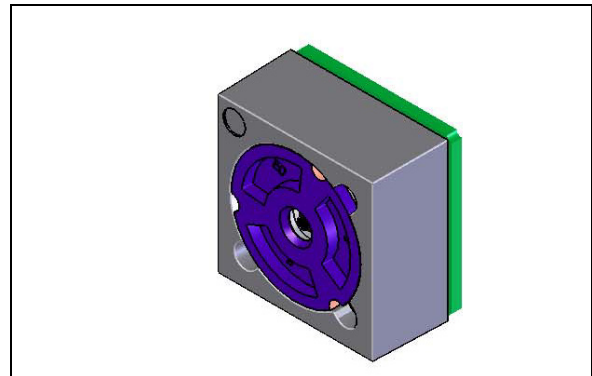


VGA single-chip camera module

Data Brief

Features

- 640H x 480V active pixels
- 2.2 μm pixel size, 1/10 inch optical format
- RGB Bayer color filter array
- Integrated 10-bit ADC
- Integrated digital image processing functions, including defect correction, lens shading correction, demosaicing, sharpening, gamma correction and color space conversion
- Embedded camera controller for automatic exposure control, automatic white balance control, black level compensation
- Up to 30 fps progressive scan, integer subsampling and cropping modes
- ITU-R BT.656-4 YUV (YCbCr) 4:2:2 with embedded syncs, RGB 565 output formats
- Viewlive feature allows different sizes, formats and reconstruction settings to be applied to alternate frames
- 8-bit parallel video interface, horizontal and vertical syncs, 24 MHz clock
- Two-wire serial control interface (I²C)
- On-chip PLL, 6.5 to 26 MHz clock input
- Analog power supply, from 2.4V to 3.0V
- Separate I/O power supply, 1.8V or 2.8V levels
- Integrated power management with power switch, automatic power-on reset and power-safe pins
- Low power consumption, ultra low standby current
- Aspheric lens, F# 3.2 ~56° HFOV



Description

The VS6525 is a general purpose VGA resolution CMOS color digital camera featuring low size and low power consumption. This complete camera module is ready to connect to camera enabled baseband processors, back-end IC devices or PDA engines.

Applications

- Mobile phone
- Videophone
- Video surveillance
- Medical
- Machine Vision
- Toys
- PDA
- Biometry
- Bar code reader
- Lighting control

1 Technical specifications

Table 1. Technical specifications

Active pixels	640H x 480V
Pixel size	2.2 μm x 2.2 μm
Array size	1.408 mm x 1.056 mm
Color filter array	RGB Bayer
Exposure control	+120 dB
Analog gain	+24 dB (max)
Dynamic range	61 dB (typical)
Signal-to-noise Ratio	35 dB at 100 lux (typical)
Frame rate	1 to 30 Hz
Image format	VGA, QVGA, QQVGA, subQCIF Arbitrary cropping Horizontal/vertical flipping
Pixel format	YUV 4:2:2 RGB 565, RGB 444 Raw Bayer 10-bit
Video Interface	8-bit parallel video, hsync, vsync ITU-R BT.656-4 compliant, 24 MHz max
Clock input	6.5 to 26 MHz square 13 MHz typ. (on-chip PLL)
Supply voltage	2.4 to 3.0 V analog
Separate I/O power supply	1.8 V or 2.8 V
Current consumption (max)	Streaming 30 fps: TBD Power down: TDB
Lens	1-element, $\sim 56^\circ$ HFOV, F#3.2
Depth of field	20 cm to infinity
TV distortion	< 5%
Relative illumination	60% typ.
Package type	Reflowable
Package size	4.9 mm x 4.9 mm x 2.8 mm (wlh)

2 Application and block diagrams

Figure 1. Application diagram

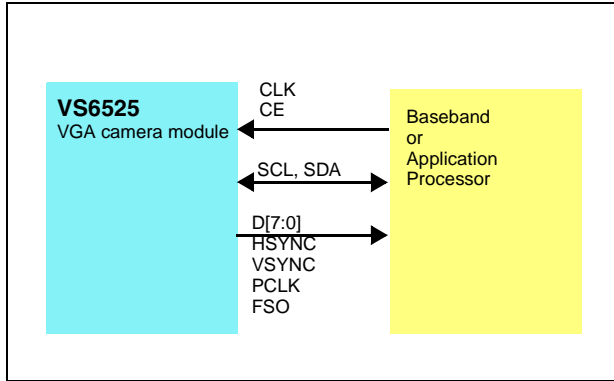
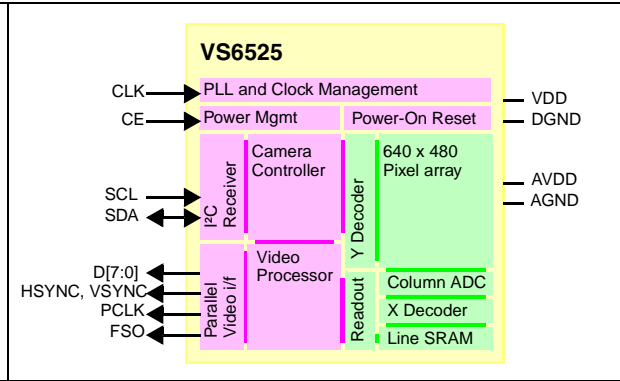


Figure 2. Block diagram



3 Ordering information

Table 2. Order codes

Part number	Package
VS6525R0EI/T2	Reflowable YUV-VGA (4.9mm x 4.9mm x 2.8mm)

4 Mechanical drawings

The following figures present different views of the module with dimensions and pin assignment.

