Dalian Good Display Co.,Ltd.

LCD Module User Manual

GTM040HS-54D-HY0-A0

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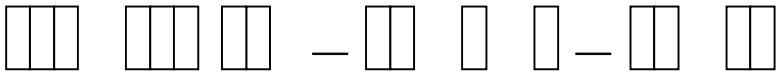
Revision History

Version	Contents	Date	Note
A	Original	2011.08.27	

Contents

1 Numbering System



No	Definition	Specifications
(1)	TFT LCM Productor No.	
(2)	Display monitor opposite angle line size	Unit :inch or mmm (size <10 inch: takes two integers ; size >=10 inch: takes three integers)
(3)	LCD Type	AU----AUO ; CP----CPT ; PV----PVI ; TM----TIANMA ; HS----HSD ; LG----LG ; Wi----Wintek ; CM----CMO ; HY----Hydis ; HI----Hitach; Sh----Sharp。。。
(4)	Interface PIN Number	By two figures characters expression from 01 to 99
(5)	Type	A---- Alternated Video Signal; D---- Data Video Signal;
(6)	LED Back Light Type	H----high light ; M---- Commonly light; L---- low light
(7)	LED Back Light colored warp	Rx----red ; Gx----green ; Bx---- blueness; Yx---- white; P----PVI; x---- warp distinction,1 minimal,9 maximal
(8)	Productor Development edition No.	By The English litters : A 1~ Z9

2 Scope

This specification applies to the TFT LCD module which is designed and manufactured by LCM Factory of Dalian Good Display Co.,Ltd

It is capable of using 262k colors mode 24bit parallel bi-directional interface.

3 Normative Reference

GB/T4619-1996 《 Liquid Crystal Display Test Method》

GB/T2424 《Basic environmental Testing Procedures for Electric and Electronic Products.》

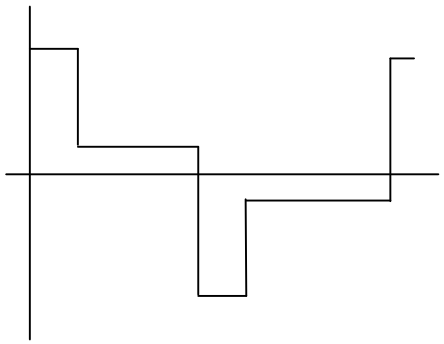
GB/T2423 《Basic Testing Procedures for Electric and Electronic Products》

IEC61747-1 《SIXTH PARTGB2828`2829-87《National Standard of PRC》

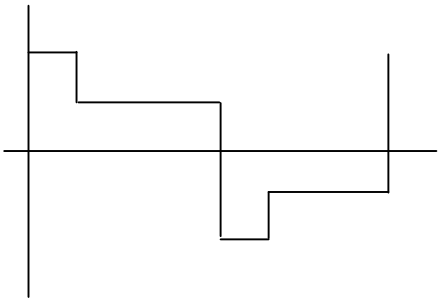
4 Definitions

4.1 Definitions of Vop

The definitions of threshold voltage Vth1, Vth2 the following typical waveforms are applied on liquid crystal by the method of equalized voltage for each duty and bias.



【 selected waveform 】



【 non-selected waveform 】

① Vth1: The voltage which the brightness of segment indicates 50% of saturated value on the conditions of selected waveform

(f_f=80Hz, Φ=10° θ=270° at 25℃)

② Vth2: The voltage which the brightness of segment indicates 50% of saturated value on the conditions of non-selected waveform

(f_f=80Hz, Φ=10° θ=270° at 25℃)

③ Vop: (Vth1(50%)+Vth2(50%))/2 (f_f=80Hz, Φ=10° θ=270° at 25℃)

4.2 Definition of Response Time Tr, Td

①Tr: The time required which the brightness of segment becomes 10% from 100% when waveform is switched to selected one from non-selected one. (f_f=80Hz, Φ=10°θ=270°at 25℃)

②Td: The time required which the brightness of segment becomes 90% from 10% when waveform is switched to selected one from selected one. (f_f=80Hz, Φ=10°θ=270°at 25℃)

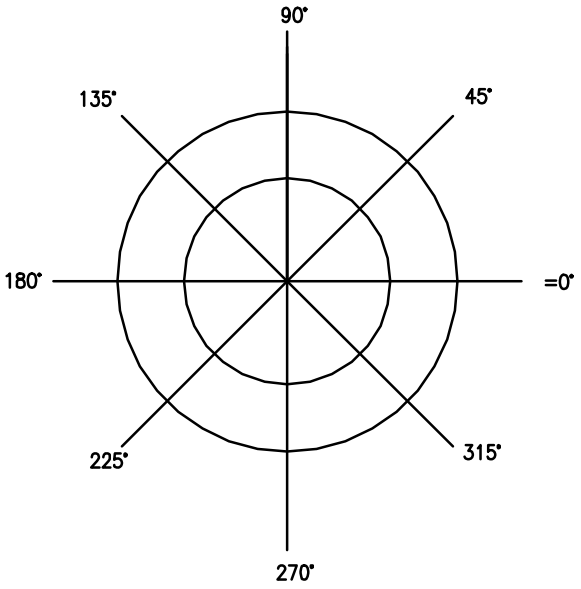
4.3 Definition of Contrast Ratio Cr

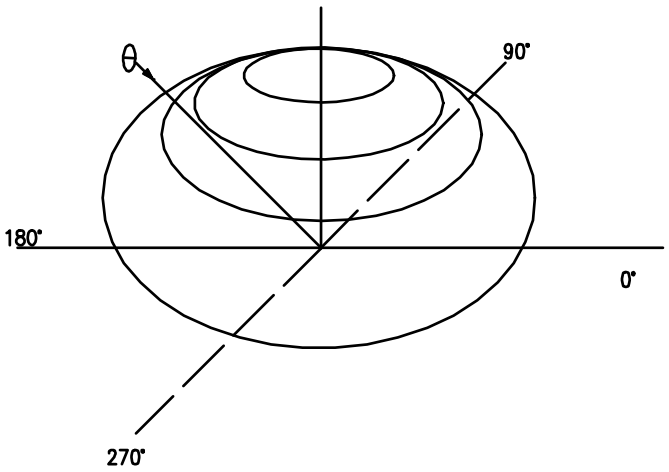
Cr=A/B

① A: Segments brightness in case of non-selected waveform

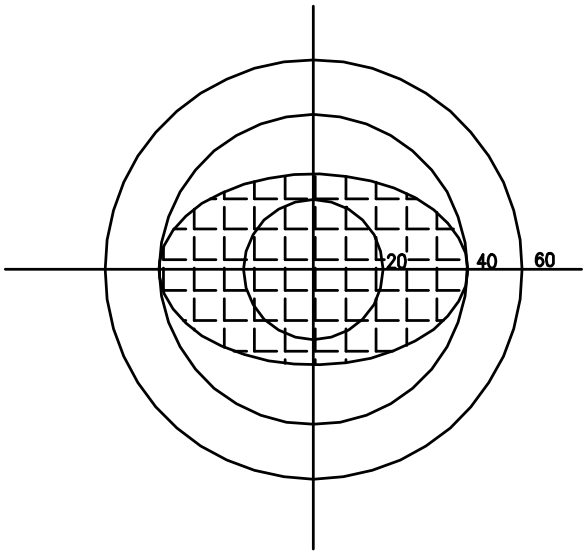
② B: Segments brightness in case of selected waveform

4.4 Definition of Angle and Viewing Range





Angular Graph: Constrast Ratio



Such as:
Viewing Angle Range:
80(Cr>2) Horizontal
70(Cr>2) Vertical

5 Technology Specifications

5.1 Feature

This single-display module is suitable for use in Multidedia Player products. The LCD adopts one backlight with High brightness 6-lamps white LED.

