

OH01A10 1-megapixel product brief



lead free

available in a lead-free package

High-Definition, Compact and Cost-Effective Medical Image Sensor for Single-Use and Reusable Endoscopes and Catheters

OmniVision's OH01A10 image sensor leverages PureCel®Plus-S stacked-die architecture to provide the high resolution, compact size and cost effectiveness required for the next generation of disposable and reusable endoscopes and catheters. The OH01A10 is the world's first medical image sensor to capture 1280 x 800 resolution at 60 frames per second (fps) in a compact 2.5 x 1.5 mm package.

These features make it ideal for many endoscopic devices, including those used in airway management (esophagoscopes, laryngoscopes, thorascopes, pleuroscopes, bronchoscopes, mediastinoscopes); gastrointestinal (gastroscopes, duodenoscopes, amnioscopes); and urology (utero-renoscope) applications.

Compared with previous-generation sensors, the OH01A10 consumes 25% lower power, which keeps the distal tip of the endoscope cooler for greater patient comfort. A high chief ray angle of 32 degrees enables a slimmer module and a wider field of view for flexible endoscopes with tight bend radius and close-focus requirements. Two OH01A10 image sensors can be synchronized to produce stereo, 3D images for surgical procedures.

The OH01A10 has a 1/11-inch optical format and a 1.12-micron pixel size. The sensor supports multiple resolution formats and frame rates with RAW output, including 720p HD at 60 fps in a 16:9 aspect ratio and 800 x 800 at 60 fps for a 1:1 square image for a crisp, jitter-free image. The sensor delivers the highest-quality images with improved sensitivity, high full-well capacity, no blooming and low color crosstalk.

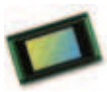
Additionally, it supports both MIPI and sub-LVDS output interfaces to transmit image data. It also integrates one-time-programmable (OTP) memory to store manufacturing and calibration information.

The OH01A10 can be autoclaved for reusable devices and sterilized for disposable ones.

Find out more at www.ovt.com.

OmniVision

OH01A10



Applications

- Medical, Veterinarian, Industrial, and Video Microscopes

Product Features

- highest resolution in small die size
- best image quality
- high frame rate for jitter-free images
- PureCel® high color fidelity
  - high FWC with less saturation
  - best low light sensitivity
  - almost no blooming
  - low noise
  - better color crosstalk
  - higher QE performance
- supports images sizes:
  - 1MP (1280x800)
  - 720p (1280x720)
  - 800 x 800
  - VGA (640x480)
  - 400 x 400, and more
- output format can be 8/10-bit RGB RAW
- stereo ready (frame sync)
- sync light source (strobe)
- horizontal and vertical subsampling
- low power
  - more than 25% lower power than previous generation
  - low power mode for subsampling modes (<10 mW)
- on-chip phase lock loop (PLL)
- 2x2 analog binning
- image quality controls:
  - lens shading
  - denoise
  - manual exposure
  - gain control
  - defect pixel correction
  - automatic black level calibration
- group hold

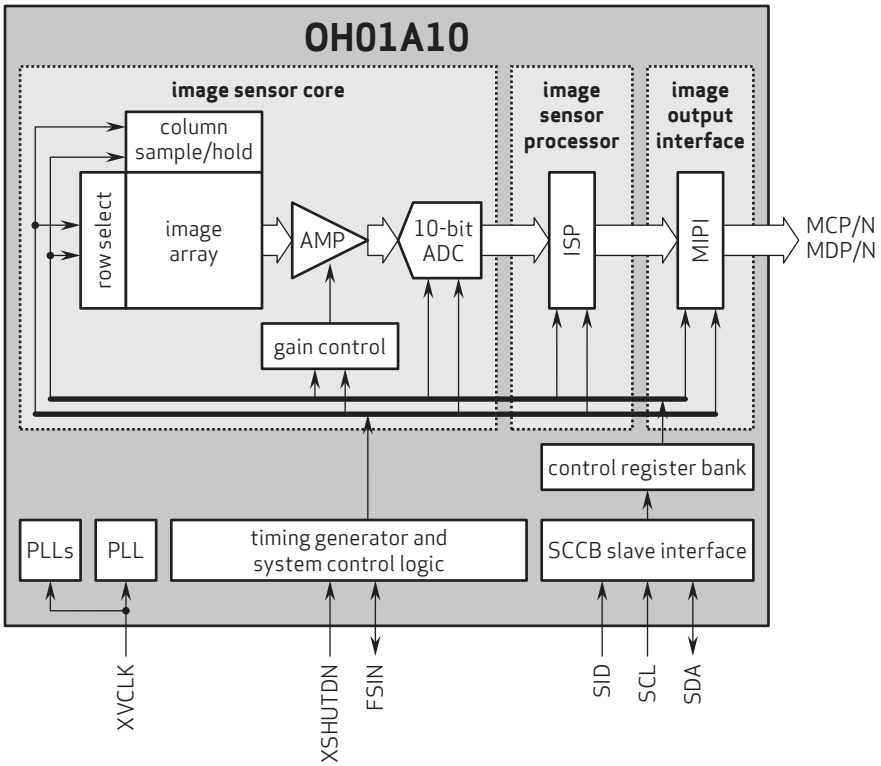
Ordering Information

- **OH01A10-A16A-1A**
  (color, lead-free) 16-pin CSP

Product Specifications

- **active array size:** 1280 x 800
- **maximum image transfer rate:**
  - **1MP (1280x800):** 60 fps
  - **800 x 800:** 60 fps
  - **400 x 400:** 90 fps
- **power supply:**
  - **analog:** 2.7 - 3.0V (2.8V nominal)
  - **core:** 1.14 - 1.26V (1.2V nominal)
  - **I/O:** 1.7 - 1.9V (1.8V nominal)
- **power requirements:**
  - **active:** 82.2 mW
  - **standby:** 0.5 mA
  - **XSHUTDN:** 2 µA
- **temperature range:**
  - **operating:** -30°C to +85°C junction temperature
  - **stable:** 0°C to +60°C junction temperature
- **output interface:** 1-lane MIPI serial output/LVDS
- **output formats:** 10-bit RGB RAW
- **lens chief ray angle:** up to 32° non-linear
- **lens size:** 1/11"
- **pixel size:** 1.116 µm x 1.116 µm
- **image area:** 1446.34 µm x 910.66 µm
- **die dimensions:**
  - **CSP:** 2533 µm x 1534 µm

Functional Block Diagram



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