PRODUCT SPECIFICATION

KADI Model: KD101ZWX109HP-FC69

CUSTOMER Model: -

Description: 10.1” TFT-LCD Module with Touch sensor IN Display with LENS

Version: 1.0

KADI	PREPARED BY	CHECKED BY	APPROVED BY
SIGNATURE			
DATE	2026.09.03	2026.09.03	2026.09.03

CUSTOMER APPROVAL	SIGNATURE	DATE

Record of Revisions

Version	Revise Date	Description	Page
1.0	2026-09-03	First Release	-

Contents

1. General Specifications

1.1 LCM General Information

Item	Specification	Unit
LCD Size	10.1	inch
Number of Pixels	1280 (H) RGB x 800 (V)	pixels
Display Mode	Normally Black	-
Viewing Direction	Free	o' clock
Interface	LVDS	-
Display Colors	16.7M	colors
Outline Dimension	246.96(H) x 165.60 (V) x 5.95 (D)	mm
Active Area	216.96 (H) x 135.60 (V)	mm
Pixel Pitch	0.1695 (H) x 0.1695 (V)	mm
Driver IC	FT7150	-
Operation Temperature	-20~70	℃
Storage Temperature	-30~80	℃

Note1:Requirements on Environmental Protection: RoHS Compliant

2. Absolute Maximum Ratings

Item	Symbol	MIN.	MAX.	Unit	Note
Analog Supply voltage	VDD	-0.3	3.6	V	Note 1

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. Electrical Characteristics

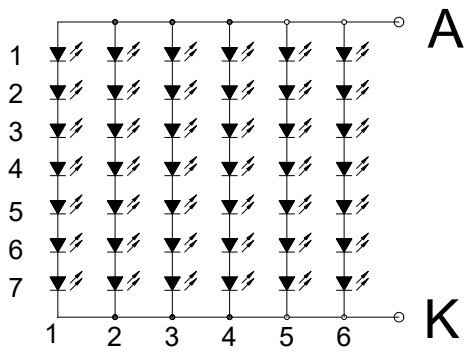
3.1 Recommended Operating Condition for TFT LCD

Item	Symbol	Min.	Typ.	Max.	Unit	Note
Analog Supply voltage	VDD	2.7	3.3	3.6	V	
Analog supply current	I_{VDD}	-	140	210	mA	VDD=3.3V (RED)
Logic input voltage	VIH	0.7*VDD	-	VDD	V	
	VIL	GND	-	0.3*VDD	V	

3.2 Recommended Driving Condition for Backlight

Item	Symbol	Min.	Typ.	Max.	Unit	Note
Driving Current	I_F	-	300	-	mA	
Driving Voltage	V_F	18.9		23.8	V	
Power consumption	W_{BL}	5.67	-	7.14	W	
LED Life-Time	N/A	-	50000	-	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 :



4. Interface Pin Assignment

4.1 LCM Pin Assignment

No.	Symbol	Description
1	NC	No connection
2	VDD	Power Supply
3	VDD	Power Supply
4	NC	No connection
5	RESET	Global reset pin
6	STBYB	Standby mode,Active high(3.3V) STBYB = "1",normal operation STBYB = "0", timing controller,source driver will turn off,all output are High
7	GND	Ground
8	Rxin0-	- LVDS differential data input
9	Rxin0+	+ LVDS differential data input
10	GND	Ground
11	Rxin1-	- LVDS differential data input
12	Rxin1+	+ LVDS differential data input
13	GND	Ground
14	Rxin2-	- LVDS differential data input
15	Rxin2+	+ LVDS differential data input
16	GND	Ground
17	RxCLK-	- LVDS differential clock input
18	RxCLK+	+ LVDS differential clock input
19	GND	Ground
20	Rxin3-	- LVDS differential data input
21	Rxin3+	+ LVDS differential data input
22	GND	Ground
23	SDA	Serial data input/output signal
24	SCL	Serial clock signal
25	GND	Ground
26~29	NC	No connection
30	GND	Ground

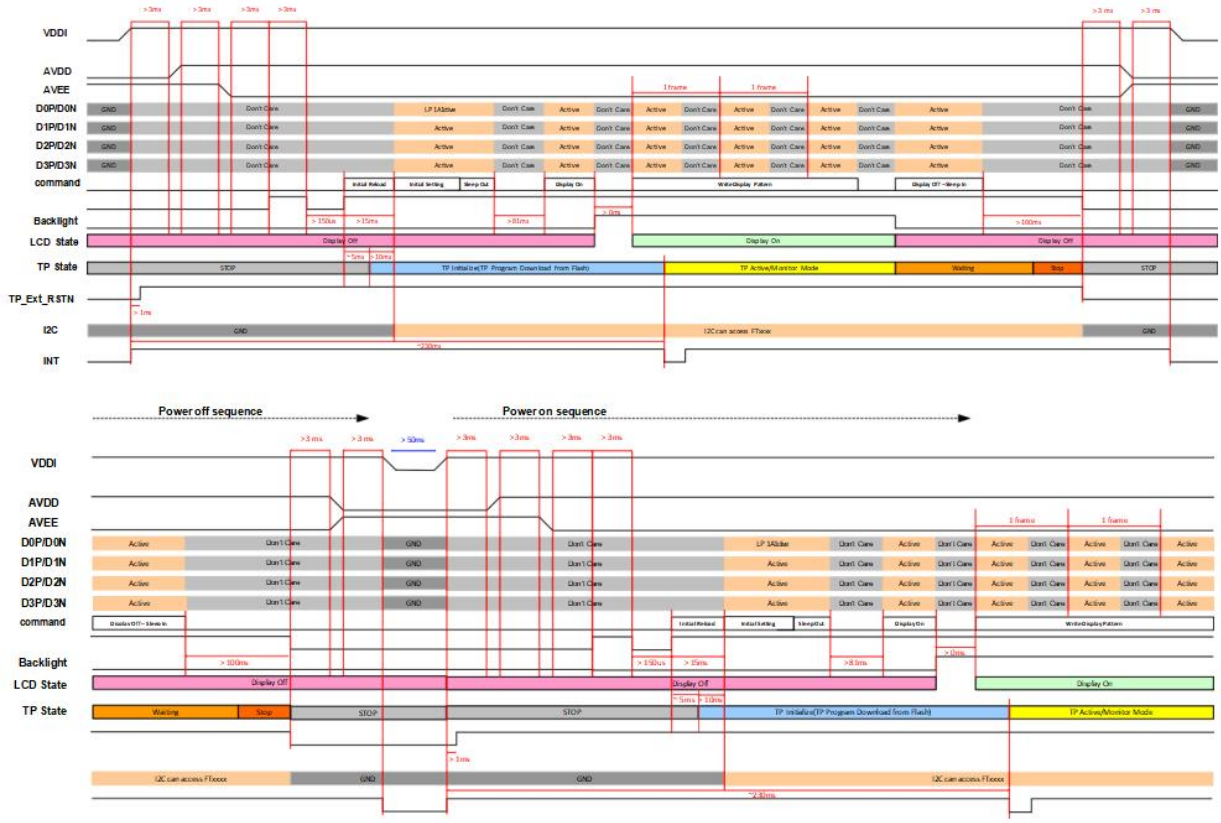
31	LEDK-	Power for LED backlight (Cathode)
32	LEDK-	Power for LED backlight (Cathode)
33	TP_ SCL	I2C clock input for CTP
34	TP _SDA	I2C data input and output for CTP
35	TP_RST	Reset Pin for CTP
36	TP_INT	Interrupt signal for CTP
37	TP_VDD	Power supply for CTP
38	NC	No connection
39	LEDA+	Power for LED backlight (Anode)
40	LEDA+	Power for LED backlight (Anode)

