

LCD MODULE SPECIFICATION

Model:	UE021WV-RH30-A013A
Version:	V1.0
Date:	2026.02.28

Customer Confirmation

Approved by	Notes

Please return one of the copies of the specification with your signature to us within two weeks after you receive this document. If it is not returned, we will assume that you agree to the entire contents of this specification document.

VIEWE Confirmation

Prepared by	Reviewed by	Approved by

REVISION HISTORY

Revision	Date	Contents of Revision Change	Remarks
V1.0	2026.02.28	Preliminary release	All

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1.GENERAL INFORMATION

1.1 Features

- 1) Pixel Arrangement: RGB Vertical Stripe
- 2) Interface Mode: Mipi 2lane
- 3) Driver IC: ST7701
- 4) Operation Temperature: -20~70°C
- 5) Storage Temperature: -30~80°C
- 6) Backlight Type: White LED
- 7) Display mode: Normally black
- 8) LED life time: 30,000 Hours

1.2 Mechanical Specification

Item 项目	Specification 规格	Unit 单位	Remark 备注
Pixel Driving element	TFT	-	-
Screen Size	2.1	Inch	Diagonal
Resolution	480(W)*3(RGB)*480(H)	Dots	-
Active Area	57.6(W)*43.2(H)	mm	-
Pixel pitch (W*H)	0.111(H)*0.111(V)	mm	-
Module Size (W*H*D)	56.18(W)*59.71(H)*2.3(D)	mm	-
Luminance	350	cd/m2	-
Interface Mode	Mipi 2lane	-	-
Viewing Direction	ALL	O'clock	-
Display Color	16.7M	Colors	24bits

2. ABSOLUTE MAXIMUM RATINGS

Item 项目	Symbol 符号	Min. 最小值.	Max. 最大值	Unit 单位	Remark 备注
Power supply voltage	VCI	-0.3	3.3	V	Note1
Power supply voltage	IOVCC	-0.3	3.3	V	Note1
LED Reverse Voltage	V _R	-	5	V	For each led,Note1
Operating temperature	T _{op}	-20	70	°C	Note1,2
Storage temperature	T _{st}	-30	80	°C	Note1,2
Humidity	H _{st}	10	90	% RH	Note1,3

(Ta=+25°C,GND=0V)

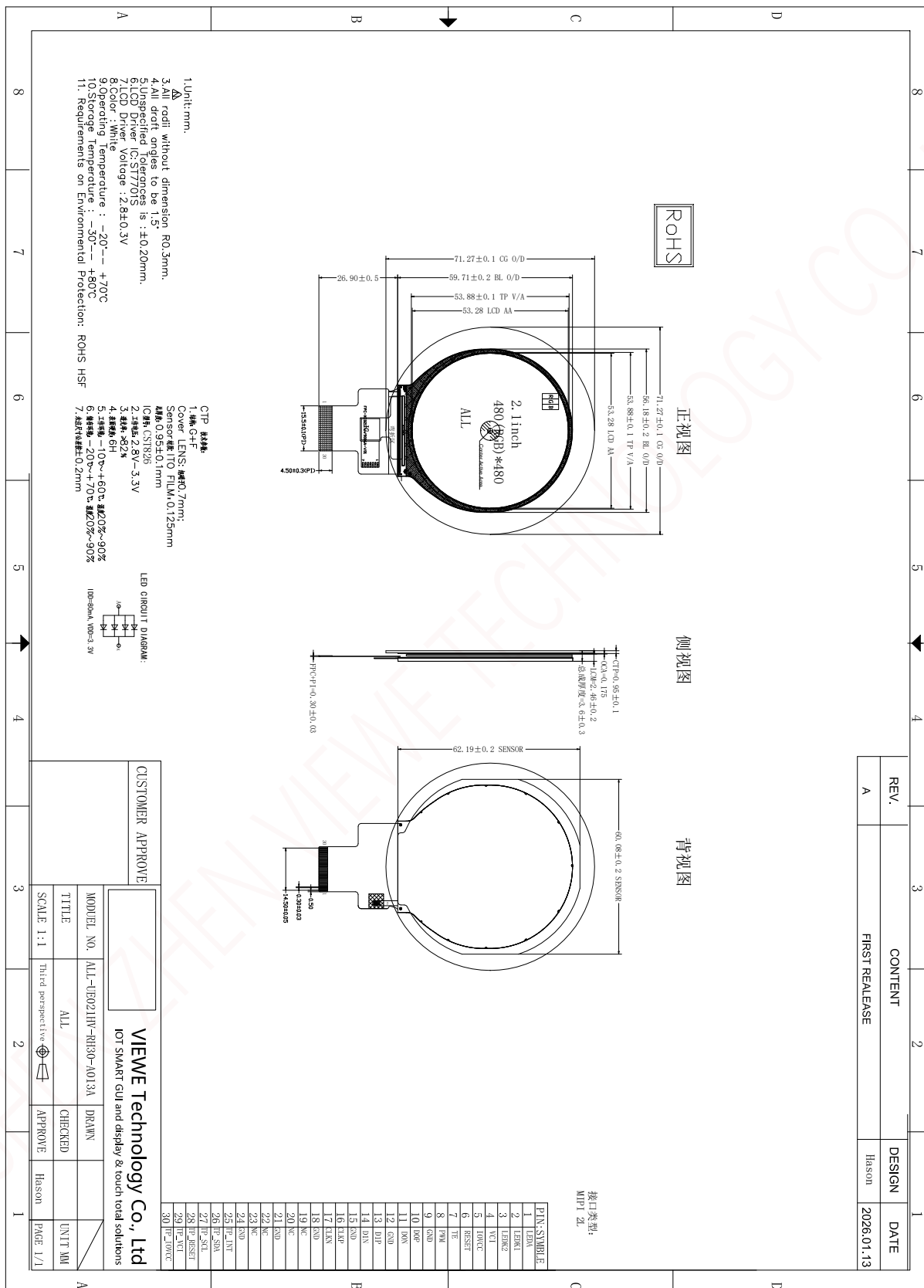
Note1:If the module exceeds the absolute maximum ratings, it may be damaged permanently. Also if the module operates with the absolute maximum ratings for a long time, the reliability may drop.

Note2: In case of temperature below 0°C,the response time of liquid crystal (LC) becomes slower and the color of panel darker than normal one.

Note3: Temp. ≤ 60°C , 90% RH MAX.

Temp. >60°C , Absolute humidity shall be less than 90% RH.

