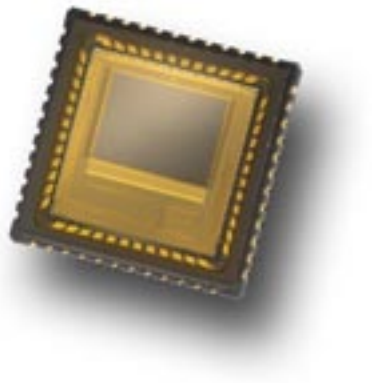
FOVEON®



Foveon FO18-50-F19
4.5 MP X3 Direct Image Sensor

Features

Foveon X3® Technology

- A stack of three pixels captures superior color fidelity by measuring full color at every point in the captured image.
- Images have improved sharpness and immunity to color artifacts (moiré).
- Foveon X3 technology directly converts light of all colors into useful signal information at every point in the captured image—no light absorbing filters are used to block out light.

Variable Pixel Size (VPS) Capability

- Neighboring pixels can be grouped together on-chip to obtain the effect of a larger pixel.
- Enables flexible video capture at a variety of resolutions.
- Enables higher ISO mode at lower resolutions.
- Reduces noise by combining pixels.

On-Chip A/D Conversion

- Integrated 12-bit A/D converter running at up to 40 MHz.
- Color sequential row readout onto a 12-bit tri-state output data bus.

Integrated Digital Control

- Minimal external control logic required.
- Data bus from the image sensor can be connected directly to DSP or video capture bus.
- Image sensor control is via simple three wire serial interface.

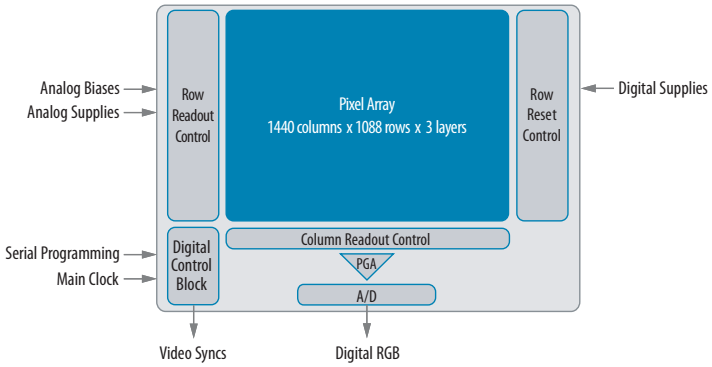
Ultra Low Power

- Advanced CMOS process technology results in ultra low power requirements.
- Power consumption is less than 200 mW during readout, less than 40 mW in stand-by mode, and less than 1 mW in power down mode. (Preliminary)

Low Noise

- The Foveon X3 direct image sensor offers extremely low-noise readout and high dynamic range.
- Proprietary readout circuits suppress fixed pattern noise artifacts associated with CMOS image sensors.

The Foveon FO18-50-F19 is a 1/1.8-inch CMOS direct image sensor that incorporates breakthrough Foveon X3 technology. Foveon X3 direct image sensors capture full-measured color images through a unique stacked pixel sensor design. By capturing full-measured color images, the need for color interpolation and artifact-reducing blur filters is eliminated. The Foveon FO18-50-F19 features the powerful VPS (Variable Pixel Size) capability. VPS provides the on-chip capability of grouping neighboring pixels together to form larger pixels that are optimal for high frame rate, reduced noise, or dual mode still/video applications. Other advanced features include: low fixed pattern noise, ultra-low power consumption, and integrated digital control.



Specifications

Effective Pixels	4.5 million pixels (1.5R, 1.5G, 1.5B) (1420 columns x 1060 rows x 3 layers)	Total number of pixel sensors in image sensor
Pixel Pitch	5.0 µm	Center-to-center spacing of pixel locations
Optical Format	1/1.8", 7.1 mm x 5.3 mm	Active area
Aspect Ratio	4:3	
Frame Rate	7 fps for: • 1420 columns x 1060 rows x 3 layers 30 fps for: • 640 columns x 480 rows x 3 layers (VPS)	Maximum number of frames per second in the rolling shutter mode
Package	14 mm x 14 mm, 52-pin CLCC	

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