

Wideband Amplified APD Photodetector

Model 3031A



Model 3031A is a broadband, high-gain photodetector designed specifically for applications where low-noise, high-sensitivity and fast response are critical.

Features

- 0.230mm diameter active area silicon avalanche photodiode (APD)
- 800 nm peak spectral response
- High-gain broadband amplifier chain boosts the diode signal by 50 dB
- Useful bandwidth greater than 3 GHz
- Includes a companion APD bias supply packaged independently for reduced noise
- Operates from a single +12V DC power supply

Electrical and Optical Characteristics (Ta = 25 deg. C, Vcc = 12V, output terminated with 50 Ohms)

Parameter	Typical Value	Unit	Notes
Diode type	Silicon APD	---	
Spectral response range	500-1000	nm	
Peak spectral response	800	nm	
Active area	0.230	mm dia	
Operating frequency	2 kHz to 2500 MHz	----	-3dB points. Useful gain extends beyond 3GHz
Overall detection sensitivity	250000	V/W	Typical signal gain with no CW light; 800 nm
Gain stability	+/-5	%	Optical input held constant
Noise output	-127	dBm/Hz	3mV rms in a 1GHz bandwidth
Output voltage max	+/- 1	V peak	
Output impedance	50	Ohms	

General Specifications

Parameter	Typical Value	Unit	Notes
Supply voltage	12	V	
Supply current	250	mA	
Signal output connector	SMA female		
Detector dimensions	85 x 60 x 30	mm	Not including connector protrusions
Power supply dimensions	120 x 80 x 56	mm	Not including mounting flange
Power supply cable	2.0	meter	Runs between power supply and detector head

Absolute Maximum Ratings:

Supply voltage 14 VDC
 Maximum incident light level 20 mW
 Operating temperature 0 to 50 deg. C
 Storage temperature -20 to +70 deg. C

D-sub 9 power connections:

Pin 1: +12VDC
 Pin 3: Return
 All other pins are not connected
 Connector is male (pins)



Wideband Differential Amplified APD Photodetector

Model 3031D



Model 3031D is a broadband, high-gain differential photodetector designed specifically for applications where low-noise, high-sensitivity and fast response are critical. The detector packages two independent detectors producing complementary signals that are internally summed to produce a differential output.

Features

- Uses two 0.230 mm diameter active area silicon avalanche photodiodes (APD)
- 800 nm peak spectral response
- High-gain broadband amplifier chain boosts the diode signals by 50 dB
- Useful bandwidth greater than 3 GHz. Low frequency cutoff less than 700 Hz.
- Includes a companion APD bias supply packaged independently for reduced noise
- Operates from a single +12V DC power supply

Electrical and Optical Characteristics (Ta = 25 deg. C, Vcc = 12V, output terminated with 50 Ohms)

Parameter	Typical Value	Unit	Notes
Diode type	Silicon APD	---	
Spectral response range	500 – 1000	nm	
Peak spectral response	800	nm	
Active area	0.230	mm dia	Each diode
Operating frequency – high band	3000	MHz	Gain rolls off gradually out to 3000 MHz
Operating frequency – low band	700	Hz	
Overall detection sensitivity	250000	V/W	Signal gain with no CW light; 800 nm
Gain stability	+/- 5	%	Optical input held constant
Noise output	-125	dBm/Hz	
Output voltage	+/- 1	V peak	
Output impedance	50	Ohms	

General Specifications

Parameter	Typical Value	Unit	Notes
Supply voltage	12	V	
Supply current	500	mA	
Signal output connector	SMA female	---	
Detector dimensions	102 x 76 x 26	mm	Not including connector protrusions
Power supply dimensions	120 x 80 x 56	mm	Not including mounting flange
Power supply cable	2.0	meters	Runs between power supply and detector head

Absolute Maximum Ratings:

Supply voltage..... 14 VDC
 Maximum incident light level 20 mW
 Operating temperature 0 to 50 deg. C
 Storage temperature -20 to +70 deg. C

D-sub 9 power connections:

Pin 1: +12VDC
 Pin 3: Return
 All other pins are not connected
 Connector is male (pins)

