

ACX709AKM

The ACX709AKM is a new reflective color LCD module that takes full advantage of Sony's low-temperature polycrystalline silicon technology and Sony's optical technology.

This module features a compact screen diagonal (7.6 cm) optimal for PDAs and other portable information terminals and the high resolution of $320 \times \text{RGB} \times 320$. Furthermore, due to the adoption of newly designed color filters and the incorporation of advanced RMP* structure reflective electrodes, it achieves a high reflectivity of 23% (typical).

This module includes a touch panel and a high bright LED front light and can expand the possibilities for new portable information terminals.

* Random Multi Profile

- $320 \times \text{RGB} \times 320$ high-resolution display (307K dots)
(Dot pitch: 168 (H) \times 168 (V) μm)
- Ultraminiature module made possible by low-temperature polycrystalline silicon technology
- Low power consumption: 57 mW (typical)
(With the front light off)
- High display quality with a reflectivity of 23% and contrast ratio of 13:1 (typical)
(Including the touch panel, with the front light off)
- Thin high-efficiency front light

■ Ultraminiature Ultrahigh-Resolution Module with Built-in Selector and Scanner Functions

Sony has integrated in the panel itself both a scanner circuit and a selector circuit for high-speed switching of the data signals input from the module substrate. This was achieved by taking full advantage of Sony's industry-leading low-temperature polycrystalline silicon technology and leading-edge circuit design technology. This allows 6-bit 260K-color display to be achieved with only a single TAB IC, and results in a significant reduction in the parts count and further miniaturization of the overall module. Thus the ACX709AKM is

an ultraminiature module that can contribute significantly to the miniaturization and weight reduction that are indispensable in future portable information terminals. (See figures 1 and 2.)

■ New Color Filters Developed

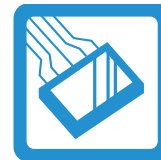
In the ACX709AKM, the coloration due to the birefringence of the LCD panel and the chromaticity shift of the touch panel cancel each other out. In addition, Sony developed and adopted in the ACX709AKM new color filter materials that achieve even higher display quality. Thus the ACX709AKM is able to display white with a high color temperature. Thus this module represents even further advances over Sony's already highly-respected wide color reproducibility in reflective LCDs, and can, as a total module, exhibit superlative color display of PDA content. (See figure 3.)

■ High Reflectivity Achieved by Advanced RMP Technology

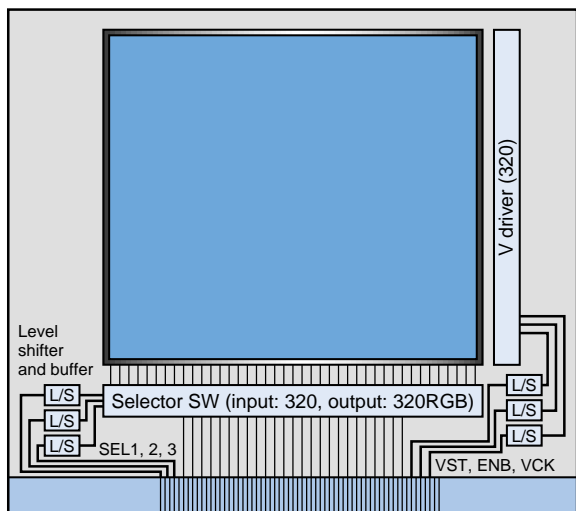
In the ACX709AKM, Sony further developed its unique built-in diffuse reflecting electrode structure, the RMP structure to create the "advanced RMP" technology that achieves a high reflectivity even at high pixel densities. In reflective LCDs, the aperture ratio in the display area (the area of the reflecting electrode with respect to the effective display area) has a large influence on the reflectivity, and it is difficult to achieve both a high-resolution display and a high reflectivity. In the ACX709AKM, Sony introduced this advanced RMP, which is a further development of the leading-edge RMP structure technology and achieves both high-resolution display and a high reflectivity at the same time, and achieves the high reflectivity of 23% (typical), even with the frontlight and touch panel systems included. This is a leading edge technology that can powerfully support increased performance in future PDAs by providing the display performance required for the increasing amount of color used in the content handled by PDAs. (See figure 4.)

