Cooled Photodiode InGaAs 0.85 – 1.7 µm

(TEC Cooling, Build-in MEMS Chopper)

DATASHEET

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The CPOD series cooled InGaAs photodiode provides ultra-low noise for detecting near-infrared light in the 0.85-1.7 µm range. These detectors are hermetically sealed to ensure longevity. Within the detector package, a thermoelectric cooler is integrated with options of 1, 2, and 3 stages, as well as integration with a MEMS chopper, significantly reducing background noise while maintaining a compact format. Additionally, a driving PCB with an amplifier is available for convenient use.

Due to their high sensitivity to electrostatic discharge, warranty coverage applies only to fully metal covered modules the benchtops, which include proper protection. Other versions of the lasers and photodetectors are not covered by any warranty. Please use them with great caution.

Features

- 0.9 – 1.7 µm
- Low Noise
- High Sensitivity
- Hermetic Sealed Detector
- MEMS Chopper Integration Option

Applications

- OEM
- Lab user
- Instruments

Specifications

Parameter		Min	Typical	Max	Unit
Central Wavelength		900		1600	nm
Sensor Active Diameter		1	3	5	mm
Responsivity (@1550nm)		>0.9	>0.9	>0.9	A/W
Dark Current (@1V)	-10 °C	<0.35	<1.5	<12	nA
	-20 °C	<0.15	<0.7	<6	
	-40 °C	<0.07	<0.32	<2.6	
NEP (@1550nm)	-10 °C	<5	<20	>30	10^{-15}W/√Hz
	-20 °C	<3	<10	>20	
	-40 °C	<1	<5	>10	
Shunt Resistance	-10 °C	>1500	>100	>30	M ohms
	-20 °C	>3000	>200	>60	
	-40 °C	>3500	>350	>110	
Cut Off Frequency (@1V)		18	2	0.6	MHz
Capacitance (@1V)		150	1000	3500	pF
Reverse Voltage		5	5	5	V
Operating Temperature		-40		75	°C
Storage Temperature		-50		85	°C
TEC Cooler Power	-10 °C		<2.2V@1A	<2.5V@1.1A	W
	-20 °C		<0.8V@1.1A	<0.9V@1.3A	
	-40 °C		<2V@2A	<2.2V@2.3A	

RoHS COMPLIANT

Note: The specifications provided are for general applications with a cost-effective approach. If you need to narrow or expand the tolerance, coverage, limit, or qualifications, please [click this link]:

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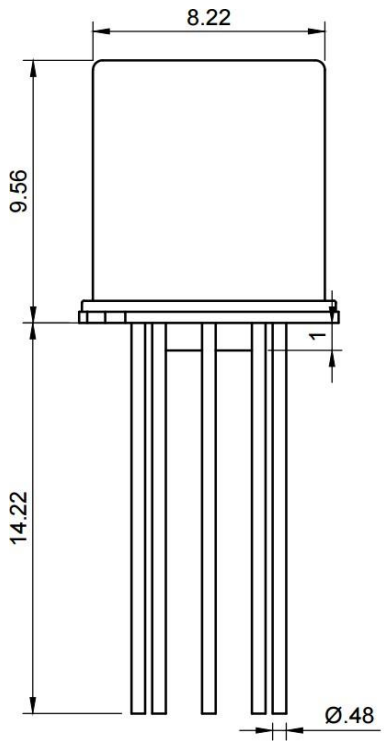
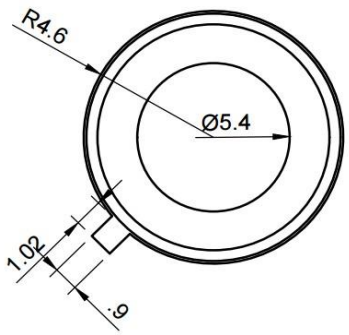
Mechanical Dimensions For Single and Dual Stage TEC Cooling (mm)

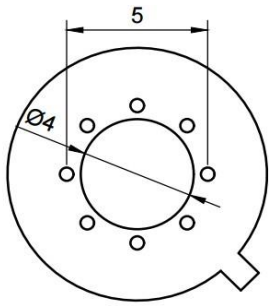
Front View



Top View



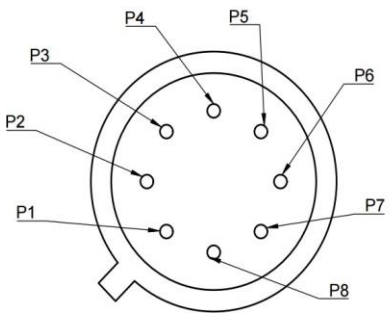
Bottom View



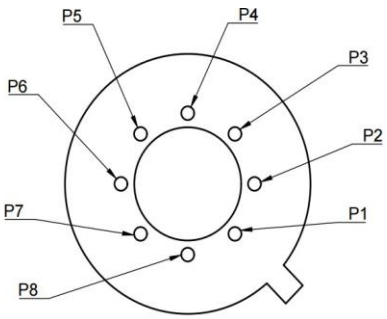
*Product dimensions may change without notice. This is sometimes required for non-standard specifications.

