

OV9710 1 megapixel product brief



available in
a lead-free
package

high definition (HD) video CameraChip™ image sensor

The low-power OV9710 CameraChip image sensor is a high-performance HD video camera providing WXGA (1280 x 800) resolution with high sensitivity.

The 1/4-inch, 1 megapixel OV9710 meets all camera phone and PC multimedia market requirements in terms of performance, quality and reliability. Using OmniPixel3-HS™ technology, the OV9710 excels in low light conditions and can operate within a wide temperature range (-30°C to +70°C).

The OV9710 provides full-frame, sub-sampled, windowed 8-bit/10-bit images in raw RGB format via the digital video port (DVP).

The OV9710 incorporates a 1280 x 800 image array, capable of delivering HD video at 30 frames per second (fps) in WXGA or 720p HD format with complete user control over image quality, formatting and output data transfer.

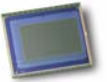
The OV9710 possesses camera processing functions including exposure control, gain control, white balance, lens correction, defect pixel canceling and more. These functions are also programmable through the serial camera control bus (SCCB) interface.

applications

- mobile phones
- digital still cameras
- camcorders
- PC multimedia
- security/surveillance
- medical
- toys



OV9710



ordering information

- **OV9710-V28A**
(color, lead-free, CSP2-28)
- **OV9710-C28A**
(color, lead-free, CLCC-28)
- **OV9710-G04A**
(color, chip probing, 200mm backgrinding, reconstructed wafer)

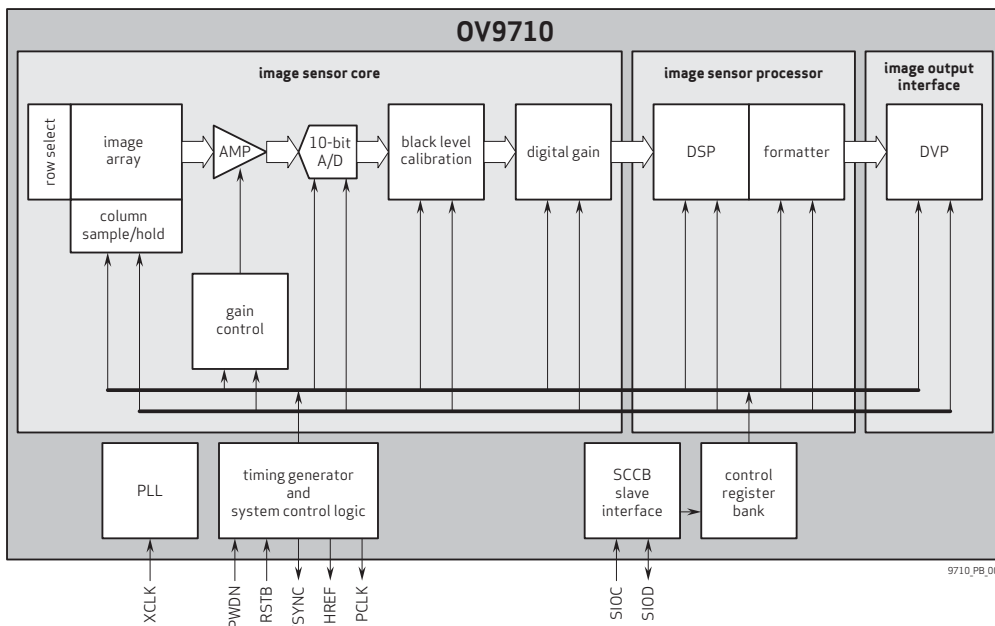
product features

- high sensitivity for low-light operation
- ultra low power and low cost
- automatic image control functions:
 - automatic exposure control (AEC)
 - automatic gain control (AGC)
 - automatic white balance (AWB)
 - automatic band filter (ABF)
 - automatic black level calibration (ABLC)
- programmable controls:
 - frame rate
 - AEC/AGC 16-zone size/position/weight control
 - mirror and flip
 - cropping and windowing
- image quality controls:
 - lens correction
 - defective pixel canceling
- output support for raw RGB
- supports image sizes:
 - WXGA (1280 x 800)
 - 640 x 480
 - HD 720p
- support for horizontal and vertical sub-sampling
- support for black sun cancellation
- support for internal and external frame cancellation
- standard serial camera control bus (SCCB) interface
- digital video port (DVP) parallel output interface
- embedded one-time programmable (OTP) memory
- on-chip phase lock loop (PLL)
- built-in 1.5V regulator for core

product specifications

- **array size:** 1280 x 800
- **power supply:**
 - analog: 3.0 - 3.6V
 - core: 1.5 VDC ± 5%
 - I/O: 1.7 - 3.6V
- **power requirements:**
 - active: 110 mW
 - standby: 50 µA
- **temperature range:**
 - operating: -30°C to +70°C
 - stable image: 0°C to +50°C
- **output format (10-bit):** raw RGB data
- **lens size:** 1/4"
- **lens chief ray angle:** 25° non-linear
- **input clock frequency:** 6 - 27 MHz
- **maximum image transfer rate:**
 - WXGA (1280 x 800): 30 fps
 - 640 x 480: 60 fps
 - HD 720p (1280 x 720): 30 fps
- **sensitivity:** 3300 mV/(Lux-sec)
- **S/N ratio:** 39 dB
- **dynamic range:** 69 dB
- **maximum exposure interval:** 826 x t_{ROW}
- **pixel size:** 3 µm x 3 µm
- **well capacity:** 13 Ke⁻
- **dark current:** 20 mV/s @ 60°C
- **image area:** 3888 µm x 2430 µm
- **package/die dimensions:**
 - CSP2: 5415 µm x 4415 µm
 - COB: 5430 µm x 4430 µm
 - CLCC: 11.43 mm x 11.43 mm

functional block diagram



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