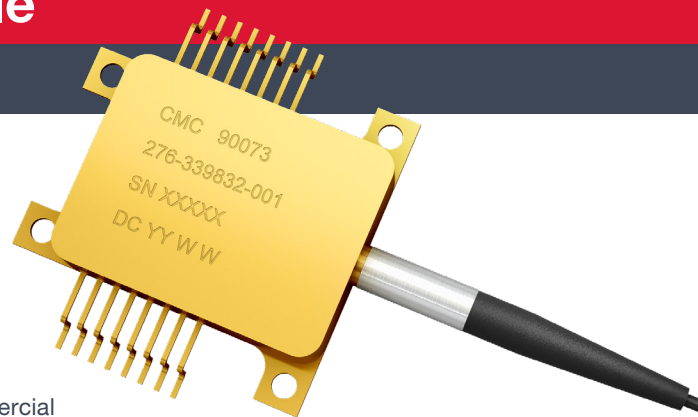


# Fiber Pigtailed InGaAs Avalanche Photodiode Preamplifier Module

CMC Electronics' 264-339832 series uses an InGaAs APD with a built-in trans-impedance amplifier, enabling optimum signal to noise performance.

The APD preamplifier receiver is housed in a robust 16-pin surface mount butterfly package. The internal temperature can be monitored via an embedded thermal sensor. The module is designed for a 100-ohm output load connection (AC or DC coupled, as required by design). Default commercial off the shelf (COTS) part has a 50  $\mu\text{m}$  multimode (MM) core fiber.

Customizations such as fiber diameter, fiber type, bandwidth selection, NEP screening, responsivity optimization and packaging are available.



## Block Diagram

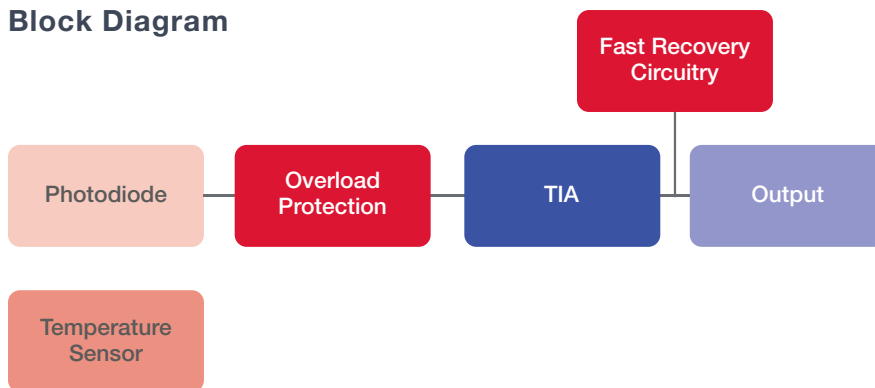


Figure 1. CMC 276-339832 SERIES BLOCK DIAGRAM

## FEATURES

- Typical 120 MHz built-in trans-impedance amplifier
- Spectral Response: 1050-1600nm
- Low Noise Equivalent Power (NEP)
- 50  $\mu\text{m}$  Multimode fiber pigtail
- High dynamic range
- Hermetically-Sealed 16-pin package
- ITAR free

## APPLICATIONS

- Range Finding
- LIDAR
- Distributed Temperature Sensing
- High resolution Laser scanning
- Free-Space Communications

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

$V_+ = +5\text{V}$ ,  $V_- = -5\text{V}$ ,  $V_{HV} = 40$  to  $V_{BR}$ ,  $VOO\_ADJ = -5\text{V}$ ,  $RL = 100 \Omega$ ,  $\lambda = 1570 \text{ nm} \pm 20 \text{ nm}$ ,  $+25^\circ\text{C}$

Parameter/Condition	Min	Typ	Max	Units
$V_{RE}$ for Responsivity, $R = 580 \text{ kV/W}$ *Note 1	40		80	V
Bandwidth, $f_{-3dB}$	100	120		MHz
Noise equivalent power $+25^\circ\text{C}$		90	120	$\text{fW}/\sqrt{\text{Hz}}$
Noise equivalent power *Note 2		200	300	$\text{fW}/\sqrt{\text{Hz}}$
Dark Current ( $I_D$ )	1		30	nA
Temperature sensor (1N914 diode) with bias current = 5mA		700		mV
Ambient temperature: Storage Range Operating Range	-40		+85	C

Notes : 1.  $V_{RE}$  as specified on datasheet of each device

2. NEP values for  $+85^\circ\text{C}$  are by design and are for reference only. No test values provided on individual test reports. Integration of the noise calculation is based on minimum bandwidth.

## Mechanical Dimension

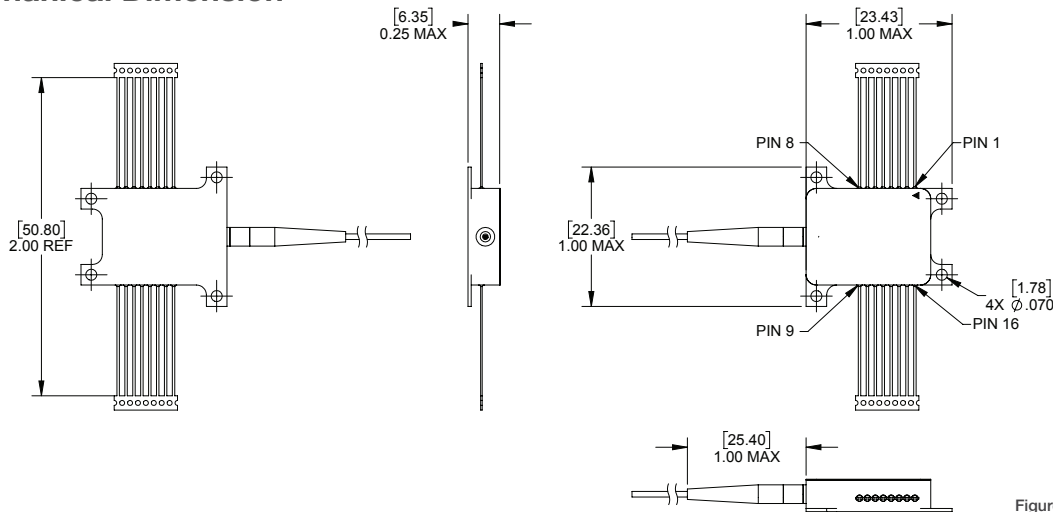


Figure 2. PACKAGE DIMENSIONS

## PINOUT configuration

Pin #	Signal	Pin #	Signal
1	GND	9	$V_{HV}$
2	T Sensor anode	10	GND
3	T Sensor cathode	11	GND
4	Not connected	12	GND
5	$V_-$	13	OUT
6	GND	14	GND
7	$V_+$	15	$VOO\_ADJ$
8	GND	16	GND