Contacts Assignment

Top View



Bottom View



PIN NUMBER	ASSIGNMENT
P1	TEC (+)
P2	TEC (-)
P3	Thermistor
P4	Thermistor
P5	MEMS Chopper
P6	MEMS Chopper
P7	Diode Cathode (-)
P8	Diode Anode (+)

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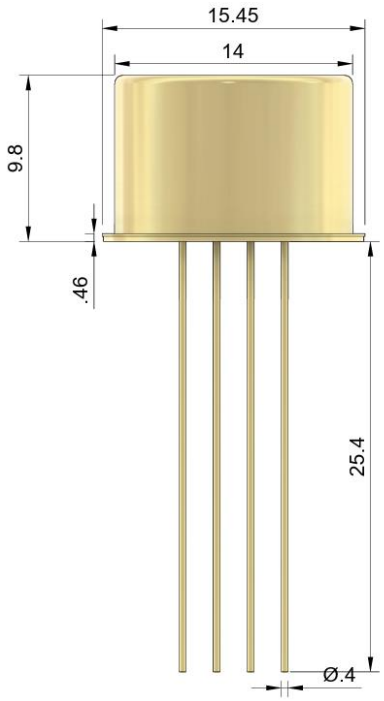
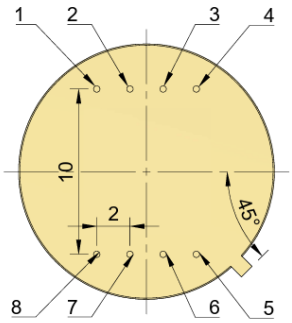
Mechanical Dimensions For Dual Stage and 3-Stage TEC Cooling (mm)

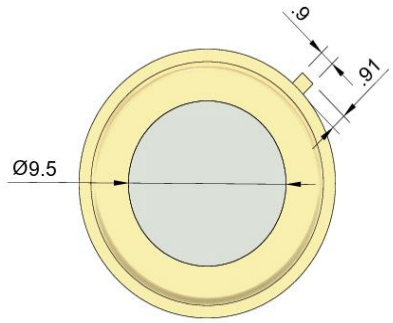
Front View



Top View



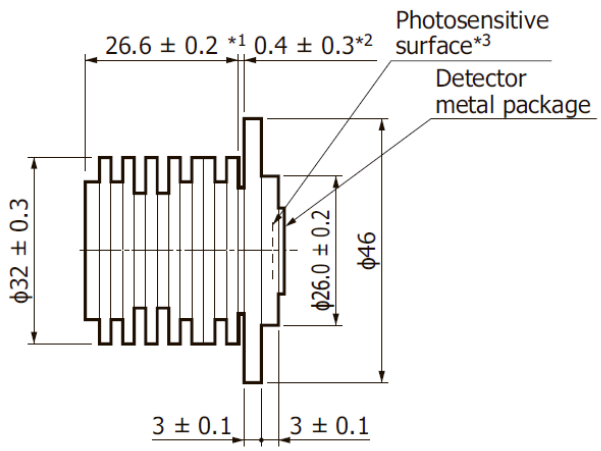
Bottom View

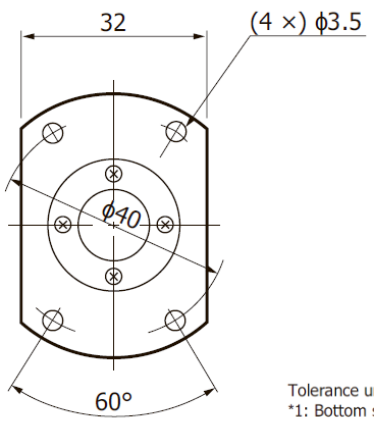


Contacts Assignment

PIN NUMBER	ASSIGNMENT
1	Thermistor
2	InGaAs Anode (+)
3	InGaAs Cathode (-)
4	Thermistor
5	TEC (-)
6	MEMS Shutter
7	MEMS Shutter
8	TEC (+)

Heatsink For TEC-Cooled Detector (mm)





Weight: 50 g approx.