1) Construction: 4″ a-Si color TFT-LCD ,White LED backlight, FPC.
2) LCD:
   2.1 Amorphous-TFT 4-inch display, transmissive, normally white type.
   2.2 320(RGB)×240dots Matrix.
   2.3 Narrow-contact ledge technique.
   2.4 LCD Driver IC: ILI9322DS.
3) Low cross talk by frame rate modulation.
4) 262K Color ,24bit RGB interface.
5) Video signal interface: Parallel RGB .

5.2 Mechanical Specifications

Item	Specifications	Unit
Dimensional outline	96.0(W) ×76.0(H)×3.2(T)	mm
TP outline		mm
TP(V.A)		mm
TP(A.A)		mm
Active area	82.08(W) ×61.56 (H)	mm
Pixel size	0.2565 (H) x 0.2565 (V)	um
Resolution	320(RGB) × 240	pixel

5.3 ABSOLUTE MAXIMUM RATINGS

5.3 Electrical Absolute Rating

5.3.1 TFT LCD Module

Item	Symbol	Min.	Max.	Unit	Note
Power supply voltage	VDD	-0.3	5.0	V	GND=0
Logic Signal Input Level	Vi	-0.3	5.0、	V	

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.
(2) Ta =25±2˚C

5.3.2 Back-Light Unit

Item	Symbol	Min.	Typ.	Max.	Unit	Note
LED current	I_F	-	40	50	mA	
LED voltage	V_F	12	12.6	13.5	V	I_F=40mA

5.4 Environment Absolute Rating

Item	Symbol	Min.	Max.	Unit	Note
Operating Temperature	Topa	-20	70	℃	
Storage Temperature	Tstg	-30	80	℃	

5.4 ELECTRICAL CHARACTERISTICS

5.4.1 DC Electrical Characteristics

Parameters	Symbol	Min.	Typ.	Max.	Unit	Note
Supply voltage	VDD	2.7	3.3	3.6	V	
Input signal voltage	ViH	0.7 VDD	-	VDD	V	Note (1)
	ViL	GND	-	0.3 VDD	V	Note (1)
Current of power supply	IDD	-	5	-	mA	VDD = 2.8V

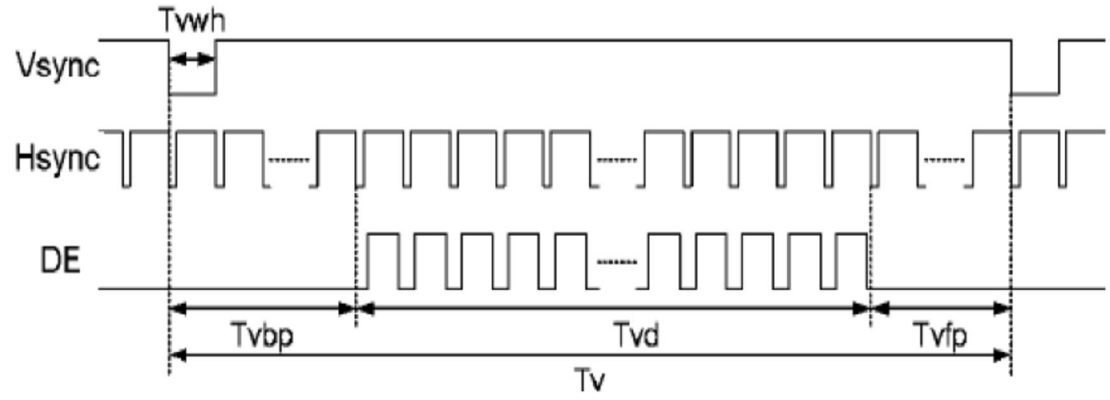
Note (1): HSYNC, VSYNC, DE, R/G/B Data
Note (2): GND = 0V

