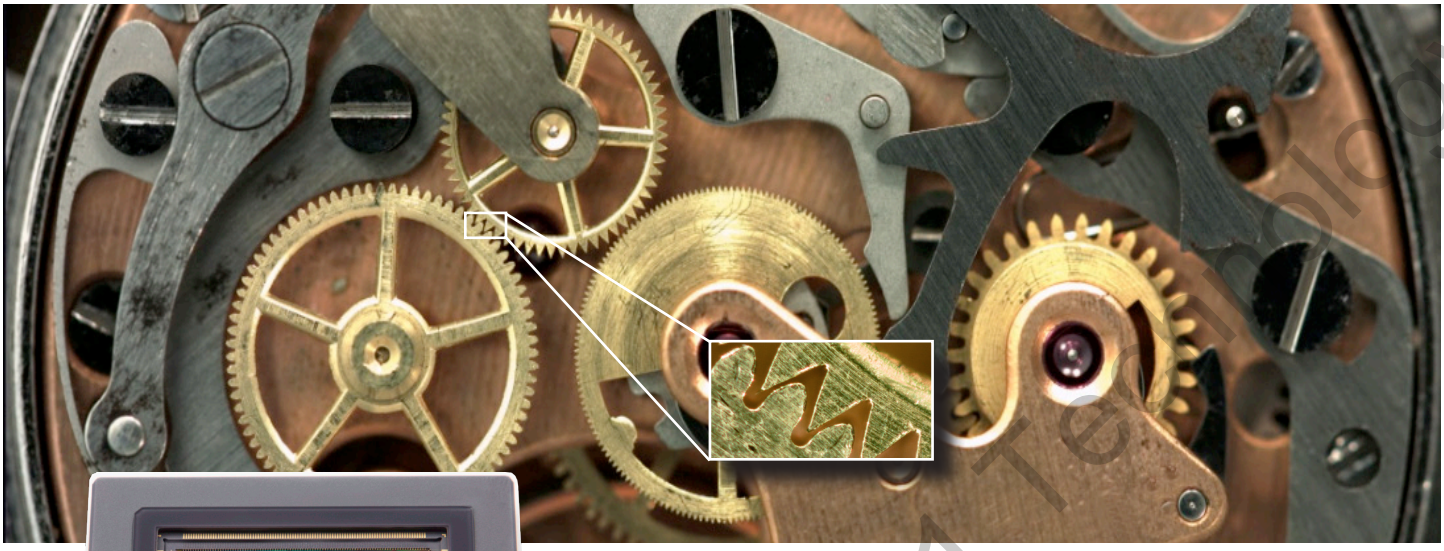
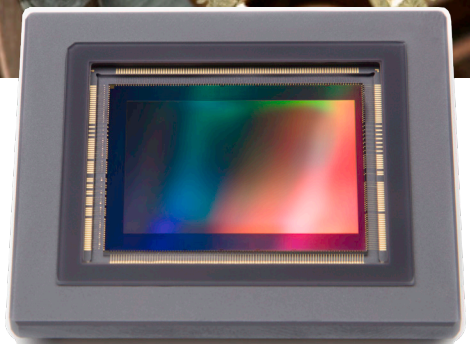
Canon

120MXS

120 MP Ultra High Resolution CMOS Sensor

Product Sheet





The 120MXS is an ultra-high resolution CMOS sensor with 13272 x 9176 effective pixels. It has a size equivalent to APS-H (29.2mm x 20.2mm), and a square pixel arrangement of 2.2µm x 2.2µm with 122 million effective pixels. Ultra-high-resolution is made possible by parallel signal processing, which reads signals at high speed from multiple pixels. All pixel progressive reading of 9.4 fps is made possible by 28 digital signal output channels. It is available in RGB, or in monochrome with twice the sensitivity.

Ultra High Resolution and Speed

By incorporating close to the same number of pixels as receptors in the human eye, the 120MXS captures remarkable detail 60 times greater than full high definition standards. By sharing a floating diffusion capacitance between four pixels instead of one, less space is required for the readout circuitry. This allows for larger photodiode sizes with an improved signal-to-noise ratio, without the tradeoff of long readout speeds.

Reference Standard	Effective Pixel Rows	Max Frame Rate
All Pixels	9176	9.4
8K	4320	19
4K	2160	39
FHD	1080	77

Readout Position and Frame Rate Control

The readout start position can be specified to allow flexibility in both frame rate and resolution depending on the application and required performance level. This feature allows the selection of a region of interest scalable to the final application requirements.

