InGaAs 1 mm Quadrant PIN Preamplifier Module

CMC Electronics' 264-339837 series is an InGaAs 1 mm quadrant PIN receiver with four (4) built-in trans-impedance amplifiers in a 1-inch 12-lead TO-can package.

Customizations to bandwidth, rise time and responsivity will be available upon request.

Features

- 1 mm diameter quadrant InGaAs PIN
- 2 MHz bandwidth
- Low noise Equivalent Power (NEP)
- Spectral Response: 1000 – 1600 nm
- Eye safe operating band
- Common Cathode configuration
- Hermetically Sealed 1-inch TO-can

Applications

- Free-Space Optical (FSO) Communication
- Precision Guided Munition (PGM)
- Laser Warning Systems (LWS)
- Laser Range Finding (LRF)
- Laser Spot Tracking
- Laser Alignment
- Position Sensor

Table 1. Electro-Optical Characteristics

Conditions: T_{case} = 25 °C, V+ = 5.0 V, V- = -5.0 V, V_PIN = 5.0, λ = 1570 nm ± 10 nm

Parameter	Min.	Typ.	Max.	Units
Responsivity				
1060 nm		1.5		MV/W
1550 nm		2.0		MV/W
Noise equivalent power (DC -100 kHz) (Note 1)		175		fW/√Hz
Output impedance, R_{out}		50		Ω
Bandwidth, f_{-3dB}		2		MHz
Rise time (10-90 %) & Fall time (90-10 %)		200		ns
Linear Output Voltage Swing (Pulse)	0.75	1.25		V
Output Offset Voltage	-0.5	0	0.5	V
Supply current V+ (pin 2)		110	250	mA
Supply current V- (pin 8)		65	150	mA
Channel to channel crosstalk		5	10	%
Quadrant uniformity			5	%

Notes: 1. Integration of the noise calculation is based on f_{-3dB} bandwidth.

Table 2. Absolute-Maximum Ratings, Limiting Values

Parameter	Symbol	Min.	Max.	Units
Average photocurrent	I_{ave}		25	µA
Maximum Optical Power, CW			500	nW
Preamplifier Voltage V+	V_{pos}		6	V
Preamplifier Voltage V-	V_{neg}	-6		V
Quadrant PIN Breakdown Voltage	V_{br}		15	V
Operating Temperature	T_{op}	-40	85	°C
Storage Temperature	T_{stor}	-55	125	°C
Soldering Temperature (5 s, leads only)			250	°C

Figure 1. Typical Normalized Responsivity

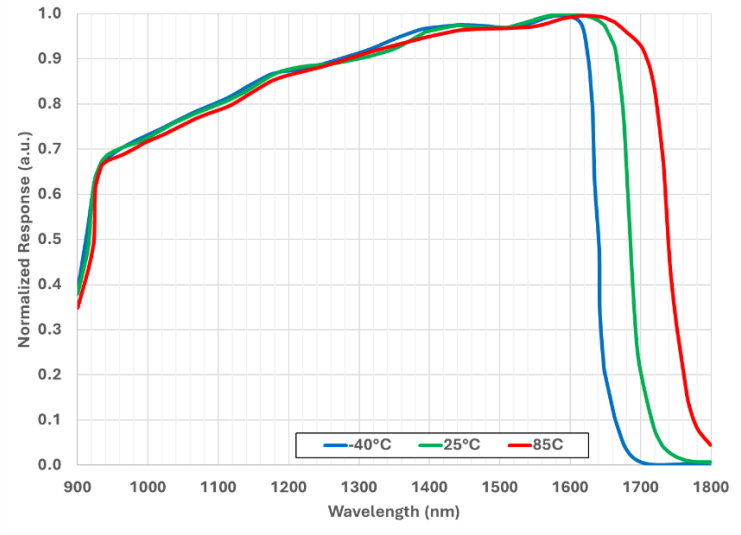
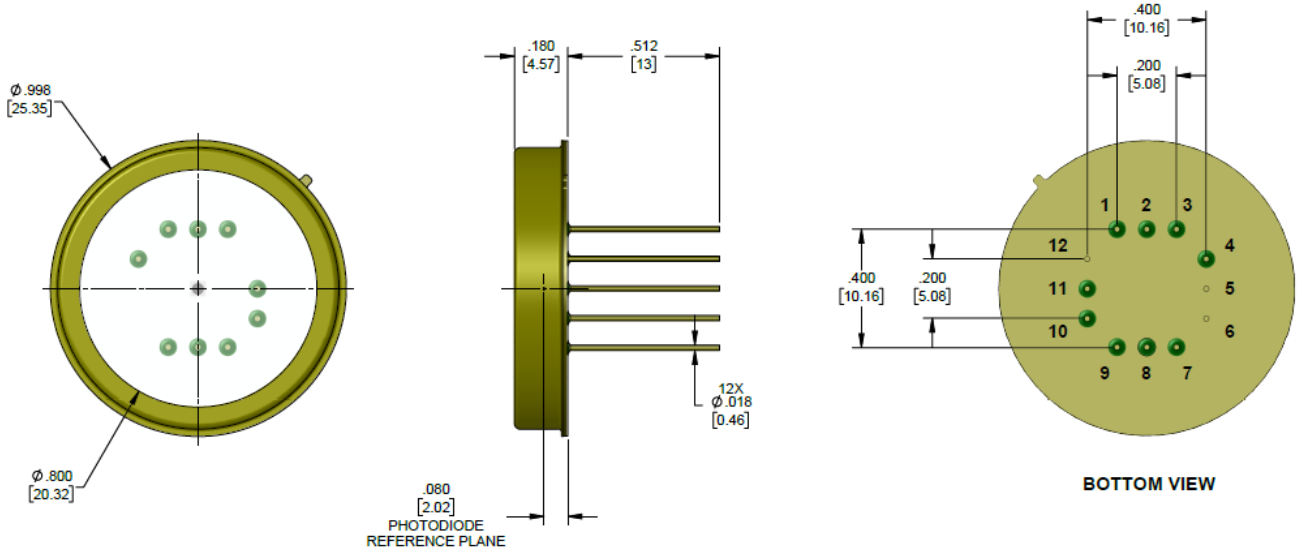
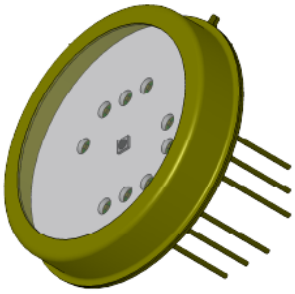


Figure 2. Package Dimension and Pinout

Unless otherwise specified, dimensions are in inches [mm] and are for reference only.





PINOUT			
1	OUT1	7	OUT3
2	V+	8	V-
3	OUT2	9	OUT4
4	N/C	10	V_PIN
5	GND	11	N/C
6	GND	12	GND

DIMENSIONS ARE IN INCHES [MILLIMETERS]
AND ARE FOR REFERENCE ONLY

Table 3. Ordering Guide

VAR	Typical Bandwidth	Active Diameter	Comments
264-339837-001	2 MHz	1 mm	

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