



CMOS high definition (HD) image sensor

Description

The viimagic 9215/16 is a high performance, low power, 2/3" HD resolution (1920 x 1080 pixel) CMOS image sensor capable of capturing monochrome digital still or motion images and suitable for many applications in the industrial area.

This CMOS sensor can be used in various scanning modes as interlaced, progressive, vertical scanning and others. Due to integrated ADCs it offers a high degree of flexibility for the end product with a minimum of external components. Main applications are high performance video cameras and high resolution measurement devices.

In the high dynamic range mode, the dynamic range of the sensor can be extended beyond 120 dB by multi sampling or selecting the non-linear response curve.

Features

- CMOS image sensor of HD resolution (1920 x 1080 pixels)
- Dual on-chip 12-bit A/D converters
- High dynamic range (HDR) capability
- Equivalent pixel clock: 150 MHz (nominal), 225 MHz (maximum)
- Region of interest: horizontal subsampling by 32 column blocks and line wise vertical subsampling by token input of vertical scanning control
- Variable pixel clock rate, flexible scanning schemes (interlace, progressive) by token input of vertical scanning control
- Square pixels 5 µm
- µ-lens for improved sensitivity

Applications

- Targeted for high performance applications
- High-end surveillance
- Industrial vision
- Medical imaging
- Automotive

Options

- 9215 Monochrome
- 9216 Colour Bayer Pattern

- Programmable gain
- External line start input with programmable line start delay setting for synchronization
- External offset inputs for dark level compensation
- Selectable readout mode
 - High speed analogue double sampling
 - Best performing Correlated digital double sampling (DDS)
- On-chip temperature sensor to allow temperature compensation
- Supply voltages: 3.3V for core interfaces, 1.8V for digital logic
- µPGA-141 ceramic package (25 mm x 20 mm)

viimagic 9215 / 16

Product Brief – Rev. 1.0 March 2010

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capture the world in HD

Parameter	Typical Values
Array format	Total: 2048H x 1148V Active: 1968H x 1108V
Effective image area	Total: 10.24 mm x 5.74 mm Active: 9.84 mm x 5.54 mm
Optical format resolution	2/3" (1920 x 1080)
Pixel size	5 μ m x 5 μ m
Video outputs	2 x 12-bit digital
Frame rate	24, 25, 30, 45 fps DDS 60, 90 fps CDS (at full resolution)
Dynamic range	Linear Mode: 60 dB Multi sampled: above 120 dB
Electronic shutter	Rolling shutter
Sensitivity	3.7V/lux sec
Video SNR	52 dB (Green 3 Lux, BW=0.4 ... 30 MHz)
Quantum efficiency	65 %
Random noise	11e
FPN	6e (DDS Digital Double Sampling)
PRNU	< 1.5 %
Supply voltage	3.3V, 1.8V (@ 60 fps)
Power consumption	500 mW (@ 60 fps)
Operating temp	-20°C ... +75°C
Package	μ PGA-141 ceramic package (25 mm x 20 mm)



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