

Hitachi Releases High-Picture-Quality HAM49001 CMOS Sensor Camera Module for Portable Devices

— Flexible support of various image adjustment functions

by means of built-in 16-bit microcontroller—

Tokyo, October 18 2001 — Hitachi, Ltd. (TSE: 6501) today announced the HAM49001 CMOS sensor* camera module as a 110,000-pixel camera system offering high picture quality and ease of use for portable devices such as mobile phones and PDAs provided with a camera function. Sample shipments will begin in December 2001 in Japan.

The HAM49001 incorporates a tried-and-tested Hitachi 16-bit microcontroller as a camera signal processing LSI for processing images from a CMOS sensor, enabling precise handling of complex and varied image adjustment functions such as exposure control. Control is possible from an IIC bus, enabling the development time for a camera system to be shortened.

[Background]

Mobile phones, PDAs, toys, and other products with a built-in camera have recently appeared on the market, and demand is growing for camera modules for use in such camera systems. The requirements of a camera module are pick-up of moving or still images, transmission of such images by e-mail, processing of image data for direct processing on a personal computer, high picture quality, and ease of use to simplify complex system design.

In response to these demands, Hitachi has developed the HAM49001 CMOS sensor camera module comprising a high-performance CMOS sensor and camera signal processing LSI in a single package.

[About this Product]

The HAM49001 is a CMOS sensor camera module that supports CIF (Common Immediate Format: 352 (H) × 288 (V)), a worldwide common video format. It is a compact module (10 mm × 10 mm × 5.8 mm (0.58 cc)) made up of two parts: a high-performance, 1/7-inch, 110,000-pixel CMOS sensor, and an original Hitachi camera signal processing LSI that combines a 16-bit single-chip microcontroller and peripheral components in a single chip.

Major features of the HAM49001 are summarized below.

(1) High picture quality

Optimized design between the CMOS sensor and camera signal processing LSI has resulted in a minimum field illuminance of 10 lux or less, twice that of previous Hitachi products. Also, the provision of a high-precision A/D converter built into the CMOS sensor, and maximum exploitation of conventional image processing technology and control technology developed in CCD (Charge Coupled Devices) camera signal processing IC design, have resulted in the achievement of good color reproduction and high-quality image processing.

(2) Improved ease of use

1) Incorporating a tried-and-tested Hitachi H8/300H Tiny Series compact 16-bit single-chip microcontroller in the camera signal processing LSI allows precise handling of complex and varied image adjustment functions such as exposure control, and smooth image processing for changes of scene.

Various functions can be controlled from an IIC bus, making it possible to shorten the time required by the user for development of a camera system.

2) In addition to the above features, upside down reverse and left/right reverse functions are provided.

(3) Low power consumption and small, thin package

The use of a low-power-consumption, low-pin-count 16-bit single-chip microcontroller and incorporation of peripheral components in the CMOS sensor and camera signal processing LSI have made it possible to achieve low power consumption of 45 mW (at 15 frames per second) and a small, thin module size of 10 mm × 10 mm × 5.8 mm (0.58 cc).

Future plans will focus on smaller size and higher picture quality to provide a comprehensive lineup of CMOS sensor camera modules.

Note: * CMOS sensor: An image sensor incorporating photoreceptor elements and analog circuitry using a CMOS process.

< Typical Applications >

Mobile phones, PDAs, PC cameras, door phones, monitoring cameras, toys

< Prices in Japan > (For Reference)

Product Code	Sample Price (Yen)
HAM49001	5,000

< Specifications >

Item	HAM49001 Specifications
Optical system size	1/7" CMOS image sensor
Image format	352 (H) × 288 (V)
Minimum field illuminance	10 lux or less
Frame rate	15 fps / 7.5 fps
Output format	YUV 8 bit 4:2:2
Flicker	Auto (50 / 60Hz change: Manual)
White balance	Auto
Control bus	IIC
Power supply voltage	2.55 V to 3.1 V
Power consumption	45mW@15 fps,@25°C
Module size	10.0 mm (W) × 10.0 mm (D) × 5.8 mm (H)
Other features	Upside down reverse and left/right reverse functions, plus various image adjustment functions