3. MECHANICAL DRAWING



4. I/O CONNECTION

Pin No. 序号	Symbol 符号	I/O	Description 描述
1	BL_A	P	Power supply for backlight anode
2	BL_K	P	Power supply for backlight cathode
3	BL_K	P	Power supply for backlight cathode
4	VCI	P	LCD analog power supply (3.3V)
5	IOVCC	P	LCD analog power supply (1.8-3.3V)
6	RESET	I	Reset Signal(low active)
7	TE	O	Tearing effect output
8	PWM	O	The PWM frequency output for LCD driver control
9	GND	P	Ground
10	D0P	I/O	DSI-D0+ data signals
11	D0N	I/O	DSI-D0- data signals
12	GND	P	Ground
13	D1P	I	DSI-D1+ data signals
14	D1N	I	DSI-D1- data signals
15	GND	P	Ground
16	CLKP	I	DSI-Clock+
17	CLKN	I	DSI-Clock-
18	GND	P	Ground
19-20	NC	-	Not connect
21	GND	P	Ground
22-23	NC	-	Not connect
24	GND	P	Ground

25	TP_INT	O	Touch Interrupt
26	TP_SDA	I/O	Touch IIC Data signal
27	TP_SCL	I	Touch IIC Clock signal
28	TP_RESET	I	Touch Reset Signal
29	TP_VCI	P	Touch Power supply
30	TP_IOVCC	P	Touch Power supply/NC

I: Input; O: Output; P: Power

5. ELECTRICAL CHARACTERISTICS

5.1 TFT-LCD Panel Driving Section

Item 项目	Symbol 符号	Min. 最小值	Typ. 典型值	Max. 最大值	Unit 单位	Remark 备注
Power Supply Voltage	IOVCC	1.65	1.8	1.95	V	-
Power Supply Voltage	VCI	2.5	2.8	3.3	V	Note1
Logic Input High Voltage	V _{IH}	0.7VCC	-	IOVCC	V	-
Logic Input Low Voltage	V _{IL}	0	-	0.3IOVCC	V	-
Power Supply current	Iiovc	-	20	-	mA	Note1
Power Supply current	Ivci	-	35	-	mA	Note1,2

(Ta=+25°C,GND=0V)

Note1:Measurement Conditions (Video Mode): Full Screen Red Pattern,VDD=3.3V,60Hz Refresh.

Note2: P_{LCM}= P_{VDD}+ P_{B/L}, About P_{B/L} information, inference to 5.2 Back Light Driving Section.

5.2 Back Light Driving Section

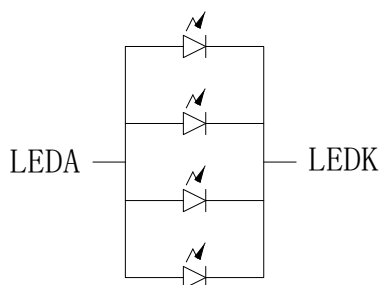
Item	Symbol	Min.	Typ.	Max.	Unit	Remark
Forward Voltage	V _F	2.8	3.1	3.3	V	Note1
Forward Current	I _F	-	80	-	mA	Note1
Backlight Power consumption	P _{B/L}	224	248	264	mWatt	Note1
LED Quantity		4			PCS	

(Ta=+25°C,GND=0V)

Note1: The LED driving condition is defined for each LED module。

For each LED : I_F=20mA,V_F=3V(Typ.)/3.3V(Max.),Ta=25°C。

Note2:The “LED life time” is defined as the module brightness decrease to 50% of original brightness at I_{LED}=20mA(Per Led). The LED life time could be decreased if operating I_{LED} is larger than 20mA.



5.3 Timing Characteristics

5.3.1 High speed mode

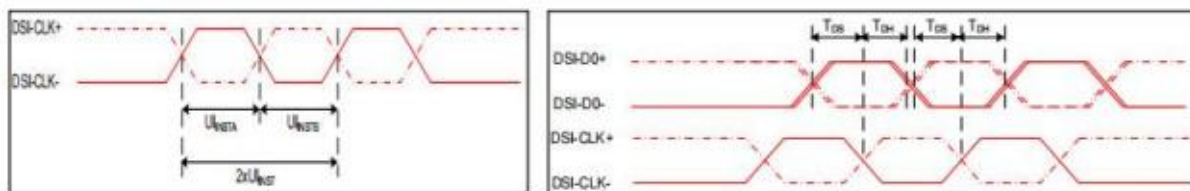


Figure 4 DSI clock channel timing

Figure 5 Rising and falling time on clock and data channel

$V_{DD1}=1.8, V_{DD}=2.8, AGND=DGND=0V, T_a=25\text{ }^{\circ}\text{C}$

Signal	Symbol	Parameter	MIN	MAX	Unit	Description
DSI-CLK+/-	$2xU_{INSTA}$	Double UI instantaneous	2.5	25	ns	
DSI-CLK+/-	U_{INSTA} U_{INSTB}	UI instantaneous halves	1.25	12.5	ns	$UI = U_{INSTA} = U_{INSTB}$
DSI-Dn+/-	t_{DS}	Data to clock setup time	0.15	-	UI	
DSI-Dn+/-	t_{DH}	Data to clock hold time	0.15	-	UI	

