Digital VGA CMOS Image Sensor

CX20490

Pictos' CX20490 image sensor defines a new standard for small form-factor / low power VGA sensors. The CX20490 supports a 1/5-inch active sensor area for VGA resolutions and a 1/9-inch windowed CIF resolution mode. Pictos' 0.18µm specialized image sensor analog CMOS process allows increased sensitivity and low-power 2.7 V operation. Use of micro lenses and proprietary techniques for increased fill factors enable high sensitivity and small 4 µm pixel size. The CX20490 is truly in a next generation of CMOS sensors.

The feature set of the CX20490 is targeted for many mass market applications including PC video cameras, entry level DSC, and various embedded and portable applications. The highly integrated components of the sensor enable simple integration.

The CX20490 includes Correlated Double Sampling techniques, on-chip analog programmable gain stages for increased dynamic range along with an optimized low power 10-bit ADC. The on-chip timing allows simple programming for many different sub-sampled and windowed data output formats. The standard format, 10 bit RGB Bayer output ensures industry standard compatibility.

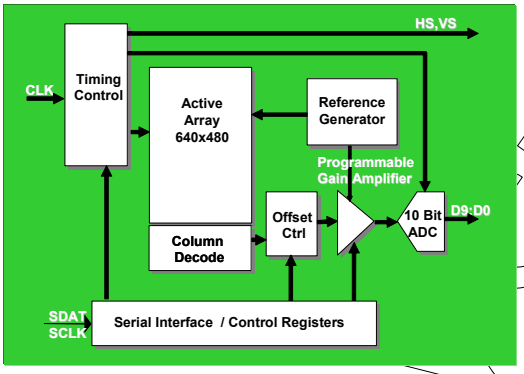


Figure 1: Simplified block diagram for the CX20490

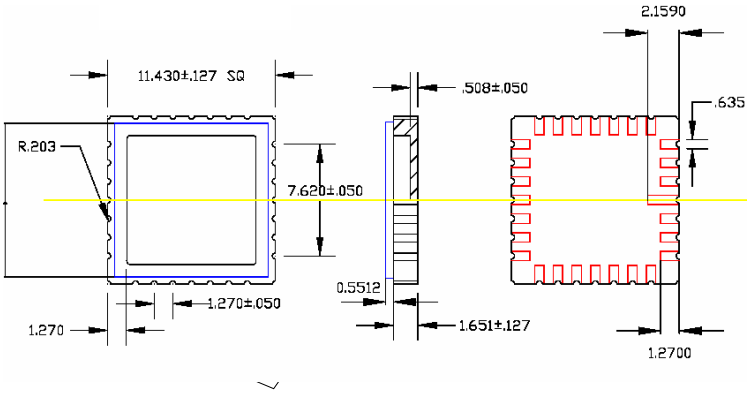


Figure 2: CX20490 Mechanical Drawing

Features

Sensor Array

- 1/5-inch color VGA sensor
- 640 x 480 active pixels
- 4.0 micron pixel
- Active 2.6 mm x 1.9 mm yields 3.2 mm diagonal
- Multiple packaging options including 28-pin CLCC package
- Bayer RGB output with shifted micro lenses CFA
- Hybrid 0.18-micron process

Interface

- HSYNC and VSYNC outputs
- 10-bit parallel digital output
- 2-wire serial control
- Fully integrated on-chip voltage and current references
- VOI Interface, Data format and Control

Digital Functionality

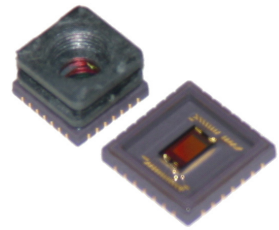
- On-chip, 10-bit A/D converter
- Programmable Window Of Interest
- Selectable sub-sampling modes
- Programmable analog gain stage
- On-chip timing generators
- Horizontal and vertical image flipping
- Anti-blooming circuitry
- Progressive scan

Performance

- Up to 30 fps VGA operation
- ISO 70-100 (with Sensor Gain)
- 57 dB dynamic range
- Sensitivity 1.5 V/lux-sec
- 0.09% Typical Signal to Noise Ratio

Power

- Single variable 2.7 to 3.3 V supply
- 43 mA @3.3V (32 mA @ 2.7 V)typical power dissipation @ 15 frames per second



Ordering Information

Model Name	Manufacturing Part Number	Product Revision
CX20490 Imaging Module	CX20490-31 CX20490-11	1

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