**(V) Preliminary Specifications**
**() Final Specifications**

| Module | 12.1 Inch Color TFT-LCD |
|---|---|
| Model Name | G121SN01 V3 |

| Customer | Date |
|---|---|
| | |
| **Checked & Approved by** | |
| _____ | _____ |
| Note: This specification is subject to change without notice. | |

| Approved by | Date |
|---|---|
| Debbie Chiu | 2007/11/07 |
| **Prepared by** | |
| Sam Chen | 2007/11/07 |
| General Display Business Division / AU Optronics Corporation | |

# Contents

**Record of Revision**

| Version and Date | Page | Old Description | New Description | Remark |
|---|---|---|---|---|
| 0.0 2007/11/07 | All | First Draft | All | |
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## 1. Operating Precautions

1) Since front polarizer is easily damaged, please be cautious and not to scratch it.

2) Be sure to turn off power supply when inserting or disconnecting from input connector.

3) Wipe off water drop immediately. Long contact with water may cause discoloration or spots.

4) When the panel surface is soiled, wipe it with absorbent cotton or soft cloth.

5) Since the panel is made of glass, it may be broken or cracked if dropped or bumped on hard surface.

6) Since CMOS LSI is used in this module, take care of static electricity and insure human earth when handling.

7) Do not open nor modify the module assembly.

8) Do not press the reflector sheet at the back of the module to any direction.

9) In case if a module has to be put back into the packing container slot after it was taken out from the container, do not press the center of the CCFL Reflector edge. Instead, press at the far ends of the CCFL Reflector edge softly. Otherwise the TFT Module may be damaged.

10) At the insertion or removal of the Signal Interface Connector, be sure not to rotate nor tilt the Interface Connector of the TFT Module.

11) After installation of the TFT Module into an enclosure (Notebook PC Bezel, for example), do not twist nor bend the TFT Module even momentary. At designing the enclosure, it should be taken into consideration that no bending/twisting forces are applied to the TFT Module from outside.　 Otherwise the TFT Module may be damaged.

12) Cold cathode fluorescent lamp in LCD contains a small amount of mercury. Please follow local ordinances or regulations for disposal.

13) Small amount of materials having no flammability grade is used in the LCD module. The LCD module should be supplied by power complied with requirements of Limited Power Source (IEC60950 or UL1950), or be applied exemption.

14) The LCD module is designed so that the CCFL in it is supplied by Limited Current Circuit (IEC60950 or UL1950). Do not connect the CCFL in Hazardous Voltage Circuit.

15) Severe temperature condition may result in different luminance, response time and lamp ignition voltage.

16) Continuous operating TFT-LCD display under low temperature environment may accelerate lamp exhaustion and reduce luminance dramatically.

17) The data on this specification sheet is applicable when LCD module is placed in landscape position.

18) Continuous displaying fixed pattern may induce image sticking. It 's recommended to use screen saver or shuffle content periodically if fixed pattern is displayed on the screen.

## 2. General Description

G121SN01 V3 is a Color Active Matrix Liquid Crystal Display composed of a TFT-LCD display, a driver circuit, and a backlight system. The screen format is intended to support SVGA (800(H) x 600(V)) screen and 16.2M (RGB 8-bits) or 262K colors (RGB 6-bits). All input signals are LVDS interface compatible. Inverter card of backlight is not included.

G121SN01 V3 is designed for industrial display applications.

## 2.1 Display Characteristics

The following items are characteristics summary on the table under 25 ℃ condition:

| Items | Unit | Specifications |
|---|---|---|
| Screen Diagonal | [inch] | 12.1 |
| Active Area | [mm] | 246.0(H) x 184.5(V) |
| Pixels H x V | | 800x3(RGB) x 600 |
| Pixel Pitch | [mm] | 0.3075 x 0.3075 |
| Pixel Arrangement | | R.G.B. Vertical Stripe |
| Display Mode | | TN, Normally White |
| Nominal Input Voltage VDD | [Volt] | 3.3 typ. |
| Typical Power Consumption | [Watt] | 7.8W (64 Gray Bar Pattern, exclude inverter) |
| Weight | [Grams] | 660g (typ.) |
| Physical Size | [mm] | 279.0(H)x 209.0(V) x 11.0(D) (typ.) |
| Electrical Interface | | 1 channel LVDS |
| Surface Treatment | | AG, Hardness 3H |
| Support Color | | 16.2M/262K colors |
| Temperature Range<br>    Operating<br>    Storage (Non-Operating) | [$^o$C]<br>[$^o$C] | -30 to +85 (+85℃  as panel surface temperature)<br>-30 to +85 |
| RoHS Compliance | | RoHS Compliance |

## 2.2 Optical Characteristics

The optical characteristics are measured under stable conditions at 25 ℃ (Room Temperature):

| Item | Unit | Conditions | Min. | Typ. | Max. | Note |
|---|---|---|---|---|---|---|
| White Luminance | [cd/m²] | IRCFL= 6.0mA (center point) | 320 | 400 | - | 1 |
| Uniformity | | 13 Points | - | 1.25 | 1.60 | 1, 2, 3, |
| Contrast Ratio | | | - | 600 | - | 4 |
| Response Time | [msec] | Rising | - | 10 | 20 | 5 |
| | [msec] | Falling | - | 25 | 30 | 5 |
| | [msec] | Rising + Falling | - | 35 | 50 | 6 |
| Viewing Angle | [degree] | Horizontal (Right) CR = 10 | 60 | 70 | - | 6 |
| | [degree] | (Left) | 60 | 70 | - | |
| | [degree] | Vertical (Upper) CR = 10 | 45 | 50 | - | 6 |
| | [degree] | (Lower) | 55 | 60 | - | |
| Color / Chromaticity Coordinates (CIE 1931) | % | Red x | 0.590 | 0.620 | 0.650 | |
| | | Red y | 0.310 | 0.340 | 0.370 | |
| | | Green x | 0.275 | 0.305 | 0.335 | |
| | | Green y | 0.555 | 0.585 | 0.615 | |
| | | Blue x | 0.115 | 0.145 | 0.175 | |
| | | Blue y | 0.112 | 0.115 | 0.118 | |
| | | White x | 0.283 | 0.313 | 0.343 | |
| | | White y | 0.299 | 0.329 | 0.359 | |
| Color Gamut | | | | 55 | | |

Note 1: Measurement method

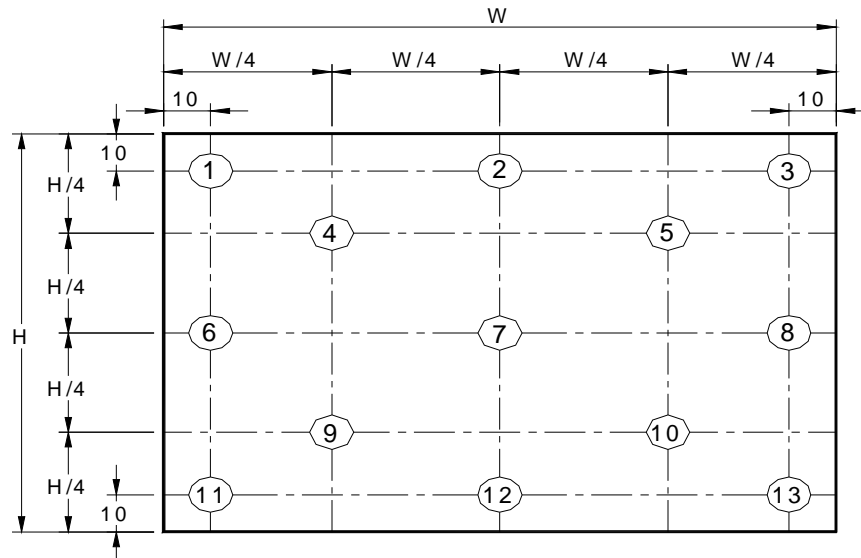Equipment Pattern Generator, Power Supply, Digital Voltmeter, Luminance meter (SR_3 or equivalent)