Table 7 Mipi Interface- High Speed Mode Timing Characteristics

5.3.2 Low Power Mode

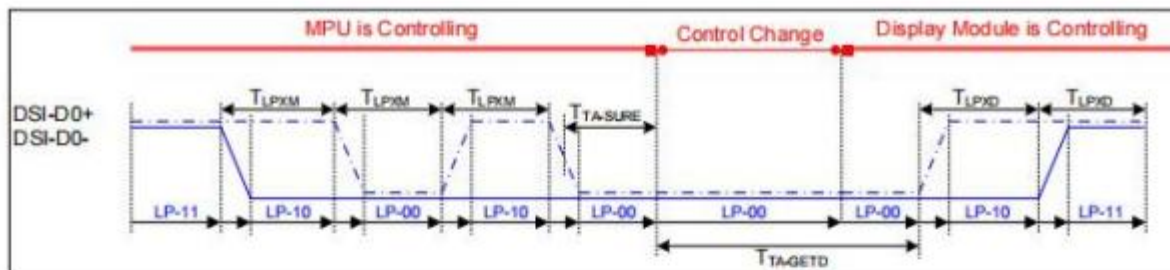


Figure 6 Bus Turnaround (BTA) from display module to MPU Timing

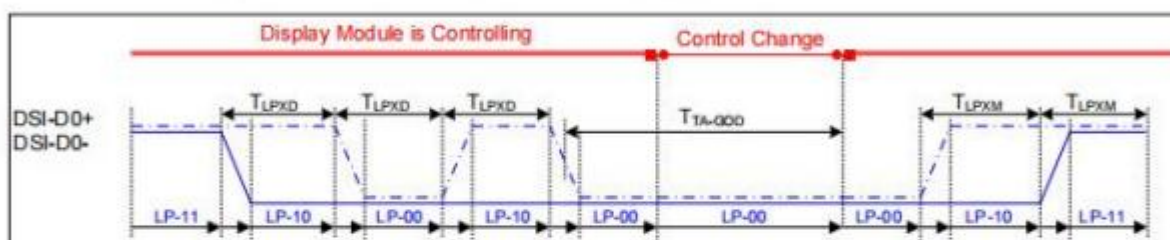


Figure 7 Bus Turnaround (BTA) from MPU to display module Timing

VDD1=1.8, VDD=2.8, AGND=DGND=0V, Ta=25 °C

Signal	Symbol	Parameter	MIN	MAX	Unit	Description
DSI-D0+/-	TLPXM	Length of LP-00, LP-01, LP-10 or LP-11 periods MPU → Display Module	50	75	ns	Input
DSI-D0+/-	TLPXD	Length of LP-00, LP-01, LP-10 or LP-11 periods MPU → Display Module	50	75	ns	Output
DSI-D0+/-	TTA-SURED	Time-out before the MPU start driving	T_{LPXD}	$2 \times T_{LPXD}$	ns	Output
DSI-D0+/-	TTA-GETD	Time to drive LP-00 by display module	$5 \times T_{LPXD}$		ns	Input
DSI-D0+/-	TTA-GOD	Time to drive LP-00 after turnaround request-MPU	$4 \times T_{LPXD}$		ns	Output

Table 8 Mipi Interface Low Power Mode Timing Characteristics

5.3.3 Mipi Bursts mode

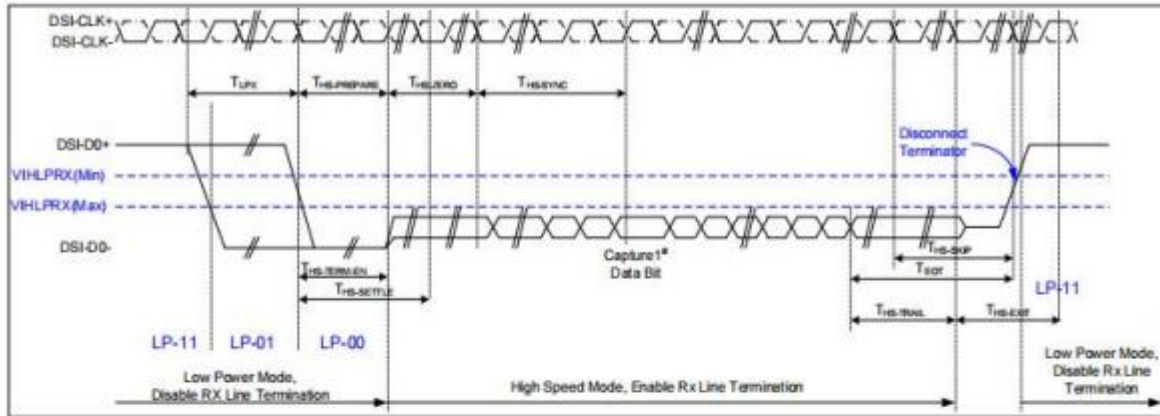


Figure 7 Data lanes-Low Power Mode to/from High Speed Mode Timing

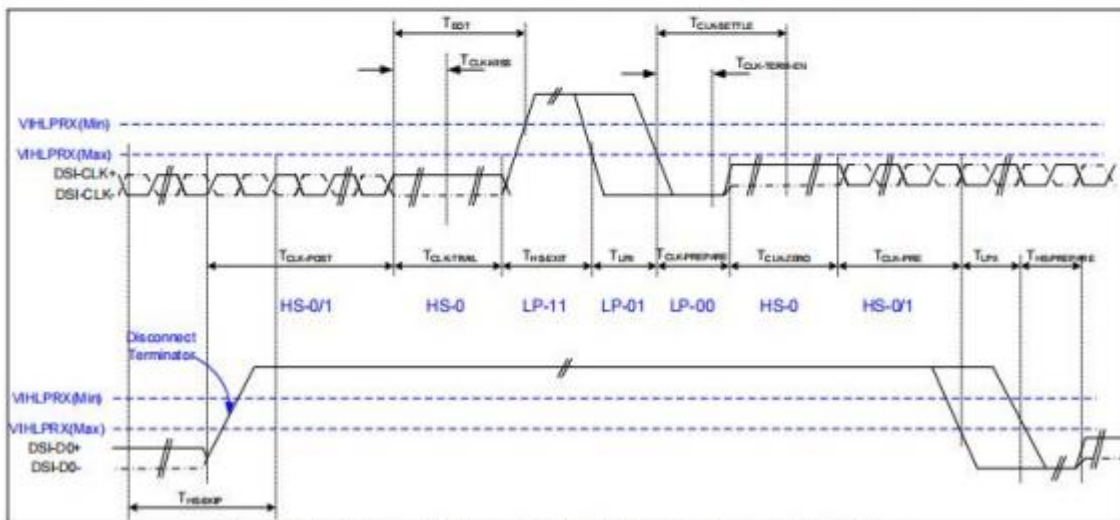


Figure 8 Clock lanes- High Speed Mode to/from Low Power Mode Timing

5.3.4 Mipi input timing table

(TA=25℃)

