OS02H10 1080p product brief

lead free

available in a lead-free package

1080p Image Sensor Brings Premium Performance to Mainstream Surveillance Market with Nyxel® NIR and PureCel®Plus Ultra Low Light Technologies

OmniVision's OS02H10 is a 2.9 micron, 1080p image sensor that provides a high value option for adding the premium near-infrared (NIR) and ultra low light performance of its Nyxel® and PureCel®Plus technologies to mainstream surveillance cameras. This sensor also offers multiple high dynamic range (HDR) options for the best quality 1080p still and video captures of fast-moving objects at 60 frames per second.

The OS02H10 provides a high value option for adding premium NIR, ultra low light and HDR performance to high volume, mainstream security systems with AI functionality. It also offers an ultra low power mode that consumes 97.7% less power than the normal mode to support long battery life.

By combining OmniVision's industry-leading NIR Nyxel® technology with its PureCel®Plus technology and multiple HDR options, the OS02H10 works equally well in all lighting conditions. It can detect incident light in both the visible and NIR wavelengths, while producing precise color and monochrome images for security applications. The PureCel®Plus pixel architecture provides a

superior low-noise design, enabling the OS02H10 to offer an SNR1 that is 70% better than OmniVision's prior-generation 1080p, 2.8 micron mainstream security sensor.

Nyxel® technology infuses the OS02H10 with exceptional quantum efficiency (QE), which enables it to see better and farther at both the 850 nm and 940 nm NIR wavelengths. Such excellent QE also enables the use of lower-power IR illumination in total darkness, resulting in significantly reduced system-level power consumption. Additionally, 940 nm NIR lighting cannot be detected by the human eye in dark indoor settings, while 850 nm light is ideal for outdoor security cameras. The OS02H10's ability to capture crisp, clear images using undetectable 940 nm NIR light means that indoor security cameras will not disturb sleeping occupants and can be easily concealed from intruders.

Find out more at www.ovt.com.

OmniVision®

Applications

- Security Surveillance Systems
- HD Analog Cameras
- IP Cameras

OS02H10

Product Features

- supports image sizes:
  - 1920 x 1080
  - 960 x 540
  - 480 x 270
- supports windowing function
- supports mirror and flip functions
- supports auto black level calibration
- supports defective pixel correction
- supports black sun cancellation

- SCCB control interface for register programming
- supports high dynamic range with 2-exposure staggered HDR mode
- supports vertical 1x2 color binning and horizontal 1x2 color binning function
- supports MIPI 1-lane or 2-lane serial 10-bit/12-bit RAW image data output
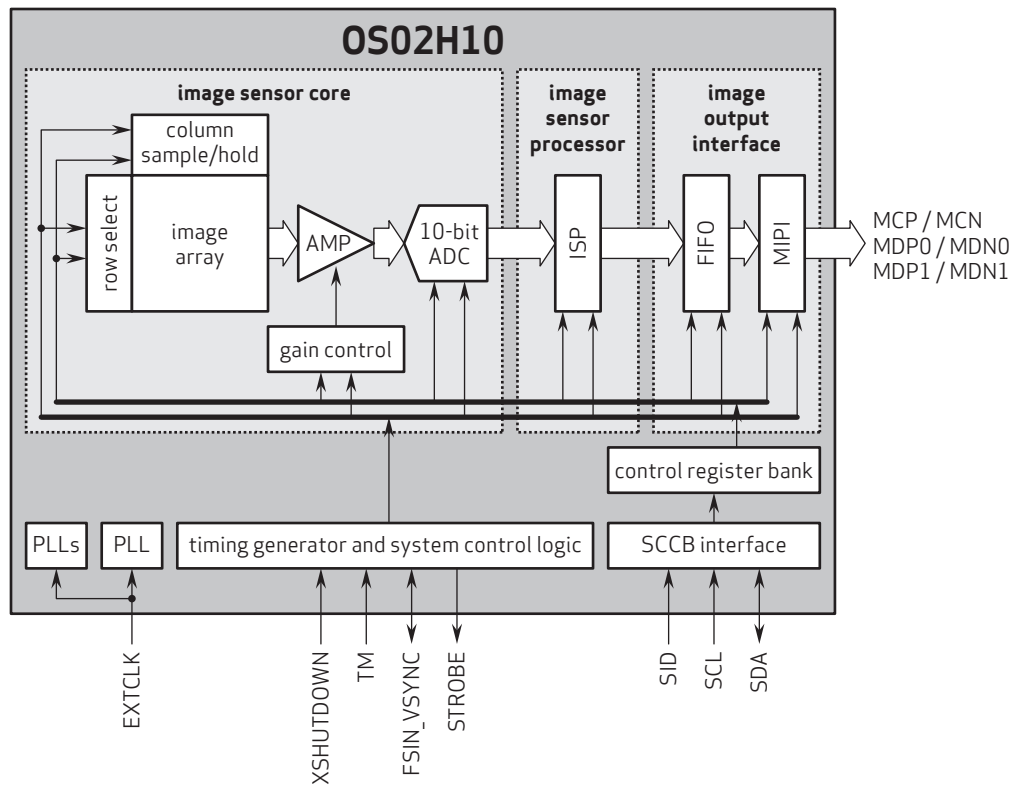- supports multi-camera synchronous function

Technical Specifications

- **active array size:** 1920 x 1080
- **maximum image transfer rate:**
  - **1920 x 1080:** 60 fps
- **power supply:**
  - **core:** 1.2V
  - **analog:** 2.8V
  - **I/O:** 1.8V
- **power requirements:**
  - **active:** <110 mW
  - **XSHUTDOWN:** <10 µA
- **output interfaces:**
  MIPI 1/2-lane / LVDS

- **temperature range:**
  - **operating:** -30°C to +85°C junction temperature
  - **stable image:** -20°C to +60°C junction temperature
- **lens size:** 1/2.8"
- **lens chief ray angle:** 9° linear
- **output formats:** RAW10/RAW12 RGB
- **shutter:** rolling
- **pixel size:** 2.9 µm x 2.9 µm
- **image area:** 5587.34 µm x 3153.02 µm

Functional Block Diagram

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