Figure 3. Module rear view and connection table

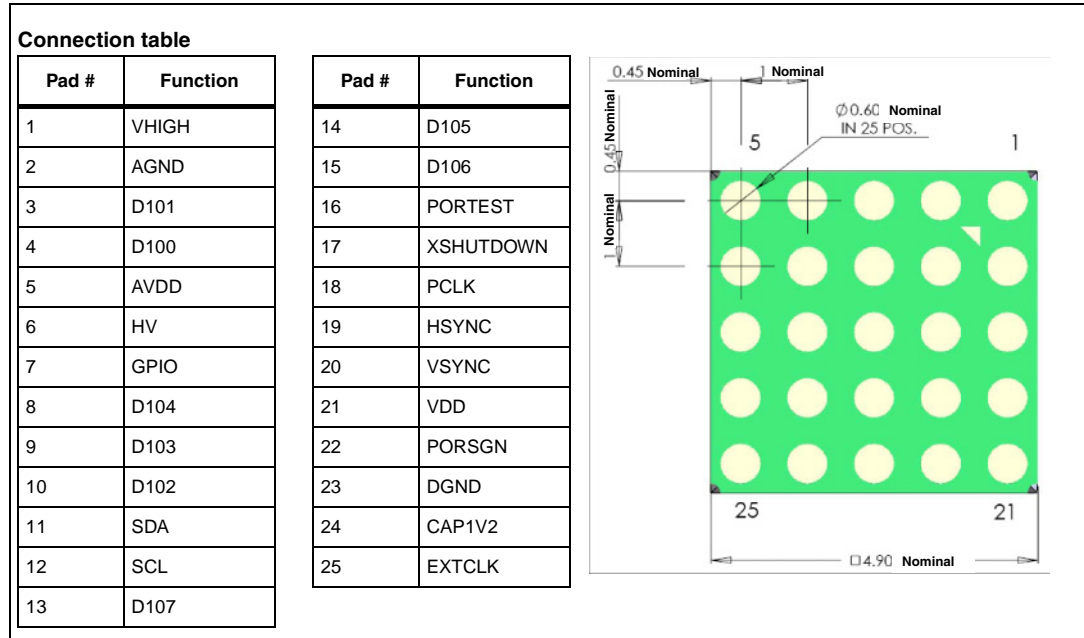
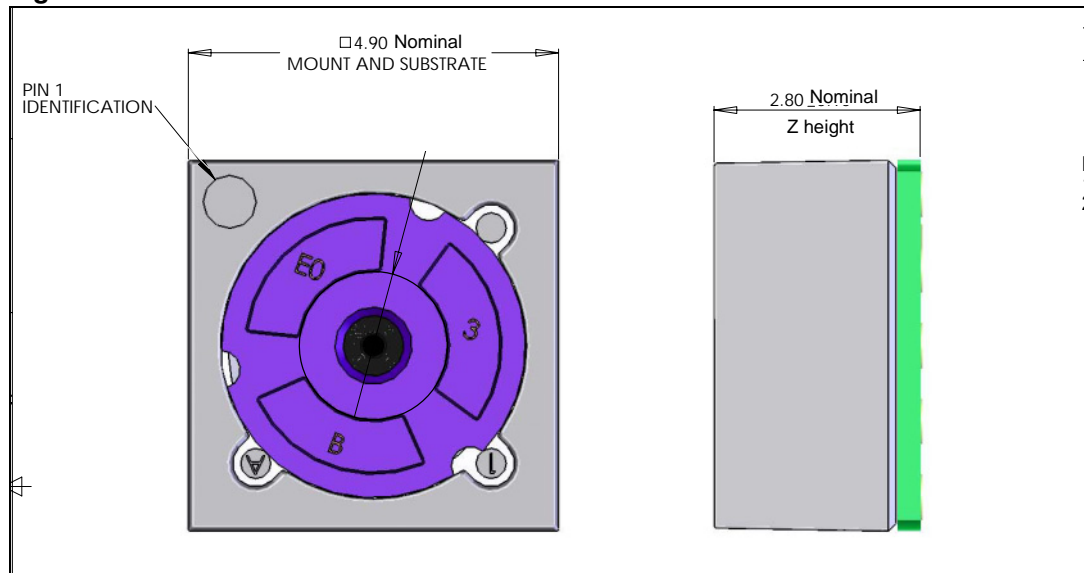


Figure 4. Module size



5 Revision history

Table 3. Document revision history

Date	Revision	Changes
12-Jan-2007	1	Initial release.

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