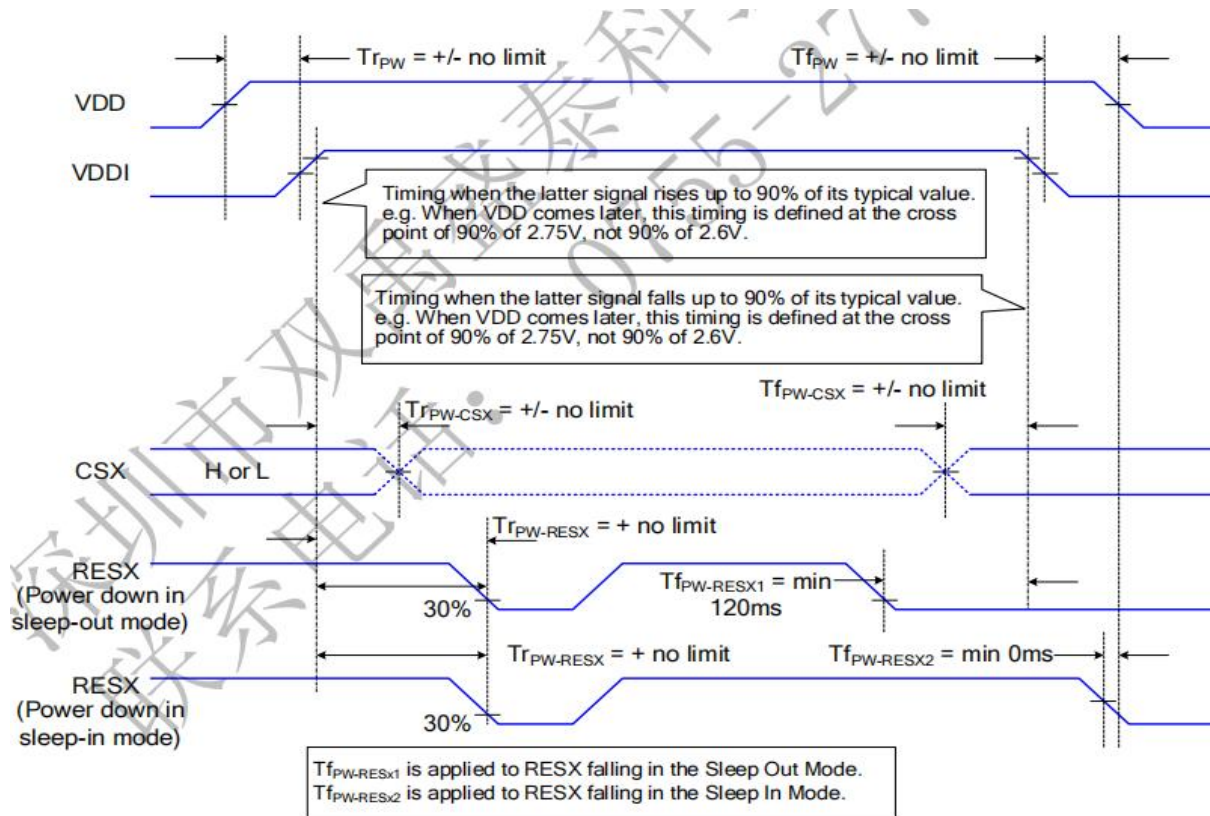
480RGB X 480 Resolution Timing Table						
Item	Symbol	Min.	Typ.	Max.	Unit	Remark
DCLK Frequency	Fclk	17	20	27	MHz	
HSYNC	Display Period	Thdisp	480		DCLK	
	Back Porch	Thbp	4	60	255	DCLK
	Front Porch	Thfp	4	60	255	DCLK
	Pulse Width	Thw	2	20	8	DCLK
VSYNC	Display Period	Tvdisp	480		HSYNC	
	Back Porch	Tvbp	8	20	254	HSYNC
	Front Porch	Tvfp	8	20	254	HSYNC
	Pulse Width	Tvw	2	4	8	HSYNC

Note: 1. The minimum blanking time depends on the GIP timing of the panel specification

2. To ensure the compatibility of different panels, it is recommended to use the typical setting.

5.4 Power ON/OFF Sequence

The power on/off sequence is illustrated below



Reset Timing

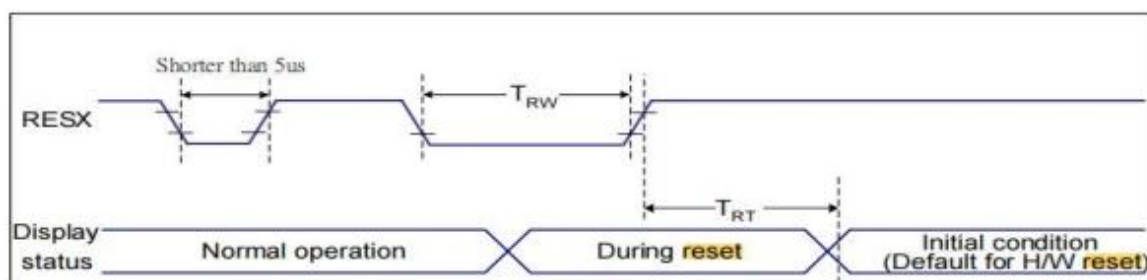


Figure 9 Reset Timing

VDDI=1.8, VDD=2.8, AGND=DGND=0V, Ta=25 °C

Related Pins	Symbol	Parameter	MIN	MAX	Unit
RESX	TRW	Reset pulse duration	10	-	us
	TRT	Reset cancel	-	5 (Note 1, 5)	ms
				120 (Note 1, 6, 7)	ms

6. OPTICAL CHARACTERISTICS

Item	Symbol	Condition	Min.	TYP.	Max.	Unit	Remark
View Angles	θT	$CR \geq 10$	80	85	-	Degree	Note 2
	θB		80	85	-		
	θL		80	85	-		
	θR		80	85	-		
Contrast Ratio	CR	$\theta=0^\circ$	800	1000	-		Note1 Note3
Response Time	T_{ON}	25℃				ms	Note1 Note4
	T_{OFF}			130	35		
Chromaticity	White	x	-	-	-		Note1 Note5
		y	-	-	-		
Uniformity	U		85	90	-	%	Note1 Note6
NTSC			65	70	-	%	Note 5
Luminance	L		-	350	-	CD/m ²	Note1 Note7

Test Conditions:

1. $I_F = 80 \text{ Ma}$, $V_F = 3.2 \text{ V}$ and the ambient temperature is $25 \pm 2^\circ\text{C}$. humidity is $65 \pm 7\%$

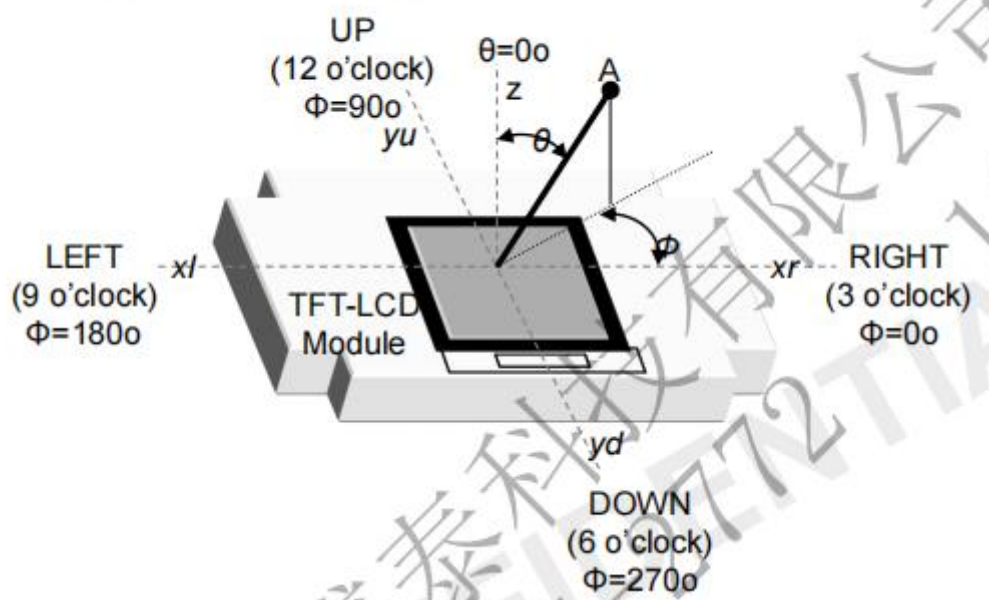
2. The test systems refer to Note 1 and Note 2.

