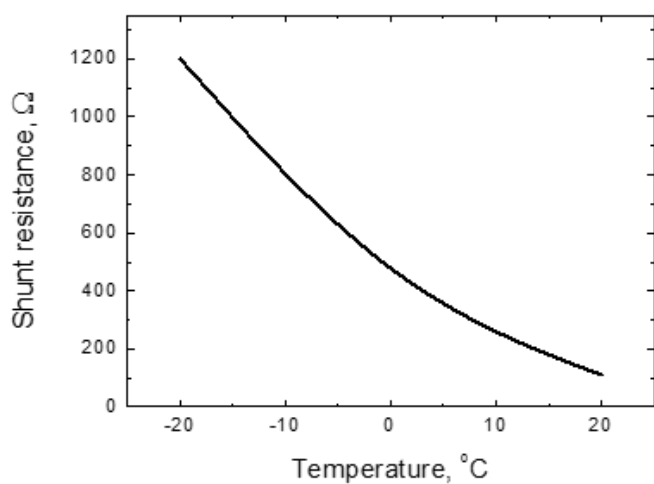
Parameter	Symbol	Condition	Value	Unit
Current	I_{max}	ΔT_{max}	1.50	A
Voltage	U_{max}	ΔT_{max}	0.80	V
Cooling energy	Q_{max}	-	1.30	W
Temperature range	ΔT_{max}	vacuum	70	K
Thermistor resistance	R_t	at + 20 °C	10.00	k Ω

* Not at level 10%

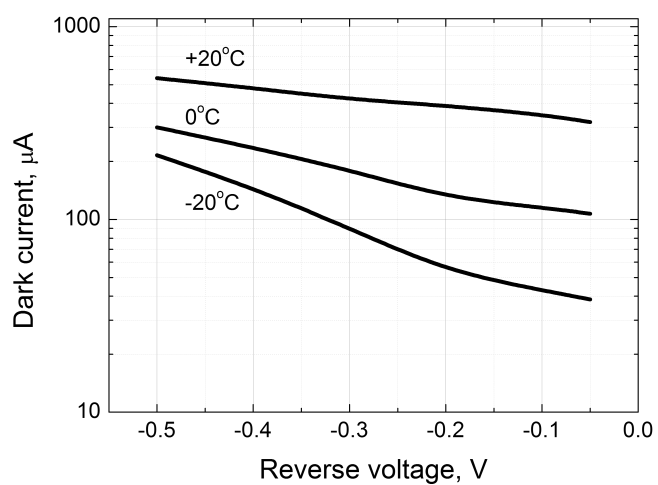
▼ Spectral response



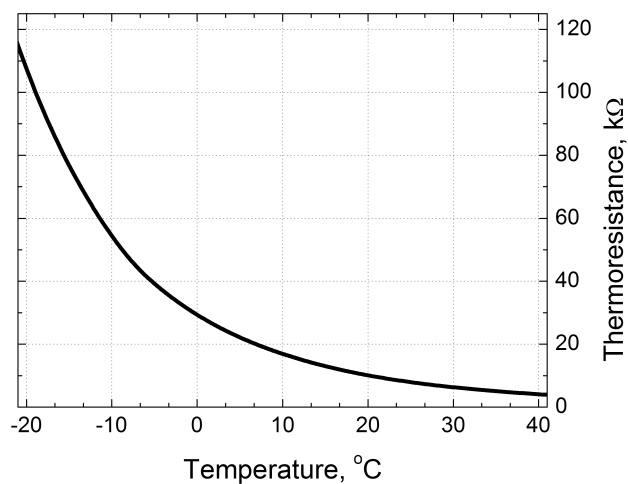
▼ Shunt resistance vs. element temperature ▼ Capacitance vs. reverse voltage



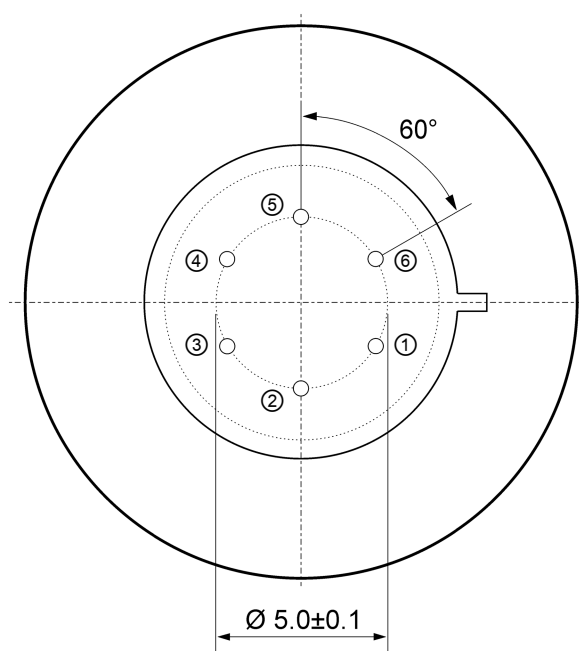
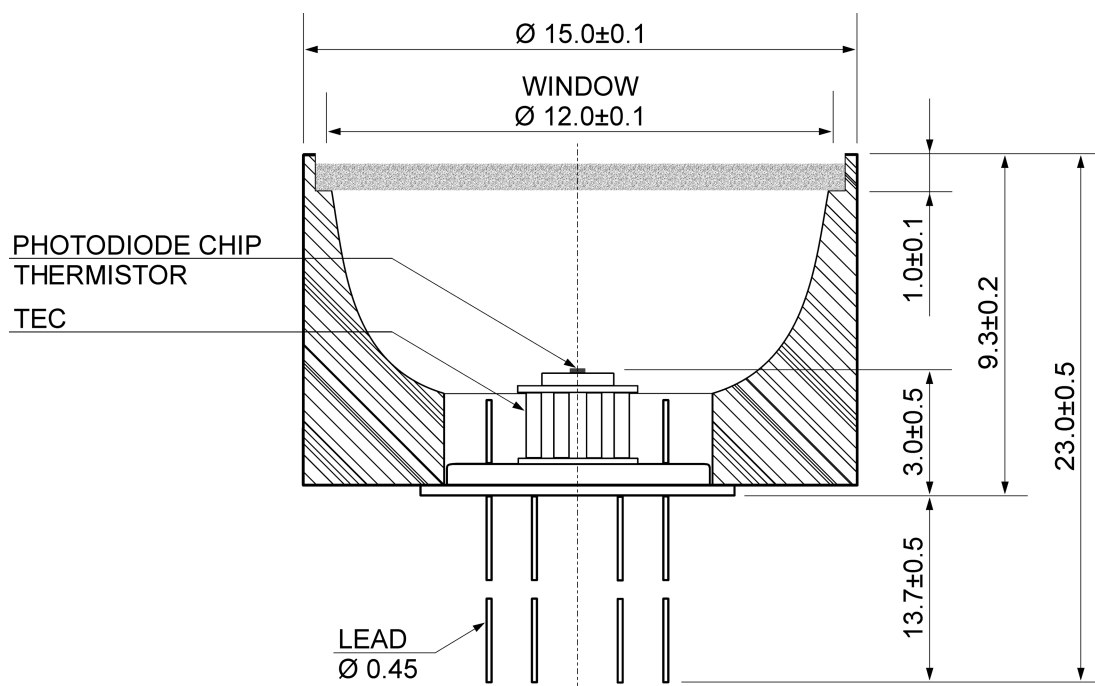
▼ Dark current vs. reverse voltage



▼ Thermoresistance vs. temperature



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



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

*Special order: the pin polarity can be changed.