Next Vision Display
Brighten The Future

# NEXT VISION DISPLAY

## SPECIFICATION

## MODULE NO: NL022GN001ML

Next Vision Display
Brighten The Future

| | |
|---|---|
| Version | A |
| Engineer | |
| Date | August 07, 2013 |

| Customer: |
|---|
| Approved by |

**NEXT VISION DISPLAY CO., LTD.**

**地址: 中國上海小木橋路600號**
ADD: 600 XIAO MU QIAO ROAD, SHANGHAI, CHINA

WEB: www.nextvisiondisplay.com

TECHNICAL: technical@nextvisiondisplay.com
MARKETING: marketing@nextvisiondisplay.com
SALES: sales@nextvisiondisplay.com

# *1. Basic Specifications*

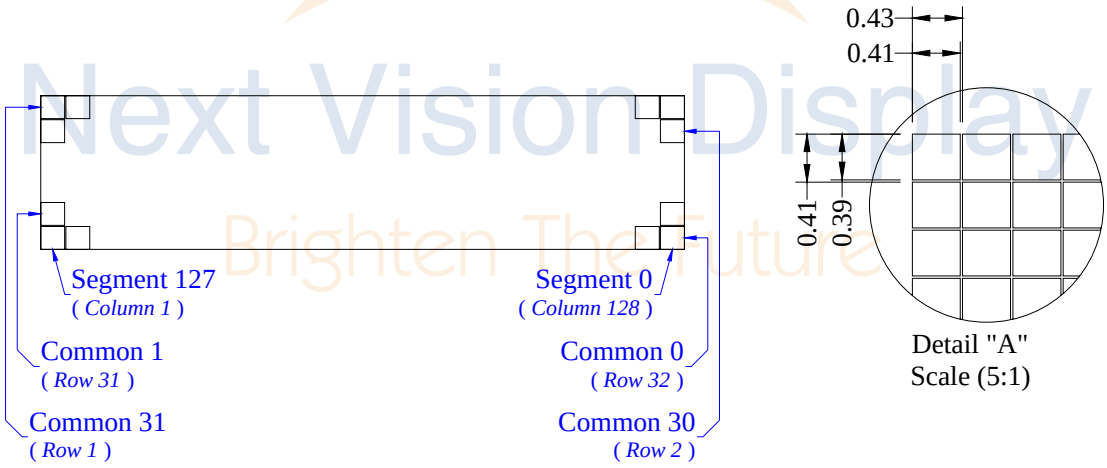
## 1.1 Display Specifications

1) Display Mode: Passive Matrix
2) Display Color: Monochrome
3) Drive Duty: 1/32 Duty