5. Interface Characteristics

5.1 Power on/off sequence

w/i Flash (3 Power mode) (LVDS)

3 Power mode Power on/off sequence

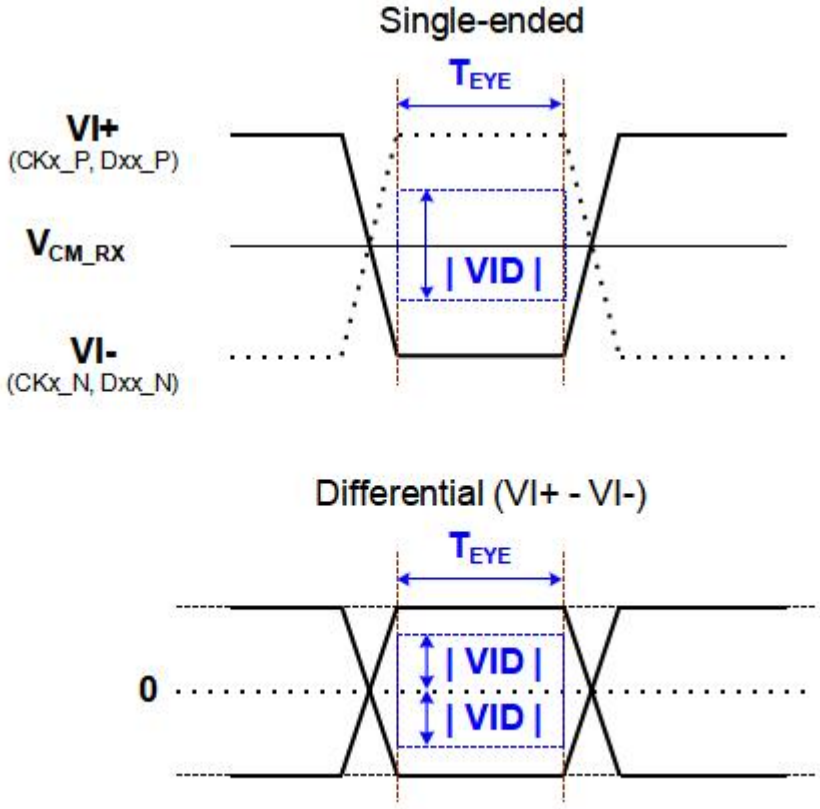


5.2 DC Characteristics

LVDS DC characteristic

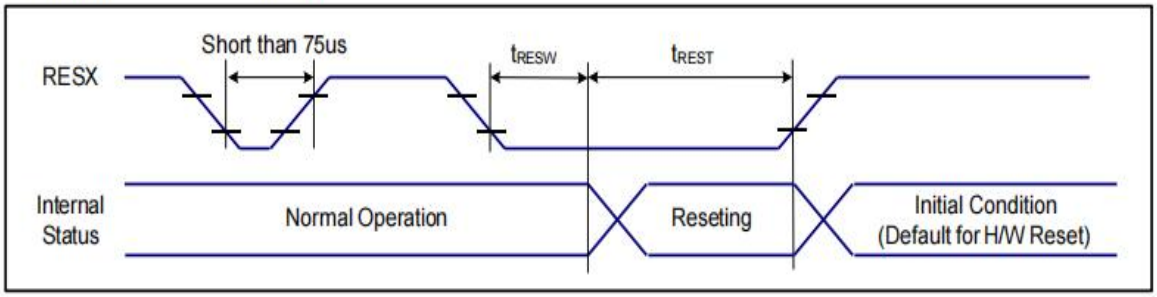
Parameter	Symbol	Conditions	Specification			Unit
			Min.	Typ.	Max.	
For The Digital Circuit: LVDS Mode						
Operating frequency LVDS mode (including SSC operation)	FLVDS	By resolution	15		110	MHz
Differential input common mode voltage	VCM_RX		0.6		1.5	V
Differential input voltage (NOTE 1)	|VID|		90	350	600	mV
Differential input data eye width	T_{EYE}		0.6	-	-	UI
Differential input leakage current	RXI_Ikg		-10	-	+10	μA

NOTE1 : Input Differential Voltage VID = VI+ - VI-



5.3 AC Characteristics

t_{RESW} shorter than 75us, Reset will be rejected.



VSS=0V, VDDI = 1.65V ~ 1.95V(MIPI) or 2.7~3.6(LVDS), Ta = -30°C to 85°C

Symbol	Parameter	MIN	TYP	MAX	Note	Unit
t_{RESW}	*1) Reset low pulse minimum width	150	-	-	Reset signal recognized	us
t_{REST}	*2) Reset complete time	5	-	120	Reset action complete	ms

Table: Reset input timing

Note 1. RESX low pulse that is too short does not cause irregular system reset according to the table below.

