PRODUCT SPECIFICATION

KADI Model: **KD101BWU06NP**

CUSTOMER Model: -

Description: **10.1 ” TFT-LCD Module**

Version: **1.0**

KADI	PREPARED BY	CHECKED BY	APPROVED BY
SIGNATURE			
DATE	2025.7.30	2025.7.30	2025.7.30

CUSTOMER APPROVAL	SIGNATURE	DATE

Record of Revisions

Version	Revise Date	Description	Page
1.0	2025-7-30	First Release	-

Contents

1. General Specifications

1.1 LCM General Information

Item	Specification	Unit
LCD Size	10.1	inch
Number of Pixels	1920 (H) RGB x 1200 (V)	pixels
Display Mode	Normally Black	-
Viewing Direction	Free	o' clock
Interface	LVDS	-
Display Colors	16.7M	colors
Outline Dimension	229.56 (H) x 149.16 (V) x 2.85 (D)	mm
Active Area	216.81 (H) x 135.5 (V)	mm
Pixel Pitch	0.11292(H) x 0.11292(V)	mm
Driver IC	-	-
Operation Temperature	0~+50	℃
Storage Temperature	-20~+60	℃

Note1:Requirements on environmental protection RoHS compliant.

2. Absolute Maximum Ratings

Item	Symbol	MIN.	MAX.	Unit	Note
Analog Supply voltage	VDD	-0.3	5.0	V	Note 1
Operating Ambient Humidity	Hop	10	80	%RH	
Storage Humidity	Hst	10	80	%RH	
Operating Temperature	Top	-20	70	℃	
Storage Temperature	Tst	-30	80	℃	

Note 1:Permanent damage may occur to the LCD module if beyond this specification.
Functional operation should be restricted to the conditions described under normal operating conditions.

3. Elecrical Characteristics

3.1 Recommended Operating Condition for TFT LCD

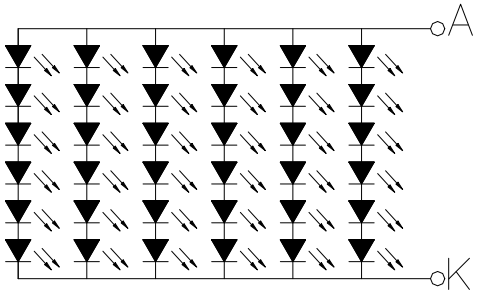
Item	Symbol	Min.	Typ.	Max.	Unit	Note
Power Supply voltage	VDD	3.0	3.3	3.6	V	
Power Supply Ripple Voltage	VRP	-	-	300	mV	
Power supply current	I_{VDD}	-	330	520	mA	VDD=3.3V
Rush current	IRUSH	-	-	2	A	
Differential Input High Threshold Voltage	VLVTH	-	-	+100	mV	
Differential Input Low Threshold Voltage	VLVTL	-100	-	-	mV	
Input Differential Voltage	| VID |	200	400	600	mV	
Common Input Voltage	VLVC	0.6	1.2	1.6	V	

3.2 Recommended Driving Condition for Backlight

Item	Symbol	Min.	Typ.	Max.	Unit	Note
Driving Current	I_F	-	120	-	mA	
Driving Voltage	V_F	16.2	-	21	V	
Power consumption	W_{BL}	-	2.16	-	W	
LED Life-Time	N/A	-	30,000	-	Hours	Ta=25℃ Note 1

Note 1:LED lifetime is defined as the module brightness decay 50% of original brightness at Ta=25 degree, typical current.

Note 2:LED circuit :



Backlight LED Circuit

4. Interface Pin Assignment

4.1 LCM Pin Assignment

45 pin Connector： FH34SRJ-45S-0.5SH(50) (HRS)

No.	Symbol	Description
1	VLED-	LED Cathode
2	VLED-	LED Cathode
3	VLED+	LED Anode
4	VLED+	LED Anode
5	NC	No connection
6	GND	Ground
7	ELV3P	LVDS Positive data signal
8	ELV3N	LVDS Negative data signal
9	GND	Ground
10	ELV2P	LVDS Positive data signal
11	ELV2N	LVDS Negative data signal
12	GND	Ground
13	ELVCLKP	LVDS Positive CLK signal
14	ELVCLKN	LVDS Negative CLK signal
15	GND	Ground
16	ELV1P	LVDS Positive data signal
17	ELV1N	LVDS Negative data signal
18	GND	Ground
19	ELV0P	LVDS Positive data signal
20	ELV0N	LVDS Negative data signal
21	GND	Ground
22	OLV3P	LVDS Positive data signal
23	OLV3N	LVDS Negative data signal
24	GND	Ground
25	OLV2P	LVDS Positive data signal
26	OLV2N	LVDS Negative data signal
27	GND	Ground
28	OLVCLKP	LVDS Positive CLK signal
29	OLVCLKN	LVDS Negative CLK signal
30	GND	Ground