Aperture         1° with 50cm viewing distance

Test Point       Center

Environment      *< 1 lux*

LCD Module

SR_3 or equivalent

Measuring distance

Module Driving Equipment
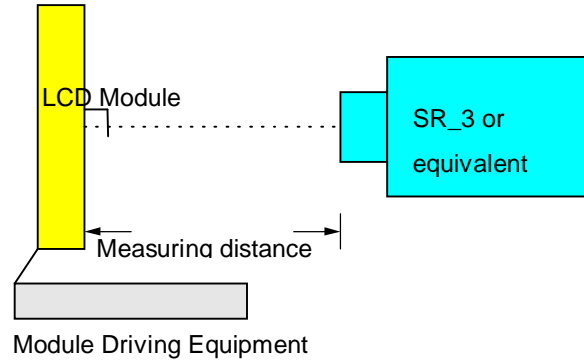
Note 2: Definition of 13 points position

W

W / 4        W / 4        W / 4        W / 4

10                                      10

10

H / 4

1          2          3

4          5

H / 4

H

6          7          8

H / 4

9          10

H / 4

11         12         13

10

Note 3: The luminance uniformity of 13 points is defined by dividing the minimum luminance values by the maximum test point luminance.

$$\delta_{W13} = \frac{\text{Maximum Brightness of Thirteen Points}}{\text{Minimum Brightness of Thirteen Points}}$$

Note 4: Definition of contrast ratio (CR):

$$\text{Contrast ratio (CR)} = \frac{\text{Brightness on the "White" state}}{\text{Brightness on the "Black" state}}$$

Note 5: Definition of response time:

The output signals of photo detector are measured when the input signals are changed from "White" to "Black" (falling time) and from "Black" to "White" (rising time), respectively. The response time interval is between 10% and 90% of amplitudes. Please refer to the figure as below.
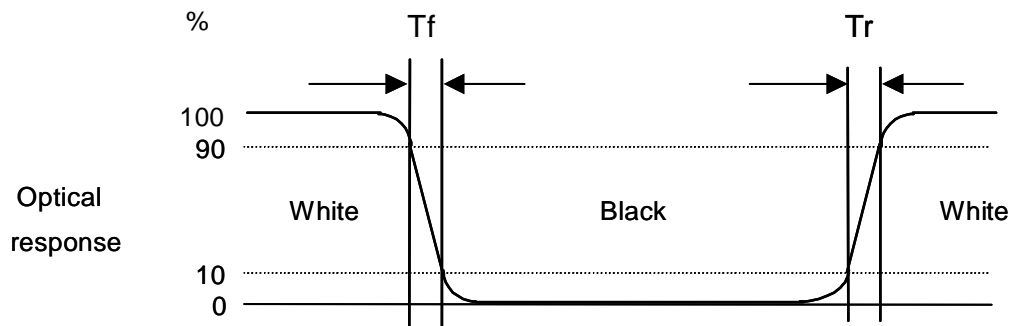


Note 6: Definition of viewing angle

Viewing angle is the measurement of contrast ratio $\geq$10, at the screen center, over a 180 ° horizontal and 180° vertical range (off-normal viewing angles). The 180 ° viewing angle range is broken down as below: 90 ° (θ) horizontal left and right, and 90° (Φ) vertical high (up) and low (down). The measurement direction is typically perpendicular to the display surface with the screen rotated to its center to develop the desired measurement viewing angle.
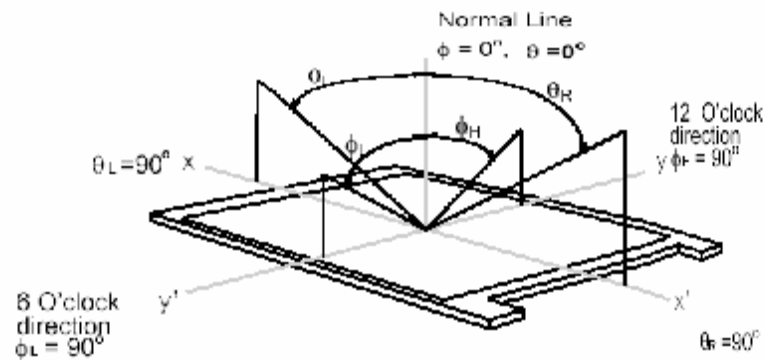
## 3. Functional Block Diagram

The following diagram shows the functional block of the 12.1 inch color TFT/LCD module:
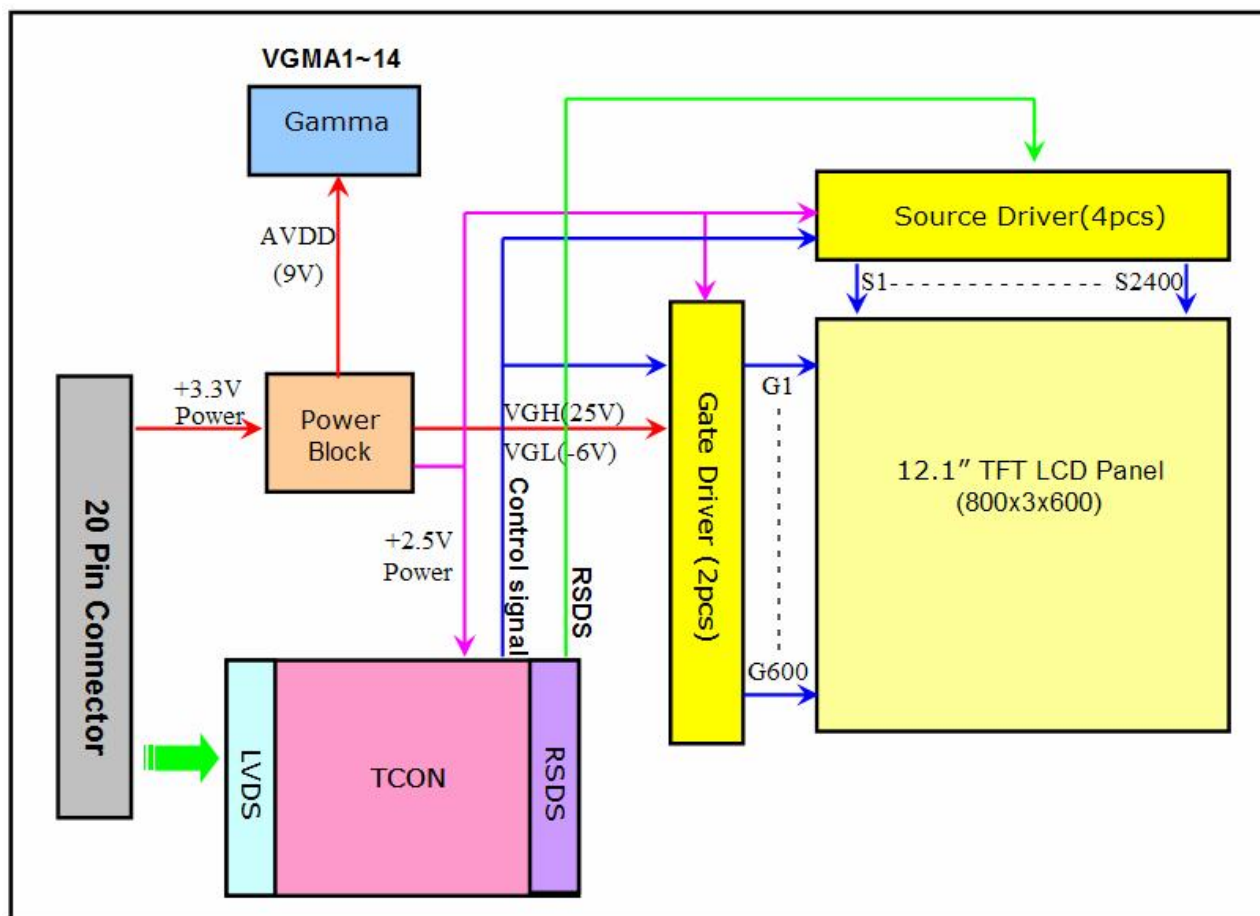


