TITLE : HV070WX2 -1E0

Product Specification

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HYDIS Technologies

REVISION HISTORY

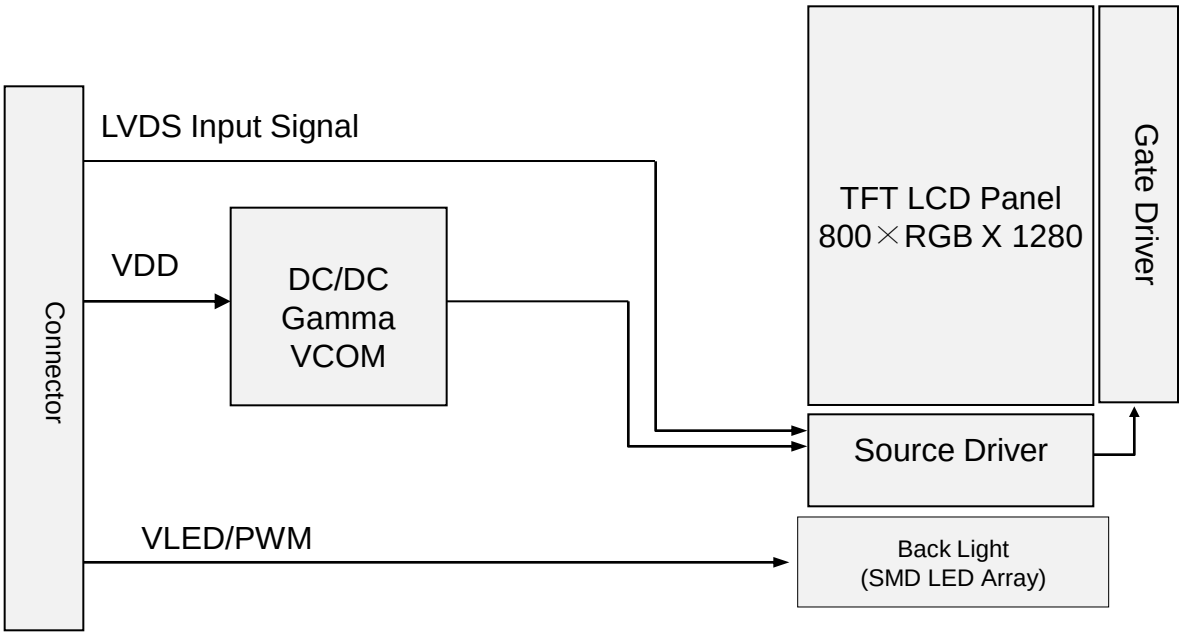
REV.	ECN NO.	DESCRIPTION OF CHANGES	DATE	PREPARED
0		Initial Release	2012.05.08	S.H.PARK

Contents

1.0 GENERAL DESCRIPTION

1.1 Introduction

HV070WX2-1E0 is a color active matrix TFT LCD module using amorphous silicon TFT's (Thin Film Transistors) as an active switching devices. This module has a 7.0 inch diagonally measured active area with WXGA resolutions (800 horizontal by 1280 vertical pixel array). Each pixel is divided into RED, GREEN, BLUE dots which are arranged in vertical Stripe and this module can display 262K colors. The TFT-LCD panel used for this module is a low reflection and higher color type.



1.2 Features

- Thin and Light Weight
- 3.3 V Logic Power
- LVDS Interface (DE mode only)
- SMD LED (25EA) Array (Right Side/Vertical Direction)
- 262K Colors (6bit)
- Green Product (RoHS) & Halogen free

1.3 Application

- Tablet, etc

1.4 General Specifications

< Table 1. General Specifications >

Parameter	Specification	Unit	Remark
Active area	94.20 (H) x 150.72 (V)	mm	
Number of pixels	800RGB(H) ×1280(V)	pixels	
Pixel pitch	0.11775 × 0.11775	mm	
Pixel arrangement	RGB Vertical Stripe		
Display colors	262K (6bit)	colors	
Gamut	Min. 45.0% / Typ. 50.0%		
Display mode	Normally Black		
Outline dimension	104.32X161.67x 2.3 (D) typ.	mm	Note 1
Weight	Typ. 82g / Max. 86g	g	
Back-light	Right edge side, 25-LEDs type		

Note 1. LCM thickness with component height: 4.05mm max

2.0 ABSOLUTE MAXIMUM RATINGS

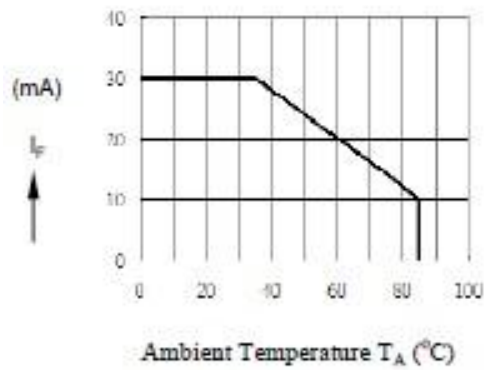
The followings are maximum values which, if exceed, may cause faulty operation or damage to the unit.

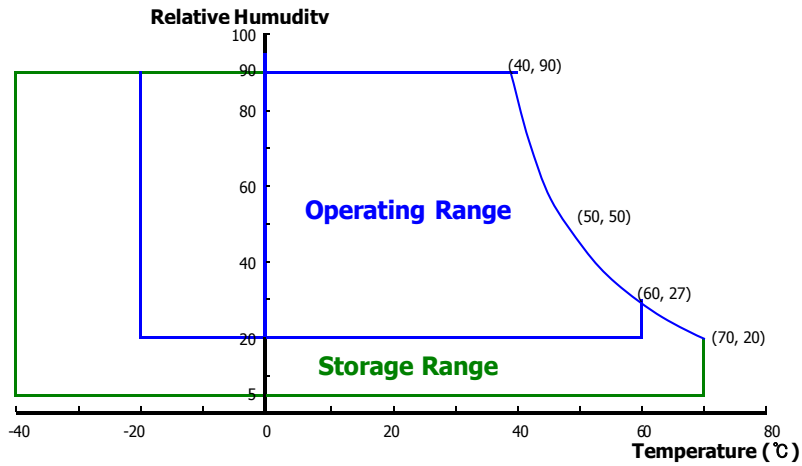
< Table 2. Absolute Maximum Ratings > Ta=25+/-2°C

Parameter	Symbol	Min.	Max.	Unit	Remarks
Logic Power Supply Voltage	V_{DD}	-0.3	4.0	V	
Logic Power Supply Voltage	V_{CC}	-0.3	2.0	V	
Back-light Power Supply Voltage	V_{LEDIN}	-0.3	6.0	V	
Back-light LED Current	I_{LED}	-	30	mA	Note 1
Back-light LED Reverse Voltage	V_R	-	5	V	
Operating Temperature	T_{OP}	-20	+60	℃	Note 1, Note 2
Storage Temperature	T_{SP}	-30	+70	℃	

Note 1. Ambient temperature vs allowable forward current are shown in the figure below.

Note 2. Temperature and relative humidity range are shown in the figure below.
90% RH Max. (40℃ ≥ Ta)
Maximum wet - bulb temperature at 39℃ or less. (> 40℃) No condensation.





3.0 ELECTRICAL SPECIFICATIONS

3.1 Electrical Specifications

< Table 3. Electrical Specifications >

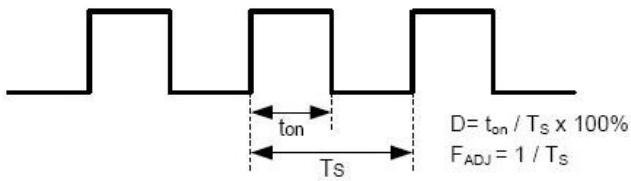
Parameter		Min.	Typ.	Max.	Unit	Remarks
Logic Power Supply Voltage	V_{DD}	3.0	3.3	3.6	V	
Logic Power Supply Current	I_{DD}	-	106	121	mA	VDD=3.3V, 25℃ Mosaic 5X5 pattern Note 1
LED Driver Power Supply Voltage	V_{LEDIN}	3	3.7	5	V	Note 1
LED Driver Power Supply Current	I_{LEDIN}	-	446	-	mA	VLEDIN=3.7V, 25℃ Note 2
LED Driver's Efficiency	η	-	85	-	%	
Back-light LED Voltage / Back-light LED Total Voltage	V_{LED} /V_{BL}	2.75/ 13.75	2.85/ 14.25	3.05/ 15.25	V	
Back-light LED Current / Back-light LED Total Current	I_{LED} /I_{BL}	-	19 /95	-	mA	
Power Consumption	P_{DD}	-	0.35	0.4	W	VDD=3.3V, 25℃ Mosaic 5X5 pattern VLEDIN=3.7V Note 1, 2
	PLED	-	1.65	1.7	W	
	Ptotal	-	2.0	2.1	W	

