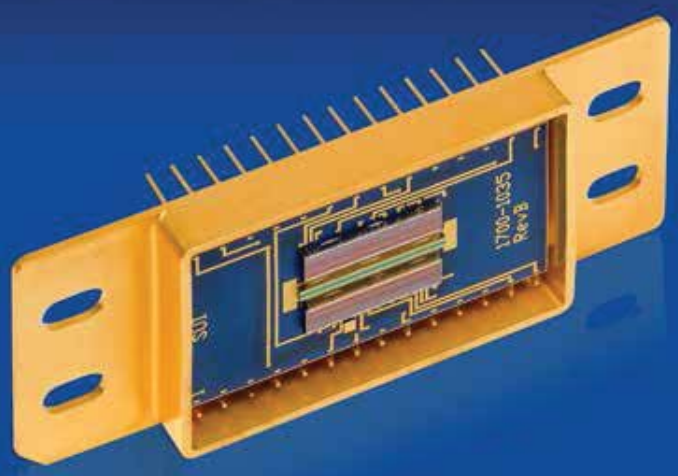
SENSORS UNLIMITED



LDB/LSB-Series

InGaAs Linear Photodiode Arrays

The high-resolution LDB and LSB-series linear InGaAs photodiode arrays have set the standard for high performance in near-infrared spectroscopy and imaging applications. These arrays are widely used for optical performance monitoring of S, C & L band channels in DWDM networks. Other applications include agricultural sorting, biomedical analysis, thermal imaging and industrial process control.

SUI produces LDB and LSB InGaAs array products with 256 (LDB & LSB) and 512 (LDB) elements on 25 µm pixel pitch and a pixel height of 250 and 500 µm. These channels are 100% operable and have unmatched uniformity. The photodetector arrays are hybridized with CMOS readout integrated circuits (ROIC) of SUITM exclusive design to offer maximum noise immunity and sensitivity.

Operating circuit designs need only provide for one analog supply and two digital control lines for optimum ROIC performance. Two separate gains are selectable with a single input. Arrays are available with thermoelectric coolers for temperature stabilization and monitoring. SUI LDB and LSB-Series photodiode arrays are telecommunication system reliable and available in volume. For applications requiring response beyond 1.7 µm, please contact the factory.

FEATURES

- 25 µm pitch
- Operating wavelength range 0.8 µm - 1.7 µm
- Up to 10^7 pixels per second read-out
- 1.3 x 10^8 electrons full-well capacity
- 5 mpix/sec composite readout rate

BENEFITS

- Optional pixel heights
- Room temperature stabilized
- ESD resistant
- Easy to use
- Antiblooming

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Model No: LDB/LSB-Series

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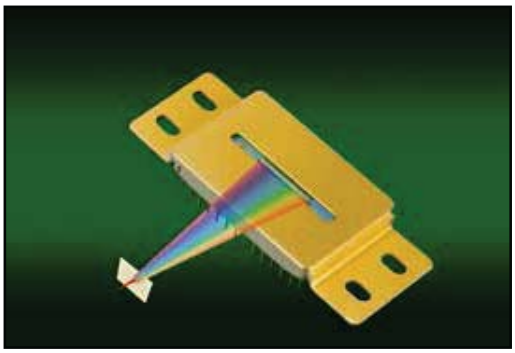

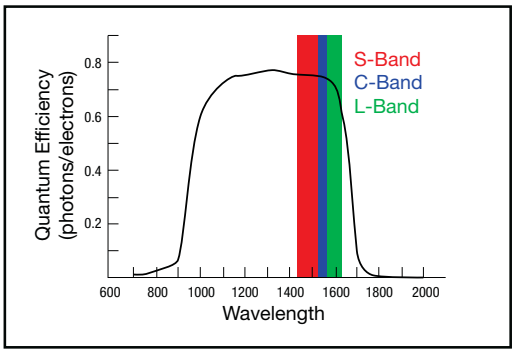

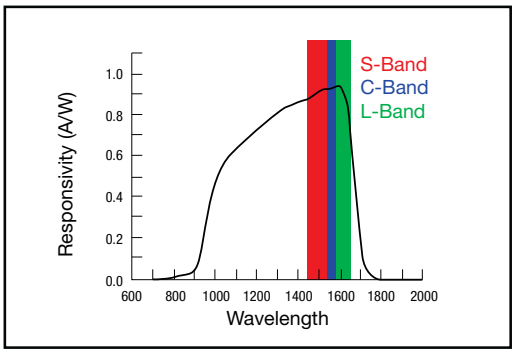

ELECTRICAL INPUTS

Parameter/Description	Unit	Min.	Typical	Max.
V_{DD}/Analog supply voltage	V	4.90	5.00	5.25
V_{SS}/Analog supply ground	V		0	
V_{DP}/Amplifier dead potential	V		3.25	
V_{CLK}/Digital pixel clock	V		Hi: V_{DD} Low: V_{SS}	
V_{LSYNC}/Digital exposure control	V		Hi: V_{DD} Low: V_{SS}	
V_{CAP}/Digital gain control	V		Hi: V_{DD} Low: V_{SS}	

PERFORMANCE CHARACTERISTICS

Parameter	Unit	Min.	Typical	Max.
Peak wavelength sensitivity (λ_{pk})	µm		1.5	
Responsivity (at λ_{pk})	nV/photon	10.5		
Photoresponse nonuniformity (PRNU)	%		5	10
Quantum efficiency (QE)	%	65		
Gain	nV/electron		400 [1], 15.4 [2]	
Saturation charge	pC		0.8 [1], 20.8 [2]	
Readout noise	electron/√scan		800 [1],10,000 [2]	
Dark rate [2]	V/s			0.5
Pixel clock	MHz			1.25
Readout rate per output	Mpix/sec/output			2.5
Inoperable pixels				0

[1] High-sensitivity mode: high gain capacitor
[2] High dynamic range mode: low gain capacitor

ABSOLUTE MAXIMUM RATINGS

Parameter/Description		Unit	Min.	Typical	Max.
Power consumption (V_{DD}=5.00V)	LDB LSB	mW mW			300 150
Operating temperature range		°C	-20		+70
Storage temperature range		°C	-40		+85

Distribution in the UK & Ireland

Lambda

Characterisation, Measurement & Analysis

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Model No: LDB/LSB-Series Doc. 4110-0013 Rev. H January 2016