RESX Pulse	Action
Shorter than 75us	Reset Rejected
Longer than 150us	Reset Recognized
Between 75us and 150us	Reset sequence starts (It depends on voltage and temperature condition.)

Note 2. Once Reset low pulse is recognized, system requires RESX remaining low for another 5ms to complete H/W reset.

Note 3. During H/W Reset flow, ID0 ~ ID4 and VCOM value in OTP will be latched to internal register during this period. This loading is done every time when H/W reset is complete ; The H/W reset sequence is complete when RESX is remaining low longer than tRESW + tREST.

Note 4. It is necessary to wait 15msec after releasing RESX before sending commands. Also Sleep Out command cannot be sent for 120 msec.

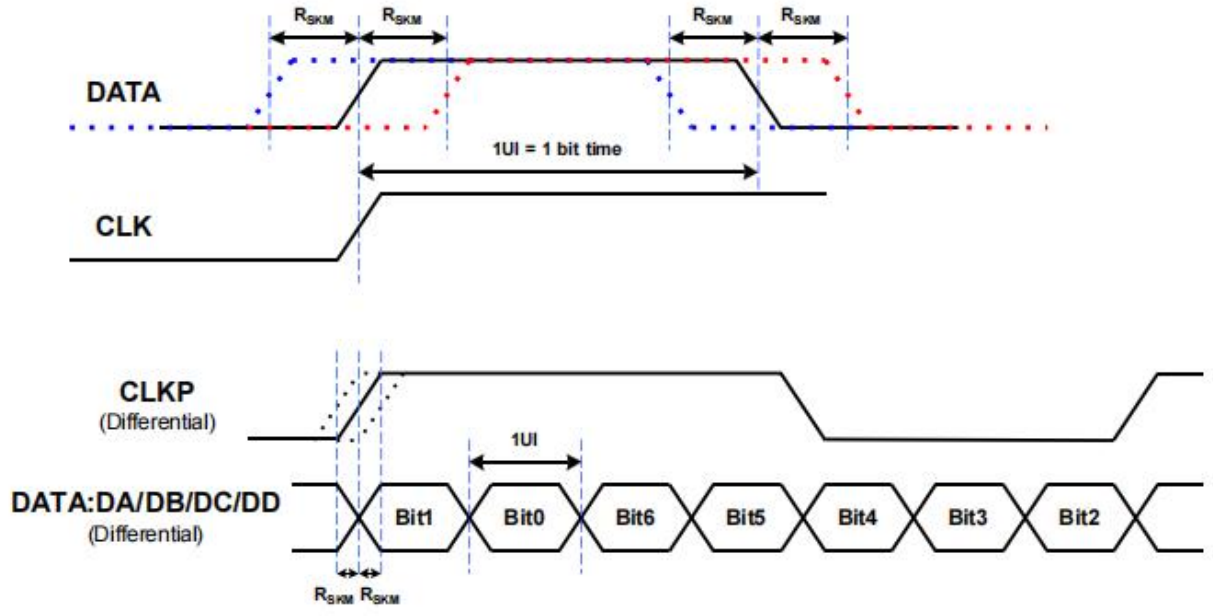
LVDS AC timing characteristics

Parameter	Symbol	Conditions	Spec.			Unit
			Min	Typ	Max	
Input data skew margin	RSKM (1)	FLVDS = 110MHz |VID| = 200mV VCM_RX = 1.2v	-	-	0.2	UI
Clock high time	TLVCH (2)	-	-	4/(7*FLVDS)	-	nS
Clock low time	TLVCL (2)	-	-	3/(7*FLVDS)	-	nS
PLL wake-up time	TPLLwkup (3)	-	-	-	150	μS
Sync skew margin between point to point	$T_{SYNCSKEW}$ (4)	-	-	-	7	UI
Modulation Frequency	SSCMF (5)	FLVDS = 110 MHz	20	-	200	KHz
Modulation Rate	SSCMR (5)	FLVDS = 110 MHz	-5	-	+5	%

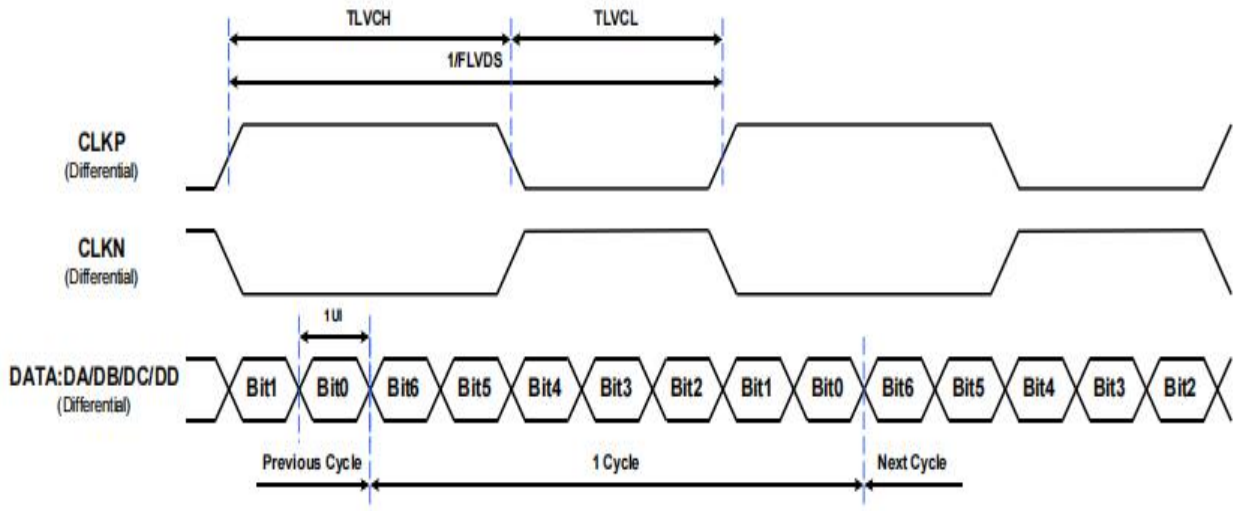
NOTE1 : FLVDS = 15 MHz ~ 110 MHz (including SSC operation)

