Epson Develops A6-Size Electronic Paper with World's Highest Resolution Using Plastic Substrate

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Seiko Epson Corp. has successfully developed A6-size (7.1 inches on the diagonal) electronic paper using a plastic substrate. Drawing on Epson's original SUFTLA technology, the new electronic paper achieves Quad-XGA resolution (1536 x 2048 pixels) – the world's highest – and shows the potential for increasing screen size. The development was announced on June 9 at the Society for Information Display (SID) international symposium held in San Francisco.

Epson has long been working to develop and manufacture low-power-consumption, space-saving electronic devices. At the cutting edge of these efforts, R&D has focused on thin, light and flexible devices that can be reshaped as needed, and that can become the technology that

drives electronic equipment for a ubiquitous networked society. In the course of such development, Epson has amassed a range of proprietary technologies including low temperature polysilicon thin film transistors (LTPS-TFT) and SUFTLA, which enables the transfer of TFT circuits to flexible substrates.

As outlined below, the new electronic paper draws on a number of original Epson technologies and has a range of features suited to portable displays.

1. World's highest resolution
LTPS-TFT formed on a plastic substrate using SUFTLA technology gives this electronic paper Quad-XGA resolution – the highest in the world. This ensures that even the smallest letters on a portable display are fully visible.

2. High contrast guaranteeing high-quality display
With a contrast ratio of 10:1, the new technology achieves the same levels of visibility as images printed on ordinary paper.

3. Narrow border and simple interface
Forming peripheral drive circuits with LTPS-TFT creates a simple structure with very few external terminals, that result in a borderless flexible display, even with the drive circuits included.

4. Low power consumption
Data display does not require power – a memory function ensures that information does not disappear even if the power is turned off. Maximum drive voltage even for editing information is just 6 volts, showing that the display itself consumes very little power.

5. Larger screen
The expanded screen size, from around 2 inches in existing models to

A6 size (7.1 inches on the diagonal), is evidence of potential for even bigger screens in the future.

Epson will examine the potential of a range of applications for the technology and conduct further research and development with a view to its practical use.

Source: Seiko Epson