PRODUCT SPECIFICATION

CDTECH Model: **S080BWX27NP-FC41**

CUSTOMER Model: -

Description: **8.0 ” TFT-LCD Module with CTP**

Version: **1.0**

CDTECH	PREPARED BY	CHECKED BY	APPROVED BY
SIGNATURE			
DATE	2025.5.29	2025.5.29	2025.5.29

	SIGNATURE	DATE
CUSTOMER APPROVAL		

Record of Revisions

Version	Revise Date	Description	Page
1.0	2025-5-29	First Release	-

Contents

1. General Specifications

1.1 LCM General Information

Item	Specification	Unit
LCD Size	8.0	inch
Number of Pixels	800 (H) RGB x 1280 (V)	pixels
Display Mode	Normally Black	-
Viewing Direction	Free	-
Interface	MIPI	-
Display Colors	16.7M	colors
Outline Dimension	135.00 (H) x 188.00 (V) x 4.61 (D)	mm
Active Area	107.64 (H) x 172.22 (V)	mm
Pixel Pitch	0.1345 (H) x 0.1345 (V)	mm
Driver IC	JD9365DA-H3	-
Operation Temperature	-20~60	℃
Storage Temperature	-30~70	℃

1.2 Touch Panel Information

Item	Specification
Touch Structure	G+G
Bonding Type with LCM	OCA Optical Bonding
Driver IC	GT911
Interface	I²C
Touch Count Max	5 Points
Surface treatment	-
Surface hardness	6H
I2C slave address	0x28
Origin of coordinate	Top Left Corner

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. Elecrical Characteristics

3.1 Recommended Operating Condition for TFT LCD

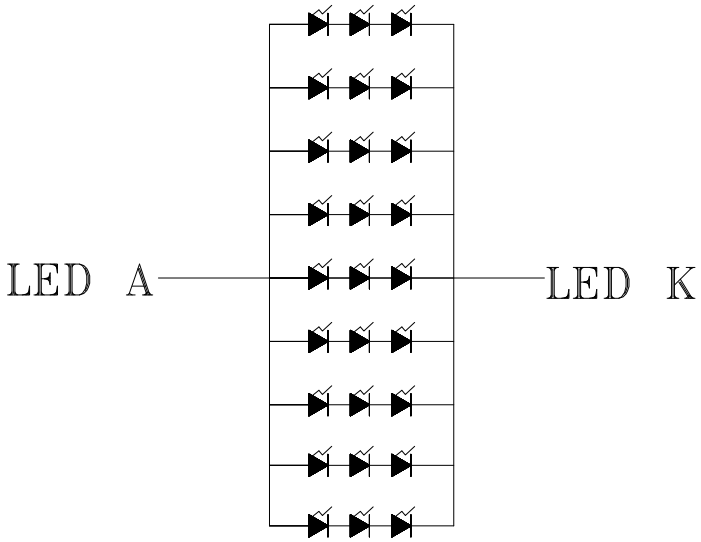
Item	Symbol	Min.	Typ.	Max.	Unit	Note
Analog Supply voltage	VDD	2.5	3.3	3.6	V	
Analog supply current	I_{VDD}	90	130	170	mA	RED
Logic input voltage	VIH	0.7*VDD	-	VDD	V	
	VIL	GND	-	0.3*VDD	V	

3.2 Recommended Driving Condition for Backlight

Item	Symbol	Min.	Typ.	Max.	Unit	Note
Driving Current	I_F	-	180	-	mA	
Driving Voltage	V_F	8.1	-	10.2	V	
Power consumption	W_{BL}	1.458	-	1.836	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 :



3.3 Touch Panel

Item	Symbol	Min.	Typ.	Max.	Unit	Note
Power Supply voltage	CTP-VCC	-	3.3	-	V	
Analog supply current	$I_{CTP-VCC}$	-	TBD	-	mA	CTP-VCC=3.3 V
Input high-level voltage	VIH	0.7*CTP-VCC	-	CTP-VCC	V	
Input low -level voltage	VIL	GND	-	0.3*CTP-VCC	V	

4. Interface Pin Assignment

4.1 LCM Pin Assignment

No.	Symbol	Description
1	LCM_VDD(3.3V)	Power supply (3.3V)
2	GND	Ground
3	LCM_VDD(3.3V)	Power supply (3.3V)
4	D0P	MIPI Positive data signal(+)
5	LCM_VDD(3.3V)	Power supply (3.3V)
6	D0N	MIPI Negative data signal(-)
7	NC	No connection
8	GND	Ground
9	LEDA	Power for LED backlight (Anode)
10	D1P	MIPI Positive data signal(+)
11	LEDA	Power for LED backlight (Anode)
12	D1N	MIPI Negative data signal(-)
13	LEDK	Power for LED backlight (Cathode)
14	GND	Ground
15	LEDK	Power for LED backlight (Cathode)
16	CLKP	MIPI Positive clock signal(+)
17	NC	No connection
18	CLKN	MIPI Negative clock signal(-)
19	NC	No connection
20	GND	Ground
21	GND	Ground
22	D2P	MIPI Positive data signal(+)
23	GND	Ground
24	D2N	MIPI Negative data signal(-)
25	GND	Ground
26	GND	Ground
27	CTP_EINT	Interrupt signal for CTP
28	D3P	MIPI Positive data signal(+)

29	GND	Ground
30	D3N	MIPI Negative data signal(-)
31	CTP_RST	Reset Pin for CTP
32	GND	Ground
33	CTP_SCL	I2C clock input for CTP
34	GND	Ground
35	CTP_SDA	I2C data input and output for CTP
36	RESET(3.3V)	Global reset pin (3.3V)
37	CTP_VCC(3.3V)	Power supply for CTP (3.3V)
38	GND	Ground
39	CTP_VCC(3.3V)	Power supply for CTP (3.3V)

