

5.0 megapixel image sensor

Data brief

Features

- 5.0 megapixel resolution sensor (2600 x 1952) inclusive of 4 border pixels each side
- Up to 1600 Mbps data rate
- Interchangeable dual lane MIPI CSI-2 (v1.00 D-PHY) as well a SMIA CCP2 video data interface
- SMIA Profile 1 compliant
- Support up to 400 kHz CCI command interface
- 2.8V analog operating voltage
- 1.8V digital operating voltage
- Ultra low power standby mode
- Support smaller resolution through analog binning 2x2 and/or sub-sampling 2x2
- Integrated 8 Kbits OTP memory
- Onboard couplet corrector

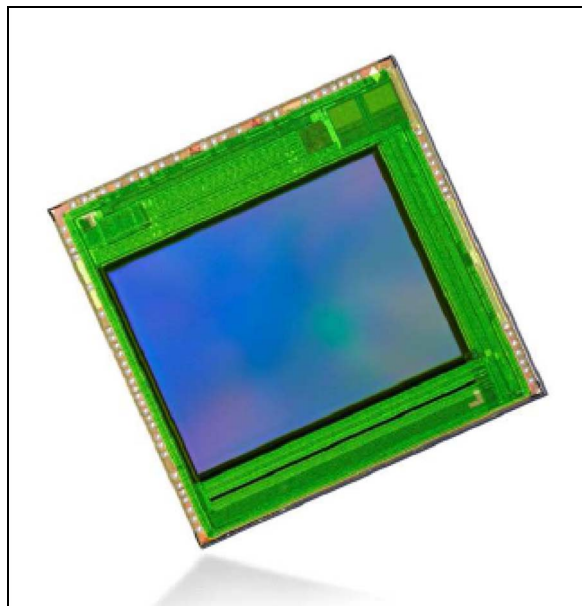


Table 1. Device summary

Order code	Package	Packaging
VD6955CC/RWA	Die	Sawn wafers on tape

Description

The VD6955 is a high performance 5.0 megapixel image sensor. It is designed for use across a range of mobile phone handsets and accessories. The sensor supports high quality still camera functions as well as video modes.

The VD6955 is compliant with the SMIA 1.0 Profile 1 and MIPI CSI-2 specification. It is capable of generating 10-bit raw Bayer 5.0 megapixel images up to 30 fps with CSI-2 dual lane interface. The sensor also supports CCP2 interface.

The signal control is performed through CCI communication. VD6955 offers an ultra low power consumption hardware standby mode consuming less than 30 μ W (typical).

Overview

The VD6955 image sensor produces raw 5.0 Mpixel digital video data at up to 30 frames per second when streaming with MIPI CSI-2 dual lane interface. The sensor also supports CCP2.0 video data interface which is selectable over the Camera Control Interface (CCI).

The sensor is compliant with the SMIA Specification Profile 1 and it can also be used as Profile 0 device. The VD6955 supports horizontal scaling and output frequency derating as defined in the specification. Higher frame rate could be achieved through analog binning (2x2) and/or subsampling (2x2) or in combination of both modes.

The image data is digitized using an internal 10-bit column ADC. The resulting pixel data is output as 8-bit, 10-bit, 10-8 bit or 10-6 bit compressed data and includes checksums and embedded codes for synchronization. The interface conforms to both the CCP 2.0 and MIPI CSI-2 interface standards. The sensor is fully configurable through a CCI serial interface.

Table 2. Technical specification

Feature	Description
Pixel resolution	2600 x 1952 with border pixels
Sensor technology	ST IMG140 FSI 2nd gen. based CMOS imaging process
Pixel size	1.4 μm x 1.4 μm
Exposure control	+ 81dB
Analog gain	+ 24 dB (max)
Digital gain	+ 6 dB
Dynamic range	63 dB
SNR10	95 lux
Supply voltages	Analog: 2.3V ~ 2.9V Digital: 1.7V ~ 1.9V
Typical power consumption 30 fps	130 mA (typical) <300 mW
Normal operating temperature	-25°C to +55°C

Revision history

Table 3. Document revision history

Date	Revision	Changes
28-Feb-2013	1	Initial release.

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