

Non-Interlace CCD Ideal for High-Definition Digital Still Cameras
2/3-Inch, 1.3-Million Pixel Progressive Scan CCD Image Sensors

ICX085AK (Color)

ICX085AL (Black-and-White)

With the increasingly widespread use of personal computers, there is a growing demand for higher-resolution non-interlace CCDs for use in digital still camera and PC image input applications.

To meet this need, Sony has developed two new 2/3-inch, 1.3-million pixel progressive scan CCDs, capable of producing high-definition still images with a horizontal/vertical resolution of 1024 TV lines.

- Independent output of signals for all pixels in 1/12 second (frame rate: 12 frames/s)
- Still images with high horizontal/vertical resolution (1024 TV lines)
- Square pixels
- Double-speed read mode (ICX085AL)
- High color reproducibility achieved by primary color mosaic color coding (ICX085AK)
- Improved light resistance through use of pigment color filters (ICX085AK)

The ICX085AK (color) and ICX085AL (black-and-white) are 2/3-inch, 1.3-million pixel progressive scan CCD image sensors, developed for applications such as digital still camera and similar image input that require high resolution. Information for an image exposed at any one time can be obtained independently pixel by pixel. These devices have more than twice the horizontal/vertical resolution of VGA format CCDs, and can produce blur-free images without the use of a mechanical shutter. Figure 1 shows a block diagram of the ICX085AK/ICX085AL, table 1 shows the pin description, and table 2 summarizes the specifications.

■ Still Images with High Horizontal/Vertical Resolution (1024 TV Lines)

With both horizontal and vertical resolution of 1024 TV lines, these CCDs are capable of producing high-definition still images, and are ideal for use in professional digital still cameras and FA image input applications requiring high resolution.

■ Double-Speed Read Mode

The ICX085AL has a double-speed mode that enables a screen to be read at twice the normal speed by using a vertical resolution of 512 TV lines. This makes it possible to obtain images with a high dynamic resolution.

■ High Color Reproducibility and Improved Light Resistance

The ICX085AK uses primary color mosaic color coding (Bayer arrangement) (figure 2), for high color reproducibility and high vertical resolution. There is little variation in color reproduction, enabling high-quality printed images to be obtained. In addition, light resistance has been improved by the use of pigment color filters.

■ Simple System Configuration

A sample system configuration is shown in figure 3. The CXD2437TQ timing generator was developed concurrently in order to drive these new devices. The CXD2437TQ is provided with an external trigger function that allows any input timing, and a power-save mode that reduces power consumption in standby mode. A new vertical driver, the CXD1268M, has also been developed, featuring sophisticated drive functions, to further simplify system configuration.

■ Applications

- High-definition digital still cameras
- High-resolution PC image input cameras
- High-definition image input cameras in medical and scientific measurement applications

V O I C E

The ICX085AK and ICX085AL CCD image sensors offer resolution on a par with Hi-Vision. The images they produce evoke such reactions as "Incredible!" and "Stunning!" We hope you will try them out and see if you don't agree.



