OH02A10 1080p product brief

Best-In-Class Image Quality and High Frame Rate 1080p High Definition Video Capture for Endoscopic Applications

available in a lead-free package

OmniVision's OH02A10 image sensor leverages 1.4-micron PureCel® pixel architecture to deliver best-in-class image quality and high frame rate in full 1080p high definition (HD) video to endoscopic applications, such as urology, laparoscopy, gynecology, cardiology and surgery.

By using PureCel® pixel architecture, the OH02A10 offers the highest-quality imaging capabilities with improved sensitivity and quantum efficiency, high full-well capacity, low color crosstalk, and minimal blooming and noise. The OH02A10's broadband double anti-reflective coating reduces flare in the visible and near-infrared spectrums, which is typically caused by strong ancillary illumination during surgical operations.

The compact OH02A10 is capable of recording full 1080p HD video at 60 frames per second (fps) or 720p HD video at 90 fps to ensure clear scene reproduction with minimal motion artifacts. The sensor supports interlaced high dynamic range (HDR), which enables clear image capture with less saturation

and excellent low light sensitivity in difficult high and low lighting situations. The OH02A10 is also stereo-ready with frame synchronization for 3D surgical applications.

OmniVision's OH02A10 consumes just 90 mW when recording 1080p HD video at 60 fps, which helps reduce heat generation at the distal tip of the endoscope to improve patient comfort and simplify design.

The OH02A10 is available in an 1/6-inch optical format and a compact 3.8 x 2.9 mm chip scale package (CSP). This sensor can be autoclaved and sterilized for reusable and single-use applications respectively.

Find out more at www.ovt.com.

Applications

- Medical Endoscopes
- Veterinarian Endoscopes
- Dental Equipment
- Industrial Endoscopes

OH02A10

Product Features

- 1.4 μm x 1.4 μm pixel
- optical size of 1/6"
- programmable controls for:
  - frame rate
  - mirror and flip
  - cropping
  - windowing
- supports output formats:
  - 10-bit RAW data
- supports images sizes:
  - 1080p (1920x1080)
  - 720p (1280x720)
  - VGA (640x480)
  - QVGA (320x240)
  - QQVGA (160x120)
- supports 2x2 binning
- standard serial SCCB interface
- up to 2-lane MIPI serial output interface (supports maximum speed up to 1000 Mbps/lane)
- embedded 2 kilobits of one-time programmable (OTP) memory for customer use
- add staggered HDR raw data output
- interleave row high dynamic range (iHDR) output
- programmable I/O drive capability
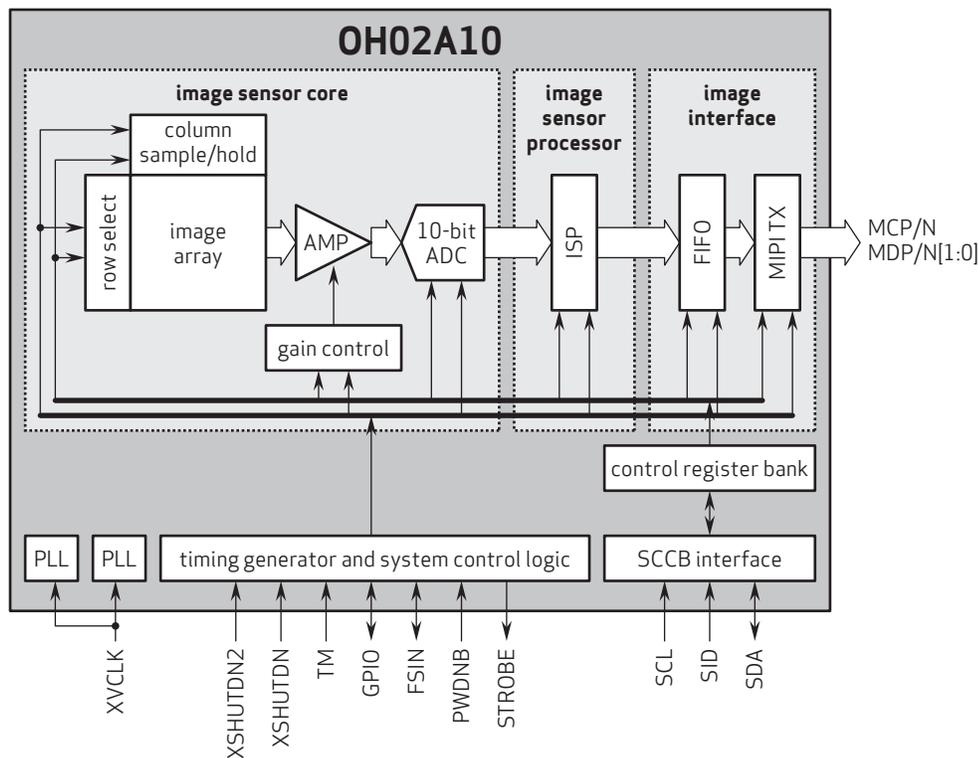- support for LENC color shading correction

Product Specifications

- **active array size:** 1920 x 1080
- **power supply:**
  - **core:** 1.2V
  - **analog:** 2.8V
  - **I/O:** 1.8V
- **power requirements:**
  - **active:** 90 mW
  - **standby:** 210 μA
  - **XSHUTDN:** 0.6 μA
- **temperature range:**
  - **operating:** -30°C to +85°C junction temperature
  - **stable image:** 0°C to +60°C junction temperature
- **output format:** 10-bit RGB RAW
- **lens size:** 1/6"
- **input clock frequency:** 6 - 27 MHz
- **lens chief ray angle:** 33° non-linear
- **max S/N ratio:** 38.3 dB
- **dynamic range:** 73.3 dB @ 15.5x gain
- **maximum image transfer rate:**
  - **1080p:** 60 fps
  - **720p:** 90 fps
- **sensitivity:** 553 mV/Lux-sec (6750 e-/Lux.sec)
- **scan mode:** progressive
- **maximum exposure interval:** $1112 \times t_{ROW}$
- **pixel size:** 1.4 μm x 1.4 μm
- **image area:** 2728.8 μm x 1549.8 μm
- **package dimensions:**
  - **CSP:** 3855 μm x 2919 μm

Functional Block Diagram

OmniVision®