31	OLV1P	LVDS Positive data signal
32	OLV1N	LVDS Negative data signal
33	GND	Ground
34	OLV0P	LVDS Positive data signal
35	OLV0N	LVDS Negative data signal
36	GND	Ground
37	NC	No connection
38	NC	No connection
39	NC	No connection
40	NC	No connection
41	VDDIN	Power Supply 3.3V
42	VDDIN	Power Supply 3.3V
43	VDDIN	Power Supply 3.3V
44	VDDIN	Power Supply 3.3V
45	VDDIN	Power Supply 3.3V

5. Interface Characteristics

5.1 Timing Parameters (DE only mode)

<Timing Parameter>

Item	Symbol		Value			Unit
			Min.	Typ.	Max.	
DCLK	DCLK Frequency	Fdclk	74.5	77.56	85	MHz
Horizontal	Horizontal display area	Thd		960		DCLK
	HSYNC period time	Th	989	1040	1248	DCLK
	Horizontal Blank	THB	29	80	288	DCLK
Vertical	Vertical display area	Tvd		1200		H
	VSYNC period time	Tv	1243	1243	1560	H
	Vertical Blank	TVB	43	43	360	H
	Frequency	fV	-	60	-	Hz

Note 1: DE Only Mode · While operation, DE signal should be have the same cycle. The input of HSYNC & VSYNC signal does not have an effect on normal operation.

Note 2: Best operation clock frequency is 77.56Mhz.

Note 3: Frequency] = [H Total] * [V Total] * [vertical Frame rate]
H Total, V Total and Frame rate]should operate within the range between Frequency_Min and Frequency_Max.

Note 4: Except Best operation clock frequency, FOS(Flicker & Brightness & Crosstalk, Etc.) are not guaranteed.

Note 5: Main frequency Max is 85Mhz MHz without spread spectrum.