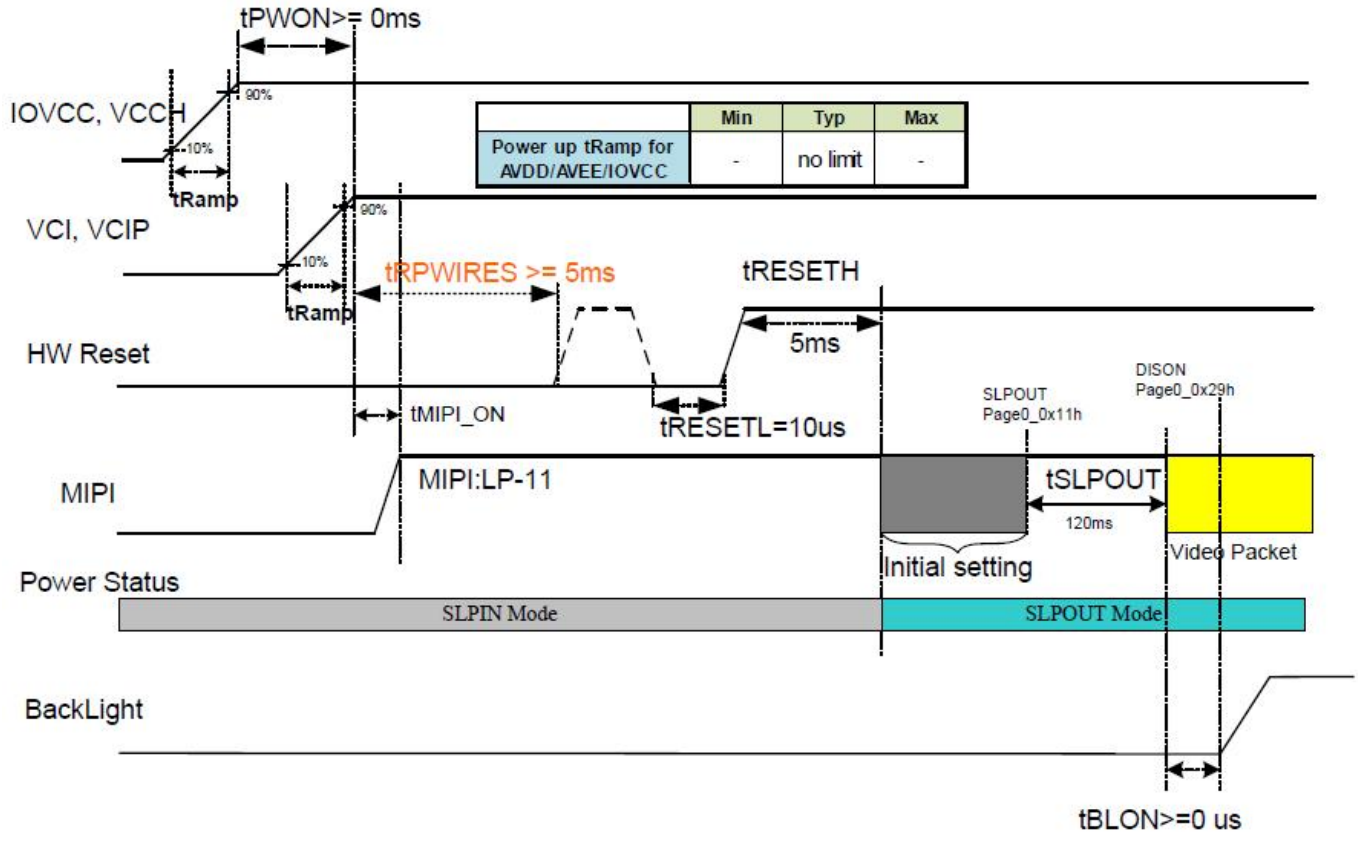
5. Interface Characteristics

5.1 Power Sequence

5.1.1 Power on sequence for differential power mode

Symbol	Min	Typ	Max	Unit	Remark
tRamp	-	no limit	-	us	
tPWON	0	-	-	ms	
tON1	0	-	-	ms	
tMIPI-ON	0	-	tRPWIRES	ms	
tRPWIRES	5	-	-	ms	
tRESETL	10	-	-	us	
tRESETH	5	-	-	ms	
tSLPOUT	120	-	-	ms	
tBLON	0	-	-	ms	

BOOSTM[1:0]=10 (Internal DC/DC power mode : Charge Pump, FP7721)
VCCD=IOVCC=VCCH=1.65V ~ 3.6V, VCI=VCIP=2.5V ~ 4.8V.
Power on:

