IT-L7-04096

4K Trilinear RGB CMOS Imaging Sensor

High Performance Trilinear Color CMOS Imaging Sensor

The IT-L7-04096 trilinear sensor is a high performance, digital, RGB line scan CMOS image sensor. The sensor has three individual lines for independent red, blue, and green channels. Each colour has its own exposure control making it easier to perform white calibration. The sensor is optimized for high line rates (3 x 70 kHz) and low noise, while providing high responsivity and high quantum efficiency (QE). The sensor is designed for ease-of-integration and uses FR4 packaging.

The pixel features global shutter capability, 100% fill factor, and true correlated double sampling (CDS) for low noise.

FR4 packaging offers high signal integrity and simple interfacing for quick system integration. The interface consists of two 60-pin connectors, which contain input signals, such as EXSYNC (trigger), clocks and voltages, and output signals, such as data and strobe (s-LVDS). Access to the registers of the sensor is handled through a serial-peripheral interface (SPI), plus the temperature of the sensor can be monitored.

The two 60-pin connectors on the IT-L7 share the same electrical and mechanical interface with the entire IT-K and IT-L sensor series, whereby the two 60-pin connectors and four mounting holes are positioned identically relative to one another as well as having pin compatibility.

Key Features

- 3 pixel rows (RGB) with independent exposure control
- High speed—3 x 70 kHz line rate
- High responsivity and full well
- 100% fill factor
- Low noise
- Ease of integration
- Common electrical and mechanical interface

Typical Applications

- Food sorting
- Banknote inspection
- Recycling
- Web inspection
- Document scanning

Specifications

Line Rate	70 kHz, maximum
Output	12-bit digital LVDS
Resolution	4096 x 3 (4K trilinear)
Pixel Size	10.56 μm x 10.56 μm
Random Noise	1.7 DN
Dynamic Range	67 dB
Conversion Gain	0.15 DN/e
Full Well	25 ke
Shutter Type	Global shutter
Responsivity	270 DN / nJ / cm^2 @ 12-bit, peak
Power Consumption	6 W
Operating Temperature	0° to +60°C
Package	FR4
Regulatory Compliance	RoHS

Models

Part Number	Resolution	Maximum Line Rates	Pixel Size
IT-L7-04096	4096 x 3	70 kHz	10.56 μm x 10.56 μm

Camera part number for sensor evaluation: P4-CC-04K07T

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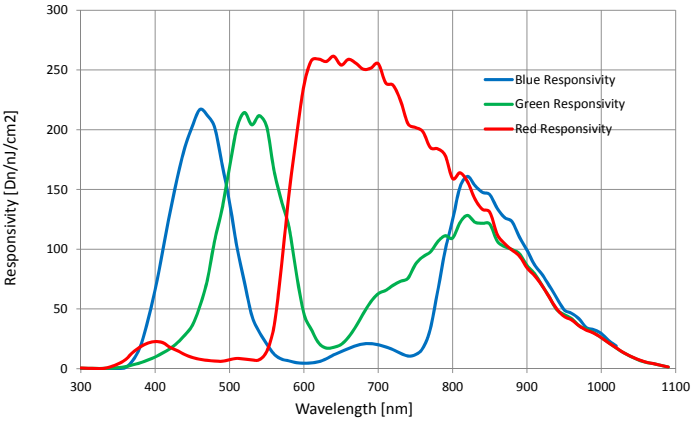
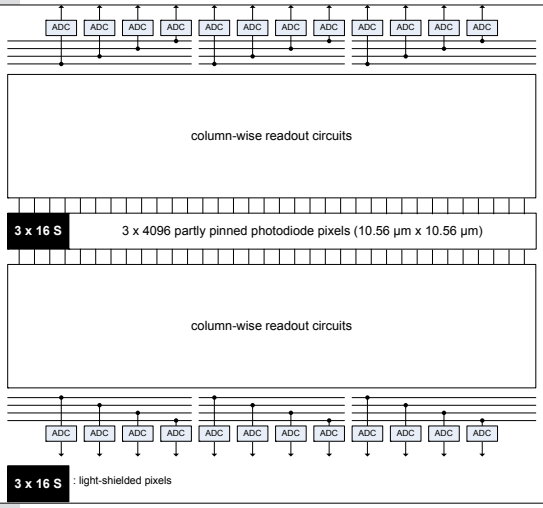
IT-L7-04096-05-R

4K Trilinear RGB CMOS Imaging Sensor



Note: Savitsky-Golay filtering applied, with 40 nm window and 1st order polynomial.



About Teledyne DALSA

Teledyne DALSA is an international high performance semiconductor and electronics company that designs, develops, manufactures, and markets digital imaging products and solutions, in addition to providing wafer foundry services.

Teledyne DALSA Digital Imaging offers the widest range of machine vision components in the world. From industry-leading image sensors through powerful and sophisticated cameras, frame grabbers, vision processors and software to easy-to-use vision appliances and custom vision modules.

Teledyne DALSA is headquartered in Waterloo, Ontario, Canada. We have sales offices in the USA, Europe and Asia, plus a worldwide network of representatives and agents to serve you efficiently.

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