

InGaAs 2 – 3 mm Quadrant PIN Preamplifier Module



CMC Electronics' 264-339838 series is a combination of InGaAs quadrant PIN receivers 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

- 2 – 3 mm diameter quadrant InGaAs PIN
- 40 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 for 2 mm quadrant diameter

Unless otherwise specified: $T_A = 25\text{ }^{\circ}\text{C}$, $V_+ = 5.0\text{ V}$, $V_- = -5.0\text{ V}$, $V_{\text{PIN}} = 3.0$, $R_L = 50\text{ }\Omega$, $\lambda = 1570\text{ nm} \pm 10\text{ nm}$

Parameter	Symbol	Min.	Typ.	Max.	Units
Responsivity	R				
1060 nm			6.0		kV/W
1550 nm			9.0		kV/W
Noise equivalent power (DC - 40 MHz)	NEP				
Dark conditions			12		pW/ $\sqrt{\text{Hz}}$
1-sun background illumination			20		
Output impedance	R_{out}		50		Ω
Bandwidth	BW		40		MHz
Rise time (10-90 %)	t_{rise}		10		ns
Fall time (90-10 %)	t_{fall}		10		ns
Linear Output Voltage Swing (Pulse)			1.0		V
Output Offset Voltage	V_{oo}	-0.1	0.0	0.1	V
Supply current V_+	I_{pos}		35		mA
Supply current V_-	I_{neg}		-65		mA
Channel-to-channel crosstalk			5		%
Channel uniformity				5	%

Table 2. Electro-Optical Characteristics for 3 mm quadrant diameter

Unless otherwise specified: $T_A = 25\text{ }^{\circ}\text{C}$, $V_+ = 5.0\text{ V}$, $V_- = -5.0\text{ V}$, $V_{\text{PIN}} = 2.0\text{ V}$, $R_L = 50\text{ }\Omega$, $\lambda = 1570\text{ nm} \pm 10\text{ nm}$

Parameter	Symbol	Min.	Typ.	Max.	Units
Responsivity	R				
1060 nm			4.5		kV/W
1550 nm			6.5		kV/W
Noise equivalent power (DC - 40 MHz)	NEP				
Dark conditions			20		pW/ $\sqrt{\text{Hz}}$
1-sun background illumination			30		
Output impedance, R_{out}	R_{out}		50		Ω
Bandwidth	BW		40		MHz
Rise time (10-90 %)	t_{rise}		10		ns
Fall time (90-10 %)	t_{fall}		10		ns
Linear Output Voltage Swing (Pulse)			1.0		V
Output Offset Voltage	V_{oo}	-0.1	0.0	0.1	V
Supply current V_+	I_{pos}		35		mA
Supply current V_-	I_{neg}		-65		mA
Channel-to-channel crosstalk			5		%
Channel uniformity				5	%

Table 3. Absolute-Maximum Ratings, Limiting Values

Parameter	Symbol	Min.	Max.	Units
Average photocurrent	I_{ave}		5	mA
Preamplifier Voltage V+	V_{pos}		6.5	V
Preamplifier Voltage V-	V_{neg}	-6.5		V
Quadrant PIN Breakdown Voltage	V_{br}		12	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