NOTE2 : Support DE mode H-blanking maximum +/- 16 clks jitter range

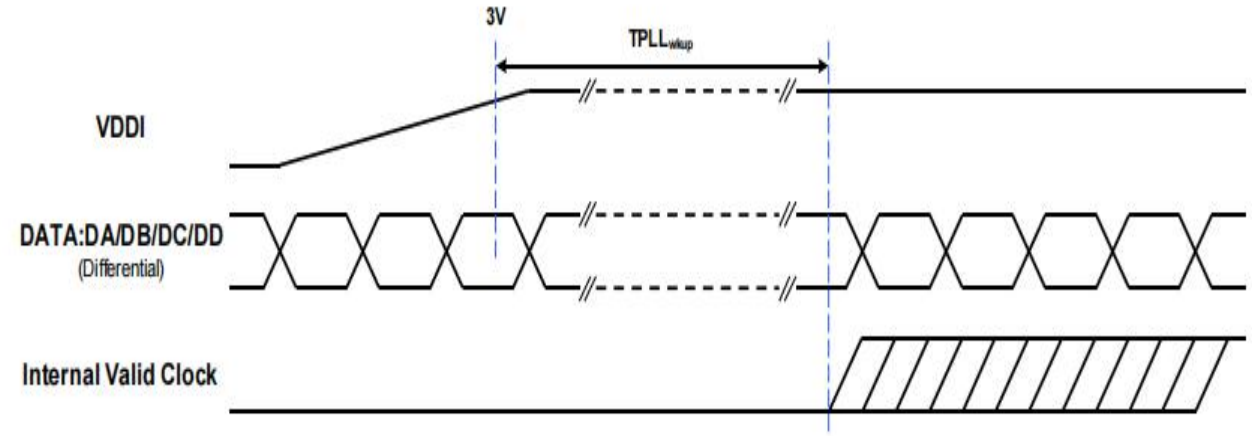
(1)



(2)

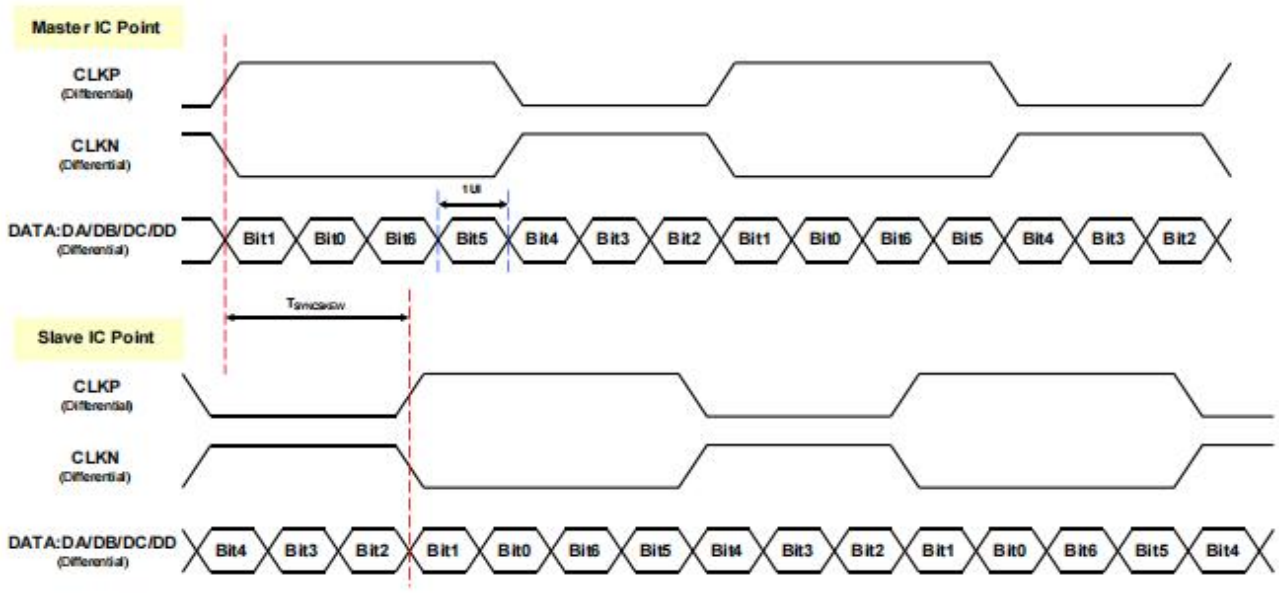

TLVCH
TLVCL
1/FLVDS
CLKP
(Differential)
CLKN
(Differential)
1UI
DATA:DA/DB/DC/DD
(Differential)
Bit1
Bit0
Bit6
Bit5
Bit4
Bit3
Bit2
Bit1
Bit0
Bit6
Bit5
Bit4
Bit3
Bit2
Previous Cycle
1 Cycle
Next Cycle

(3)

