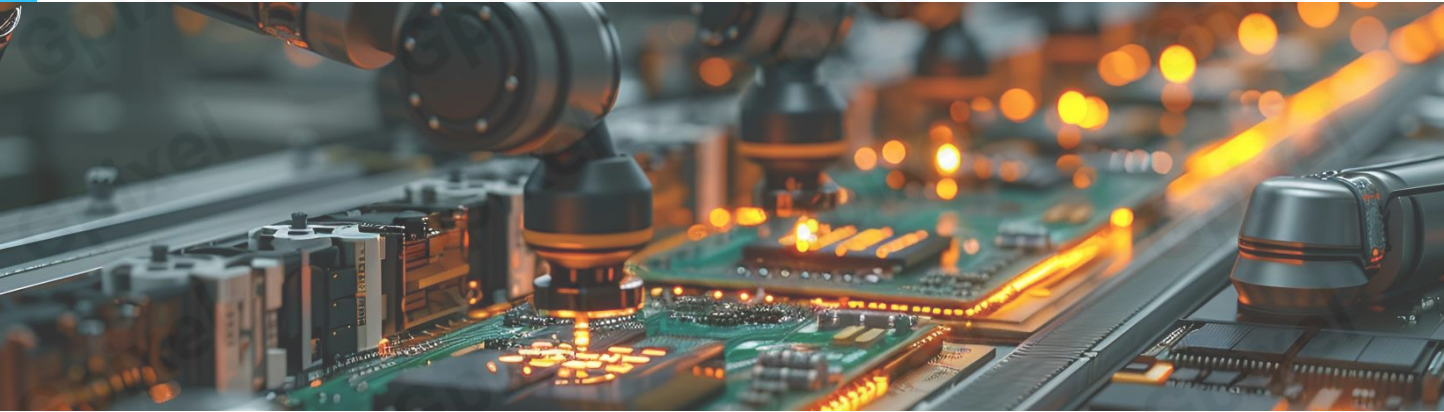


GMAX4416 Product Flyer

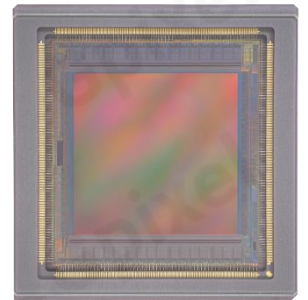


16MP GLOBAL SHUTTER CMOS IMAGE SENSOR

GMAX4416 is a 1.6" (25.5 mm) optical format CMOS image sensor with 4096 x 4096 (16.7 MP) effective pixels. Using advanced processing technology, the 4.4 μm global shutter pixel achieves a max full well capacity of 14.5 ke⁻ and min dark noise of 2.6 e⁻, delivering max 74.9 dB linear dynamic range and 41.8 dB SNR. On-chip analog binning increases the sensor full well capacity to 60.7 ke⁻ and 47.8 dB SNR. Peak quantum efficiency is 70.5% @ 530 nm and 30% @ 850 nm due to its optimized NIR process.

GMAX4416 can reach 80 fps frame rate in 12-bit standard high-speed mode with 32 pairs 600Mbps sub-LVDS. It also supports 2x2 binning mode and a 2x2 binning HDR mode with frame rates of 42 fps and 80 fps respectively.

GMAX4416 is housed in 152 pin ceramic μPGA package, 31.70 mm x 30.40 mm outer dimensions.



Key Features

- 4.4 μm charge domain global shutter pixel
- 16MP resolution
- 1:1 aspect ratio
- Binning HDR mode
- Near infrared enhancement
- Maximum frame rate: 80 fps

Applications

- Aerial mapping
- Motion capture
- AOI inspection

Sensor Specifications

Resolution	16 MP - 4096 (H) x 4096 (V)	Optical format	1.6"
Pixel size	4.4 μm x 4.4 μm	Photosensitive area	18.0 mm x 18.0 mm
Shutter type	Global shutter	Parasitic Light Sensitivity	< - 91 dB (angular dependence)
Peak QE	70.5% @ 550 nm	Angular response	> 15° (80% response)
Full well capacity	14.5 ke- @ STD&HDR, PGA gain x1.0 60 ke- @ Binning_HDR, PGA gain x0.75	Temporal noise	2.9 e- @ STD, PGA gain x6.0 2.6 e- @ HDR, PGA gain x8.25 6.1 e- @ Binning_HDR, PGA gain x6.0
Max. SNR	41.6 dB	Dynamic Range	68.1 dB @ STD 74.9 dB @ HDR 79.9 dB @ Binning_HDR
Dark Current	6.2 e-/s/pixel @ 35°C @ STD&HDR 24.7 e-/s/pixel @ 35°C @ Binning_HDR	ADC	12 bit
Maximum frame rate	80 fps @ STD mode 42 fps @ HDR mode 80 fps @ Binning_HDR mode	Output format	16 pairs of Sub-LVDS
Power consumption	<1.5 W	Max. Data rate	19.2 Gbps
Supply voltage	3.3 V for analog 1.8 V - 3.3 V for IO 1.2 V for digital	Channel multiplexing	32/16/14/12/10/8/6/4/2/1
Chroma	Bayer RGB, Mono	Package	152 pins μPGA 31.7 mm x 34.0 mm

Ordering Information

Sensor Part No.	Description
GMAX4416-AVM-NUT-BUD	Monochrome, Normal speed, 80 fps @ STD mode, 42 fps @ HDR mode, 80 fps Binning-HDR mode, Demo grade
GMAX4416-AVC-NUT-BUD	Bayer RGB, Normal speed, 80 fps @ STD mode, 42 fps @ HDR mode, 80 fps Binning-HDR mode, Demo grade