

Model Name: T420HW07 V7 SKD

Issue Date : 2010/08/05

()Preliminary Specifications

(*)Final Specifications

| | | | |
|--------------------|------|--|------|
| Customer Signature | Date | AUO | Date |
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Record of Revision

[illegible]

1. General Description

This specification applies to the 42.0 inch Color TFT-LCD SKD model T420HW07 V7. This LCD Open Cell Unit has a TFT active matrix type liquid crystal panel 1,920x1,080 pixels, and diagonal size of 42.0 inch. This Open Cell Unit supports 1,920x1,080 mode. Each pixel is divided into Red, Green and Blue sub-pixels or dots which are arranged in vertical stripes. Gray scale or the brightness of the sub-pixel color is determined with a 8-bit gray scale signal for each dot.

* General Information

| Items | Specification | Unit | Note |
|------------------------|------------------------------------|--------|---------------------------|
| Active Screen Size | 42.02 | inch | |
| Display Area | 930.24(H) x 523.26(V) | mm | |
| Outline Dimension | 954.246(H) x 545.77(V) x 1.8388(D) | mm | |
| Driver Element | a-Si TFT active matrix | | |
| Display Colors | 8 bit | Colors | |
| Number of Pixels | 1920X1080 | Pixel | |
| Pixel Pitch | 0.4845 | mm | |
| Pixel Arrangement | RGB vertical stripe | | |
| Display Operation Mode | Normally Black | | |
| Surface Treatment | HC, 3H | | Hard Coating(super clear) |

2. Absolute Maximum Ratings

The followings are maximum values which, if exceeded, may cause faulty operation or damage to the unit

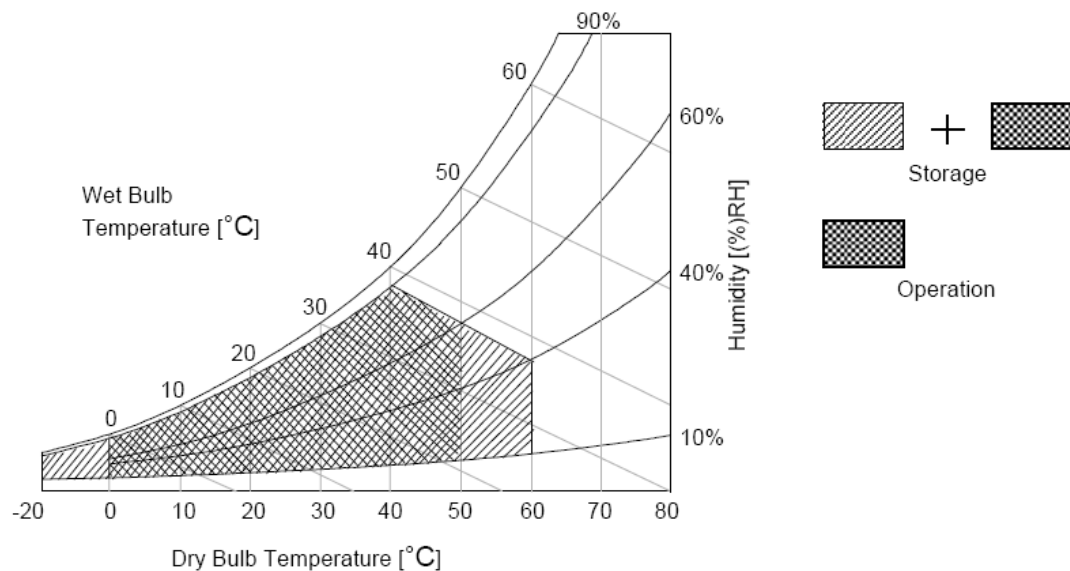
| Item | Symbol | Min | Max | Unit | Conditions |
|---------------------------|--------|------|-----|--------|------------|
| Logic/LCD Drive Voltage | Vcc | -0.3 | 14 | [Volt] | Note 1 |
| Input Voltage of Signal | Vin | -0.3 | 4 | [Volt] | Note 1 |
| Operating Temperature | TOP | 0 | +50 | [°C] | Note 2 |
| Operating Humidity | HOP | 10 | 90 | [%RH] | Note 2 |
| Storage Temperature | TST | -20 | +60 | [°C] | Note 2 |
| Storage Humidity | HST | 10 | 90 | [%RH] | Note 2 |
| Panel Surface Temperature | PST | - | 65 | [°C] | Note 3 |

Note 1: Duration:50 msec.

Note 2 : Maximum Wet-Bulb should be 39°C and No condensation.

The relative humidity must not exceed 90% non-condensing at temperatures of 40°C or less. At temperatures greater than 40°C, the wet bulb temperature must not exceed 39°C.

Note 3: Surface temperature is measured at 50°C Dry condition



3. Electrical Specification

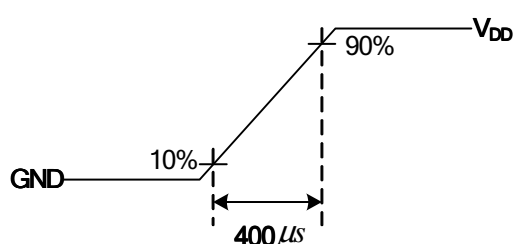
The T420HW07 V7 requires two power inputs. One is employed to power the LCD electronics and to drive the TFT array and liquid crystal. The second is employed for LED lightbar.

