

Foveon® X3™ Pro 10M CMOS Image Sensor F7X3-A91

Features

Foveon X3 Technology

- Three photodetectors are layered at each pixel location to achieve full-measured color at every pixel.
- Images have improved sharpness and immunity to color sampling artifacts such as moiré patterns.
- In contrast to color filter arrays that use light-absorbing filters, Foveon X3 technology converts light of all colors into useful signal information at every pixel location.

Variable Pixel Size (VPS™) Capability

- Several 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 without sacrificing low-noise performance.

Ultra Low Power

- Use of the most advanced CMOS process technology allows for ultra low power.
- Input voltages to the sensor are less than 2.5 V.
- Power consumption is less than 50mW during readout, less than 10mW in standby mode, and less than 100µW in power down mode.

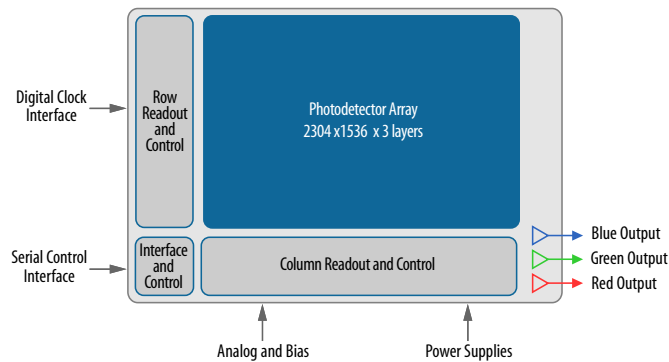
Low Noise

- Foveon has pioneered the use of CMOS sensors for high-quality image capture.
- The Foveon X3 image sensor offers extremely low-noise readout and high dynamic range.
- Proprietary readout circuits suppress fixed pattern noise artifacts commonly associated with CMOS image sensors.

Blooming Immunity

- The Foveon X3 image sensor is designed to resist the blooming that is characteristic of CCD image sensors.

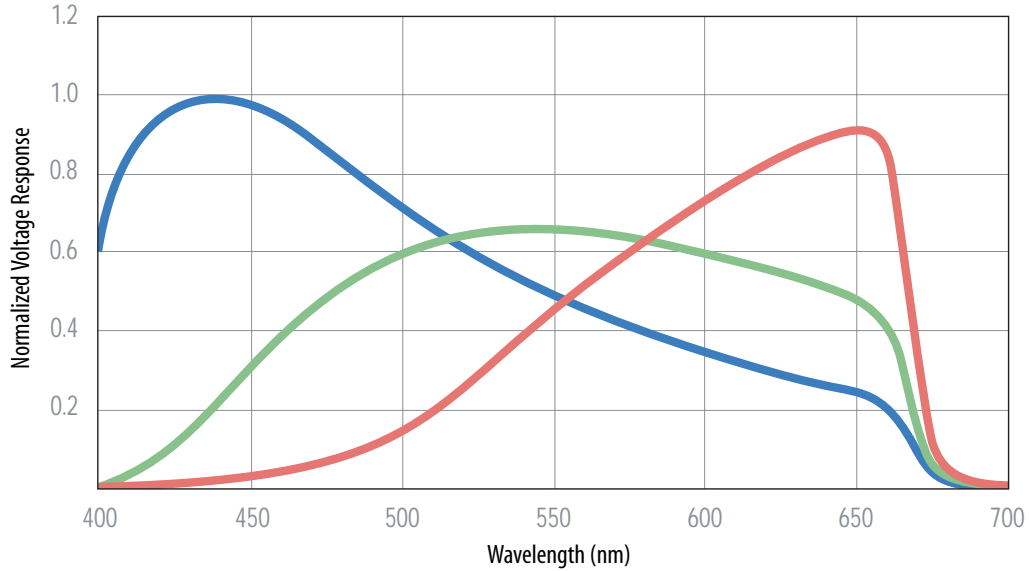
The Foveon X3 Pro 10M is a 25mm-diagonal high-resolution CMOS image sensor that incorporates the breakthrough Foveon X3 technology. Foveon X3 image sensors capture full-measured color images through a unique three-layer photodetector design. By capturing full-measured color images, the need for color interpolation and artifact-reducing blur filters is eliminated. As a result, the Foveon X3 Pro 10M delivers the highest effective resolution possible without color artifacts for the 25 mm optical format. The Foveon X3 Pro 10M 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 reduced resolution, high frame rate or dual mode still/video applications. Other advanced features include: low fixed pattern noise and ultra-low power consumption.



Specifications

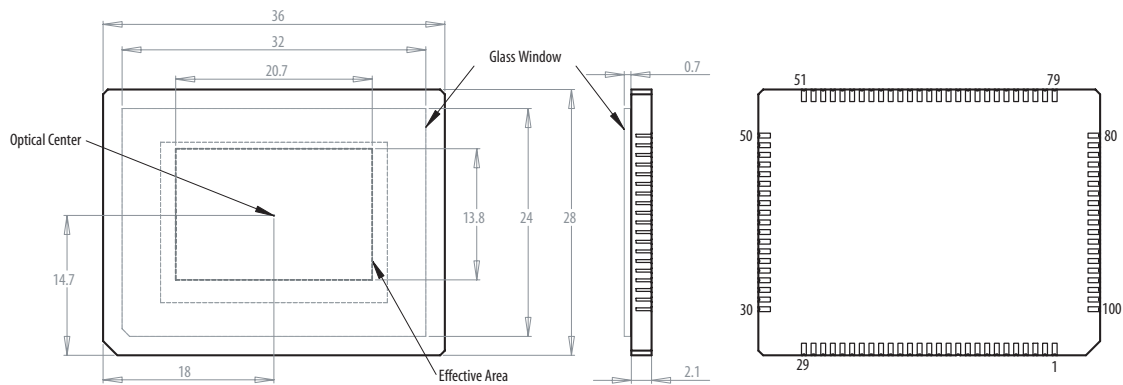
Effective Photodetectors	10.28 million (2268 x 1512 pixel locations x 3 layers)	Number of measured-color data points captured by image sensor
Total Pixel Locations	3.53 million (2304 x 1536)	Format of pixel locations within the array
Effective Pixel Locations	3.42 million (2268 x 1512)	Format of optically active pixel locations
Pixel Pitch	9.12µm	Center-to-center spacing of pixel locations
Effective Area	20.7mm x 13.8mm	
Effective Diagonal	25mm	
Aspect Ratio	3:2	
Dynamic Range	61dB (typical)	
Frame Rate	2FPS for 2268 x 1512 x 3 layers; 25FPS for 576 x 384 x 3 layers (VPS)	Maximum number of frames per second in the rolling shutter mode
Variable Pixel Size Increments	Powers of 2, independently in each direction	Number of pixels averaged together for output

Spectral Sensitivity



* IR filter (50% transmission at 660nm +/- 10nm) used for spectral sensitivity measurements.

Package Diagram



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