

## SUPER-FINE TFT (SFT) TECHNOLOGY

NEC ELECTRONICS AMERICA

NEC LCD TECHNOLOGIES



Outstanding image quality  
at any viewing angle

LCD technical specifications typically include details about viewing angles but specifications cannot adequately capture the extent to which image quality is affected by the viewing angle technology used. LCDs adjust brightness by passing electric currents through liquid crystal molecules that change their alignment/direction. This in turn controls the amount of light that is transmitted. NEC LCD Technologies' SFT technology induces liquid crystal molecules to line up evenly and rotate horizontally when electrically charged. The rotation angle of the liquid crystal molecules changes according to the amount of electrical voltage applied and affects the amount of light that is transmitted. The liquid crystal molecules are always horizontal, so they appear the same size from the front. Therefore, even if the viewing angle changes, there is little deviation in brightness or color.

### TN Liquid Crystal Display



### SFT Liquid Crystal Display



### SFT technology also provides high-quality moving images

Liquid crystal molecules tend to rotate more smoothly in the horizontal direction than the vertical direction. Since SFT LCDs rotate liquid crystal molecules horizontally, their response time is relatively fast, regardless of the magnitude of shift in gray scale. Moving images are also displayed very clearly because there is no sudden drop in response time between intermediate gray scales. There are no other technologies where liquid crystal molecules rotate vertically.

### High luminance and wide color gamut for clear, vivid color

High luminance and wide color gamut are essential elements in achieving high LCD image quality. Until recently, one was possible only at the expense of the other.\*

Now NEC LCD Technologies offers users both high luminance and wide color gamut in every LCD we produce – and the improved color performance that goes with them. A key breakthrough resulted from the improved transmissivity achieved with our SFT technology.

Our Super-Advanced SFT (SA-SFT) displays offer the same high level of luminance as our Advanced SFT products (A-SFT) but with a 72% NTSC ratio color gamut (almost the same as conventional CRT displays). Moreover, our Ultra-Advanced SFT (UA-SFT) displays take that one step further. They maintain the 72% NTSC ratio, while achieving 120% higher luminance than the SA-SFT LCDs.

\* Colors can be generated with color filters in conventional LCDs other than field sequential formula types. While using a color filter with high color purity will extend the color reproduction range (color gamut), it will also reduce the level of luminance. Conversely, using a color filter with high transmissivity will enhance luminance while causing color reproduction to deteriorate. Monochrome displays actually give the highest priority to luminance.

[www.am.necel.com/display](http://www.am.necel.com/display)

[www.nec-lcd.com/en](http://www.nec-lcd.com/en)

## NEC LCD TECHNOLOGIES

### Environmental Initiatives

#### Our products are RoHS compliant.

Out of concern for the environment, NEC LCD Technologies began reducing the use of hazardous substances in our LCD modules prior to the RoHS Directive. We have eliminated the six substances targeted in the RoHS Directive as well as other substances we have identified as potentially hazardous, so that our products are RoHS-compliant.

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### High luminance and high definition

#### The superior display quality medical professionals demand

Information technology is transforming the medical field and raising expectations for ever-greater diagnostic precision. With this trend, the role of digital displays has become more pivotal than ever in medical applications with the increasing demand for higher image reproduction. NEC's SFT technology helps address the growing demand for highly accurate image reproduction.

Accuracy of image reproduction on medical displays is critical for the appropriate diagnosis of medical conditions. The display brightness, contrast ratio, resolution and viewing angle are variables that affect the accurate reproduction of images on a display. NEC LCD Technologies' SFT technology optimizes these variables resulting in highly accurate image reproduction.

