

The 35MMFHDXS_A CMOS sensor delivers high-sensitivity, low-noise imaging performance, even in extreme low-light environments. The sensor's pixels and readout circuitry employ technologies that reduce noise which tends to increase as pixel size increases. High sensitivity and increased well depth have been achieved through a large pixel size of 19µm x 19µm (square) with proprietary device design technologies. It is available with an RGB color filter or in monochrome.

Wide Angle of View

With a full readout resolution of 2160×1280, as compared to the 1920×1080 imaging area of full HD, this CMOS sensor can be used in applications requiring large image capture areas such as astronomy. This added resolution also provides an option for a 6:4 aspect ratio (1920×1280) used in surveillance applications and an option for a 1:1 aspect ratio (1280×1280) used in industrial applications.



Vertical Resolution (total lines)	Max Frame Rate
1280	98
1080	115
720	165
360	300

Readout Position and Frame Rate Control

The vertical readout start position can be specified to allow flexibility in both frame rate and resolution depending on the application and required performance level. Horizontal cropping must be performed in post processing. Moreover, when a high resolution is not required, vertical blanking can reduce power consumption.

Low Dark Current

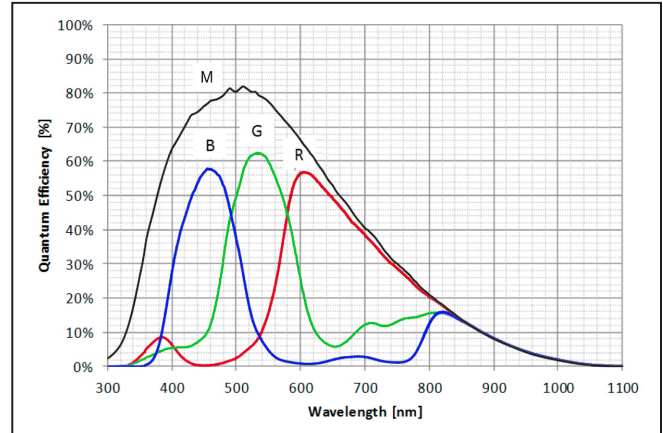
Canon has incorporated technology within this sensor to reduce dark current during long exposure times. This enables clean imaging over long exposures where only the faintest of light is present.



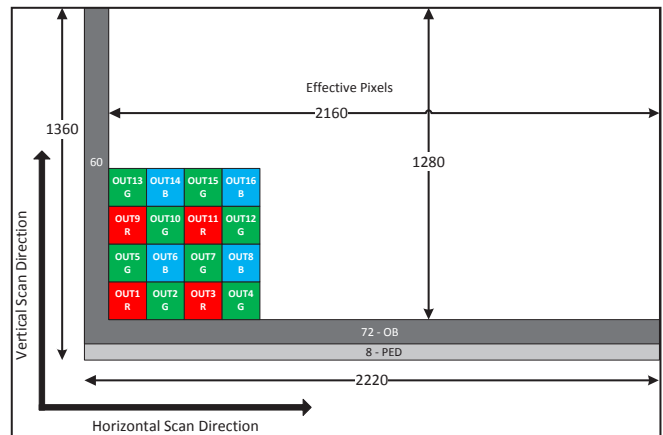
Specifications

Part Number	35MMFHDXSCA	35MMFHDXSMA
Filter Type	RGB	Monochrome
Sensitivity (e/lx/sec @gain x1)	1,100,000 (green)	2,100,000
Sensor Size	41.04mm x 24.32mm	
Number of Effective Pixels	2160h x 1280v	
Pixel Size	19 μ m x 19 μ m	
Scan Type	Progressive Scan	
Shutter	Rolling Shutter	
Maximum Frame Rate (All Pixels)	98 fps	
Register Control Type	Three Wire Serial Communication	
Package Type	180 pin ceramic PGA	
Saturation	61,000e @gain x1	
Conversion Gain	5.6 μ V/e @gain x1	
Dark Random Noise (Room Temp)	2.2e rms @gain x16	
Dark Current (-20° C)	0.003 e/sec	
Dark Current (Room Temp)	60 e/sec	
Drive Frequency	16 ch x 21 MHz (Recommended)	
Readout	Simultaneous reading of vertical 4 lines	
Output Format	16 Channel Analog Outputs (Differential)	
Column Amplifier Gains	x1, x2, x4, x8, x16	
Power Consumption	1.7W Typ. (@ all pixels readout at 60 fps)	
Power Supply Voltage	5.0 V, 3.3 V	
Package Size (External Electrodes Not Included)	60.9mm x 44.6mm x 3.57mm	

Quantum Efficiency Plot - RGB & Mono



Pixel Arrangement



Accessories

Evaluation Kit	
Hardware Included	Camera, Power Supply, USB / GPIO Cables
Filter Type	RGB or Mono
Interface	USB 3.1
Lens Mount	F-Mount
Design Assets (with NDA)	<ul style="list-style-type: none"> • Sensor board electrical design files • VHDL code for the FPGA
Sensor Socket	
Available from Andon Electronics	
<ul style="list-style-type: none"> • IS236D-00672-180-75M-R27-L14-1 (Thru-Hole Socket) • IS236D-00672-180-75M-R27-L14-HS1 (Heat Sink Socket, Thru-Hole) • IS236D-00672-180-384M-R27-L14-1 (Surface Mount Socket) • IS236D-00672-180-RB338K-R27-L14-1 (Rollerball® Surface Mount Socket) 	

Applications

- Astronomy
- Surveillance
- Security
- Industrial
- Machine Vision
- Life Sciences
- Medical

For more information visit <https://canon-cmos-sensors.com>