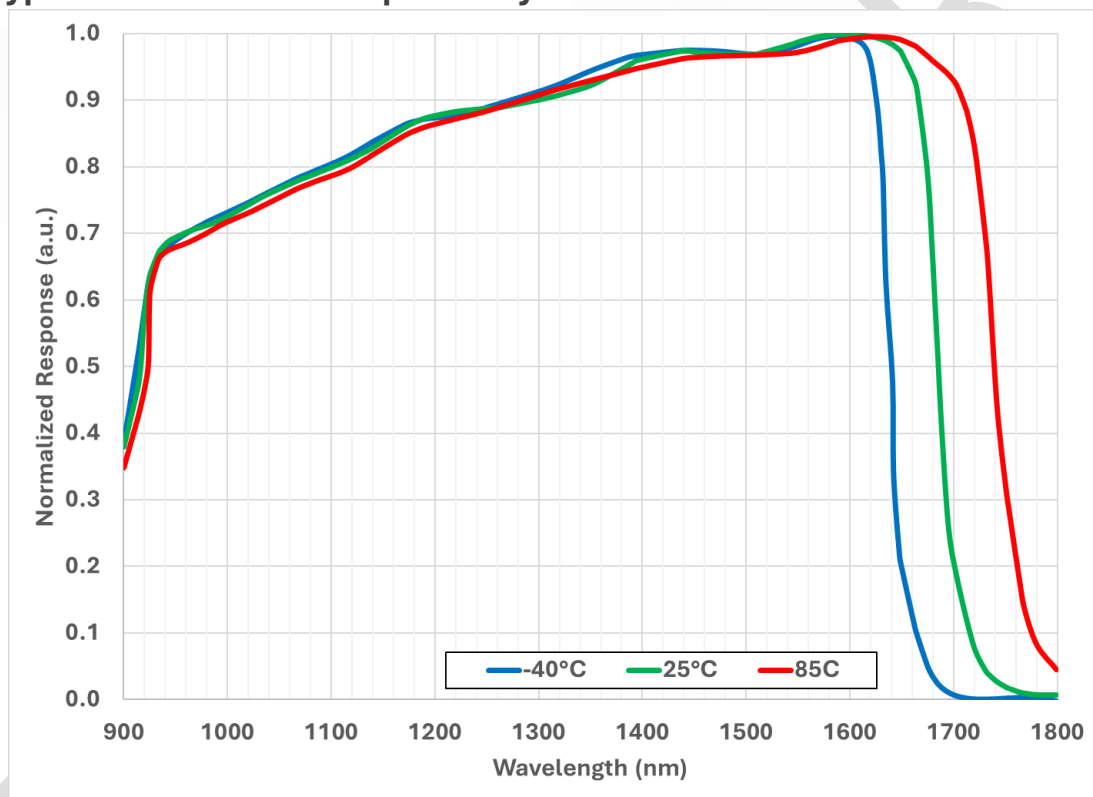
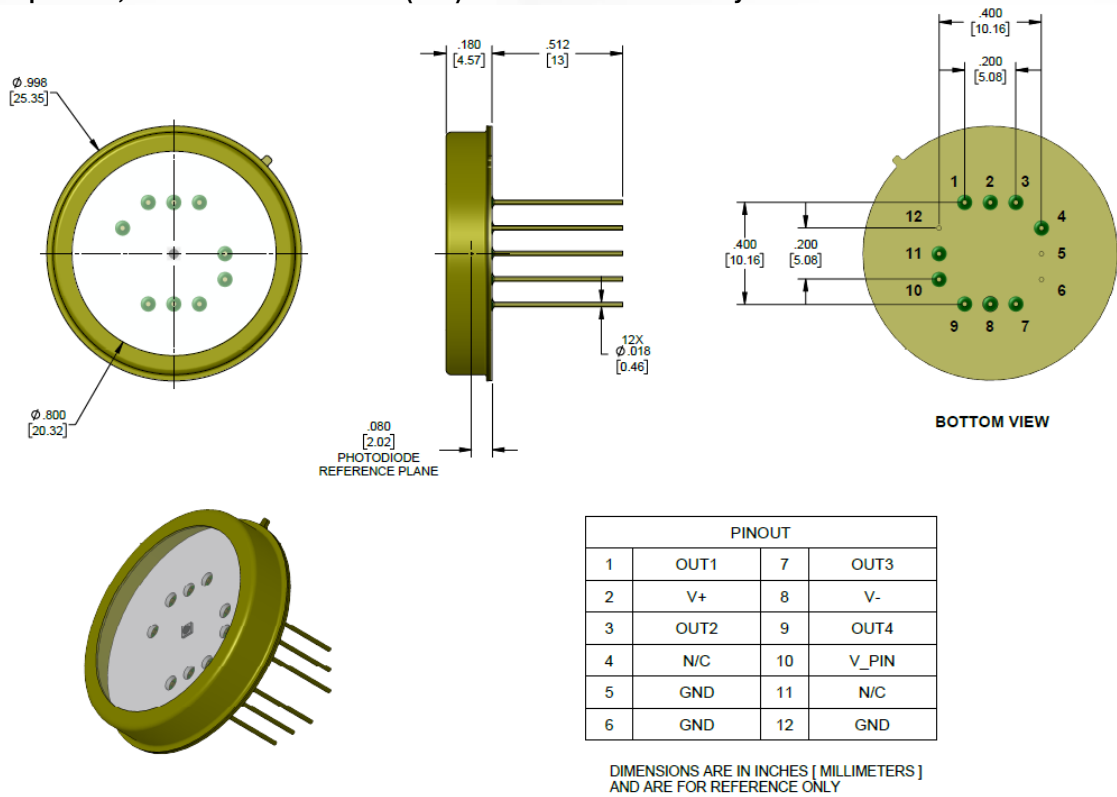


Figure 2. Package Dimension and Pinout
Unless otherwise specified, dimensions are in inches (mm) and are for reference only.



VAR Options

VAR	264-33838-VAR
-001	InGaAs PIN 2 mm diameter active area, TIA
-002	InGaAs PIN 3 mm diameter active area, TIA



For more information, visit www.cmcelectronics.ca/optoelectronics
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