**LVDS Connector:**
**MSB240420-E**

**Lamp Connector:**
**JST BHR-03VS-1**

**Mating Type:**
**P240420 or compatible**

**Mating Type:**
**SM03(4.0)B-BHS-1-TB**

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## 4. Absolute Maximum Ratings

### 4.1 Absolute Ratings of TFT LCD Module

| Item | Symbol | Min | Max | Unit |
|---|---|---|---|---|
| Logic/LCD Drive | Vin | -0.3 | +3.6 | [Volt] |

### 4.2 Absolute Ratings of Environment

| Item | Symbol | Min | Max | Unit |
|---|---|---|---|---|
| Operating Temperature | TOP | -30 | +85 | [$^o$C] |
| Operation Humidity | HOP | 8 | 95 | [%RH] |
| Storage Temperature | TST | -30 | +85 | [$^o$C] |
| Storage Humidity | HST | 5 | 95 | [%RH] |

**Note: Maximum Wet-Bulb should be 39℃ and no condensation.**
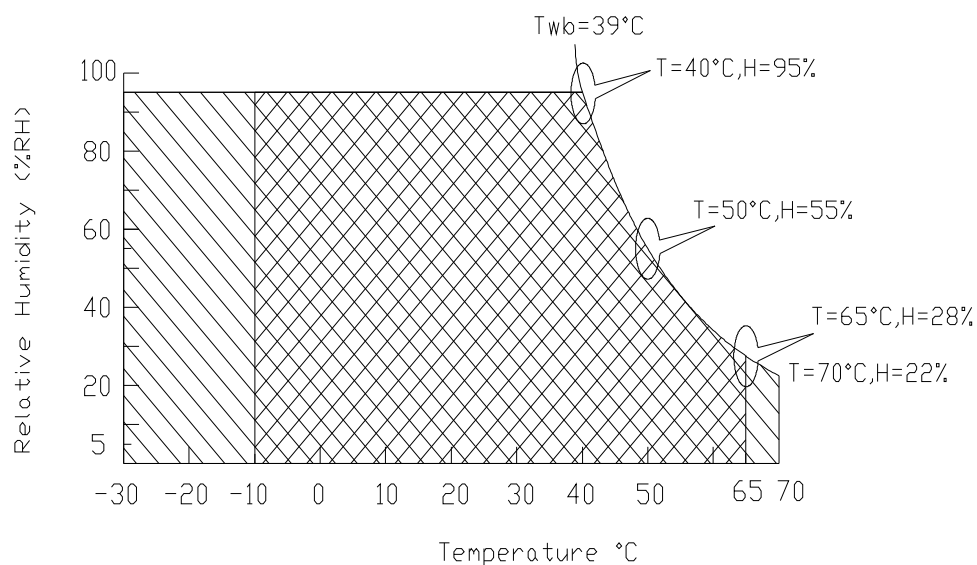


Operating Range

Storge Range

## 5. Electrical Characteristics
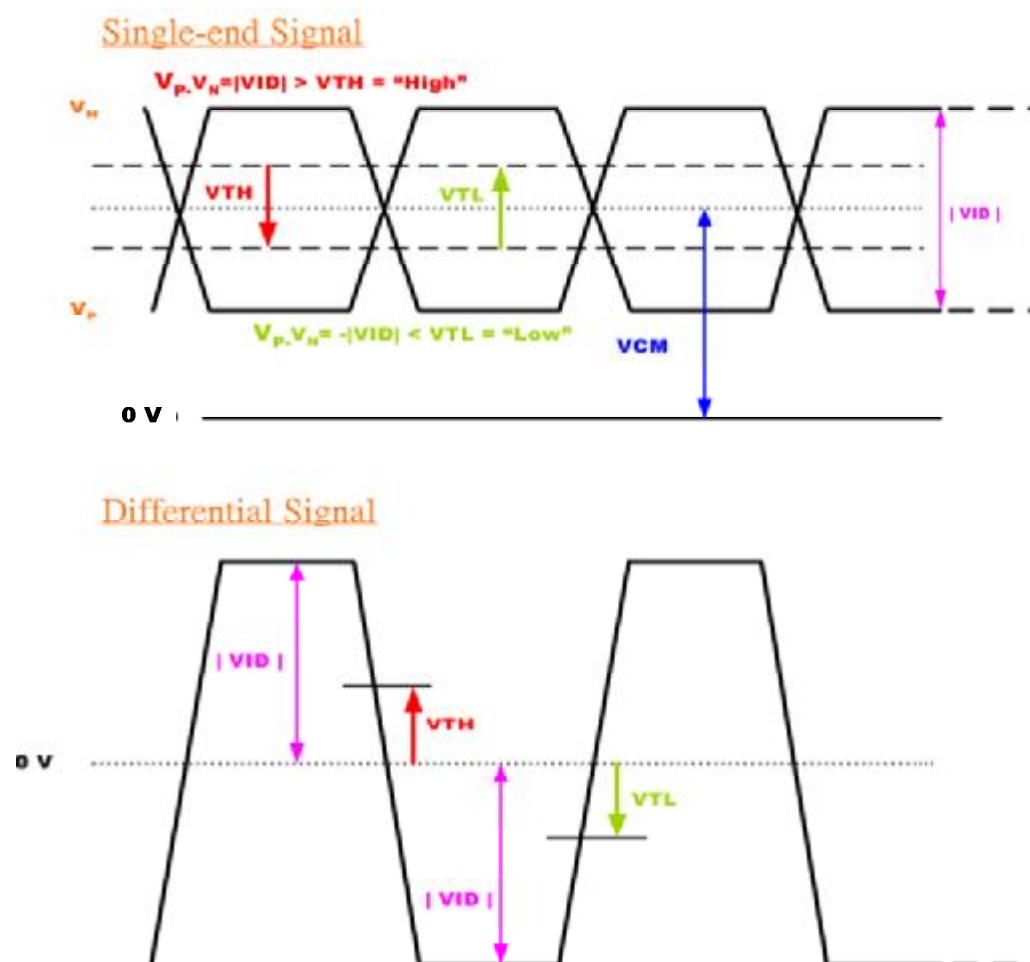
### 5.1 TFT LCD Module

#### 5.1.1 Power Specification

| Symbol | Parameter | Min | Typ | Max | Units | Remark |
|--------|-----------|-----|-----|-----|-------|--------|
| VDD | Logic/LCD Drive Voltage | 3.0 | 3.3 | 3.6 | [Volt] | |
| IDD | VDD Current | - | 285 | 325 | [mA] | VDD=3.3V, All Black Pattern |
| Irush | LCD Inrush Current | - | - | 1.5 | [A] | Vin=3.3V, With Black Pattern, Rising time=500us, |
| PDD | VDD Power | - | 0.94 | 1.07 | [Watt] | VDD=3.3V, All Black Pattern |
| VDDrp | Allowable Logic/LCD Drive Ripple Voltage | - | | 100 | [mV] p-p | |
| VDDns | Allowable Logic/LCD Drive Ripple Noise | | | 100 | [mV] p-p | |

### 5.1.2 Signal Electrical Characteristics

Input signals shall be low or Hi-Z state when VDD is off.

| Symbol | Item | Min. | Typ. | Max. | Unit | Remark |
|--------|------|------|------|------|------|--------|
| ｜VID｜ | Input Differential Voltage | 250 | 350 | 450 | [mV] | |
| VICM | Differential Input Common Mode Voltage | 1.0 | 1.25 | 2.0 | [V] | |
| VTH | Differential Input High Threshold | - | - | 100 | [mV] | VCM=1.25V |
| VTL | Differential Input Low Threshold | -100 | - | - | [mV] | VCM=1.25V |
| CLK | Clock frequency | 30 | 40 | 50 | MHz | |

Note: LVDS Signal Waveform.