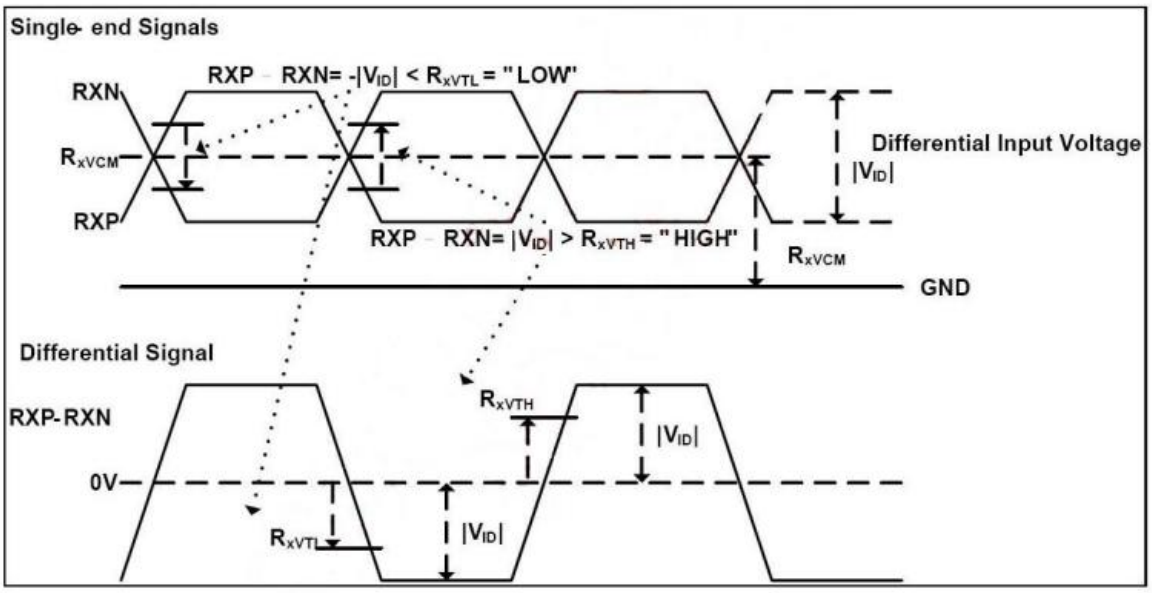
< LVDS Input SSCG >

Symbol	Parameter	Condition	Min	Typ	Max	Unit
F_{LVMOD}	Modulating frequency of input clock during SSC	-	1	-	100	KHz
F_{LVDEV}	Maximum deviation of input clock frequency during SSC	F=70MHz	-3	-	+3	%

5.2 LVDS Receiver Differential Input (DC Characteristics)

< LVDS Rx DC Characteristics >

Parameter	Symbol	Min	Typ	Max	Unit	Notes
Differential Input High Threshold Voltage	VTH	-	-	+100	mV	VCM=1.2V
Differential Input Low Threshold Voltage	VTL	-100	-	-	mV	
Differential Input Common Mode Voltage	VCM	0.6	1.2	1.6	V	
Differential Input Voltage	| VID |	200	400	600	mV	



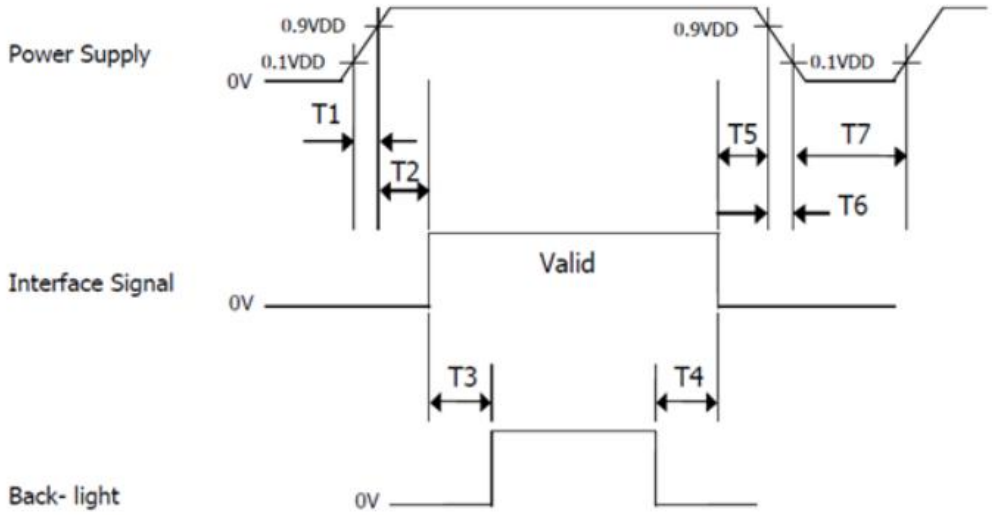
5.3 Input Signals, Basic Display Colors and Gray Scale of Colors

< Input Signal and Display Color Table >

Color & Gray Scale		Input Data Signal																							
		Red Data								Green Data								Blue Data							
		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
	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
	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
	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
	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
	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	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	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Darker	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	△	↑								↑								↑							
	▽	↓								↓								↓							
	Brighter	1	1	1	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	▽	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	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	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	0	0	0	0	1	0	0	0	0	0	0	0	0
	Darker	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
	△	↑								↑								↑							
	▽	↓								↓								↓							
	Brighter	0	0	0	0	0	0	0	0	1	1	1	1	1	1	0	1	0	0	0	0	0	0	0	0
	▽	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	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	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	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	0	0	0	0	0	0	1	0
	△	↑								↑								↑							
	▽	↓								↓								↓							
	Brighter	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	0	1
	▽	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
Gray Scale of White	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	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
	Darker	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0
	△	↑								↑								↑							
	▽	↓								↓								↓							
	Brighter	1	1	1	1	1	1	0	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	0	1
	▽	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	0	1	1	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	1	1	1	1	1	1

5.4 Power Sequence

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



< Sequence Table >

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

Note 1: Even though T1 is over the specified value, there is no problem if the rush current is within Spec.

Note 2: When the power supply VDD is 0V, keep the level of input signals on the low or high impedance；

※ Please avoid floating state of interface signal at invalid period.