## 1.2 Mechanical Specifications

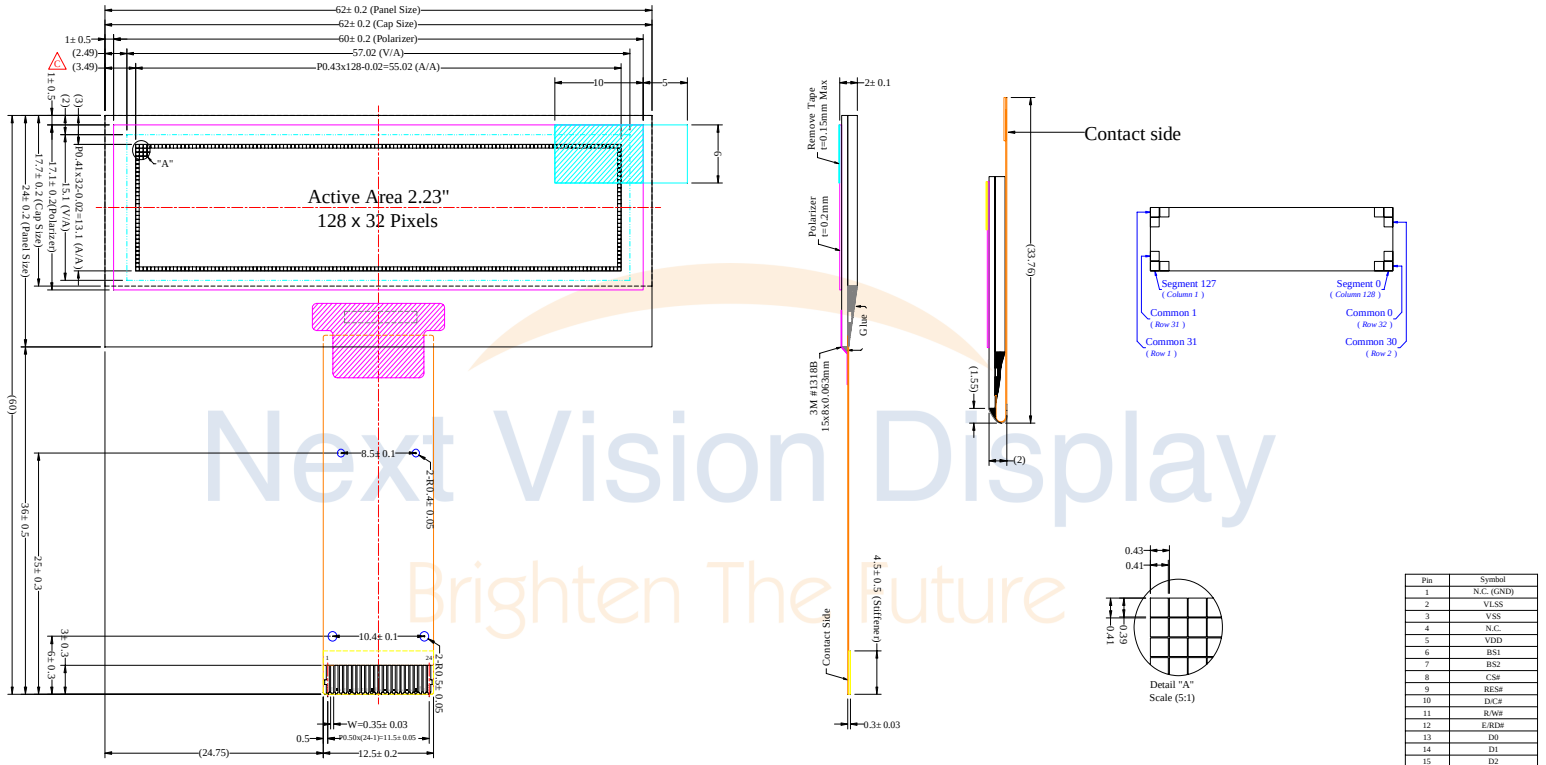
| | | |
|---|---|---|
| 1) | Outline Drawing: | According to the annexed outline drawing |
| 2) | Number of Pixels: | 128 × 32 |
| 3) | Panel Size: | 62.0 ×24.0 × 2.0 (mm) |
| 4) | Active Area: | 55.02 × 13.1(mm) |
| 5) | Pixel Pitch: | 0.43 × 0.41 (mm) |
| 6) | Pixel Size: | 0.41 × 0.39 (mm) |
| 7) | Weight: | TBD |

## 1.3 Active Area / Memory Mapping & Pixel Construction




Next Vision Display
Brighten The Future

| Item | Date | Remark |
|---|---|---|
| A | 20130807 | Original Drawing |
| | | |
| | | |




| Pin | Symbol |
|---|---|
| 1 | N.C. (GND) |
| 2 | VLSS |
| 3 | VSS |
| 4 | N.C. |
| 5 | VDD |
| 6 | BS1 |
| 7 | BS2 |
| 8 | CS# |
| 9 | RES# |
| 10 | D/C# |
| 11 | R/W# |
| 12 | E/RD# |
| 13 | D0 |
| 14 | D1 |
| 15 | D2 |
| 16 | D3 |
| 17 | D4 |
| 18 | D5 |
| 19 | D6 |
| 20 | D7 |
| 21 | IREF |
| 22 | VCOMH |
| 23 | VCC |
| 24 | N.C. (GND) |

Notes:
1. Color: Mono
2. Driver IC: SSD1305
3. FPC Number: QT1305P04
4. Interface:
   8-bit 68XX/80XX Parallel, 4-wire SPI, I2 C
5. General Tolerance: ± 0.30

NL022GN001ML

| Unless Otherwise Specified | | Title | Folding Type OEL Display Module<br>Pixel Number: 18 x 32, Monochrome, COG Package | | | | Material | | |
|---|---|---|---|---|---|---|---|---|---|
| Unit | mm | | | | | | Soda Lime / Polyimide | | |
| General Roughness | | | | | | | | | |
| Tolerance | | | Drawn | E.E. | Panel / E. | P.M. | | | |
| Dimension | ± 0.3 | By | HONG | | | | Scale | Sheet | Size |
| Angle | ± 1 | Date | 20130807 | | | | 1:1 | 1 of 1 | A3 |