5.4.2 Data Input Format

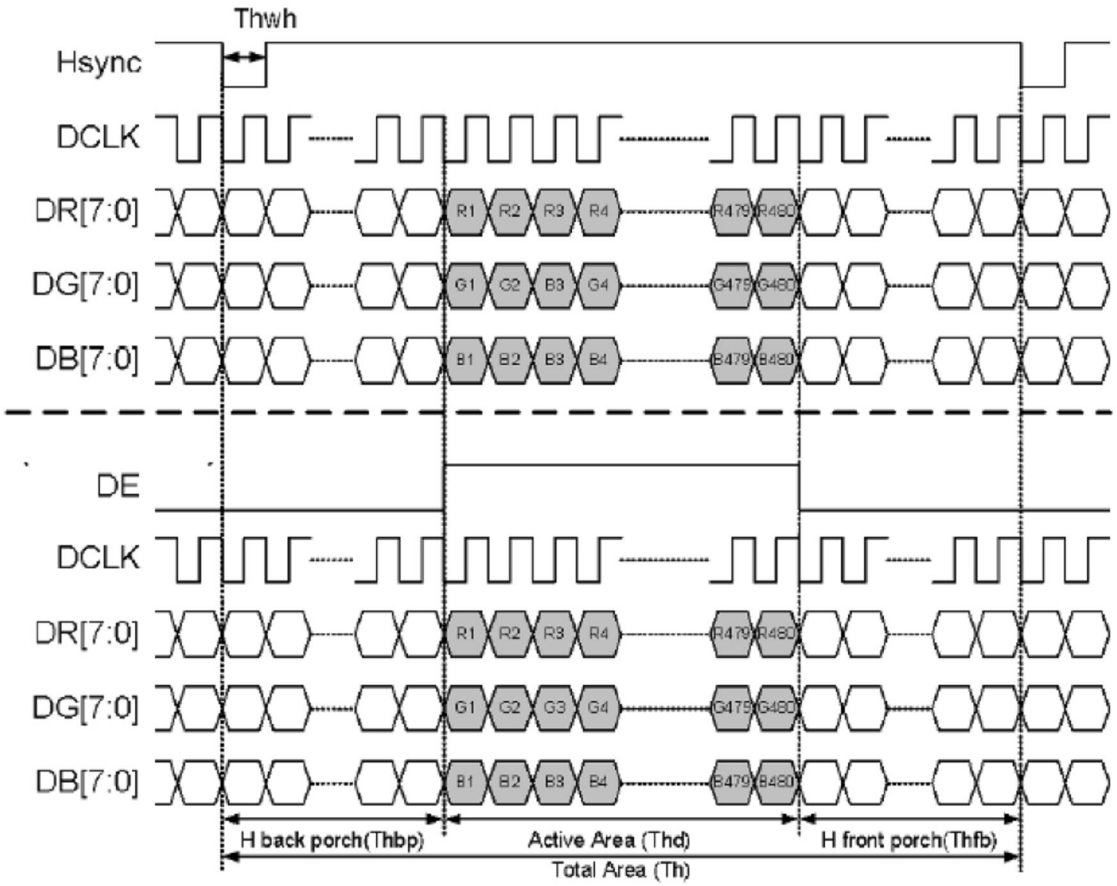
Parallel 24-bit RGB Input Timing Table

Parameters	Symbol	Min.	Typ.	Max.	Unit	Conditions
DCLK frequency	fclk	5	9	12	MHz	
VSYNC period time	Tv	277	288	400	Th	
VSYNC display area	Tvd		272		Th	
VSYNC back porch	Tvbp	3	8	31	Th	
VSYNC front porch	Tvfp	2	8	93	Th	
VSYNC front porch	Th	520	525	800	DCLK	
HSYNC display area	Thd		480		DCLK	
HSYNC back porch	Thbp	36	40	255	DCLK	
HSYNC front porch	Thfp	4	5	65	DCLK	

Vertical Input Timing



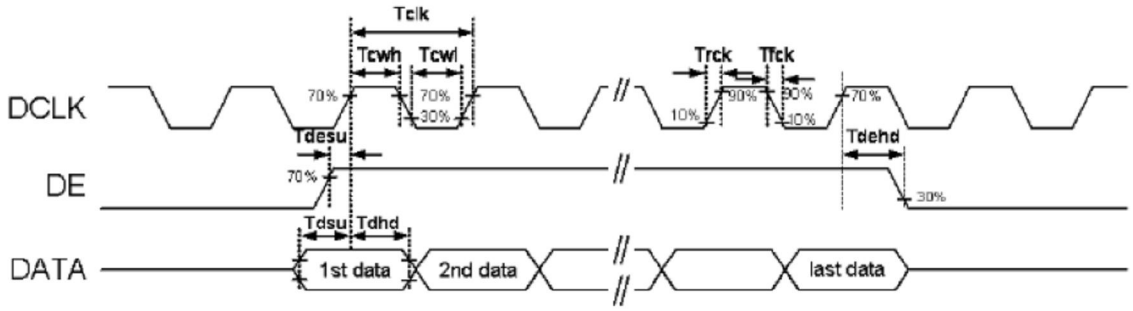
Parallel 24-bit RGB Mode Data Format (DE Mode)

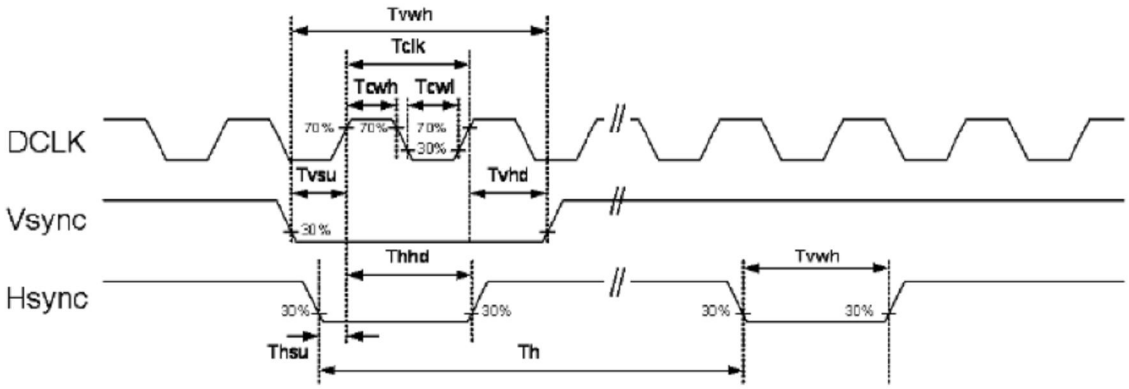


5.4.3 AC Electrical Characteristics

Parameter	Symbo	Min.	Typ.	Max.	Unit	Conditions
DCLK period time	Tclk	83.3	111.1	200	ns	Parallel 24-bit RGB mode
		33.3	37.0	41.7	ns	Serial 8-bit RGB mode
DCLK rising time	Trck	-	-	9	ns	
DCLK falling time	Tfck	-	-	9	ns	
DCLK pulse duty	Tcwh	40	50	60	%	
DE setup time	Tdesu	12	-	-	ns	
DE hold time	Tdehd	12	-	-	ns	
HSYNC pulse width	Thwh	1	-	-	DCLK	
HSYNC setup time	Thsu	12	-	-	ns	
HSYNC hold time	Thhd	12	-	-	ns	
VSYNC pulse width	Tvwh	1	-	-	Th	
VSYNC setup time	Tvsu	12	-	-	ns	
VSYNC hold time	Tvhd	12	-	-	ns	
Data setup time	Tdsu	12	-	-	ns	
Data hold time	Tdhd	12	-	-	ns	

