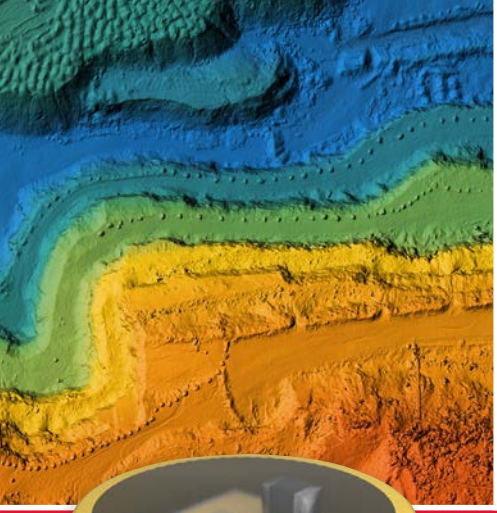


Dual Wavelength InGaAs Avalanche Photodiode Preamplifier Module

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

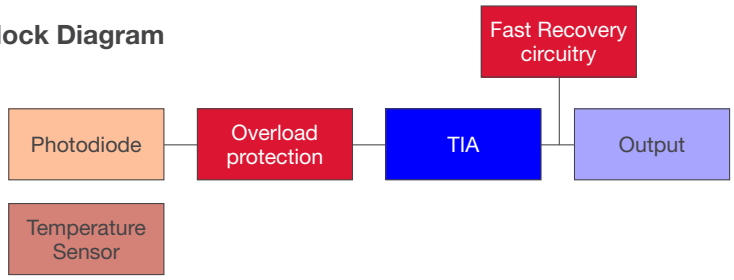
- Eye-safe laser range finding
- Airborne Lidar
- High-speed low-light level detection
- Industrial, medical, analytical and defense applications
- Well suited for high-volume applications and when you have your own temperature compensation circuit

CMC Electronics

Dual Wavelength InGaAs Avalanche Photodiode Preamplifier Module

Take advantage of multiple capabilities as well as superior performance

How it works – Device Block Diagram



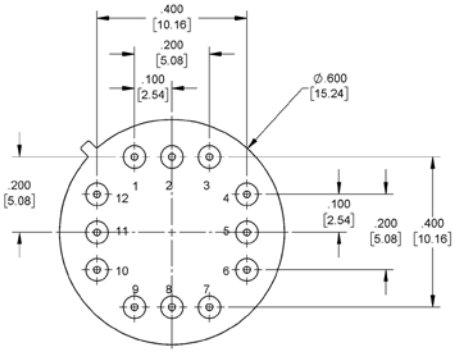
Electro-Optical Characteristics at T_A = 25°C

Unless otherwise specified: V+=5V, V-=-5V, V_R, R_L=100Ω AC, cooler OFF (Externally AC coupled through 4.7 µF)

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 (Id) @ 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	fW/√Hz
[Tcase = 85 °C]	-	255	525	fW/√Hz
Output impedance	-	10	-	Ω
Bandwidth = f_{-3dB}	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_{out} — $V_{out\ PrePulse}$ → 200 µs after pulse start	-	-	250	mV
V_{out} — $V_{out\ PrePulse}$ → 1 µs after pulse start	-	-	40	mV
Hybrid Supply Current V_POS (pin 12)	25	-	35	mA
V_NEG (pin 3)	-20	-	-10	mA

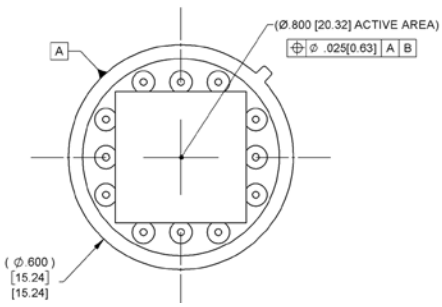
NOTE[1] V_R as specified on test data supplied with each module

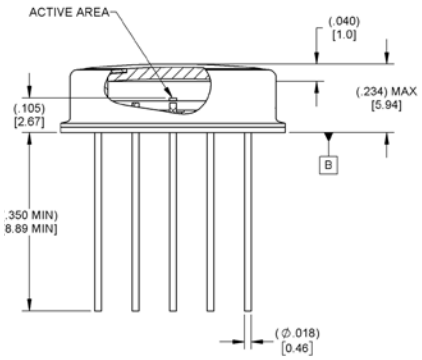
Mechanical Specifications – Package Dimensions in inches (mm)



PINOUT

1	NC	5	Tsensor VS+	9	OUTPUT
2	TEC-	6	GND	10	+5V
3	TEC+	7	+HV	11	-5V
4	Tsensor Vout	8	GND	12	GND





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