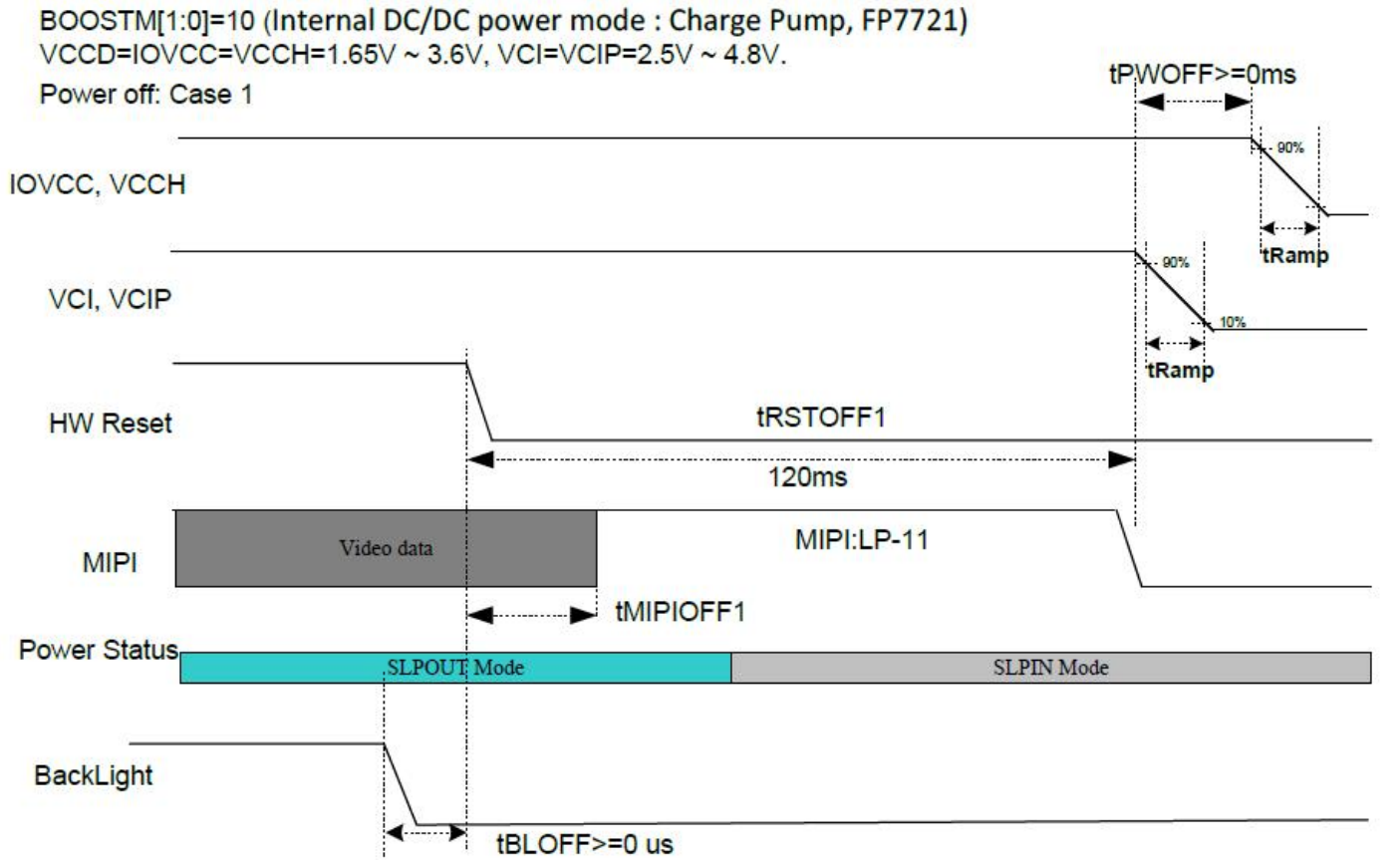


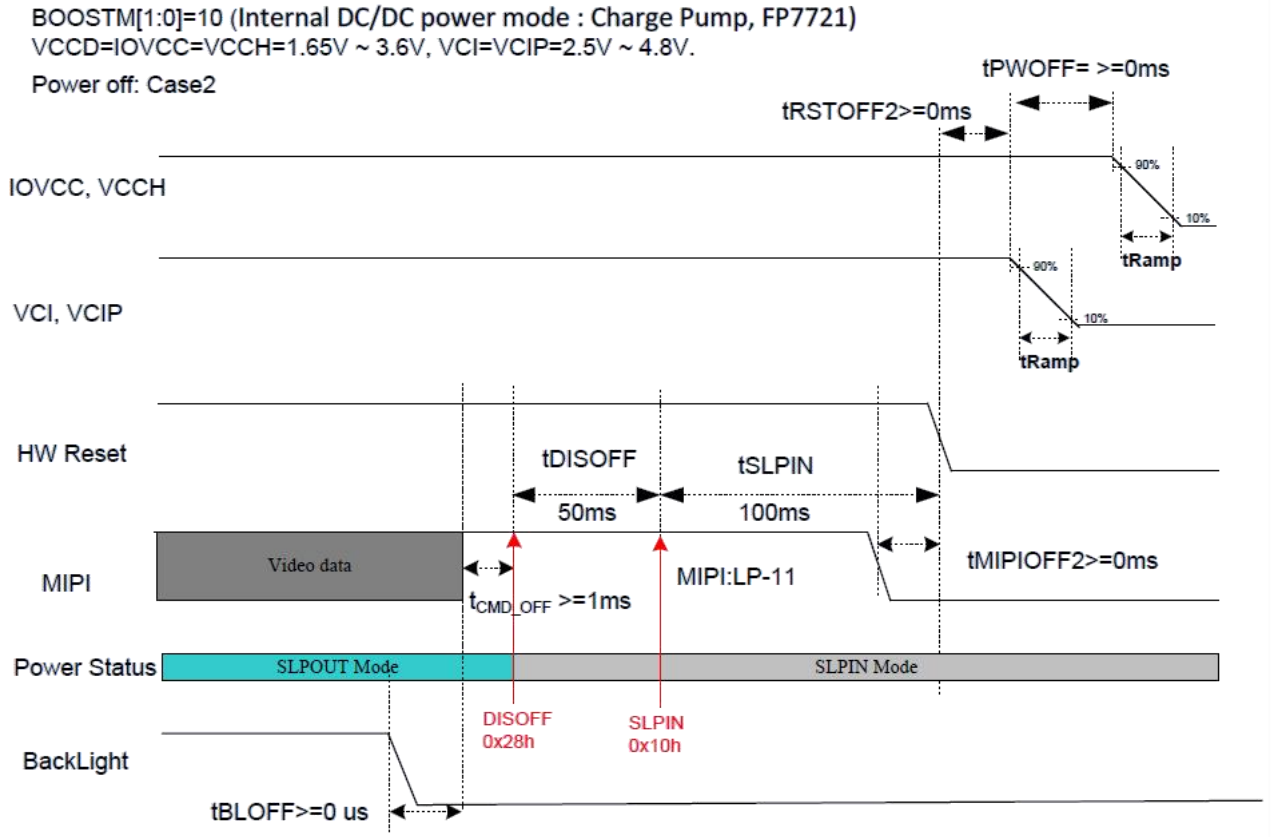
	Min	Typ	Max
Power up tRamp for AVDD/AVEE/IOVCC	-	no limit	-

5.1.2 Power off sequence for differential power mode

For the power off case2, DISOFF command and tDISOFF are optional. That means t_{CMD_OFF} could be followed by the SLPIN command and tSLPIN , without DISOFF command and tDISOFF.

