

Natural Light TFT (NLT) Technology



Bright, clear displays in any ambient-light environment

To address the growing need for displays viewable in a variety of ambient-light environments, NEC LCD Technologies has developed two proprietary transfective LCD technologies: Super-Reflective NLT (SR-NLT) and Super-Transmissive NLT (ST-NLT).

SR-NLT Technology



Unaffected by changes in outdoor-light environments to ensure natural color anytime!

SR-NLT technology allows users to change backlight modes (on/off) in response to changes in the outdoor light environment.

NEC LCD Technologies' (NEC) SR-NLT technology gives customers a choice of two operating modes depending on the outdoor-light environment: the transmissive mode, which uses the module's backlight as a light source, and the reflective mode, which employs ambient light as the light source. To change modes, just turn the backlight ON or OFF. Due to NEC's proprietary optical design, this type of LCD module features a high-level combination of transmissivity in the transmissive mode and reflectivity in the reflective mode—for maximum visibility under any and all outdoor light conditions. In reflective mode the display uses ambient light as its light source instead of the module backlight—thereby saving on battery life in mobile terminals and handsets.

ST-NLT Technology

ST-NLT technology assures bright, natural display viewing under any ambient-light condition.

ST-NLT technology is another innovative technology incorporating NEC LCD Technologies' proprietary optical design. The technology boosts the efficiency of the backlight's light utilization and minimizes the surface reflection of ambient light. It is a transmissive LCD module that produces high-contrast images even in bright outdoor light found on sunny afternoons and features a wider color reproduction range than reflective LCDs, making it the ideal choice for bright, vibrant color displays. NEC's extensive lineup of ST-NLT products ranges in size from 5.5-inch QVGA to 15.0-inch XGA. Due to new, advanced optical technology, the ST-NLT LCD modules are ideal for ATMs, measuring devices, vending machines and other industrial devices subject to use in bright sunlight.

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 now RoHS-compliant.

Products Featuring SR-NLT Technology

| SIZE | RESOLUTION | PART NUMBER | ADDITIONAL ATTRIBUTES | AVAILABILITY |
|-----------|------------|----------------|--|--------------|
| 2.7-inch | QVGA | NL2432HC17-04A | 140 cd/m ² , CR 150:1 (on), 35% RR | Now |
| | | NL2432HC17-04B | 120 cd/m ² , CR 150:1 (on), 35% RR, w/ touch | |
| 3.5-inch | QVGA | NL2432HC22-40A | 220 cd/m ² , CR 150:1 (on), LED, 15% RR | Now |
| | | NL2432HC22-41B | 200 cd/m ² , CR 150:1 (on), LED, w/ touch, 15% RR | |
| | | NL2432HC22-42B | 200 cd/m ² , CR 130:1 (on), LED, w/ touch, 15% RR | |
| | | NL2432HC22-45A | 100 cd/m ² , CR 150:1 (on), LED, 16% RR | |
| | | NL2432HC22-50A | 220 cd/m ² , CR 150:1 (on), LED, 15% RR | |
| | | NL2432HC22-50B | 180 cd/m ² , CR 150:1 (on), LED, 20% RR | |
| | VGA | NL4864HL11-01B | 200 cd/m ² , CR 180:1 (on), LED, w/ touch, VIT | Now |
| | | NL4864HL11-02A | 220 cd/m ² , CR 180:1 (on), LED | |
| 6.5-inch | SVGA | NL8060BC16-01 | 300 cd/m ² , CR 150:1 (on), 35% RR | TBD |
| 10.4-inch | XGA | NL10276BC20-10 | 175 cd/m ² , CR 150:1 (on), LED, 35% RR | Now |

Products Featuring ST-NLT Technology

| SIZE | RESOLUTION | PART NUMBER | ADDITIONAL ATTRIBUTES | AVAILABILITY |
|-----------|-----------------|--|--|--|
| 5.5-inch | QVGA | NL3224BC35-22 | 750 cd/m ² , CR 500:1 | Now |
| 6.5-inch | VGA | NL6448BC20-20 | 650 cd/m ² , CR 600:1 | Now |
| | | NL6448BC20-21C | 800 cd/m ² , CR 600:1, LED | |
| | | NL6448BC20-30C | 900 cd/m ² , CR 600:1, LED, LVDS | |
| | XGA | NL10276BC13-01C | 650 cd/m ² , CR 500:1, LED, LVDS | Now |
| 7.0-inch | WVGA | NL8048BC19-02C | 350 cd/m ² , CR 800:1, LED, LVDS | |
| 8.4-inch | VGA | NL6448BC26-09C | 750 cd/m ² , CR 600:1 | Now |
| | SVGA | NL8060BC21-03 | 650 cd/m ² , CR 600:1, LVDS | |
| | SVGA | NL8060BC21-11C | 800 cd/m ² , CR 600:1, LED | Samples June 2010 MP Target July 2010 |
| 10.4-inch | VGA | NL6448BC33-63C | 450 cd/m ² , CR 600:1, LVDS | Now |
| | | NL6448BC33-64C | 450 cd/m ² , CR 600:1 | |
| | | NL6448BC33-70C | 900 cd/m ² , CR 600:1, LED | |
| | SVGA | NL8060BC26-30C | 550 cd/m ² , CR 900:1, LVDS | |
| | | NL8060BC26-35C | 800 cd/m ² , CR 1000:1, LED, LVDS | |
| XGA | NL10276BC20-04C | 300 cd/m ² , CR 300:1, LVDS | Now | |
| 12.1-inch | SVGA | NL8060BC31-32 | 400 cd/m ² , CR 600:1 | Now |
| | | NL8060BC31-41C | 550 cd/m ² , CR 600:1, LVDS | |
| | XGA | NL10276BC24-13C | 400 cd/m ² , CR 600:1, LVDS | |
| 15-inch | XGA | NL10276BC30-18C | 600 cd/m ² , CR 600:1, LVDS | Now |

Renesas Electronics America Inc.
 2880 Scott Boulevard
 Santa Clara, CA 95050-2554
 1-408-588-6000
 www.am.renesas.com

NEC LCD Technologies, Ltd.
 1753 Shimonumabe, Nakahara-Ku
 Kawasaki, Kanagawa 211-8666, Japan
 044-435-1666
 www.nec-lcd.com/en

Note:
 Renesas Electronics America Inc.
 is the exclusive representative of
 NEC LCD Technologies in the Americas.

