

APD Module LCSA/LCIA-Series



DESCRIPTION

Laser Components' new range of APD modules has been designed for customers interested in experimenting with APDs. Featuring a low-noise silicon (or InGaAs) APD with matched preamplifier and integrated high voltage supply, the module offers everything needed to operate APDs easily and conveniently. In-built temperature compensation circuitry allows the APD to be operated at constant gain even if the ambient temperature changes. A 12 V DC supply is all that is needed to operate the module. The metal housing is fully nickel-plated, in order to reduce EMI emissions from the module, and to protect the module from any external EMI. Custom designed modules and OEM versions are available on request.



FEATURES

- High sensitivity
- Low noise
- Easy handling
- Single 12 V DC supply operation
- Compact

APPLICATIONS

- APD evaluation
- Range finding / LIDAR
- Optical Communication Systems
- Laser Scanners
- Spectroscopy
- Fluorescence
- Medical



Si-APD module

GENERIC CHARACTERISTICS At T = 25 °C

	Min.	Typ.	Max.	Units
Wavelength Range	400		1100	nm
Peak Sensitivity		905		nm

ABSOLUTE MAXIMUM RATINGS

	Min.	Typ.	Max.	Units
Supply Voltage		+ 12	+ 13.5	VDc
Operating Temperature	0		+ 50	°C
Storage Temperature	- 20		+ 70	°C
Maximum incident light level (cw operation)			10	mW

TECHNICAL SPECIFICATIONS FOR 0.5 mm Si-APD-MODULE

Part Number	LCSA500-01	LCSA500-03	LCSA500-10	LCSA500-25	Units
Active Area	0.5	0.5	0.5	0.5	∅ mm
Detector Type	SAR500x	SAR500x	SAR500x	SAR500x	-
Bandwidth (-3 dB)	DC – 1 MHz	DC – 3 MHz	DC – 10 MHz	DC – 25 MHz	MHz
Responsivity					
@ 540 nm	300	30	3.0	0.3	MV/W
@ 650 nm	450	45	4.5	0.45	
@ 905 nm	550	55	5.5	0.55	
NEP					
@ 540 nm	0.003	0.010	0.015	0.056	pW/√Hz
@ 650 nm	0.002	0.007	0.011	0.033	
@ 905 nm	0.002	0.005	0.009	0.030	
Output Noise Density	1000	300	50	15	nV/√Hz
Input Referred Noise Density	0.10	0.30	0.50	1.50	pA/√Hz

Note: Noise measured at 100 kHz



TECHNICAL SPECIFICATIONS FOR 1.5 mm Si-APD-Module

Part Number	LCSA1500-01	LCSA1500-03	LCSA1500-10	LCSA1500-25	Units
Active Area	1.5	1.5	1.5	1.5	∅ mm
Detector Type	SAR1500x	SAR1500x	SAR1500x	SAR1500x	-
Bandwidth (-3 dB)	DC – 1 MHz	DC – 3 MHz	DC – 10 MHz	DC – 25 MHz	MHz
Responsivity					
@ 540 nm	300	30	3.0	0.3	MV/W
@ 650 nm	450	45	4.5	0.45	
@ 905 nm	550	55	5.5	0.55	
NEP					
@ 540 nm	0.003	0.010	0.015	0.056	pW/√Hz
@ 650 nm	0.002	0.007	0.011	0.033	
@ 905 nm	0.002	0.005	0.009	0.030	
Output Noise Density	1000	300	50	15	nV/√Hz
Input Referred Noise Density	0.10	0.30	0.50	1.50	pA/√Hz

Note: Noise measured at 100 kHz



InGaAs-APD module

GENERIC CHARACTERISTICS At T = 25 °C

	Min.	Typ.	Max.	Units
Wavelength Range	1000		1650	nm
Peak Sensitivity		1550		nm

ABSOLUTE MAXIMUM RATINGS

	Min.	Typ.	Max.	Units
Supply Voltage		+ 12	+ 13.5	V
Operating Temperature	0		+ 50	°C
Storage Temperature	- 20		+ 70	°C
Maximum incident light level (cw operation)			10	mW