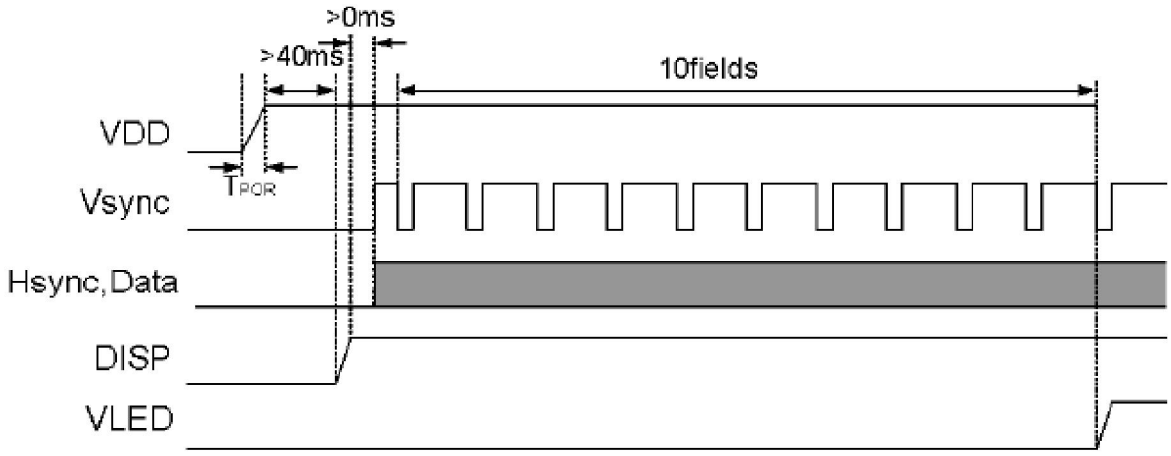
Clock and Data Input Timing Diagram



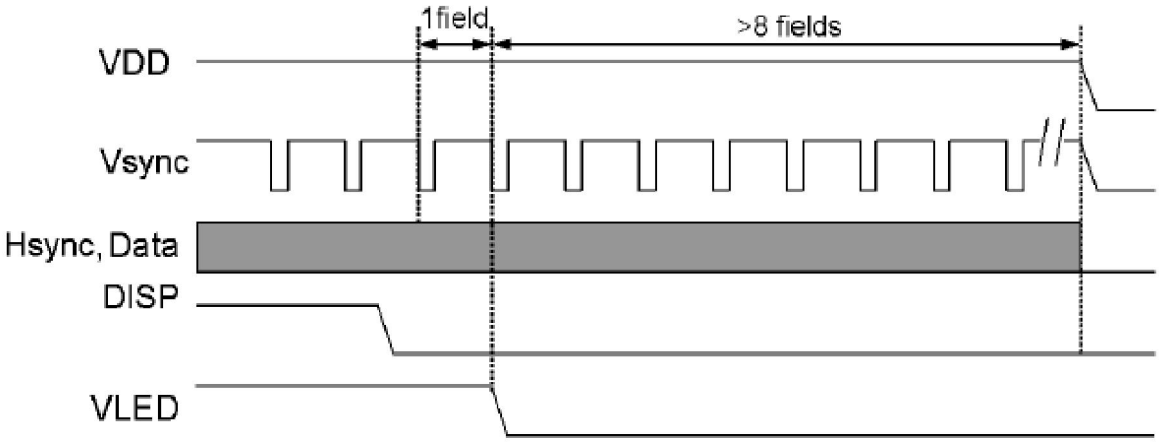


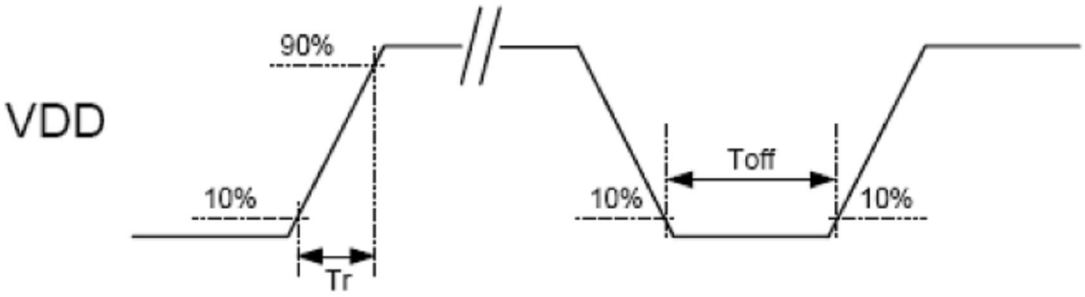
5.4.4 Power On/Off Sequence

Power On Sequence



Power Off Sequence





VDD power input timing

Notes:
Data include R0~R7, G0~G7, B0~B7, HSD, VSD, DCLK, DE
Power on sequence: VDD → DISP → Data → VLED
Power off sequence: DISP → VLED → Data → VDD
VDD power input timing: 0.5ms < Tr < 10ms; Toff > 500ms

5.5. OPTICAL CHARACTERISTICS

5.5.1 Optical specification

Item		Symbol	Condition	Min.	Typ.	Max.	Unit	Note
Threshold voltage		Vsat		-	2.4	-		(6)
		Vth		-	1.4	-		(6)
Transmittance (With PZ)		T		-	TBD	-		
Luminance of white		Lv	IBL=40mA	300	320	-	cd/m2	
Contrast		CR	Θ=0 Normal viewing angle	480	600	-		(1)(2)
Response time	Rising	TR		-	3	6	msec	(1)(3)
	Falling	TF		-	7	14		
Color gamut		S		-	50	-	%	C light
Color chromaticity (CIE1931)	White	Wx		0.260	0.310	0.360		(1)(4) CF GLASS C LIGHT
		Wy		0.280	0.330	0.380		
	Red	Rx		TBD	TBD	TBD		
		Ry		TBD	TBD	TBD		
	Green	Gx		TBD	TBD	TBD		
		Gy		TBD	TBD	TBD		

	Blue	Bx		TBD	TBD	TBD		
		By		TBD	TBD	TBD		
Viewing angle	Hor	Θ_L	CR>10	65	75	-		
		Θ_R		65	75	-		
	Ver.	Θ_U		50	60	-		
		Θ_D		60	70	-		
Optima View Direction		12 O'clock						(5)

