



Sharp, detailed images CMOS high definition (HD) sensor

Description

The viimagic 9221 / 22 is a high performance CMOS image sensor for highest quality demands. Thanks to the high dynamic range the sensor copes smoothly with difficult lighting conditions during day time and night time. Applications like traffic surveillance, telematics and licence plate recognition provide its own challenges to the sensor technology. With different programmable exposure times our sensor assures sharp detailed images for example for day and night surveillance with specific daytime conditions like direct sunlight into the lens or for taking photos of cars driving in tunnels.

The viimagic CMOS image sensor assures brilliant, low-noise images with natural color reproduction even in situations with critical light conditions. The reliable sensor with high sensitivity, 2/3" HD resolution (1920 x 1080 pixel) is capable of capturing still or motion images suitable for high quality requirements.

Targeted for high performance applications:
Railroad station monitoring, traffic monitoring
and surveillance

- HDTV
- High dynamic range, low noise
- Low power
- High sensitivity
- up to 120 fps at full resolution
- LVDS interfaces
- High speed global shutter
- Region of interest (ROI)
- External trigger mode



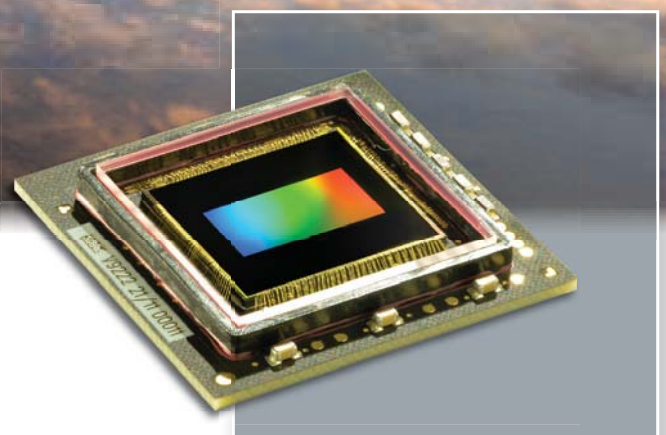
Parameter	Typical Values
Array format	Total: 2112 H x 1124 V Active: 2068 H x 1100 V
Effective image area	Total: 10.56 mm x 5.62 mm Active: 10.34 mm x 5.50 mm
Optical format	2/3" (1920 x 1080 pixel)
Pixel size	5 µm x 5 µm
Video outputs	4 x 2 LVDS
Frame rate (at full resolution)	24, 25, 30, ... 120 fps DDS 24, 25, 30, ... 240 fps CDS
Dynamic range	Linear Mode: > 60 dB High dynamic mode: > 120 dB
Electronic shutter	Global/Rolling shutter
Sensitivity	6 V/lux sec (@ 560 nm)
Video SNR	57 dB (Green 3 Lux, BW=0.4 ... 30 MHz)
Quantum efficiency	55 %
Random noise	< 6e (in dark area)
Full well capacity	16ke
FPN	6e (with digital double sampling)
PRNU	< 1.0 %
Supply voltage ¹	3.3 V, 1.8 V (1.9V)
Power consumption ¹	1.1 W (@ 60 fps/DDS, 2.5V)
Operating temperature	-20° C ... +75° C
Package	BGA-108 (27 mm x 27 mm) 81 functional pins

Key performance data partly depends on operation modes.

¹For power optimization it is possible to operate LVDS transmitters at 2.5V.
For system clock operation above 85MHz use 1.9V for ADC supply voltage.

Features

- CMOS image sensor of HD resolution
- (1920 x 1080 pixel) (2048 x 1080 pixel)
- Quadruple on-chip 12-bit A / D converters
- Equivalent pixel clock: 600 MHz (maximal)
- Region of interest
- Variable pixel clock rate, flexible scanning schemes
- µ-lens for improved sensitivity
- Programmable gain
- Programmable rolling shutter or global shutter
- Selectable readout modes
 - High speed analog double sampling
 - Best performing correlated digital double sampling (DDS)



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