OV9715 1-megapixel product brief

High-Performance Video for Automotive Vision Applications

lead free

available in
a lead-free
package

The 1-megapixel OV9715 image sensor from OmniVision is specifically tailored for advanced automotive imaging applications. Featuring a zero degree microlens shift, the OV9715 is ideal for advanced forward-looking and extreme wide angle field of view vision applications, such as 360 degree bird's eye view and parking assistance systems. The OV9715 is also optimized for use in automotive vision and sensing system combinations, which is a major trend for next generation automotive vision and advanced driver assistance systems.

Based on OmniPixel3-HS™ architecture, the 1/4-inch OV9715 delivers best-in-class low light performance at 3300 mV/lux-sec, enabling vivid images in virtually any lighting condition. The OV9715 provides full-frame, sub-sampled or windowed 8-bit/10-bit images in raw RGB format via the digital video port. The sensor delivers full-frame HD video at 30 frames per second (fps) and VGA resolution at 60 fps with complete user control over image quality, formatting and output data transfer.

The OV9715 incorporates image processing functions, including exposure and gain control, white balance, lens correction and defective pixel correction. The OV9715 comes in a lead-free 48-pin QFP package with an operating temperature range of -30°C to +95°C, optimized to meet the stringent specifications of the Automotive Electronics Council.
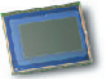
Find out more at www.ovt.com/automotive.

OmniVision®

OV9715

Applications

- Rear View/Backup Camera
- 360° View/Surround View
- Blind Spot Detection
- Night Vision/Dual Mode
- Occupant Sensor

Ordering Information

- OV09715-F48Y
  (color, lead-free, 48-pin QFP2)
- OV09215-F48Y
  (B&W, lead-free, 48-pin QFP2)

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, flip, cropping, and windowing
- image quality controls: lens correction and defective pixel canceling
- output support for raw RGB
- supports image sizes: WXGA (1280x800) and 640x400
- support for horizontal and vertical sub-sampling
- support for black sun cancellation
- standard serial camera control bus (SCCB) interface
- digital video port (DVP) parallel output interface
- embedded one-time programmable (OTP) memory
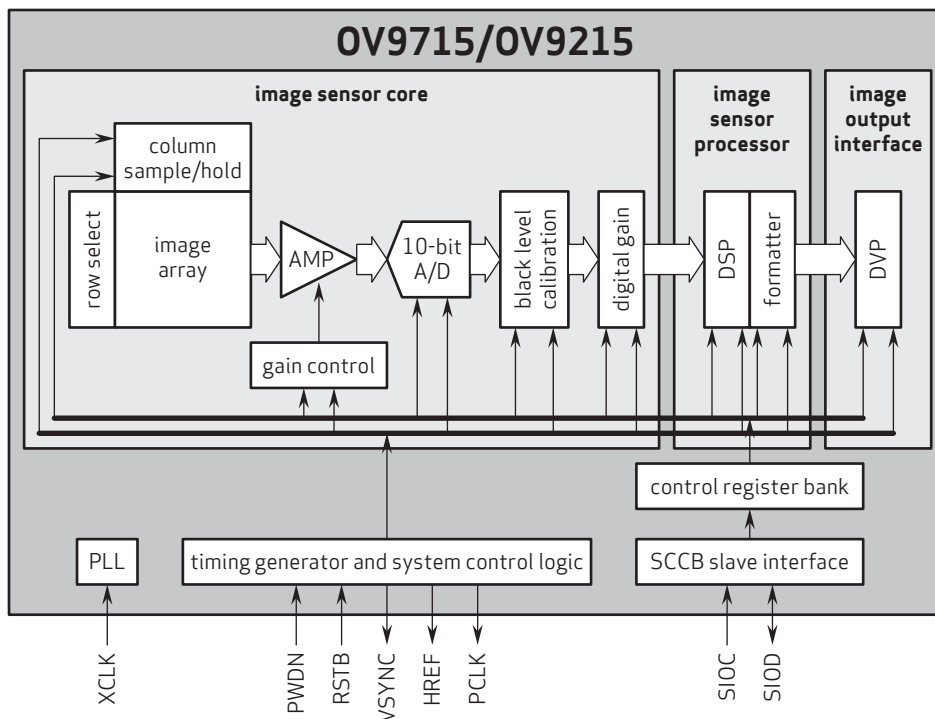- on-chip phase lock loop (PLL)
- built-in 1.5V regulator for core

Product Specifications

- **active array size:** 1280 x 800
- **power supply:**
  - **core:** 1.5 VDC ±5% (built-in regulator)
  - **analog:** 3.0 - 3.6V
  - **I/O:** 1.7 - 3.6V
- **power requirements:**
  - **active:** 110 mW
  - **standby:** 50 µA
- **temperature range:**
  - **operating:** -30°C to 95°C junction temperature
  - **stable image:** 10°C to 60°C junction temperature
- **output formats:** 10-bit raw RGB data
- **lens size:** 1/4"
- **lens chief ray angle:** 0°
- **input clock frequency:** 6 - 27 MHz
- **scan mode:** progressive
- **maximum image transfer rate:**
  - **WXGA (1280x800):** 30 fps
  - **640x400:** 60 fps
- **sensitivity:** 3300 mV/lux-sec
- **max S/N ratio:** 39 dB
- **dynamic range:** 69 dB @ 8x gain
- **maximum exposure interval:** 826 x t_{ROW}
- **pixel size:** 3 µm x 3 µm
- **dark current:** 20 mV/s @ 60° junction temperature
- **image area:** 3888 µm x 2430 µm
- **package dimensions:** 12 mm x 12 mm

Functional Block Diagram

OV9715/OV9215

image sensor core

column sample/hold
row select
image array
AMP
10-bit A/D
black level calibration
digital gain
gain control

image sensor processor
DSP
formatter

image output interface
DVP

control register bank

PLL
timing generator and system control logic
SCCB slave interface

XCLK
PWDN
RSTB
VSYNC
HREF
PCLK
SIOC
SIOD

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