Notes : 1. The supply voltage is measured and specified at the interface connector of LCM.
(Pattern : Mosaic 5X5)
2. Reference value, which is measured with LED Driver for V_{LEDIN}=3.70V

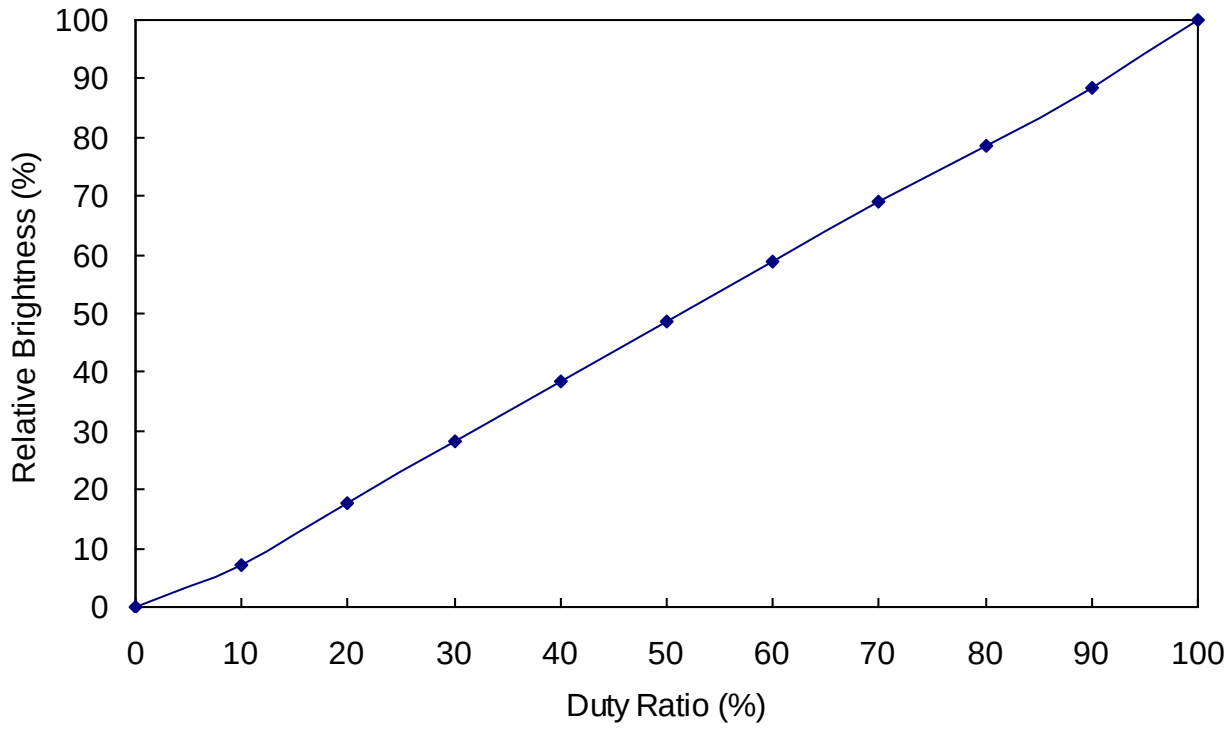
3.2 LED PWM Specifications

< Table 4. Electrical Specifications >

Parameter		Min.	Typ.	Max.	Unit	Remarks
LED_EN Logic High Level	V_{ADJH}	1.8	3.3	3.6	V	
LED_EN Logic Low Level	V_{ADJL}	0	0	0.4	V	
Dimming Frequency	F_{ADJ}	0.1	20	200	KHz	- Refer to LED Driver IC data sheet (AT 1316C, GMT), - Needs to apply to more than 20KHz to reduce acoustic noise.
Dimming Duty Cycle	D	5	-	100	%	-. PWM dimming Frequency : 0.1KHz to 100KHz.



3.3 PWM Duty Ratio vs Brightness



Notes :

In case of duty ratio 0%, LED can't illuminate itself so this state is LED off.

In case of duty ratio 100%, the brightness of LED is maximum and the state is LED on.

4.0 OPTICAL SPECIFICATIONS

4.1 Overview

The test of optical specifications shall be measured in a dark room (ambient luminance ≤ 1 lux and temperature = 25±2℃) with the equipment of Luminance meter system (Goniometer system and TOPCON BM-5A) and test unit shall be located at an approximate distance 50cm from the LCD surface at a viewing angle of θ and Φ equal to 0°. We refer to $\theta_{Ø=0}$ (=θ3) as the 3 o'clock direction (the "right"), $\theta_{Ø=90}$ (= θ12) as the 12 o'clock direction ("upward"), $\theta_{Ø=180}$ (= θ9) as the 9 o'clock direction ("left") and $\theta_{Ø=270}$(= θ6) as the 6 o'clock direction ("bottom"). While scanning θ and/or Ø, the center of the measuring spot on the Display surface shall stay fixed. V_{CC} shall be 3.3+/- 0.3V at 25°C.

4.2 Optical Specifications

<Table 5. Optical Specifications>

Parameter-		Symbol	Condition	Min.	Typ.	Max.	Unit	Remarks
Viewing Angle range	Horizontal	Θ_3	CR > 10	80	89	-	Deg.	Note 1
		Θ_9		80	89	-	Deg.	
	Vertical	Θ_{12}		80	89	-	Deg.	
		Θ_6		80	89	-	Deg.	
Luminance Contrast ratio		CR	Θ = 0°	600	700	-		Note 2
Luminance of White	1 Points	Y_w	Θ = 0°	390	450	-	cd/m^2	Note 5
White Luminance uniformity	9 Points	ΔY9		72	80	-	%	Note 6
White Chromaticity		W_x	Θ = 0°	0.280	0.310	0.340		Note 3 Note 4
		W_y		0.300	0.330	0.360		
Reproduction of color	Red	R_x	Θ = 0°	0.618	0.648	0.678		
		R_y		0.305	0.335	0.365		
	Green	G_x		0.301	0.331	0.361		
		G_y		0.506	0.536	0.566		
	Blue	B_x		0.122	0.152	0.182		
		B_y		0.038	0.068	0.098		
Response Time		Total ($T_r + T_d$)	Ta= 25° C Θ = 0°	-	30	-	Ms	Note 7
Cross Talk		CT	Θ = 0°	-	-	2.0	%	Note 8

Notes :

1. Viewing angle is the angle at which the contrast ratio is greater than 10. The viewing angles are determined for the horizontal or 3, 9 o'clock direction and the vertical or 6, 12 o'clock direction with respect to the optical axis which is normal to the LCD surface (see Figure1).

2. Contrast measurements shall be made at viewing angle of Θ= 0 and at the center of the LCD surface. Luminance shall be measured with all pixels in the view field set first to white, then to the dark (black) state (see Figure1). Luminance Contrast Ratio (CR) is defined mathematically as CR = Luminance when displaying a white raster / Luminance when displaying a black raster.

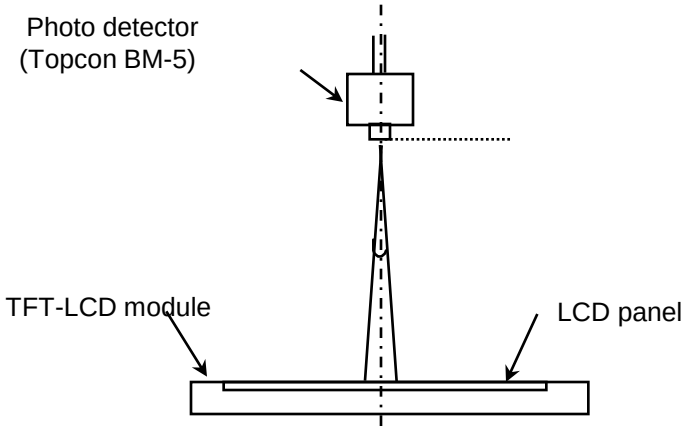
3. Reference only / Standard Front Surface Treatment Measured with green cover glass. The color chromaticity coordinates specified in Table 4 shall be calculated from the spectral data measured with all pixels first in red, green, blue and white. Measurements shall be made at the center of the panel.

