



## VV5301-VV6301 Digital Output Sensor

The VV5301 and VV6301 sensors are highly integrated digital output imaging devices based on STMicroelectronics unique CMOS sensor technology. Both sensors require minimal support circuitry.

VV5301 (monochrome) and VV6301 (colourised) sensors produce digital video output. The video streams from both devices contain embedded control data that can be used in frame grabbing applications

The pixel array in the VV6301 device is coated with dyes forming a Bayer colour pattern. The sensors require software to perform colour processing before an image may be displayed.

### Automatic Black Level Calibration

The sensor can perform automatic black level calibration to remove voltage offsets in the video signal path that lead to offsets in the output image. These offsets are removed using 2 Digital to Analogue Convertors (DACs). The automatic black calibration algorithm monitors the average level of the sensor black pixels and adjusts the input level to the 2 DACs to remove the offset.

### Serial Interface

A 2 wire serial interface allows the master coprocessor to reconfigure the device.

### KEY FEATURES

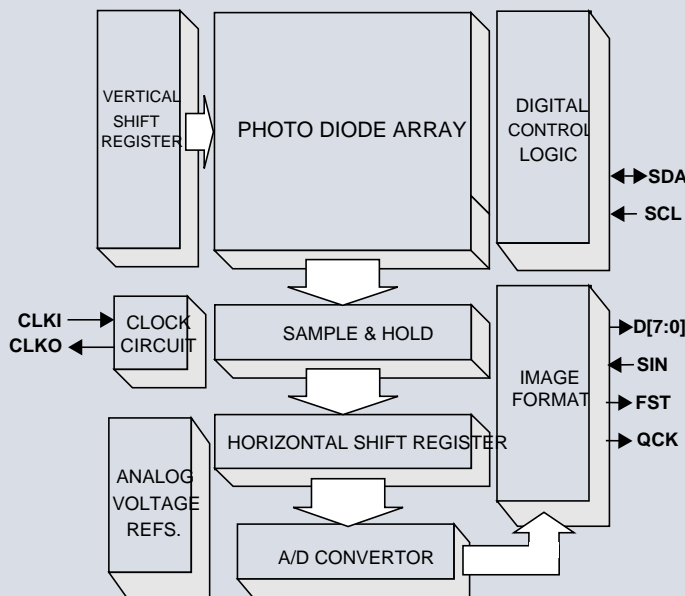
- Low cost digital imager
- QSIF resolution sensor
- Automatic exposure/gain control
- Dual digital output formats available
- 2 wire serial communications
- On board 8bit ADC
- On board voltage regulator
- Automatic black level calibration
- Variable frame rate
- Reduced flicker operating modes

### APPLICATIONS

- Toys
- Automotive systems
- Personal video communications
- Biometric readers

### SPECIFICATIONS

### DEVICE FUNCTIONALITY

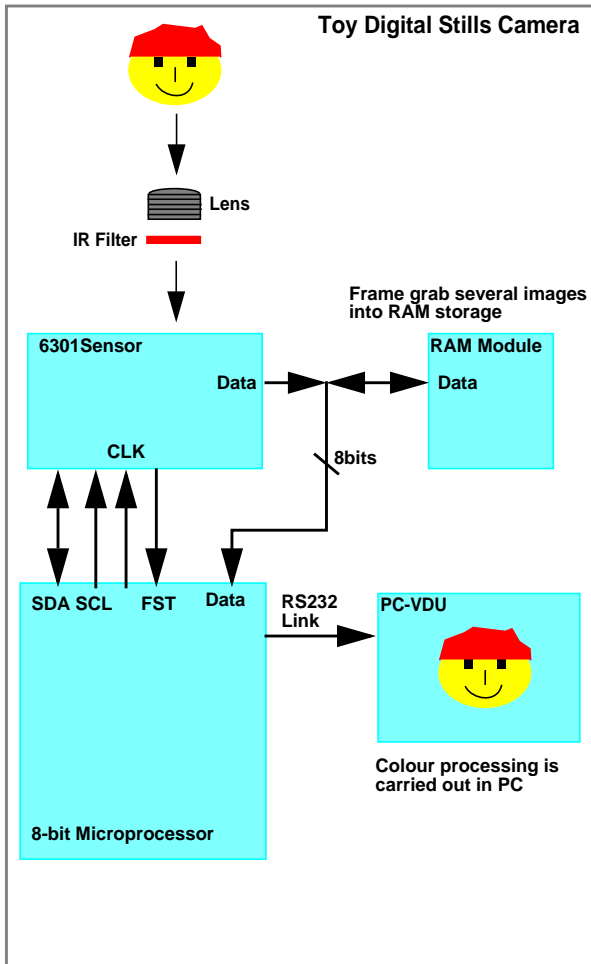


<b>Maximum pixel resolution</b>	164 x 124
<b>Effective image size after colour processing</b>	160 x 120
<b>Pixel size</b>	12.0µm x 12.0µm
<b>Array size</b>	1.92mm x 1.44mm
<b>Exposure control</b>	+44dB
<b>Analogue gain</b>	+18dB
<b>Signal/Noise ratio</b>	44dB
<b>Supply voltage</b>	5V DC +/- 5%
<b>Supply current</b> VV5301-VV6301	2.9mA (standby) 14.6mA (active)
<b>Operating temperature (ambient)</b>	0°C - 40°C (for extended temperature information please contact ST)
<b>Package type</b>	48BGA



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EXAMPLE APPLICATIONS



EVALUATION KITS

STMicroelectronics recommend using their Evaluation Kits for initial evaluation and design-in of sensors. For the VV5301 and VV6301 there are two Kits, a Mono and a colour EVK. Each kit comprises a lensed camera head board camera, an interface PCB, a short form PCI card and required cabling. Software is provided to control the sensor operation from a PC.

ABOUT VISION & IMAGING TECHNOLOGY

Our unique CMOS technology enables integration of the sensor array and associated support circuitry on a single VLSI microchip. CMOS sensors are compact, highly integrated devices that require reduced power consumption over traditional CCD devices while offering equivalent image quality.

STMicroelectronics is a leading supplier of CMOS image sensors. The VV5301-VV6301 sensors are part of a comprehensive range of image sensing products for applications including videoconferencing, digital stills cameras, toys, security and biometrics. Visit our web site at [www.st.com](http://www.st.com) for more information.

ORDERING DETAILS

Part Number	Description	Number of defects
VV5301B003	48BGA packaged, QSIF Monochrome	up to 32
VV6301B003	48BGA packaged, QSIF ColourMOS	up to 32
STV-5301-E01	Evaluation Kit for VV5301	N/A
STV-6301-E01	Evaluation Kit for VV6301	N/A

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