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Flexible TFT Screens

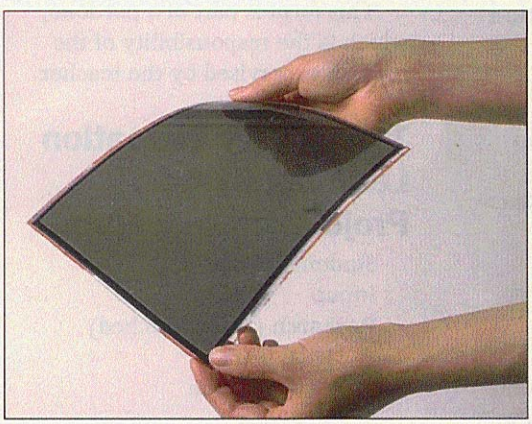
MANY feel that the Holy Grail in screen technology for personal digital assistants, computers, and even televisions will be reached when we can build an ultra-light, ultra-flexible, high-definition screen that can be rolled or folded when it's not in use.

The first step to building this screen has just been announced by the Toshiba Corporation.

The new Toshiba display is a flexible, full-color, low-weight, low-temperature, and low-energy polysilicon, active-matrix TFT, liquid-crystal display that supports SVGA resolution. This technical statement simply means that it would be difficult to find a difference in quality between the four-color process printing of *Tech Directions*' cover and a digital image viewed on this new 8.4" Toshiba screen.

To achieve this level of resolution, an active-matrix, liquid-crystal display must have millions of individual pixels that are controlled by their own thin-film transistors (TFT). Each transistor serves as its own tiny electric switch.

A million-plus switches are found in just one screen, and they all turn on and off under the direction of the computer to create fantastic quality images.

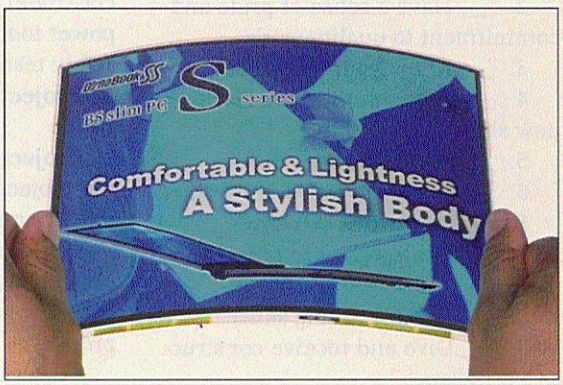


Photos courtesy Toshiba Corp.

The Toshiba screen is just shy of one-fifth the thickness of current TFT displays, and it can be flexed to form a curvature radius of 0.79" (20 cm). Toshiba created this flexibility by developing a new technology that allows them to form TFTs on an extremely thin, flexible, tough glass substrate.

This glass substrate layer is then bonded to another flexible layer to complete the screen. Toshiba's goal is to eventually use this new technology to build a screen that can be folded or rolled into a scroll.

It is expected that the new Toshiba Flexible TFT Screen will be rolled out commercially in their 2004 product line. Toshiba has announced that curved television screens will soon appear in public access areas of buildings, and as an advertisement display on buses and trains.



The posters that often line the curvature between the ceiling and sidewalls of buses and trains, for instance, could soon carry full-motion video advertising brought to you by the Toshiba Corporation.

Recalling the Facts

1. How is this new Toshiba screen different from past TFT screens?
2. What determines the picture quality on a TFT screen?
3. Approximately how many individual transistors will you find on one of these screens?

Next month, Alan Pierce focuses on the new XM radio and how it differs from earth-based transmissions.

Alan Pierce is a technology education consultant, technical writer, and public speaker on technology issues.