4. Real color coordinates might be changeable after measurement or detail tuning.

5. The luminance value of Typ. 450cd/m2 means the brightness of PWM is 100%.

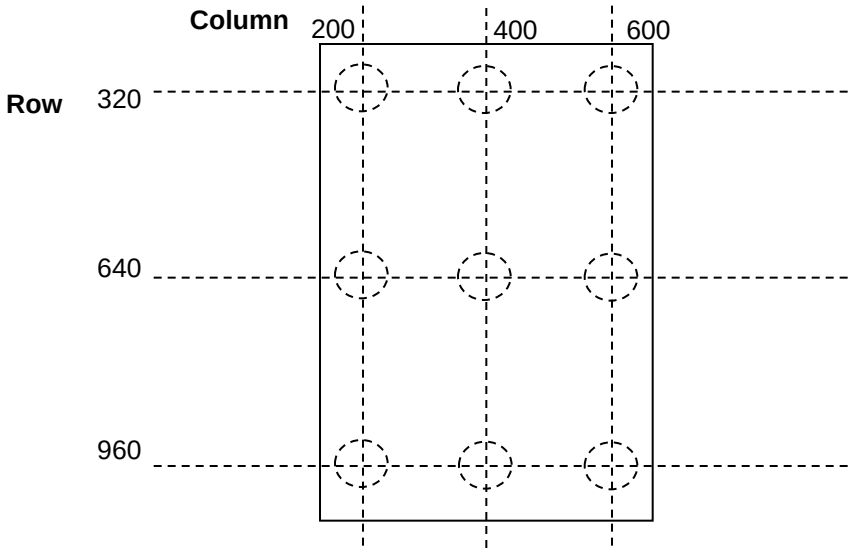
4.3 Optical Measurements

Figure 1. Measurement Set Up



Optical characteristics measurement setup

Figure 2. Uniformity Measurement Locations (9 points)



Note 6.
The White luminance uniformity on LCD surface is then expressed as :
ΔY = (Minimum Luminance of 9 points / Maximum Luminance of 9 points) * 100 Refer Figure 2 about measurement points

* LED Condition = (Duty Ratio 100%, LED current 19mA/string)

Figure 3. Response Time Testing

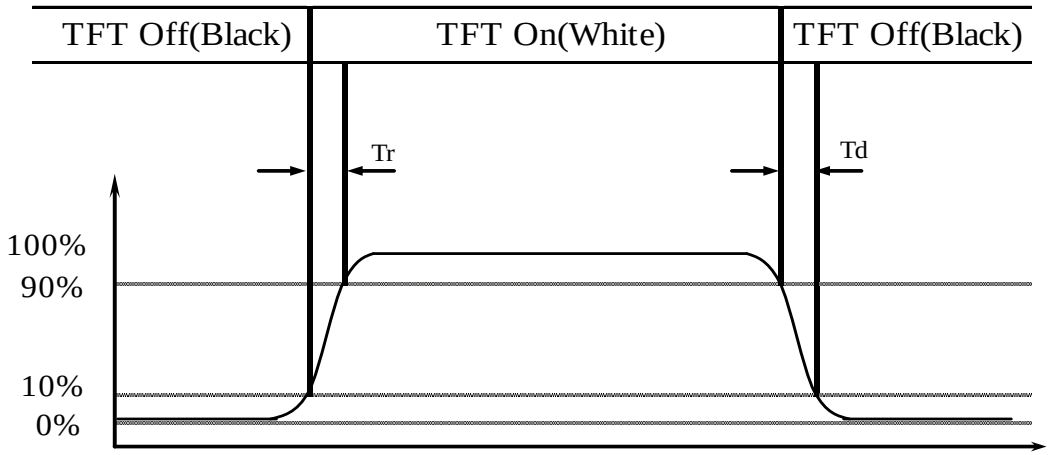
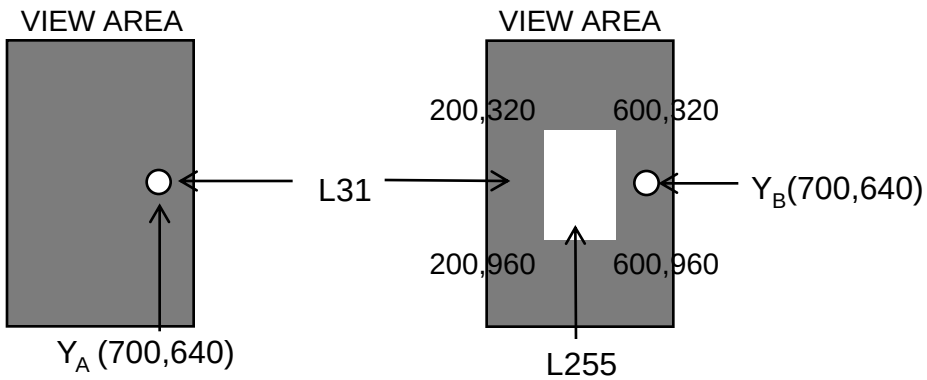


Figure 4. Cross Modulation Test Description



$$\text{Cross-Talk (\%)} = \left| \frac{Y_B - Y_A}{Y_B} \right| \times 100$$

Where:

Y_A = Initial luminance of measured area (cd/m^2)

Y_B = Subsequent luminance of measured area (cd/m^2)

The location measured will be exactly the same in both patterns

Note 7.

The electro-optical response time measurements shall be made as Figure 3 by switching the “data” input signal ON and OFF. The times needed for the luminance to change from 10% to 90% is Tr, and 90% to 10% is Td.

Note 8.

Cross-Talk of one area of the LCD surface by another shall be measured by comparing the luminance (YA) of a 25mm diameter area, with all display pixels set to a gray level, to the luminance (YB) of that same area when any adjacent area is driven dark (Refer to Figure 4).

5.0 INTERFACE CONNECTIONS

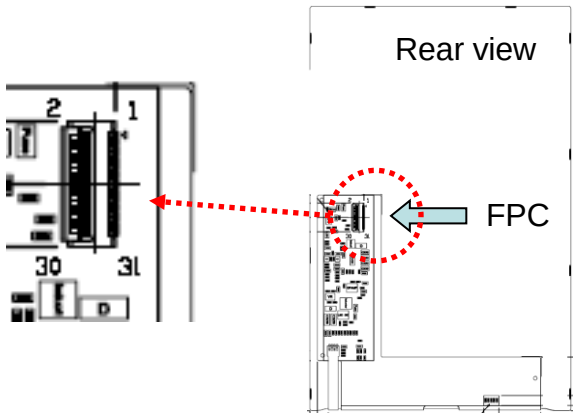
5.1 Electrical Interface Connection

CN1	HYDIS side connector	FF12-31A-R11B, Manufactured by DDK

<Table 6, Electrical Interface Connection >

No.	Symbol	Remark	No.	Symbol	Remark
1	VDD	Power Supply, 3.3V typ	17	GND	Ground
2	VDD	Power Supply, 3.3V typ	18	RXINO3-	N.C (floating)
3	VDD	Power Supply, 3.3V typ	19	RXINO3+	N.C (floating)
4	NC	N.C (floating)	20	GND	Ground
5	GND	Ground	21	LVBIT	Ground
6	RXINO-	D0-	22	DITHER	Ground
7	RXINO+	D0+	23	GND	Ground
8	GND	Ground	24	LED EN (PWM)	PWM
9	RXINO1-	D1-	25	LVFMT	Ground
10	RXINO1+	D1+	26	BIST	N.C (floating)
11	GND	Ground	27	VLED	LED Power Supply , 3~5V
12	RXINO2-	D2-	28	VLED	LED Power Supply , 3~5V
13	RXINO2+	D2+	29	VLED	LED Power Supply , 3~5V
14	GND	Ground	30	VLED	LED Power Supply , 3~5V
15	RXCLKIN-	CLK-	31	NC	N.C (floating)
16	RXCLKIN+	CLK+			

Note 1.
Yellow boxes in pin map table are using for 8bit input.
LVBIT (8/6 bit change), DITHER (FRC en/disable), LVFMT (MSB/LSB change)



