



OVM7695

VGA product brief



Compact VGA CameraCubeChip® for Front-Facing Cameras in Mobile Devices

The OVM7695 is an ultra compact VGA CameraCubeChip® designed specifically to meet the performance and manufacturing requirements of front-facing camera applications for next-generation mobile devices. The only VGA camera using backside illumination (BSI) pixel technology, the reflowable OVM7695 is a high-performance, all-in-one complete camera solution with a module size of 2.4 x 2.4 x 2.3 mm.

The OVM7695 offers an easy-to-use front-facing camera solution that requires minimal assembly and tuning effort. This dramatically simplifies design, integration and manufacturing of mobile phone cameras, thus reducing inventory risk and lowering development costs.

The 1/13-inch OVM7695 is built on an optimized 1.75-micron OmniBSI™+ pixel, offering improved sensitivity and image reproduction to deliver optimal performance in difficult lighting conditions. The OVM7695 captures high-quality VGA video at 30 frames per second and provides full-frame, sub-sampled and cropped images in various formats through the Serial Camera Control Bus (SCCB) interface.

It supports all required image processing functions, including exposure control, gamma, white balance, color saturation and noise and defective pixel canceling. It uses OMNIVISION's proprietary sensor technology to improve image quality by reducing or eliminating common lighting and electrical sources of image contamination to produce a clean, fully stable color image.

Find out more at www.ovt.com.



- **OVM7695-RAEA** (color, lead free)
17-pin CameraCubeChip® with black coating
- **OVM7695-RYEA** (color, lead free)
17-pin CameraCubeChip® with metal can

Applications

- wearable devices
- security and surveillance
- toys and games
- cellular and picture phones

Technical Specifications

- **active array size:** 640 x 480
- **maximum image transfer rate:**
 - VGA (640 x 480): 30 fps
 - QVGA (320 x 240): 60 fps
 - QQVGA (160 x 120): 120 fps
 - HF (640 x 20): 120 fps
- **power supply:**
 - analog: 2.8V ±5%
 - core: 1.5VDC ±5% (internal regulator)
 - I/O: 2.8V, 1.8V
- **power requirements:**
 - I_{DD-A}: 15 mA
 - I_{DD-I/O}: 20 mA
 - XSHUTDOWN: 5 µA
- **output formats:** YUV422, RAW RGB
- **temperature range:**
 - operating: -30°C to +70°C junction temperature
 - stable image: 0°C to +50°C junction temperature
- **diagonal field of view (FOV):** 61°
- **f no.:** 2.7
- **focal length:** 1.21 mm
- **scan mode:** progressive
- **pixel size:** 1.75 µm x 1.75 µm
- **image area:** 1148 µm x 868 µm
- **package dimensions (including ball height):**
 - RAEA: 2420 x 2350 x 2330 µm
 - RYEA: 3000 x 2450 x 2370 µm

Product Features

- **support image sizes:**
 - VGA (640 x 480)
 - QVGA (320 x 240)
 - QQVGA (160 x 120)
 - HF (640 x 20)
- **support output formats:**
 - YUV422, RAW8 through MIPI
 - YUV422, RAW8, RAW10 through OMNIVISION's proprietary SPI
- **on-chip phase lock loop (PLL)**
- **built-in 1.5V regulator for digital block**
- **capable of maintaining register values at software power down**
- **support horizontal and vertical sub-sampling**
- **programmable controls for:**
 - frame rate
 - mirror and flip
 - AEC/AGC
 - windowing
- **automatic image control functions:**
 - automatic exposure control (AEC)
 - automatic white balance (AWB)
 - automatic black level calibration (ABLC)
- **image quality controls:**
 - defect pixel correction
 - lens shading correction
- **support black sun cancellation**
- **standard serial SCCB interface**
- **parallel I/O tri-state configurability and programmable polarity**

Functional Block Diagram