Tolerance unless otherwise noted: ±0.3
*1: Bottom surface (reference surface) of detector metal package
*2: When detector is installed
*3: The position of the photosensitive surface differs according to the detector used.
Refer to the dimensional outline for the detector.

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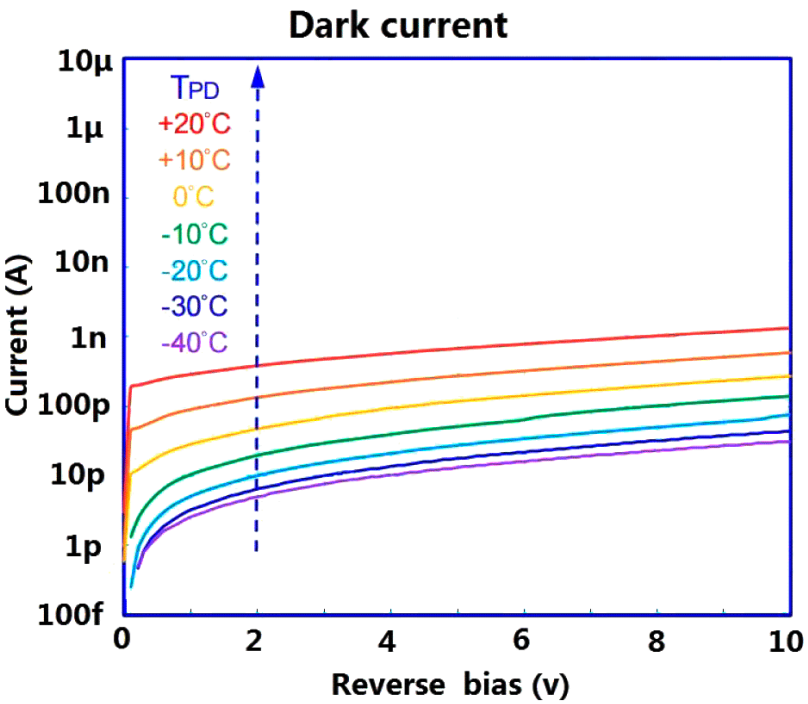
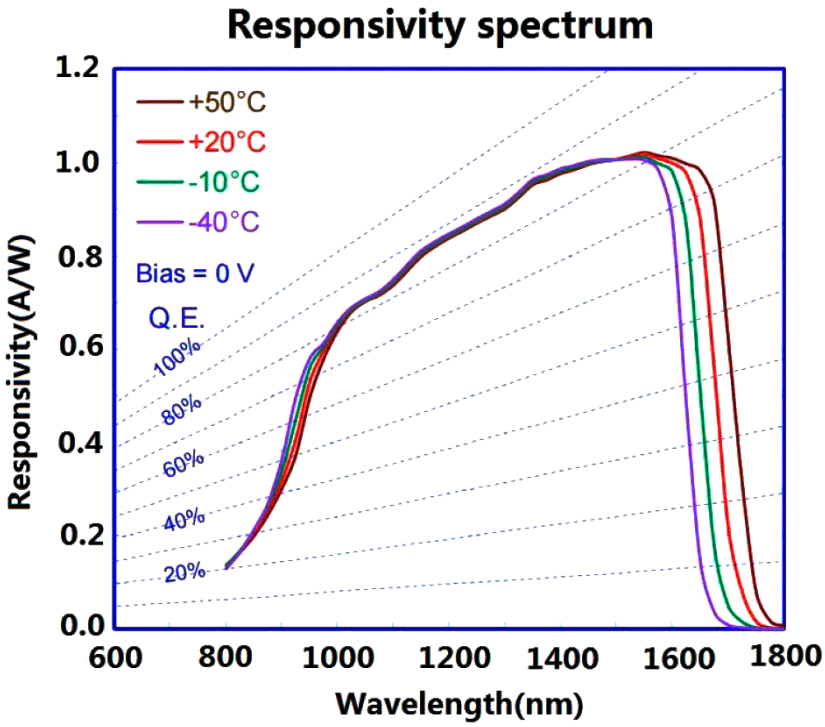
Typical Dependence





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Ordering Information (Part Number)

	1	☐	☐	☐	☐	☐	☐☐
Prefix	**Material Type**	**TEC Type**	**Integrated Chopper**	**Detector Size**	**Window**	**AR Coated**	**Driver**
CPOD-	InGaAS = 1	1 stage -10°C = 1 2 stage -20°C = 2 3 stage -40°C = 3	Non = 1 Yes = 2	0.3mm = A 1mm = 1 3mm = 3 5mm = 5	Quartz = 1 Spectral Filter = S Sapphire = 2	No = 0 Yes = 1	No = 00 Yes = 11

Application Notes