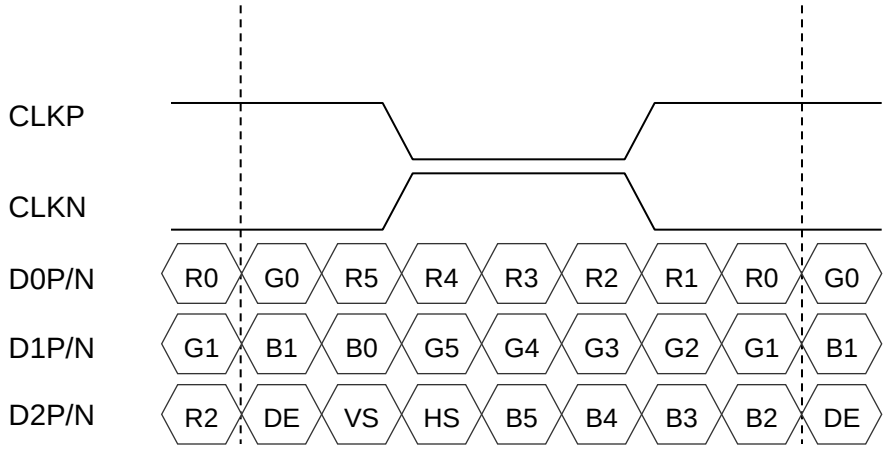
5.2 LVDS Interface

LVDS Transmitter : THC63LVDM83A

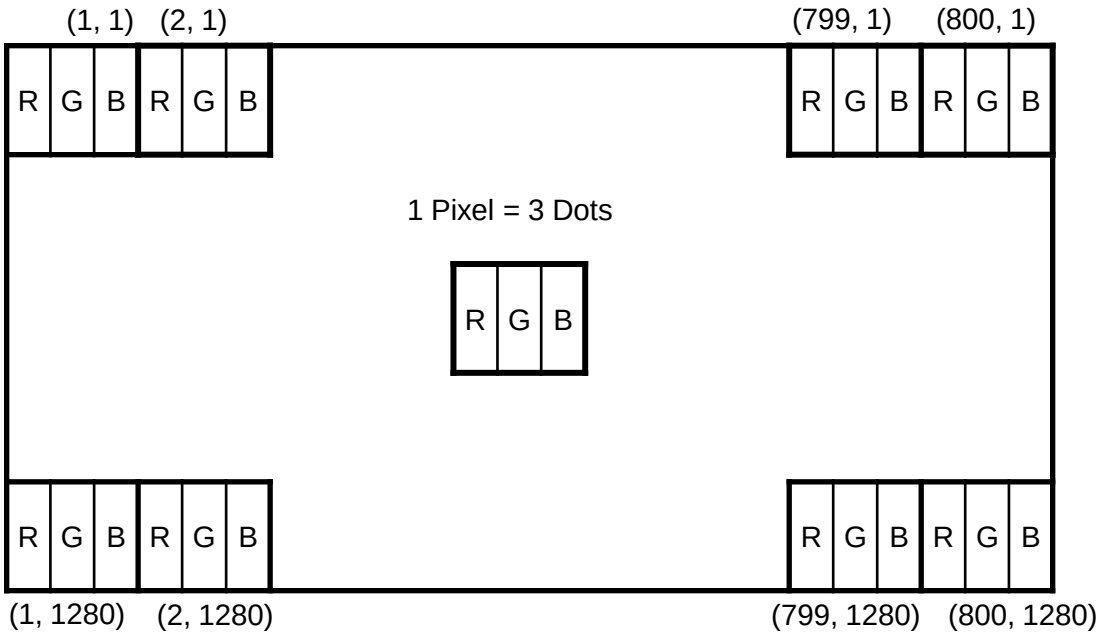
<Table 7, LVDS Interface >

Input signal	Transmitter		Interface		FF12-31A-R11B	Remark
	Pin No	Pin No	System (Tx)	TFT-LCD (Rx)	Pin No.	
R0	51	48 47	OUT0- OUT0+	D0-IN-N D0-IN-P	6 7	
R1	52					
R2	54					
R3	55					
R4	56					
R5	3					
G0	4					
G1	6	46 45	OUT1- OUT1+	D1-IN-N D1-IN-P	9 10	
G2	7					
G3	11					
G4	12					
G5	14					
B0	15					
B1	19					
B2	20	42 41	OUT2- OUT2+	D2-IN-N D2-IN-P	12 13	
B3	22					
B4	23					
B5	24					
HSYNC	27					
VSYNC	28					
DE	30					
R6	50	38 37	OUT3- OUT3+	D3-IN-N D3-IN-P	18 19	
R7	2					
G6	8					
G7	10					
B6	16					
B7	18					
Reserved	25					
MCLK	31	40	CLKOUT-	CLK-IN-N	15	
		39	CLKOUT+	CLK-IN-P	16	

5.3 LVDS Format



5.4 Data Input Format



6.0. SIGNAL TIMING SPECIFICATIONS

6.1 The HV070WX2-1E0 LCM is operated by the only DE (Data enable) mode

< Table 8, Signal Timing >

Item	Symbol	Min.	Typ.	Max.	Unit	Remark
Frame Period	T1	1285	1288	1510	Lines	
Vertical Display Period	T2	-	1280	-	Lines	
One line Scanning Period	T3	860	864	1344	Clocks	
Horizontal Display Period	T4	-	800	-	Clocks	
Clock Frequency	1/T5	30	66.8	85	MHz	Note 1

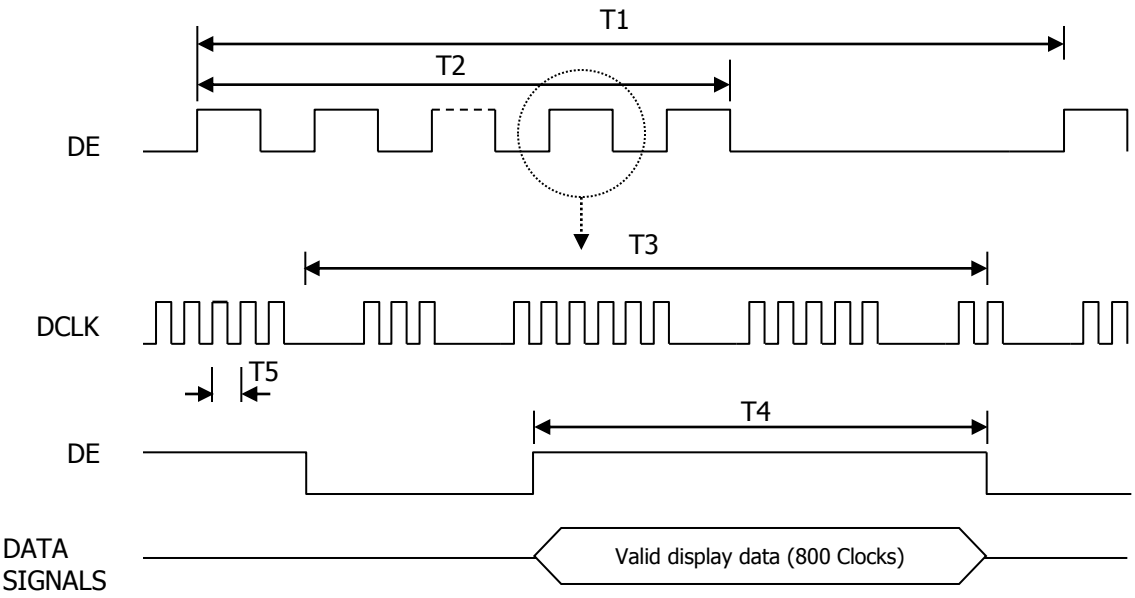
Note 1. This value only guarantee for the circuit-operation

(NO guarantee of display quality)

Contents	Symbol	Condition	Typical	Unit
HS cycle	HP	HDISP+HBLK	864	PCLK
HS low Pulse width	HS		16	PCLK
Horizontal back porch	HBP		32	PCLK
Horizontal front porch	HFP		16	PCLK
Horizontal data start point		HS+HBP	48	PCLK
Horizontal blanking period	HBLK	HS+HBP+HFP	64	PCLK
Horizontal active area	HDISP		800	PCLK
Vertical cycle	VP	VDISP+VBLK	1288	Line
Vertical low Pulse width	VS		1	Line
Vertical back porch	VBP		2	Line
Vertical front porch	VFP		5	Line
Vertical data start point		VS+VBP	3	Line
Vertical blanking period	VBLK	VS+VBP+VFP	8	Line
Vertical active area	VDISP		1280	Line
Verical Refresh rate	VRR		60	Hz
Pixel clock requency	PCLK		66.8	MHz