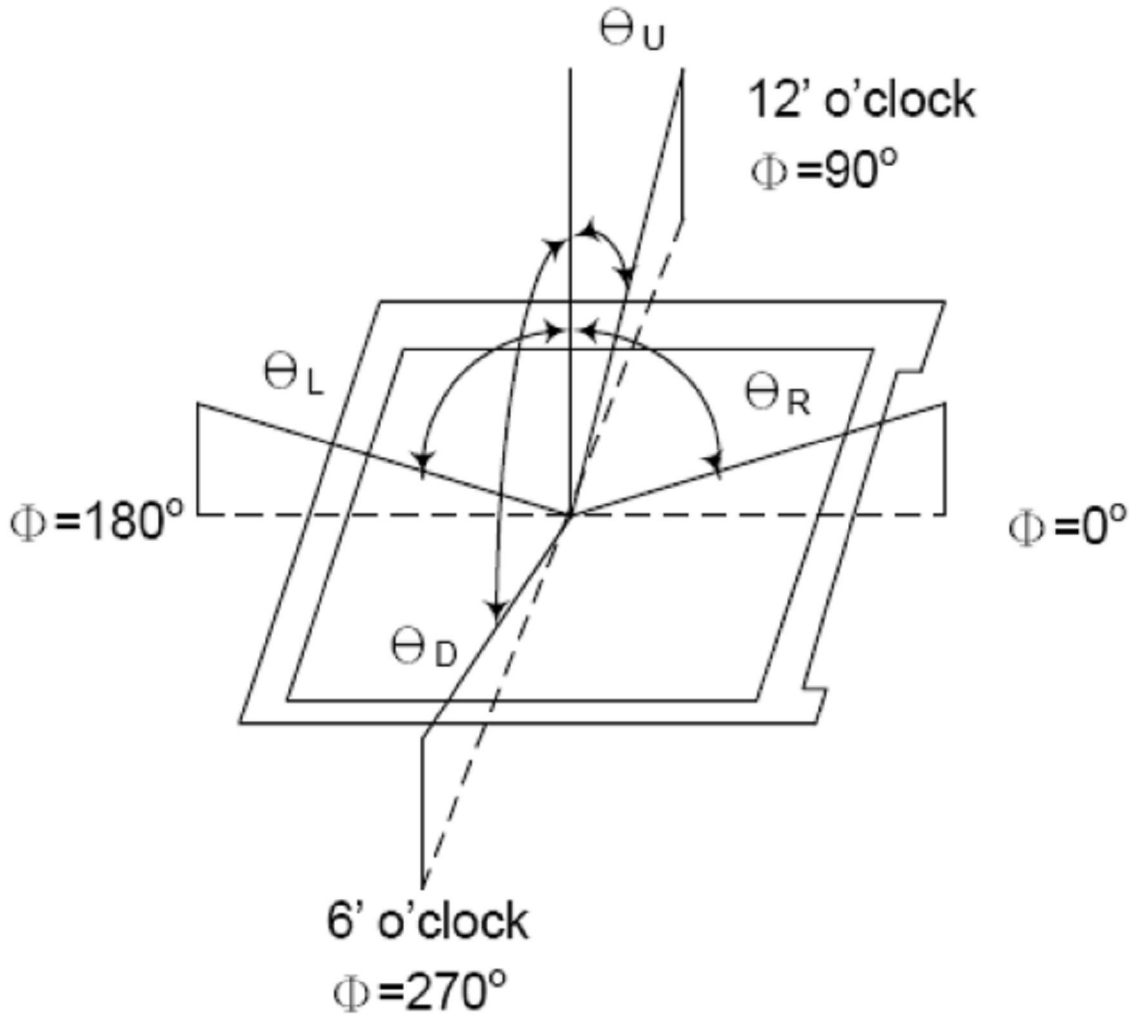
5.5.2 Measuring Condition

- Measuring surrounding: dark room
- LED current I_L: 40mA
- Ambient temperature: 25±2℃
- 15min. warm-up time.

5.5.3 Measuring Equipment

- FPM520 of Westar Display technologies, INC., which utilized SR-3 for Chromaticity and BM-5A for other optical characteristics.
-Measuring spot size: 20 ~ 21 m

Note(1)Definition of Viewing Angle

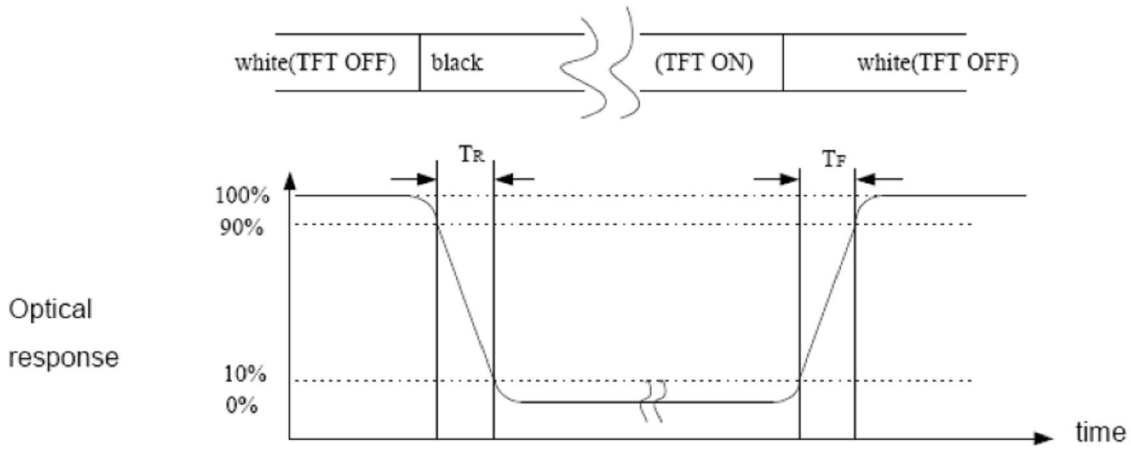


Note(1)Definition of Contrast Ratio(CR)

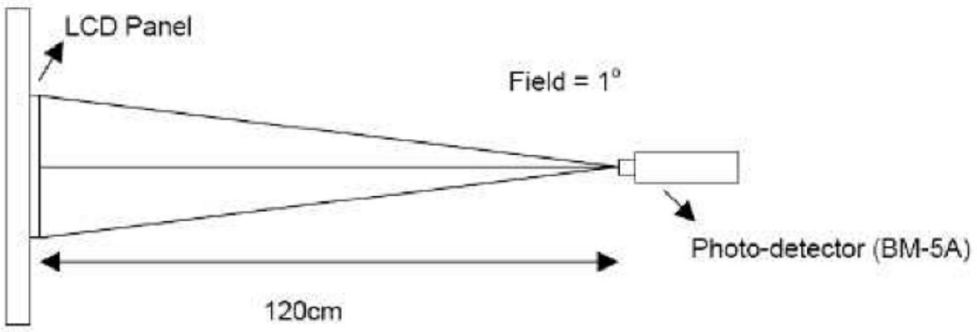
Measured at the center point of panel

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

Note (3) Definition of Response Time: Sum of T_R and T_F

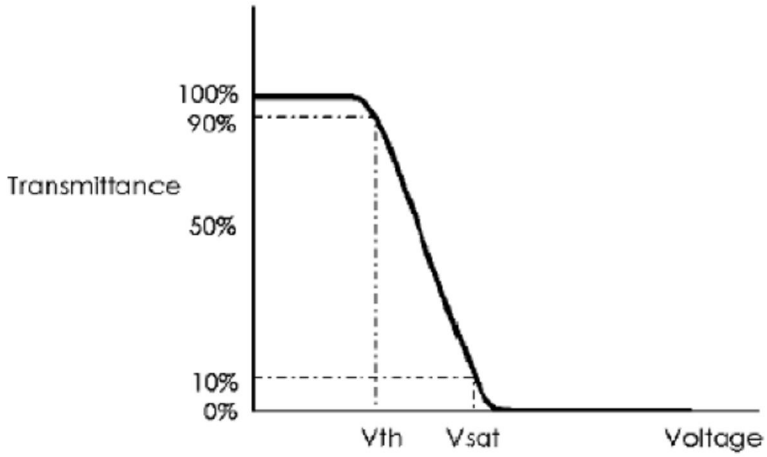


Note (4) Definition of optical measurement setup



Note (5) Rubbing Direction (The different Rubbing Direction will cause the different optimal view direction.

