



Dual Wavelength InGaAs Avalanche Photodiode Preamplifier Module

HIGH SENSITIVITY • LOW NOISE • MULTI USE

A distance detecting device should provide you with accurate and consistent readings under a variety of conditions and wavelengths. Whether you are dealing with low signals or high, warm weather or cold, distances near or far, your decision making depends on the speed and precision of the information you receive.

CMC's new *InGaAs Avalanche Photodiode (APD) Preamplifier Module* supports designs that detect farther distances more accurately than other device of its kind. Plus, it is safe and practical, operating quietly and efficiently in multiple scenarios.

Fast, accurate and practical all rolled into one receiver

- High-density microcircuit combined with advanced optoelectronics
- Nanosecond recovery from laser bursts without damage
- Ability to detect signal power in low nW
- Low NEP at high temperatures
- Compact design minimizing parasitic noise

CMC is committed to:

- Work closely with your engineering team throughout the project
- Develop a solution that is tailored to your design needs
- Take the time required to deliver a quality product

FEATURES

One receiver, two wavelengths

This eye-safe receiver works at both 1064 nm and 1570 nm

Sensitive for ultra low light signals

Detects longer distances more quickly, accurately, and consistently

Fast overload recovery

Minimizes receiver damage and usage interruption from high laser bursts

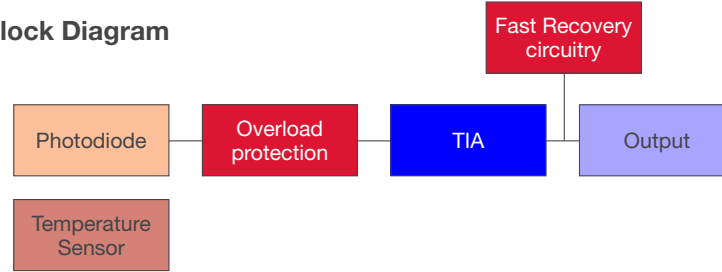
KEY APPLICATIONS

- Eye-safe laser range finding
- Airborne Lidar
- High-speed low-light level detection
- Industrial, medical, analytical and defense applications
- Well suited for high-volume applications and when you have your own temperature compensation circuit

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Take advantage of multiple capabilities as well as superior performance

How it works – Device Block Diagram



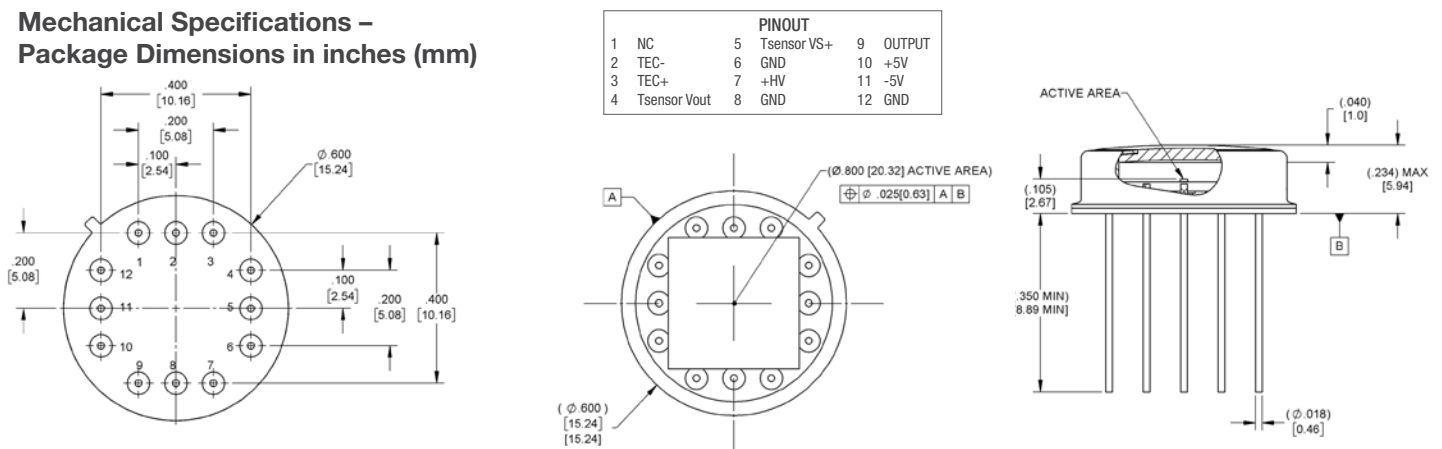
Electro-Optical Characteristics at $T_A = 25^\circ\text{C}$

Unless otherwise specified: $V_+ = +5\text{V}$, $V_- = -5\text{V}$, V_R , $R_L = 100\Omega$ AC, cooler OFF (Externally AC coupled through $4.7\ \mu\text{F}$)

| Parameter/Condition | Min. | Typ. | Max. | Unit |
|--|-------|-------------------|------|------------------------------|
| Active area | | 200 | | μm |
| V_R for specified responsivity | 40 | NOTE ¹ | 85 | V |
| Temperature coefficient of V_R | - | 0.080 | - | V°C |
| ADP dark current (I_d) @ 22°C | - | 20 | 50 | nA |
| Responsivity (R) 1570 nm, M = 10 | - | 580 | - | kV/W |
| Noise equivalent power (NEP = E_n/R) | | | | |
| Wavelength = 1570 nm [Tcase = 25°C] | - | 110 | 135 | $\text{fW}/\sqrt{\text{Hz}}$ |
| [Tcase = 85°C] | - | 255 | 525 | $\text{fW}/\sqrt{\text{Hz}}$ |
| Output impedance | - | 10 | - | Ω |
| Bandwidth = $f_{-3\text{dB}}$ | 50 | 60 | 100 | MHz |
| Rise time (10-90%) | - | 6 | - | ns |
| Fall time = t_f (90-10%) | - | 6 | - | ns |
| Linear output voltage swing (Pulse) | 1.5 | 2.5 | 4.0 | V |
| Output offset voltage | -0.75 | -0.45 | 0 | V |
| Temperature sensor (1N914 diode) with bias current = 5mA | - | 700 | - | mV |
| Overload recovery for optical power input signal of 1mW 20 μs pulse width: | | | | |
| $V_{\text{out}} - V_{\text{out PrePulse}} \rightarrow$ 200 μs after pulse start | - | - | 250 | mV |
| $V_{\text{out}} - V_{\text{out PrePulse}} \rightarrow$ 1 μs after pulse start | - | - | 40 | mV |
| Hybrid Supply Current V_{POS} (pin 12) | 25 | - | 35 | mA |
| V_{NEG} (pin 3) | -20 | - | -10 | mA |

NOTE¹ V_R as specified on test data supplied with each module

Mechanical Specifications – Package Dimensions in inches (mm)



For more information, visit www.cmcelectronics.ca or email us at opto@cmcelectronics.ca

For information purposes only. To accommodate product improvements, specifications are subject to change without notice.

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