

The 3U5MGXSBA global shutter image sensor employs an advanced pixel design introducing drive readout and gathering structures which help significantly reduce noise, and contributing to a wide dynamic range with a power consumption of 500mW. Equipped with a 3.4 μ m pixel size and all pixel progressive reading at 120fps, the 2/3" sensor size with 5.33 million effective pixels (2592 x 2056) easily allows for applications in machine vision and other industrial environments where smaller size and high performance are required. It is available in RGB, Monochrome, and a specialized RGB-NIR color filter.

Low Power Consumption

Canon's proprietary circuit technology enables this sensor to perform at high frame rates while maintaining a low power consumption. With a power draw of only 500mW at 60fps, this sensor can be used for long periods of time in applications requiring battery-powered operation such as remote sensing on drones. The low power consumption also generates less heat, reducing the need to increase the size of the camera body for thermal management, allowing for more compact designs.



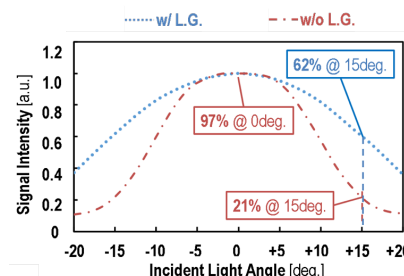
Reference Standard	Effective Pixel Rows	Max Frame Rate [fps]
All Pixels	2056	120
Full HD	1080	218
HD	720	312
VGA	480	439

Region of Interest

The 3U5MGXSBA can support up to 8 region of interest (ROI) areas, which can overlap, and which the size and position of each area can be independently defined to allow greater flexibility based on end user applications. By reducing the total amount of read information from the sensor, in either a single window, or throughout the maximum 8 ROI areas, the frame rate can also be increased to allow faster detection for more demanding applications.

New Pixel Design and Drive Technology

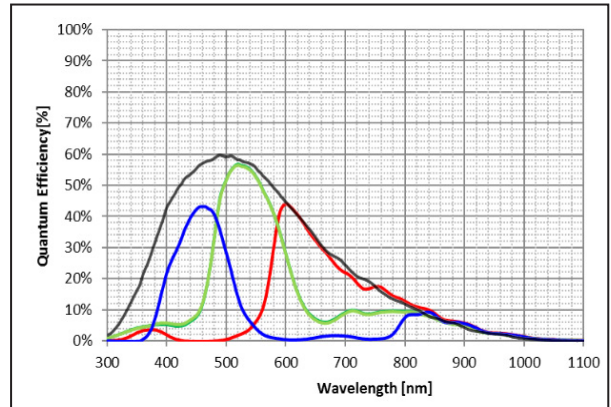
The Canon 3U5MGXSBA CMOS sensor uses a light gathering structure within the photodiode which increases its capability to convert photons from wider incident light angles. The result is a CMOS image sensor with higher sensitivity, capable of capturing high quality images even in challenging low-light situations.



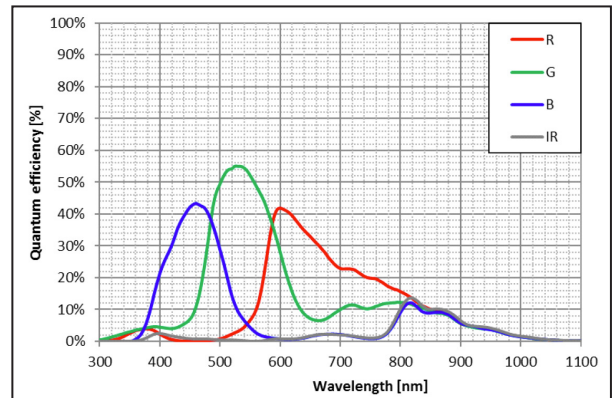
Specifications

	3U5MGXSBA C	3U5MGXSBA M	3U5MGXSBA I
Filter Type	RGB	Monochrome	RGB-NIR
Sensitivity (e-/lx/sec)	30,000 (Green)	47,000	30,000 (Green)
Sensor Size	2/3 inch equivalent (8.8mm x 7.0mm)		
Number of Effective Pixels	2592h x 2056v		
Pixel Size	3.4µm x 3.4µm		
Maximum Frame Rate	60fps - Dynamic Range Priority Mode		
	120fps - Frame Rate Priority Mode		
Scan Type	Progressive Scan		
Shutter	Global electronic shutter function		
Package Type	180 pin ceramic LGA		
Saturation (@ Analog gain 0 dB)	12,000e - Dynamic Range Priority Mode		
	7,000e - Frame Rate Priority Mode		
Analog Gain	0 to 36dB		
Digital Gain	0 to 24dB		
Conversion Gain	0.28 LSB/e @Analog gain 0 dB		
Dark Random Noise (Room Temp)	2.6e rms @ Analog gain x1		
Dark Current (Room Temp)	1.3 e/sec @Analog gain x1		
Drive Frequency	36MHz(Recommended)		
Output Format	Data 12 lanes, Clock 2 lanes with a maximum output of 864Mbps at 12 bit		
ROI	8 Regions		
Inverted Output Function	Horizontal and Vertical		
Power Consumption (Type)	500mW (Typ.) Full pixel scan at 60fps		
Power Supply Voltage	3.3V, 1.2V		
Package Size (External Electrodes Not Included)	18.96mm x 18.10mm x 2.51mm		
Exposure Control	Register setting or External Trigger		

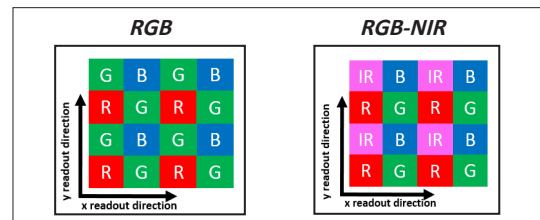
Quantum Efficiency Plot (RGB & Mono)



Quantum Efficiency Plot (RGB-NIR)



Pixel Color Filter Arrangement



Applications

- Automotive
- Drone
- Embedded Vision
- Industrial
- Inspection
- Machine Vision
- Manufacturing
- Medical
- Robot Vision
- Surveillance

Accessories

Evaluation Kit

Hardware Included	Camera, Power Supply, USB / GPIO Cables
Filter Type	RGB, Mono, or RGB-NIR
Interface	USB 3.1
Lens Mount	C-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](#)

- 698-180-TH-491-R27-L14-1 (Thru-Hole Socket)
- 698-180-SM-500-R27-L14-1 (Surface Mount Socket)
- 698-180-SM-RB593-R27-L14-1 (Rollerball® Surface Mount Socket)

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