Note (6) Definition of Vsat and Vth (at 20^{0}C)



5.6 Interface Pin Connections

No	Symbol	I/O/P	Description
1	LED_Cathode	p	LED_Cathode
2	LED_Cathode	p	LED_Cathode
3	LED_Anode	p	LED_Anode
4	LED_Anode	p	LED_Anode
5	NC	-	No Connect
6	NC	-	No Connect
7	NC	-	No Connect
8	RESET	I	RESET
9	SPENA	I	Serial port data enable signal
10	SPCK	I	SPI Serial Clock
11	SPDA	I/O	SPI Serial Data Input/output
12	B0	I	Red data
13	B1	I	Red data
14	B2	I	Red data
15	B3	I	Red data
16	B4	I	Red data
17	B5	I	Red data
18	B6	I	Red data
19	B7	I	Red data
20	G0	I	Green data
21	G1	I	Green data
22	G2	I	Green data
23	G3	I	Green data
24	G4	I	Green data
25	G5	I	Green data
26	G6	I	Green data
27	G7	I	Green data
28	R0	I	Blue data
29	R1	I	Blue data

30	R2	I	Blue data
31	R3	I	Blue data
32	R4	I	Blue data
33	R5	I	Blue data
34	R6	I	Blue data
35	R7	I	Blue data
36	HSYNC	I	Horizontal Synchronous Signal
37	VSYNC	I	Vertical Synchronous Signal
38	CLK	I	Data Clock
39	NC	-	No Connect
40	NC	-	No Connect
41	VDD	P	power supply（3.3V）
42	VDD	P	power supply（3.3V）
43	NC	-	No Connect
44	NC	-	No Connect
45	NC	-	No Connect
46	NC	-	No Connect
47	NC	-	No Connect
48	NC/XR	-	No Connect
49	NC/YD	-	No Connect
50	NC/XL	-	No Connect
51	NC/YU	-	No Connect
52	DEN	I	Data enabling signal
53	GND	P	Ground
54	GND	P	Ground

I/O: I: input, O: output, P: power

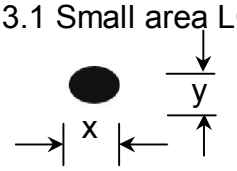
6 Reliability Test Conditions And Methods

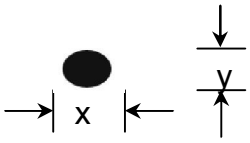
NO	Item	Condition	Method
1	High / Low Temperature Storage	80℃/-30℃ 120hrs	Check and record every 48Hrs
2	High / Low Temperature Life	70℃/-20℃ 120hrs (operating mode)	Check and record every 48Hrs
3	High Temperature、High Humidity Operating	60℃,90% RH, 96Hrs	Check and record every 48hrs

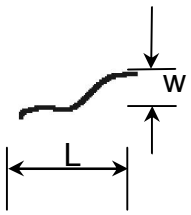
4	Thermal Shock	-30℃(30Min) ⟶ 25℃(5Min) ⟶ 80℃(30Min) (conversion time, : 5 sec) 20 cycles	Each 10 cycles end , check
5	Vibration	10Hz~55Hz~10Hz Amplitude: 1.5mm 2hrs for each direction(X,Y,Z)	Each direction end, Check the Appearance and Electrical Characteristics
6	Static Electricity	Gap mood: ±1KV~±8KV (10 times air discharge with positive/negative voltage voltage gap : 1kv) Touch mood: ±1KV~±4KV	Each discharge end, Check the Electrical Characteristics
7	Curve	60 Thousand times, 40 times/min 150°（according to die if exist)	Check and record every 2~4 thousand times
8	Slump	Free faller movement for each side、cording、angle (75cm High、6 sides、2 angle、2 cording)	End

7. Inspection standard

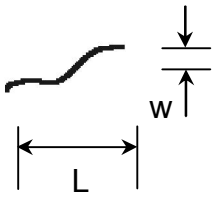
No	Item	Criterion	
01	Outline Dimension	In accord with drawing	
02	Position-finding Dimension Assemble Dimension	In accord with drawing	

<table>
<tr><td rowspan="2">03</td><td rowspan="2">LCD black spots, white spots (Round type)</td><td>Round type: non display
3.1 Small area LCD
 

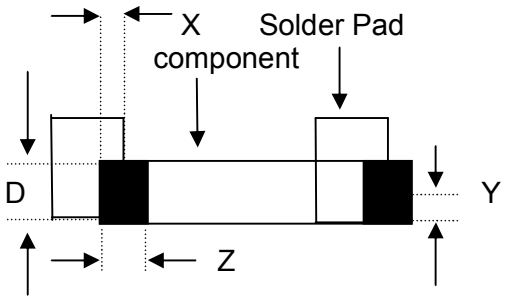
Unit : mm
<table><tr><th>Dimension</th><th>Qualified Quantity</th></tr><tr><td>D≤0.1</td><td>Ignore</td></tr><tr><td>0.1＜D≤0.15</td><td>2</td></tr><tr><td>D＞0.15</td><td>0</td></tr></table></td><td></td></tr>
<tr><td>3.2Large area LCD
 

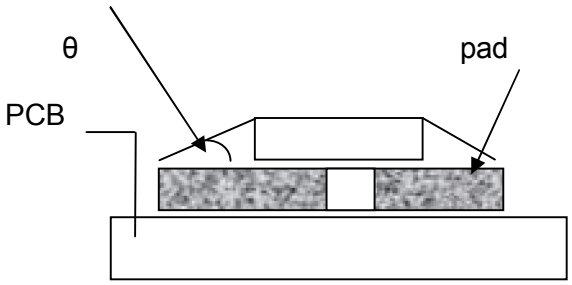
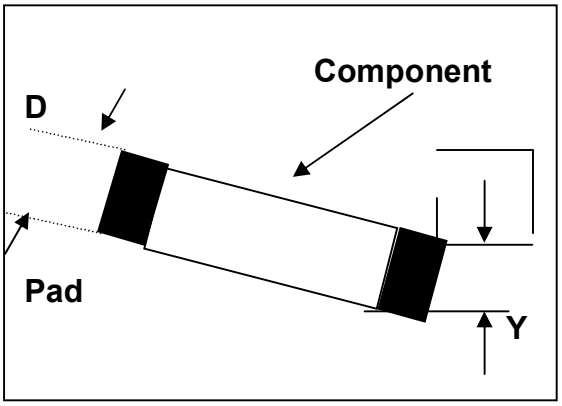
<table><tr><th>Dimension</th><th>Qualified Quantity</th></tr><tr><td>D≤0.1</td><td>Ignore</td></tr><tr><td>0.1＜D≤0.15</td><td>2</td></tr><tr><td>0.15＜D≤0.20</td><td>1</td></tr><tr><td>D＞0.20</td><td>0</td></tr></table>C-STN : if D＞0.1 , unqualified</td><td></td></tr>
<tr><td>04</td><td>LCD black spots, white spots (Line Style)</td><td>4.1 Small area LCD
Unit : mm
 