3.1 Electrical Characteristics

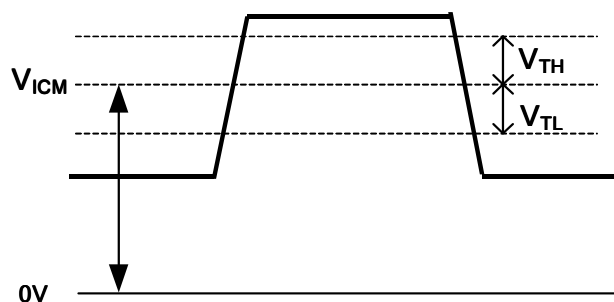
| Parameter | | Symbol | Value | | | Unit | Note |
|----------------------------|---|--------------------|-------|------|------|-----------|------|
| | | | Min. | Typ. | Max | | |
| LCD | | | | | | | |
| Power Supply Input Voltage | | V_{DD} | 10.8 | 12 | 13.2 | V_{DC} | 1 |
| Power Supply Input Current | | I_{DD} | - | 1.15 | 1.27 | A | 2 |
| Power Consumption | | P_C | | 13.8 | 15.2 | Watt | 2 |
| Inrush Current | | I_{RUSH} | - | - | 4 | A | 3 |
| LVDS Interface | Differential Input High Threshold Voltage | V_{TH} | -- | -- | +100 | mV_{DC} | 4 |
| | Differential Input Low Threshold Voltage | V_{TL} | -100 | -- | -- | mV_{DC} | 4 |
| | Input Common Mode Voltage | V_{ICM} | 1.1 | 1.25 | 1.4 | V_{DC} | 4 |
| CMOS Interface | Input High Threshold Voltage | V_{IH} (High) | 2.7 | -- | 3.3 | V_{DC} | |
| | Input Low Threshold Voltage | V_{IL} (Low) | 0 | -- | 0.6 | V_{DC} | |

Note :

1. The ripple voltage should be controlled under 10% of V_{CC}
2. Test Condition:
 - (1) $V_{DD} = 12.0V$
 - (2) $F_v =$ Type Timing, 60Hz
 - (3) $F_{CLK} =$ Max freq.
 - (4) Temperature = 25 °C
 - (5) Test Pattern : White Pattern
3. Measurement condition : Rising time = 400us



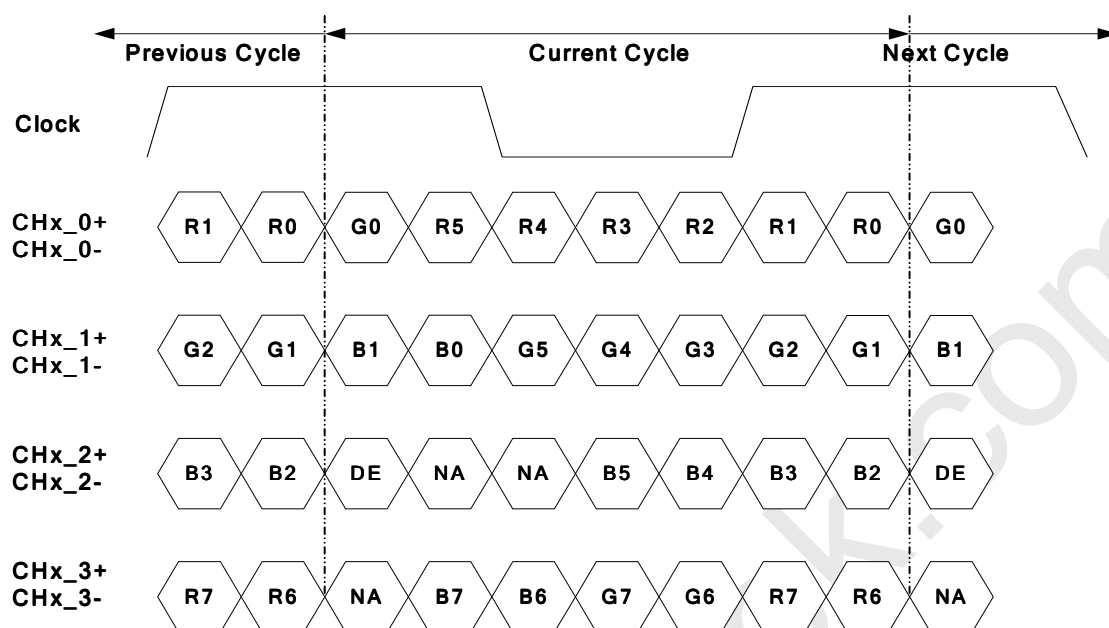
4. $V_{ICM} = 1.25V$



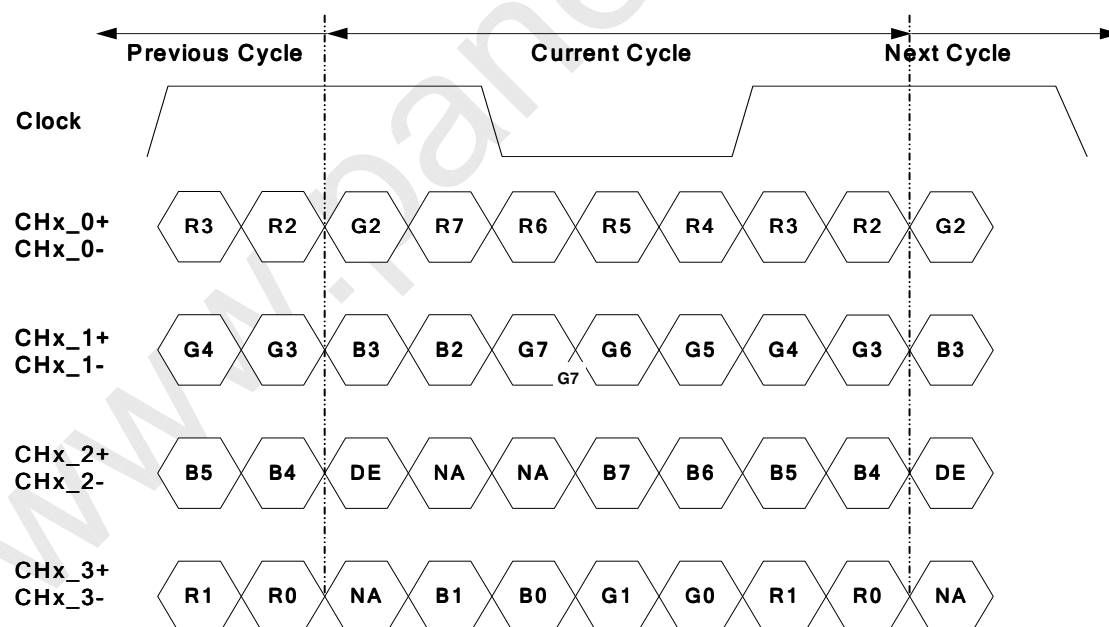
3.2 Interface Connections

LCD connector: 187059-51221 (P-TWO, LVDS connector)

