



Medical imaging with the CMOS high definition(HD) sensor

Description

The viimagic 9225 / 26 is a high performance CMOS image sensor excellent suited for applications in the medical sector like digital microscopy, endoscopy and operation room documentation. Each of these applications provide its own challenges to the sensor technology used and requires optimization of all system components towards the specific medical applications.

Our global shutter CMOS image sensor assures brilliant, low-noise images with natural color reproduction even in situations with critical light conditions. The sensor with low power, 2/3" HD resolution (1920 x 1080 pixel) is capable of capturing still or motion images suitable for high quality standards up to a maximum HDTV frame rate of 240 Hz.

Targeted for high performance applications:
Digital Microscopy, Endoscopy, Operation
Room documentation and recording

- HDTV
- High dynamic range, low noise
- Low power
- High sensitivity
- p60 at full resolution
- LVDS interfaces
- High speed global shutter
- Ceramic package



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	up to 4 x 4 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)
FPN	6e (with digital double sampling)
PRNU	< 1.0 %
Supply voltage ¹	3.3V, 1.8V (1.9V)
Power consumption ¹	1.1 W (@ 60 fps/DDS, 2.5V)
Operating temperature	-20° C ... +75° C
Package	µPGA-185 ceramic package (25 mm x 23 mm)

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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