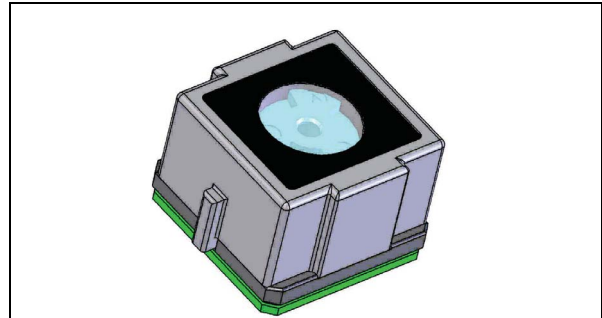


## QXGA camera module with auto-focus

Data Brief

### Features

- 3.2 megapixel sensor (2064 x 1544)
- 1.75  $\mu\text{m}$  pixel size, 1/4 inch optical format
- RGB Bayer color filter array
- Auto-focus mechanism with simple control interface
- Multi-element, high quality lens
- MDDI type 1 host / serial interface
  - 450 Mbps data transfer
  - differential data and strobe signalling
- On-board 10-bit ADC
- Analog binning (2x2)
- Flash/white-LED support
- Integrated defect correction
- Automatic dark level calibration
- Smooth frame rate control
- GPIO
- Ultra low power standby mode
- Compact size: 8.5 mm x 8.5 mm x 5.9 mm



### Description

This datasheet outlines a high performance 3.2 megapixel auto-focus camera module (VB6871) designed for use across a range of mobile phone handsets and accessories, via the VESA-standard MDDI interface.

Designed for both video and high-quality still image capture, the VB6871 is capable of generating 3.2 MP raw bayer images at up to 12 fps @ 10-bit, and 16 fps @ 8-bit pixel resolution. Higher frame rates can be achieved with smaller image sizes, such as 30 fps for WVGA @ 10-bit pixel resolution.

The module design is optimized for both footprint and height. The auto-focus mechanism combined with a multi-element lens provides excellent image quality at focus distances from less than 10 cm to infinity.

All external components, including the auto-focus actuator, are integrated within the camera module.

VB6871 offers an ultra low power consumption hardware standby mode consuming less than 30  $\mu\text{W}$  (typ.).

# 1 Overview

Figure 1. System diagram

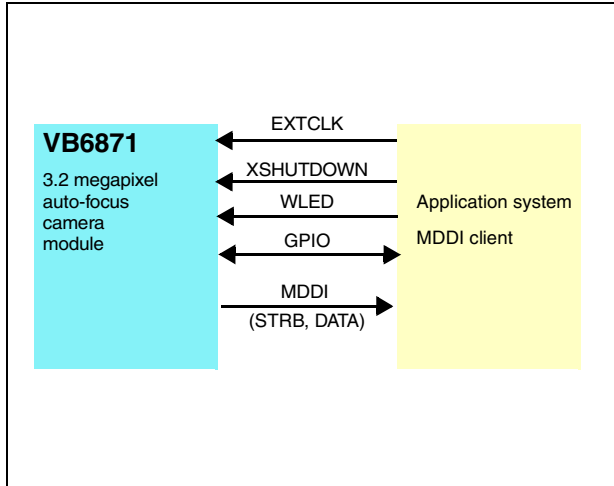


Figure 2. Block diagram

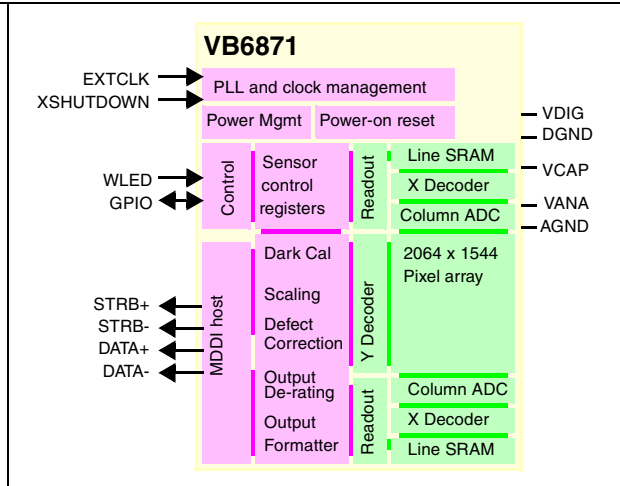


Table 1. Technical specifications

Parameter	Description
Pixel resolution	2064 x 1544 (QXGA = 2048x1536)
Sensor technology	IMG175 STs 90nm based CMOS imaging process
Pixel size	1.75 $\mu\text{m}$ x 1.75 $\mu\text{m}$
Exposure control	+ 81 dB
Analog gain	+ 24 dB (max)
Digital gain	+ 6 dB (max)
Dynamic range	60 dB
Signal to noise	36 dB (@ 100 lux)
Supply voltages	Analog: 2.4 V - 2.9 V Digital: 1.7 V - 1.9 V
Average power consumption 12.5 fps	<125 mW in infinity <300 mW at macro including actuator current
Package size (lxwxh)	8.5 mm x 8.5 mm x 5.9 mm
Lens	51° +/- 2 HFOV F/2.8
TV distortion	< 1.0%
Relative illumination	45 % (typ.)
Package type	SmOP2 auto-focus
System attach	SMIA85 socket or flex

## 2 Ordering information

**Table 2. Ordering information**

Order code	Package	Packing
VB6871S0VO/TR <sup>(1)</sup>	SmOP2 auto-focus	SMIA85 socket

1. ECOPACK® package

## 3 Revision history

**Table 3. Document revision history**

Date	Revision	Changes
25-Mar-2008	1	Initial release.

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