### Products featuring SFT technology

Size	Resolution	Part Number	Additional Attributes	Availability
8.4"	VGA	NL6448BC26-08D	400 cd/m <sup>2</sup> , CR 800:1, LVDS, UA-SFT, A/G	Now
8.4"	XGA	NL10276BC16-01	400 cd/m <sup>2</sup> , CR 400:1, LVDS, UA-SFT, A/G	Now
8.9"	WSVGA	NL10260BC19-01D	300 cd/m <sup>2</sup> , CR 700:1, LED, LVDS, UA-SFT, A/G	Now
9.0"	WVGA	NL8048BC24-04	350 cd/m <sup>2</sup> , CR 700:1, LVDS, UA-SFT, clear	Now
10.4"	VGA	NL6448BC33-53	380 cd/m <sup>2</sup> , CR 500:1, SA-SFT, clear	Now
10.4"	VGA	NL6448BC33-74	400 cd/m <sup>2</sup> , CR 800:1, SA-SFT, clear, COG	Now
10.4"	SVGA	NL8060BC26-27	400 cd/m <sup>2</sup> , CR: 700:1, SA-SFT, clear	Now
10.4"	SVGA	NL8060BC26-28	400 cd/m <sup>2</sup> , CR 700:1, LVDS, SA-SFT, clear	Now
10.4"	XGA	NL10276BC20-08	300 cd/m <sup>2</sup> , CR 700:1, LVDS, SA-SFT, clear	Now
12.1"	SVGA	NL8060BC31-20	250 cd/m <sup>2</sup> , CR 400:1, A-SFT, clear	Now
12"	WXGA	NL12880BC20-02D	180 cd/m <sup>2</sup> , CR 700:1, LVDS, UA-SFT, A/G	Now
15.0"	XGA	NL10276BC30-17	350 cd/m <sup>2</sup> , CR 700:1, LVDS, UA-SFT, A/G	Now
15.0"	XGA	NL10276BC30-19	350 cd/m <sup>2</sup> , CR 700:1, LVDS, UA-SFT, A/G, RF	Now
15.3"	WXGA	NL12876BC26-25	470 cd/m <sup>2</sup> , CR 700:1, LVDS, SA-SFT, A/G	Now
15.3"	WXGA	NL12876BC26-25B	470 cd/m <sup>2</sup> , CR 700:1, LVDS, SA-SFT, Clear	Now
15.3"	WXGA	NL12876BC26-28	330 cd/m <sup>2</sup> , CR 1000:1, LVDS, SA-SFT, A/G	Now
19"	SXGA	NL128102BC29-01	300 cd/m <sup>2</sup> , CR 450:1, LVDS, SA-SFT, A/G	Now
19"	SXGA	NL128102BC29-01B	280 cd/m <sup>2</sup> , CR 450:1, LVDS, SA-SFT, A/G	Now
19"	SXGA	NL128102BM29-05A	1000 cd/m <sup>2</sup> , CR 900:1, LVDS, SA-SFT, A/G, Mono	Now
19"	SXGA	NL128102BM29-08	1000 cd/m <sup>2</sup> , CR 900:1, LVDS, UA-SFT, A/G, Mono	Now
19"	SXGA	NL128102BC29-10	300 cd/m <sup>2</sup> , CR 800:1, LVDS, UA-SFT, A/G	Now
19"	SXGA	NL128102BC29-10C	290 cd/m <sup>2</sup> , CR 800:1, LVDS, UA-SFT, A/G	Now
20.1	SXGA	NL128102AC31-02	250 cd/m <sup>2</sup> , CR 300:1, LVDS, A-SFT, Low Reflection	Now
20.1"	QSXGA	NL256204AM15-03A	850 cd/m <sup>2</sup> , CR 600:1, LVDS, SA-SFT, A/G, Mono	Now
21.3"	UXGA	NL160120BC27-14	250 cd/m <sup>2</sup> , CR 550:1, LVDS, SA-SFT, A/G	Now
21.3"	UXGA	NL160120AC27-20	950 cd/m <sup>2</sup> , CR 900:1, LVDS, UA-SFT, A/G	Now
21.3"	UXGA	NL160120BM27-03A	1000 cd/m <sup>2</sup> , CR 700:1, LVDS, SA-SFT, A/G, Mono	Now
21.3"	UXGA	NL160120AM27-13A	1650 cd/m <sup>2</sup> , CR 850:1, LVDS, SA-SFT, A/G, Mono	Now
21.3"	UXGA	NL160120AC27-22B	860 cd/m <sup>2</sup> , CR 1050:1, LVDS, UA-SFT, A/G	Now
21.3"	QXGA	NL204153AC21-09	800 cd/m <sup>2</sup> , CR 750:1, LVDS, UA-SFT, A/G	Now
21.3"	QXGA	NL204153BM21-01A	800 cd/m <sup>2</sup> , CR 700:1, LVDS, SA-SFT, A/G, Mono	Now
21.3"	QXGA	NL204153AM21-07A	1450 cd/m <sup>2</sup> , CR 900:1, LVDS, SA-SFT, A/G, Mono	Now
22.5"	WUXGA	NL192120AC25-02	460 cd/m <sup>2</sup> , CR 800:1, LVDS, UA-SFT, A/G, double speed drive, color gamut: 97% to Adobe RGB	Now
22.5"	WUXGA	NL192120BC25-03	500 cd/m <sup>2</sup> , CR 800:1, LVDS, UA-SFT, A/G, double speed drive, color gamut: 77% to NTSC	Now