

Cooled Photodiode InGaAs 0.85 – 1.7 μm

(TEC Cooling, Build-in MEMS Chopper)



DATASHEET

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Features

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

Applications

- OEM
- Lab user
- Instruments

The CPOD serials 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.

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 | nA |
| | -20 °C | <0.15 | <0.7 | |
| | -40 °C | <0.07 | <0.32 | |
| NEP (@1550nm) | -10 °C | <5 | <20 | 10 ⁻¹⁵ W/√Hz |
| | -20 °C | <3 | <10 | |
| | -40 °C | <1 | <5 | |
| Shunt Resistance | -10 °C | >1500 | >100 | M ohms |
| | -20 °C | >3000 | >200 | |
| | -40 °C | >3500 | >350 | |
| 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 | <1V@2A | <1V@2A | W |
| | -20 °C | <0.8V@1.3A | <0.8V@1.3A | |
| | -40 °C | <0.8V@2.3A | <0.8V@2.3A | |

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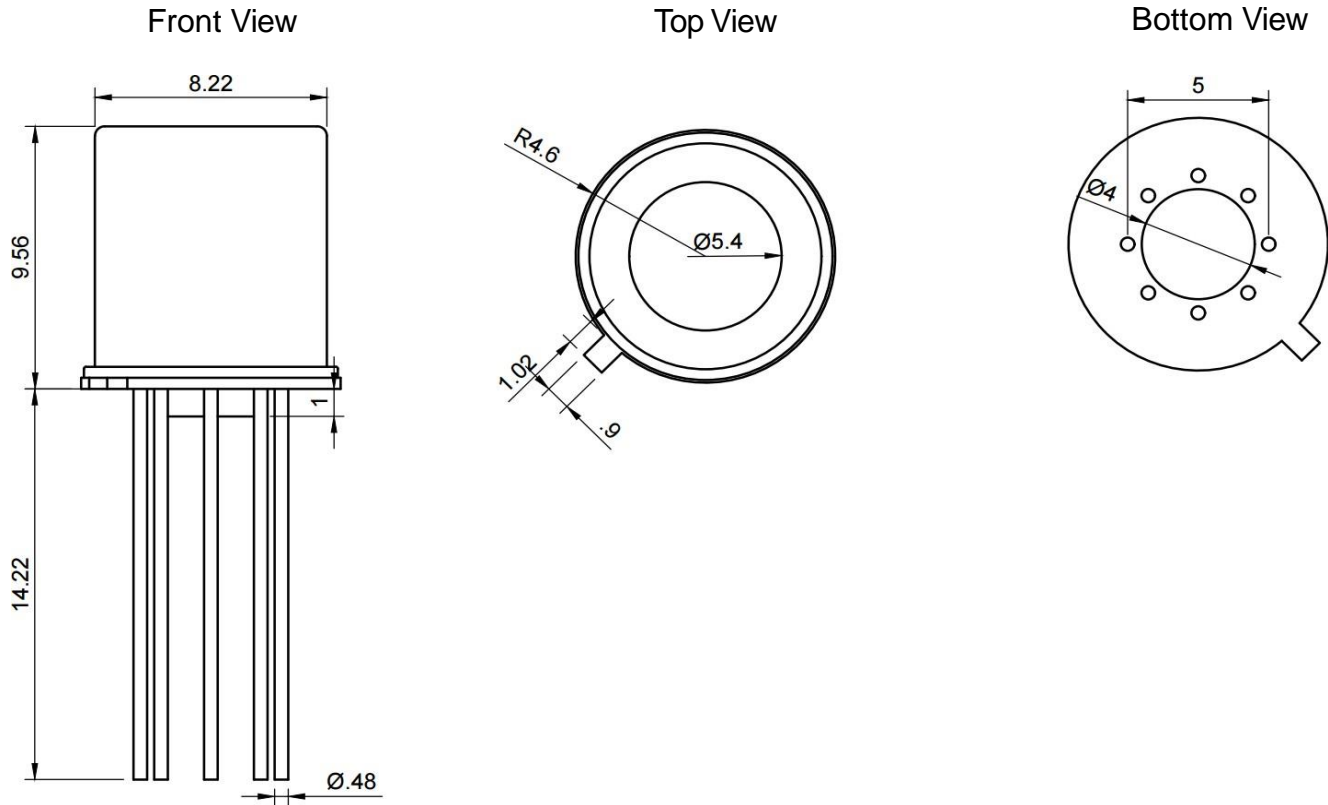
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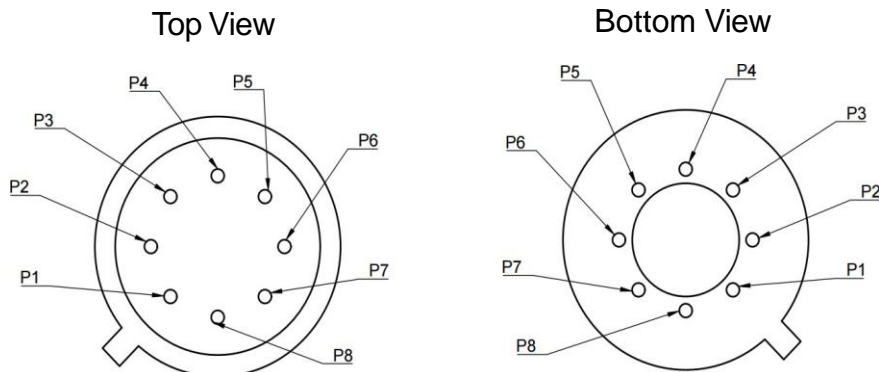
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Mechanical Dimensions For Single and Dual Stage TEC Cooling (mm)