※ When the power supply for LCD (VDD) is off, be sure to pull down the valid and invalid data to 0V.

Note 3: The T3 / T4 is recommended value, the case when failed to meet a minimum specification, abnormal display would be shown. There is no reliability problem.

Note 4：T5 should be measured after the Module has been fully discharged between power off and on period.

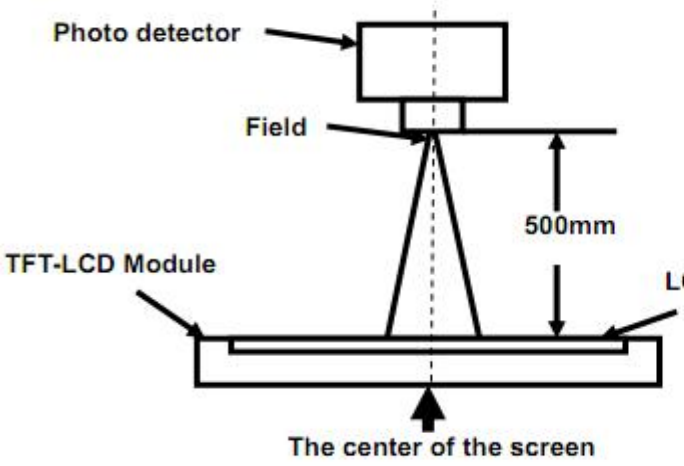
Note 5：If the on time of signals (Interface signal and user control signals) precedes the on time of Power (VLCD),it will be happened abnormal display. When T6 is NC status, T6 doesn′ t need to be measured.

6. Optical Specifications

Item	Symbol	Condition	Min.	Typ.	Max.	Unit	Note
Viewing Angle (CR≥10) B/L ON	θ_T	Φ=90°(12 o'clock)	75	80	-	deg	Note2
	θ_B	Φ=270°(6 o'clock)	75	80	-	deg	Note2
	θ_L	Φ=180°(9 o'clock)	75	80	-	deg	Note2
	θ_R	Φ=0°(3 o'clock)	75	80	-	deg	Note2
Response Time	$T_{ON+}T_{OFF}$	Normal θ=Φ=0°	-	30	35	msec	Note4
Contrast Ratio	CR		800	1000	-	-	Note1 Note3
Color Chromaticity	W_X		TBD	TBD	TBD	-	Note1 Note5
	W_Y		TBD	TBD	TBD	-	Note1 Note5
Luminance	L		-	300	-	cd/m²	Note1 Note7
NTSC	-		67	72	-	%	-

Note 1:Definition of optical measurement system

The optical characteristics should be measured in dark room. After 5 minutes operation, the optical properties are measured at the center point of the LCD screen. All input terminals LCD panel must be ground when measuring the center area of the panel.



Item	Photo detector	Field
Contrast Ratio	SR-3A	1°
Luminance		
Chromaticity		
Lum Uniformity		
Response Time	BM-7A	2°

Fig 1

Note 2: Definition of viewing angle range and measurement system.
viewing angle is measured at the center point of the LCD by CONOSCOPE(ergo-80).

