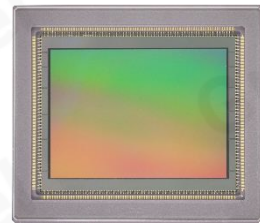


GMAX15271BSI Product Flyer

271MP ULTRA-HIGH RESOLUTION CMOS IMAGE SENSOR

GMAX15271BSI is a state-of-the-art rolling shutter CMOS image sensor engineered for ultra-high-resolution imaging, delivering 19,376 (H) × 14,000 (V) pixel resolution on a compact 35.9 mm diagonal image format.



Leveraging advanced 1.5 μm Back-Side Illuminated (BSI) pixel technology, **GMAX15271BSI** maximizes light sensitivity and spatial efficiency while maintaining exceptional image quality. It supports dual ADC modes for versatile operation. In 14-bit mode, the sensor achieves sub-electron readout noise ($0.75 e^-$) and a high dynamic range of 73.9 dB with a frame rate of 4.8 fps, for precision imaging in challenging lighting conditions. The 12-bit mode prioritizes speed, boosting the frame rate to 8.5 fps for high-throughput applications. Binning is supported in both 14-bit and 12-bit modes, with on-chip charge-domain binning in the vertical direction and off-chip digital binning in the horizontal direction. Color and monochrome variants of the sensor are packaged in a 161-pin ceramic μPGA package (41.75 mm × 35.75 mm), combining high reliability with efficient thermal management ensuring stable performance in demanding environments.

Designed for high-end industrial and scientific applications does **GMAX15271BSI** excel in tasks requiring extreme detail and dynamic range, including flat panel display (FPD) inspection, semiconductor and PCB defect detection, precision manufacturing quality control, document scanning and cultural heritage archiving, aerial mapping, pathology, and genomics.

Key Features

- 271MP resolution with 35.9 mm image diagonal
- 1.5 μm BSI rolling shutter pixel
- Rolling shutter readout with global reset
- Frame rate up to 8.5 fps

Applications

- High-end industrial inspection
- Flat panel display inspection
- Document scanning and cultural heritage archiving

Sensor Specifications

Resolution	271 MP - 19376 (H) x 14000 (V)	Optical format	2.24"
Pixel size	1.5 μm x 1.5 μm	Photosensitive area	29.1 mm x 21.0 mm
Shutter type	Rolling shutter (with global reset)	Peak QE	T.B.D
Full well capacity	5.5k e ⁻ @ 14-bit, PGA gain x1.0 5.0k e ⁻ @ 12-bit, PGA gain x1.0	Temporal noise	0.75 e ⁻ @ 14-bit, PGA gain x4.2 1.04 e ⁻ @ 12-bit, PGA gain x4.2
Max. SNR	37.4 dB @ 14-bit, PGA gain x1.0 37.0 dB @ 12-bit, PGA gain x1.0	Dynamic Range	73.9 dB @ 14-bit, PGA gain x1.0 69.3 dB @ 12-bit, PGA gain x1.0
Dark Current	2.5 e ⁻ /pixel/s @ 42 °C	ADC	14/12 bit
Maximum frame rate	4.8 fps @ 1.2G Sub-LVDS, 14-bit 8.5 fps @ 1.2G Sub-LVDS, 12-bit	Output format	32 pairs of Sub-LVDS
Power consumption	< 2.6 W @ 14-bit < 3.1 W @ 12-bit	Max. Data rate	19.2 Gbps @ Sub-LVDS, 14-bit 38.4 Gbps @ Sub-LVDS, 12-bit
Supply voltage	3.6 V for pixel 3.3 V for analog 1.8 V – 3.3 V for IO 1.2 V for digital	Channel multiplexing	32/16/8/4/2 @ Sub-LVDS
Chroma	Bayer RGB, Mono	Package	161 pins μPGA (41.75 mm x 35.75 mm)

Ordering Information

Sensor Part No.	Description
GMAX15271BSI-ABM-NUT-BUD	Monochrome, with microlens, Normal speed, 4.8 fps @ 14bit 16 x Sub-LVDS, 8.5 fps @ 12bit 32 x Sub-LVDS, Demo grade
GMAX15271BSI-ABM-NUT-BUE	Monochrome, with microlens, Normal speed, 4.8 fps @ 14bit 16 x Sub-LVDS, 8.5 fps @ 12bit 32 x Sub-LVDS, Engineering sample
GMAX15271BSI-ABC-NUT-BUD	Bayer RGB, with microlens, Normal speed, 4.8 fps @ 14bit 16 x Sub-LVDS, 8.5 fps @ 12bit 32 x Sub-LVDS, Demo grade
GMAX15271BSI-ABC-NUT-BUE	Bayer RGB, with microlens, Normal speed, 4.8 fps @ 14bit 16 x Sub-LVDS, 8.5 fps @ 12bit 32 x Sub-LVDS, Engineering sample