7.0 SIGNAL TIMING WAVEFORMS

7.1 Timing Waveforms of Interface Signal

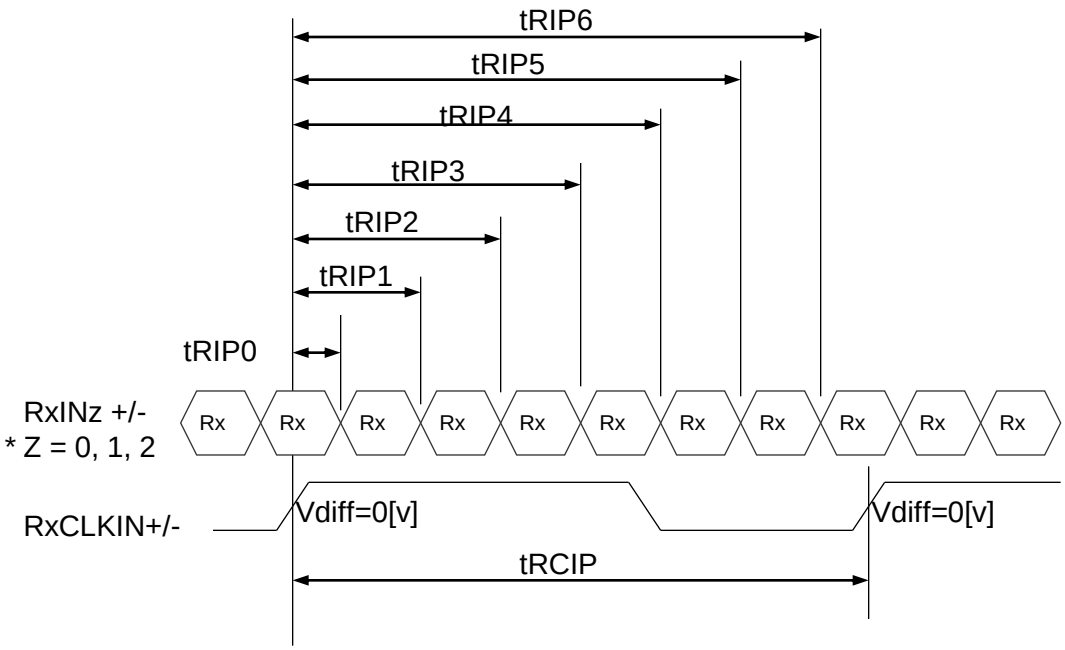


7.2 LVDS Rx Interface Timing Parameter

The specification of the LVDS Rx interface timing parameter

< Table 9, LVDS Rx Interface Timing Specification>

Item	Symbol	Min.	Typ.	Max.	Unit	Remarks
CLKIN Period	tRCIP	-	14.97	-	nsec	
Input Data 0	tRIP0	-0.4	0.0	+0.4	nsec	
Input Data 1	tRIP1	tRICP/7-0.4	tRICP/7	tRICP/7+0.4	nsec	
Input Data 2	tRIP2	2 ×tRICP/7-0.4	2 ×tRICP/7	2 ×tRICP/7+0.4	nsec	
Input Data 3	tRIP3	3 ×tRICP/7-0.4	3 ×tRICP/7	3 ×tRICP/7+0.4	nsec	
Input Data 4	tRIP4	4 ×tRICP/7-0.4	4 ×tRICP/7	4 ×tRICP/7+0.4	nsec	
Input Data 5	tRIP5	5 ×tRICP/7-0.4	5 ×tRICP/7	5 ×tRICP/7+0.4	nsec	
Input Data 6	tRIP6	6 ×tRICP/7-0.4	6 ×tRICP/7	6 ×tRICP/7+0.4	nsec	



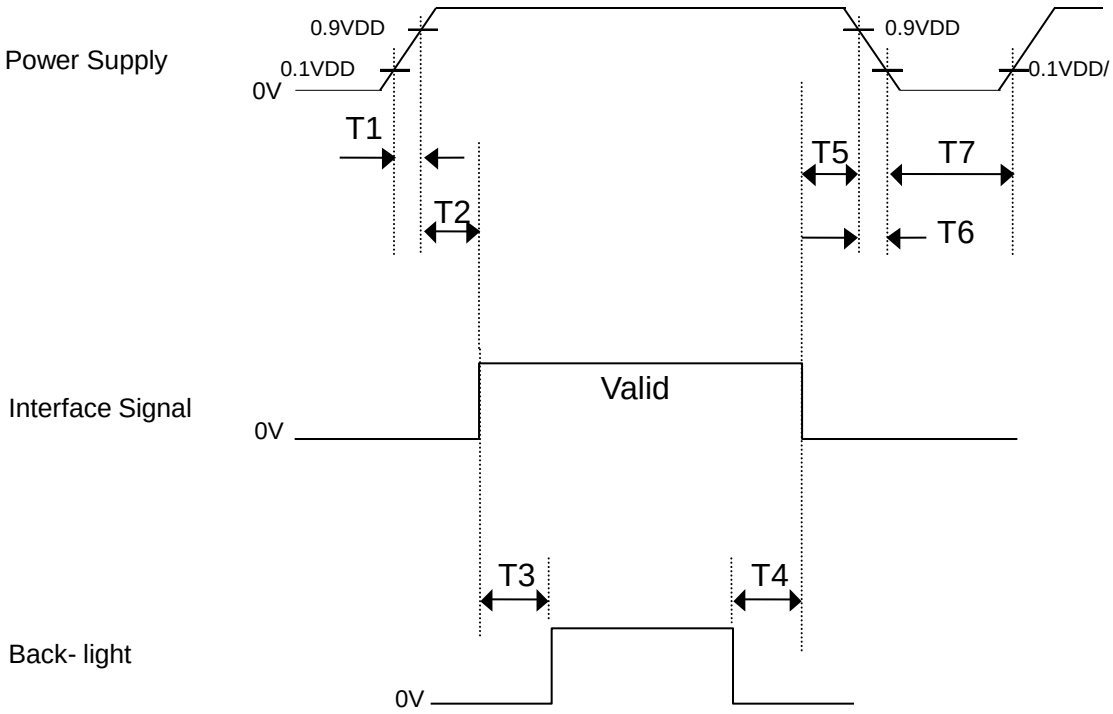
8.0 INPUT SIGNALS, BASIC DISPLAY COLORS & GRAY SCALE OF COLORS

A total of 262K colors are displayed using 64 gray from 6bit input.

Colors & Gray Scale		Red data						Green data						Blue data					
		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
	Blue	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1
	Green	0	0	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0
	Cyan	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1
	Red	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0
	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	Black	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	△	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
	Darker	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
	△	↑						↑						↑					
	▽	↓						↓						↓					
	Brighter	1	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
	▽	1	1	1	1	1	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
Gray Scale Of Green	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	0	0	0	0	0	1	0	0	0	0	0	0
	Darker	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
	△	↑						↑						↑					
	▽	↓						↓						↓					
	Brighter	0	0	0	0	0	0	1	1	1	1	0	1	0	0	0	0	0	0
	▽	0	0	0	0	0	0	1	1	1	1	1	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
Gray Scale Of Blue	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	0	0	0	0	0	0	0	0	0	0	0	1
	Darker	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
	△	↑						↑						↑					
	▽	↓						↓						↓					
	Brighter	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	1
	▽	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	0
	Blue	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1
Gray Scale Of White & Black	Black	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	△	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	1
	Darker	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	1	0
	△	↑						↑						↑					
	▽	↓						↓						↓					
	Brighter	1	1	1	1	0	1	1	1	1	1	0	1	1	1	1	1	0	1
	▽	1	1	1	1	1	0	1	1	1	1	1	0	1	1	1	1	1	0
	White	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

9.0 POWER SEQUENCE

To prevent a latch-up or DC operation of the LCD module, the power on/off sequence shall be as shown in below



- T1 ≤ 10 ms
- 0 ≤ T2 ≤ 50 ms
- 200 ms ≤ T3
- 200 ms ≤ T4
- 0 ≤ T5 ≤ 50 ms
- 0 ≤ T6 ≤ 10ms
- 150ms ≤ T7

Notes : 1. When the power supply VDD/ VCC is 0V, Keep the level of input signals on the low or keep high impedance.
2. Do not keep the interface signal high impedance when power is on.
3. Back Light must be turn on after power for logic and interface signal are valid.

10.0 MECHANICAL CHARACTERISTICS

10.1 Dimensional Requirements

Figure 5 & 6 (located in 12.0) shows mechanical outlines for the model

<Table 10, Mechanical Characters >

Parameter	Specification	Unit	Remark
Active area	94.20 (H) x 150.72 (V)	mm	
Number of pixels	800RGB(H) ×1280(V)	pixels	
Pixel pitch	0.11775 × 0.11775	um	
Pixel arrangement	RGB Vertical Stripe		
Display colors	262K (6bit)	colors	
Gamut	Min. 45.0% / Typ. 50.0%		
Display mode	Normally Black		
Outline dimension	104.32 (H)X161.67(V) X 2.3 (D) typ.	mm	Note 1
Weight	Typ. 82g / Max. 86g	g	
Back-light	Right edge side, 25-LEDs type		

10.2 Polarizer Hardness.

The surface of the LCD uses Hard coating clear polarizer having over 3H pencil surface hardness test

10.3 Light Leakage

There shall not be visible light from the back-lighting system around the edges of the screen as seen from a distance 50cm from the screen with an overhead light level of 150lux. The manufacture shall furnish limit samples of the panel showing the light leakage acceptable.

