

Fairchild Imaging

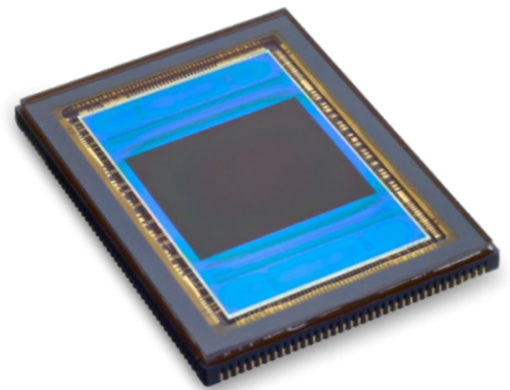
CIS2521

5.5MP ultra low-noise image sensor with sCMOS 2.0 technology

The CIS2521 is a large format, ultra low-noise CMOS image sensor intended for applications requiring high-quality imaging under low-light conditions.

The device features an array of five transistor (5T) pixels on a 6.5 μ m pitch with an active imaging area of 2560(H) x 2160(V) pixels. The CIS2521 delivers extreme low-light sensitivity with read noise less than 2e- Root Mean Square (RMS) in Rolling Shutter, less than 5e- RMS in Global Shutter, and Quantum Efficiency (QE) above 60 percent.

The sensor runs in Rolling and Global Shutter readout modes. The sensor has two ADC channels per column with one optimized for low light levels and the other optimized for high light levels, enabling high dynamic range data collection in a single image. The sensor supports user-programmable row start/stop control for region of interest (ROI) readout. The sensor is housed in a 168-pin LCC package. These features, combined with 5.5 megapixel resolution and 100 fps imaging rates, make the CIS2521 an imaging device ideally suited for a variety of low light-level camera applications.

**Key features**

- Rolling Shutter (RS) and Global Shutter (GS)
- Superior low light image quality
- 83.5dB intra scene dynamic range
- 100 fps at 5.5MP

Applications

- Scientific
- Medical
- Industrial
- Professional video
- High-end security

Ideal for capturing scenes in extreme lighting conditions

Specifications

Sensor

Optical format	4/3"
Active array size	2560 (H) x 2160 (V)
Active area	16.6 mm x 14.0 mm
Active diagonal	21.77 mm
Chroma	RGB or Monochrome
Maximum frame rate	100 fps (RS), 50 fps (GS)
ADC resolution	22 bits (2 x 11-bit)

Pixel

Pixel size	6.5 μm x 6.5 μm
Shutter types	Rolling Shutter and Global Shutter
Read noise ¹	<2 e- RMS (RS) <5 e- RMS (GS)
Dynamic range	>83.5 dB
Peak QE	CIS2521AF0 >50% CIS2521AF2 >60%
Full Well Capacity	>30,000 e-
Dark Current ²	<35 e-/ pixel/ sec

Interface

I/O Interface	Digital: 1.8V LVCMOS and 1.8V HSTL
---------------	------------------------------------

Operating

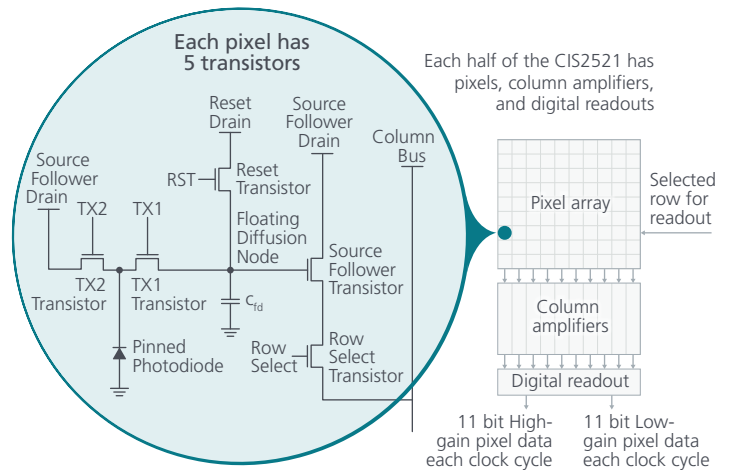
Power consumption	<2W at 100 fps
Supply voltages	-0.4, 1.8V, 3.0V, 3.3V
Operating temp	-40°C to + 55°C

Packaging

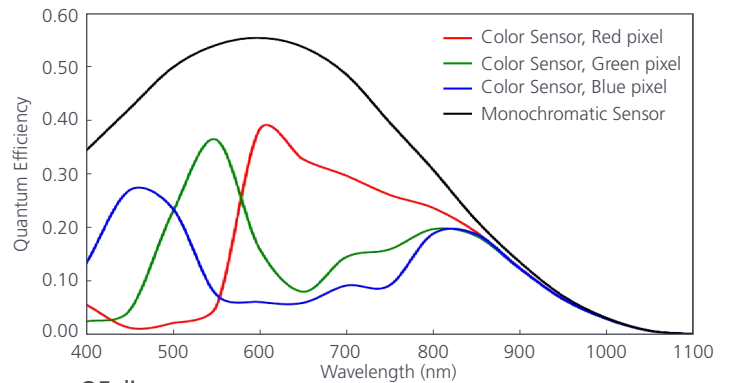
Package	168-pin CLCC
---------	--------------

¹Median value, high gain output (30x)

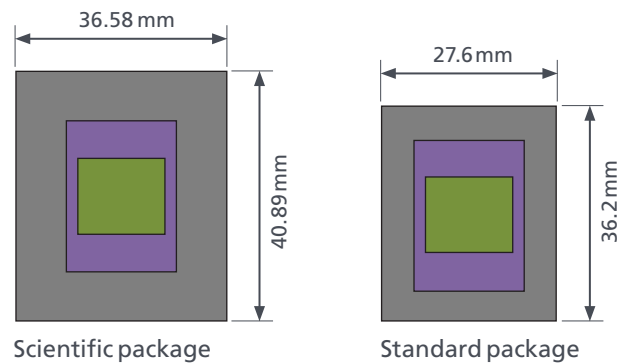
²At 20°C



Pixel schematic



QE diagram



For more information contact:

BAE Systems

1841 Zanker Rd., Ste. 50
San Jose, CA 95112 USA

T: 1-650-479-5749

E: cams.sales@baesystems.com

Cleared for open publication on 10/21

Approved for public release: unlimited distribution.

Not export controlled per ES-SJC-093021-0384.

Export-controlled data

This document contains technical information whose export is governed by the US Export Administration Regulations (EAR). This information is classified as EAR99, No License Required except to the following Arm Embargoed Countries: Cuba, Iran, Syria, N. Korea.

Disclaimer and copyright

This document gives only a general description of the product(s) and service(s) and, except where expressly provided otherwise, shall not form any part of any contract. From time to time, changes may be made in the products or the conditions of supply.

BAE SYSTEMS is a registered trademark of BAE Systems plc.

©2021 BAE Systems. All rights reserved.

20-F67-08