

Quadrant Receiver 1 mm InGaAs PIN with four TIAs

MICROELECTRONICS

264-339768-001

Description:

CMC Electronics' 264-339768-001 is based on a 1mm diameter quadrant InGaAs PIN with GaAsFET input transimpedance amplifiers in a 12-lead TO-style package. Each amplifier has an overload input protection circuit for fast recovery. The outputs can be AC or DC coupled to a 100 ohms load. This product can be customized to meet the customer's packaging requirements.



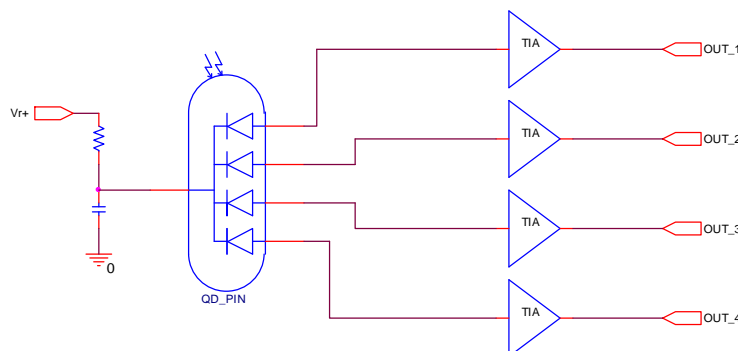
Features:

- 1mm diameter quadrant InGaAs PIN
- Eye Safe operating band (1550nm)
- Common Cathode configuration
- 25 MHz bandwidth
- Spectral Response: 1000 to 1600 nm
- Fast overload recovery
- Hermetically-Sealed TO-8 Package

Applications:

- Spot Tracking
- Guidance
- Position Sensor
- Free-Space Communication

Block diagram



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Electro-Optical Characteristics at $T_A=22^\circ\text{C}$

Unless otherwise specified: $V+=5\text{V}$, $V=-5\text{V}$, $V_R = +5\text{V}$, $R_f=100\Omega$, (DC coupled)

Parameter/Condition	Min.	Typ.	Max.	Unit.
Responsivity 1060 nm	55	65	-	kV/W
1550 nm	85	100	-	kV/W
Noise Equivalent Power (NEP = E_n/R) 1550 nm	-	2	3	pW/ $\sqrt{\text{Hz}}$
Output Spectral Noise Voltage Density (E_n): Average over 100 kHz to f_{3dB} ...	-	200	-	nV/ $\sqrt{\text{Hz}}$
Output Impedance	-	10	-	Ω
Bandwidth, f_{3dB}	-	30	-	MHz
Rise Time (10-90%)	-	12	-	ns
Fall Time t_f (90-10%)	-	12	-	ns
Linear Output Voltage Swing (Pulse)	1.5	2.5	-	V
Output Offset Voltage	-0.5	0	0.5	V
Vout recovery within V initial At 1mW, 15ns pulse 1.0us after pulse start	-	-20	-40	mV
Supply current V+	-	80	-	mA
V-	-	70	-	mA
Channel-to-channel crosstalk		2	5	%
Quadrant Uniformity			5	%
Rf (Internal each TIA)		110		k Ω

Absolute-Maximum Ratings, Limiting Values

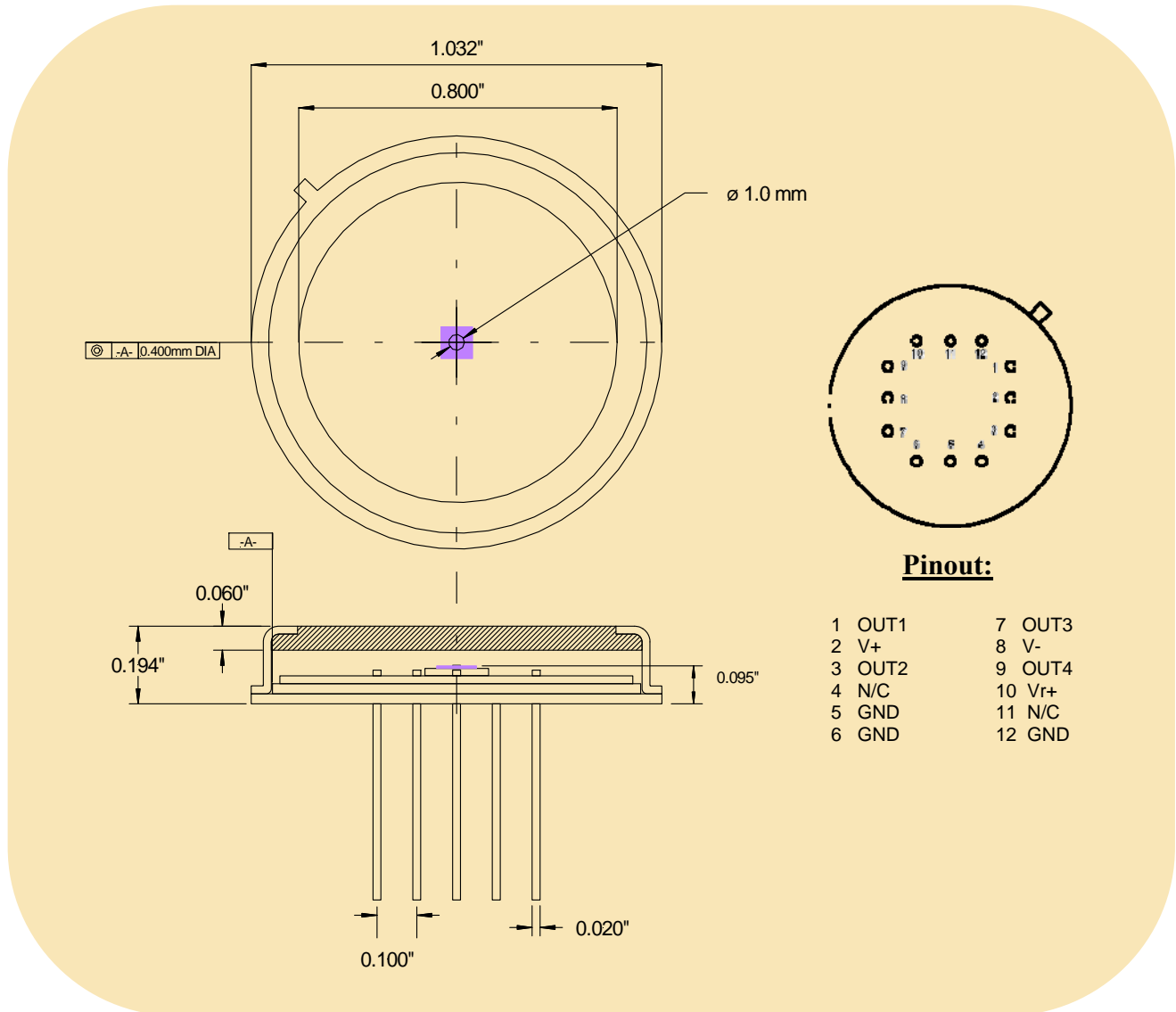
Photodiode Total Current (All temp.)			Preamplifier Voltage:	
Average	200	μA	V+ Max	6 V
Peak (1s).....	10	mA	V- Max	6 V
Incident Radiant Flux, \ddot{O}_M			Ambient Temperature:	
Average value	200	μW	Storage, T_{stg}	-55 to +125 $^\circ\text{C}$
Peak value, 20ns pulses < 100Hz	100	kW/cm ²	Operating, T_A	-40 to + 85 $^\circ\text{C}$

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Dimensions and Pinout:



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