

Fairchild Imaging

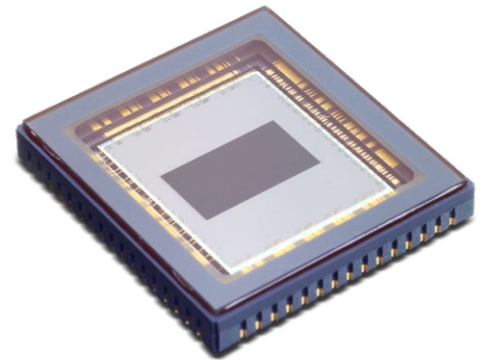
HWK1910

High definition image sensor with sCMOS 2.0 technology

The HWK1910 image sensor is a high definition format, ultra low-noise sCMOS image sensor.

Intended for surveillance and intelligent transportation applications requiring high quality imaging under extremely low-light and wide dynamic range conditions. The device features an array of five transistor (5T) pixels on a 5.04 μm pitch with an active imaging resolution of 1920(H) x 1080(V) pixels. The sensor has circuitry that enables high dynamic range data collection in a single frame.

The HWK1910 image sensor supports user-programmable row start/stop control for region of interest (ROI) readout mode. The HWK1910 image sensor delivers extreme low-light sensitivity with a read noise of one electron Root Mean Square (RMS). These features combined with 2.1 megapixel resolution, 60 fps, and the ability for auto calibration makes the HWK1910 easy to integrate into a variety of systems, and ideally suited for a variety of high throughput, low-light level imaging applications.



Key features and benefits

- 1 e- RMS read noise at 60 fps | 0.7 e- RMS at lower frame rate enables imaging in darker scenes
- Single frame high dynamic range
- 87 dB single frame dynamic in wide dynamic range | 120 dB single frame dynamic range in ultra dynamic range shows more detail in high contrast scenes
- High frame rate of 60 fps in wide dynamic range | 30 fps in ultra dynamic range reduces blur

Applications

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

Ideal for capturing scenes in extreme lighting conditions

Specifications

Sensor

| | |
|-------------------------|--|
| Optical format | 2/3" |
| Active array size | 1920 (H) x 1080 (V) |
| Active area | 9.68 mm x 5.44 mm |
| Diagonal of active area | 11.10 mm |
| Chroma | RGB and monochrome |
| Maximum frame rate | 60 fps (WDR), 30 fps (UDR) |
| ADC resolution | 16 bits (WDR) 16 bits companded (UDR) |

Pixel

| | |
|-------------------------|---|
| Pixel size | 5.04µm x 5.04 µm |
| Shutter type | Rolling shutter |
| Read noise ¹ | 1 e- RMS at 60 fps 0.7e- RMS at lower frame rate |
| Dynamic range | >87 dB (WDR) >120 dB (UDR) |
| Full well capacity | ≥23,000 e- |
| Dark current | <20 e-/ pixel/ sec at 20°C |

Interface

| | |
|---------------|------------------------------------|
| I/O interface | Digital: 1.8V LVCMOS and 1.8V HSTL |
|---------------|------------------------------------|

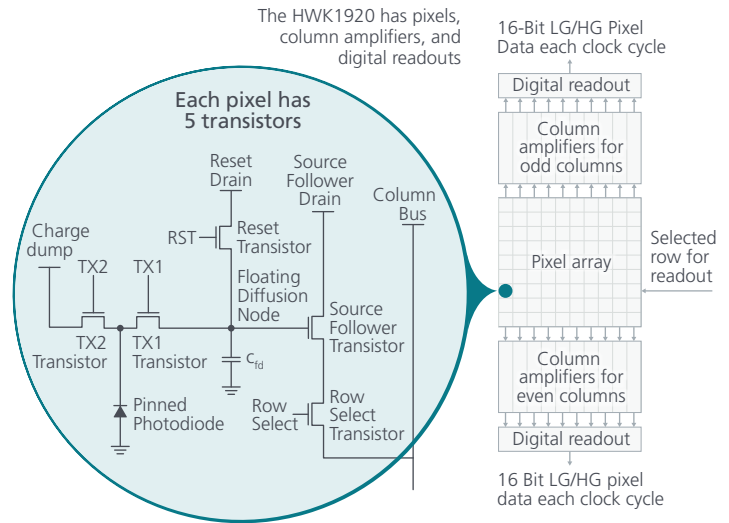
Operating

| | |
|-----------------------|----------------------------------|
| Power consumption | ~1W at 30 fps ~1.5W at 60 fps |
| Supply voltages | 1.8V, 2.8V, 3.3V |
| Operating temperature | -30°C to +70°C |

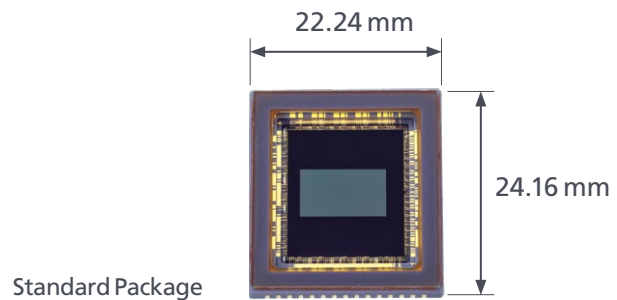
Packaging

| | |
|--------------|-------------|
| Package type | 64-pin CLCC |
|--------------|-------------|

¹ Median value: WDR = Wide Dynamic Range; UDR = Ultra Dynamic Range



Pixel schematic



Standard Package

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-093021-0386.

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-F67-11