| PIN | Symbol | Description | PIN | Symbol | Description |
|-----|----------|---|-----|-----------------|---------------------------------|
| 1 | GND | Ground | 26 | GND | Ground |
| 2 | NC | No connection | 27 | GND | Ground |
| 3 | Reserved | AUO Internal Use Only | 28 | CH2_0- | LVDS Channel 2, Signal 0- |
| 4 | Reserved | AUO Internal Use Only | 29 | CH2_0+ | LVDS Channel 2, Signal 0+ |
| 5 | NC | No connection | 30 | CH2_1- | LVDS Channel 2, Signal 1- |
| 6 | Reserved | AUO Internal Use Only | 31 | CH2_1+ | LVDS Channel 2, Signal 1+ |
| 7 | LVDS_SEL | Open/High(3.3V) for NS, Low(GND) for JEIDA | 32 | CH2_2- | LVDS Channel 2, Signal 2- |
| 8 | Reserved | AUO Internal Use Only | 33 | CH2_2+ | LVDS Channel 2, Signal 2+ |
| 9 | Reserved | AUO Internal Use Only | 34 | GND | Ground |
| 10 | Reserved | AUO Internal Use Only | 35 | CH2_CLK- | LVDS Channel 2, Clock - |
| 11 | GND | Ground | 36 | CH2_CLK+ | LVDS Channel 2, Clock + |
| 12 | CH1_0- | LVDS Channel 1, Signal 0- | 37 | GND | Ground |
| 13 | CH1_0+ | LVDS Channel 1, Signal 0+ | 38 | CH2_3- | LVDS Channel 2, Signal 3- |
| 14 | CH1_1- | LVDS Channel 1, Signal 1- | 39 | CH2_3+ | LVDS Channel 2, Signal 3+ |
| 15 | CH1_1+ | LVDS Channel 1, Signal 1+ | 40 | Reserved | AUO Internal Use Only |
| 16 | CH1_2- | LVDS Channel 1, Signal 2- | 41 | Reserved | AUO Internal Use Only |
| 17 | CH1_2+ | LVDS Channel 1, Signal 2+ | 42 | GND | Ground |
| 18 | GND | Ground | 43 | GND | Ground |
| 19 | CH1_CLK- | LVDS Channel 1, Clock - | 44 | GND | Ground |
| 20 | CH1_CLK+ | LVDS Channel 1, Clock + | 45 | GND | Ground |
| 21 | GND | Ground | 46 | GND | Ground |
| 22 | CH1_3- | LVDS Channel 1, Signal 3- | 47 | NC | No connection |
| 23 | CH1_3+ | LVDS Channel 1, Signal 3+ | 48 | V _{DD} | Power Supply, +12V DC Regulated |
| 24 | Reserved | AUO Internal Use Only | 49 | V _{DD} | Power Supply, +12V DC Regulated |
| 25 | Reserved | AUO Internal Use Only | 50 | V _{DD} | Power Supply, +12V DC Regulated |
| | | | 51 | V _{DD} | Power Supply, +12V DC Regulated |

LVDS Option = High/Open→NS


Note: x = 1, 2, 3, 4...

LVDS Option = Low→JEIDA


Note: x = 1, 2, 3, 4...

3.3 Signal Timing Specification

This is the signal timing required at the input of the user connector. All of the interface signal timing should be satisfied with the following specifications for its proper operation.

Timing Table

| Signal | Item | Symbol | Min. | Typ. | Max | Unit |
|----------------------|-----------|-------------|------|-------|------|------|
| Vertical Section | Period | Tv | 1090 | 1125 | 1480 | Th |
| | Active | Tdisp (v) | 1080 | | | Th |
| | Blanking | Tblk (v) | 10 | 45 | 400 | Th |
| Horizontal Section | Period | Th | 1030 | 1100 | 1325 | Tclk |
| | Active | Tdisp (h) | 960 | | | Tclk |
| | Blanking | Tblk (h) | 70 | 140 | 365 | Tclk |
| Clock | Frequency | Fclk=1/Tclk | 50 | 74.25 | 82 | MHz |
| Vertical Frequency | Frequency | Fv | 47 | 60 | 63 | Hz |
| Horizontal Frequency | Frequency | Fh | 60 | 67.5 | 73 | KHz |

Notes:

(1) Display position is specific by the rise of DE signal only.