11.0 Mechanical Drawing

Figure 6. TFT-LCD Module Outline Dimension (Front View)

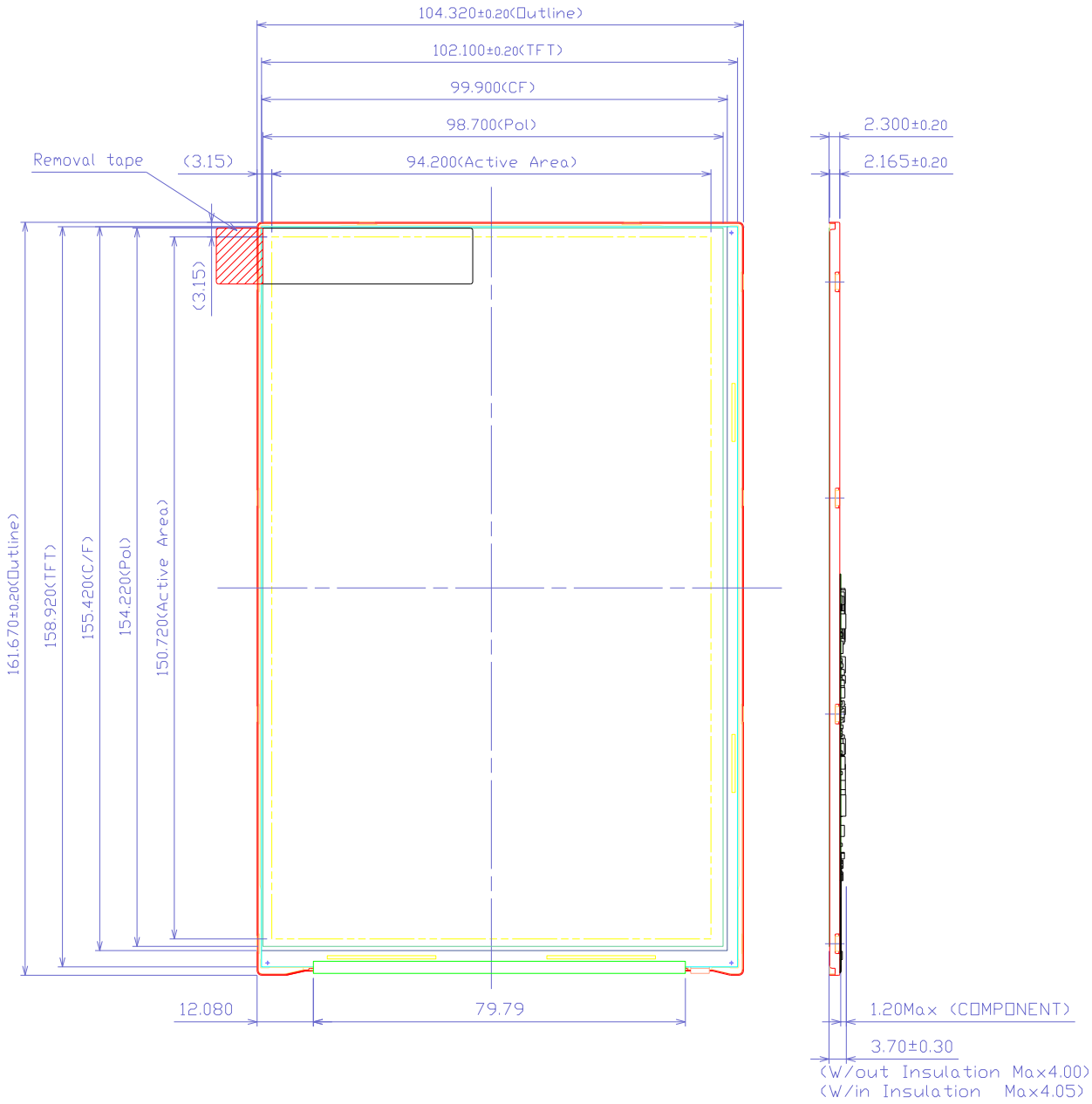
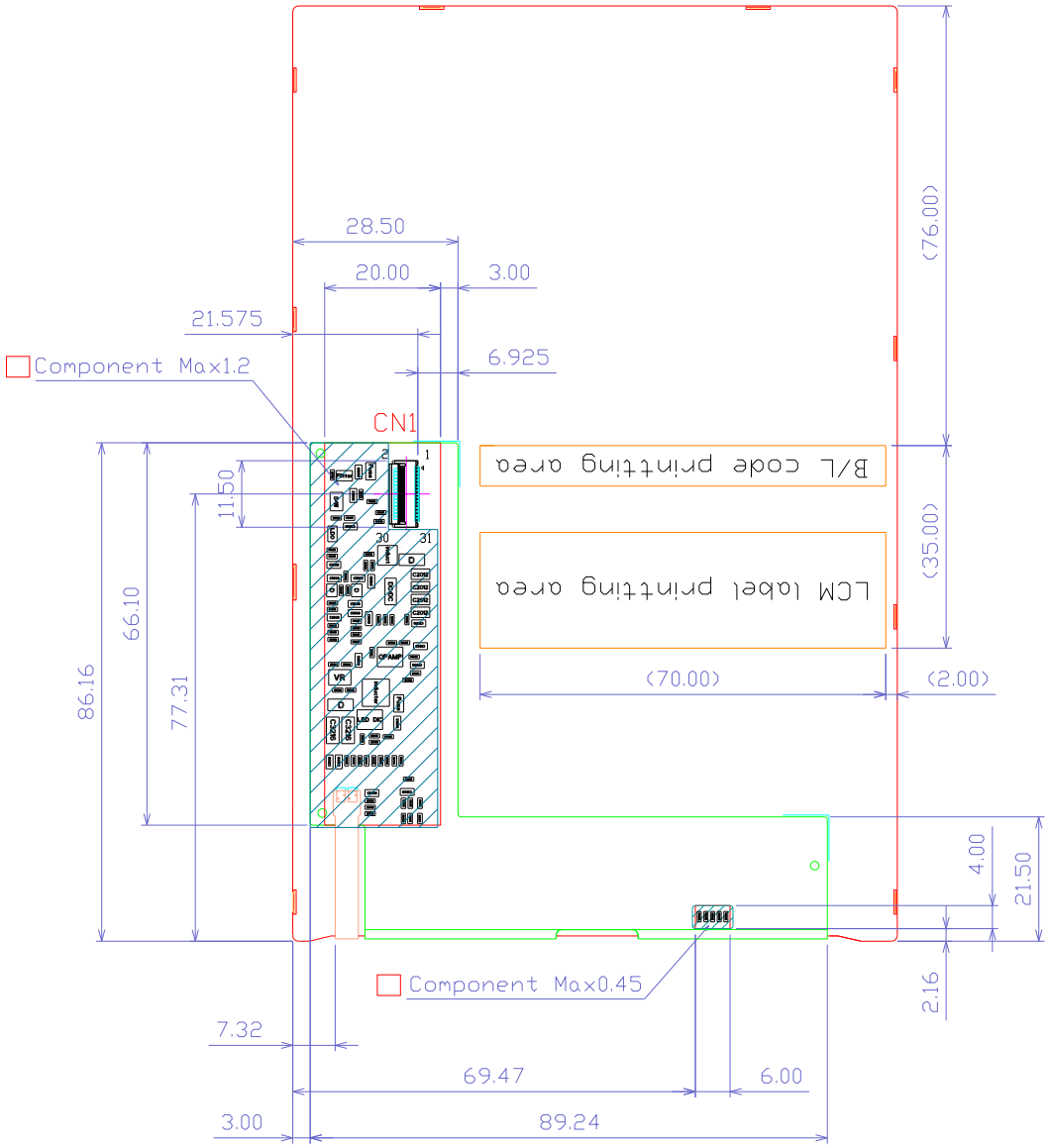