Symbol	Min	Typ	Max	Unit	Remark
tRamp	-	no limit	-	us	
tPWOFF	0	-	-	ms	
tPWOFF1	0	-	-	ms	
tPWOFF2	0	-	-	ms	
tMIPIOFF1	0	-	-	ms	power off case 1
tRSTOFF1	120	-	-	ms	power off case 1
tMIPIOFF2	0	-	-	ms	power off case 2
tRSTOFF2	0	-	-	ms	power off case 2
tCMD_OFF	1	-	-	ms	power off case 2
tDISOFF	50	-	-	ms	power off case 2
tSLPIN	100	-	-	ms	power off case 2
tBLOFF	0	-	-	ms	




BOOSTM[1:0]=10 (Internal DC/DC power mode : Charge Pump, FP7721)
VCCD=IOVCC=VCCH=1.65V ~ 3.6V, VCI=VCIP=2.5V ~ 4.8V.
Power off: Case2
tPWOFF= >=0ms
tRSTOFF2>=0ms
IOVCC, VCCH
90%
10%
tRamp
VCI, VCIP
90%
10%
tRamp
HW Reset
tDISOFF
50ms
tSLPIN
100ms
MIPI
Video data
tCMD_OFF >=1ms
MIPI:LP-11
tMIPIOFF2>=0ms
Power Status
SLPOUT Mode
SLPIN Mode
DISOFF
0x28h
SLPIN
0x10h
BackLight
tBLOFF>=0 us

5.2 DC Characteristics

Item	Symbol	Condition	Min.	Typ.	Max.	Unit
VCCD/IOVCC	V_{IN}	Interface Supply Voltage	1.65	-	3.6	
VCIP	V_{IN}	Logic Supply Voltage	2.5	-	6.0	
VCI	V_{IN}	Analog Supply Voltage	2.5	-	6.0	
VCCH	V_{IN}	High speed interface Supply Voltage	1.65	-	3.6	
Input high voltage	V_{IH}	VCCD/IOVCC= 1.65 ~ 3.3V VCIP= 2.5 ~ 3.3V VCI= 2.5 ~ 3.3V	0.7 $V_{CCD/IOVCC}$	-	VCCD/IOVCC	V
Input low voltage	V_{IL}		0	-	0.3 $V_{CCD/IOVCC}$	V
VPP	V_{IH} V_{IL}	VPP	8V	8.25V	8.5V	V
Output high voltage (SDO, LEDPWM)	V_{OH1}	I_{OH} = -1.0 mA	0.8 $V_{CCD/IOVCC}$	-	VCCD/IOVCC	V
Output low voltage (SDO, LEDPWM)	V_{OL1}	VCCD/IOVCC= 1.65 ~ 2.4V I_{OL} = 1.0 mA	0	-	0.2 $V_{CCD/IOVCC}$	V
Logic High level input current	I_{IH}	VSYNC, HSYNC	-	-	6	µA
		RESX, DCX_SCL, CSX, RDX, WRX_SCL	-	-	6	µA
	I_{IHD}	DB[23...0], SDI, DCX	-	-	6	µA
		DB[23...0]	-	-	6	µA
Logic Low level input current	I_{IL}	VSYNC, HSYNC	-6	-		µA
		RESX, DCX, CSX, RDX, WRX_SCL	-6	-		µA
	I_{ILD}	DB[23...0], SDI, DCX	-6	-		µA
		DB[23...0]	-6	-		µA
Current consumption standby mode (VCIP/VCI-VSSD)	$I_{ST(VDD)}$	VCIP/VCI=2.8V, VCCD/IOVCC=1.8V T_A =25°C	-	TBD	-	µA
Current consumption standby mode (VCCD/IOVCC– VSSD)	$I_{ST(VCCD/IOVCC)}$		-	TBD	-	µA
Current consumption during Deep-standby mode (VCIP/VCI-VSSD)	$I_{DP-ST(VDD)}$	VCIP/VCI=2.8V, VCCD/IOVCC=1.8V T_A =25°C	-	TBD	-	µA
Current consumption during Deep-standby mode (VCCD/IOVCC– VSSD)	$I_{DP-ST(VCCD/IOVCC)}$		-	TBD	-	µA

Note: 1. The VOTP pin is open on normal mode and in used while OTP programming condition.
2. The GRAM data is eliminated under the Deep standby mode.

Table 11.2: DC characteristic

5.3 AC Characteristics

5.3.1 Reset input timings

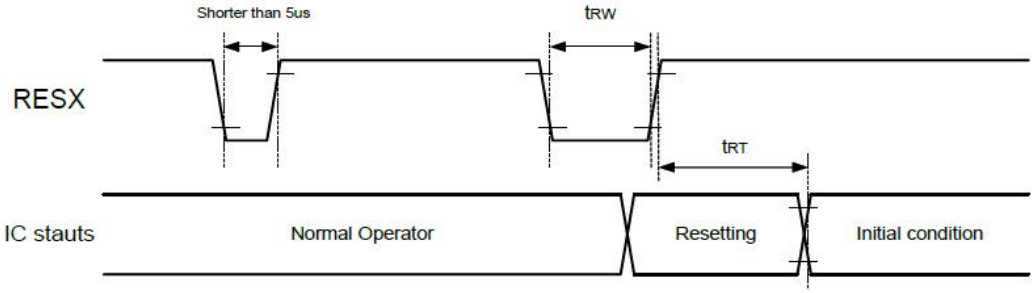


Figure 11.1: Reset input timings

Symbol	Parameter	Related pins	Min.	Max.	Unit
t_{RW}	Reset pulse width(2)	RESX	10	-	µs
t_{RT}	Reset complete time(3)	-	-	5 (Note 5)	ms
		-	-	120 (Note 6, 7)	ms

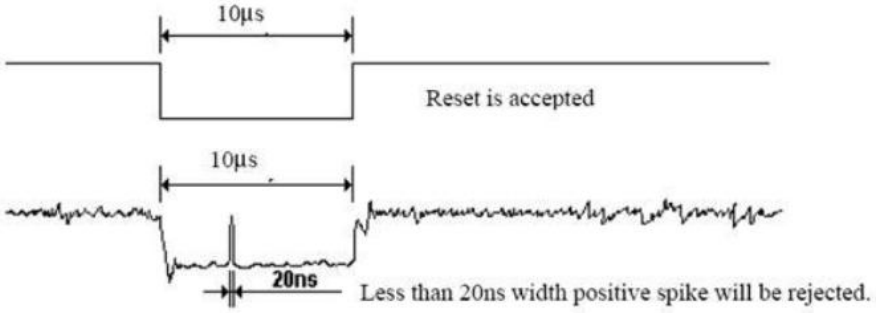
Note: (1) The reset complete time also required time for loading ID bytes from OTP to registers. This loading is done every time when there is HW reset cancel time (tRT) within 5 ms after a rising edge of RESX.

