☐ Tentative Specification
☐ Preliminary Specification
■ Approval Specification

MODEL NO.: G121IJ1
SUFFIX: P01

Customer:

APPROVED BY **SIGNATURE**

Name / Title
Note

Please return 1 copy for your confirmation with your signature and comments.

核准時間	部門	審核	角色	投票
2011-07-26 16:39:03	APPL 產品管理處	yuhsiang.chang (張喻翔/514-10922)	Director	Accept

CONTENTS

REVISION HISTORY

Version	Date	Section	Description
Ver 2.0	23 July, 2011	All	G121IJ1-P01 approval specification was first issued.

1. GENERAL DESCRIPTION

1.1 OVERVIEW

The G121IJ1-P01 model is a 12.1" TFT-LCD cell with driver IC and 30 pins LVDS interface. This product supports 1280 x 800 Wide-XGA MVA mode and can display 262K/16.2M colors. The backlight unit is not built in.

1.2 FEATURES

- WXGA (1280 x 800 pixels) resolution
- Wide viewing angle
- Fast response time
- Fast response time
- LVDS (Low Voltage Differential Signaling) interface
- 6/8 bit convertible

1.3 APPLICATION

- Industrial application
- Amusement

1.4 GENERAL SPECIFICATIONS

Item	Specification	Unit	Note
Screen Size	12.1" real diagonal	inch	-
Cell Outline Dimension (TFT + CF + Polarizers)	270.12 (H) x 171.4 (V) x 1.3 (D)	mm	(1)
Active Area	261.12 (H) x 163.2 (V)	mm	
Driver Element	a-si TFT active matrix	-	-
Pixel Number	1280 x R.G.B. x 800	pixel	-
Pixel Pitch	0.204(H) x 0.204 (V)	mm	-
Pixel Arrangement	RGB vertical stripe	-	-
Display Colors	262K/16.2M	color	-
Transmissive Mode	Normally Black	-	-
Surface Treatment	AG type, 3H hard coating	-	-
Weight	151.8	g	-

Note (1) Please refer to the attached drawings for more information of front and back outline dimensions.

2. ABSOLUTE MAXIMUM RATINGS

2.1 ABSOLUTE RATINGS OF ENVIRONMENT

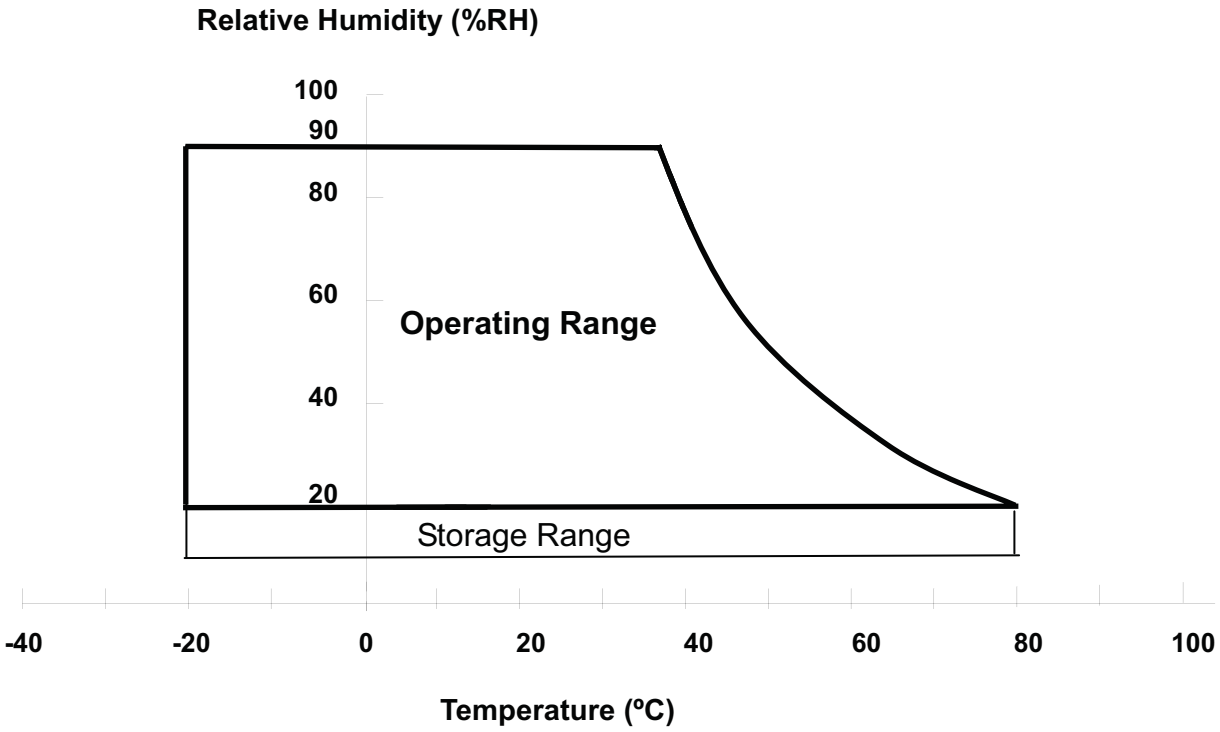
Item	Symbol	Value		Unit	Note
		Min.	Max.		
Storage Temperature	T_{ST}	-20	80	ºC	(1)
Operating Ambient Temperature	T_{OP}	-20	80	ºC	

Note (1) Temperature and relative humidity range is shown in the figure below.

(a) 90 %RH Max. (Ta <= 40 ºC).

(b) Wet-bulb temperature should be 39 ºC Max. (Ta > 40 ºC).

(c) No condensation.



2.2 ELECTRICAL ABSOLUTE RATINGS

2.2.1 TFT LCD CELL AND PCBA

Item	Symbol	Value		Unit	Note
		Min.	Max.		
Power Supply Voltage	VCCS	-0.3	(4.0	V	(1)
Logic Input Voltage	V_{IN}	-0.3	Vcc+0.3	V	

Note (1) Permanent damage to the device may occur if maximum values are exceeded. Function operation should be restricted to the conditions described under normal operating conditions.