Single-end Signal

$V_P.V_N=|VID| > VTH = "High"$

$V_P.V_N= -|VID| < VTL = "Low"$

Differential Signal

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## 5.2 Backlight Unit

### 5.2.1 Parameter guideline for CCFL

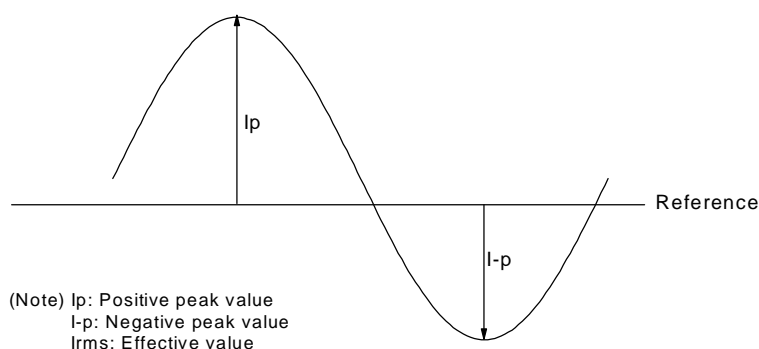Following characteristics are measured under a stable condition using an inverter at 25 ℃ (Room Temperature):

| Symbol | Parameter | Min. | Typ. | Max. | Unit | Remark |
|---|---|---|---|---|---|---|
| IRCFL | CCFL operation range | 3 | 6 | 6.5 | [mA] rms | (Ta=25$^{o}$C) Note 1, 2 |
| FCFL | CCFL Frequency | 40 | 55 | 60 | [KHz] | (Ta=25$^{o}$C) Note 3 |
| ViCFL 0$^{o}$C) (reference) | CCFL Ignition Voltage | - | 930 | 1,120 | [Volt] rms | (Ta= 0$^{o}$C) |
| ViCFL (25$^{o}$C) (reference) | CCFL Ignition Voltage | - | 770 | 930 | [Volt] rms | (Ta=25$^{o}$C) |
| PCFL | CCFL Power consumption (inverter excluded) | 3.8 | 6.7 | 7.7 | [Watt] | (Ta=25$^{o}$C) Note 4 |
| Lamp Life | | 50,000 | | - | Hrs | (Ta=25$^{o}$C) Note 2 IRCFL = 6mA |

Note 1: IRCFL is defined as the return current of an inverter. (In Figure 1)
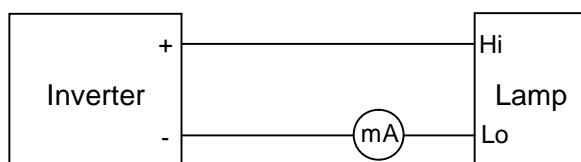


(Figure 1: Measurement of return current)

A stable IRCFL is a current without flicker or biasing waveform provided by inverter that ensures the backlight perform to its specification. The ideal sine waveform should be symmetric in positive and negative polarities and the asymmetry rate of the inverter waveform should be below 10%.



(Note) Ip: Positive peak value
I-p: Negative peak value
Irms: Effective value

DC Bias = (| Ip – I-p| / Irms ) x 100 % <10%

Crest Factor = Ip or (I-p) / Irms should have the range within 1.414 $\pm$ 10%

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It is recommended to use the inverter with detection circuit ( ie: balance and protection circuit) to avoid overvoltage, overcurrent, or mismatching waveform.

Note 2: The definition of lamp life means when any of following conditions happen:

    a) Luminance falls to 50% or less of the initial value.

    b) Normal lighting is no more available (flickering, pink lighting, no lighting, etc.)

    c) Lamp voltage or lighting start voltage exceeds the specified value.


Lamp life time shortens according to

    a) Placing methodology: mercury is unevenly distributed in portrait mounting

    b) Environmental condition: low temperature reduces the presence of mercury vapor, which results in approximately lamp life of 1,000 hours

    c) CCFL surface temperature: Presence of gradient in lamp surface temperature causes uneven mercury migration

    d) Inverter design: its resonance capacitor should be fine-tuned with the impedance of CCFL

    e) Over driving current ( > 6.5 mA) shortens lamp life time dramatically.

Note 3: CCFL frequency should be carefully determined to avoid interference between inverter and TFT LCD. Higher frequency will induce higher leakage current and further impact lamp life.
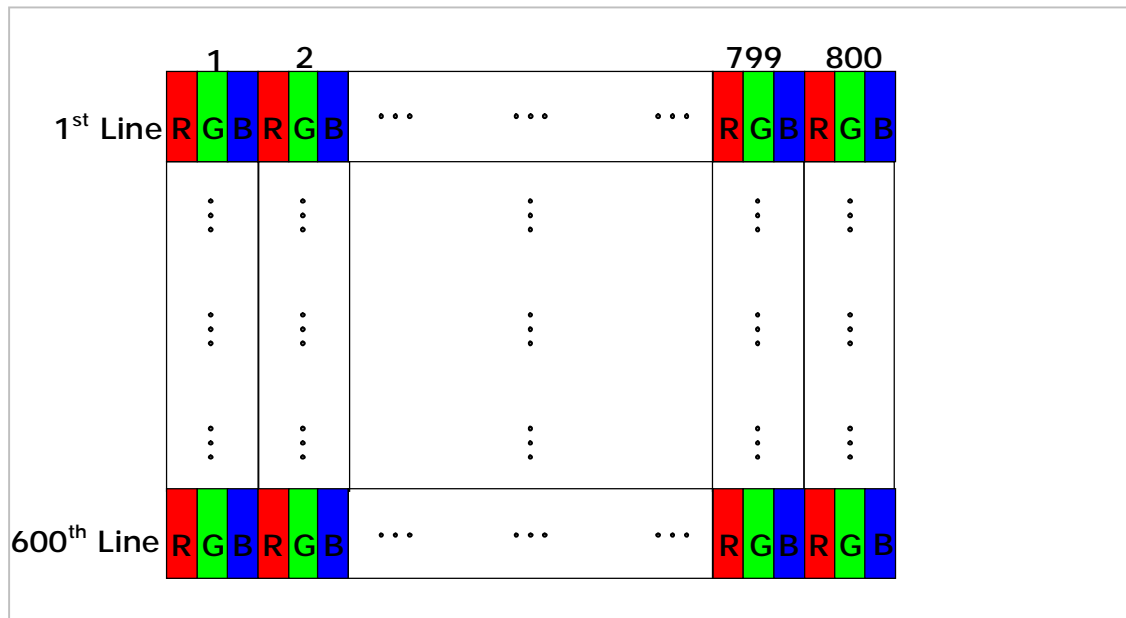
Note 4: Calculator value for reference (IRCFLxVCFLx2=PCFL).

Note 5: The display is with dual lamp design, and the CCFL current in above table refers to each lamp

# 6. Signal Characteristic

## 6.1 Pixel Format Image

Following figure shows the relationship between input signal and LCD pixel format.



## 6.2 Scanning Direction

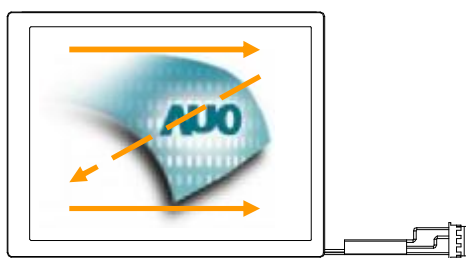The following figures show the image seen from the front view. The arrow indicates the direction of scan.



