

2 megapixel, 1/5 inch system-on-chip imaging sensor

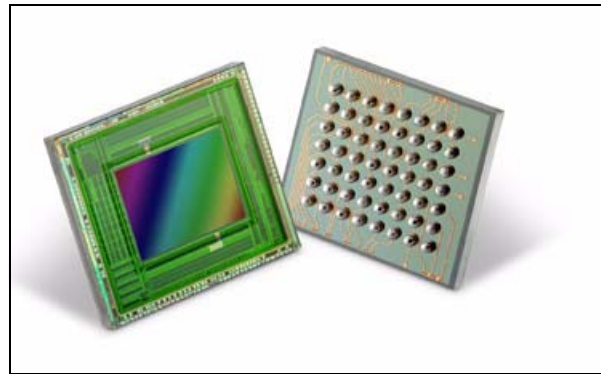
Data Brief

Features

- UXGA (2 megapixel) sensor array
- 1/5" optical format, 1.75 μm pixel size
- SNR max > 36 dB
- 10-bit continuous-time single-end ADC
- Selectable 8-bit parallel or CSI2 serial output
- Integrated high-performance image signal processor and camera controller
 - 4-channel radial anti-vignetting
 - dynamic singlet/couplet correction
 - adaptive noise reduction
 - high-quality scaler: any size scaling down from SXGA
 - electronic zoom
- 15 frames per second (fps) at full resolution, 30 fps in VGA with fast context switching feature for quicker still image capture
- Programmable I2C chip address
- Low power consumption and ultra-low standby current
- 1 Kbit OTP memory fully available to user
- Integrated 1.2 V regulator
- TSV wafer level package option

Benefits

- Compatible with camera modules with Z height below 4 mm
- Compatible with camera modules < 6 x 6 mm²
- Flexible applications (ITU, MIPI) using the same die
- Creative special effects
- Qualified for reflowable camera modules



Applications

- Mobile phones
- PDAs
- PC cameras and peripherals
- Gaming platforms

Description

VD6725 is an ultra-small, ultra-competitive and ultra-smart 2 megapixel 1/5" SOC imaging sensor with a high-performance image signal processor.

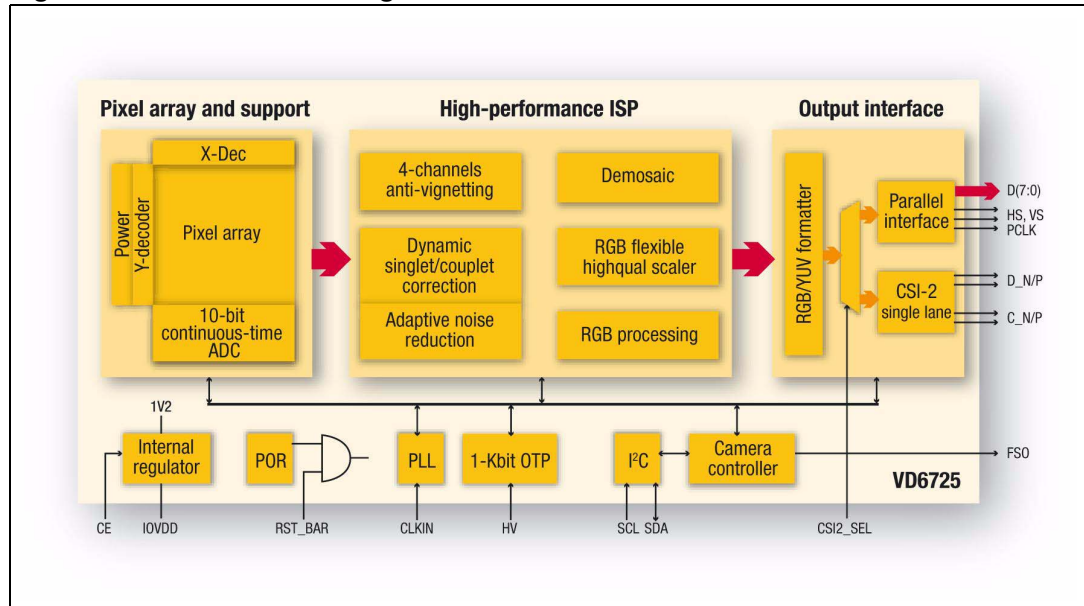
VD6725 imaging sensor allows design of ultra-low height camera modules, thanks to ST's pixel ultra-low optical stack height that provides high quantum efficiency, better light sensitivity and improved relative illumination.