3. ELECTRICAL CHARACTERISTICS

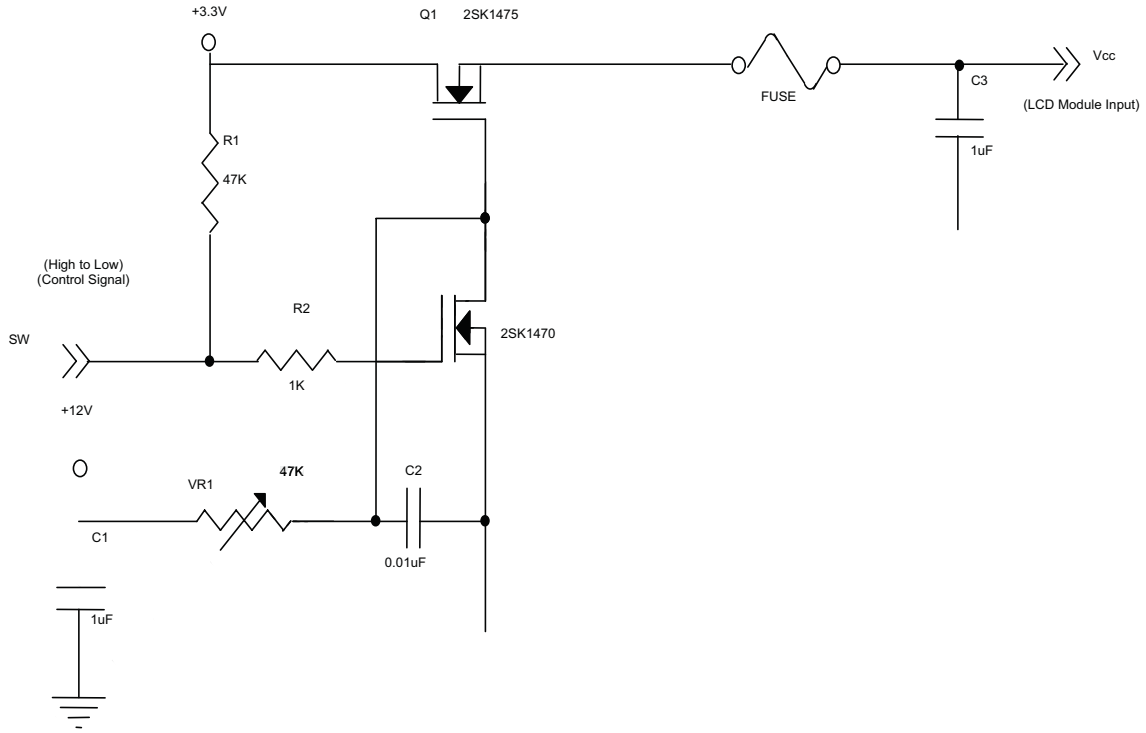
3.1 RECOMMENDED OPERATION CONDITION

Ta = 25 ± 2 ºC

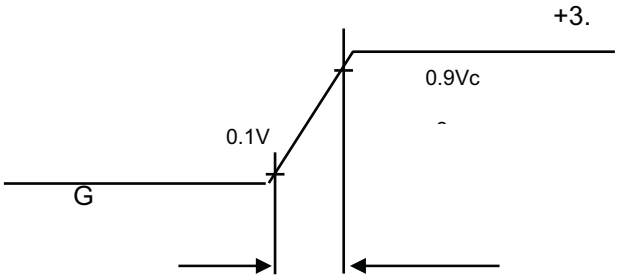
Parameter		Symbol	Value			Unit	Note
			Min.	Typ.	Max.		
Power Supply Voltage		Vcc	3.0	3.3	3.6	V	-
Permissive Ripple Voltage		V_{RP}	-	50	-	mV	-
Rush Current		I_{RUSH}	-	-	1.5	A	(2)
Initial Stage Current		I_{IS}	-	-	1.0	A	(2)
Power Supply Current	White	-	450	500	550	mA	(3)a
	Black	-	350	385	420	mA	(3)b
LVDS Differential Input High Threshold		$V_{TH(LVDS)}$	-	-	+100	mV	V =1.2V
LVDS Differential Input Low Threshold		$V_{TL(LVDS)}$	-100	-	-	mV	V_{CM}=1.2V
LVDS Common Mode Voltage		V_{CM}	1.125	-	1.375	V	-
LVDS Differential Input Voltage		$\|V_{ID}\|$	100	-	600	mV	-
Terminating Resistor		R_T	-	100	-	Ohm	-

Note (1) The assembly should be always operated within above ranges.

Note (2) Measurement Conditions:



VCC rising time is 470us



Note (3) The specified power supply current is under the conditions at Vcc = 3.3 V, Ta = 25 ± 2 ºC, f_v = 60 Hz, whereas a power dissipation check pattern below is displayed.