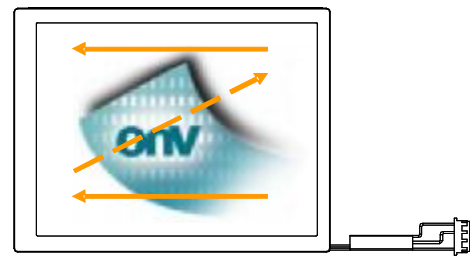Fig. 1 Normal scan (Pin19 = GND/NC)

Fig. 2 Reverse scan (Pin19 = High)

## 6.3 Signal Description

The module uses a LVDS receiver embedded in AUO 's ASIC. LVDS is a differential signal technology for LCD interface and a high-speed data transfer device. Mating LVDS transmitter: THC63LVDM83A or equivalent device

**Pin Assignment:**

| Pin# | Signal Name | Description |
|------|-------------|-------------|
| 1 | VCC | 3.3V Power Supply |
| 2 | VCC | 3.3V Power Supply |
| 3 | GND | GND |
| 4 | 6-8Bit SEL | Select 6 or 8 Bits LVDS Input (VCC:8Bits ; GND/NC: 6Bits) |
| 5 | RIN0- | Negative(-) LVDS differential data input |
| 6 | RIN0+ | Positive(+) LVDS differential data input |
| 7 | GND | GND |
| 8 | RIN1- | Negative(-) LVDS differential data input |
| 9 | RIN1+ | Positive(+) LVDS differential data input |
| 10 | GND | GND |
| 11 | RIN2- | Negative(-) LVDS differential data input |
| 12 | RIN2+ | Positive(+) LVDS differential data input |
| 13 | GND | GND |
| 14 | CLKIN- | Clock Signal(-) |
| 15 | CLKIN+ | Clock Signal(+) |
| 16 | GND | GND |
| 17 | RIN3- | Negative(-) LVDS differential data input (Used for 8Bits LVDS Input; NC for 6Bits) |
| 18 | RIN3+ | Positive(+) LVDS differential data input (Used for 8Bits LVDS Input; NC for 6Bits) |
| 19 | REVERSE | Display Reversed Function (VCC: Display Reverse; GND/NC: Normal Display) |
| 20 | NC/GND | AUO Test Function Pin (Do not set this pin to High) |

Note1：**Pin19 can be used for enabling "reverse scan" function.**
**Refer to section 6.1 for scanning direction.**

**Signal Description:**

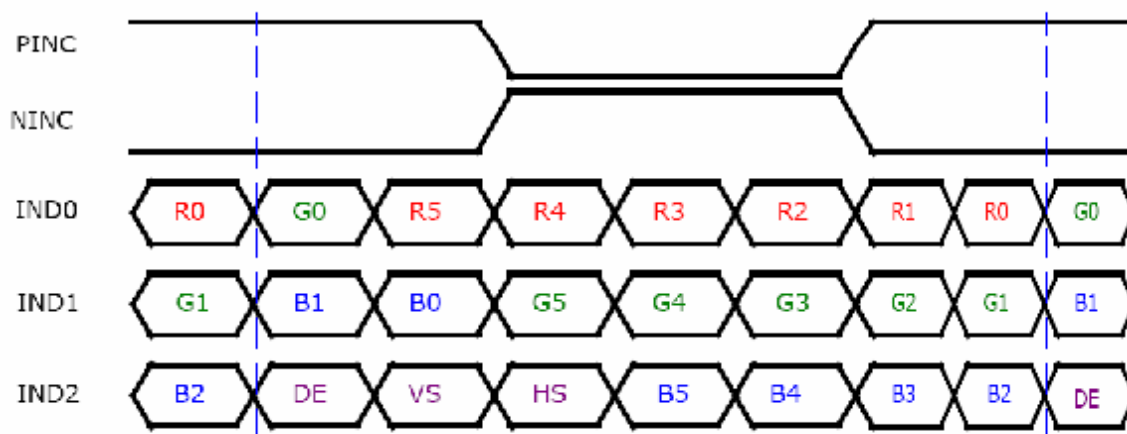| Signal Name | Description |
|-------------|-------------|
| RxIN0-, RxIN0+ | LVDS differential data input (Red0-Red5, Green0) |
| RxIN1-, RxIN1+ | LVDS differential data input (Green1-Green5, Blue0-Blue1) |
| RxIN2-, RxIN2+ | LVDS differential data input (Blue2-Blue5, Hsync, Vsync, DE) |
| CKIN-, CKIN+ | LVDS differential clock input |
| Reverse | High: Reverse Display; NC/GND: Normal Display |
| VDD | +3.3V Power Supply |
| GND | Ground |
| NC | No Connection |

Note: Input signals shall be low or Hi-Z state when VDD is off.
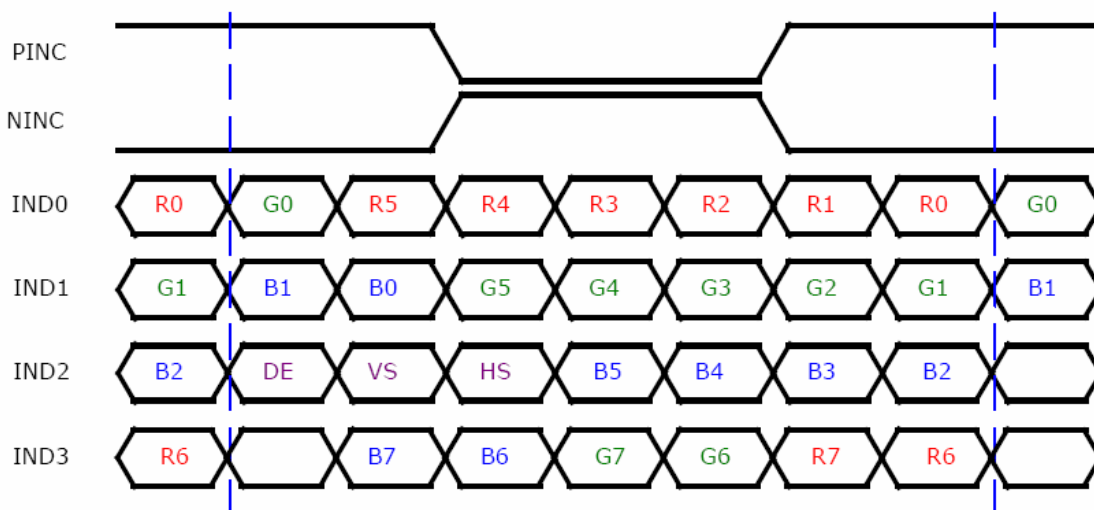
## LVDS Signal Format:

6/8 SEL = Low (GND)

**6bits LVDS input→When FRC='0', IND 3 pair fix to "Low"**



6/8 SEL = High

**8bits LVDS input→When FRC='1', IND 3 pair active**

## 6.4 The Input Data Format

| Signal Name | Description | |
|---|---|---|
| +RED5<br>+RED4<br>+RED3<br>+RED2<br>+RED1<br>+RED0 | Red Data 5 (MSB)<br>Red Data 4<br>Red Data 3<br>Red Data 2<br>Red Data 1<br>Red Data 0 (LSB)<br>Red-pixel Data | Red-pixel Data<br>Each red pixel's brightness data consists of these<br>6 bits pixel data. |
| +GREEN5<br>+GREEN4<br>+GREEN3<br>+GREEN2<br>+GREEN1<br>+GREEN0 | Green Data 5 (MSB)<br>Green Data 4<br>Green Data 3<br>Green Data 2<br>Green Data 1<br>Green Data 0 (LSB)<br>Green-pixel Data | Green-pixel Data<br>Each green pixel's brightness data consists of these<br>6 bits pixel data. |
| +BLUE5<br>+BLUE4<br>+BLUE3<br>+BLUE2<br>+BLUE1<br>+BLUE0 | Blue Data 5 (MSB)<br>Blue Data 4<br>Blue Data 3<br>Blue Data 2<br>Blue Data 1<br>Blue Data 0 (LSB)<br>Blue-pixel Data | Blue-pixel Data<br>Each blue pixel's brightness data consists of these<br>6 bits pixel data. |
| CLK | Data Clock | The typical frequency is 40MHz. The signal is<br>used to strobe the pixel data and DE signals.<br>All pixel data shall be valid at the falling edge when<br>the DE signal is high. |
| DE | Display Timing | This signal is strobed at the falling edge of CLK.<br>When the signal is high, the pixel data shall be valid<br>to be displayed. |
| VSYNC | Vertical Sync | The signal is synchronized to CLK. |
| HSYNC | Horizontal Sync | The signal is synchronized to CLK. |