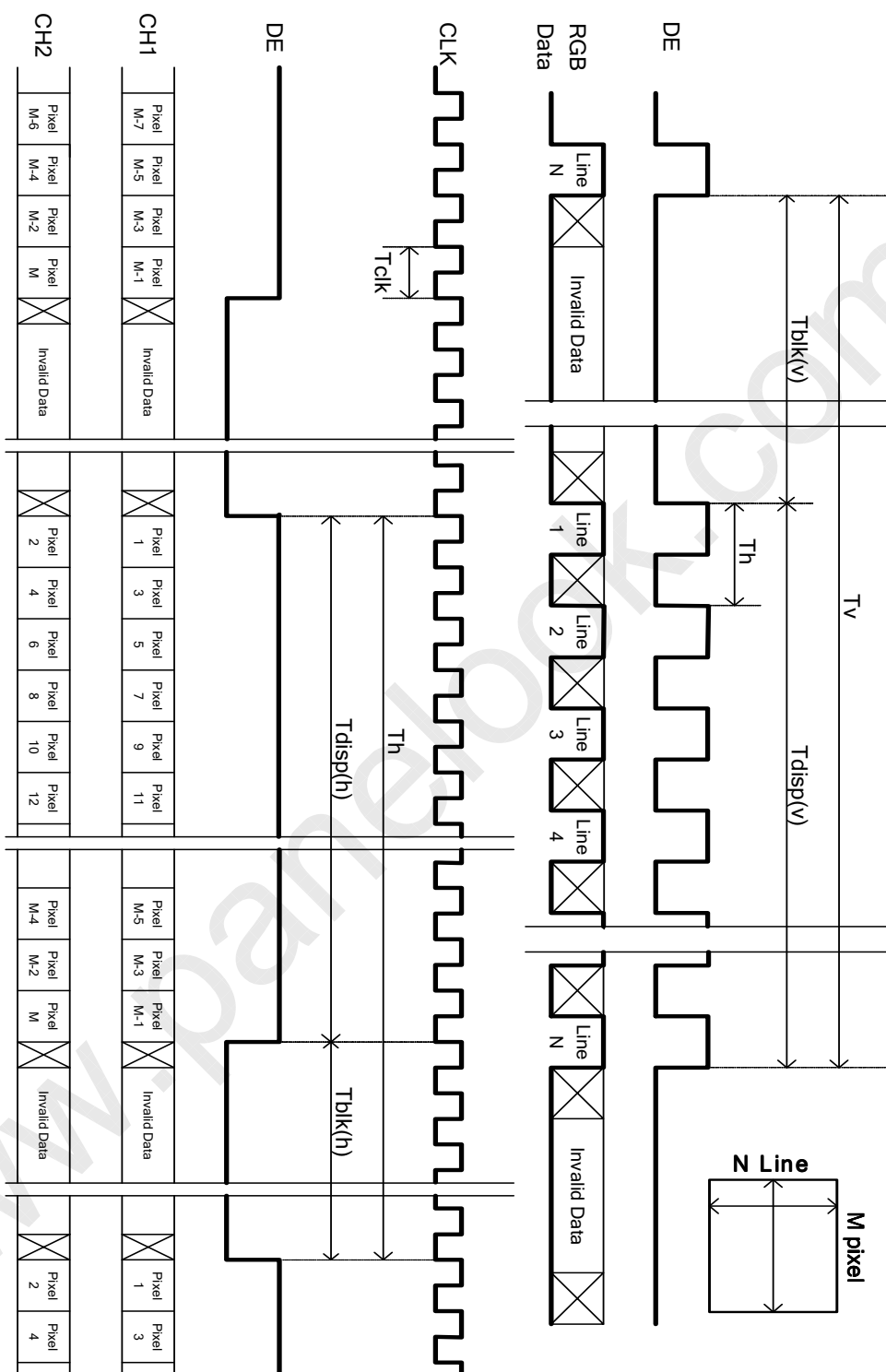
Horizontal display position is specified by the rising edge of 1st DCLK after the rise of 1st DE, is displayed on the left edge of the screen.

(2) Vertical display position is specified by the rise of DE after a "Low" level period equivalent to eight times of horizontal period. The 1st data corresponding to one horizontal line after the rise of 1st DE is displayed at the top line of screen.

(3) If a period of DE "High" is less than 1920 DCLK or less than 1080 lines, the rest of the screen displays black.

(4) The display position does not fit to the screen if a period of DE "High" and the effective data period do not synchronize with each other.

3.4 Signal Timing Waveforms



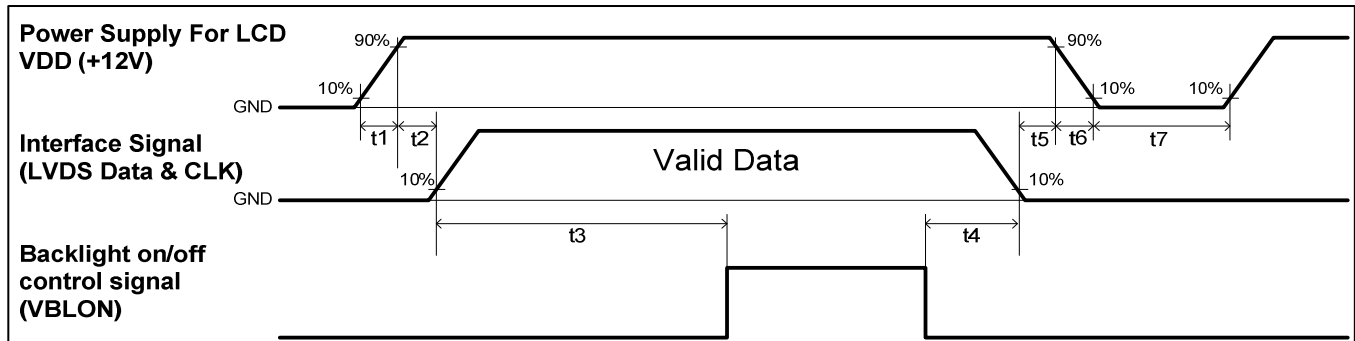
3.5 Color Input Data Reference

The brightness of each primary color (red, green and blue) is based on the 8 bit gray scale data input for the color; the higher the binary input, the brighter the color. The table below provides a reference for color versus data input.

