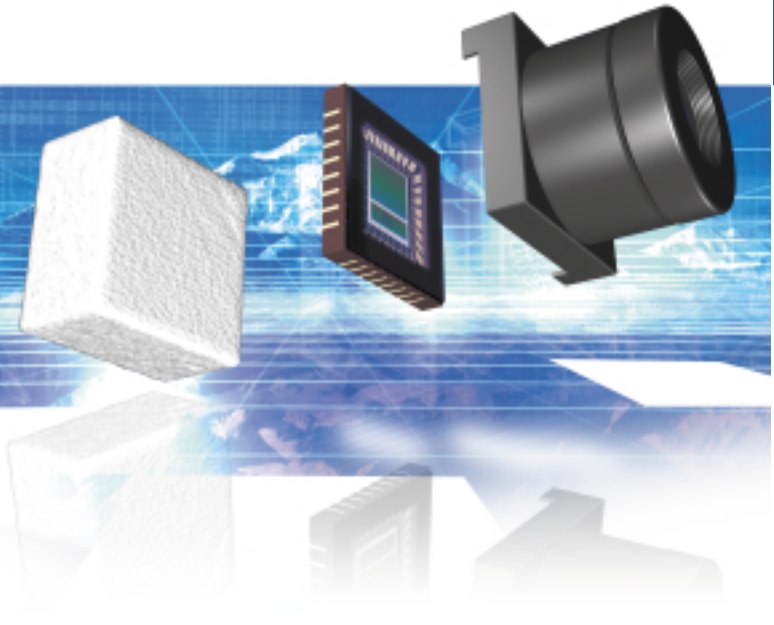
The combination of Philips Semiconductors' in-depth experience in digital imaging and process technologies has led to the development of a dedicated process for cost-effective consumer digital imaging applications. Called SeeMOS, this innovative and unique optimized CMOS process allows Philips Semiconductors to combine image sensors with IC functionality, to capture and process images on a single chip.



Sugar cube size camera

UPA1021 SeeMOS™ Image Sensor

Dedicated Technology for Miniaturized PC Camera Solutions

UPA1021 Key Features

- 1/4" optical format
- 640 x 480 VGA resolution
- Active 5.6 µm square pixels
- RGB Bayer pattern
- Integrated PGA
- 9-bit ADC with I^2C control interface

SeeMOS Technology Key Features

- High sensitivity and low fixed-pattern noise
- 0.35 µm process, with a more advanced process in development
- Small active pixels (5.6 µm square)
- On-chip colour filters (Bayer-RGB) and micro lenses
- 3.3 V low power design

The Next Generation in PC Camera Image Sensors

As consumer imaging moves rapidly into the digital realm, the key to success lies in achieving the right combination of image quality, price and size. SeeMOS technology allows Philips Semiconductors to integrate the image sensor and IC functionality, to capture and process images, on a single chip. This offers a greatly reduced total 'cost-of-ownership' as the process is fully compatible with standard CMOS processing and optically optimized with Philips' proprietary process steps.

Philips Semiconductors' first SeeMOS camera IC, the UPA1021 VGA CMOS sensor, is targeted at PC applications and security systems, and incorporates both VGA resolution sensor and analog pre-processing functions – 9-bit ADC and programmable gain amplifier (PGA). This low-power, miniaturized system-on-a-chip uses a single power supply, running at 3.3 V, requiring only a fifth of the power of existing CCD-based cameras. It also offers excellent picture quality with a 307,200 pixel resolution, supporting standard 640 x 480 display formats on PC monitors, as well as lower resolutions including SIF (Standard Interchange Format – 320 x 240 pixels) and QSIF (Quarter Standard Interchange Format – 160 x 120) formats. When used with Philips Semiconductors' SAA8116 DSP/USB interface, together they provide a complete USB camera solution with just two major ICs.

SeeMOS Technology – Reducing the Cost of High Performance

SeeMOS delivers high sensitivity and low fixed pattern noise, for consumer applications. This innovative CMOS process delivers integrated camera ICs with on-chip error correction, built-in self-test and electronic pan/zoom/windowing.

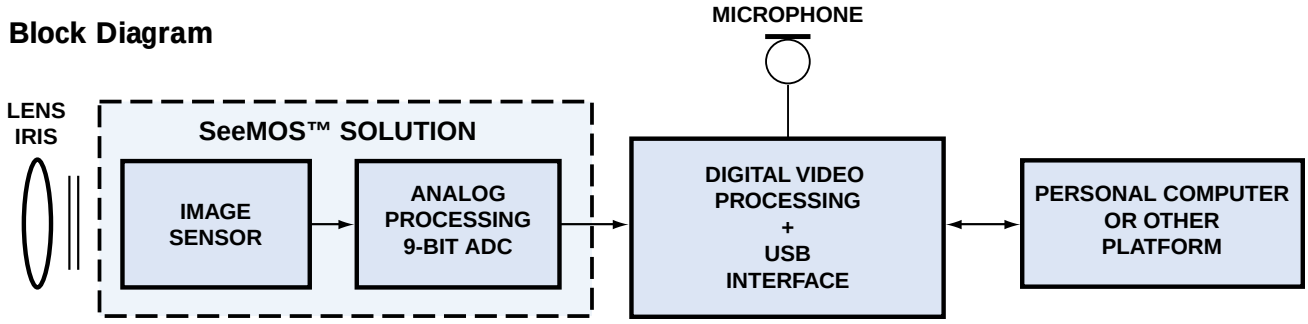
It opens up a vast range of low-cost, high-volume applications, in addition to PC applications, as the small size and extremely low power requirements make SeeMOS sensors perfect for hand-held, battery-operated products. They should also prove highly suitable for high-quality medical cameras, security cameras, image recognition systems, tiny solid-state camcorders, computer vision and automotive collision avoidance systems.

SeeMOS IMAGE SENSORS

Dedicated Technology for Miniaturized PC Camera Solutions

UPA1021 SeeMOS Image Sensor

Block Diagram



For more information, contact your Philips Semiconductors distributor or www.semiconductors.philips.com

North America
Tel: 1 800 234-7381
Internet:
www.semiconductors.philips.com

Europe
Fax: +31 79 3685126

Asia
Fax: 886 2 2134-2941

Japan/Korea
Fax: +81-3-3740-5057
Internet (in Japanese):
www.philips.co.jp/semicon/

Printed in the USA 301665/17.5K/FP/2pp/0900 9397-750-07481