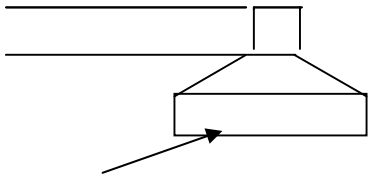
<table><tr><th>Length</th><th>Width</th><th>Qualified Quantity</th></tr><tr><td>-</td><td>≤0.015</td><td>Ignore</td></tr><tr><td>≤1.0</td><td rowspan="2">0.015＜W≤ 0.025</td><td>2</td></tr><tr><td>≤2.0</td><td>1</td></tr><tr><td>≤1.0</td><td>0.025＜W≤ 0.05</td><td>1</td></tr><tr><td>-</td><td>D＞0.05</td><td>According to circle</td></tr></table></td><td></td></tr>
</table>

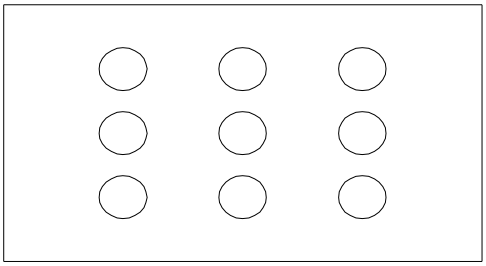
<table>
<tr><td></td><td></td><td colspan="2">4.2Large area LCD
 

<table><tr><th>Length</th><th>Width</th><th>Qualified Quantity</th></tr><tr><td>-</td><td>≤0.015</td><td>Ignore</td></tr><tr><td>≤2.0</td><td>0.015＜W≤ 0.025</td><td>2</td></tr><tr><td>≤1.0</td><td>0.025＜W≤ 0.05</td><td>1</td></tr><tr><td>-</td><td>D＞0.05</td><td>According to circle</td></tr></table>
CSTN : If W ≥ 0.015 , unqualified
Ignore beyond viewing area</td><td></td></tr>
<tr><td>05</td><td>LCD Scratch 、 Threadlike Fiber</td><td colspan="2">Same to NO.3 circle
sightline and surface of LCD is vertical
(2)Same to NO.3 line style</td><td></td></tr>
<tr><td>06</td><td>POL</td><td colspan="2">It is not admissible that POL is beyond the edge of glass, else, unqualified.
It is essential that POL is over the 50 percent of width of frame , else ,unqualified.
According to the drawing in case of special definition.</td><td></td></tr>
<tr><td rowspan="3">07</td><td rowspan="3">IC/FPC Bonding</td><td>Scratch</td><td>Reject</td><td></td></tr>
<tr><td>Intensity Of Adhesion</td><td>If lower than specification, reject</td><td></td></tr>
<tr><td>Gold Fold Twist</td><td>Reject</td><td></td></tr>
<tr><td rowspan="2">07</td><td rowspan="2">IC/FPC Bonding</td><td>Silicon</td><td>According to outline, no gold outside, seal can not be higher than LCD</td><td></td></tr>
<tr><td>FPC Gold Sever</td><td>Reject</td><td></td></tr>
<tr><td>08</td><td>SMT</td><td>Lack of Component、 Polarity Inverse</td><td>If exist, reject</td><td></td></tr>
</table>

		Leak Solder、 Virtual Solder	If exist, reject	
		Short Circuit In Solder Point	If exist, reject	
		Tin Ball	If exist, reject	
		Tin Acumination	If visual, reject	
		Height Solder Point	If higher 0.5mm than component. reject	
		Height of component	Either side higher 0.5mm than component, reject	
		Component Shift	 X<3/4Z reject y＞1/3D reject	

08	SMT	Few Tin	 If θ≤20° reject	
		Component Deflection	 If Y >1/3D reject	
		Component Carcass Sideways	Reject	
		Component Carcass Sideways	If exist with visual inspection , reject	
		Lot Tin	A: Tin accrete the solder side completely , hollowly ,Ok B: Tin accrete the solder side completely , full circle arc , ok C: Jointing include whole solder side, height of tin>50 percent of height of component, reject	
		Few Tin	A: Tin accrete the solder side completely , hollowly ,Ok B: height of tin > 1/3 of solder side of component , ok C: height of tin ≤ 1/3 of solder side of component, reject	

<table>
<tr><td>08</td><td>SMT</td><td colspan="2">Normal
 
Jointing side</td><td></td></tr>
<tr><td rowspan="2">09</td><td rowspan="2">Light</td><td>Short circuit 、 Open circuit</td><td>Forbid</td><td></td></tr>
<tr><td>Quality of CSTN Display</td><td>1、Rolling strake with visual inspection, forbid
2、Differentness of color in viewing area with visual inspection (full white、red、green、blue), forbid
3 、 Display change with visual inspection , forbid</td><td></td></tr>
<tr><td>10</td><td>Color Of CIE Coordinate</td><td colspan="2"><table><tr><td></td><td>x</td><td>y</td></tr><tr><td>white</td><td>±0.05</td><td>±0.05</td></tr><tr><td>Red</td><td>±0.05</td><td>±0.05</td></tr><tr><td>Green</td><td>±0.05</td><td>±0.05</td></tr><tr><td>Blue</td><td>±0.05</td><td>±0.05</td></tr></table>According to the specification or sample customer have approved
Drive LCD under normal condition, 25℃ Φ=0 Θ=0
Test white、red、green blue with DMS Record</td><td></td></tr>
<tr><td>11</td><td>Brightness</td><td>In accord with product specification</td><td>Drive condition is according to specification
Measure location is in Follow Picture
3、Adjust brightness instrument tozero , burrow against the surface of LCD , press “measure” , record when the display is steady.
(YOKOGAWA-3298)</td><td></td></tr>
</table>

			 Measure location	
12	CR (Max)	According to specification	According to product specification Measure instrument (DMS-501)	
13	Response time	According to specification	According to product specification Measure instrument (DMS-501)	
14	Viewing angle	According to specification	According to product specification Measure instrument (DMS-501)	
15	Vibration、Ring	Compare with the sample customer supply	Compare with the sample customer supply when assemble	
16	Frequency Of FPC Bend	According to the use of product (main FPC of foldaway cell phone ≥6 thousand)	Measure instrument Bend angle : 150° Fix FPC in the casement when customer supply	

8 Handling Precautions

8.1 Mounting method

The LCD panel of Daxian LCD module consists of two thin glass plates with polarizes which easily be damaged. And since the module in so constructed as to be fixed by utilizing fitting holes in the printed circuit board.

Extreme care should be needed when handling the LCD modules.

8.2 Caution of LCD handling and cleaning

When cleaning the display surface, Use soft cloth with solvent [recommended below] and wipe lightly

- Isopropyl alcohol
- Ethyl alcohol

Do not wipe the display surface with dry or hard materials that will damage the polarizer surface.

Do not use the following solvent:

- Water
- Aromatics

Do not wipe ITO pad area with the dry or hard materials that will damage the

ITO patterns

Do not use the following solvent on the pad or prevent it from being contaminated:

- Soldering flux
- Chlorine (Cl) , Salfur (S)

If goods were sent without being sili8con coated on the pad, ITO patterns could be damaged due to the corrosion as time goes on.