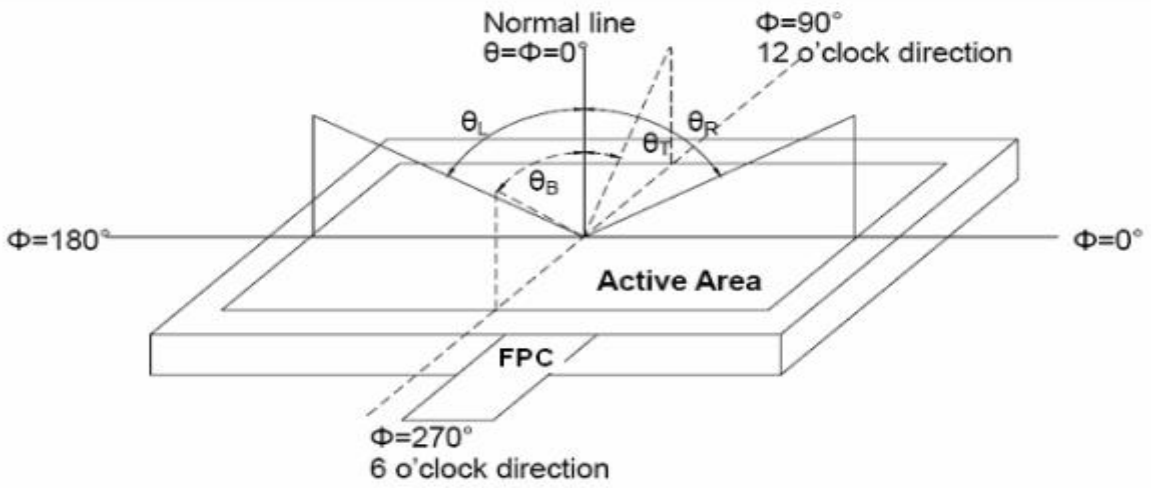


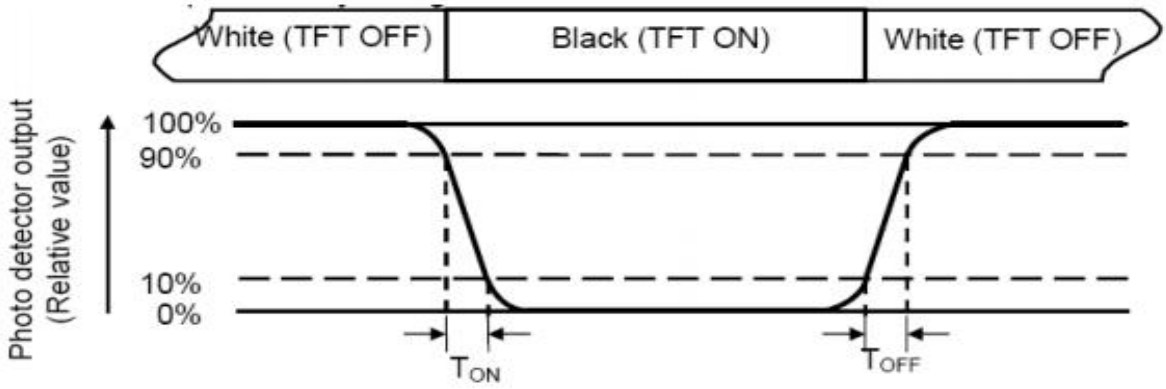
Fig 2 Definition of viewing angle

Note 3: Definition of contrast ratio

$$CR = \frac{\text{Luminance with all pixels white}}{\text{Luminance with all pixels black}}$$

Note 4: Definition of Response time

The response time is defined as the LCD optical switching time interval between “White” state and “Black” state. Rise time (TON) is the time between photo detector output intensity changed from 90% to 10%. And fall time (TOFF) is the time between photo detector output intensity changed from 10% to 90%.



Note 5: Definition of color chromaticity (CIE1931)

Color coordinates measured at center point of LCD.

Note 6: Definition of Luminance Uniformity

The luminance uniformity in surface luminance is determined by measuring luminance at each test position 1 through n, and then dividing the maximum luminance of n points luminance by minimum luminance of n points luminance.For more information see FIG.3-a/b

Note 7:Surface luminance is the luminance with all pixels displaying white.

Lv = Average Surface Luminance with all white pixels(P1,P2,P3, ...,Pn)

For more information see FIG.3-a/b

Note 8:Size : S≤5”(see Figure a) A : 5 mm B : 5 mm. H,V : Active area

Light spot size ⌀ =5mm(BM-5) or ∅=7.7mm (BM-7)50cm distance or test spot position : see Figure a.

measurement instrument : TOPCON’s luminance meter SR-3A or BM-7 or compatible (see Figure 1).

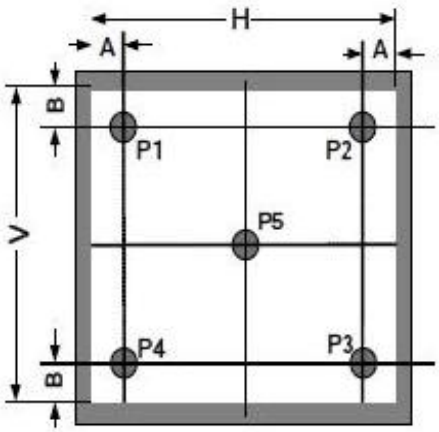


Fig. 3-a Definition of points

5”＜S≤12.3”(see Figure b) . H,V : Active area
Light spot size ∅=5mm(BM-5) or ∅=7.7mm (BM-7)50cm distance or compatible distance from the LCD surface to detector lens. test spot position : see Figure b.
measurement instrument : TOPCON’s luminance meter SR-3A or BM-7 or compatible (see Figure 1).