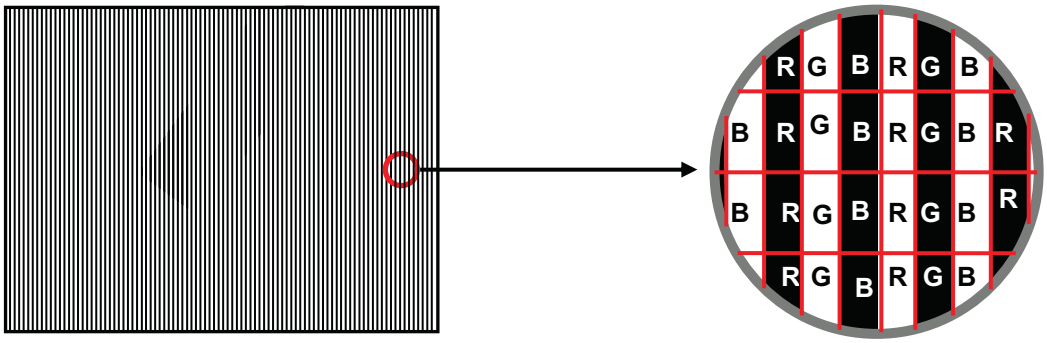
a. White Pattern

Active Area

b. Black Pattern

Active Area

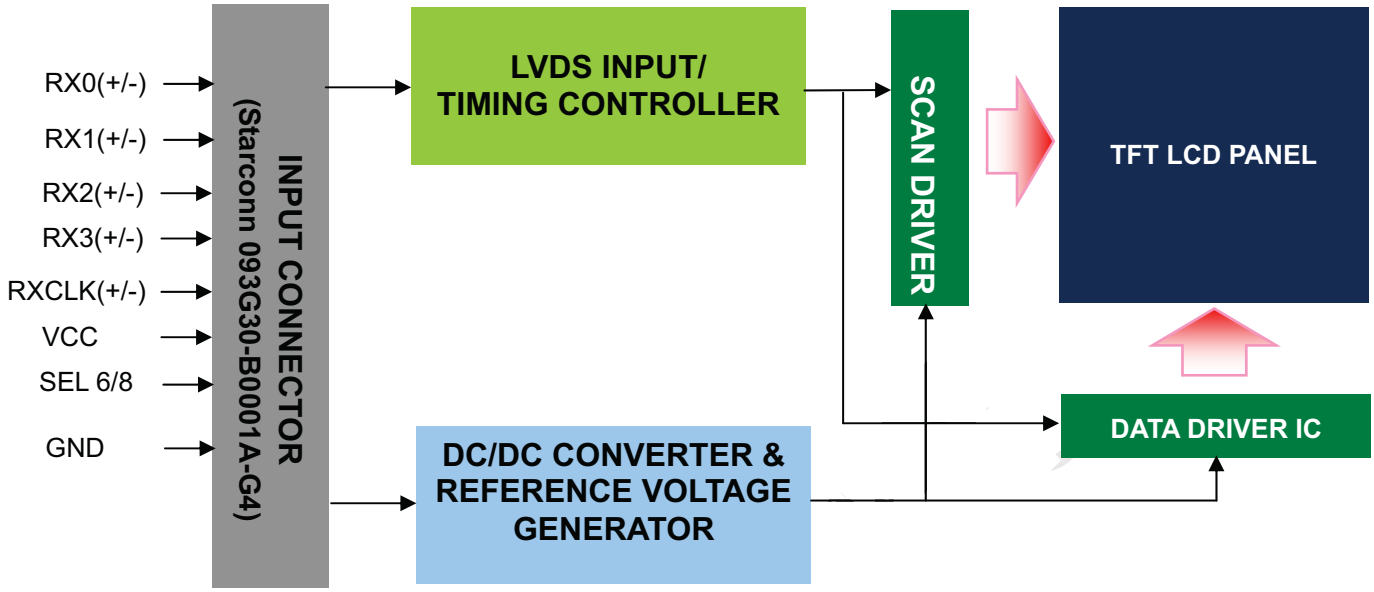
c. Vertical Stripe Pattern



Active Area

4. BLOCK DIAGRAM

4.1 TFT LCD OPEN CELL



5. INPUT TERMINAL PIN ASSIGNMENT

5.1 LVDS I/O PIN ASSIGNMENT

Pin	Name	Description	Remark
1	NC	No connection	
2	NC	No connection	
3	NC	No connection	
4	NC	No connection	
5	NC	No connection	
6	NC	No connection	
7	GND	Ground	
8	GND	Ground	
9	VCC	Power supply +3.3V	
10	VCC	Power supply +3.3V	
11	GND	Ground	
12	GND	Ground	
13	RX0-	Negative transmission data of pixel 0	
14	RX0+	Positive transmission data of pixel 0	
15	GND	Ground	
16	RX1-	Negative transmission data of pixel 1	
17	RX1+	Positive transmission data of pixel 1	
18	GND	Ground	
19	RX2-	Negative transmission data of pixel 2	
20	RX2+	Positive transmission data of pixel 2	
21	GND	Ground	
22	RXCLK-	Negative of clock	
23	RXCLK+	Positive of clock	
24	GND	Ground	
25	RX3-	Negative transmission data of pixel 3	
26	RX3+	Positive transmission data of pixel 3	
27	GND	Ground	
28	SEL6/8	LVDS 6/8 bit select function control, Low or NC → 6 bit Input Mode High → 8bit Input Mode	(2)
29	GND	Ground	
30	GND	Ground	

Note (1)Connector Part No.: Starconn 093G30-B0001A-G4

Note (2) “Low” stands for 0V. “High” stands for 3.3V

5.2 COLOR DATA INPUT ASSIGNMENT

The brightness of each primary color (red, green and blue) is based on the 6-bit gray scale data input for the color. The higher the binary input, the brighter the color. The table below provides the assignment of color versus data input. (0: Low level voltage, 1: High level voltage)

Color		Data Signal																	
		Red						Green						Blue					
		R5	R4	R3	R2	R1	R0	G5	G4	G3	G2	G1	G0	B5	B4	B3	B2	B1	B0
Basic Colors	Black	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Red	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0
	Green	0	0	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0
	Blue	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1
	Cyan	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1
	Magenta	1	1	1	1	1	1	0	0	0	0	0	0	1	1	1	1	1	1
	Yellow	1	1	1	1	1	1	1	1	1	1	1	1	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
Gray Scale Of Red	Red(0)/Dark	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Red(1)	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
	Red(2)	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
	Red(61)	1	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
	Red(62)	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
	Red(63)	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0
Gray Scale Of Green	Green(0)/Dark	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Green(1)	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
	Green(2)	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
	Green(61)	0	0	0	0	0	0	1	1	1	1	0	1	0	0	0	0	0	0
	Green(62)	0	0	0	0	0	0	1	1	1	1	1	0	0	0	0	0	0	0
	Green(63)	0	0	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0
Gray Scale Of Blue	Blue(0)/Dark	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Blue(1)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	Blue(2)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
	Blue(61)	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	1
	Blue(62)	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	0
	Blue(63)	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1

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 the assignment of color versus data input. (0: Low level voltage, 1: High level voltage)

Color		Data Signal																							
		Red								Green								Blue							
		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 Colors	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	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	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	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
Gray Scale Of Red	Red(0) / Dark	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(1)	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(2)	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
	Red(253)	1	1	1	1	1	1	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
Gray Scale Of Green	Green(0)/ Dark	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(1)	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(2)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
	Green(253)	0	0	0	0	0	0	0	0	1	1	1	1	1	1	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
Gray Scale Of Blue	Blue(0) / Dark	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(1)	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(2)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
	Blue(253)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	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