Next Vision Display
Brighten The Future

## 1.5 Pin Definition

<table>
<tr><th>Pin Number</th><th>Symbol</th><th>I/O</th><th>Function</th></tr>
<tr><td colspan="4">Power Supply</td></tr>
<tr><td>5</td><td>VDD</td><td>P</td><td>Power Supply for Logic<br>This is a voltage supply pin. It must be connected to external source.</td></tr>
<tr><td>3</td><td>VSS</td><td>P</td><td>Ground of Logic Circuit<br>This is a ground pin. It acts as a reference for the logic pins. It must be connected to external ground.</td></tr>
<tr><td>23</td><td>VCC</td><td>P</td><td>Power Supply for OEL Panel<br>This is the most positive voltage supply pin of the chip. A stabilization capacitor should be connected between this pin and $V_{SS}$ when the converter is used. It must be connected to external source when the converter is not used.</td></tr>
<tr><td colspan="4">Driver</td></tr>
<tr><td>21</td><td>IREF</td><td>I</td><td>Current Reference for Brightness Adjustment<br>This pin is segment current reference pin. A resistor should be connected between this pin and $V_{SS}$. Set the current at 12.5μA maximum.</td></tr>
<tr><td>22</td><td>VCOMH</td><td>O</td><td>Voltage Output High Level for COM Signal<br>This pin is the input pin for the voltage output high level for COM signals. A capacitor should be connected between this pin and $V_{SS}$.</td></tr>
<tr><td colspan="4">DC/DC Converter</td></tr>
<tr><td>2</td><td>VLSS</td><td>P</td><td>Positive Terminal of the Flying Inverting Capacitor<br>Negative Terminal of the Flying Boost Capacitor<br>The charge-pump capacitors are required between the terminals. They must be floated when the converter is not used.</td></tr>
<tr><td colspan="4">Interface</td></tr>
<tr><td>6<br>7</td><td>BS1<br>BS2</td><td>I</td><td>Communicating Protocol Select<br>These pins are MCU interface selection input. See the following table:
<table>
<tr><td></td><td>BS1</td><td>BS2</td></tr>
<tr><td>$I^2C$</td><td>1</td><td>0</td></tr>
<tr><td>4-wire SPI</td><td>0</td><td>0</td></tr>
<tr><td>8-bit 68XX Parallel</td><td>0</td><td>1</td></tr>
<tr><td>8-bit 80XX Parallel</td><td>1</td><td>1</td></tr>
</table></td></tr>
<tr><td>9</td><td>RES#</td><td>I</td><td>Power Reset for Controller and Driver<br>This pin is reset signal input. When the pin is low, initialization of the chip is executed. Keep this pin pull high during normal operation.</td></tr>
<tr><td>8</td><td>CS#</td><td>I</td><td>Chip Select<br>This pin is the chip select input. The chip is enabled for MCU communication only when CS# is pulled low.</td></tr>
<tr><td>10</td><td>D/C#</td><td>I</td><td>Data/Command Control<br>This pin is Data/Command control pin. When the pin is pulled high, the input at D7~D0 is treated as display data. When the pin is pulled low, the input at D7~D0 will be transferred to the command register.<br>When the pin is pulled high and serial interface mode is selected, the data at SDIN will be interpreted as data. When it is pulled low, the data at SDIN will be transferred to the command register. In $I^2C$ mode, this pin acts as SA0 for slave address selection.<br>For detail relationship to MCU interface signals, please refer to the Timing Characteristics Diagrams.</td></tr>
<tr><td>12</td><td>E/RD#</td><td>I</td><td>Read/Write Enable or Read<br>This pin is MCU interface input. When interfacing to a 68XX-series microprocessor, this pin will be used as the Enable (E) signal. Read/write operation is initiated when this pin is pulled high and the CS# is pulled low.<br>When connecting to an 80XX-microprocessor, this pin receives the Read (RD#) signal. Data read operation is initiated when this pin is pulled low and CS# is pulled low.<br>When serial or $I^2C$ mode is selected, this pin must be connected to $V_{SS}$.</td></tr>
</table>

Next Vision Display
Brighter the Future

## 1.5 Pin Definition (Continued)

| Pin Number | Symbol | I/O | Function |
|---|---|---|---|
| ***Interface (Continued)*** | | | |
| 11 | R/W# | I | **Read/Write Select or Write**<br>This pin is MCU interface input. When interfacing to a 68XX-series microprocessor, this pin will be used as Read/Write (R/W#) selection input. Pull this pin to "High" for read mode and pull it to "Low" for write mode.<br>When 80XX interface mode is selected, this pin will be the Write (WR#) input. Data write operation is initiated when this pin is pulled low and the CS# is pulled low.<br>When serial or $I^2C$ mode is selected, this pin must be connected to $V_{SS}$. |
| 13~20 | D0~D7 | I/O | **Host Data Input/Output Bus**<br>These pins are 8-bit bi-directional data bus to be connected to the microprocessor's data bus. When serial mode is selected, D1 will be the serial data input SDIN and D0 will be the serial clock input SCLK. When $I^2C$ mode is selected, D2 & D1 should be tired together and serve as $SDA_{out}$ & $SDA_{in}$ in application and D0 is the serial clock input SCL.<br>Unused pins must be connected to $V_{SS}$ except for D2 in serial mode. |
| ***Reserve*** | | | |
| 4 | N.C. | - | **Reserved Pin**<br>The N.C. pin between function pins are reserved for compatible and flexible design. |
| 1，24 | N.C. (GND) | - | **Reserved Pin (Supporting Pin)**<br>The supporting pins can reduce the influences from stresses on the function pins. These pins must be connected to external ground as the ESD protection circuit. |

Next Vision Display
Brighten The Future