

APD Photodetector 2 GHz



MARP-A30A

Rev. V1A

Features

- APD Photodetector
- High Efficiency
- Large Detecting Area, $\varnothing 20 \mu\text{m}$
- Compact Package with Single-mode Fiber

Applications

- OTDR Systems
- Optical Test Instruments
- Quantum Communications



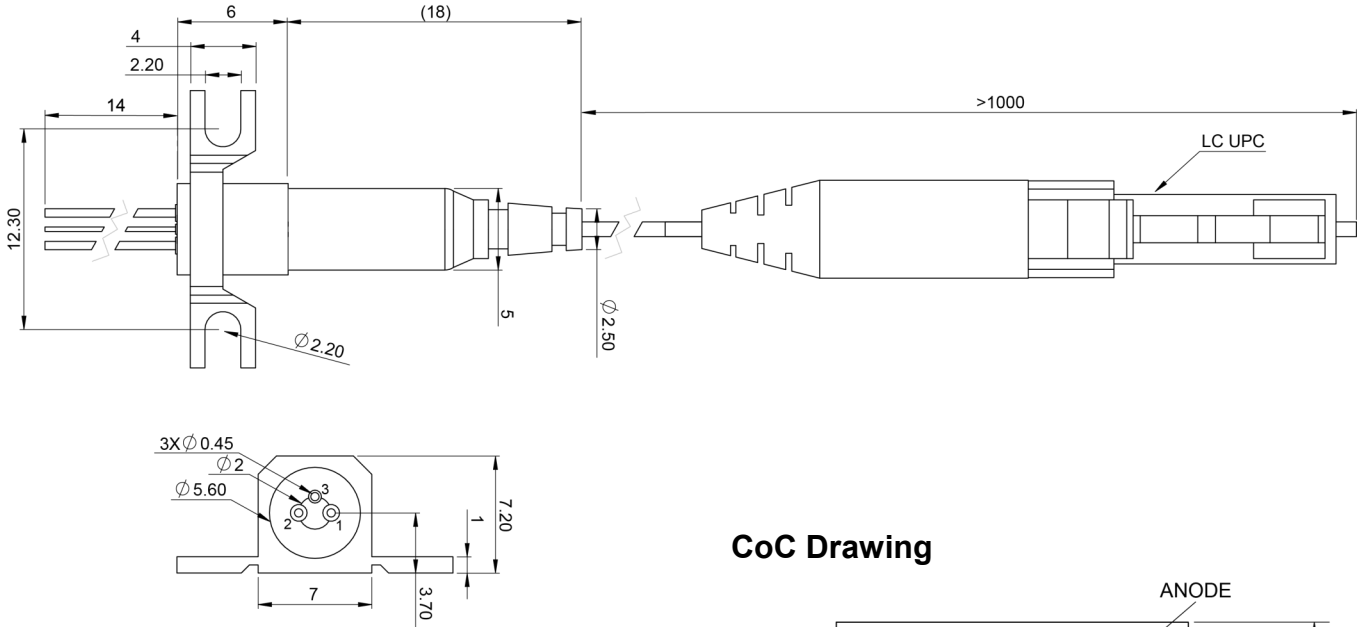
Description

The MARP-A30A is an avalanche photodiode (APD) that is fiber-coupled to maximum response. The product is optimized for Optical Time-Domain Reflectometry systems. The APD photodiode is usable from 950 - 1650 nm and is fiber coupled with single-mode fiber. The pigtailed package is hermetic and is available with a flange for easy assembly. TO-can and chip-on-carrier configurations are also available.