6. INTERFACE TIMING

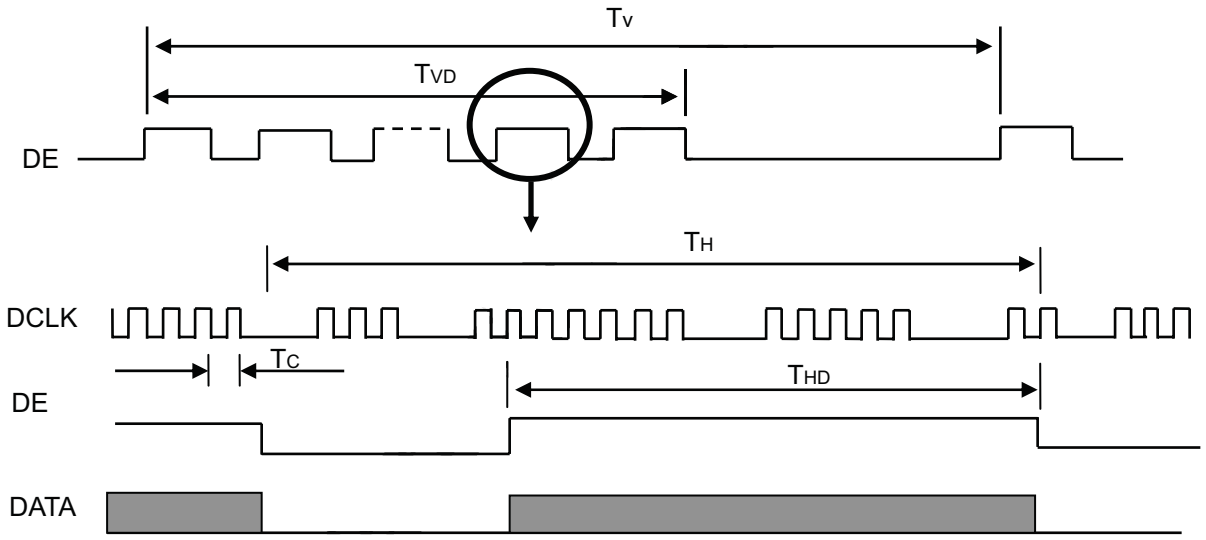
6.1 INPUT SIGNAL TIMING SPECIFICATIONS

The input signal timing specifications are shown as the following table and timing diagram.

Signal	Item	Symbol	Min.	Typ.	Max.	Unit	Note
DCLK	Frequency	1/Tc	67.45	71	74.55	MHz	-
DE	Vertical Total Time	TV	810	823	1000	TH	-
	Vertical Addressing Time	TVD	800	800	800	TH	-
	Horizontal Total Time	TH	1360	1440	1600	Tc	-
	Horizontal Addressing Time	THD	1280	1280	1280	Tc	-

Note: Since this open cell is operated by DE only mode, Hsync and Vsync input signals should be set to low logic level. Otherwise, this open cell would operate abnormally.

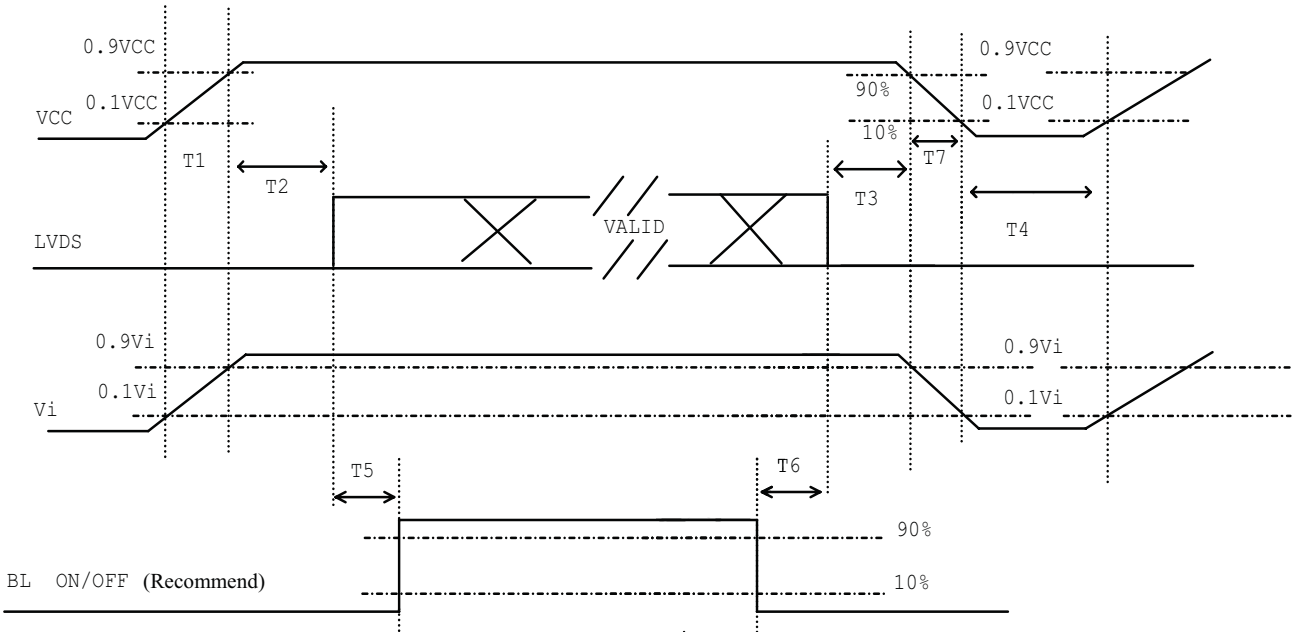
INPUT SIGNAL TIMING DIAGRAM



6.2 POWER ON/OFF SEQUENCE

To prevent a latch-up or DC operation of LCD assembly, the power on/off sequence should be as the diagram below.

Power ON/OFF sequence



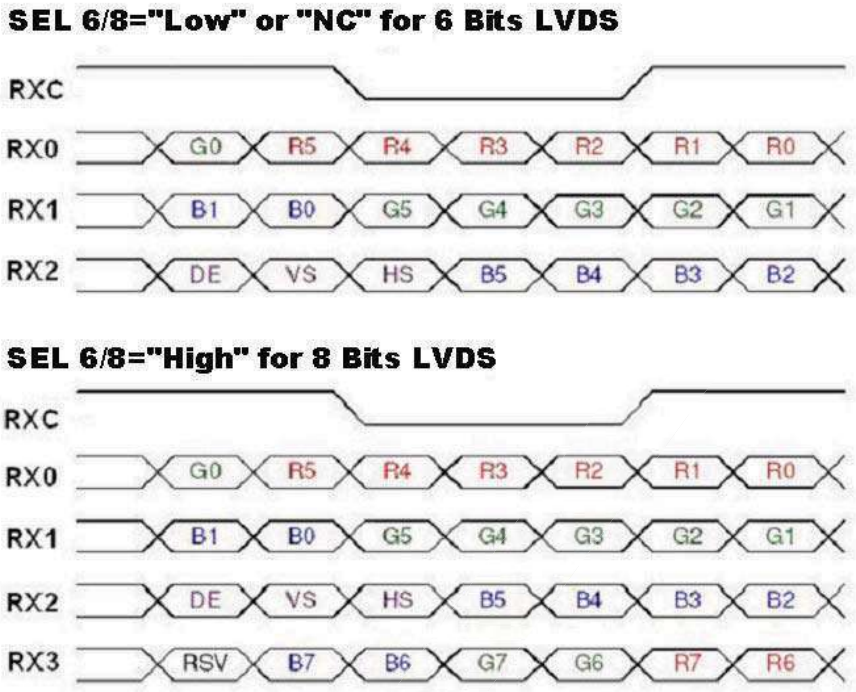
Note (1) Please avoid floating state of interface signal at invalid period.