Optimized Pixel Design

The sensor's small pixels bring the potential for light to leak from pixel to pixel, which is known as crosstalk. When this happens, it can create color shading and inaccurate color representation that degrades image quality. To mitigate crosstalk, a wire layer has been incorporated into the sensor structure between each pixel. This creates a boundary that surrounds the pixel and keeps light from leaking between them.

Compliments of Phase 1 Technology

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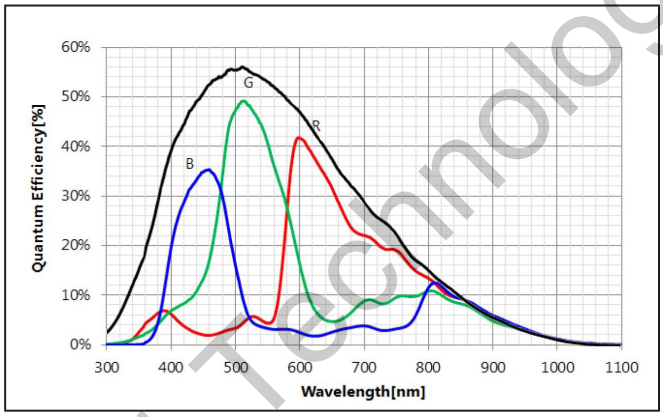
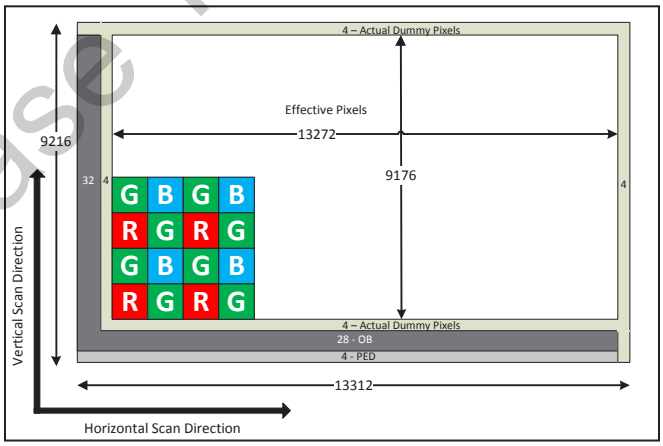
Specifications

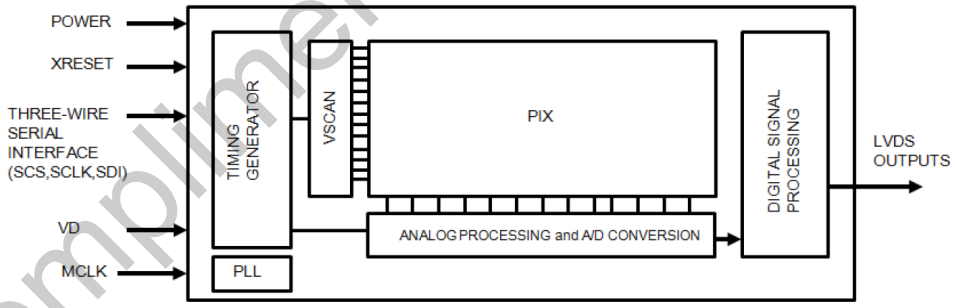
	120MXSC	120MXSM
Filter Type	RGB	Monochrome
Sensitivity	10,000 e/lx/sec	20,000 e/lx/sec
Sensor Size	29.2mm x 20.2mm	
Number of Effective Pixels	13272h x 9176v	
Pixel Size	2.2µm x 2.2µm	
Scan Type	Progressive Scan	
Shutter	Rolling Shutter	
Resistor Control Type	Serial Communication	
Package Type	188pin ceramic PGA	
Saturation	10,000 e @gain x0.5	
Conversion Gain	0.083 LSB/e- @ Gain x1	
Conversion Gain	0.67 LSB/e- @ Gain x8	
Dark Random Noise (Room Temp)	2.3e rms @ gain x8	
Dark Current	8.1e/sec @ gain x8, 60°C	
Drive Frequency	45MHz	
Output Channels	Data 28 lanes, Clock 14 lanes	
Output Format	720Mbps in LVDS output 9.4fps @ 10 bit	
Column Amplifier Gains	x0.5, x1, x2, x4, x8	
Power Consumption	2.5W	
Power Supply Voltage	1.7 V, 3.5 V	
Package Size (External Electrodes Not Included)	55.0mm x 47.8mm x 4.49mm	

Quantum Efficiency Plot



Pixel Arrangement





Applications

- Flat Panel Display Inspection
- Aerial Mapping
- Machine Vision
- Digital Archiving
- Medical
- Surveillance
- Security

Compliments of Phase 1 Technology

For more information or to contact us:
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