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

Contacts Assignment



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

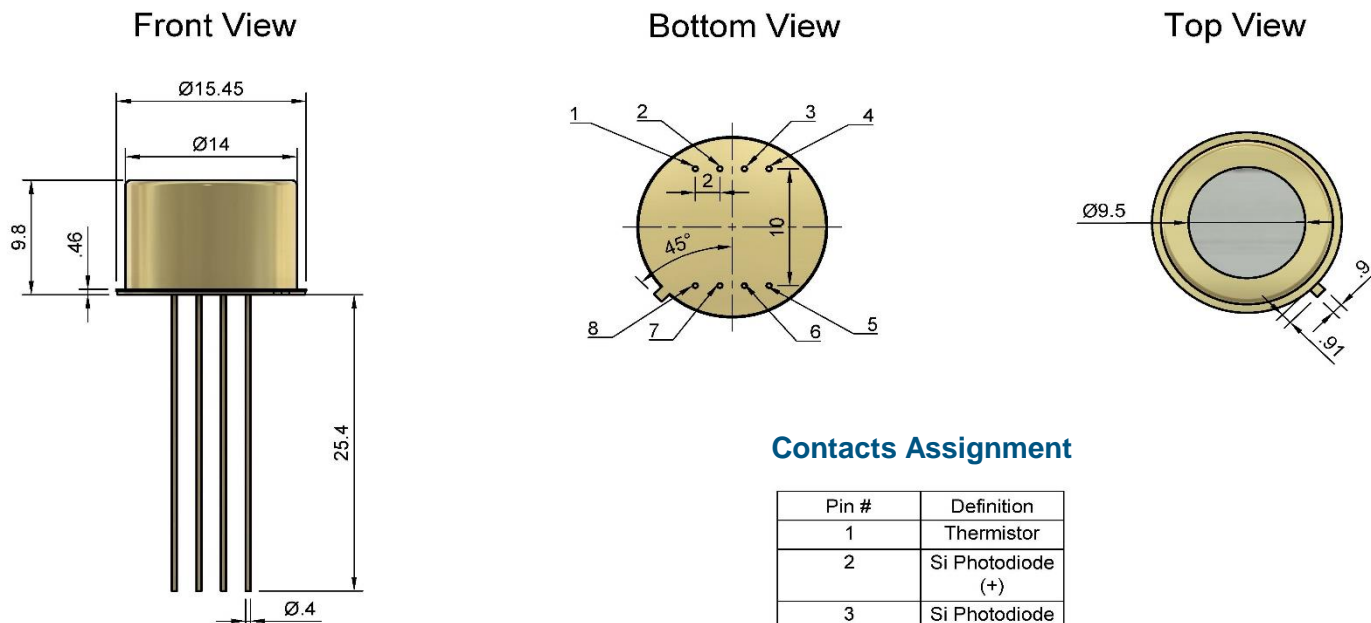
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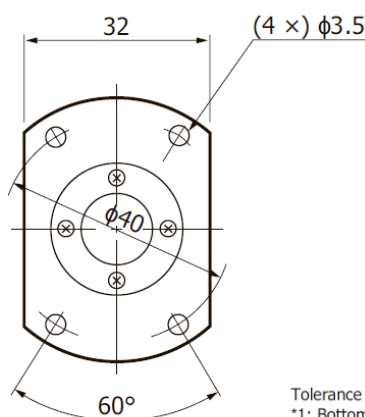
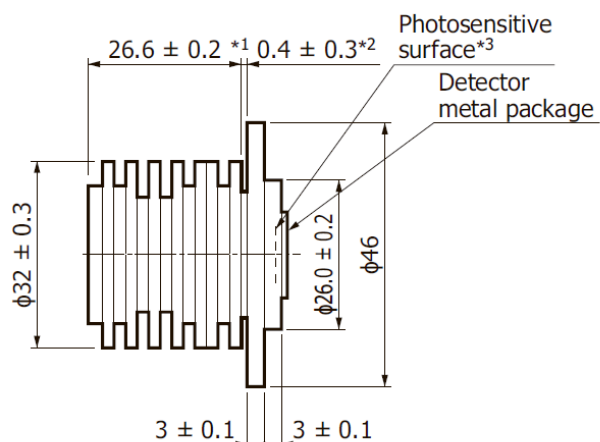
Mechanical Dimensions For Single and Dual Stage TEC Cooling (mm)