Test Conditions:

$V_{DD} = 3.3\text{V}$, $I_F = 20\text{mA}$ (Backlight current), the ambient temperature is $+25^\circ\text{C}$.

Note 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 Figure 8).

<Figure 8. Viewing Angle Range Is Defined As Follows>



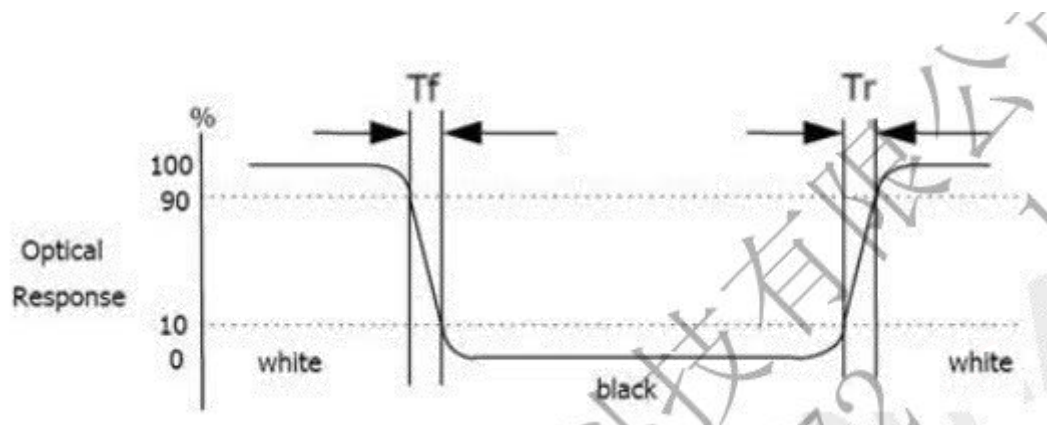
Note 2: Contrast measurements shall be made at viewing angle of $\theta=0^\circ$ and at the center of the LCD surface. Luminance shall be measured with all pixels in the view field set first to white, then to the dark (black) state. Luminance Contrast Ratio (CR) is defined mathematically.

$$CR = \frac{\text{Luminance when displaying a white raster}}{\text{Luminance when displaying a black raster}}$$

Note 3: Transmittance is the Value with Polarizer.

Note 4: The color chromaticity coordinates specified in Table 16 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.

Note 5: The electro-optical response time measurements shall be made as Figure 9 by switching the “data” input signal ON and OFF. The times needed for the luminance to change from 10% to 90% is T_r , and 90% to 10% is T_f .



7.RELIABILITY

Item 项目	Test Condition 测试条件	Remark 备注
High Temperature Storage	Ta =+80°C / 120Hours	Note1
Low Temperature Storage	Ta =-30°C / 120Hours	
High Temperature Operating	Ta =+70°C / 120Hours	
Low Temperature Operating	Ta =-20°C / 120Hours	
Temperature Cycle storage Test	-30-80'C,100cycles, 1hr/cycle.Non-operational	
Thermal humidity storage Test	60°C x 90%RH / 240Hours	Note2
Package Vibration Test	Frequency: 10Hz~55Hz,Amplitude:1.5mm, 1 hrs for each direction of X, Y, Z	
Packing shock test	Drop to the ground from 60cm height, 1 corner, 3 edges, 6 surfaces.	

Inspection after Test :

Note1:The test result shall be evaluated after the sample has been left at room temperature and humidity for 1 hours.

These defects can't be accepted:1.Air bubble 2.Seal leak 3.Non-display 4.Missing segments 5.Glass crack. 6. The reliability test result is based on XXXX, XXXX, XXXX, XXXX IC

Note 2: In the standard condition, there shall be no practical problem that may affect the display function. After the reliability test, the product only guarantees operation, but doesn't guarantee all the cosmetic specification.

8.Specification of Quality Assurance:

8-1. Purpose

This standard for Quality Assurance should affirm the quality of LCD module products to supply to purchaser by VIEWE.

8-2. Standard for Quality Test

a. Inspection:

Before delivering, the supplier should take the following tests, and affirm the quality of product.

b. Electro-Optical Characteristics:

According to the individual specification to test the product.

c. Test of Appearance Characteristics:

According to the individual specification to test the product.

d. Test of Reliability Characteristics:

According to the definition of reliability on the specification for testing products.

e. Delivery Test :

Before delivering, the supplier should take the delivery test.

(i) Test method: According to ISO2859-1. General Inspection Level II take a single time.

(ii) The defects classify of AQL as following :

Major defect: AQL = 0.65

Minor defect: AQL = 2.5

Total defects: AQL = 2.5

8-3. Non- conforming Analysis & Deal With Manners

a. Non- conforming Analysis :

(i) Purchaser should supply the detail data of non- conforming sample and the non- conforming.

(ii) After accepting the detail data from purchaser, the analysis of non- conforming should be finished in two weeks.

(iii) If supplier can not finish analysis on time, must announce purchaser before 3 days.

b. Disposition of non- conforming:

(i) If find any product defect of supplier during assembly time, supplier must change the good product for every defect after recognition.

(ii) Both supplier and customer should analyze the reason and discuss the disposition of non- conforming when the reason of nonconforming is not sure.

8-4. Agreement items

Both sides should discuss together when the following problems happen.

a. There is any problem of standard of quality assurance, and both sides should think that must be modified.

b. There is any argument item which does not record in the standard of quality assurance.

c. Any other special problem.

8-5. Standard of The Product Appearance Test

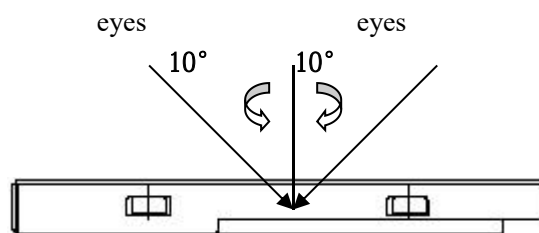
a. Manner of appearance test:

(i) The test must be under $20W \times 2$ or $40W$ fluorescent light, and the distance of view must be at $30 \pm 5cm$.