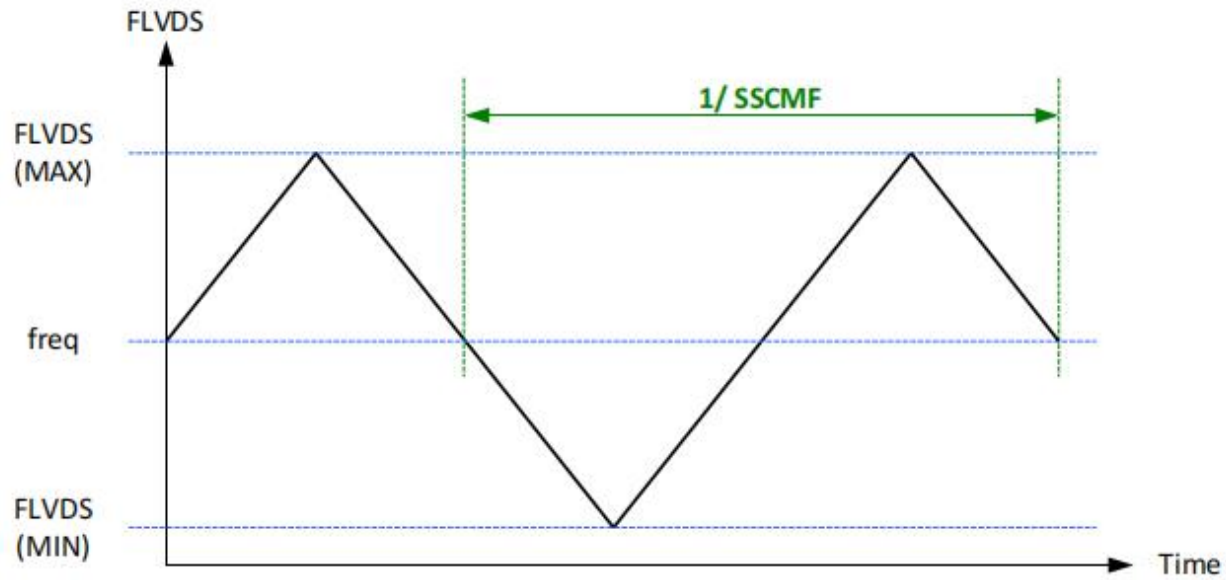

3V
TPLLwkup
VDDI
DATA:DA/DB/DC/DD
(Differential)
Internal Valid Clock

(4) LVDS point to point architecture

$T_{SYNCSKEW}$ must smaller than 7 UIs (1 CLKP/N) between ICs.



(5)

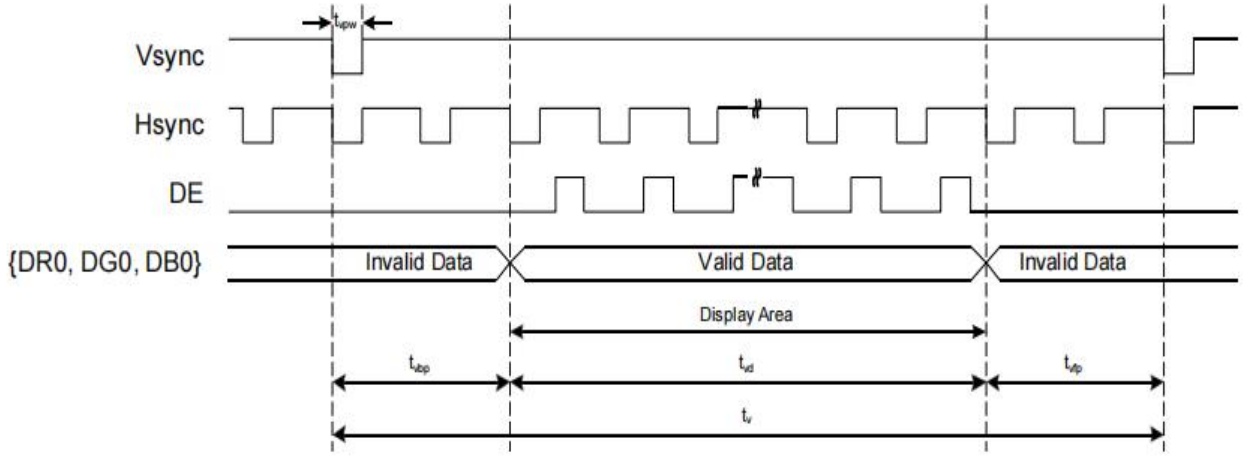


※1 : FLVDS = freq * (1 + SSCMR)