Note (2) When the interface signal is invalid, be sure to pull down the power supply of LCD VCC to 0 V.

Note (3) The Backlight converter power must be turned on after the power supply for the logic and the interface signal is valid. The Backlight converter power must be turned off before the power supply for the logic and the interface signal is invalid.

Parameter	Value			Units
	Min	Typ	Max	
T1	0.5	---	10	ms
T2	0	---	50	ms
T3	0	---	50	ms
T4	500	---	---	ms
T5	200	---	---	ms
T6	20	---	---	ms
T7	5	---	300	ms

6.3 LVDS INPUT DATA FORMAT



Note (1) R/G/B data 7: MSB, R/G/B data 0: LSB

Note (2) Please follow PSWG

Signal Name	Description	Remark
R7	Red Data 7 (MSB)	Red-pixel Data
R6	Red Data 6	Each red pixel's brightness data consists of these
R5	Red Data 5	8 bits pixel data.
R4	Red Data 4	
R3	Red Data 3	
R2	Red Data 2	
R1	Red Data 1	
R0	Red Data 0 (LSB)	
G7	Green Data 7 (MSB)	Green-pixel Data
G6	GreenData 6	Each green pixel's brightness data consists of these
G5	GreenData 5	8 bits pixel data.
G4	GreenData 4	
G3	GreenData 3	
G2	GreenData 2	
G1	GreenData 1	
G0	GreenData 0 (LSB)	
B7	Blue Data 7 (MSB)	Blue-pixel Data
B6	Blue Data 6	Each blue pixel's brightness data consists of these
B5	Blue Data 5	8 bits pixel data.
B4	Blue Data 4	
B3	Blue Data 3	
B2	Blue Data 2	
B1	Blue Data 1	
B0	Blue Data 0 (LSB)	
RXCLKIN+ RXCLKIN-	LVDS Clock Input	
DE	Display Enable	
VS	Vertical Sync	
HS	Horizontal Sync	

7. OPTICAL CHARACTERISTICS

7.1 TEST CONDITIONS

Item	Symbol	Value	Unit
Ambient Temperature	Ta	25±2	°C
Ambient Humidity	Ha	50±10	%RH
Supply Voltage	V_{CC}	3.3	V
Input Signal	According to typical value in "3. ELECTRICAL CHARACTERISTICS"		
LED Light Bar Input Current	I_L	120	mA

7.2 OPTICAL SPECIFICATIONS

The relative measurement methods of optical characteristics are shown as below. The following items should be measured under the test conditions described in 7.1 and stable environment shown in Note (9).

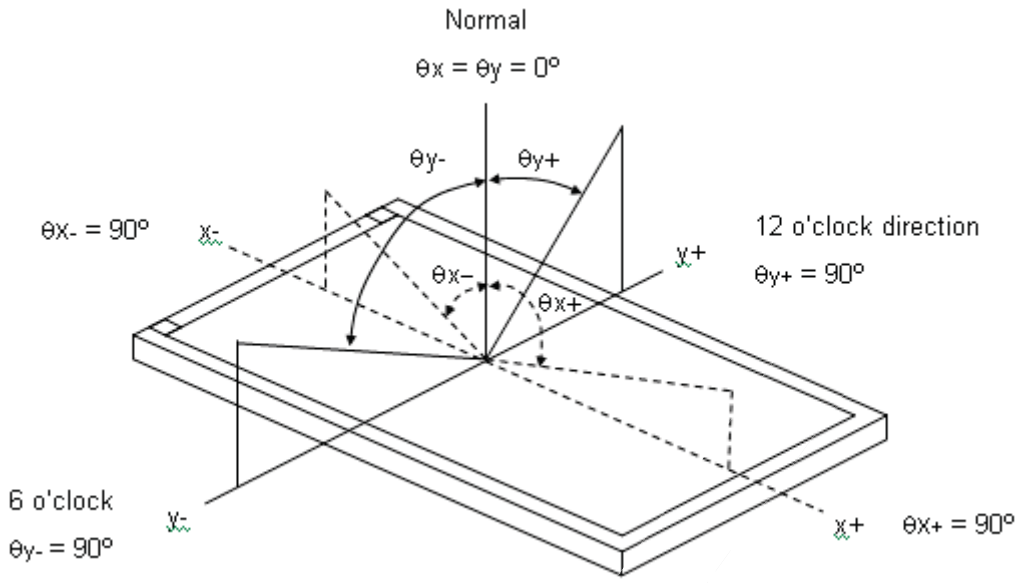
Item		Symbol	Condition	Min.	Typ.	Max.	Unit	Note
Color Chromaticity	Red	Rx	θ_x=0°,θ_Y=0° CS-2000	Typ -0.03	0.583	Typ +0.03		(1), (9)
		Ry			0.347		-	
	Green	Gx			0.305		-	
		Gy			0.517		-	
	Blue	Bx			0.139		-	
		By			0.194		-	
	White	Wx			0.328		-	
		Wy			0.373		-	
Center Transmittance		Tc		3.7	4.3	-		(2),(8), (9)
Contrast Ratio		CR		800	1000	-	-	(2),(4), (9)
White Variation		δW		-	1.25	2.4	-	(5), (6)
Response Time		T_R	θx =0° θy =0°	-	15	20	ms	(5)
		T_F		-	10	15	ms	
Viewing Angle	Horizontal	θ_x+	CR≥10	80	88	-	Deg.	(2),(3), (9)
		θ_x-		80	88	-		
	Vertical	θ_Y+		80	88	-		
		θ_Y-		80	88	-		

Note (1): Light source is the standard light source “C” which is defined by CIE and driving voltages are based on suitable gamma voltages. The calculating method is as following：

1. Measure Module’s and BLU’s spectrums. White and R, G, B are with signal input. Backlight unit is supplied by CMI.
2. Calculate cell’s spectrum.
3. Calculate cell’s chromaticity by using the spectrum of standard light source “C”

Note (2): Light source is the BLU which is supplied by CMI and driving voltages are based on suitable gamma voltages. White and R, G, B are with signal input.

