

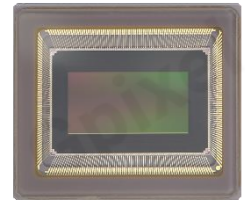
# GMAX2509 Product Flyer



## 9MP GLOBAL SHUTTER CMOS IMAGE SENSOR

Featured with world smallest charge domain global shutter pixel, **GMAX2509** is the new member of GMAX series C mount line up after **GMAX0505**. It offers 4K(4200 x 2160) resolution in 2/3" optical format, operates with true CDS for low noise and high dynamic range. In addition, it has excellent PLS and angular response thanks to the light pipe technology.

**GMAX2509** supports 10 bit and 12 bit output and is offered in two speed variances matching industrial standard camera interface speeds. The full speed version consists of 32 sub-LVDS data output channels and each runs at maximum 960MHz, offering frame rate of 290 fps at 10 bit. The global shutter and high frame rate limits image blur for 4K video applications and intelligent traffic system and increases throughput for industrial inline inspections.



### Key Features

- 2.5 um Global Shutter pixel
- High resolution GS in 2/3" optical format
- High data throughput up to 30.72 Gbps
- Low noise global shutter
- Good PLS and CRA

### Applications

- Industrial inspection
- Intelligent Traffic Systems (ITS)
- Video Broadcasting
- Bar coding
- Medical application
- Motion Capture

# Sensor Specifications

|                           |  |                                    |  |
|---------------------------|--|------------------------------------|--|
| <b>Resolution</b>         | 9.0 MP - 4200(H) x 2160(V)   | <b>Optical format</b>              | 2/3"   |
| <b>Pixel size</b>         | 2.5 $\mu\text{m}$ x 2.5 $\mu\text{m}$                                | <b>Photosensitive area</b>         | 10.5 mm x 5.4 mm   |
| <b>Shutter type</b>       | Global shutter   | <b>Parasitic Light Sensitivity</b> | < - 80 dB (angular dependence)                                 |
| <b>Peak QE</b>            | 65.5% @ 500 nm   | <b>Angular response</b>            | > 13° (80% response)   |
| <b>Full well capacity</b> | 6.7k e- @ PGA gain x1.0  | <b>Temporal noise</b>              | 1.8 e- @ 12-bit, PGA gain x4<br>3.9 e- @ 10-bit, PGA gain x2   |
| <b>Max. SNR</b>           | 38.2 dB @ PGA gain x1.0  | <b>Dynamic Range</b>               | 65.5 dB @ 12-bit, PGA gain x2<br>62.1 dB @ 10-bit, PGA gain x2 |
| <b>Dark Current</b>       | 1.2 e-/pixel/s @ 30 °C   | <b>ADC</b>                         | 10/12 bit  |
| <b>Maximum frame rate</b> | 290 fps @ 10 bit<br>121 fps @ 12 bit                                 | <b>Output format</b>               | 32 pairs of Sub-LVDS   |
| <b>Power consumption</b>  | <0.9 W @ 12 bit<br><1.2 W @ 10 bit                                   | <b>Max. Data rate</b>              | 30.72 Gbps   |
| <b>Supply voltage</b>     | 3.3 V /1.3 V for analog<br>1.8 V - 3.3 V for IO<br>1.3 V for digital | <b>Channel multiplexing</b>        | 32/16/12/8/4/2   |
| <b>Chroma</b>             | Bayer RGB, Mono  | <b>Package</b>                     | 226 pins LGA<br>20.3 mm x 17.5 mm                              |

# Ordering Information

| Sensor Part No.      | Description  |
|----------------------|--|
| GMAX2509-BVM-HLT-AU1 | Monochrome, LGA1, High speed, 290 fps @ 10bit 32 x Sub-LVDS, Grade 1   |
| GMAX2509-BVM-NLT-AU1 | Monochrome, LGA1, Normal speed, 121 fps @ 12bit 16 x Sub-LVDS, Grade 1 |
| GMAX2509-BVC-HLT-AU1 | Bayer RGB, LGA1, High speed, 290 fps @ 10bit 32 x Sub-LVDS, Grade 1    |
| GMAX2509-BVC-NLT-AU1 | Bayer RGB, LGA1, Normal speed, 121 fps @ 12bit 16 x Sub-LVDS, Grade 1  |
| GMAX2509-BVM-HST-AU1 | Monochrome, LGA2, High speed, 290 fps @ 10bit 32 x Sub-LVDS, Grade 1   |
| GMAX2509-BVM-NST-AU1 | Monochrome, LGA2, Normal speed, 121 fps @ 12bit 16 x Sub-LVDS, Grade 1 |
| GMAX2509-BVC-HST-AU1 | Bayer RGB, LGA2, High speed, 290 fps @ 10bit 32 x Sub-LVDS, Grade 1    |
| GMAX2509-BVC-NST-AU1 | Bayer RGB, LGA2, Normal speed, 121 fps @ 12bit 16 x Sub-LVDS, Grade 1  |