If ITO corrosion happen by miss-handling or using some materials such as Chlorine (Cl), Salfur (S) from customer, Responsibility is on customer.

8.3 Caution against static charge

The LCD module use C-MOS LSI drivers, so we recommended that you:

Connect any unused input terminal to Vdd or Vss, do not input any signals before power is turned on, and ground your body, work/assembly areas, assembly equipment to protect against static electricity.

8.4 packing

- Module employ LCD elements and must be treated as such.
- Avoid intense shock and falls from a height.
- To prevent modules from degradation, do not operate or store them exposed direct to sunshine or high temperature/humidity

8.5 Caution for operation

- It is an indispensable condition to drive LCD's within the specified voltage limit since the higher voltage then the limit cause the shorter LCD life.
- An electrochemical reaction due to direct current causes LCD's undesirable deterioration, so that the use of direct current drive should be avoided.
- Response time will be extremely delayed at lower temperature then the operating temperature range and on the other hand at higher temperature LCD's how dark color in them. However those phenomena do not mean malfunction or out of order with LCD's, which will come back in the specified operation temperature.
- If the display area is pushed hard during operation, some font will be abnormally displayed but it resumes normal condition after turning off once.
- A slight dew depositing on terminals is a cause for electro-chemical reaction resulting in terminal open circuit.

  Usage under the maximum operating temperature, 50%Rh or less is required.

8.6 storage

In the case of storing for a long period of time for instance, for years for the purpose or replacement use, the following ways are recommended.

- Storage in a polyethylene bag with the opening sealed so as not to enter fresh air outside in it . And with no desiccant.
- Placing in a dark place where neither exposure to direct sunlight nor light's keeping the storage temperature range.
- Storing with no touch on polarizer surface by the anything else.

  [It is recommended to store them as they have been contained in the inner container at the time of delivery from us

8.7 Safety

- It is recommendable to crash damaged or unnecessary LCD's into pieces and wash off liquid crystal by either of solvents such as acetone and ethanol, which should be burned up later.
- When any liquid leaked out of a damaged glass cell comes in contact with your hands, please wash it off well with soap and water

9 Precaution for use

9.1

A limit sample should be provided by the both parties on an occasion when the both parties agreed its necessity. Judgment by a limit sample shall take effect after the limit sample has been established and confirmed by the both parties.

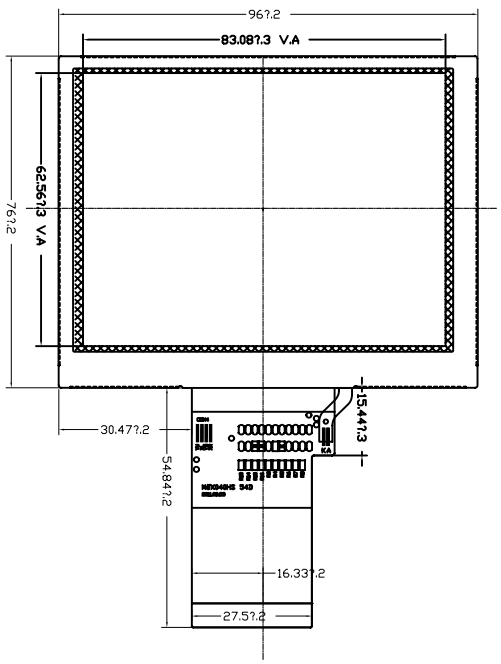
9.2

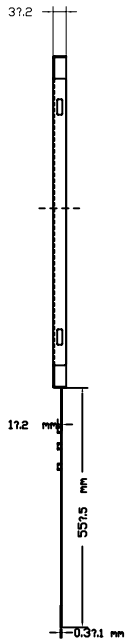
On the following occasions, the handing of problem should be decided through discussion and agreement between responsible of the both parties.

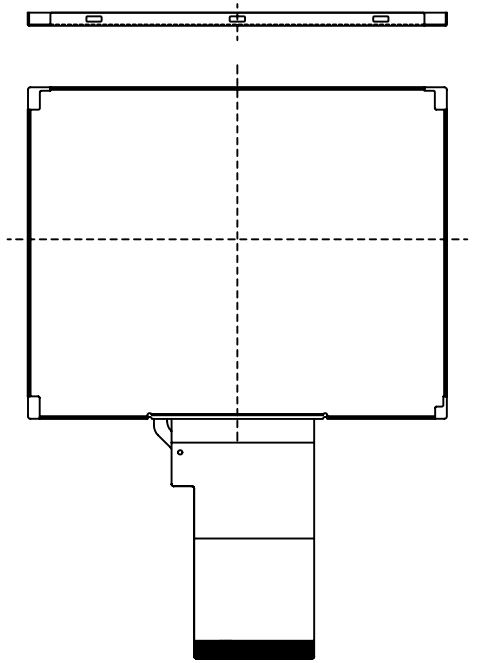
- When a question is arisen in this specification
- When a new problem is arisen which is not specified in this specifications
- When an inspection specifications change or operating condition change in customer is reported to Daxian , and some problem is arisen in this specification due to the change
- When a new problem is arisen at the customer's operating set for sample evaluation in the customer site.

10 Dimensional Outline

REV 版本	DESCRIPTION 描述	DATE 日期
A00	First issue	Jul-12-2011







1	LED_Cathode	31	R3
2	LED_Cathode	32	R4
3	LED_Anode	33	R5
4	LED_Anode	34	R6
5	NC	35	R7
6	NC	36	HSYNC
7	NC	37	VSYNC
8	RESTET	38	DOTCLK
9	/CS	39	NC
10	SCK	40	NC
11	SDI	41	VDD
12	B0	42	VDD
13	B1	43	NC
14	B2	44	NC
15	B3	45	NC
16	B4	46	NC
17	B5	47	NC
18	B6	48	NC(XR)
19	B7	49	NC(YD)
20	G0	50	NC(XL)
21	G1	51	NC(YU)
22	G2	52	ENB
23	G3	53	GND
24	G4	54	D
25	G5		
26	G6		
27	G7		
28	R0		
29	R1		
30	R2		

背光电路图 (CIRCUIT DIAGRAM)

Specification:

1). Viewing angle: 12 □'clock
2). Display mode: a_Si TFT/Transmissive/Normal White
3). □perating temp.: -20?~+70?
    Storage temp.: -30?~+80?
4). IC: ILI9322
5). All the raw material are Rohs complicant

SCALE:		Dalian Good Display Co.,Ltd		
SHEET: OF				
GENERAL TOL:	UNIT mm			
APPROVALS	DATE	MODEL NUMBER	PROJECTION	PART NO:
APP:				GTM040HS-54D-HY0-A0
CHK:				
DWN:		DO NOT SCALE THIS DRAWING.		