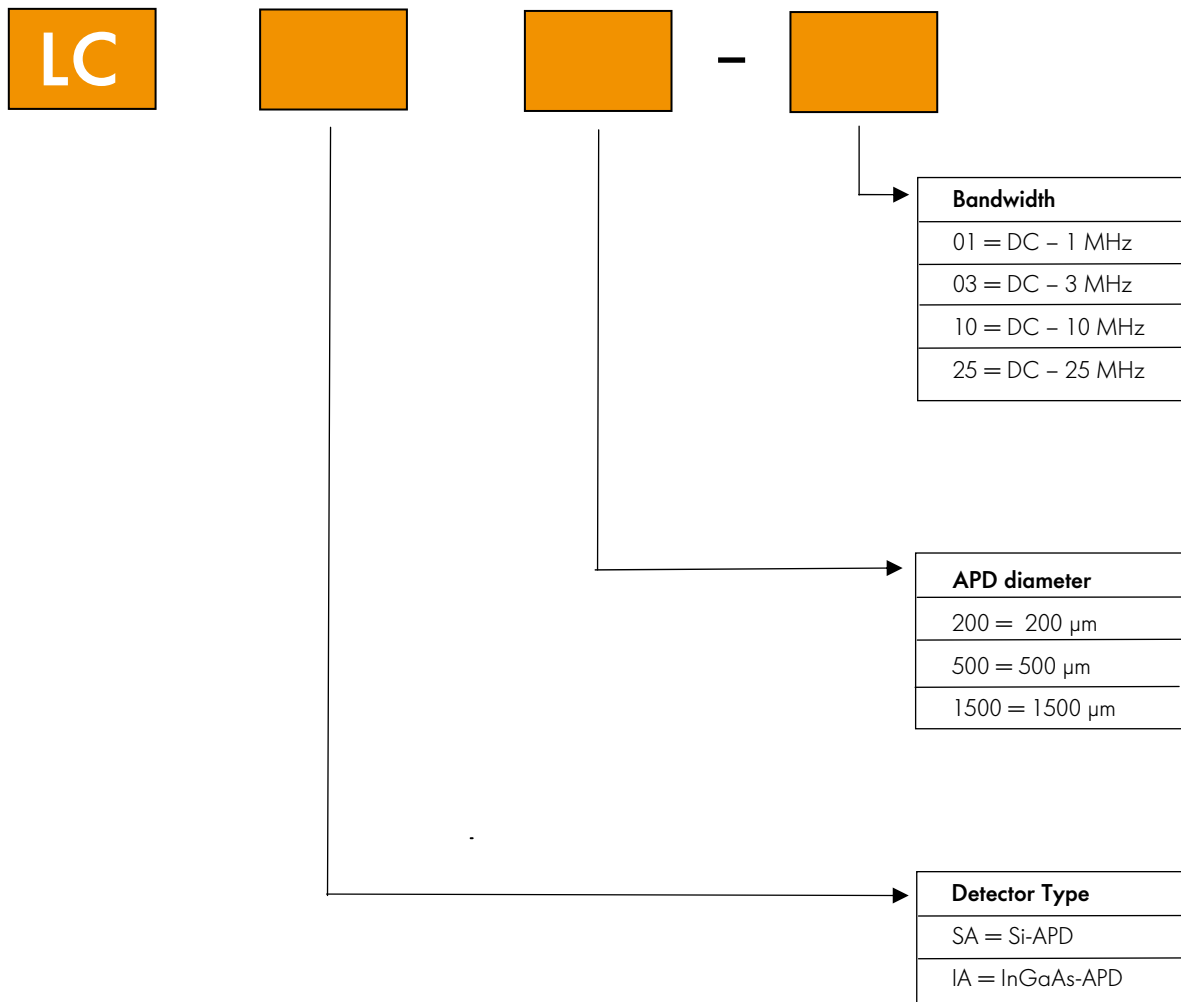
TECHNICAL SPECIFICATIONS FOR 200 µm InGaAs-APD-MODULES

Part Number	LCIA200-01	LCIA200-03	LCIA200-10	LCIA200-25	Units
Active Area	0.2	0.2	0.2	0.2	∅ mm
Detector Type	IAE200x	IAE200x	IAE200x	IAE200x	-
Bandwidth (-3 dB)	DC – 1 MHz	DC – 3 MHz	DC – 10 MHz	DC – 25 MHz	MHz
Responsivity @ 1550 nm	100	10	1.0	0.1	MV/W
NEP @ 1550 nm	0.010	0.030	0.050	0.150	pW/√Hz
Output Noise Density	1000	300	50	15	nV/√Hz
Input Referred Noise Density	0.10	0.30	0.50	1.50	pA/√Hz