Note (3) Definition of Viewing Angle (θx, θy):



Note (4) Definition of Contrast Ratio (CR):

The contrast ratio can be calculated by the following expression.

Contrast Ratio (CR) = L63 / L0

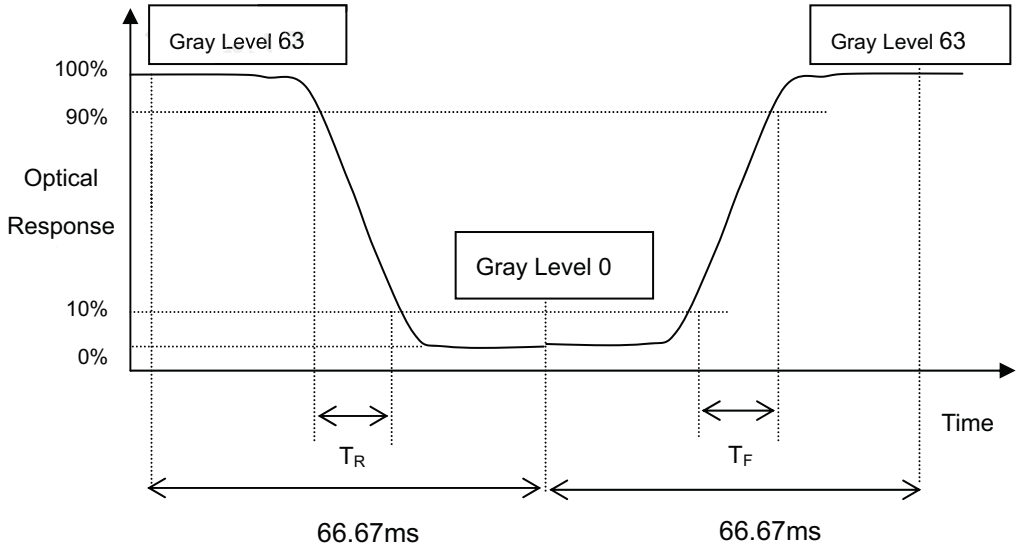
L63: Luminance of gray level 63

L 0: Luminance of gray level 0

CR = CR (5)

CR (X) is corresponding to the Contrast Ratio of the point X at Figure in Note (6).

Note (5) Definition of Response Time (T_R, T_F) and measurement method:



Note (6) Definition of Average Luminance of White (L_{AVE}):

Measure the luminance of gray level 63 at 5 points

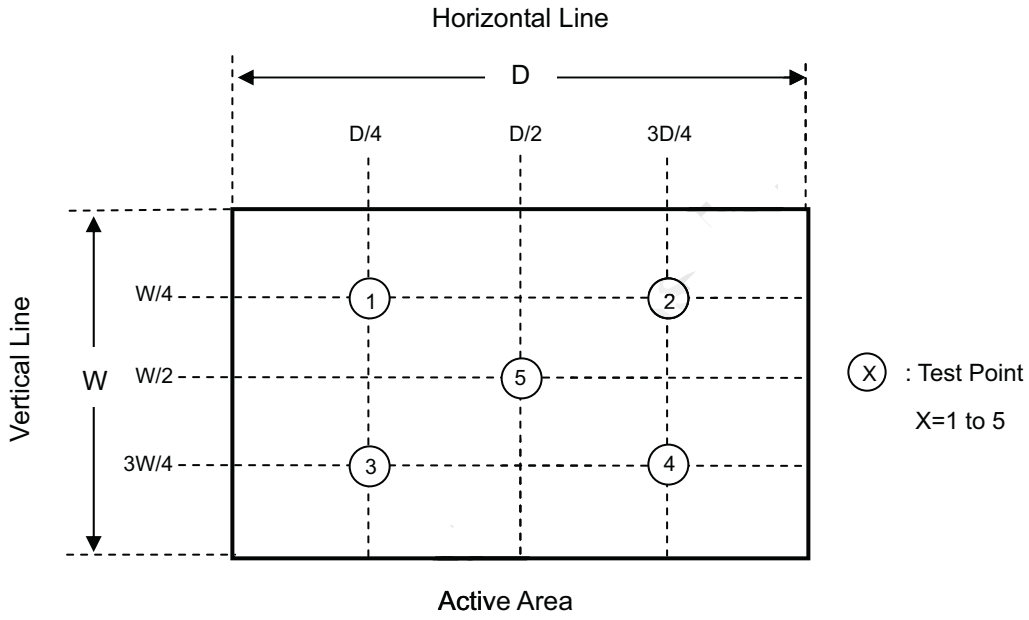
L_{AVE} = [L (1)+ L (2)+ L (3)+ L (4)+ L (5)] / 5

L (x) is corresponding to the luminance of the point X at Figure in Note (6).

Note (7) Definition of White Variation (δW):

Measure the luminance of gray level 63 at 5 points

δW = Maximum [L (1), L (2), L (3), L (4), L (5)] / Minimum [L (1), L (2), L (3), L (4), L (5)]



Note (8) Definition of Transmittance (T%):

Module is without signal input.