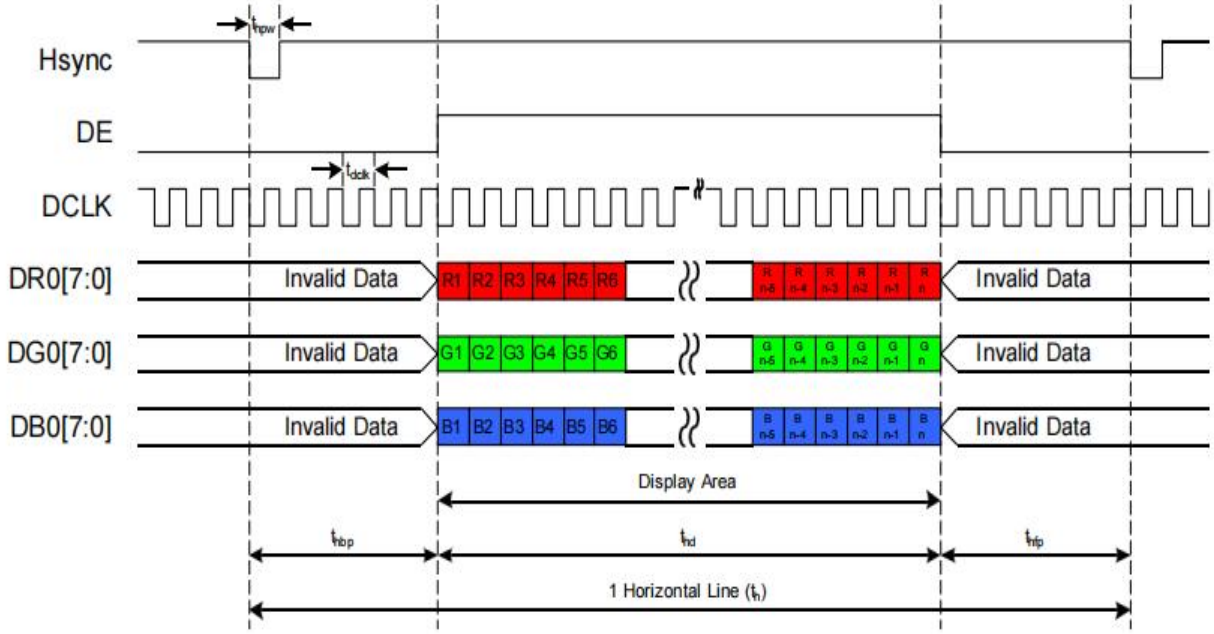
※2 : FLVDS (MAX) ≦110MHz

5.4 LVDS Video Input Timing

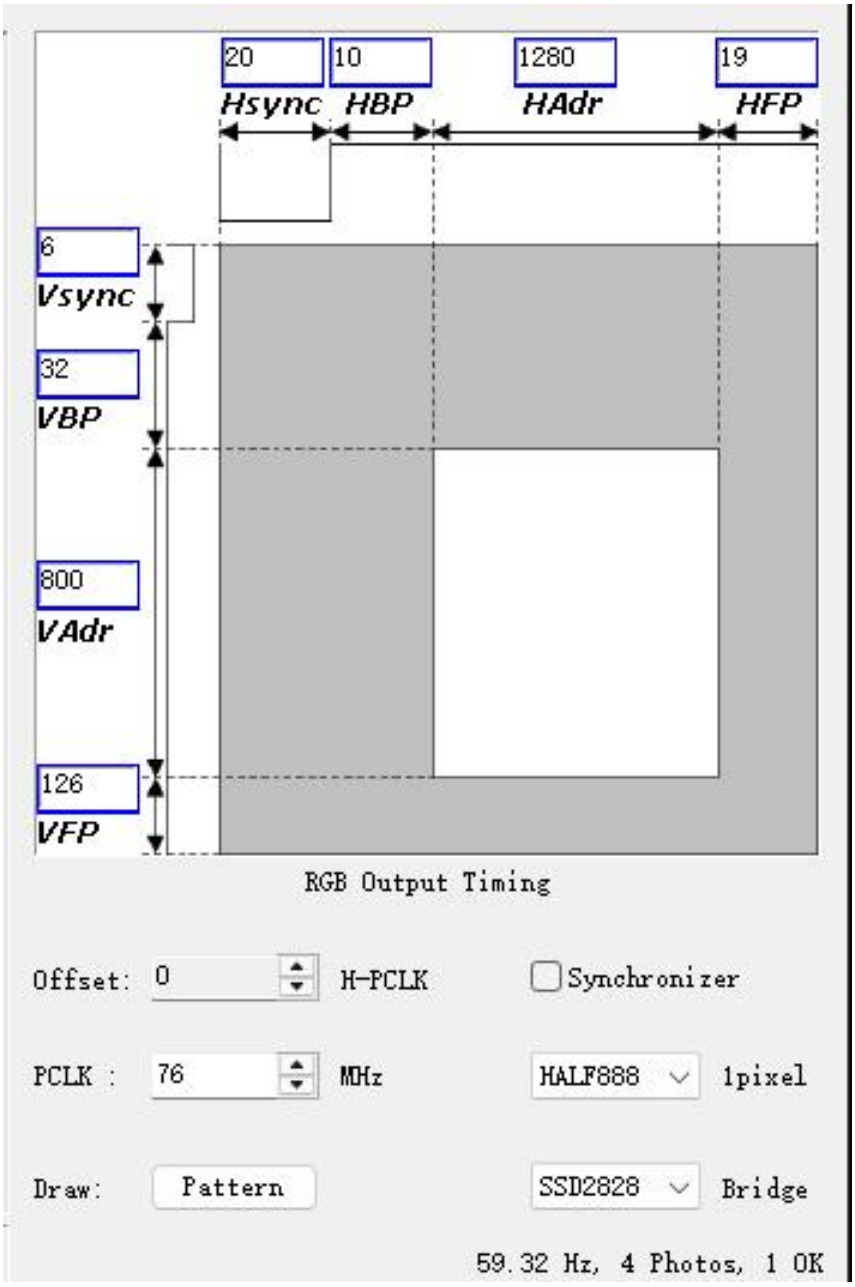
Vertical timing after LVDS 1-port client decode (internal signal) is:



Horizontal timing after LVDS 1-port client decode (internal signal) is:



Input Timing Table

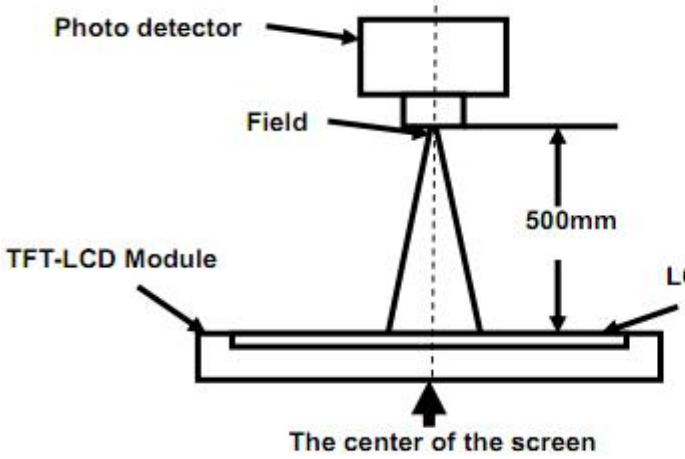


6. Optical Specifications

Item	Symbol	Condition	Min.	Typ.	Max.	Unit	Note
Viewing Angle (CR≥10) B/L ON	θ_T	Φ=90°(12 o'clock)	80	85	-	deg	Note2
	θ_B	Φ=270°(6 o'clock)	80	85	-	deg	Note2
	θ_L	Φ=180°(9 o'clock)	80	85	-	deg	Note2
	θ_R	Φ=0°(3 o'clock)	80	85	-	deg	Note2
Response Time	T_{ON}	Normal θ=Φ=0°	-	12	15	msec	Note4
	T_{OFF}		-	12	15	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		650	800	-	cd/m²	Note1 Note7
Luminance Uniformity	Y_U		75	80	-	%	Note1 Note6
NTSC	-		58.8	63.8	-	%	-

Note 1:Definition of optical measurement system.

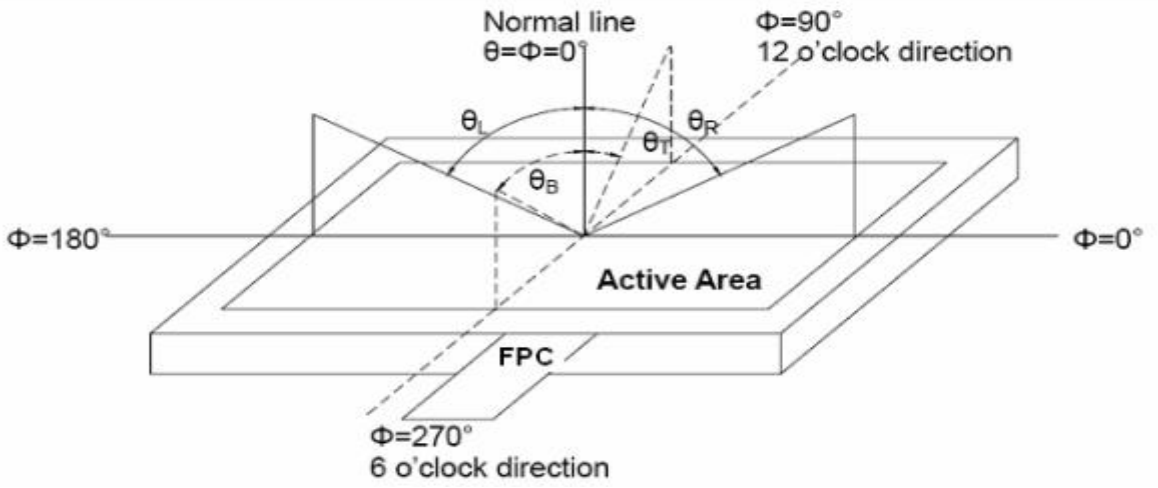
The optical characteristics should be measured in dark room. After 5 minutes operation, the optical properties are measured at the center point of the LCD screen. All input terminals LCD panel must be ground when measuring the center area of the panel.