**Note: Output signals from any system shall be low or Hi-Z state when VDD is off.**

## 6.5 Interface Timing

### 6.5.1 Timing Characteristics

**DE only mode**

| Parameter | | Symbol | Min. | Typ. | Max. | Unit | Condition |
|---|---|---|---|---|---|---|---|
| Clock frequency | | $1/ T_{Clock}$ | 33.6 | 39.8 | 48.3 | MHz | |
| Vertical Section | Period | $T_V$ | 608 | 628 | 650 | $T_{Line}$ | |
| | Active | $T_{VD}$ | 600 | 600 | 600 | | |
| | Blanking | $T_{VB}$ | 8 | 28 | 50 | | |
| Horizontal Section | Period | $T_H$ | 920 | 1056 | 1240 | $T_{Clock}$ | |
| | Active | $T_{HD}$ | 800 | 800 | 800 | | |
| | Blanking | $T_{HB}$ | 120 | 256 | 440 | | |

**Note1: Frame rate is 60 Hz.**
**Note2: Typical value refer to VESA Standard**

### 6.5.2 Input Timing Diagram
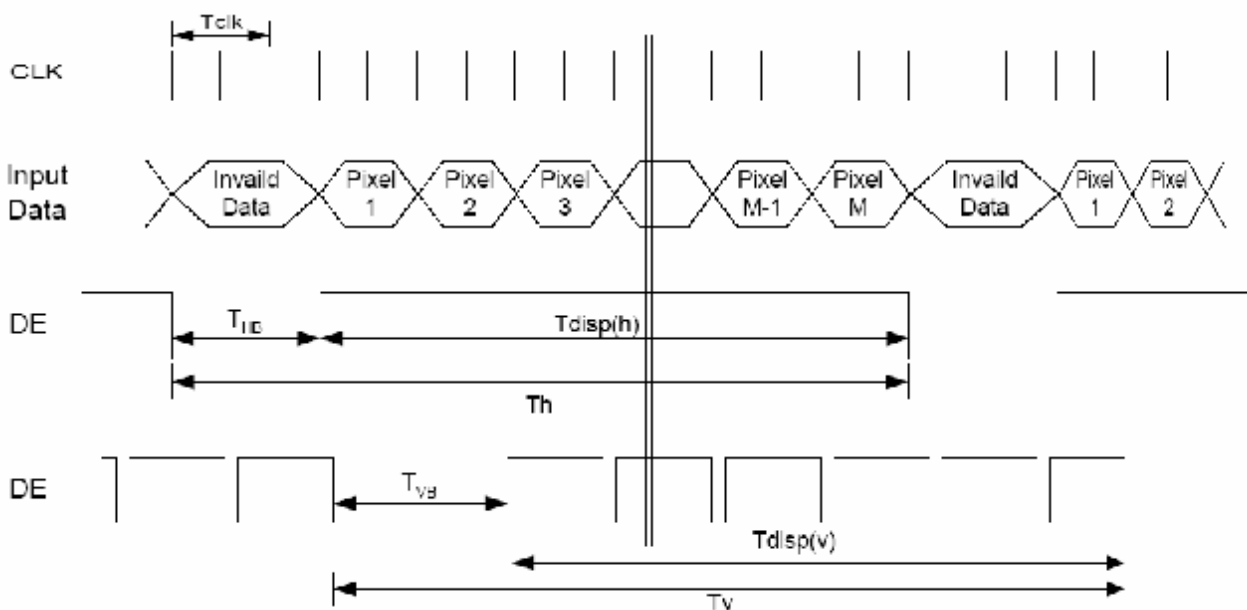
## 6.6 Power ON/OFF Sequence

VDD power and lamp on/off sequence is as below. Interface signals are also shown in the chart. Signals from any system shall be Hi-Z state or low level when VDD is off.
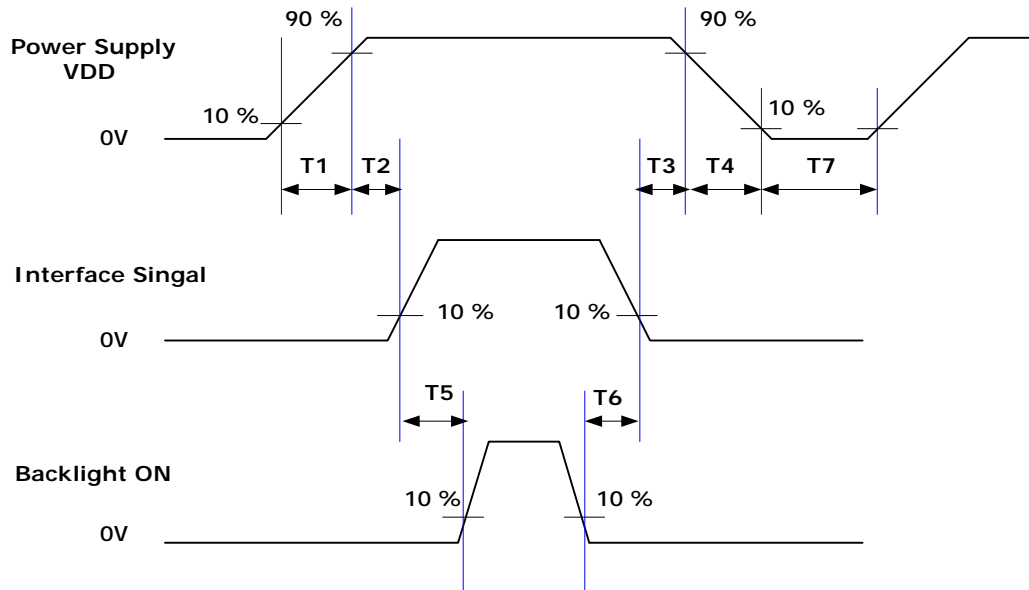


### Power ON/OFF sequence timing

| Parameter | Value | | | Units |
|---|---|---|---|---|
| | Min. | Typ. | Max. | |
| T1 | 0.5 | - | 10 | ms |
| T2 | 0 | - | 50 | ms |
| T3 | 0 | - | 50 | ms |
| T4 | 0 | - | 10 | ms |
| T5 | 200 | - | | ms |
| T6 | 200 | - | | ms |
| T7 | 500 | - | - | Ms |

The above on/off sequence should be applied to avoid abnormal function in the display. Please make sure to turn off the power when you plug the cable into the input connector or pull the cable out of the connector.

## 7. Connector & Pin Assignment

Physical interface is described as for the connector on module. These connectors are capable of accommodating the following signals and will be following components.

