

Miniature High-Precision 3.8 cm (1.5-Type)
118K-Dot Digital Still Camera Color LCD Features the Ratio Viewing Area of 100%

ACX306AK/AKM

In the digital still camera area, where miniaturization and weight reduction continue to advance, a new miniature high-precision LCD device appropriate to function as the interface between the camera and user has arrived: the ACX306AK/AKM. This device is made possible by Sony's low-temperature polycrystalline silicon technology, and despite its miniature form, boasts full functionality with high transmittance and contrast.

LEDs were adopted as the backlight to bring one more level of miniaturization to the panel.

We are confident that this device deserves consideration for your next digital still camera product.

- 3.8 cm (1.5-Type) 118K dots
- Complete the ratio viewing area of 100% with 0% overscan
- High contrast (200:1) despite miniaturization and high optical transmittance (6.5%)
- Miniature low-power consumption LED backlight adopted (power consumption about 1/2 that of cold cathode flat fluorescent lamp)
- New materials adopted to achieve the industry's highest levels of color purity and reproducibility
- Power saving function provides even lower power consumption during standby mode (less than 1/4 that of earlier devices)
- Up/down and/or right/left inversion functions
- Supports NTSC and PAL

■ Ratio Viewing Area of 100% Achieved

The ACX306AK/AKM achieves the ratio viewing area of 100% by setting the overscan to 0%. This means that the whole area imaged by the CCD can be displayed, and the important photographs will not be missed. (See figure 1.)

■ Full Complement of Functions Despite Miniaturization

By adopting Sony's TFT polycrystalline silicon technology developed over many years, the ACX306AK/AKM manages to provide all of the functions of the ACX300 Series products despite its miniature form. In particular, it includes up/down and/or right/left inversion functions to increase the degrees of freedom available in end product design. Furthermore, it achieves high contrast (200:1) and high transmittance (6.5%), and has the highest number of effective pixels per unit area (165.3 dots/mm²) in the 300 Series. As a result, it provides smooth finely images with no apparent dots and a high picture quality. At the same time it can contribute to reduced overall power consumption in end product designs.

■ LED Backlight Adopted for End Product Miniaturization

A high-brightness white LED was adopted as the backlight light source. This device provides a wide range of advantages, including making the module thinner and lighter (about 1/2 the weight of a cold cathode flat fluorescent lamp), reducing power consumption (to 1/2 that of a cold cathode flat fluorescent lamp), maintaining brightness in cold environments, and improving the turn-on time. Since an inverter

is not required for LED drive, designers no longer need to struggle with the high-voltage block layout and noise, and the space required by the inverter is no longer required. This allows designers to take full advantage of the added flexibility in end product design provided by the smaller size of this module. (See photograph 1 and table 1.)

■ High Levels of Color Purity and Reproducibility

Sony adopted new materials in the color filters to achieve new heights in color purity and color reproducibility. (See table 2.)

■ System IC

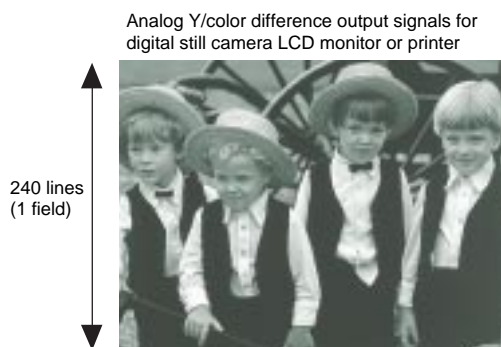
Sony provides the new CXA3522R system IC, which was developed along with the ACX306AK/AKM. This system IC integrates the timing generator and the RGB drivers on a single chip. The CXA3522R supports both NTSC and PAL, and accepts either Y/color difference or RGB signals as inputs. It includes up/down and/or right/left inversion functions to take advantage of the panel features. Furthermore, it includes power saving functions to reduce power consumption in standby mode to 1/4 that of earlier devices. (See figure 3.)