(2) Spike due to an electrostatic discharge on RESX line does not cause irregular system reset according to the table below.

RESX Pulse	Action
Shorter than 5 µs	Reset Rejected
Longer than 10 µs	Reset
Between 5 µs and 10 µs	Reset Start

(3) During the resetting period, the display will be blanked (The display is entering blanking sequence, which maximum time is 120 ms, when Reset Starts in Sleep Out –mode. The display remains the blank state in Sleep In –mode) and then returns to Default condition for H/W reset.

(4) Spike Rejection also applies during a valid reset pulse as shown below:



(5) When Reset is applied during Sleep In Mode.

(6) When Reset is applied during Sleep Out Mode.

(7) It is necessary to wait 5msec after releasing RESX before sending commands. Also Sleep Out command cannot be sent for 120msec.

(8) After Sleep Out Command, it is necessary to wait 120msec then send RESX.

Table 11.3: Reset timings

5.3.2 Timings for DSI Video mode

Vertical Timings

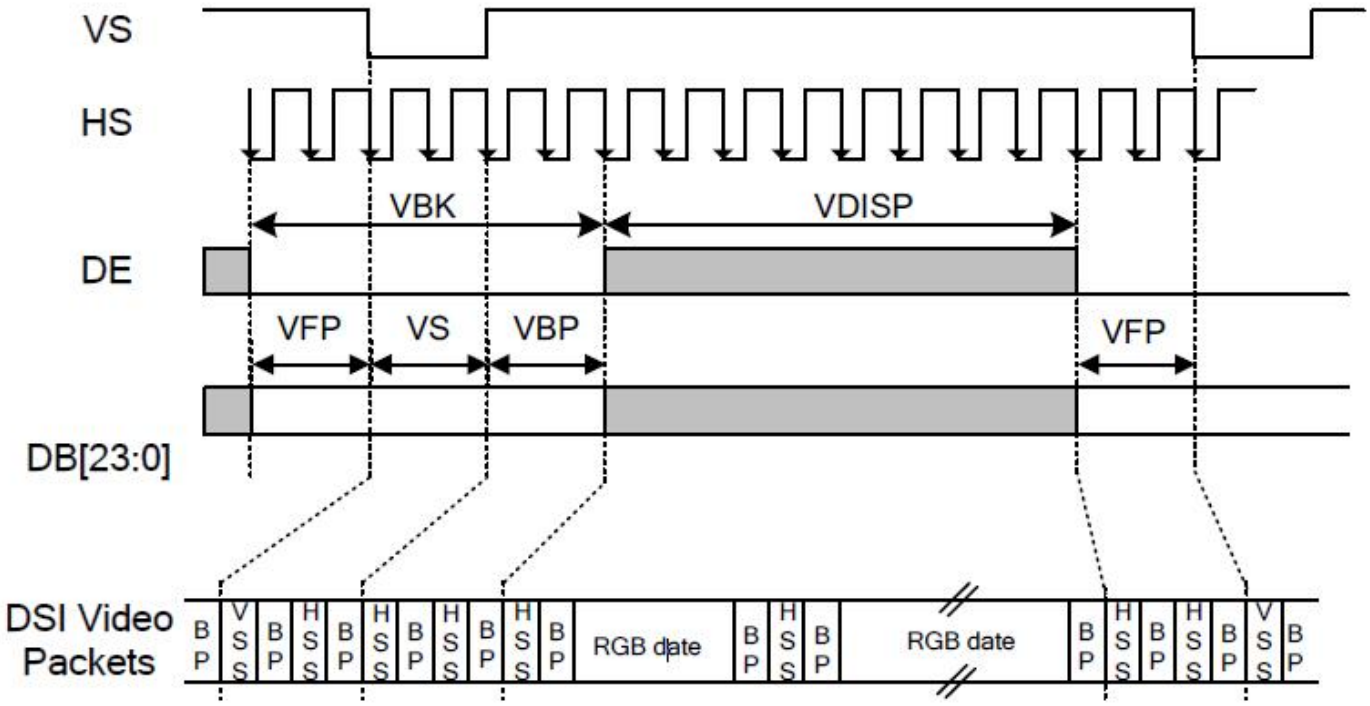


Figure 5.3.2.1: Vertical Timings for DPI I/F

Resolution=800x1280(T_A=25°C, IOVCC=1.8V, VCIP=2.8V, VCI=2.8V)

Item	Symbol	Condition	Min.	Typ.	Max.	Unit
Vertical low pulse width	VS	-	2	4	200 Note(1)	Line
Vertical front porch	VFP	-	4	20	200	Line
Vertical back porch	VBP	-	2	10	200 Note(1)	Line
Vertical blanking period	VBK	VS+VBP+VFP	8	34	250	Line
Vertical active area	-	VDISP	-	1280	-	Line
Vertical Refresh rate	VRR	-	-	60	-	Hz

Note: (1) The VS and VBP pulse width are related to GIP start pulse and GIP clock pulse timing. The GIP start pulse and GIP clock pulse must be set at corresponding position for LCD normal display.