Specifications: Wavelength Range = 900 – 1650 nm

Parameter	Test Conditions	Units	Min.	Typ.	Max.
Bandwidth	-3 dB electrical	GHz	—	2	—
Low Frequency Cutoff	—	kHz	DC	—	—
Breakdown Voltage Temperature Coefficient	-40°C to 85°C	mV/°C	—	30	—
Responsivity	1310/1550 nm (M=1)	A/W	0.8	0.9	—
Maximum Gain	—		50	—	—
Dark Current	M=50, 25°C	nA	—	20	—
Noise Floor	M=50, 55°C	pA/ $\sqrt{\text{Hz}}$	—	1	—
Optical Return Loss	1310/1550 nm, single-mode	dB	—	-30	—
APD Breakdown Voltage	100 μA	V	—	45	—

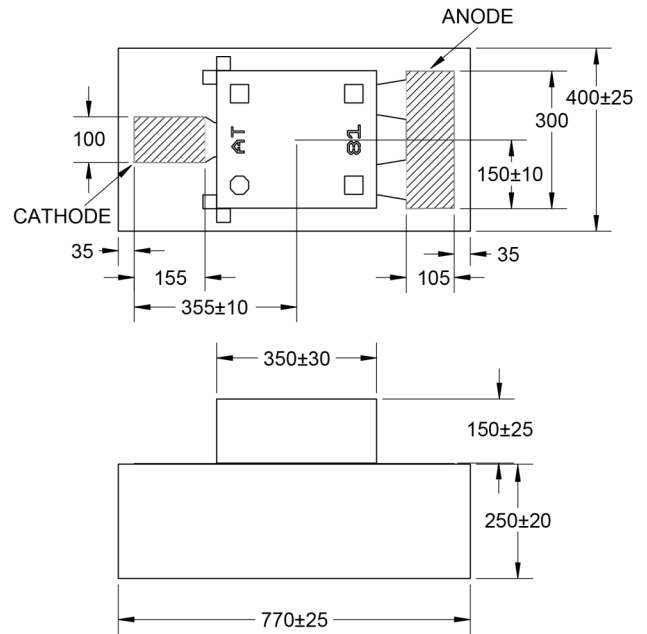
Module Drawing



Pin Configuration

Pin	Description
1	Anode (negative)
2	Cathode (positive)
3	Ground

CoC Drawing



Mechanical Specifications– Pigtail

Parameter	Test Conditions
Package Style	3-pin TO-56
Fiber Type	9 μm, single-mode
Fiber Connector	LC
Fiber Length	>1m

Mechanical Specifications– TO-can

Parameter	Test Conditions
Package Style	3-pin TO-56
Lens Type	Flat
Package Seal	Hermetic, seam-sealed

Mechanical Specifications– CoC

Parameter	Test Conditions
Active Area	20 μm
Carrier Width	400 μm
Carrier Length	770 μm

Absolute Maximum Ratings¹

Parameter	Test Conditions	Units	Min.	Typ.	Max.
Storage Temperature	—	°C	-40	—	+85
Operation Temperature	—	°C	-5	—	+75
Relative Humidity	Non-condensing	%	0	—	85
Photodiode Supply Voltage	—	V	0	—	V _{BR}
Photodiode Reverse Current	Average	μA	—	—	250
Optical Input Power	CW, Average	dBm	—	—	-6

1. Exposure to absolute maximum ratings for extended periods of time can adversely affect device reliability or cause permanent damage.

Power Up / Operating Sequence

1. Power the photodiode
2. Apply optical sign to fiber
3. Reverse the sequence for powering down

The photodiode supply voltage of the product must be present (at levels within specified operating ranges) prior to application of optical input power to the receiver to prevent possible surge currents that may damage the device.

Handling Procedures

Please observe the following precautions to avoid damage:

Static Sensitivity

These electronic devices are sensitive to electrostatic discharge (ESD) and can be damaged by static electricity. Proper ESD control techniques should be used when handling these HBM class 0 devices.

Ordering Information

Part Number	Description
MARP-A30A-01-P	Photodetector, APD, low noise, LC
MARP-A30A-TO-01-P	Photodetector, APD, low noise, TO
MARP-A30A-PD-01-P	Photodetector, APD, low noise, CoC

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