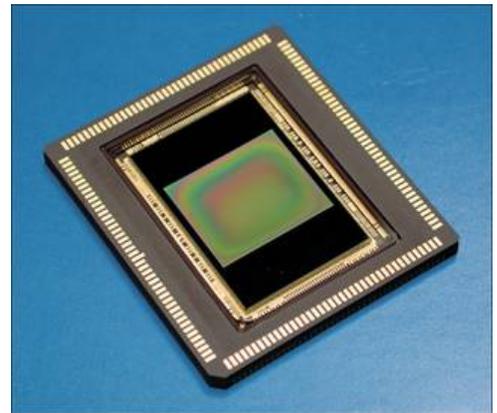


# Fairchild Imaging CIS2521F

## 5.5 Megapixel CMOS Image Sensor

### PRODUCT DESCRIPTION

The Fairchild Imaging CIS2521F is a large format, ultra low-noise CMOS image sensor intended for scientific and industrial applications requiring high quality imaging under extremely low light conditions. The device features an array of 5 transistor (5T) pixels on a 6.5µm pitch with an active imaging area of 2560(H) x 2160(V) pixels. The sensor runs in rolling shutter and global shutter snapshot readout modes. The sensor has two ADC channels per column with one optimized for very low light levels and the other optimized for high light levels, allowing high dynamic range data collection in a single image. The sensor supports user-programmable row start/stop control for region of interest (ROI) readout mode. The sensor is housed in a 168-pin ceramic LCC package. The CIS2521F delivers extreme low-light sensitivity with a read noise less than 1.5 electrons RMS, Quantum Efficiency (QE) above 52% and very low dark current. These features, combined with 5.5 megapixel resolution and 100 fps imaging rates, makes the CIS2521F an imaging device ideally suited for a variety of high throughput, low light-level imaging applications.



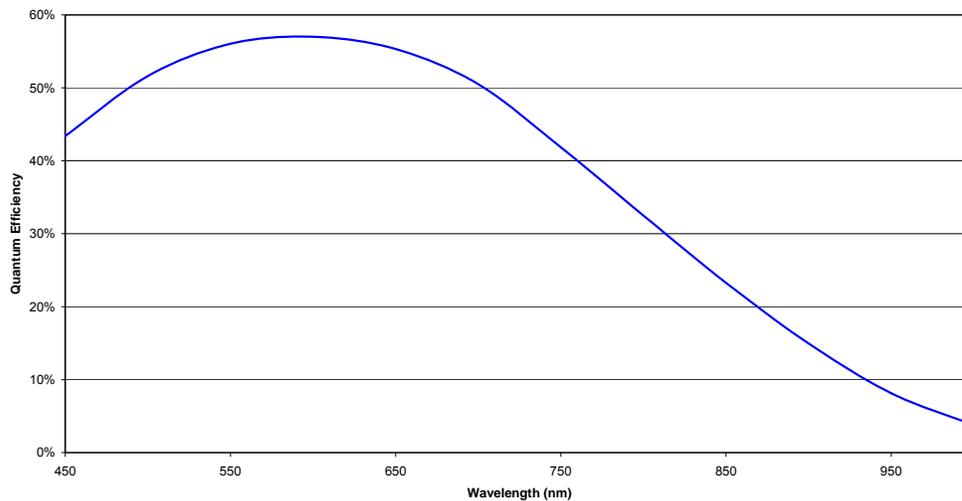
FEATURES	BENEFITS
2560 (H) x 2160 (V) pixel CMOS Image Sensor	5.5 Megapixels of data
6.5 x 6.5 µm <sup>2</sup> pixel pitch	Ideal pixel size for maximum light collection
Maximum speed of 100 FPS	Precise capture of dynamic events
<1.5 e- RMS Readout Noise	Enables ultra low-light imaging
Programmable ROI readout	Flexible windowing to allow faster frame rates
<30 e-/pixel/sec dark current @ 20°C	Cooling not required for dynamic applications
>52% peak Quantum Efficiency (QE)	High sensitivity visible through NIR
>86 dB intra-scene dynamic range	Record intense & faint features simultaneously
On-chip column parallel 11-bit A/D converters	Digital sensor for more compact designs
Dual gain 11-bit output channels per pixel	

