



OCHTA

400 x 400 product brief



Medical Wafer-Level Camera Module Improves Image Quality for Single-Use Endoscopy in Smallest Parts of Anatomy

OMNIVISION's OVMed® OCHTA camera module quadruples the resolution of its predecessor, at 400 x 400, or 160 Kpixels, for clearer images inside the body's farthest recesses. This module features the CameraCubeChip® wafer-level technology, enabling it to match the world's smallest size of its predecessor, at 0.65 mm x 0.65 mm, for deep anatomical access. This technology also allows for the integration of OMNIVISION's small size, higher-resolution OHOTA image sensor, along with signal processing and wafer-level optics in a single compact package. With OCHTA camera modules, endoscope, catheter and guidewire OEMs can now develop mass-produced, single-use devices with 1-2 mm optical diameters and higher resolution to address the many challenges posed by reusable equipment, including cross-contamination risks and high maintenance costs.

This ultra-small "chip on tip" camera module features backside illumination (BSI), which provides excellent image quality and better low-light performance to help reduce LED heat and improve sensitivity. Additionally, with OMNIVISION's economical CameraCubeChip® wafer-level packaging technology, the OCHTA makes possible the mass production of high-resolution, single-use medical imaging equipment.

This module's small size enables devices that can reach deep into the body for neuro, ophthalmic, ENT, cardiac, spinal, urology, gynecology and arthroscopy procedures, as well as dental and veterinary diagnosis and surgery. Furthermore, unlike traditional cameras, all CameraCubeChip® modules are reflowable, for mounting to a printed circuit board simultaneously with other components using automated surface-mount assembly equipment, increasing quality while reducing assembly costs.

The integrated OHOTA image sensor is built on OMNIVISION's PureCel®Plus-S stacked die technology, enabling this module's increased resolution at 30 frames per second. Additionally, this next-generation pixel technology provides higher color fidelity and excellent low light sensitivity of 3600 mV/lux-sec, along with a high signal-to-noise ratio of 37.5 dB for crisper images. It also offers full well capacity (FWC), zero blooming and 20% lower power consumption of 20 mW for greater patient comfort and longer procedure durations, while reducing noise for crisper images. These images are further improved by the sensor's exposure and gain control settings, which allow endoscope designers to fine-tune captures—prior to processing—for the best possible video quality under the lighting conditions of specific procedures.

Find out more at www.ovt.com.



- OCHTA10-RALA-001A (color, lead-free)
4-pin CameraCubeChip® with AntLinX™

Applications

- single-use medical, dental, veterinarian, and industrial endoscopes

Technical Specifications

- active array size: 400 x 400
- frame rate:
 - 160 Kpixel (400 x 400): 30 fps
- power supply:
 - analog: 3.3V ±5%
- power requirements:
 - 25 mW (with I/O consumption)
- temperature range:
 - operating: -20°C to +70°C junction temperature
 - stable image: 0°C to +50°C junction temperature
- output formats:
 - AntLinX™ Analog signal output
- optical size: 1/31"
- diagonal field-of-view (FOV): 120° ±6° (350 x 350)
- f no.: 2.8
- focal length: 0.175 mm
- scan mode: progressive
- color mosaic: RGB Bayer pattern
- pixel size: 1.008 μm x 1.008 μm
- image area: 411.264 μm x 411.264 μm
- package dimensions (including ball height): 650 x 650 x 1198 μm

Product Features

- optical size of 1/31"
- PureCel®Plus-S pixel structure
- improved sensitivity, FWC, zero blooming, low noise, and low power consumption
- non-autoclavable
- AntLinX™ Analog output
- single 3.3V power supply
- on-chip PLL
- serial peripheral interface (SPI)
- exposure and gain control
- pseudo-global shutter (LED mode)
- enhanced NIR sensitivity
- square aspect ratio
- minimum package size (total 4 pads)
- 4 m drive distance

Functional Block Diagram

