

SU-001ATR

155 Mb/s APD Receiver



The SU-001ATR is a receiver module that integrates a high performance InGaAs avalanche photodiode (APD) with a differential 155 Mb/s transimpedance amplifier. This receiver module utilizes on-chip Automatic Gain Control (AGC) to achieve wide dynamic range. With a 200 μm active diameter (the largest commercially available) this APD receiver is ideal for Free Space Optical Communications (FSOC) and traditional fiber based systems supporting OC-3/STM-1, Passive Optical Network (PON), and Fast Ethernet applications.



APPLICATIONS

- Free Space Optical Communications
- SONET/SDH
- PON
- Fast Ethernet
- Range gated imaging

FEATURES

- Hermetically Sealed 5 pin TO-46 Package
- Back Illuminated APD
- Differential Output
- Automatic Gain Control
- High Sensitivity -43 dBm
- 1000 nm to 1650 nm response

SPECIFICATIONS ($V_{\text{SUPPLY}} = 3.3 \text{ V}$, $T_c = 23^\circ\text{C}$, $V_{\text{APD}} = V_{\text{bd}} - 1 \text{ V}$, $\lambda = 1550 \text{ nm}$)

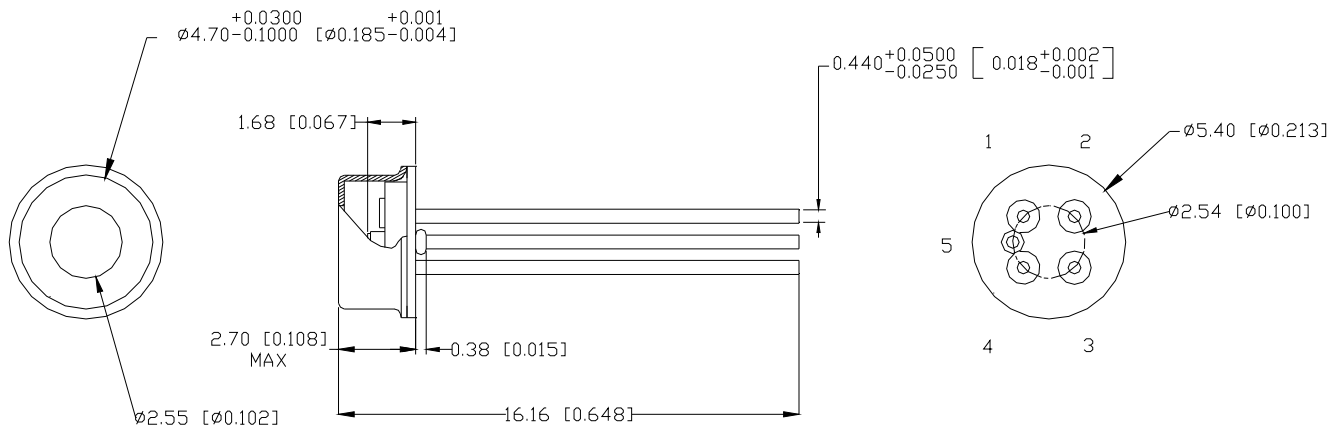
Parameter	Test Conditions	Symbol	Min	Typ	Max	Unit
Active Diameter	-	D	-	200	-	μm
APD Responsivity	$\lambda = 1550 \text{ nm}$, V_{APD}	R	5	8	-	A/W
APD Breakdown Voltage	$I_d = 10 \mu\text{A}$	V_{bd}	-	50	60	V
Sensitivity	155 Mb/s, V_{APD} , BER = 10^{-9} , PRBS = $2^{31} - 1$	P_r	-	-43	-41	dBm
Dark Current	V_{APD}	I_d	-	150	200	nA
Bandwidth (-3 dB)	V_{APD}	BW	130	-	-	MHz
Amplifier Transimpedance	Differential	Z	-	44	-	k Ω
Output Impedance	-	R_l	48	50	52	Ω
Power Dissipation		P_d	-	112	169	mW

3490 U.S. Route 1 • Princeton, New Jersey 08540
Phone: (609) 520-0610 • Fax: (609) 520-0638
www.sensorsinc.com • info@sensorsinc.com

ABSOLUTE RATINGS

Parameter	Symbol	Min	Typ	Max	Unit
Operating Case Temperature Range	T_{op}	0	-	85	°C
Storage Case Temperature Range	T_{stg}	-40	-	85	°C
APD Reverse Current	I_r	-	-	1.6	mA
Power Supply Voltage	V_{supply}	3	3.3	5.5	V
Power Supply Current	I_{supply}	-	34	63	mA

DIMENSIONS: mm [inch]



PIN	FUNCTION
1	$\overline{DATA}$
2	V_{supply}
3	V_{APD}
4	DATA
5	GND

PRECAUTIONS FOR USE

- Product is static-sensitive and must always be handled in an ESD-safe environment
- Soldering temperature of the leads should not exceed 260 °C for more than 10 seconds

ORDERING INFORMATION:

SU-001ATR 155 Mb/s APD Receiver with 200 μ m active diameter in TO-46 package