This cost competitive solution resulting from an ultra-small sensor die size is based on ST's innovative sensor architecture and ST's latest imaging patents, combined to our new imaging process.

ST's new high performance imaging process provides 1.75 μm pixel size, very high logic density, excellent SNR and low light performance. It is qualified in our 8" and 12" world-leading manufacturing infrastructures.

1 Overview

Figure 1. VD6725 block diagram



Wafer level package: TSV (through-silicon via)

The wafer-level package, TSV (through-silicon via) technology, is used to design smaller camera modules, improve the assembly yield and lower costs. The VD6725 is available in ST's revolutionary TSV package:

- Ultra-scaled down camera module size
- No wire bonding inside the camera module: save up to 1.6 mm in X and Y
- No substrate in the module: directly reflowable, on phone mother board or flex-attach
- Up to 400 μm saved in module Z height
- No leads on the package sides for an increased reliability and ESD protection

2 Ordering information

Table 1. Ordering information

Order code	Description
VD6725/SW	Tested, sawn dice on reconstructed wafer.

3 Revision history

Table 2. Document revision history

Date	Revision	Changes
25-Jan-2008	1	Initial release.
31-Jan-2008	2	Clarified the feature on OTP memory in the Features .

Please Read Carefully:

Information in this document is provided solely in connection with ST products. STMicroelectronics NV and its subsidiaries ("ST") reserve the right to make changes, corrections, modifications or improvements, to this document, and the products and services described herein at any time, without notice.

All ST products are sold pursuant to ST's terms and conditions of sale.

Purchasers are solely responsible for the choice, selection and use of the ST products and services described herein, and ST assumes no liability whatsoever relating to the choice, selection or use of the ST products and services described herein.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted under this document. If any part of this document refers to any third party products or services it shall not be deemed a license grant by ST for the use of such third party products or services, or any intellectual property contained therein or considered as a warranty covering the use in any manner whatsoever of such third party products or services or any intellectual property contained therein.

UNLESS OTHERWISE SET FORTH IN ST'S TERMS AND CONDITIONS OF SALE ST DISCLAIMS ANY EXPRESS OR IMPLIED WARRANTY WITH RESPECT TO THE USE AND/OR SALE OF ST PRODUCTS INCLUDING WITHOUT LIMITATION IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE (AND THEIR EQUIVALENTS UNDER THE LAWS OF ANY JURISDICTION), OR INFRINGEMENT OF ANY PATENT, COPYRIGHT OR OTHER INTELLECTUAL PROPERTY RIGHT.

UNLESS EXPRESSLY APPROVED IN WRITING BY AN AUTHORIZED ST REPRESENTATIVE, ST PRODUCTS ARE NOT RECOMMENDED, AUTHORIZED OR WARRANTED FOR USE IN MILITARY, AIR CRAFT, SPACE, LIFE SAVING, OR LIFE SUSTAINING APPLICATIONS, NOR IN PRODUCTS OR SYSTEMS WHERE FAILURE OR MALFUNCTION MAY RESULT IN PERSONAL INJURY, DEATH, OR SEVERE PROPERTY OR ENVIRONMENTAL DAMAGE. ST PRODUCTS WHICH ARE NOT SPECIFIED AS "AUTOMOTIVE GRADE" MAY ONLY BE USED IN AUTOMOTIVE APPLICATIONS AT USER'S OWN RISK.

Resale of ST products with provisions different from the statements and/or technical features set forth in this document shall immediately void any warranty granted by ST for the ST product or service described herein and shall not create or extend in any manner whatsoever, any liability of ST.

ST and the ST logo are trademarks or registered trademarks of ST in various countries.

Information in this document supersedes and replaces all information previously supplied.

The ST logo is a registered trademark of STMicroelectronics. All other names are the property of their respective owners.

© 2008 STMicroelectronics - All rights reserved

STMicroelectronics group of companies

Australia - Belgium - Brazil - Canada - China - Czech Republic - Finland - France - Germany - Hong Kong - India - Israel - Italy - Japan - Malaysia - Malta - Morocco - Singapore - Spain - Sweden - Switzerland - United Kingdom - United States of America

www.st.com