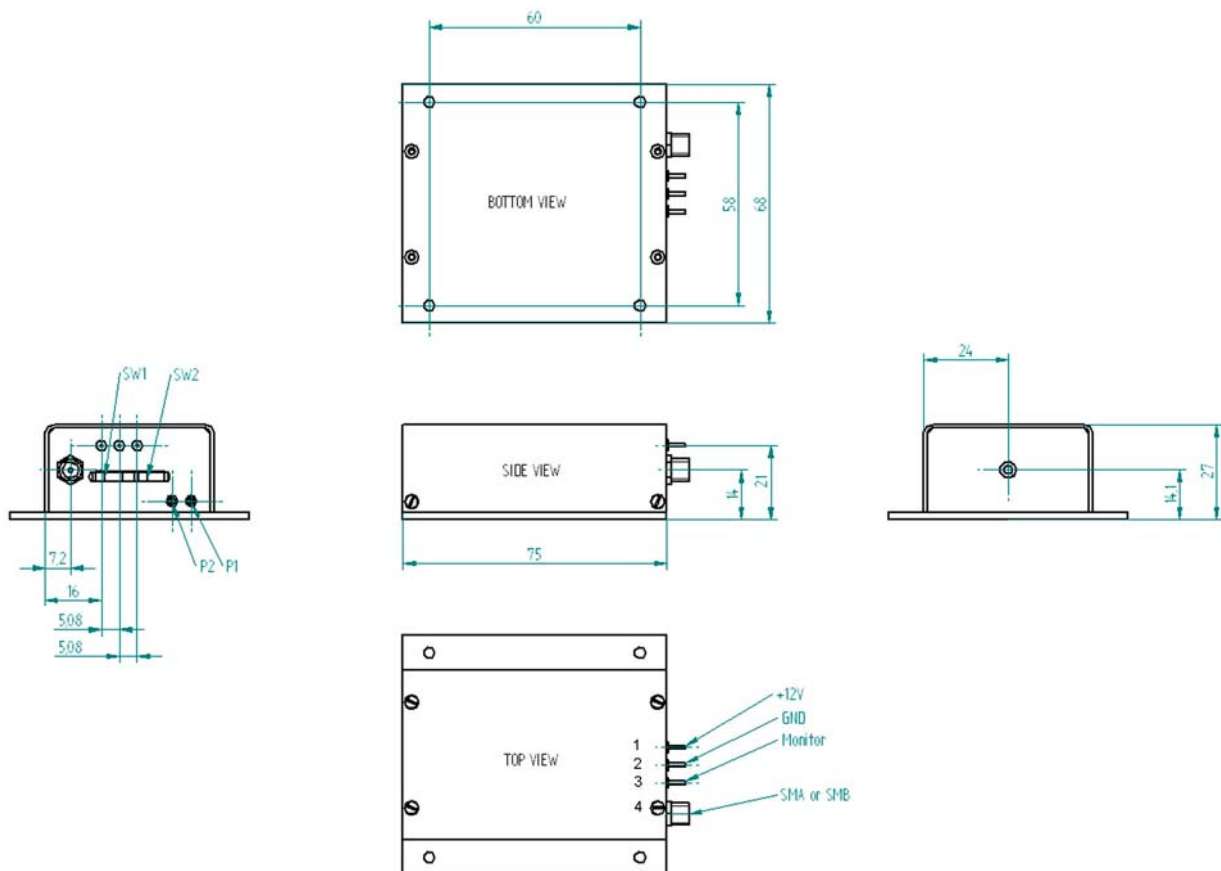
Note: Noise measured at 100 kHz



PRODUCT NUMBER DESIGNATIONS



PACKAGE DRAWINGS



Other packages and OEM versions are available on request.

PIN CONFIGURATION

Pin	Name	Function	Characteristic
1	+ VB	Supply Voltage	+ 12 V DC (typical)
2	GND	Ground	-
3	V_{mon}	Monitor	[0 ... 5] V
4	V_{out}	Output Voltage	V
5	P1	R_{TK}	-
6	P2	HV (Gain)	-
7	SW1	25 °C / 65 °C	-
8	SW2	Adjust / Sensor	-

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