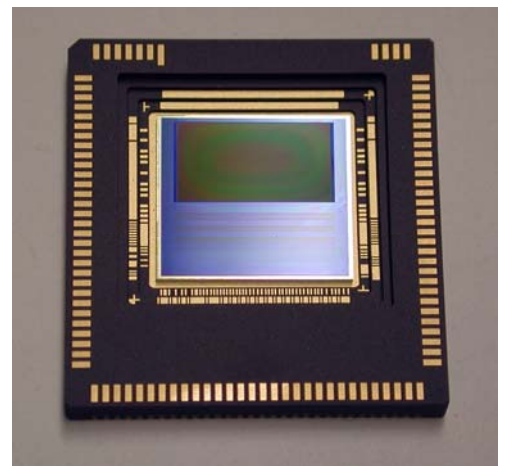


Fairchild Imaging CIS1910F

2.1 Megapixel CMOS Image Sensor

PRODUCT DESCRIPTION

The CIS1910F is a medium resolution, ultra low-noise CMOS image sensor intended for scientific and industrial applications requiring high quality imaging under extremely low light levels. The device features an array of 5T pixels on a 6.5µm pitch with an active imaging area of 1920(H) x 1080(V) pixels. The sensor supports both rolling shutter and global shutter (snapshot) readout modes. The sensor has two ADC channels per row 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 101-pin ceramic LCC package. The CIS1910F delivers extreme low-light sensitivity with a read noise approaching one electron (rms), quantum efficiency (QE) above 52% and very low dark current. These features, combined with megapixel resolution and 100 f/s readouts, makes the CIS1910F an ideal imaging device for a variety of low-light-level imaging applications.



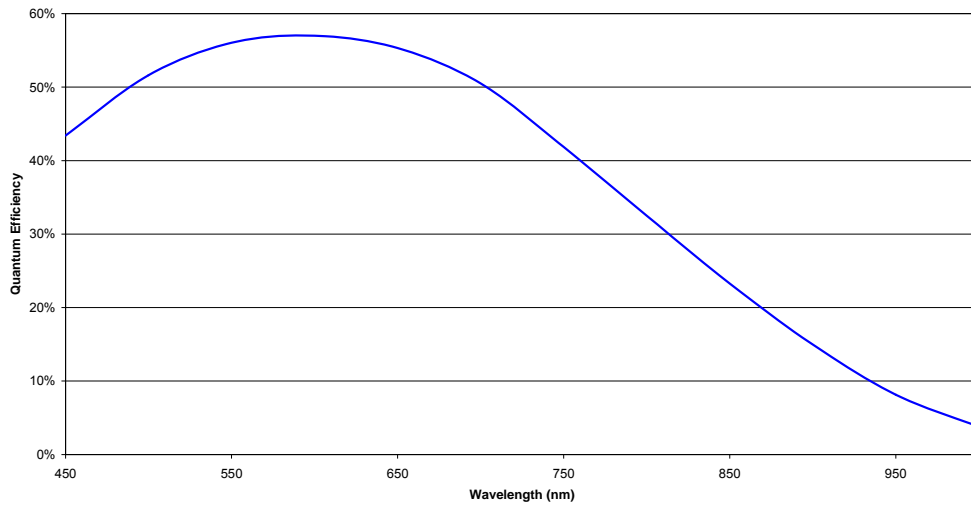
FEATURES	BENEFITS
1920 (H) x 1080 (V) pixel CMOS Image Sensor	2.1 Megapixels of data, standard HD format
6.5 x 6.5 µm ² pixel pitch	Ideal pixel size for maximum light collection
Maximum speed of 100 FPS	Precise capture of dynamic events
< 1.2 e ⁻ noise	Enables ultra-low-light imaging
Programmable ROI readout	Flexible windowing to allow faster frame rates
<30e ⁻ /pixel/sec dark current @ 20°C	Cooling not required for dynamic applications
> 52% peak quantum efficiency (QE)	High sensitivity visible through NIR
> 88 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	1920 (H) x 1080(V)
Pixel size	6.5 μm x 6.5 μm
Active area	12.5mm x 7.0mm
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	0.8W with dual ADC channels operating at 100 fps
I/O interface	Digital: 1.8V LVCMOS and 1.8V HSTL
Package type	101-pin ceramic LCC surface mount or wirebond
Read noise ¹	< 1.2 e- RMS (rolling shutter)
Dark current ²	<30e-/pixel/sec
PRNU ³	< 3% RMS
Peak QE (550 nm)	> 52%
Dynamic range	>88dB
MTF ⁴	0.4
Lag ⁵	< 0.1%
Full well capacity	> 30,000 e-
Non-linearity	< 1%

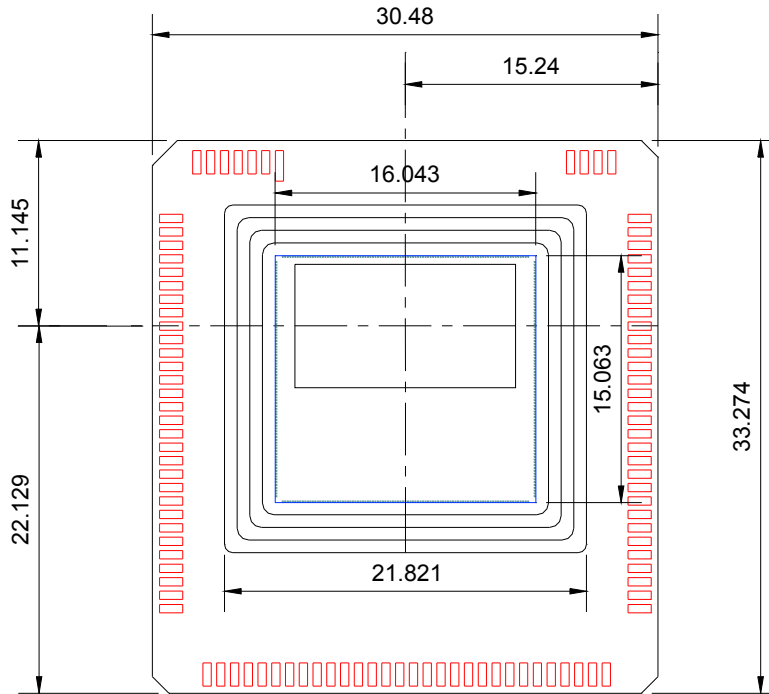
¹Medium value, high gain output (30x), ²At 20°C, ³At 75% of max output, ⁴At 600 nm, at Nyquist (77 lp/mm), ⁵Of maximum output

QUANTUM EFFICIENCY



PACKAGE DRAWINGS

Top View of CIS1910F 101-pin LCC package (all drawing dimensions in mm)



The CIS1910F image sensor is housed in a 101-pin ceramic LCC package. The overall dimensions of the package are 33.3 mm (H) x 30.5 mm (W) x 3.0 mm (D). The package features a shelf for mounting a protective glass cover window and includes provisions for wirebonding to bonding pads at the edges of the package as well as solder pads for board assembly through conventional surface mount soldering techniques.

WARRANTY AND CERTIFICATION

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.

FOR MORE INFORMATION, CONTACT:

BAE Systems Imaging Solutions
1801 McCarthy Blvd.
Milpitas, CA 95035 USA
Telephone 800 325 6975
Fax 408 435 7352
www.fairchildimaging.com

This product is designed, manufactured, and distributed utilizing the ISO 9000:2000 Business Management System.

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