ASV LCD Technology

Sharp Microelectronics Of The Americas (SMA), a marketing and sales company for Sharp Corporation, Osaka, Japan, is introducing a next-generation liquid crystal display technology into the North American marketplace. Sharp's ASV technology provides a wider viewing angle, higher contrast display, and faster response time. In addition, ASV completely eliminates, in most versions, bright pixel defects resulting from nonfunctional transistors, making Sharp the first LCD manufacturer to attain this goal. This revolutionary improvement in LCD technology is the result of new design methodologies, new materials and manufacturing processes at Sharp's manufacturing facilities in Japan. Unlike the conventional TN displays, ASV technology has performance advantages, which are derived form a brand new LCD mode, developed by proprietary to Sharp. Sharp is initially offering ASV LCD technology for its thin-film transistor (TFT) industrial control and large screen applications, including medical instrumentation and kiosks. Variants of the standard ASV also will be offered to select markets. SMA anticipates that the new technology will become available in a wide variety of diagonal sizes for a multitude of markets including industrial, PC monitors and automotive applications.

The high performance ASV technology supports a viewing angle up to 170 degrees (horizontal) &#215 170 degrees (vertical), with LCD response times measured in 25 milliseconds (ms) or less. With the improved response speed, ASV LCDs are capable of displaying full-motion video and feature dramatically improved color performance.

When used with a normally black screen, ASV technology eliminated bright pixel defects, making it ideal for the high-quality demands of instrumentation, consumer and medical applications. Other applications requiring ultra low power consumption, such as notebook displays, will still utilize a normally white version of ASV.

Sharp, which pioneered the use of LCD technology in 1973, has continually led the development of new milestones in LCD quality, performance and form factors. The company introduced TFT displays in 1990 and has recently pioneered significant advances in TFT technology, including Highly Reflective (HR) TFT, widely used in many mobile products. HR-TFT and Advanced TFT (transflective) displays are becoming the next generation of displays in the Japanese and European

automotive, Japanese digital camera and cellular phone markets. The introduction of Sharp's ASV technology continues the company's commitment to creating flat panel displays that are more than competitive with cathode ray tube (CRT) technology in virtually every application.

Compared with current LCDs, which have been constrained by limited viewing angles, response time of 80 ms or more, and the presence of bright dot defects, the ASV LCD takes strides forward in all three parameters. Its new, normally black, liquid crystal display and ultra-high aperture (UHA) ratio TFT eliminates bright pixel defects and improves response time to 25 ms or less.

As for the TN mode, this new LCD mode has been achieved through selective use of precision molecular alignment and vertical electric field driven LCD modes. Sharp will adopt ASV LCD panels, with high transmittance, on a par with TN mode and low power consumption, in addition to large-angle viewing and fast response, in large-screen LCD TVs as well as other applications.

ASV's super wide, 170 &#215 170 viewing improves significantly on the previous best offerings of 140 degrees (horizontal) &#215 110 degrees (vertical). Unlike Super V wide viewing angle technology, the viewing enhancement of ASV requires essentially no trade-offs between display quality and chromatically.

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