V O I C E

This is a strong product that aims to become the de facto standard by taking advantage of the technological superiority of the low-temperature polycrystalline silicon TFT LCD. This device can contribute to further miniaturization in digital still cameras, and I would like to see it adopted by many digital still camera product users. I strongly urge you to contact us even before you consider other manufacturers' products. We can respond sincerely to your needs.



New Products



* There must be 240 dots in the vertical direction to assure the ratio viewing area of 100%

[LCD with 228 dots in the vertical direction]



LCD display area
228 lines
5% overscan

[LCD with 240 dots in the vertical direction]



LCD display area
240 lines
0% overscan
(Ratio viewing area : 100%)

■ Figure 1 Ratio Viewing Area of 100% Provided by 0% Overscan



■ Photograph 1 Backlight

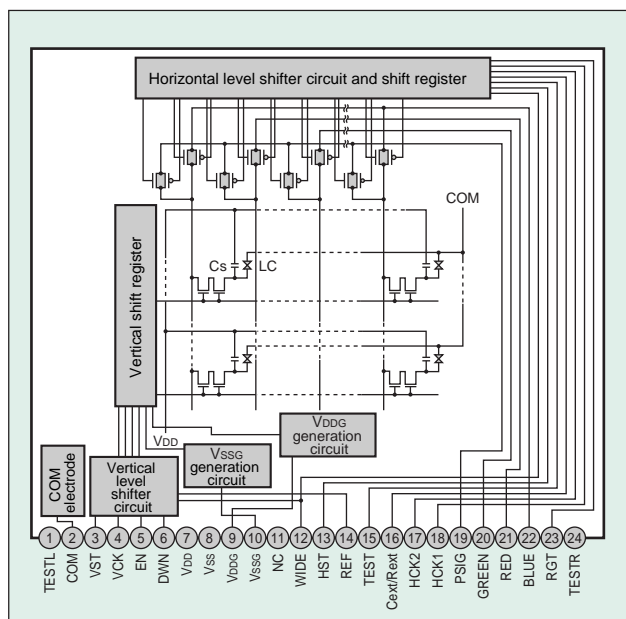
■ Table 1 LED Backlight Specifications

Power supply	DC 17 V
Power consumption	0.26 W
Center brightness	2400 cd/m ²
Brightness uniformity	At least 60 %
Color temperature	7000 K/duv + 0.010

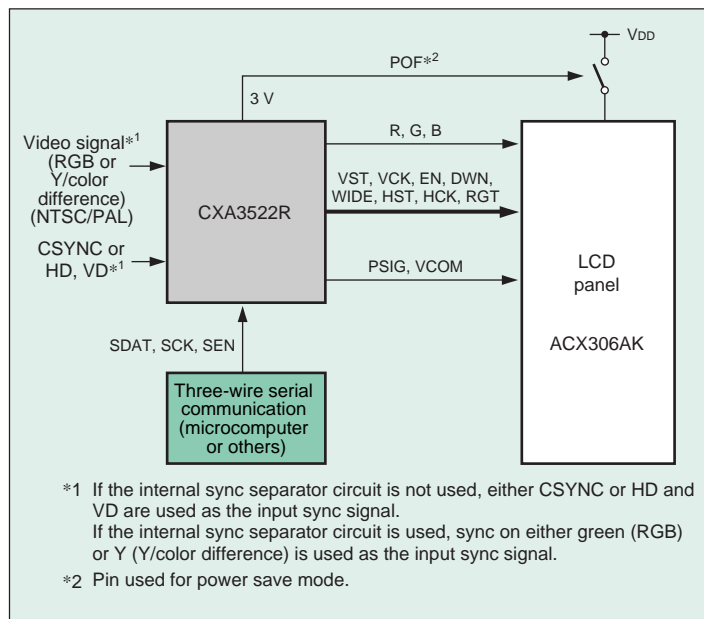
■ Table 2 Chromaticity Table*

	X	Y
R	0.625	0.34
G	0.27	0.61
B	0.15	0.11

* Using a fluorescent backlight



■ Figure 2 ACX306AK/AKM Block Diagram



■ Figure 3 ACX306AK Drive System Block Diagram (single-chip structure)