

# Samsung Offers 82-inch HDTV TFT-LCD display panel

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## **World's largest Full HDTV TFT-LCD**

Samsung Electronics has developed the world's largest liquid crystal display panel. This 82-inch TFT-LCD is 17 inches larger than LCD flat panel previously developed by Sharp. This development challenges plasma display panels in this market area. This full HD image quality (1,920 x 1,080 pixels) TFT-LCD panel was developed at the company's new production complex in Tangeong, Korea. The soon-to-be operational 7th-generation production facility uses glass substrates that measure 1.87m x 2.20m.

Samsung has made a series of breakthroughs in TFT-LCD technology ahead of the competition over the years. The company developed the first 40-inch model in August 2001, the first 46-inch panel in October 2002, the first 57-inch model in December 2003 and now the first 82-inch panel.

At its 7th-generation Line 7-1, Samsung can produce two 82-inch panels from a single substrate. Previously, technological limitations

prevented the development of LCDs of this size and competitive technologies, such as PDP (plasma display panel) and DLP (digital light processing) technologies, were used to produce such large-sized panels.

Samsung's latest large-screen TFT-LCD offers a variety of features. The company applied its patented Super Patterned-ITO Vertical Alignment (S-PVA) technology to achieve extra-wide viewing angles. In addition, the product boasts a low-dispersion color filter and ultra high aperture ratio, achieving a contrast ratio of at least 1200:1 and brightness of 600nit (cd/m<sup>2</sup>). Response times are at 8ms or faster, providing clear moving picture images. A high-color-saturation backlight raises color saturation to 92% to produce a premium image quality.

Sang Soo Kim, Senior Vice President and Head of the LCD Development Center, states, "Our 82-inch LCD panel proves Samsung Electronics' technological leadership. It uses our proprietary S-PVA technology, eliminating distortion from all angles and offers a 180-degree viewing angle. With this panel, we have achieved the world's best performance in terms of contrast ratio, viewing angle and color saturation."

Samsung is set to begin operations at the world's first 7th-generation TFT-LCD production line at Tangeong, Korea. This facility can be used to produce the company's full line-up of LCD modules for TV: from 23-inch (24 per substrate), 26-inch (18 per substrate) and 32-inch (12 per substrate) to 40-inch (8 per substrate) and 46-inch (6 per substrate).

Samsung Electronics is at least one year ahead of the competition in terms of using 7th-generation production technology to make modules of 40 inches, 46 inches and 57 inches. It is therefore in a position to take an early lead in the fast-growing market for large-screen, wall-hanging TVs.

The development of the 82-inch TFT-LCD highlights the smooth launch of Samsung's and Sony's joint venture in S-LCD. The 7th-generation line will begin mass production at the end of March.

Samsung Electronics will unveil its 82-inch TFT-LCD at CeBIT 2005, which opens in Hannover, Germany on March 10.

**Glossary:**

**PVA Technology**

Patterned-ITO Vertical Alignment is a proprietary Samsung technology for achieving a wide viewing-angle. The liquid crystal molecules are originally aligned at 90 degrees vertically to the electrodes. The passage of an electric field deflects the liquid crystal molecules off-vertical, producing the required image. Similar to the multi-domain vertical alignment (VA), the liquid crystals are controlled by separating unit pixels into four domains.

**S-PVA Technology**

Samsung's patented Super PVA is an upgraded PVA liquid crystal cell technology. The cell architecture accommodates eight, rather than the conventional four crystals, so that the liquid crystal molecules can be controlled in eight different directions and angles. This capability greatly enhances the side viewing-angle of the LCD screen.

**Color Saturation**

This is a measurement of color purity and is compared against the NTSC (National Television Standard Committee) standard of 100. Commercial CRT TVs and LCD TVs normally have a color saturation of 72%, but a higher level is needed to achieve high-definition image quality.

**TV Resolution Classifications**

Standard Definition (SD): 640 x 480 pixels 4:3 aspect ratio

High Definition (HD): 1,366 x 768 pixels 16:9 aspect ratio

Full HD 1,920 x 1,080 pixels 16:9 aspect ratio

**Specifications for Samsung's New 82-inch TFT-LCD**

Resolution 1,920 x RGB x 1,080 (Full HD)

Screen Size 82 inches (diagonal)

Aspect Ratio 16:9 (horizontal to vertical)

Pixels 6.22 million (number of RGB sub-pixels)

Number of Colors 16.7 million shades (24-bit color)

Max Brightness 600 candela

Contrast Ratio 1,200:1

Color Saturation 92% of NTSC standard

Liquid Crystal Response Time 8ms (at maximum)

Viewing Angle 180 degrees (all directions)

Module Size 1,875mm x 1,080mm x 45mm

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