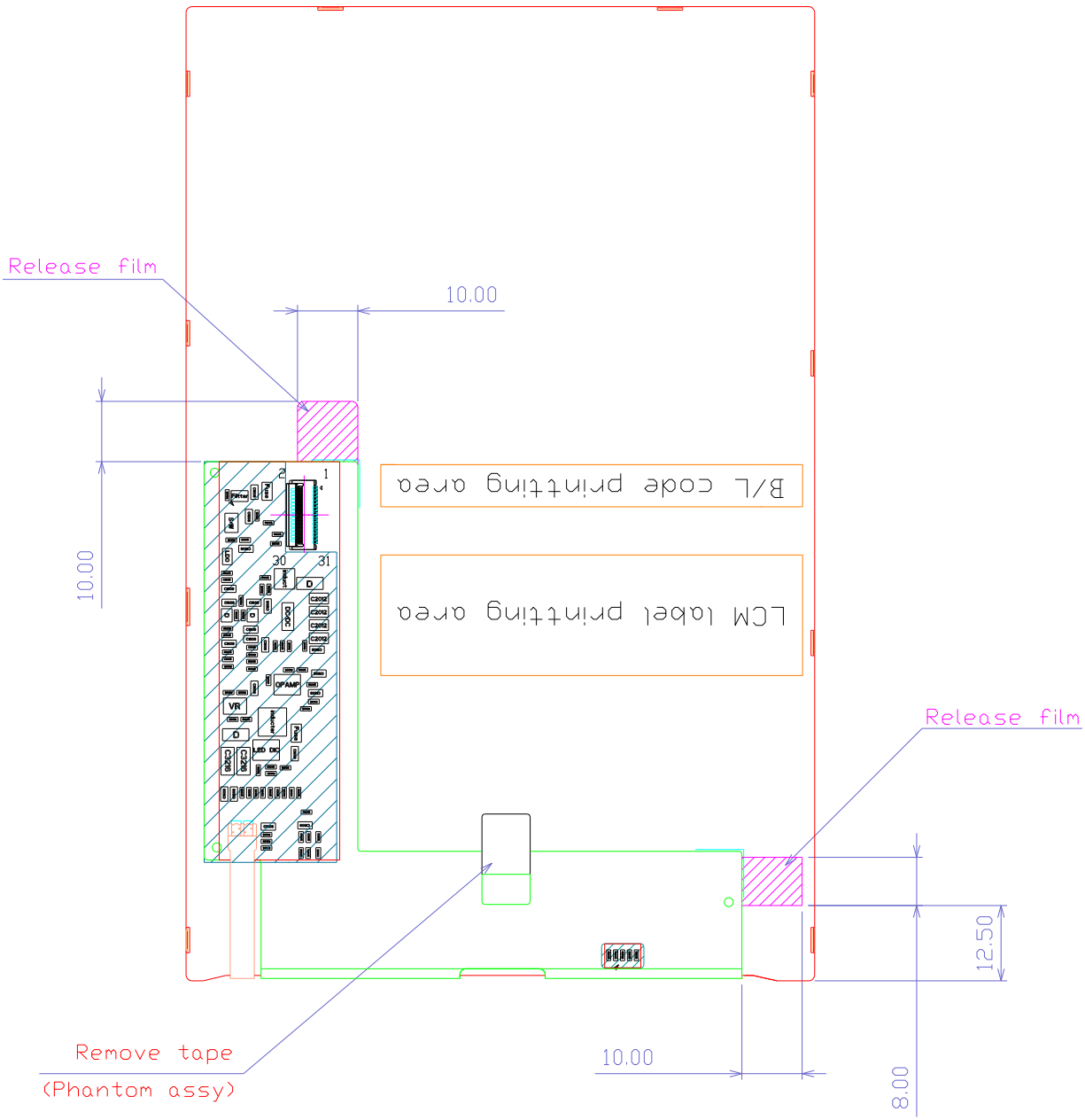
Figure 7. TFT-LCD Module Outline Dimensions (Rear view)



NOTE

1. CN1 : DDK F12-31A-R11B
2. LED FPC SOLDERING HIGHT : 0.5 Max. (Form PCB)
3. GENERAL TOLERANCE : ±0.2
4. OTHER SPECIFICATION : REFERS TO SPEC SHEET

Figure 8. For Optical Bonding Maker (Reference Rear view)



12.0 RELIABLITY TEST

The Reliability test items and its conditions are shown in below.

<Table11, Reliability Test>

No	Test Item	Conditions
1	High temperature storage	80C/240h
2	Low temperature storage	-30C/240h
3	High temperature/High humidity Storage	60C/90%RH/240h
4	High temperature operating	70C/240h
5	Low temperature operating	-20C/240h
6	High temperature/High humidity operating	40C/95%RH/240h
7	Thermal Shock Storage	-30℃ (30 min)~ +80 ℃(30 min) , 56 cycles
8	Shock test	980m/s2,Action time: 6ms, Time: 3 times for each direction, Diretion:+/-X, +/-Y, +/-Z
9	Package Vibration test	Frequency range: 10-55Hz, stroke:1.5mm, swep time: 1 minute, test period: 2 hours for each direction of X, Y, Z
10	Package Drop test	Height: 60cm, 1 corner, 3 edges, 6 surfaces : 1 time for each direction
11	FPC Bending test	Bending degree is 180, bending 30 imes and the bending radius is 1.0mm
12	FPC Insert/Remove test	30 time FPC insert/remove
13	Low Air Pressure Test	533mbar(100mbar/min ramp), "-40C~55C"(1C/min ramp) and 2hrs per each temperature
14	ESD test	Air +/-15KV ,contact +/-8KV , no damage

Notes :

1. Shock & ESD test condition is standard of customer system.

13.0 HANDLING & CAUTIONS

13.1 Cautions when taking out the module

- Pick the pouch only, when taking out module from a shipping package.

13.2 Cautions for handling the module

- As the electrostatic discharges may break the LCD module, handle the LCD module with care. Peel a protection sheet off from the LCD panel surface as slowly as possible.
- As the LCD panel and back - light element are made from fragile glass (epoxy) material, impulse and pressure to the LCD module should be avoided.
- As the surface of the polarizer is very soft and easily scratched, use a soft dry cloth without chemicals for cleaning.
- Do not pull the interface connector in or out while the LCD module is operating.
- Put the module display side down on a flat horizontal plane.
- Handle connectors and cables with care.

13.3 Cautions for the operation

- When the module is operating, do not lose CLK, DE signals. If any one of these signals were lost, the LCD panel would be damaged.
- Obey the supply voltage sequence. If wrong sequence is applied, the module would be damaged.

13.4 Cautions for the atmosphere

- Dew drop atmosphere should be avoided.
- Do not store and/or operate the LCD module in a high temperature and/or humidity atmosphere. Storage in an electro-conductive polymer packing pouch and under relatively low temperature atmosphere is recommended.

13.5 Cautions for the module characteristics

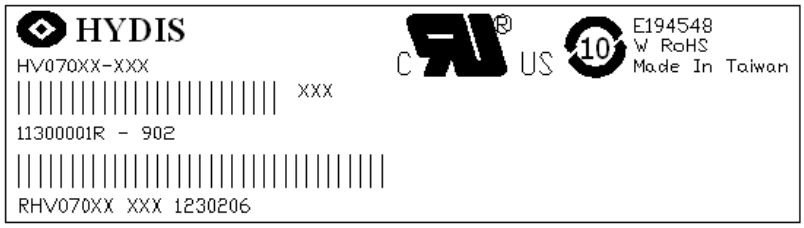
- Do not apply fixed pattern data signal to the LCD module at product aging.
- Applying fixed pattern for a long time may cause image sticking.

13.6 Other cautions

- Do not re-adjust variable resistor or switch etc.
- When returning the module for repair or etc., Please pack the module not to be broken. We recommend to use the original shipping packages.