## SPECIFICATIONS

PARAMETER	SPECIFICATION
Active array size	2560 (H) x 2160 (V)
Pixel size	6.5 $\mu\text{m}$ x 6.5 $\mu\text{m}$
Active area	16.6 mm x 14.0 mm
Shutter type	Rolling shutter, global shutter (snapshot)
Maximum frame rate	100 fps (Rolling Shutter) 50 fps (Global Shutter)
ADC resolution	22 bits (2 x 11-bit)
Column level amplifier gain	High: 30x or 10x Low: 2x or 1x
Power consumption	<2W with dual ADC channels operating at 100 fps
I/O interface	Digital: 1.8V LVCMOS and 1.8V HSTL
Package type	168-pin ceramic LCC surface mount or wire bond
Read noise <sup>1</sup>	< 1.5 e- RMS
Dark current <sup>2</sup>	<35 e-/pixel/sec
PRNU <sup>3</sup>	< 3% RMS
Peak QE	> 52%
Dynamic range	>86dB
MTF <sup>4</sup>	0.4
Lag <sup>5</sup>	< 0.1%
Full well capacity	> 30,000 e-
Non-linearity	< 2%

<sup>1</sup>Median value, high gain output (30x), 50 FPS operation, <sup>2</sup>At 20°C, <sup>3</sup>At 75% of max output, <sup>4</sup>At 600 nm, at Nyquist (77 lp/mm),  
<sup>5</sup>Of maximum output

## QUANTUM EFFICIENCY

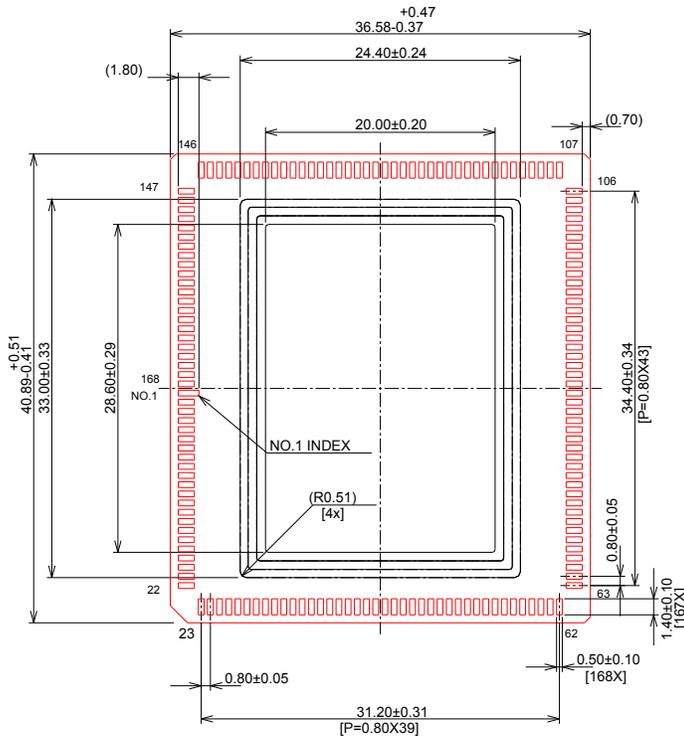


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## PACKAGE DRAWINGS

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### Top View of CIS2521F 168-pin LCC package (all drawing dimensions in mm)



The CIS2521F image sensor is housed in a 168-pin ceramic LCC package. The overall dimensions of the package are 40.9 mm (H) x 36.6 mm (W) x 3.0 mm (D). The package features a shelf for mounting a protective glass cover window and includes provisions for wire bonding to bond pads at the edges of the package as well as solder pads for board assembly through conventional surface mount soldering techniques.

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## WARRANTY AND CERTIFICATION

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Within twelve months of delivery to the original customer, BAE Systems Imaging Solutions will repair or replace, at our option, any Fairchild Imaging components or camera products, if any part is found to be defective in materials or workmanship. Contact Customer Service for assignment of warranty return number and shipping instructions to ensure prompt repair or replacement.

BAE Systems Imaging Solutions certifies that its Fairchild Imaging products are fully inspected and tested prior to shipment, and that they conform to the stated specifications.

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## FOR MORE INFORMATION, CONTACT:

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This product is designed, manufactured, and distributed utilizing the ISO 9001:2008 Business Management System.

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