Luminance of LCD module

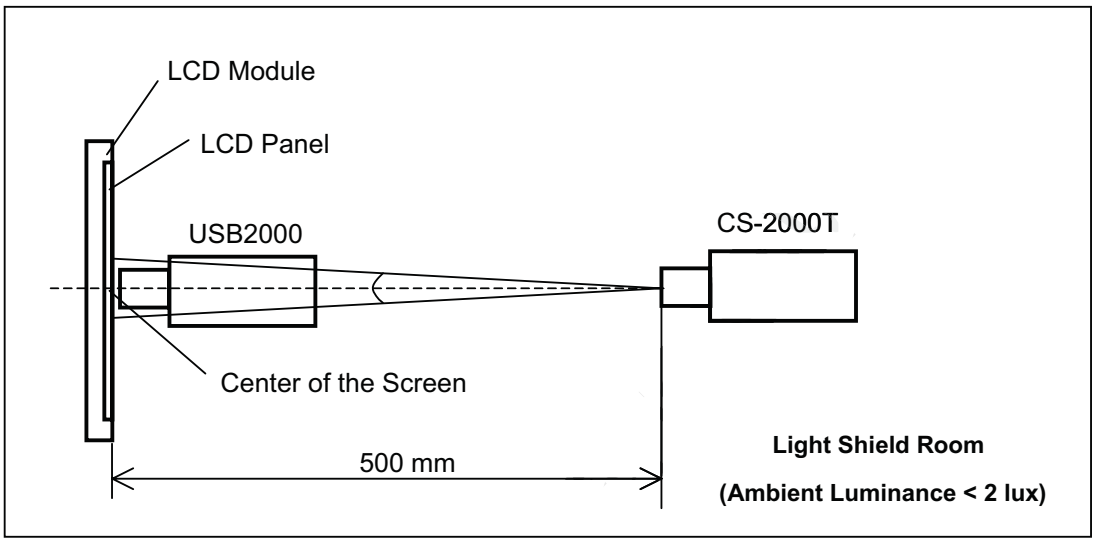
Transmittance = Luminance of backlight ＊ 100%

Luminance of LCD module: Luminance of gray level 255 (L255)

BLU is supplied by CMO

Note (9) Measurement Setup:

The LCD module should be stabilized at given temperature for 20 minutes to avoid abrupt temperature change during measuring. In order to stabilize the luminance, the measurement should be executed after lighting Backlight for 20 minutes in a windless room.



8. Reliability Test

8.1 RELIABILITY TEST CONDITION

No.	Test Item	Test Condition	Note
1	High Temperature Storage Test	80ºC, 240 hours	(1) (2) (3)
2	Low Temperature Storage Test	-20ºC, 240 hours	
3	Thermal Shock Storage Test	-20ºC, 0.5hour←→80℃, 0.5hour; 1hour/cycle, 100cycles	
4	High Temperature Operation Test	80ºC, 240 hours	
5	Low Temperature Operation Test	-20ºC, 240 hours	
6	High Temperature & High Humidity Operation Test	60ºC, 90%RH, 240hours	

Note (1) There should be no condensation on the surface of panel during test.

Note (2) Temperature of panel display surface area should be 80 ºC Max

Note (3) In the standard conditions, there is no function failure issue occurred. All the cosmetic specification is judged before reliability test.

