

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 $\mu$ 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.



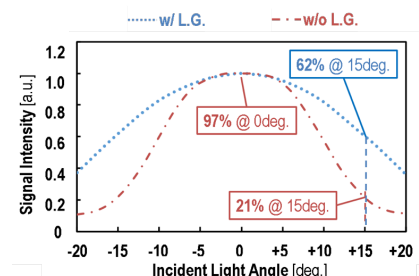
Reference Standard	Effective Pixel Rows	Max Frame Rate [fps]
All Pixels	2056	120
Full HD	1080	218
HD	720	312
VGA	480	439

### 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.



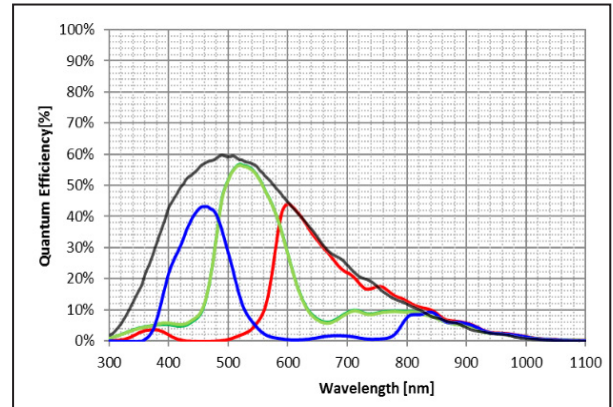
## 5MP Global Shutter CMOS Sensor

Product Sheet

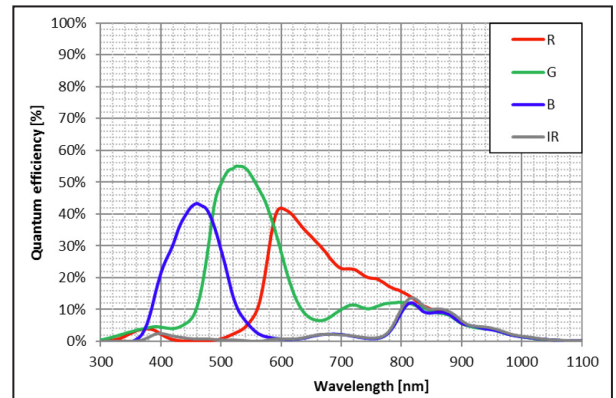
### Specifications

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

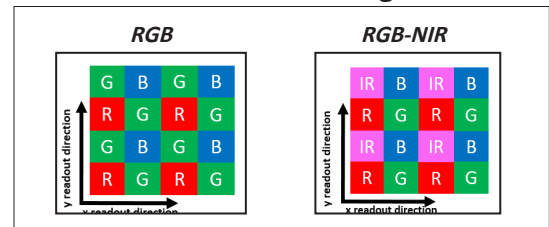
### Quantum Efficiency Plot (RGB & Mono)



### Quantum Efficiency Plot (RGB-NIR)



### Pixel Color Filter Arrangement



### Accessories

<b>Evaluation Kit</b>	
<b>Filter Type</b>	RGB, Mono, or RGB-NIR
<b>Interface</b>	USB 3.1
<b>Lens Mount</b>	C-Mount
<b>Accessories Included</b>	Power Supply, Compact Tripod, Cables
<b>Design Assets (with NDA)</b>	<ul style="list-style-type: none"> <li>Sensor board electrical design files</li> <li>VHDL code for the FPGA</li> </ul>
<b>Sensor Socket</b>	
Available from <a href="#">Andon Electronics</a>	
<ul style="list-style-type: none"> <li>698-180-TH-491-R27-L14-1 (thru-hole socket)</li> <li>698-180-SM-500-R27-L14-1 (flat foot surface mount socket)</li> <li>698-180-SM-RB593-R27-L14-1 (Rollerball® surface mount socket)</li> </ul>	

### Applications

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

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