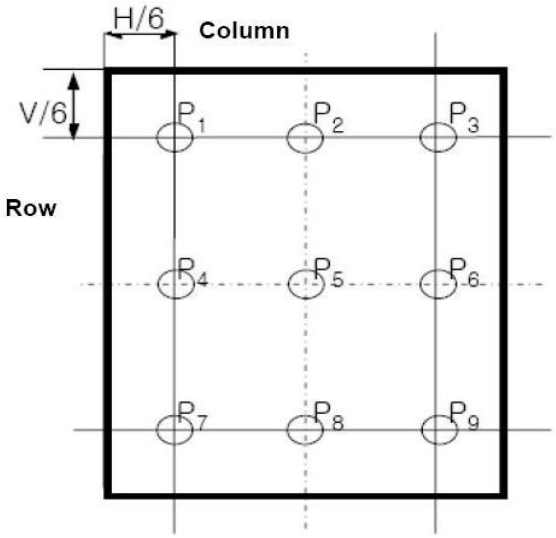


Fig. 3-b Definition of points

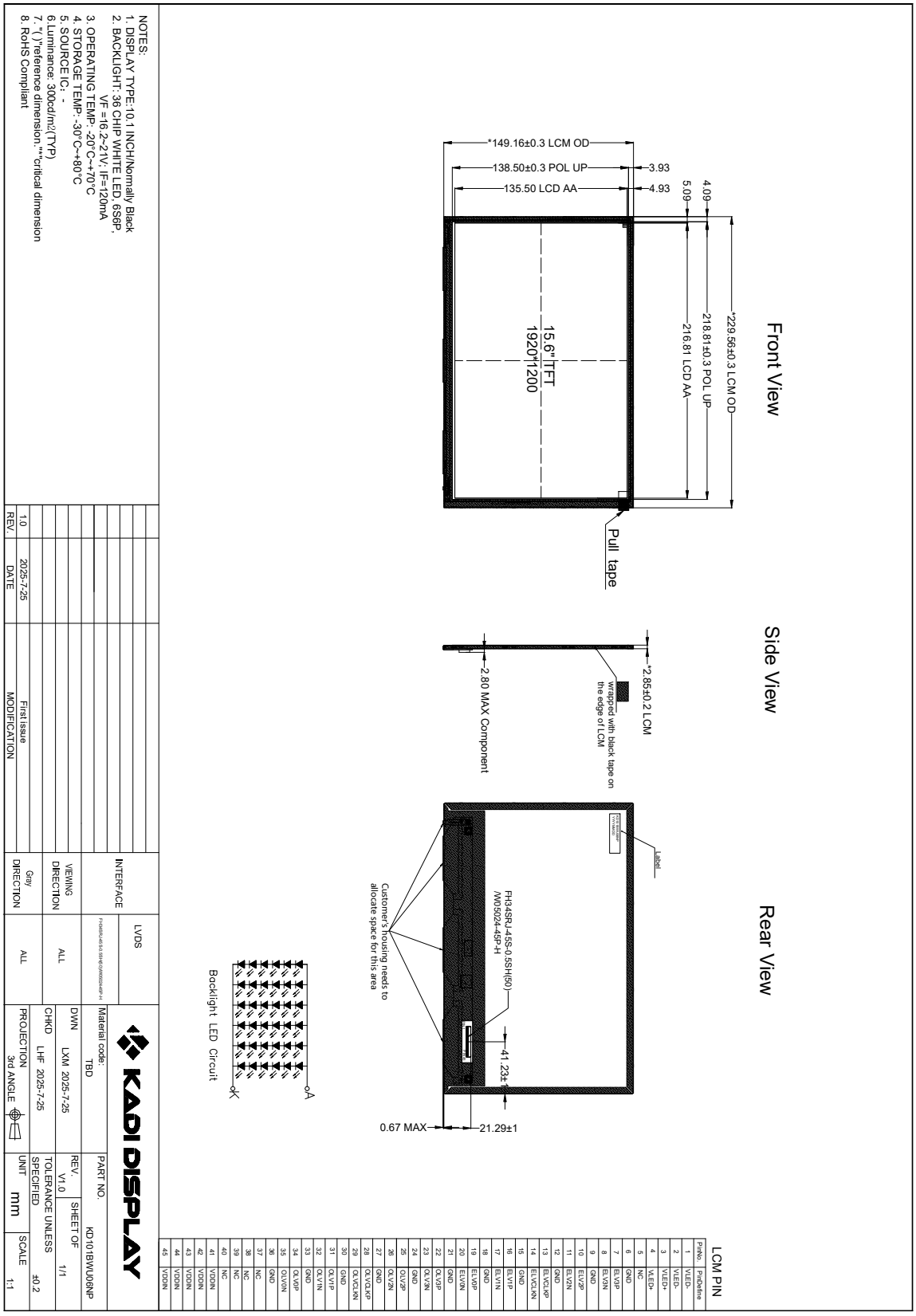
7. Reliability Test Items

Test Item	Test Conditions	
High Temperature Storage	Ta= +80℃	96hrs
Low Temperature Storage	Ta= -30℃	96hrs
High Temperature Operation	Ta= +70℃	96hrs
Low Temperature Operation	Ta= -20℃	96hrs
High Temperature and Humidity Storage	Ta= +60℃, 90% RH	96hrs
Thermal Shock (Non-operation)	-30℃/30 min ~ +80℃/30 min for 20 cycles Start with cold temperature end with high temperature	
Electro Static Discharge	Contact = ± 4 kV, class B Air = ± 8 kV, class B R=330Ω,C=150pF	
Vibration	Sweep: 10Hz~55Hz~10Hz Stroke: 1.5mm 2 hrs for each direction of X .Y. Z.	
Mechanical Shock	60G 6ms,±X,±Y,±Z 3 times for each direction	
Package Drop Test	Height: 60 cm 1 corner, 3 edges, 6 surfaces	

Notes: The test result shall be evaluated after the sample has been left at room temperature and humidity for 2 hours without load. No condensation shall be accepted. The sample will not be accepted if appear these defects:

1). Air bubble in the LCD
2). Seal leak or Glass crack
3). Non display or abnormal display
4). Brightness reduction >50%

8. Mechanical Drawing



9. Packing

Packing Method

TBD

10. Precautions for Use of LCD modules

10.1 Handling Precautions

10.1.1. The display panel is made of glass. Do not subject it to a mechanical shock by dropping it from a high place, etc.

10.1.2. If the display panel is damaged and the liquid crystal substance inside it leaks out, be sure not to get any in your mouth, if the substance comes into contact with your skin or clothes, promptly wash it off using soap and water.

10.1.3. Do not apply excessive force to the display surface or the adjoining areas since this may cause the color tone to vary.