V O I C E

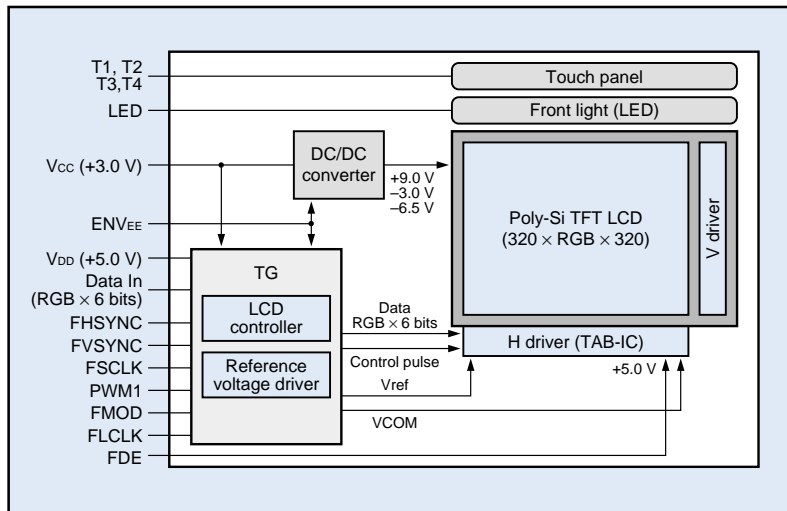
With wideband communication about to become a reality, the PDA is poised for rapid change as a communication device. This is an extremely attractive module that can respond to the demands for display capacity associated with the increasing amounts of information that will be available in the broadband age.



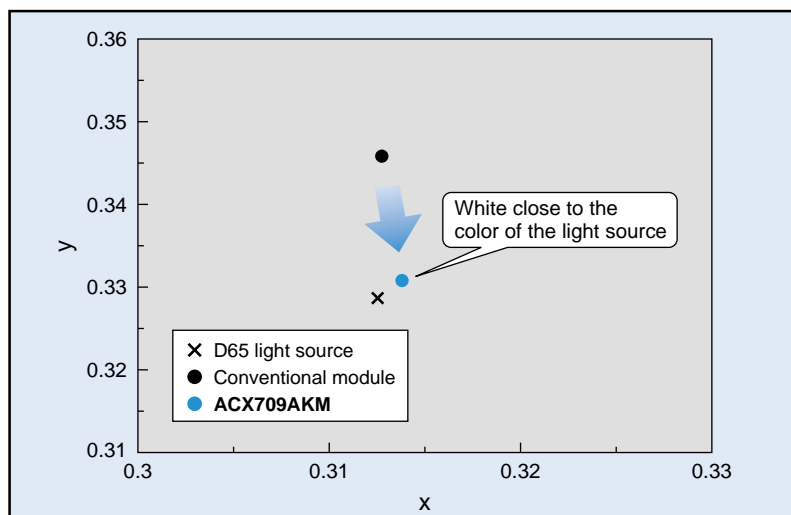
New Products



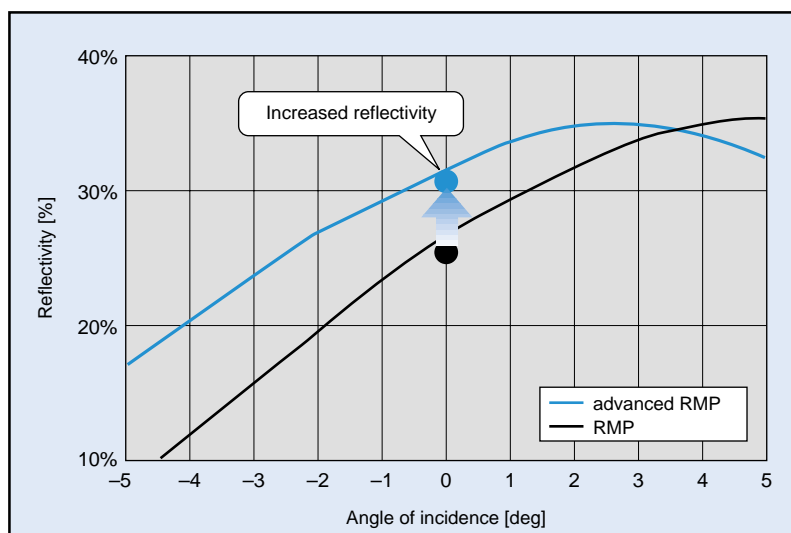
■ Figure 1 Panel System



■ Figure 2 System Block Diagram



■ Figure 3 Color Reproducibility when Displaying White (Sony products)



■ Figure 4 Advanced RMP