

Sensors Unlimited: InGaAs linear photodiode array product family



Setting the standard for high performance in near-infrared spectroscopy and imaging applications.

InGaAs array products with unmatched uniformity, maximum noise immunity and high sensitivity.

BENEFITS

- Choice of wavelength ranges for reduced dark current (1.45 μm), standard (1.7 μm), extended (2.2 μm) and full range (2.6 μm – LC only)
- Array lengths of 256 pixels, 512 pixels or 1024 pixels, with widths of 1/4 in, 1/2 in or 1 in (6.4 mm, 12.8 mm or 25.6 mm)
- Large full well capacities, 130 or 250 Me-
- Pitch of 25 or 50 microns
- Apertures (heights) of 250 μm or 500 μm for spectroscopy, or square for machine vision
- Kovar™ package
- Internal 1- or 2-stages of temperature control, or TEC-less for low-power or external deep cooling

Designers of spectroscopy systems now have enhanced options to elevate system performance. Sensors Unlimited offers InGaAs Linear Array products with cut-off wavelengths at 1.45, 1.7, 2.2, or 2.6 microns. These arrays deliver reduced dark current and improved uniformity across the board.

For readout devices, users can select between two families: the user-friendly analog design of LE/LSE/LDB/LSB Series or the fast line times offered by the LC/LSC Series, which also feature 4 programmable gain options. Notably, one of these gains delivers the largest available full-well for absorbance spectroscopy applications.

The arrays come in lengths of 256, 512, or 1024 pixels, with widths of 1/4, 1/2, or 1 inch. They are equipped with antiblooming technology to prevent charge overflow from saturated pixels.

Applications

- Raman: 1.45 μm for low-power handhelds, T2-1.7 μm for full Raman spectrum
- NIR molecular spectroscopy
- 1.7 μm for high-performance capture of first overtone O-H, N-H, C-H combinations
- 2.2 μm for first overtone C-H, S-H, 2nd H₂O and C-O, O-H combinations
- 2.6 μm for combinations of N-H, C-H, and O-H

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LC/LSC ROIC - High-speed, digital serial input for mode control, anti-bloom, snapshot, Integrate-While-Read and Integrate-Then-Read, four gain/full-well settings, slow to very fast readout, selectable bandwidth, autozero and power options for one inch or half inch array.

Pixels	Pitch	Max ips	Wavelength and pixel height			
			1.45	1.7	2.2	2.6
256	50	15.7 k			T2, 250 μm	T2, 250 μm
512	25	91 k	T2, 500 μm	T1, 500 μm RT, 500 μm T2, 500 μm LT, 500 μm		
1024	25	91 k	T2, 500 μm	T1, 500 μm T1, 025 μm LT, 500 μm	T2, 250 μm	

LE/LSE ROIC - Easy to use analog design, anti-bloom, snapshot, Integrate-Then-Read, one output per side, slow to medium readout, one-inch array, two gain/full-well settings.

Settings

Pixels	Pitch	Max ips	Wavelength and pixel height			
			1.45	1.7	2.2	2.6
512	50	1.25 k		LT, 500 μm RT, 500 μm	T2, 250 μm	
1024	25	1.25 k	T2, 500 μm	T1, 500 μm LT, 500 μm	T2, 250 μm LT, 250 μm	

LDB/LSB ROIC - Easy to use analog design, anti-bloom, snapshot, Integrate-Then-Read, one output per side, slow to medium readout, half-inch and quarter-inch array, two gain/full-well settings

Pixels	Pitch	Max ips	Wavelength and pixel height			
			1.45	1.7	2.2	2.6
256	50	5 k	T1, 500 μm LT, 500 μm RT, 500 μm	T2, 250 μm		
256	25	5 k		T1, 500 μm RT, 500 μm		
512	25	5 k	T2, 500 μm	T1, 500 μm LT, 500 μm T2, 500 μm	T2, 500 μm	

Linear array comparison table (representative values)

Material type	Dark current	50% QE cut-on λ	50% QE cut-off λ(μm)	Peak λ (μm)
1.45 μm	1.3 pA	0.91	1.415	1.17
1.7 μm	2.3 pA	0.91	1.650	1.36
2.2 μm	10 nA	1.30	2.155	1.67
2.6 μm	100 nA	1.64	2.410	1.84

Specifications subject to change without notice.



Contact
Raytheon
Advanced Products & Solutions
Sensors Unlimited Inc.
330 Carter Road
Princeton, New Jersey
08540 USA
(609) 333-8000
sensorsinc.com



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