### 7.1 TFT LCD Module: LVDS Connector

| Connector Name / Designation | Signal Connector |
|---|---|
| Manufacturer | STM |
| Connector Model Number | MSB240420-E |
| Mating Model Number | P240420 or compatible |

Mating LVDS transmitter: THC63LVDM83A or equivalent device

### 7.2 Backlight Unit: Lamp Connector

| Connector Name / Designation | Lamp Connector |
|---|---|
| Manufacturer | JST |
| Connector Model Number | JST BHR-03VS-1 or compatible |
| Mating Model Number | JST SM03(4.0)B-BHS-1-TB |

| Pin no. | Symbol | Function | Remark |
|---|---|---|---|
| 1 | H | CCFL power supply (H.V.) | Cable color: Pink |
| 2 | NC | No connection | |
| 3 | L | CCFL power supply (GND) | Cable color: White |

## 8. Reliability Test Criteria

| Items | Required Condition | Note |
|---|---|---|
| High Temperature Operation | 85℃, 240Hrs (center point of panel surface) | Note 1, 2, 3 |
| Low Temperature Operation | -30℃, 240Hrs | Note 1, 2, 3 |
| Hot Storage | 85℃, 240Hrs | Note 1, 2, 3 |
| Cold Storage | -30℃, 240Hrs | Note 1, 2, 3 |
| High temperature & high humidity operation | 50℃, 90%RH, 240Hrs (No condensation) | Note 1, 2, 3 |
| Shock Test (Non-Operating) | 50G/11ms, ±X, ±Y, ±Z, half-Sin, one time | Note 1, 2, 3 |
| Vibration Test (Non-Operating) | 1.5G, random $10H_Z \sim 200H_Z \sim 10H_Z$ 30 minutes for each Axis (X, Y, Z), 15min/Sweep | Note 1, 2, 3 |
| On/off test | On 10sec/OFF 10 sec, 30,000 cycles | Note 1, 2, 3 |
| ESD | Contact Discharge: Max±8KV, 150pF(330Ω) 1sec, 8 points, 25 times/point. Air Discharge: Max ±15KV, 150pF(330Ω) 1sec, 8 points, 25 times/point | Note 3, 4 |
| Thermal shock (non-operation) | 1. -20℃±3℃…30minutes 60℃±3℃…30minutes 2. 100 cycles 3. Temperature transition time within 5 minutes | Note 1, 2, 3 |
| Attitude Test | Operation:14,000ft / 8hrs Non-Operation: 40,000ft / 24hrs | Note 3 |

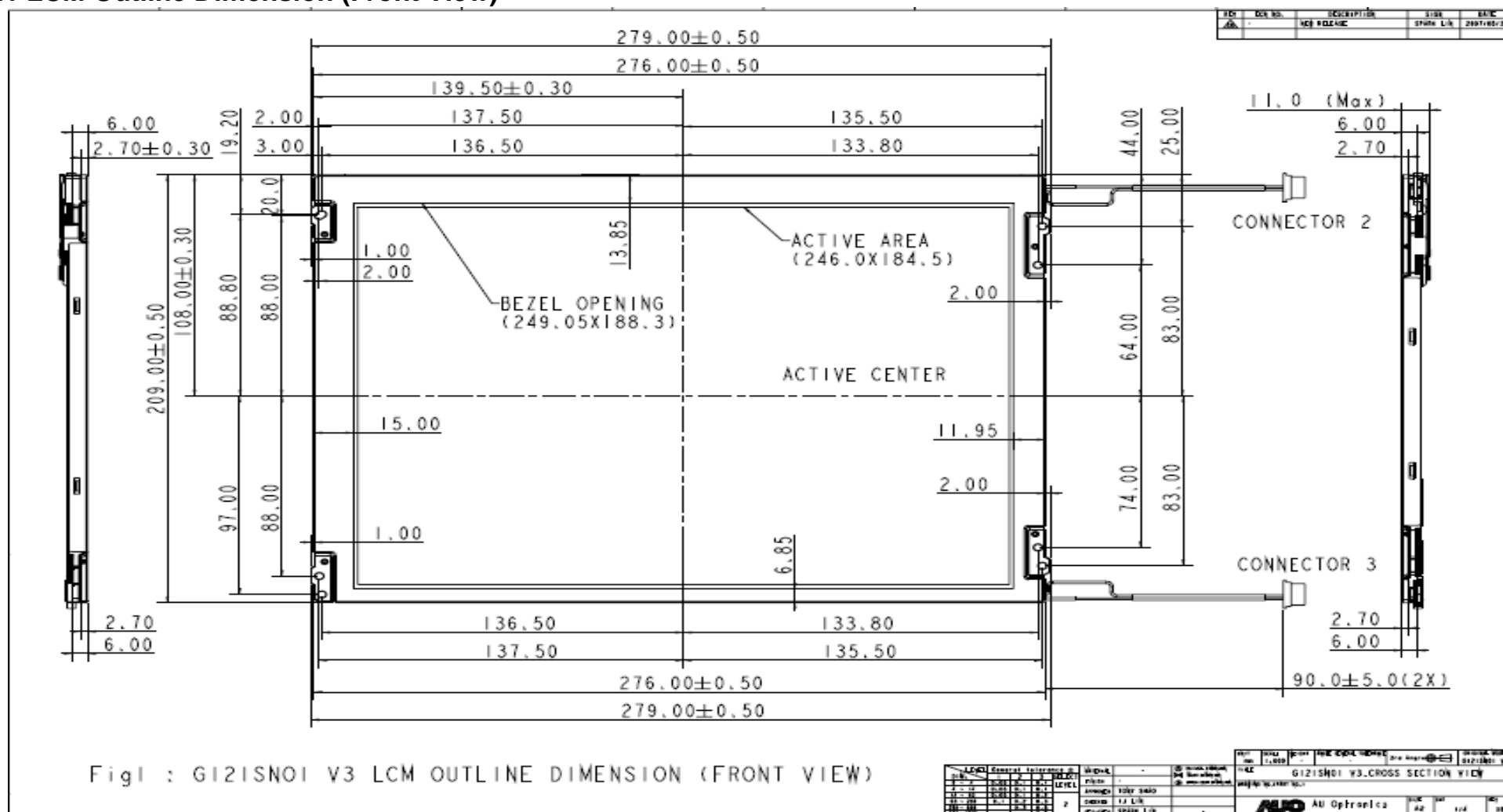**Note 1: Evaluation should be tested after storage at room temperature for one hour.**

**Note 2: There should be no change which might affect the practical display function when the display quality test is conducted under normal operating condition.**

**Note 3: Judgment: 1. Function OK　2. No serious image quality degradation**
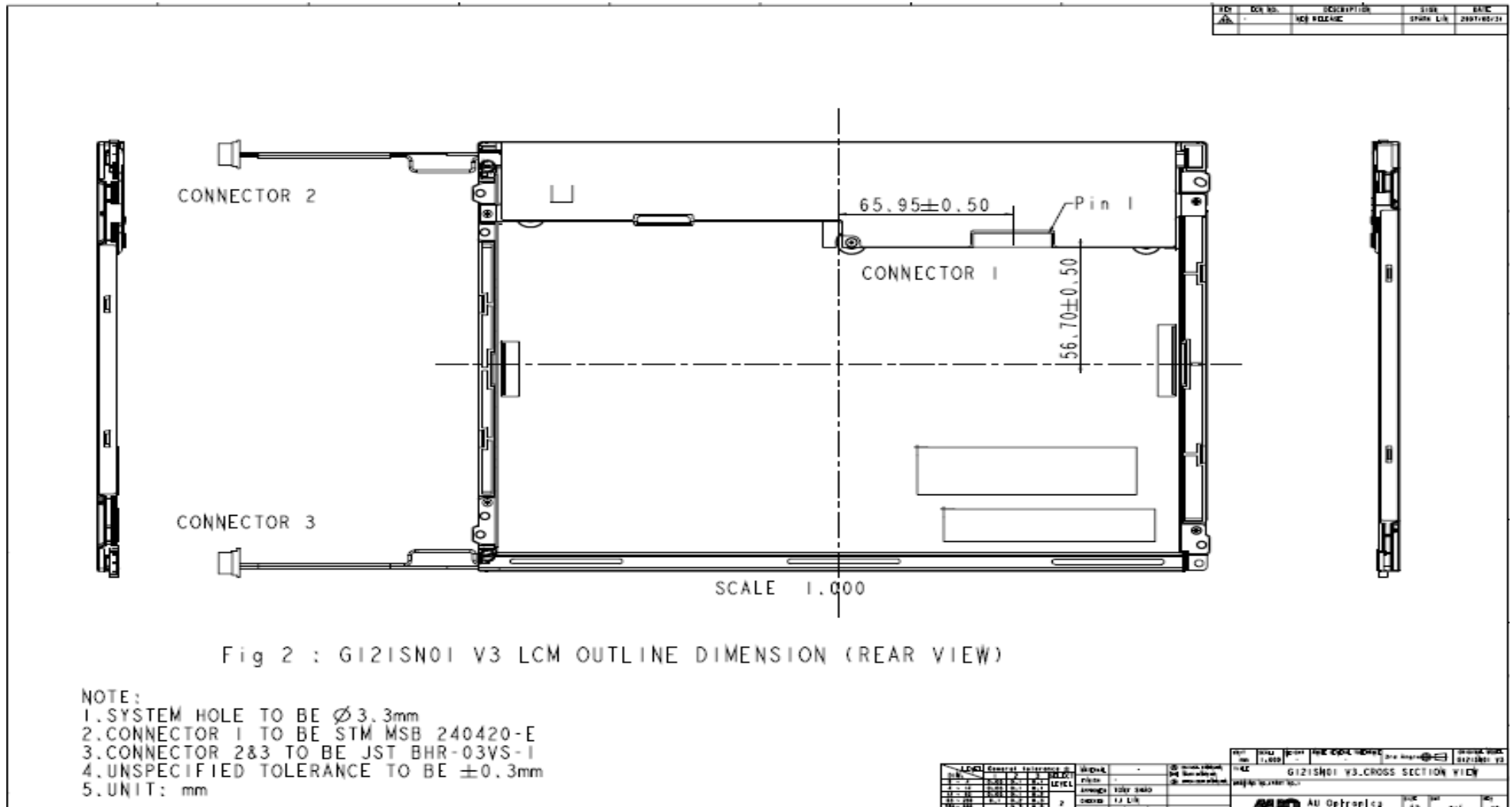
**Note 4: According to EN61000-4-2 , ESD class B: Some performance degradation allowed. No data lost, self-recoverable. No hardware failures.**

