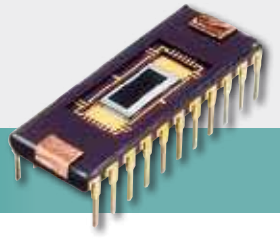
HIGH SENSITIVITY LARGE FORMAT PIXELS FOR SPECTROSCOPY



CMOS Linear Photodiode Arrays – L-Series

Applications

- Spectroscopy
- Colorimetry

Features and Benefits

- 2.5 mm photodiode aperture
- Extremely low dark leakage current
- Low power dissipation
- Clock-controlled sequential readout at rates up to 1 MHz
- Single-supply operation with HCMOS-compatible inputs
- Single shift register design
- Wide dynamic range
- Differential video output for clock noise cancellation
- High saturation charge 10 pC (25 µm) or 20 pC (50 µm)
- Antiblooming function for low crosstalk
- Line reset mode for simultaneous reset of all photodiodes
- Wide spectral response: 300 to 1000 nm
- Polished fused silica window
- Two on-chip diodes for temperature monitoring

Product Description

Excelitas' L-series CMOS linear photodiode arrays offer a high-quality, low-cost solution for spectroscopy and colorimetry applications in the 300–1000 nm range. The L-series family's combination of high sensitivity, low dark current, low switching noise and high saturation charge provides excellent dynamic range and great flexibility in setting integration time. L-series sensors consist of a linear array of silicon photodiodes, each connected to a MOS switch for readout controlled by an integrated shift register scanning circuit. Under external clock control, the shift register sequentially enables each of the switches, directing the charge on the associated photodiode to an output line. A dummy output provides clock noise cancellation. L-series devices are mounted in ceramic side-brazed, 22-pin, dual-inline packages with ground and polished fused silica windows and are pin-compatible with earlier Excelitas SB and TB-series sensors. L-series models are available with pixel spacings of 25 µm and 50 µm and lengths from 128 to 1024 pixels. All models feature a 2500 µm pixel aperture to simplify alignment in spectroscopic instruments.

Technical Specification

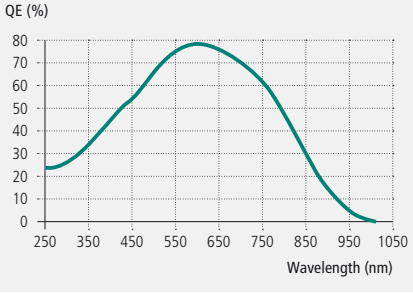
P-Series CCD Linear Array

Part Number	Video Capacitance @ 5 V bias pF	Video Capacitance @ 2.5 V bias pF	Sensitivity C/J/cm²	Saturation Exposure nJ/cm²	Saturation Charge pC	Dynamic Range	Dark Current Typ. pA
RL1201	–	6.7	2×10^{-4}	50	10	70.000	0.2
RL1202	–	10.2	2×10^{-4}	50	10	70.000	0.2
RL1205	–	15.4	2×10^{-4}	50	10	70.000	0.2
RL1210	–	28.7	2×10^{-4}	50	10	70.000	0.2
RL1501	9.1	–	4×10^{-4}	50	20	100.000	0.4
RL1502	14	–	4×10^{-4}	50	20	100.000	0.4
RL1505	25	–	4×10^{-4}	50	20	100.000	0.4

Operating Temperature: 0°C min. to +55°C max.
Storage Temperature: -25°C min. to +85°C max.
Lag: <1 %
Saturation Voltage: 600 mV

Technical Specification

Quantum Efficiency



Technical Specification

P-Series CCD Linear Array

Pixels	Pixel Pitch 25 µm	Pixel Pitch 50 µm
128	RL1201LGQ-711	RL1501LFQ-711
256	RL1202LGQ-711	RL1502LFQ-711
512	RL1205LGQ-711	RL1505LFQ-711
1024	RL1210LGQ-711	–