Horizontal Timings

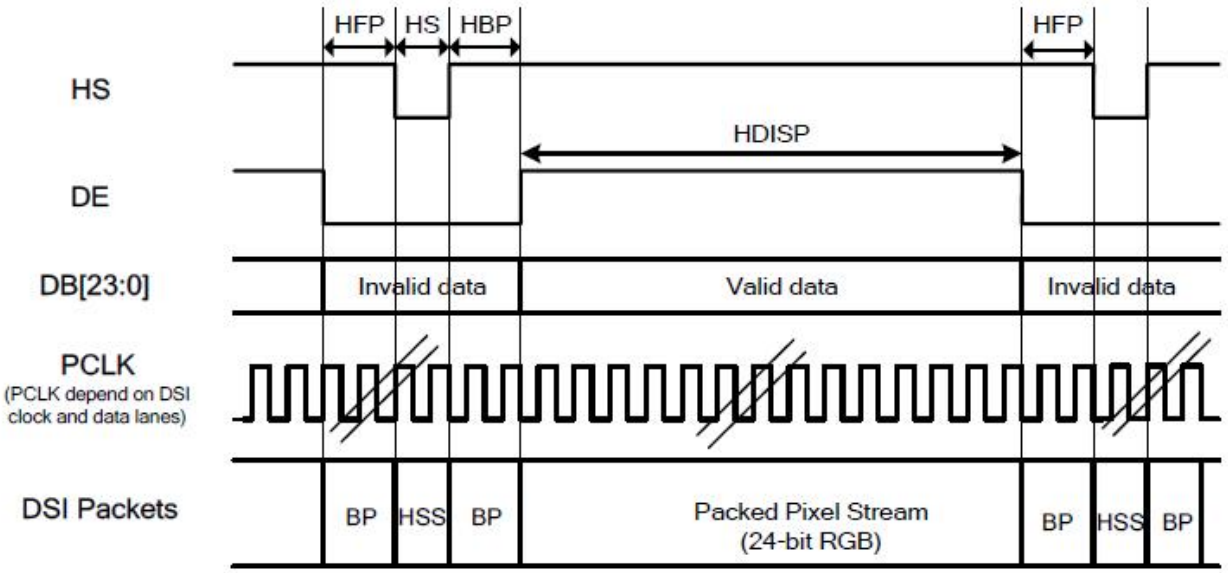


Figure 5.3.2.2: Horizontal Timing for DSI Video mode I/F

Resolution=800x1280 (T_A=25°C, IOVCC=1.8V, VCIP=VCI=VCCH=2.8V)

Item	Symbol	Condition	Min.	Typ.	Max.	Unit
HS low pulse width	HS	-	6	18	-	DCK
Horizontal back porch	HBP	-	5	18	-	DCK
Horizontal front porch	HFP	-	5	18	-	DCK
Horizontal blanking period	HBLK	HS+HBP+HFP	16	54 (Note1)	-	DCK
Horizontal active area	HDISP	-	-	800	-	DCK
Pixel Clock	PCLK	-	63.06 (Note2)	67.33 (Note2)	-	MHz

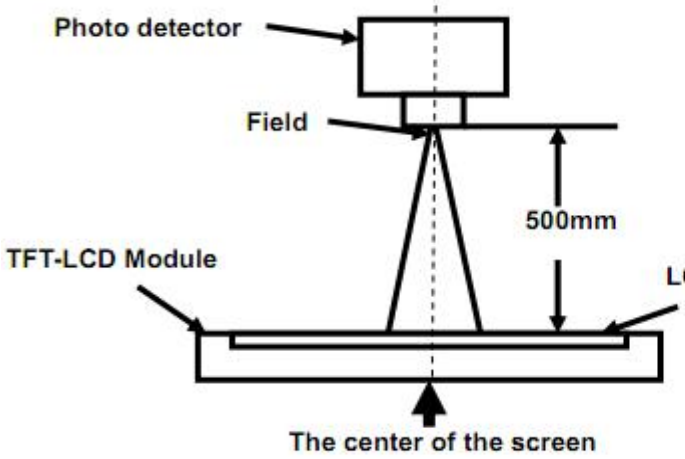
Note 1: HS+HBP > 0.5us.
Note 2: Pixel Clock = (HBLK+HDISP) * (VBK+VDISP) * Frame rate, Frame rate=60Hz.

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	-	deg	Note2
	θ_B	Φ=270°(6 o'clock)	-	80	-	deg	Note2
	θ_L	Φ=180°(9 o'clock)	-	80	-	deg	Note2
	θ_R	Φ=0°(3 o'clock)	-	80	-	deg	Note2
Response Time	T_{ON}	Normal θ=Φ=0°	-	-	17	msec	Note4
	T_{OFF}		-	-	17	msec	Note4
Contrast Ratio	CR		900	1200	-	-	Note1 Note3
Color Chromaticity	W_X		TBD	TBD	TBD	-	Note1 Note5
	W_Y		TBD	TBD	TBD	-	Note1 Note5
Luminance	L		280	330	-	cd/m²	Note1 Note7
Luminance Uniformity	Y_U		75	80	-	%	Note1 Note6
NTSC	-		55	60	-	%	-

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).

