

# Best-in-Class Single-Chip VGA Camera in Tiny Module for High-Volume Mobile Applications

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STMicroelectronics, a world leader in CMOS imaging technology, has introduced its latest single-chip VGA camera module for entry-level mobile phones and other portable devices. The tiny VS6524 leverages three main imaging strengths of ST: advanced optical packaging, the latest 3.6- $\mu\text{m}$  pixel design, and system-on-chip integration expertise.

The complete VGA (640 x 480-pixel) camera subsystem with miserly power consumption inside an ultra-small 7 x 7 x 4.5-mm package targets high-volume mobile platforms, such as entry-level mobile phones, PDAs, and videophones. The chip is manufactured using ST's 0.18- $\mu$ m CMOS Imaging process, which enables integration of a high-sensitivity pixel array with 1/6" optical format, a digital image processor tailored to the pixel characteristics, and analog system functions on a single chip.

The VS6524 produces an industry-standard ITU-R BT.656-4 compliant digital video stream at up to 30 frames per second (fps). The embedded Image Signal Processor (ISP) provides best-in-class picture quality utilizing the Company's proven algorithms for pixel defect correction, lens shading compensation, sharpness enhancement, gamma correction, demosaicing, downscaling, and color space conversion.

The low-height dual-element plastic lens with the 50° horizontal field-of-view and a minimum focus distance of 20 cm facilitates macro image capture. The integrated flexible camera controller supports automatic exposure control, white balance control, display flicker elimination and flashgun control in both automatic and user-defined operation modes.

"Entry-level mobile phones increasingly feature an embedded camera in order to enable such popular services as MMS or picture messaging," said Jean-Yves Gomez, General Manager of ST's Imaging Division. "Our latest VGA all-in-one camera module is a perfect match to our customers' requirements for cost-sensitive high-volume phone platforms. It provides outstanding image quality in a tiny module easy to integrate in their design."

ST's advanced SmOP II (Small Optical Package) technology packages the sensor chip with the lens in a fully automated assembly test and focus process, allowing high volume and low-cost production. Passive components are also embedded in the module thereby further reducing

footprint on the main printed circuit board.

The full range of power management features, including power switches, power-safe pins, power-on reset cell, and core-voltage regulator, enables straightforward camera activation and an ultra-low standby current of 10-microamps. The module operates from a main power supply ranging from 2.4V to 3.0V and the camera interface signals use a separate 1.8V or 2.8V supply rail.

Engineering samples, as well as the evaluation kits (USB 2.0 camera) are available now. The volume production of the VS6524 is scheduled for Q2 2005. The complete camera module with flexible printed circuit and board-to-board connector is priced at \$6 in large quantities.

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