COLOR DATA REFERENCE

| Color | | Input Color Data | | | | | | | | | | | | | | | | | | | | | | | |
|-------------|------------|------------------|----|----|----|-----|----|----|----|-------|----|----|----|-----|----|----|----|------|----|----|----|-----|----|----|----|
| | | RED | | | | | | | | GREEN | | | | | | | | BLUE | | | | | | | |
| | | MSB | | | | LSB | | | | MSB | | | | LSB | | | | MSB | | | | LSB | | | |
| | | R7 | R6 | R5 | R4 | R3 | R2 | R1 | R0 | G7 | G6 | G5 | G4 | G3 | G2 | G1 | G0 | B7 | B6 | B5 | B4 | B3 | B2 | B1 | B0 |
| Basic Color | Black | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Red(255) | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Green(255) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Blue(255) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | Cyan | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | Magenta | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | Yellow | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | White | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| R | RED(000) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | RED(001) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | ---- | | | | | | | | | | | | | | | | | | | | | | | | |
| | RED(254) | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | RED(255) | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| G | GREEN(000) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | GREEN(001) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | ---- | | | | | | | | | | | | | | | | | | | | | | | | |
| | GREEN(254) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | GREEN(255) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| B | BLUE(000) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | BLUE(001) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| | ---- | | | | | | | | | | | | | | | | | | | | | | | | |
| | BLUE(254) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| | BLUE(255) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

3.6 Power Sequence for LCD



| Parameter | Values | | | Unit |
|-----------|-----------------|-------|-------------------|------|
| | Min. | Type. | Max. | |
| t1 | 0.4 | --- | 30 | ms |
| t2 | 0.1 | --- | 50 | ms |
| t3 | 300 | --- | --- | ms |
| t4 | 0 ^{*1} | --- | --- | ms |
| t5 | 0 | --- | --- | ms |
| t6 | --- | --- | --- ^{*2} | ms |
| t7 | 500 | --- | --- | ms |

Note:

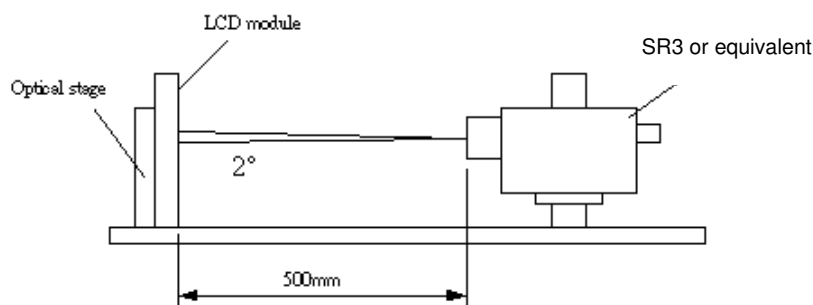
(1) T4=0 : concern for residual pattern before BLU turn off.

(2) T6 : voltage of VDD must decay smoothly after power-off. (customer system decide this value)

4. Optical Specification

Optical characteristics are determined after the unit has been 'ON' and stable for approximately 45 minutes in a dark environment at 25°C. The values specified are at an approximate distance 50cm from the LCD surface at a viewing angle of ϕ and θ equal to 0°.

Fig.1 presents additional information concerning the measurement equipment and method.



| Parameter | | Symbol | Values | | | Unit | Notes |
|---------------------------|-----------------------------------|----------------------|-----------|-------|-----------|-------------------|-------|
| | | | Min. | Typ. | Max | | |
| Surface Luminance (White) | | L_{WH} | 320 | 400 | -- | cd/m ² | 1 |
| Luminance Variation | | $\delta_{WHITE(9P)}$ | -- | -- | 1.33 | | 2 |
| Response Time (G to G) | | T_{γ} | -- | 6.5 | -- | Ms | 3 |
| Color Gamut | | NTSC | | 72 | | % | |
| Color Coordinates | | | | | | | |
| | Red | R_x | Typ.-0.03 | 0.64 | Typ.+0.03 | | |
| | | R_y | | 0.33 | | | |
| | Green | G_x | | 0.32 | | | |
| | | G_y | | 0.62 | | | |
| | Blue | B_x | | 0.15 | | | |
| | | B_y | | 0.045 | | | |
| | White | W_x | | 0.28 | | | |
| | | W_y | | 0.29 | | | |
| Viewing Angle | | | | | | | 4 |
| | x axis, right($\phi=0^\circ$) | θ_r | -- | 89 | -- | degree | |
| | x axis, left($\phi=180^\circ$) | θ_l | -- | 89 | -- | degree | |
| | y axis, up($\phi=90^\circ$) | θ_u | -- | 89 | -- | degree | |
| | y axis, down ($\phi=270^\circ$) | θ_d | -- | 89 | -- | degree | |

Note:

1. Surface luminance is luminance value at point 5 across the LCD surface 50cm from the surface with all pixels displaying white. From more information see FIG 2. When lamp current $I_H = 11\text{mA}$. $L_{WH} = L_{on5}$ where L_{on5} is the luminance with all pixels displaying white at center 5 location. (Ref AUO T420HW07 V7 BL)

2. The variation in surface luminance, δ_{WHITE} is defined (center of Screen) as:

$$\delta_{WHITE(9P)} = \text{Maximum}(L_{on1}, L_{on2}, \dots, L_{on9}) / \text{Minimum}(L_{on1}, L_{on2}, \dots, L_{on9})$$

3. Response time T_γ is the average time required for display transition by switching the input signal for five luminance ratio (0%, 25%, 50%, 75%, 100% brightness matrix) and is based on $F_v = 60\text{Hz}$ to optimize. For more information see FIG3.

| Measured Response Time | | Target | | | | |
|------------------------|------|------------|-------------|-------------|-------------|-------------|
| | | 0% | 25% | 50% | 75% | 100% |
| Start | 0% | | 0% to 25% | 0% to 50% | 0% to 75% | 0% to 100% |
| | 25% | 25% to 0% | | 25% to 50% | 25% to 75% | 25% to 100% |
| | 50% | 50% to 0% | 50% to 25% | | 50% to 75% | 50% to 100% |
| | 75% | 75% to 0% | 75% to 25% | 75% to 50% | | 75% to 100% |
| | 100% | 100% to 0% | 100% to 25% | 100% to 50% | 100% to 75% | |

4. Viewing angle is the angle at which the contrast ratio is greater than 10. The angles are determined for the horizontal or x axis and the vertical or y axis with respect to the z axis which is normal to the LCD surface. For more information see FIG4.