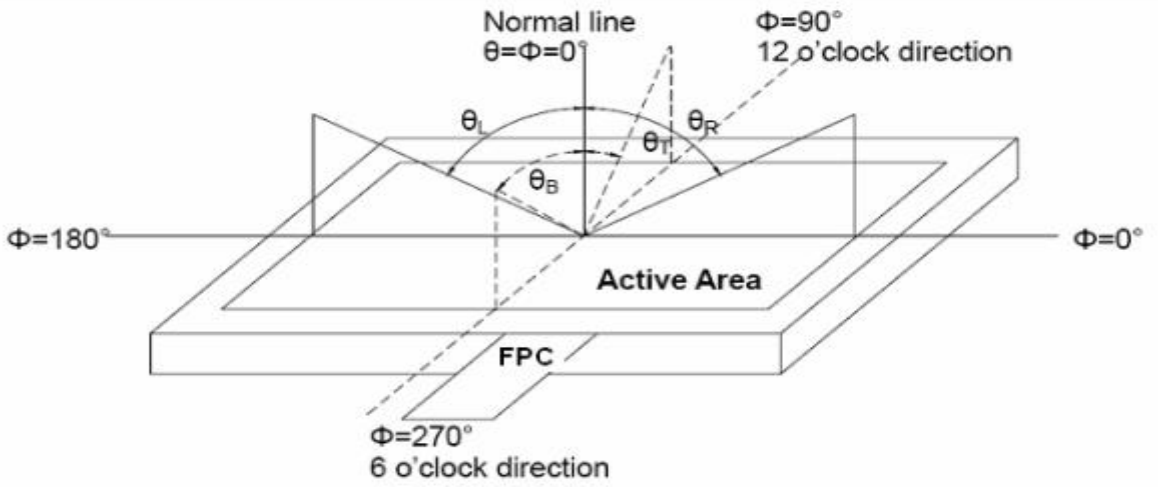


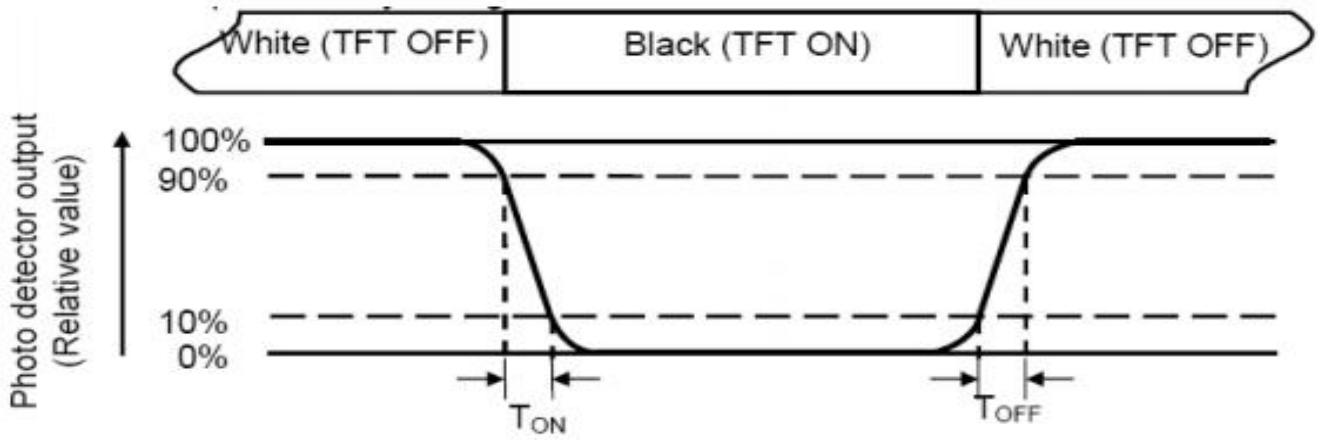
Fig 2 Definition of viewing angle

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:

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).