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**Product Specification**

AU OPTRONICS CORPORATION

## 9. Mechanical Characteristics

### 9.1 LCM Outline Dimension (Front View)



Fig1 : G121SN01 V3 LCM OUTLINE DIMENSION (FRONT VIEW)

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## 9.2 LCM Outline Dimension (Rear View)



Fig 2 : G121SN01 V3 LCM OUTLINE DIMENSION (REAR VIEW)

NOTE:
1. SYSTEM HOLE TO BE Ø3.3mm
2. CONNECTOR 1 TO BE STM MSB 240420-E
3. CONNECTOR 2&3 TO BE JST BHR-03VS-1
4. UNSPECIFIED TOLERANCE TO BE ±0.3mm
5. UNIT: mm

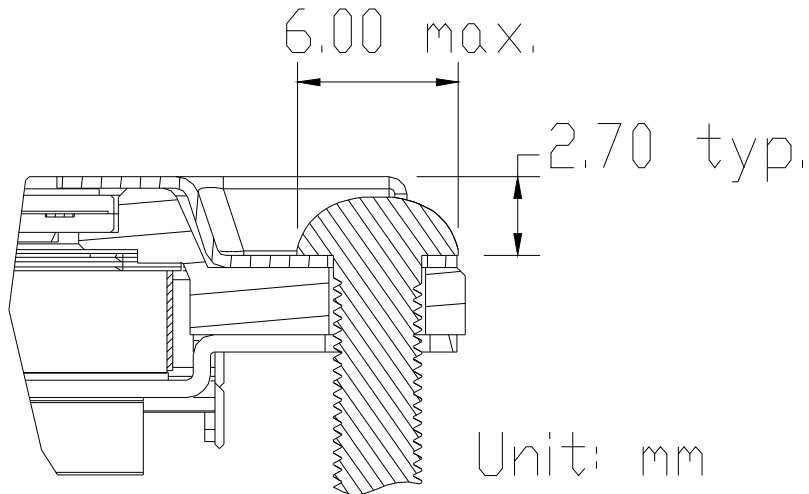PDF created with FinePrint pdfFactory Pro trial version www.pdffactory.com

## 9.3 Screw Hole Depth and Center Position

Screw type: M3 screw

Screw hole minimum depth, from side surface =2.7mm (See drawing)
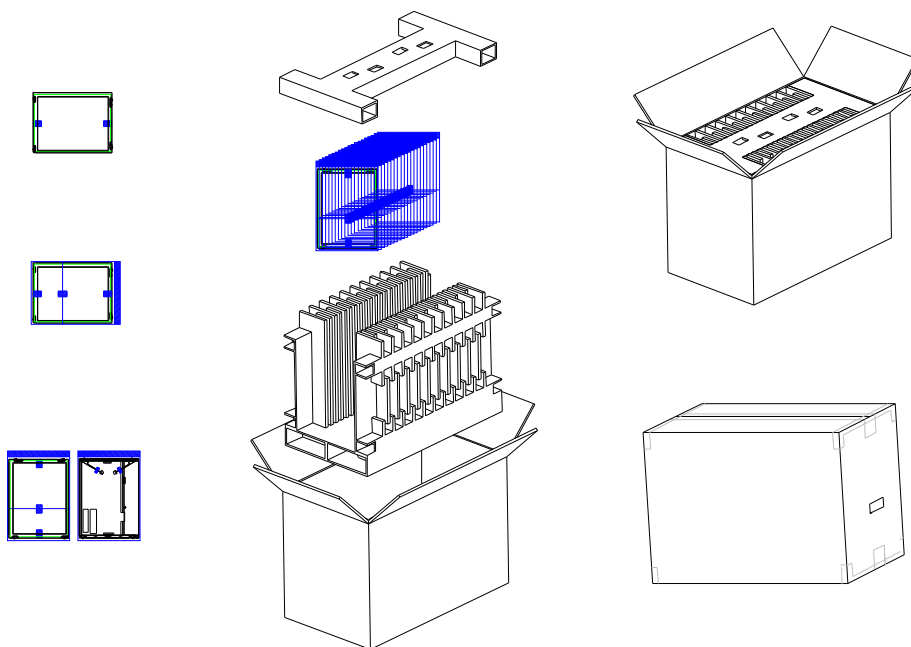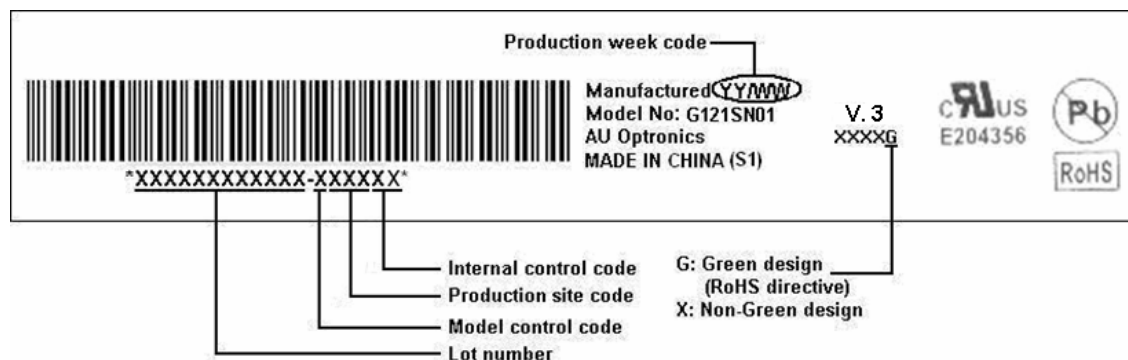
The Max. Diameter of the mounting screw head is 6.0mm

Screw Torque: Maximum 6.0 kgf-cm

## 10. Label and Packaging

### 10.1 Shipping Label (on the rear side of TFT-LCD display)

# 11. Safety

## 11.1 Sharp Edge Requirements

There will be no sharp edges or comers on the display assembly that could cause injury.

## 11.2 Materials

### Toxicity

There will be no carcinogenic materials used anywhere in the display module. If toxic materials are used, they will be reviewed and approved by the responsible AUO toxicologist.

## 11.3 Capacitors

If any polarized capacitors are used in the display assembly, provisions will be made to keep them from being inserted backwards.

## 11.4 National Test Lab Requirement

The display module will satisfy all requirements for compliance to:

UL 60950              U.S.A. Information Technology Equipment