FIG. 2 Luminance

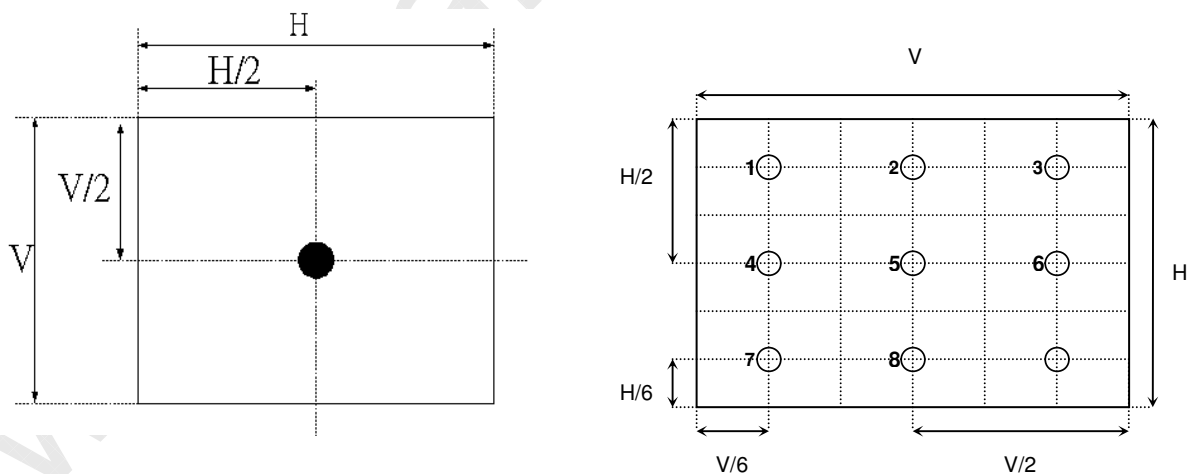
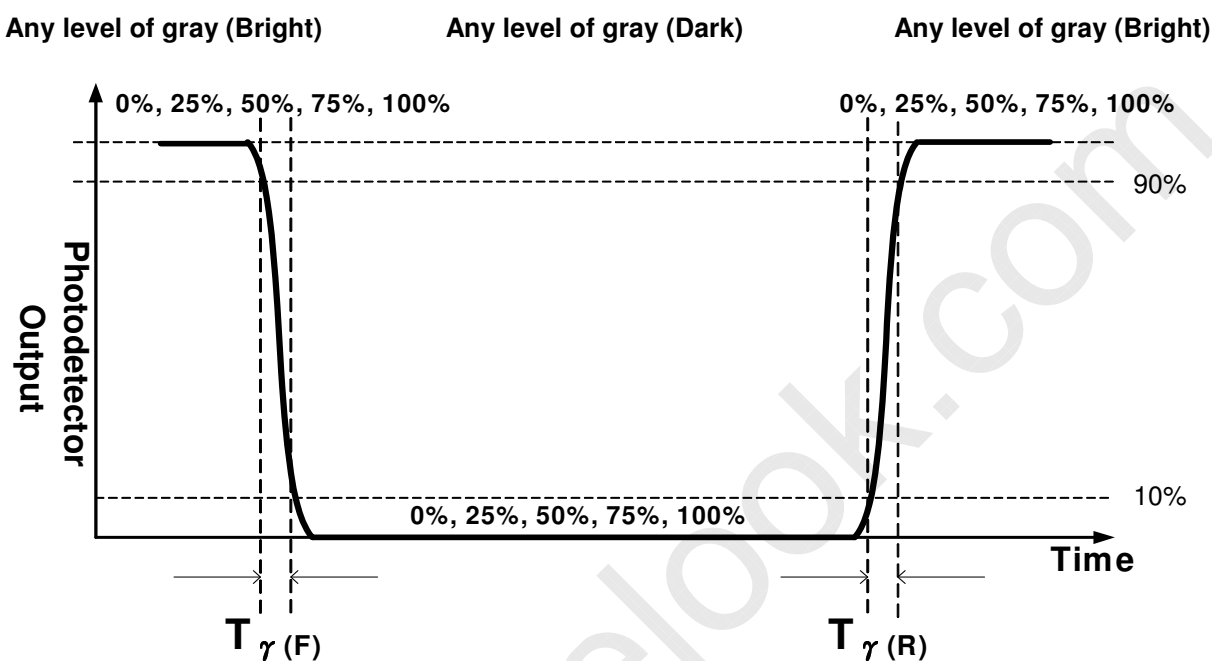
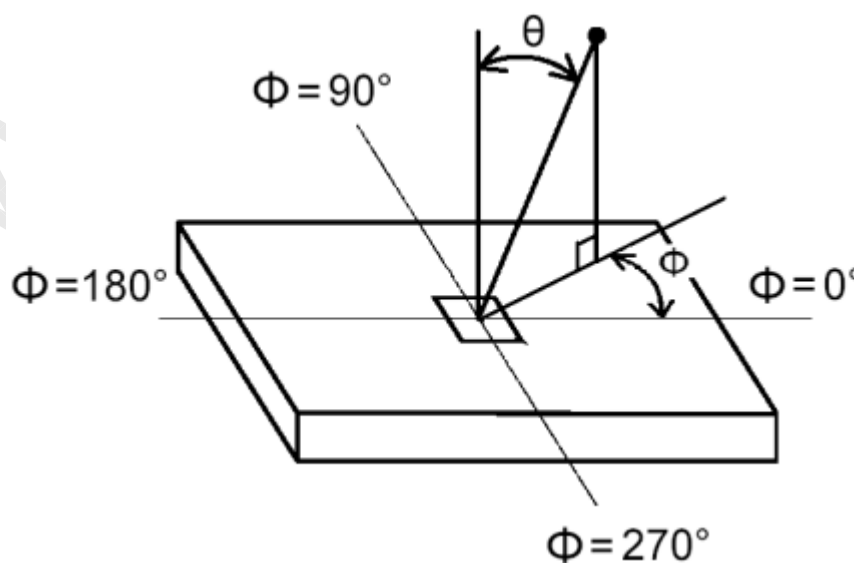