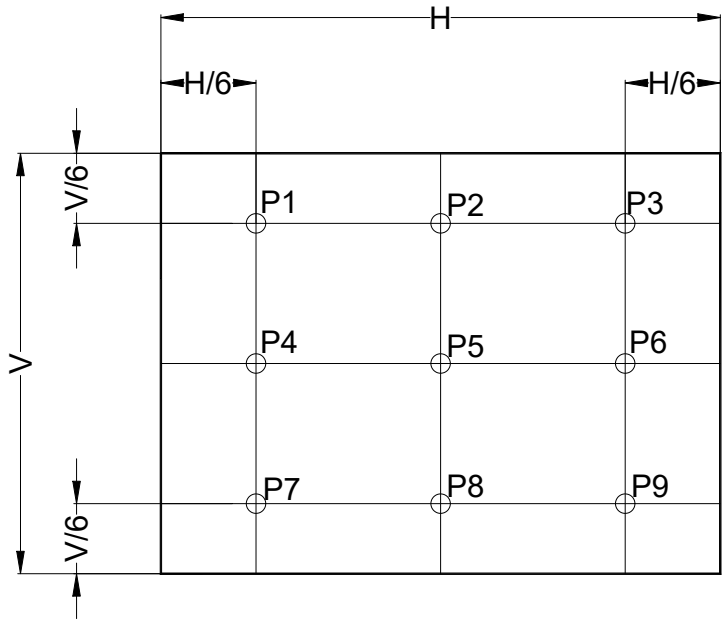


Fig. 3-b Definition of points

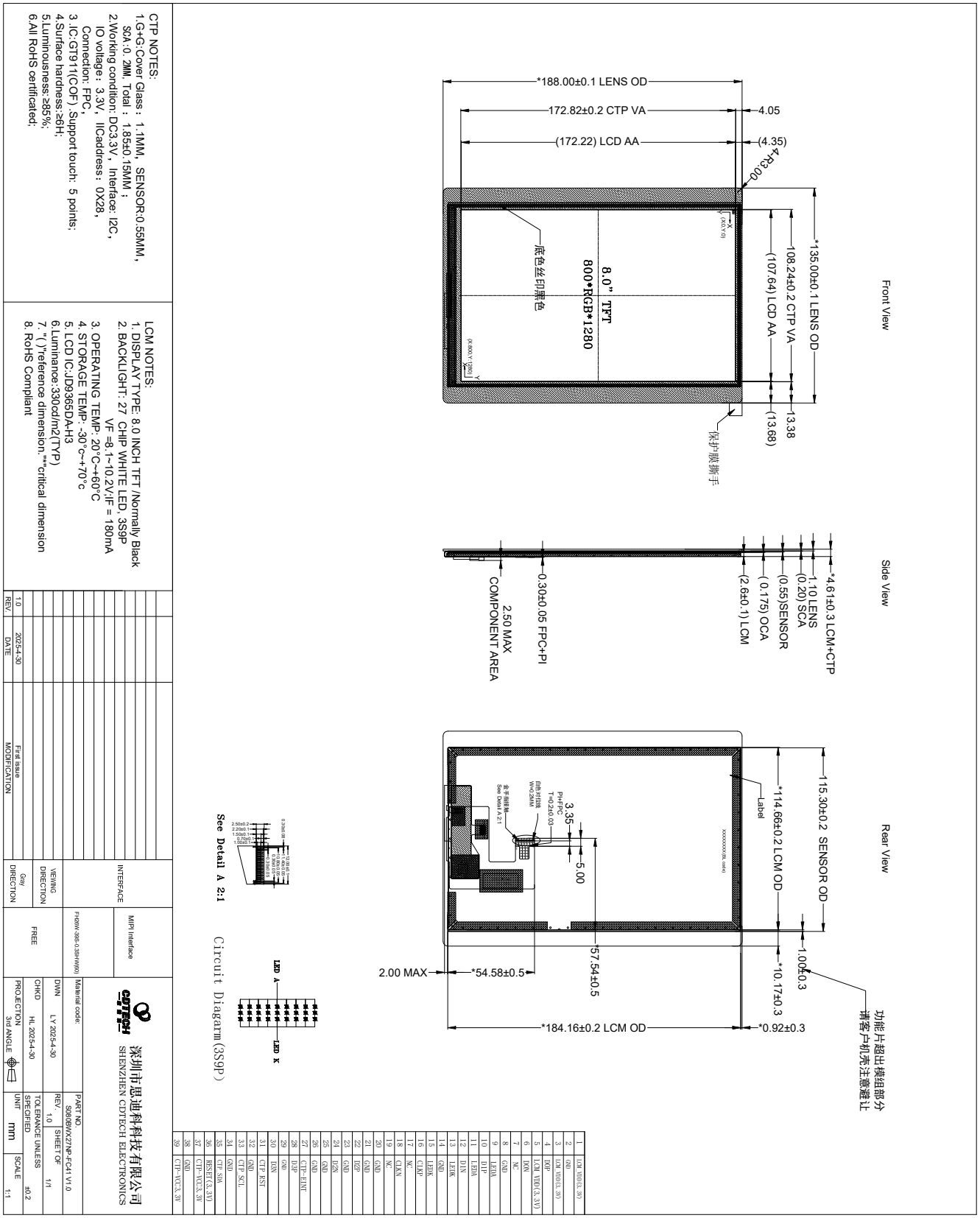
7. Reliability Test Items

Test Item	Test Conditions	
High Temperature Storage	Ta= +70℃	96hrs
Low Temperature Storage	Ta= -30℃	96hrs
High Temperature Operation	Ta= +60℃	96hrs
Low Temperature Operation	Ta= -20℃	96hrs
High Temperature and Humidity Storage	Ta= +60℃, 90% RH	96hrs
Thermal Shock (Non-operation)	-30℃/30 min ~ +70℃/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:

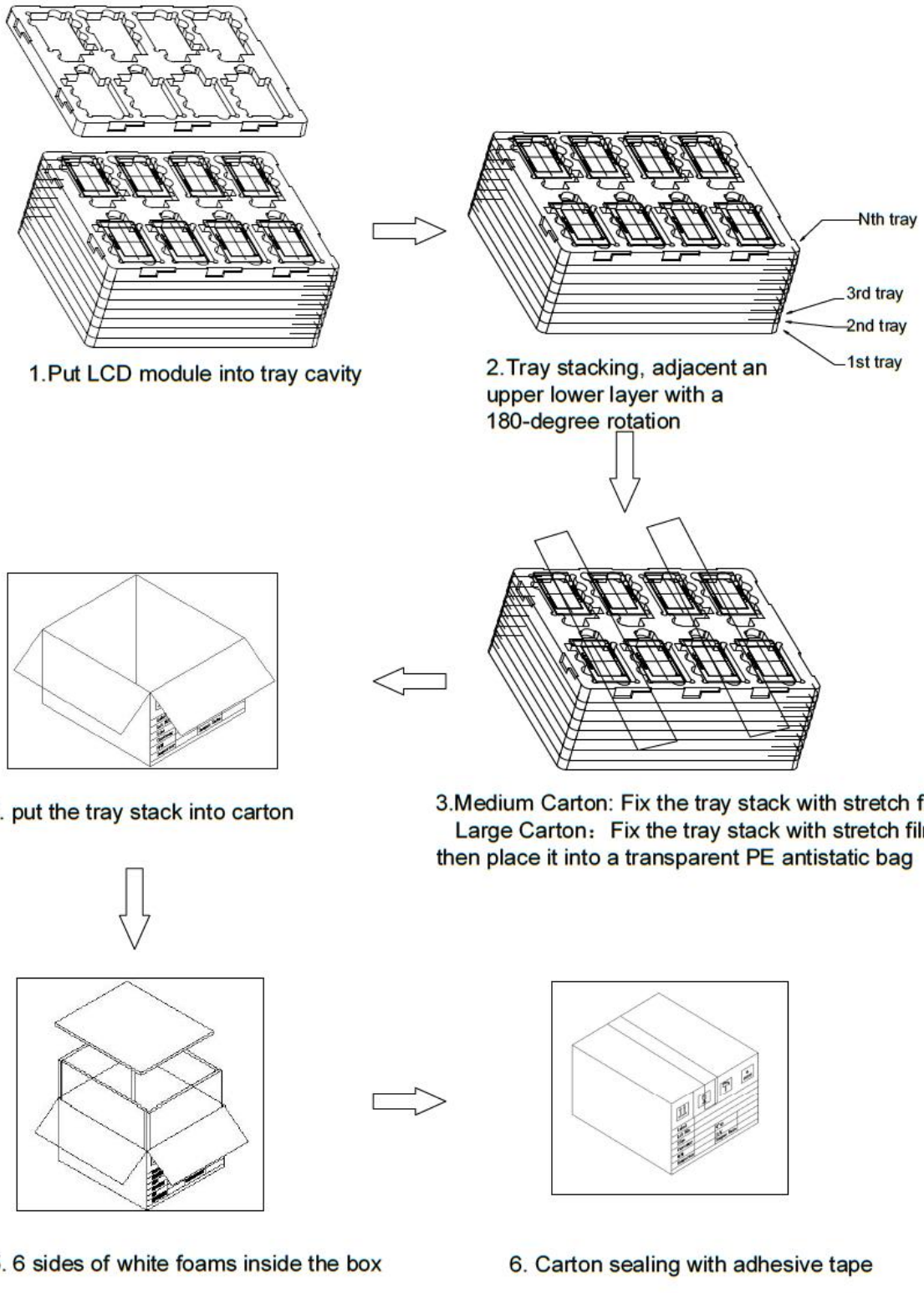
1). Air bubble in the LCD
2). Seal leak or Glass crack
3). Non display or abnormal display
4). Brightness reduction >50%

8. Mechanical Drawing



9. Packing

Packing Method



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.