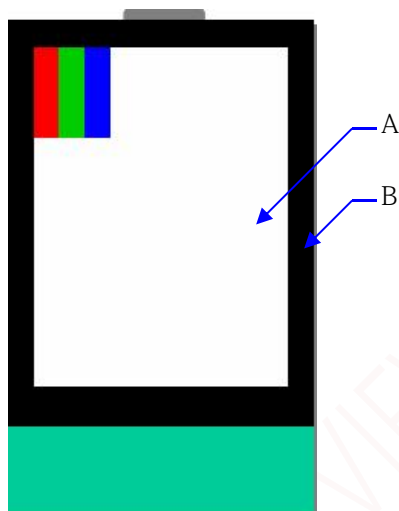
(ii) When test the model of transmissive product must add the reflective plate.

(iii) The test direction is base on around 10° of vertical line.

(iii) Temperature: $25 \pm 5^\circ C$ Humidity: $60 \pm 10\% RH$



(iv) Definition of area :



A. Area: Viewing area.

B. Area: Out of viewing area.

(Outside viewing area)

b. Basic principle::

(i) It will accord to the AQL when the standard can not be described.

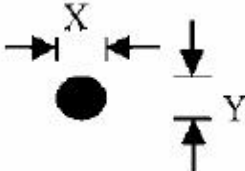
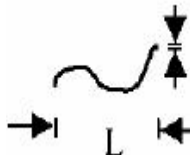
(ii) The sample of the lowest acceptable quality level must be discussed by both supplier and customer when any dispute happened.

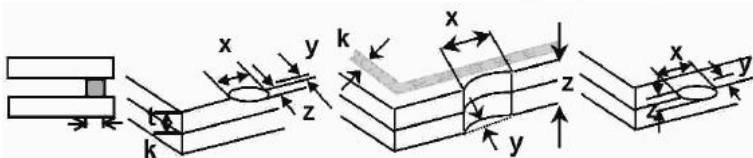
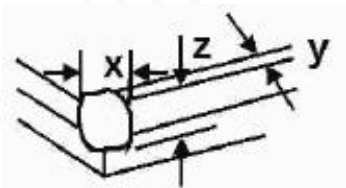
(iii) Must add new item on time when it is necessary.

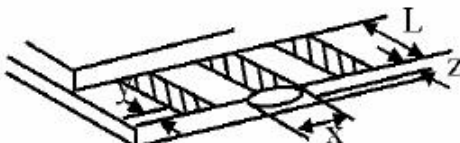
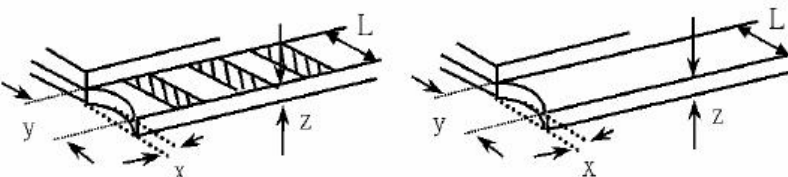
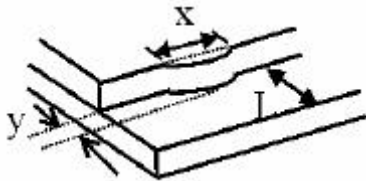
c. Standard of inspection : (Unit: mm)

8-6. Inspection specification

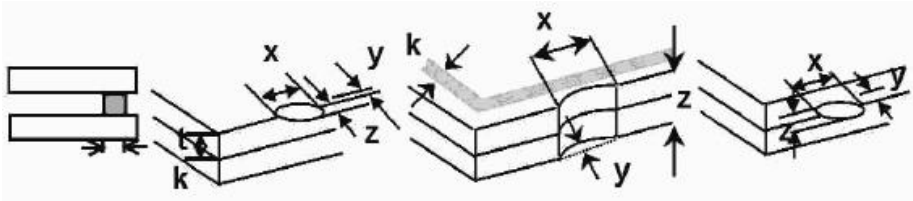
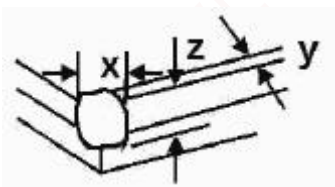
Defect out of viewing area can be neglected

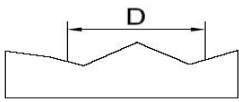
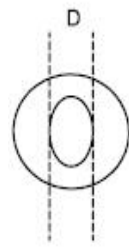
NO	Item	Criterion	AQL																										
01	Electrical Testing	1.1 Missing vertical, horizontal segment, segment contrast defect. 1.2 Missing character, dot or icon. 1.3 Display malfunction. 1.4 No function or no display. 1.5 Current consumption exceeds product specifications. 1.6 LCD viewing angle defect. 1.7 Mixed product types. 1.8 Flicker	0.65																										
02	Black or White spots or Bright spots or Color spots on LCD (Display only)	2.1 White and black or color spots on display $\leq 0.25\text{mm}$, no more than Five spots. 2.2 Densely spaced: No more than three spots within 3mm.	2.5																										
03	LCD and Touch Panel black spots, white spots, contamination (non – display)	3.1 Round type: As following drawing $\Phi = (X+Y) / 2$  <table border="1"> <thead> <tr> <th>Size(mm)</th> <th>Acceptable Q'ty</th> </tr> </thead> <tbody> <tr> <td>$\Phi \leq 0.10$</td> <td>Accept no dense</td> </tr> <tr> <td>$0.10 < \Phi \leq 0.20$</td> <td>3</td> </tr> <tr> <td>$0.20 < \Phi \leq 0.25$</td> <td>2</td> </tr> <tr> <td>$0.25 < \Phi \leq 0.30$</td> <td>1</td> </tr> <tr> <td>$0.30 < \Phi$</td> <td>0</td> </tr> </tbody> </table> * Densely spaced: No more than two spots within 3mm. 3.2 Line type: (As following drawing)  <table border="1"> <thead> <tr> <th>Length(mm)</th> <th>Width(mm)</th> <th>Acceptable Q'ty</th> </tr> </thead> <tbody> <tr> <td>---</td> <td>$W \leq 0.02$</td> <td>Accept no dense</td> </tr> <tr> <td>$L \leq 3.0$</td> <td>$0.02 < W \leq 0.05$</td> <td rowspan="2">2</td> </tr> <tr> <td>$L \leq 2.5$</td> <td>$0.03 < W \leq 0.15$</td> </tr> <tr> <td>---</td> <td>$0.15 < W$</td> <td>Rejection</td> </tr> </tbody> </table> * Densely spaced: No more than two lines within 3mm.	Size(mm)	Acceptable Q'ty	$\Phi \leq 0.10$	Accept no dense	$0.10 < \Phi \leq 0.20$	3	$0.20 < \Phi \leq 0.25$	2	$0.25 < \Phi \leq 0.30$	1	$0.30 < \Phi$	0	Length(mm)	Width(mm)	Acceptable Q'ty	---	$W \leq 0.02$	Accept no dense	$L \leq 3.0$	$0.02 < W \leq 0.05$	2	$L \leq 2.5$	$0.03 < W \leq 0.15$	---	$0.15 < W$	Rejection	2.5
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---	$0.15 < W$	Rejection																											

