

# OG09A

## 9-megapixel product brief

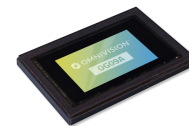
### 9-Megapixel Global Shutter Image Sensor for Industrial Machine Vision Applications

The OG09A is a large format 9-megapixel (MP) CMOS global shutter (GS) sensor with high precision and accurate control for factory automation and intelligent transportation systems. The large-pixel, 3.45-micron ( $\mu\text{m}$ ) backside-illuminated (BSI) stacked global shutter sensor has low readout noise and the highest quantum efficiency (90% QE) in its class. It delivers excellent image performance with a frame rate of 60 fps at 12-bit and enhanced shutter efficiency of 106 dB, making it ideal for machine vision applications that require the ability to capture clear images of high-speed moving objects.

The OG09A has a 1-inch optical format. The sensor is based on OMNIVISION's patented PureCel®Plus-S stacked-die architecture for best-in-class image sensor performance. The OG09A features Nyxel® near-infrared (NIR) technology for crisp, clear images in low-light conditions. It offers 76 dB dynamic range with Dual Conversion Gain High Dynamic Range (DCG™ HDR) support. An external trigger mode enables backend exposure control for improved accuracy.

The OG09A supports a 16-lane LVDS interface to 1.05 Gbps.

Find out more at [www.ovt.com](http://www.ovt.com).



- OG09A10-C04A-001A-Z (color, lead-free) 304-pin CLGA package
- OG09A1B-C04A-001A-Z (b&w, lead-free) 304-pin CLGA package

## Applications

- intelligent transportation systems (ITS)
- factory automation (FA)
- machine vision cameras
- industrial bar code scanning
- robotics

## Technical Specifications

- active array size:** 4096 x 2160
- maximum image transfer rate:**
  - 9MP (4096 x 2160): 60 fps @ 12-bit
  - DCG HDR mode: 30 fps @ 12-bit
- power supply**
  - analog: 2.8V
  - digital: 1.2V
  - I/O pads: 1.8V
- power requirements:**
  - active: 670 mW (typical)
- output interfaces:** 4/8/16-lane LVDS
- temperature range:**
  - operating: -30°C to +85°C junction temperature
  - stable: 0°C to +70°C junction temperature
- output formats:** 10-bit/12-bit RAW
- lens size:** 1"
- lens chief ray angle:** 8° linear
- pixel size:** 3.45 μm x 3.45 μm
- image area:** 14131.2 μm x 7452 μm

## Product Features

- 3.45 μm high sensitivity PureCel®Plus-S, Global Shutter pixel, with dual conversion gain (DCG) and enhanced NIR QE (Nyxel®)
- on sensor DCG high dynamic range (HDR)
- dual exposure readout, with external trigger mode
- horizontal / vertical 2x2 sub-sampling
- supports ROI read out modes up to 8x8 windows
- embedded frame counter feature
- dynamic defective pixel cancellation (DPC) and OTP DPC
- automatic black level correction
- up to 16-channel sub-LVDS high speed serial interface
- SCCB for register programming
- SPI for register (0x0000-0x7FFF) programming
- external frame synchronization capability
- embedded temperature sensor
- one-time programmable (OTP) memory
- 12-bit A/D converter
- real slave mode

## Functional Block Diagram