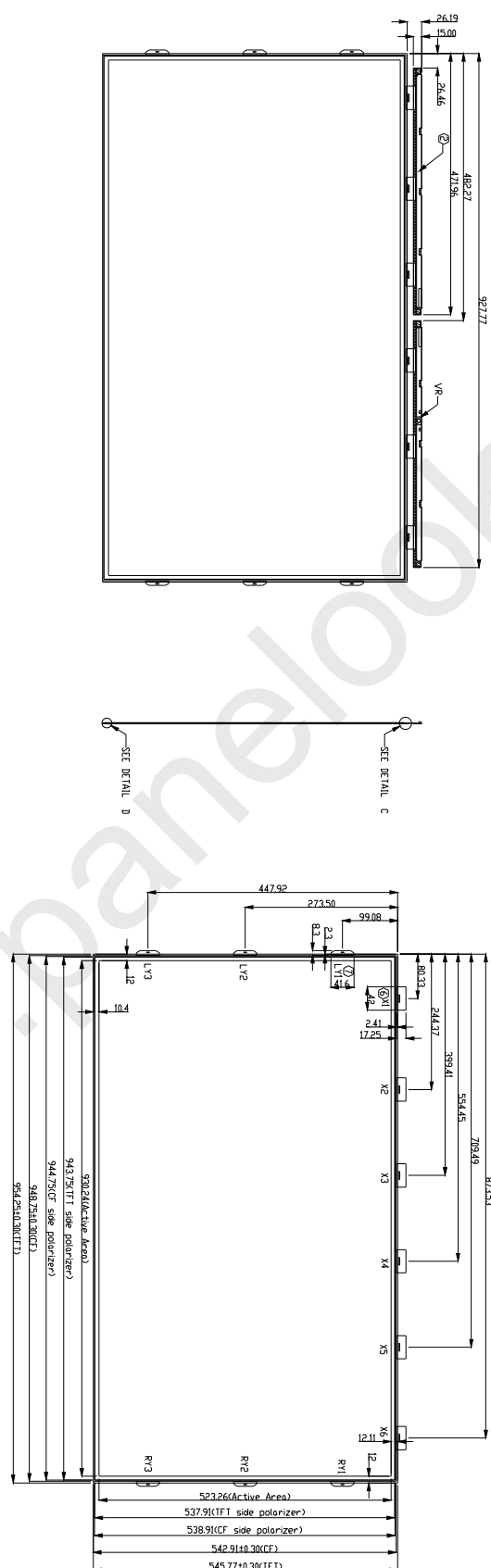
FIG.3 Response Time

The response time is defined as the following figure and shall be measured by switching the input signal for “any level of gray(bright)” and “any level of gray(dark)”.


FIG.4 Viewing Angle




3. Open Cell Drawing



6. Reliability Test Items

| | Test Item | Q'ty | Condition |
|---|---------------------------------|-----------------|---|
| 1 | High temperature storage test | 3pcs | 60℃, 300hrs |
| 2 | Low temperature storage test | 3pcs | -20℃, 300hrs |
| 3 | High temperature operation test | 3pcs | 50℃, 300hrs |
| 4 | Low temperature operation test | 3pcs | -5℃, 300hrs |
| 5 | Vibration test (With carton) | 12pcs (1Box) | Random wave (1.5G RMS, 10-200Hz) 30mins/ Per each X,Y,Z axes |
| 6 | Drop test (With carton) | 12pcs (1Box) | Height: 30.5cm (ASTMD4169-I) 1 corner, 3 edges, 6 surfaces (ASTMD5276) |

Note: Test item 1~4 RA tests are done on AUO T420HW07 V7 panels.

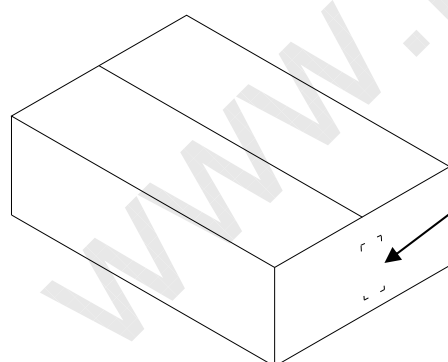
8. Packing

Open cell shipping label (35*7mm)