NO	Item	Criterion		AQL																		
04	Polarizer bubbles	If bubbles are visible, judge using black spot specifications, not easy to find, must check in specify direction	<table><tr><th>Size Φ(mm)</th><th>Acceptable Q'ty</th></tr><tr><td>$\Phi \leq 0.20$</td><td>Accept no dense</td></tr><tr><td>$0.20 < \Phi \leq 0.50$</td><td>3</td></tr><tr><td>$0.50 < \Phi \leq 1.00$</td><td>2</td></tr><tr><td>$1.00 < \Phi$</td><td>0</td></tr><tr><td>Total Q'ty</td><td>3</td></tr></table>	Size Φ (mm)	Acceptable Q'ty	$\Phi \leq 0.20$	Accept no dense	$0.20 < \Phi \leq 0.50$	3	$0.50 < \Phi \leq 1.00$	2	$1.00 < \Phi$	0	Total Q'ty	3	2.5						
Size Φ (mm)	Acceptable Q'ty																					
$\Phi \leq 0.20$	Accept no dense																					
$0.20 < \Phi \leq 0.50$	3																					
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$1.00 < \Phi$	0																					
Total Q'ty	3																					
05	Scratches	Follow NO.3 -2 Line Type.																				
06	Chipped glass	Symbols: x: Chip length y: Chip width z: Chip thickness k: Seal width t: Glass thickness a: LCD side length L: Electrode pad length 6.1 General glass chip: 6.1.1 Chip on panel surface and crack between panels :  <table><tr><td>z: Chip thickness</td><td>y: Chip width</td><td>x: Chip length</td></tr><tr><td>$Z \leq 1/2t$</td><td>Not over viewing are</td><td>$x \leq 1/8a$</td></tr><tr><td>$1/2t < z \leq 2t$</td><td>Not exceed 1/3k</td><td>$x \leq 1/8a$</td></tr></table> ⊙ Unit: mm ⊙ If there are 2 or more chips, x is the total length of each chip 6.1.2 Corner crack :  <table><tr><td>z: Chip thickness</td><td>y: Chip width</td><td>x: Chip length</td></tr><tr><td>$Z \leq 1/2t$</td><td>Not over viewing area</td><td>$x \leq 1/8a$</td></tr><tr><td>$1/2t < z \leq 2t$</td><td>Not exceed 1/3k</td><td>$x \leq 1/8a$</td></tr></table> ⊙ Unit: mm ⊙ If there are 2 or more chips, x is the total length of each chip		z: Chip thickness	y: Chip width	x: Chip length	$Z \leq 1/2t$	Not over viewing are	$x \leq 1/8a$	$1/2t < z \leq 2t$	Not exceed 1/3k	$x \leq 1/8a$	z: Chip thickness	y: Chip width	x: Chip length	$Z \leq 1/2t$	Not over viewing area	$x \leq 1/8a$	$1/2t < z \leq 2t$	Not exceed 1/3k	$x \leq 1/8a$	2.5
z: Chip thickness	y: Chip width	x: Chip length																				
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$1/2t < z \leq 2t$	Not exceed 1/3k	$x \leq 1/8a$																				

NO	Item	Criterion	AQL																
07	Glass crack	Symbols: x: Chip length y: Chip width z: Chip thickness k: Seal width t: Glass thickness a: LCD side length L: Electrode pad length 7.2 Protrusion over terminal : 7.2.1 Chip on electrode pad :  <table><tr><td>y: Chip width</td><td>x: Chip length</td><td>z: Chip thickness</td></tr><tr><td>$y \leq 0.5\text{mm}$</td><td>$x \leq 1/8a$</td><td>$0 < z \leq t$</td></tr></table> 7.2.2 Non-conductive portion :  <table><tr><td>y: Chip width</td><td>x: Chip length</td><td>z: Chip thickness</td></tr><tr><td>$y \leq L$</td><td>$x \leq 1/8a$</td><td>$0 < z \leq t$</td></tr></table> ⊙ If there chipped area touches the ITO terminal, over 2/3 of the ITO must remain and be inspected according to electrode terminal specifications. ⊙ If the product will be heat sealed by the customer, the alignment mark must not be damaged. 7.2.3 Substrate protuberance and internal crack  <table><tr><td>y: width</td><td>x: length</td></tr><tr><td>$y \leq 1/3L$</td><td>$X \leq a$</td></tr></table>	y: Chip width	x: Chip length	z: Chip thickness	$y \leq 0.5\text{mm}$	$x \leq 1/8a$	$0 < z \leq t$	y: Chip width	x: Chip length	z: Chip thickness	$y \leq L$	$x \leq 1/8a$	$0 < z \leq t$	y: width	x: length	$y \leq 1/3L$	$X \leq a$	2.5
		y: Chip width	x: Chip length	z: Chip thickness															
		$y \leq 0.5\text{mm}$	$x \leq 1/8a$	$0 < z \leq t$															
y: Chip width	x: Chip length	z: Chip thickness																	
$y \leq L$	$x \leq 1/8a$	$0 < z \leq t$																	
y: width	x: length																		
$y \leq 1/3L$	$X \leq a$																		

NO	Item	Criterion	AQL
08	Cracked glass	The LCD with extensive crack is not acceptable.	2.5
09	Backlight elements	9.1 Illumination source flickers when lit. 9.2 Spots or scratches that appear when lit must be judged. Using LCD spot, lines and contamination standards. 9.3 Backlight doesn't light or color is wrong.	2.5 2.5 0.65
10	Bezel	Bezel must comply with product specifications.	2.5
11	PCB、COB	11.1 COB seal may not have pinholes larger than 0.2mm or contamination. 11.2 COB seal surface may not have pinholes through to the IC. 11.3 The height of the COB should not exceed the height indicated in the assembly diagram. 11.4 There may not be more than 2mm of sealant outside the seal area on PCB. And there should be no more than three places. 11.5 Parts on PCB must be the same as on the production characteristic chart, There should be no wrong parts, missing parts or excess parts. 11.6 The jumper on the PCB should conform to the product characteristic chart.	2.5 2.5 2.5 2.5 0.65 0.65
12	FPC	12.1 FPC terminal damage $\leq$ 1/2 FPC terminal width and can not affect the function, we judge accept. 12.2 FPC alignment hole damage $\leq$ 1/2 alignment area and can not affect the function, we judge accept.	2.5 2.5
13	Soldering	13.1 No cold solder joints, missing solder connections, oxidation or icicle. 13.2 No short circuits in components on PCB or FPC.	2.5 0.65