Contacts Assignment

| Pin # | Definition |
|-------|-------------------|
| 1 | Thermistor |
| 2 | Si Photodiode (+) |
| 3 | Si Photodiode (-) |
| 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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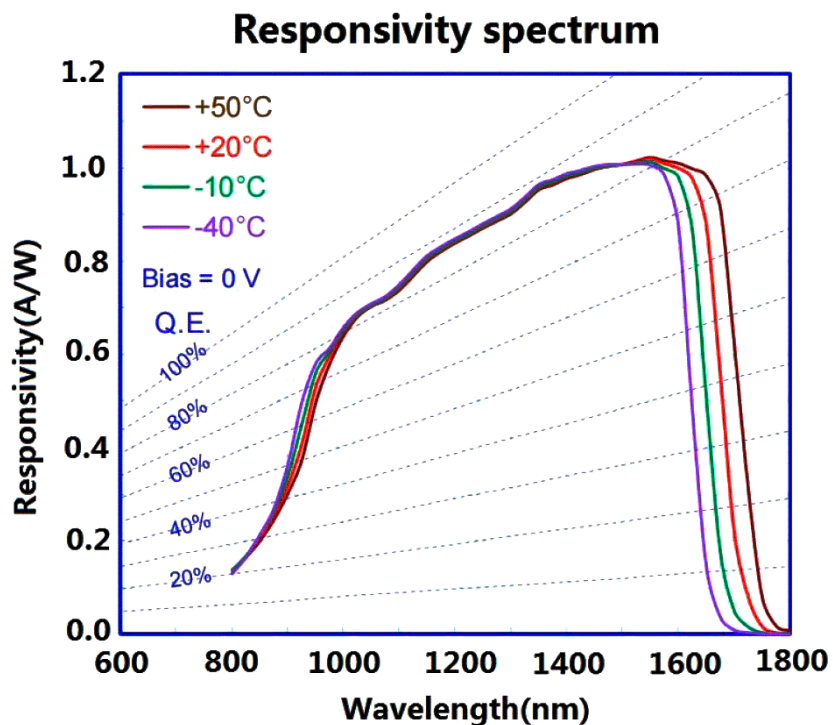
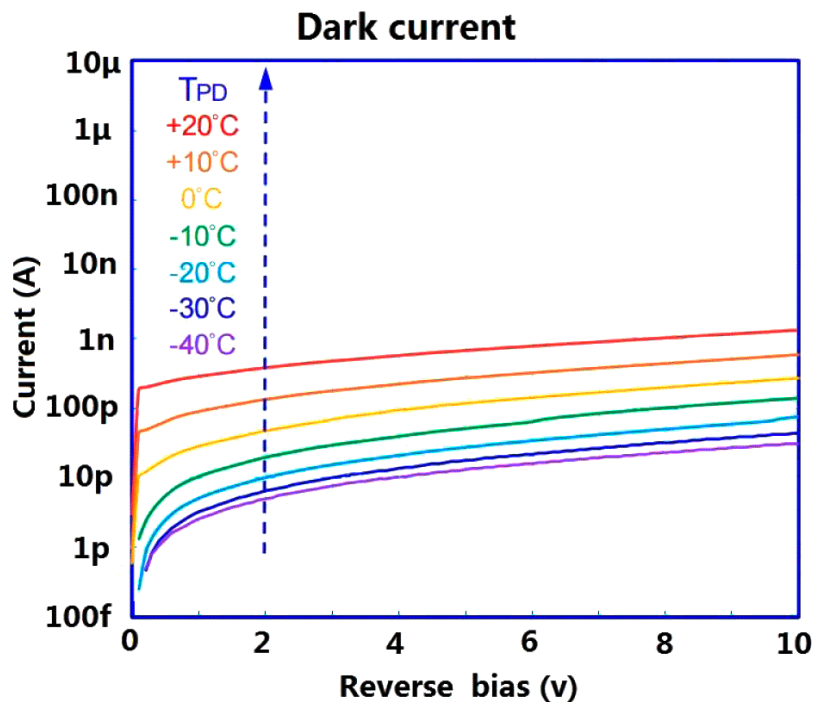
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Typical Dependence



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Ordering Information

| | 1 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> |
|--------|---------------|---|--------------------------|-------------------------------|---|--------------------------|---|
| 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 | 1mm = 1 3mm = 3 5mm = 5 | Quartz = 1 Spectral Filter = S Sapphire = 2 | No = 0 Yes = 1 | No = 00 Yes = 11 |

Application Notes