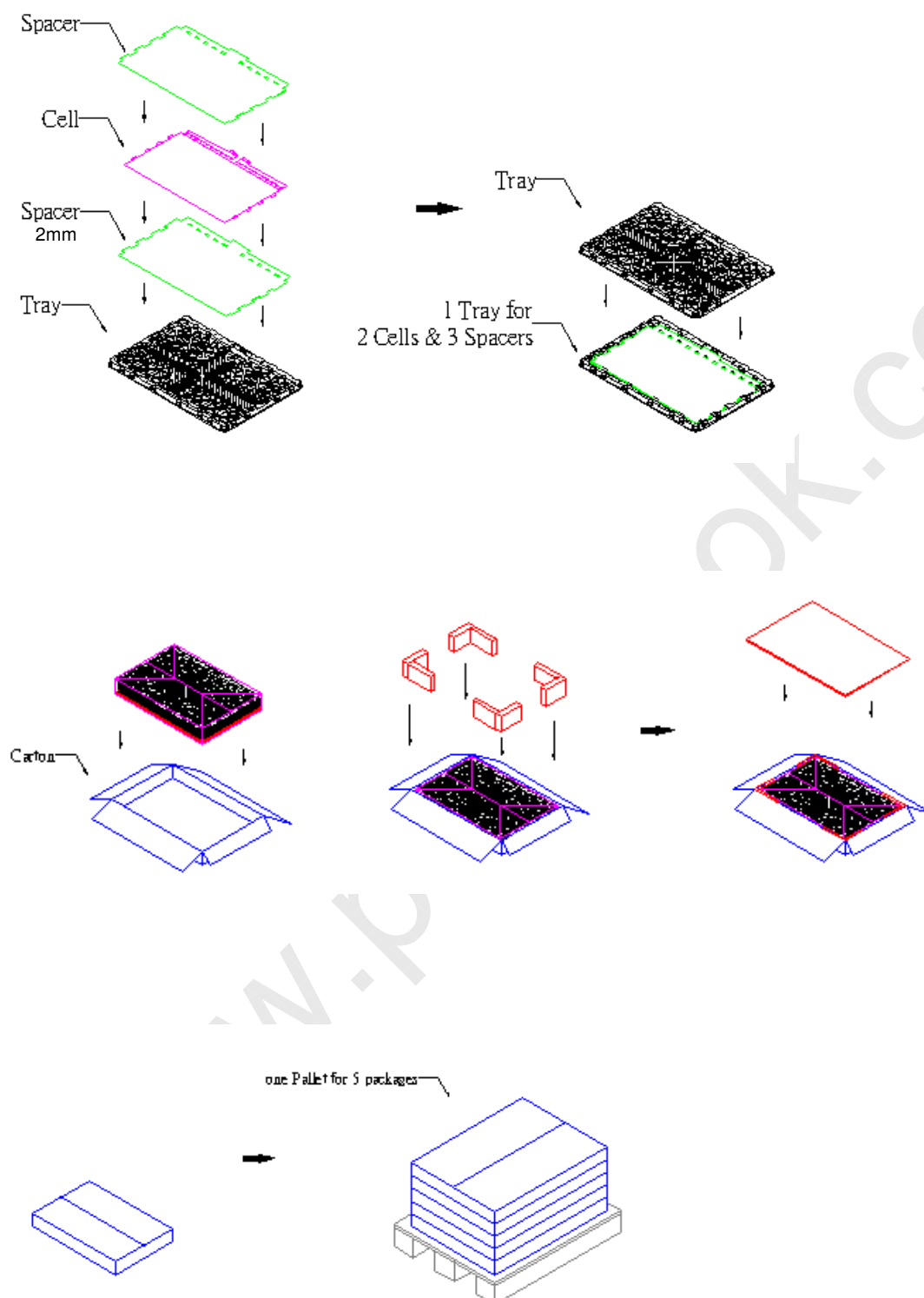


1. S/N Number
2. Grade
3. Manufacture Fab.
4. Manufactured date
5. Model name

Carton Label:



Carton label location

**Packing Process:**

Carton : 1130(L)mm*790(W)mm*245(H)mm

Pallet : 1150mm*840mm*138mm

9. PRECAUTIONS

Please pay attention to the followings when you use this TFT LCD Open Cell unit.

9-1 MOUNTING PRECAUTIONS

- (1) You should consider the mounting structure so that uneven force (ex. Twisted stress) is not applied to the cell. And the frame on which a cell is mounted should have sufficient strength so that external force is not transmitted directly to the cell.
- (2) Please attach the surface transparent protective plate to the surface in order to protect the polarizer. Transparent protective plate should have sufficient strength in order to the resist external force.
- (3) You should adopt radiation structure to satisfy the temperature specification.
- (3) Acetic acid type and chlorine type materials for the cover case are not desirable because the former generates corrosive gas of attacking the polarizer at high temperature and the latter causes circuit break by electro-chemical reaction.
- (4) Do not touch, push or rub the exposed polarizers with glass, tweezers or anything harder than HB pencil lead. And please do not rub with dust clothes with chemical treatment. Do not touch the surface of polarizer for bare hand or greasy cloth. (Some cosmetics are detrimental to the polarizer.)
- (5) When the surface becomes dusty, please wipe gently with absorbent cotton or other soft materials like chamois soaks with petroleum benzene. Normal-hexane is recommended for cleaning the adhesives used to attach front/ rear polarizers. Do not use acetone, toluene and alcohol because they cause chemical damage to the polarizer.
- (6) Wipe off saliva or water drops as soon as possible. Their long time contact with polarizer causes deformations and color fading.
- (7) Do not open the case because inside circuits do not have sufficient strength.

9-2 OPERATING PRECAUTIONS

- (1) The open cell unit listed in the product specification sheets was designed and manufactured for TV application
- (2) The spike noise causes the mis-operation of circuits. It should be lower than following voltage: $V=\pm 200\text{mV}$ (Over and under shoot voltage)
- (3) Response time depends on the temperature. (In lower temperature, it becomes longer.)
- (4) Brightness depends on the temperature. (In lower temperature, it becomes lower.) And in lower temperature, response time (required time that brightness is stable after turned on) becomes longer.
- (5) Be careful for condensation at sudden temperature change. Condensation makes damage to polarizer or electrical contacted parts. And after fading condensation, smear or spot will occur.
- (6) When fixed patterns are displayed for a long time, remnant image is likely to occur.
- (7) Module has high frequency circuits. Sufficient suppression to the electromagnetic interference shall be done by system manufacturers. Grounding and shielding methods may be important to minimize the interface.

9-3 ELECTROSTATIC DISCHARGE CONTROL

Since a open cell unit is composed of electronic circuits, it is not strong to electrostatic discharge. Make certain that treatment persons are connected to ground through wrist band etc. And don't touch interface pin directly.

9-4 PRECAUTIONS FOR STRONG LIGHT EXPOSURE

Strong light exposure causes degradation of polarizer and color filter.

9-5 STORAGE

When storing open cell units as spares for a long time, the following precautions are necessary.

(1) Store them in a dark place. Do not expose the open cell unit to sunlight or fluorescent light. Keep the temperature between 5°C and 35°C at normal humidity.

(2) The polarizer surface should not come in contact with any other object. It is recommended that they be stored in the container in which they were shipped.

9-6 HANDLING PRECAUTIONS FOR PROTECTION FILM OF POLARIZER

The protection film of polarizer is still attached on the surface as you receive open cell units. When the protection film is peeled off, static electricity is easily generated on the polarizer surface. This should be peeled off slowly and carefully by people who are electrically grounded and with well ion-blown equipment or in such a condition, etc.