9. PACKAGING

9.1 PACKING SPECIFICATIONS

(1) 56pcs panels / 1 Box

(2) Carton dimensions: 650 (L) X 495 (W) X 320 (H) mm

(3) Weight: approximately 16.9Kg

9.2 PACKING METHOD

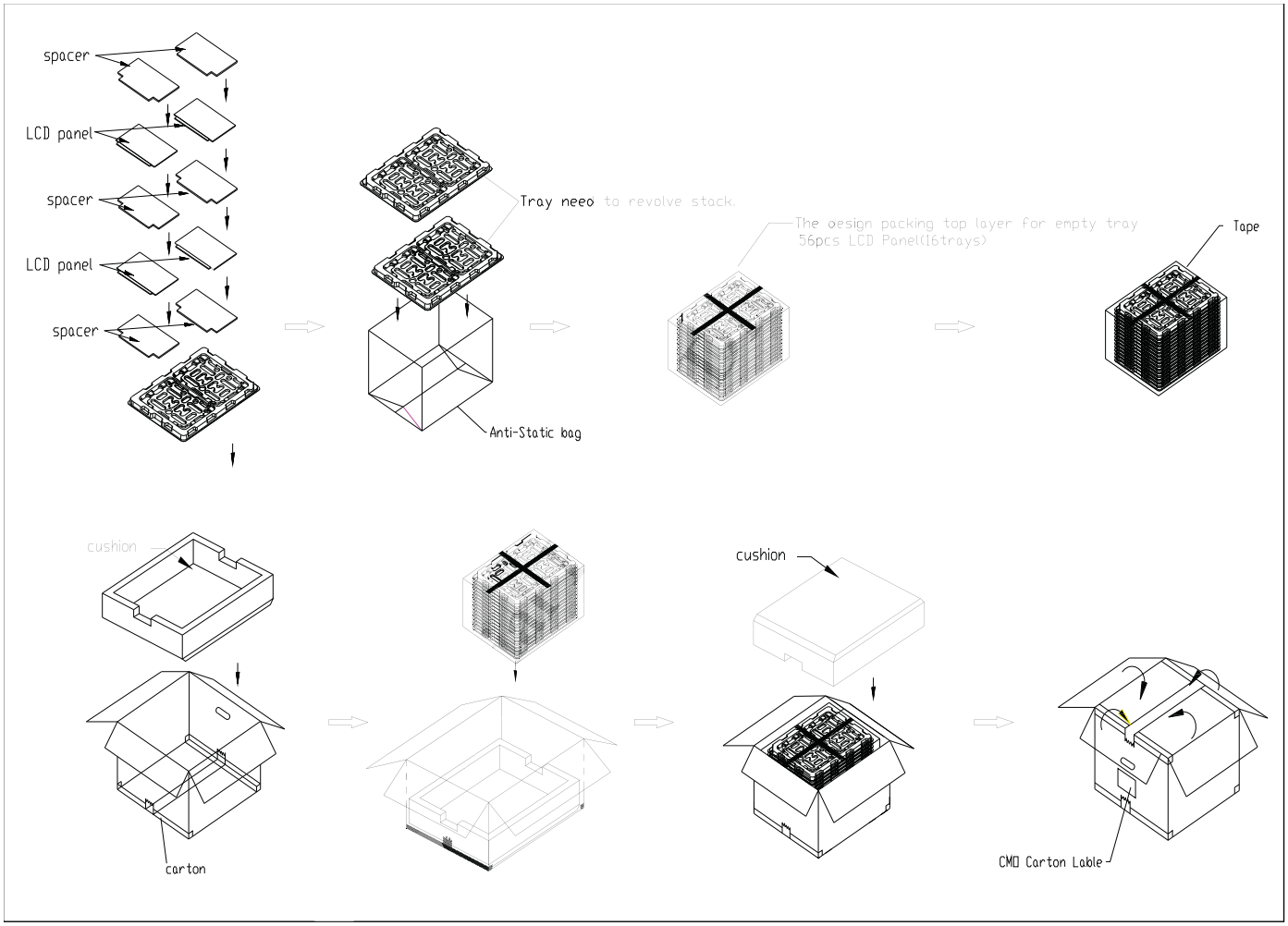


Figure 9-1 Packing method

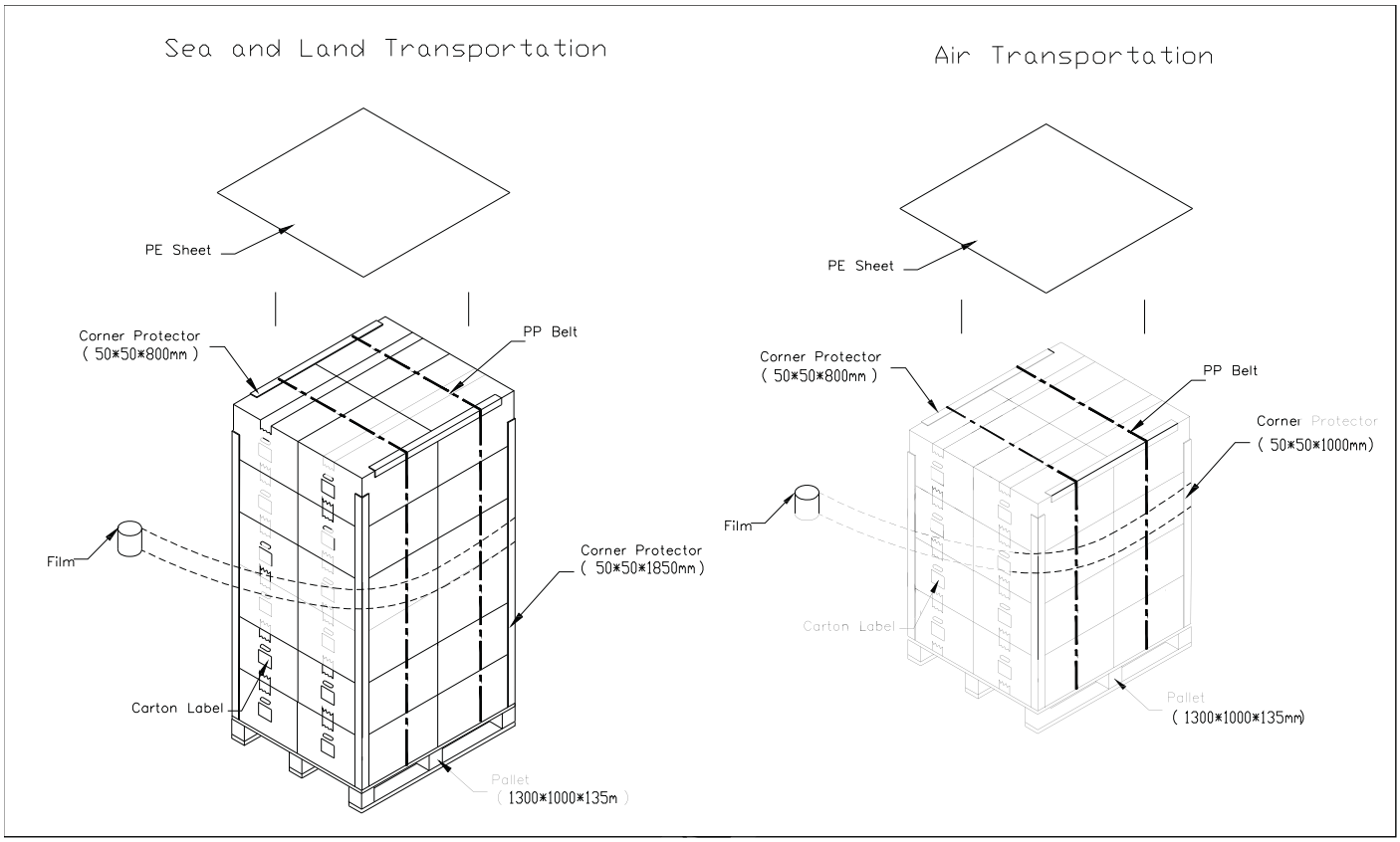


Figure 9-2 Packing method

10. DEFINITION LABELS

10.1 PANEL LABEL

The barcode nameplate is pasted on each module as illustration, and its definitions are as following explanation.

(a) Model Name: G121IJ1-P01

(b) Revision: Rev. XX, for example: A0, A1…B1, B2… or C1, C2…etc.

(c) CMI barcode definition:

Serial ID: XX-XX-X-XX-YMD-L-NNNN

Code	Meaning	Description
XX	CMI internal use	-
XX	Revision	Cover all the change
X	CMI internal use	-
XX	CMI internal use	-
YMD	Year, month, day	Year: 0~9, 2001=1, 2002=2, 2003=3…2010=0, 2011=1, 2012=2… Month: 1~12=1, 2, 3, ~, 9, A, B, C Day: 1~31=1, 2, 3, ~, 9, A, B, C, ~, W, X, Y, exclude I, O, and U.
L	Product line #	Line 1=1, Line 2=2, Line 3=3, …
NNNN	Serial number	Manufacturing sequence of product

11. PRECAUTIONS

11.1 ASSEMBLY AND HANDLING PRECAUTIONS

(1) Do not apply rough force such as bending or twisting to the module during assembly.

(2) To assemble or install module into user's system can be only in clean working areas. The dust and oil may cause electrical short or worsen the polarizer.

(3) It is not permitted to have pressure or impulse on the TFT LCD panel because the LCD panel will be damaged.

(4) Always follow the correct power sequence when TFT LCD panel is connecting and operating. This can prevent damage to the CMOS LSI chips during latch-up.

(5) Do not pull the I/F connector in or out while the module is operating.

(6) Do not disassemble the TFT LCD panel.

(7) Use a soft dry cloth without chemicals for cleaning, because the surface of polarizer is very soft and easily scratched.

(8) It is dangerous that moisture come into or contacted the TFT LCD panel, because moisture may damage TFT LCD panel when it is operating.

(9) High temperature or humidity may reduce the performance of module. Please store TFT LCD panel within the specified storage conditions.

(10) When ambient temperature is lower than 10ºC may reduce the display quality. For example, the response time will become slowly.

(11) Do not keep same pattern in a long period of time. It may cause image sticking on LCD.

11.2 SAFETY PRECAUTIONS

(1) Do not disassemble the TFT LCD and PCBA to prevent electrical shock.

(2) If the liquid crystal material leaks from the panel, it should be kept away from the eyes or mouth. In case of contact with hands, skin or clothes, it has to be washed away thoroughly with soap.

(3) After the LCD's end of life, it is not harmful in case of normal operation and storage.