

# GMAX4002 Product Flyer



## 2.4MP GLOBAL SHUTTER IMAGE SENSOR

GMAX4002 is a 1/1.7" optical format image sensor with 2048 x 1200 effective pixels. Featuring an advanced charge domain global shutter pixel, GMAX4002 operates with true CDS for low noise and high dynamic range. Gpixel's Red Fox technology is employed to deliver enhanced QE for NIR applications.

GMAX4002 is configurable through I2C. It integrates both Sub-LVDS and MIPI interfaces, for frame rates of up to 344 fps and 166 fps respectively. GMAX4002 supports 2x2 on-chip binning to achieve higher sensitivity and faster frame rate. It includes an on-chip sequencer and OTP functions. Assembled with 74-pin CLCC package, GMAX4002 enables a cost-effective camera solution, easy integration and high-reliability mass production. GMAX4002 is offered in two speed grades: a normal speed grade offering sub LVDS in 10 and 12-bit modes as well as a MIPI mode in 10 bit and a high-speed variant with increase sub-LVDS interface speed of 1200 Mbps to achieve 344 fps in 10-bit mode.

### Key Features

- On-chip sequencer
- I2C control
- Sub-LVDS and MIPI Data Interfaces
- One Time Programmable (OTP) Memory
- High-speed and low PLS

### Applications

- Machine Vision Inspection
- Logistics Bar Code Readers
- Intelligent Traffic Systems
- Motion capture
- Sport and Entertainment

## Sensor Specifications

Resolution	2048 (H) x 1200 (V)	Optical format	1/1.7" (9.5 mm)
Pixel size	4 x 4 $\mu\text{m}^2$	Photo-sensitive area	8.2 x 4.8 mm <sup>2</sup>
Shutter type	Global shutter	Quantum efficiency	72% @ 550 nm 37% @ 850 nm
Full well capacity	12.8 ke <sup>-</sup> @ 10 bit 10,8 ke <sup>-</sup> @ 10 bit (HS)	Parasitic Light sensitivity	< -92 dB
Dark noise	2.65 e <sup>-</sup> @ 12 bit 2.95 e <sup>-</sup> @ 10 bit (HS)	SNR max	41.1 dB 40.4 dB (HS)
Dynamic range	64.8 / 68.8 dB @ 10 / 12 bit 64.6 dB @ 10 bit (HS)	Frame rate	229 fps (Sub-LVDS @10 bit) 195 fps (Sub-LVDS @12 bit) 166 fps (MIPI @10 bit) 660 fps (2x2binning) - HS
Output interface	Sub-LVDS: 8 ch + 1 clk MIPI CSI-2 DPHY: 4 ch + 1 clk	Channel multiplexing	8/4/2/1 @ Sub-LVDS
Interface Speed	Sub-LVDS: 800 Mbps MIPI: 1200 Mbps Sub-LVDS: 1200 Mbps (HS)	Max. Data rate	6.4 Gbps Sub-LVDS @ 10-bit 9.6 Gbps Sub-LVDS @ 10-bit (HS)
ADC	10/12 bit 10 bit (HS)	Register control	I <sup>2</sup> C
Chroma	Mono NIR & Color	Power consumption	0.5 W
I/O voltage	1.8 V - 3.3 V	Package	12.9 x 16.6 mm <sup>2</sup> CLCC 74 pins

## Ordering Information

### Sensor Part No.

#### GMAX4002-AVM-NCV-AUD

Mono NIR, CLCC package, 229/195 @ 10/12 bit LVDS, 166 fps @10 bit MIPI, Demo grade

#### GMAX4002-AVC-NCV-AUD

Color, CLCC package, 229/195 @ 10/12 bit LVDS, 166 fps @10 bit MIPI, Demo grade

#### GMAX4002-AVM-HCV-AUD

High Speed, Mono NIR, CLCC package, 344 fps @ 10 bit LVDS, Demo grade

#### GMAX4002-AVC-HCV-AUD

High Speed, Color, CLCC package, 344 fps @ 10 bit LVDS, Demo grade

### EVK Part No.

#### E-GMAX4002-01-1

USB interface, 3 stacked PCB boards.

## Contact Gpixel HQ

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