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).

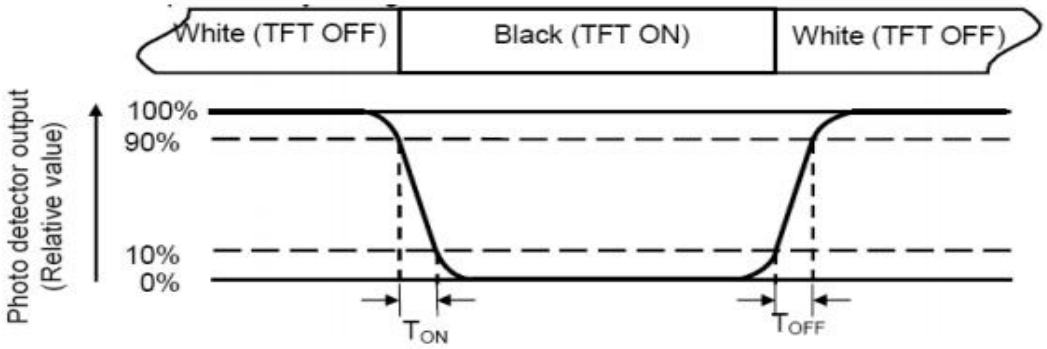


Note 3: Definition of contrast ratio

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

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:

H,V : Active area(see Figure b)
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).

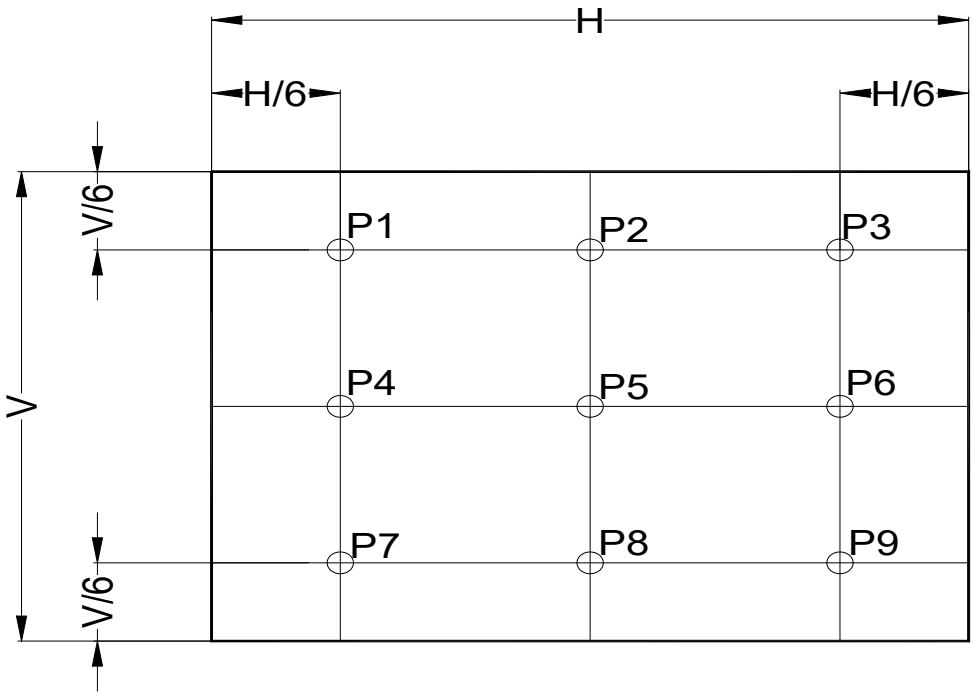


Fig. 3-b Definition of points

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 Operation	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:

1. 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:

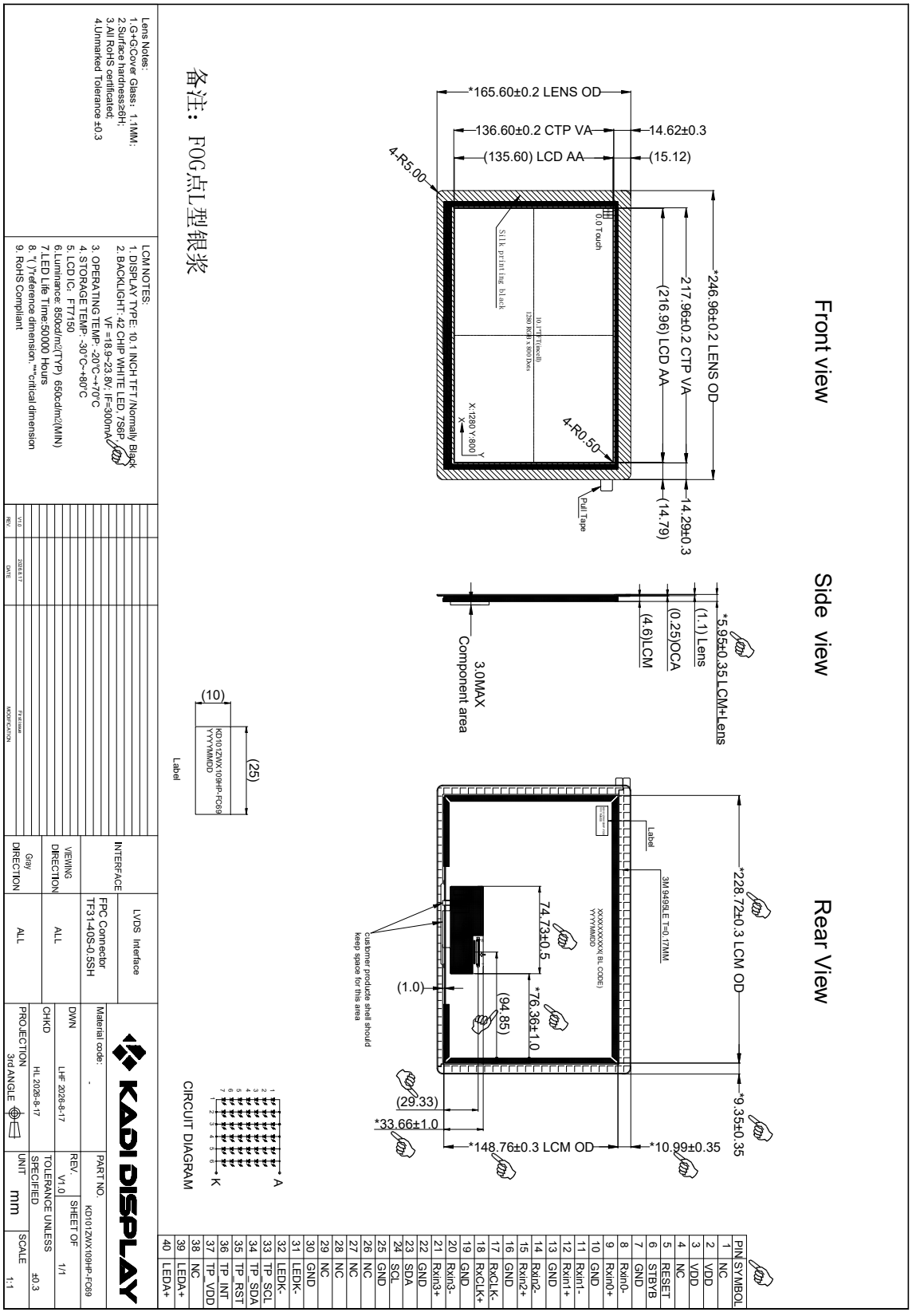
1).Air bubble in the LCD;

2).Seal leak or Glass crack

3).Non display or abnormal display

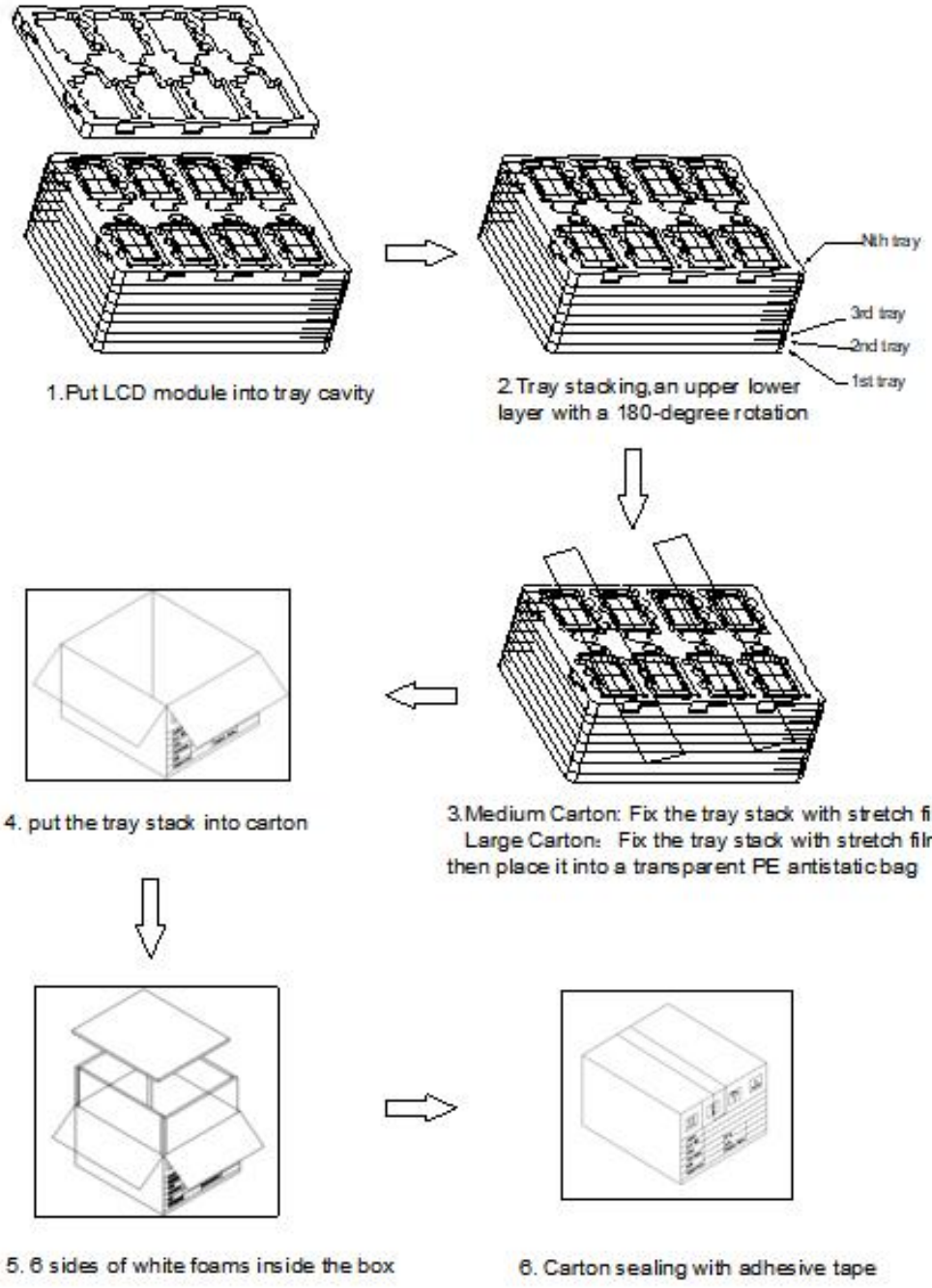
4).Brightness reduction >50%

8. Mechanical Drawing



9. Packing

Packing Method



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.

10.4 Packaging instructions

When the customers using trays, they have to stack the adjacent trays in a 180° staggered to prevent pressure that could cause product damage.