10.1.4. The polarizer covering the display surface of the LCD module is soft and easily scratched. Handle this polarizer carefully.

10.1.5. If the display surface is contaminated, breathe on the surface and gently wipe it with a soft dry cloth. If still not completely clear, moisten cloth with one of the following solvents:

- Isopropyl alcohol
- Ethyl alcohol

Solvents other than those mentioned above may damage the polarizer. Especially, do not use the following:

- Water
- Ketene
- Aromatic solvents

10.1.6. Do not attempt to disassemble the LCD Module.

10.1.7. If the logic circuit power is off, do not apply the input signals.

10.1.8. To prevent destruction of the elements by static electricity, be careful to maintain an optimum work environment.

10.1.8.1. Be sure to ground the body when handling the LCD Modules.

10.1.8.2. Tools required for assembly, such as soldering irons, must be properly ground.

10.1.8.3. To reduce the amount of static electricity generated, do not conduct assembly and other work under dry conditions.

10.1.8.4. The LCD Module is coated with a film to protect the display surface. Be care when peeling off this protective film since static electricity may be generated.

10.2 Storage Precautions

10.2.1.When storing the LCD modules,avoid exposure to direct sunlight or to the light of fluorescent lamps.

10.2.2.The LCD modules should be stored under the storage temperature range if the LCD modules will be stored for a long time,the recommend condition is :

Temperature : 0℃ ~40℃ Relatively humidity: ≤80%

10.2.3.The LCD modules should be stored in the room without acid, alkali and harmful gas.

10.3 Transportation Precautions

The LCD modules should be no falling and violent shocking during transportation, and also should avoid excessive press, water, damp and sunshine.