*New
Products*

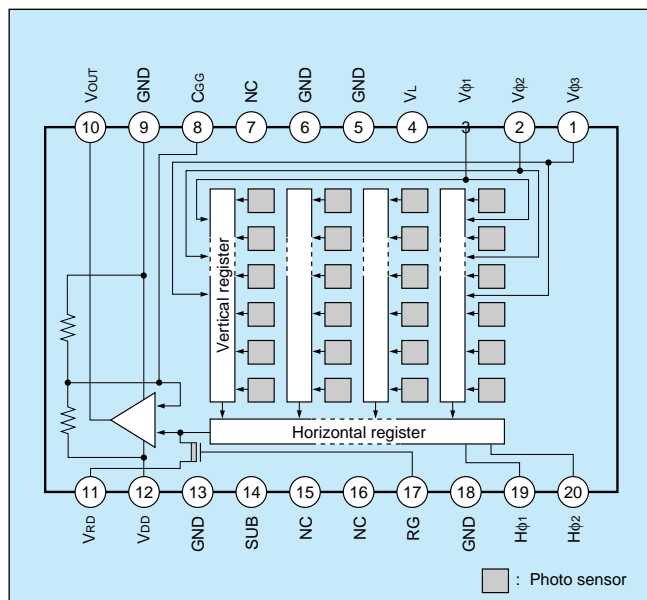


Figure 1 ICX085AK/AL Block Diagram

Table 1 ICX085AK/AL Pins/Description

Pin No.	Symbol	Description
1	V ϕ 3	Vertical register transfer clock
2	V ϕ 2	Vertical register transfer clock
3	V ϕ 1	Vertical register transfer clock
4	V _L	Protective transistor bias
5	GND	GND
6	GND	GND
7	NC	
8	C _{GG}	Output amplifier gate
9	GND	GND
10	V _{OUT}	Signal output
11	V _{RD}	Reset drain power supply
12	V _{DD}	Supply Voltage
13	GND	GND
14	SUB	Substrate (overflow drain)
15	NC	
16	NC	
17	RG	Reset gate clock
18	GND	GND
19	H ϕ 1	Horizontal register transfer clock
20	H ϕ 2	Horizontal register transfer clock

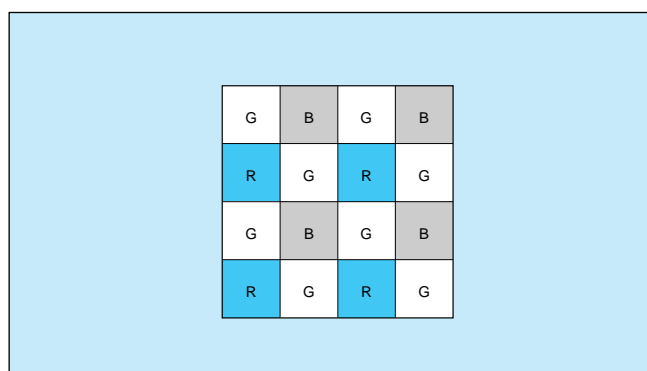


Figure 2 ICX085AK Color Coding

Table 2 ICX085AK/AL Specifications

	ICX085AK	ICX085AL
Optical size	2/3-inch	
Aspect ratio	5 : 4	
Effective pixels	Approx. 1.3-million (1300H x 1030V)	
Unit cell size	6.7 (H)×6.7 (V) μm^2	
Horizontal drive frequency	20.25MHz	
Output channels	1	
Frame rate	12 frames/s	
Color coding	Primary color mosaic (Bayer) arrangement (R/G/B)	Black-and-white
Electronic shutter	1/12 to 1/10000 s (variable speed)	
Package	20-pin DIP (Ceramic)	
Horizontal resolution	1024 TV lines	
Vertical resolution	1024 TV lines	
Sensor saturation signal level	400mV	
Sensitivity	1100 mV equivalent (F5.6, G sensitivity)	1600 mV equivalent (F8)
Smear (V/10)	-92dB	

Note: Sensitivity and smear figures are for 1/12-second storage mode

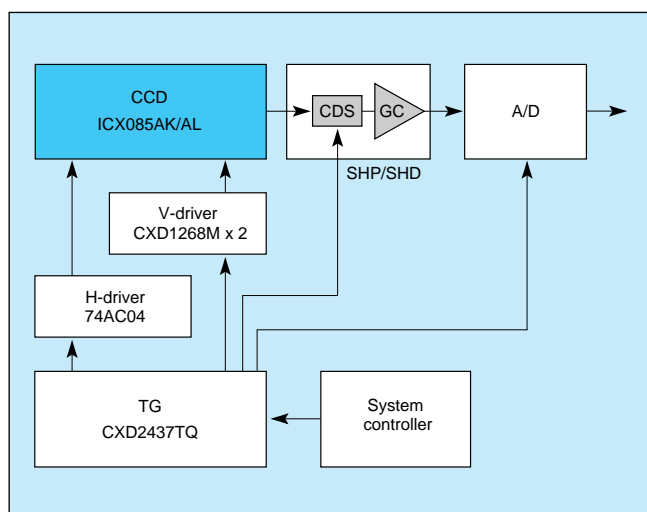


Figure 3 Sample System Configuration