14.0 LABELS

14.1 Product Print



Item	Description	Item	Description
HYDIS	COMPANY NAME	E194548	UL CODE
HV070XXX-XXX	Model name	W、ROHS	UL CODE、EUROPE RO HS MARK
XXX 902	Material code, customer code	Made in Taiwan	Manufacturing location
11300001R	barcode Manufacturing serial no		UL Mark
	ROHS Mark	RHV070XX XXX 1230206	customer code Explanation is as below

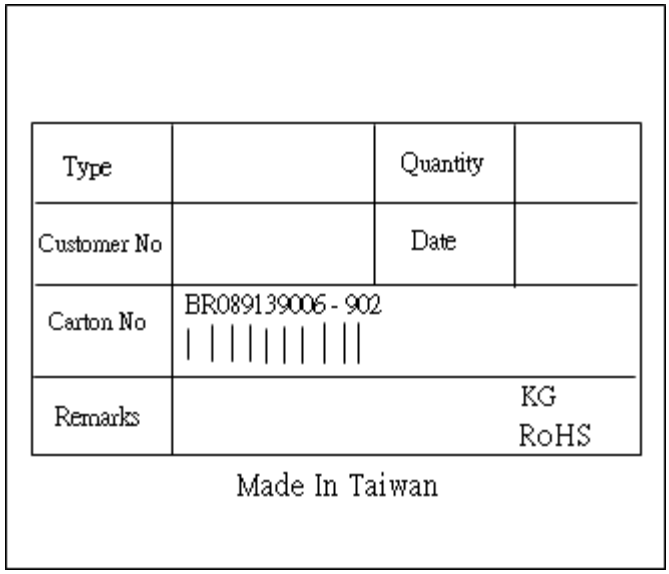
barcode Manufacturing serial no

Example	1	1	3	0	0	0	0	1	R
code	1	2	3	4	5	6	7	8	9
definition	Year	Cycle		Water code					Manufacturer code

customer code Explanation is as below

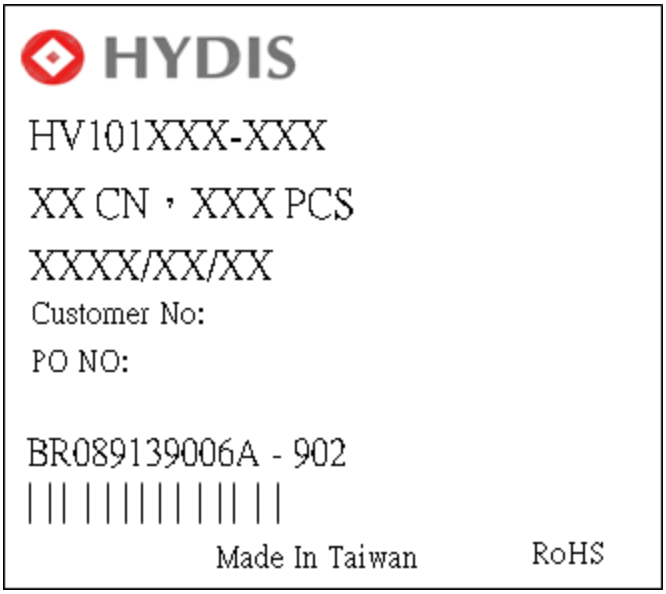
Example	R	HV070XX	XXX	1	23	0206
code	1~2	3~7	8	9	10	11~12
definition	Manufacturer code	Model name	Material code	Year	Cycle	Water code

14.2 Packing Label (size:80 x 70 mm)



Contents	DESCRIPTION
B	CELL Cost code
R	MDL Manufacturing code
089	MDL Size
1	Year
39	Cycle
006	Serial No
902	Customer code

14.3 Packing Label



Contents	DESCRIPTION
HYDIS	Company Name
HV101XXX-XXX	Type Name
XX CN , XXX PCS	Carton quantity , Number panel
XXXX/XX/XX	Year / Month / Day
BR089139006A - 902	BOX ID and Customer Code

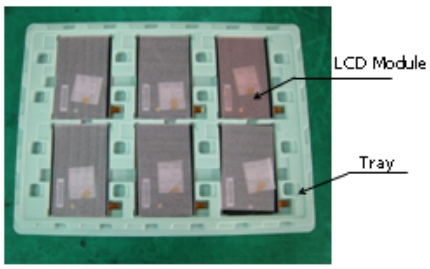
BOX ID Description :

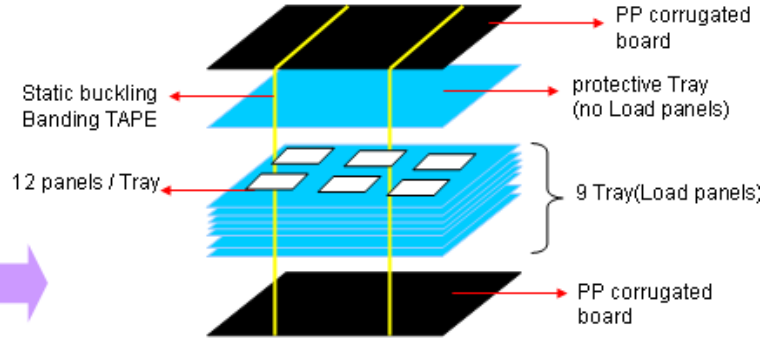
BR089139006A - 902

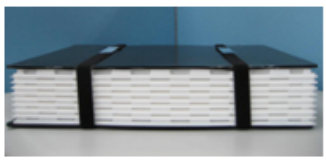
Contents	DESCRIPTION
B	CELL Cost code
R	MDL Manufacturing code
089	MDL Size
1	Year
39	Cycle
006	Serial No
A	Special code
902	Customer code

15.0 PACKING INFORMATION

15.1 Packing order







Each tray must be loaded with 180˚ rotation respectively

Paking→Tray stack in a SIO2 bag, accor ding to tray size folded.

1. An carton EPE cushion put into the carton bottom
2. Put tray stack package
3. An carton EPE cushion put on tray stack package

Figure9-1 Packing method

Notes : 1. Box Dimension: 570mm(L) X 430mm(W) X 220mm(H)
2. Package Quantity in one Box : 108pcs
3. Tray Size : 540mm(L) X 400mm(W) X 0.8mm(H)

15.2 Pallet Packing

15.2.1 PALLET specification

(1) 12 box (max.) / 1 pallet
(2) Pallet: 1150(L) X 900(W) X 130(H) mm
(3) Pallet stack: 1150(L) X 900(W) X920(H) mm
(4) Angle boards: L 790 X 50 X 50mm
(5) Gross Weight: 162Kg

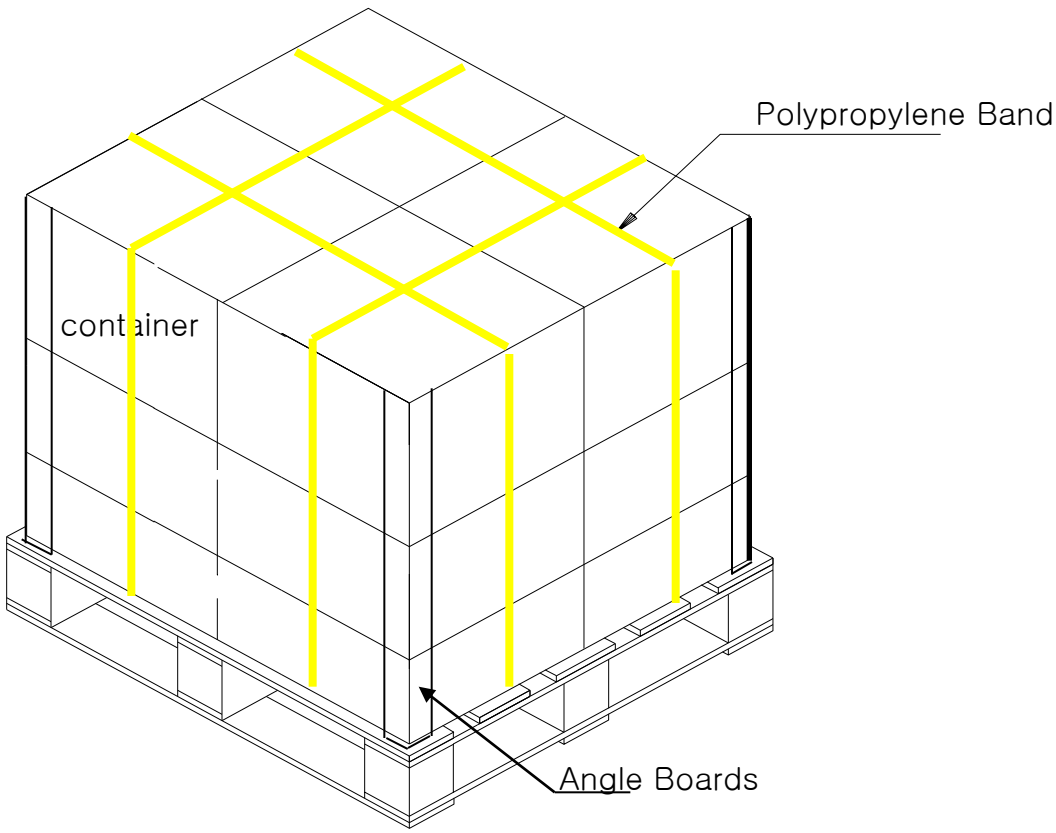


Figure9-2 packing method