NO	Item	Criterion	AQL												
14	Touch Panel Chipped glass	Symbols : x: Chip length y: Chip width z: Chip thickness k: Seal width t: Glass thickness a: LCD side length L: Electrode pad length 14.1 General glass chip : 14.1.1 Chip on panel surface and crack between panels:  <table> <tr> <td>z: Chip thickness</td> <td>y: Chip width</td> <td>x: Chip length</td> </tr> <tr> <td>$Z \leq t$</td> <td>$\leq 1/2 k$ and not over viewing area</td> <td>$x \leq 1/8a$</td> </tr> </table> ⊙ Unit: mm ⊙ If there are 2 or more chips, x is the total length of each chip 14.1.2 Corner crack:  <table> <tr> <td>z: Chip thickness</td> <td>y: Chip width</td> <td>x: Chip length</td> </tr> <tr> <td>$z \leq t$</td> <td>$\leq 1/2 k$ and not over viewing area</td> <td>$x \leq 1/8a$</td> </tr> </table> ⊙ Unit: mm ⊙ If there are 2 or more chips, x is the total length of each chip	z: Chip thickness	y: Chip width	x: Chip length	$Z \leq t$	$\leq 1/2 k$ and not over viewing area	$x \leq 1/8a$	z: Chip thickness	y: Chip width	x: Chip length	$z \leq t$	$\leq 1/2 k$ and not over viewing area	$x \leq 1/8a$	2.5
z: Chip thickness	y: Chip width	x: Chip length													
$Z \leq t$	$\leq 1/2 k$ and not over viewing area	$x \leq 1/8a$													
z: Chip thickness	y: Chip width	x: Chip length													
$z \leq t$	$\leq 1/2 k$ and not over viewing area	$x \leq 1/8a$													

NO	Item	Criterion	AQL										
15	Touch Panel(Fish eye、dent and bubble on film)	<table> <tr> <th>SIZE(mm)</th> <th>Acceptable Q'ty</th> </tr> <tr> <td>$\Phi \leq 0.2$</td> <td>Accept no dese</td> </tr> <tr> <td>$0.2 < D \leq 0.4$</td> <td>5</td> </tr> <tr> <td>$0.4 < D \leq 0.5$</td> <td>2</td> </tr> <tr> <td>$0.5 < D$</td> <td>0</td> </tr> </table>  	SIZE(mm)	Acceptable Q'ty	$\Phi \leq 0.2$	Accept no dese	$0.2 < D \leq 0.4$	5	$0.4 < D \leq 0.5$	2	$0.5 < D$	0	2.5
SIZE(mm)	Acceptable Q'ty												
$\Phi \leq 0.2$	Accept no dese												
$0.2 < D \leq 0.4$	5												
$0.4 < D \leq 0.5$	2												
$0.5 < D$	0												
16	Touch Panel Newton ring	Newton ring dimension $\leq 1/2$ touch panel area and not affect font and line distortion ($\leq 2.5\%$), it is acceptable.	2.5										
17	Touch Panel Linearity	Less than 2.5% is acceptable.	2.5										
18	LCD Ripple	Touch the touch panel, can not see the LCD ripple. Pen: R 1.0mm silicon rubber. Operation Force: 80g	2.5										
19	General appearance	19.1 Pin type must match type in specification sheet. 19.2 LCD pin loose or missing pins. 19.3 Product packaging must the same as specified on packaging specification sheet. 19.4 Product dimension and structure must conform to product specification sheet.	0.65 0.65 0.65 0.65										

9. Handling Precaution :

9-1 Handling of LCM

- Don't give external shock.
- Don't apply excessive force on the surface.
- Liquid in LCD is hazardous substance. Must not lick and swallow. when the liquid is attach to your hand, skin, cloth etc. Wash it out thoroughly and immediately.
- Don't operate it above the absolute maximum rating.
- Don't disassemble the LCM.
- The operators should be grounded whenever he/she comes into contact with the module. Never touch any of the conductive parts such as the LSI pads, the copper leads on the PCB and the interface terminals with any parts of the human body.
- The modules should be kept in antistatic bags or other containers resistant to static for storage.
- The 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.

9-2 Storage

- Store in an ambient temperature of $25\pm 10^{\circ}\text{C}$, and in a relative humidity of $50\pm 10\%\text{RH}$. Don't expose to sunlight or fluorescent light.
- Storage in a clean environment, free from dust, active gas, and solvent.
- Store in anti-static electricity container.
- Store without any physical load.

9-3 Soldering

- Use only soldering irons with proper grounding and no leakage.
- Iron: No higher than $280\pm 10^{\circ}\text{C}$ and less than 3 sec during Hand soldering.
- Rewiring: no more than 2 times.

10.PACKAGE DRAWING



第一步

将产品放入吸塑盘中，
LCD AA 面朝上，注意
防呆方向

第二步

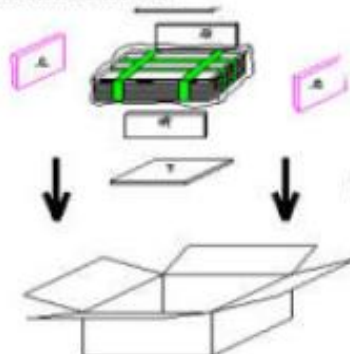
每一层吸塑盘与相邻
层，叠放时相错 180
度，最上层不放产品，
总叠加层数参考

第三步

检查无误后用胶带固
定吸塑盘，将捆好的吸
塑盘放入无尘带中并
封口；

First step

Putting products into the
tray,
LCD A.A faces Upward,
(pay attention to the



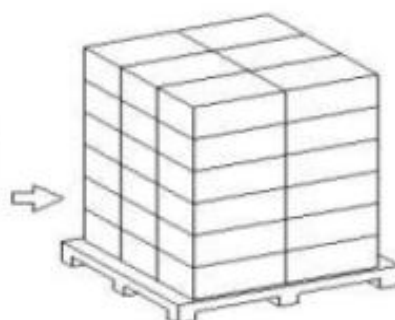
Second step

Neighbouring trays should be
staggered 180° while stacking
up.
on the top, there is an empty
tray without product



Third step

Taping up the tray
after inspection, and
put them into a PE



第四步

外箱内侧底部和四周
放上泡棉将包好的产品
装入纸箱，合盖；

第五步

最后胶带封箱，贴外箱
标签

第六步

将每箱整齐放在栈板
上并包裹最高可堆叠 6
层)

Fourth step

Putting EPE foams and
products with trays into
the carton;
Close the carton box

fifth step

Sealing the carton with
cellulose tape ;
Stick on a carton label,

sixth step

Placing the boxes together
on a pallet (6 layers at
most),