8.0 inch TFT LCD
with Touch Panel

MODEL NAME: LMTE080TD02N41-4RTP

Date: 2012 / 04 / 19

Customer Signature		
Customer		
Approved Date	**Approved By**	**Reviewed By**

Record of Revision

Version	Revise Date	Page	Content
Pre-Spec.01	2012/04/19		Initial Release.

Contents

1. General Specifications

No.	Item	Specification	Remark
1	LCD size	8.0 inch(Diagonal)	
2	Driver element	a-Si TFT active matrix	
3	Resolution	800 × 3(RGB) × 600	
4	Display mode	Normally White, Transmissive	
5	Dot pitch	0.0675(W) × 0.2025(H) mm	
6	Active area	162.0(W) × 121.5(H) mm	
7	Module size	183.0(W) × 141.0(H) × 7.0(D) mm	Note 1
8	Surface treatment	Anti-Glare	
9	Color arrangement	RGB-stripe	
10	Interface	Digital	
11	Backlight power consumption	1.782W (Typ.)	
12	Panel power consumption	0.356W(Typ.)	
13	Weight	TBD	

Note 1: Refer to Mechanical Drawing.

2. Pin Assignment

2.1. TFT LCD Panel Driving Section

1. FPC Connector is used for the module electronics interface. The recommended model is FH12A-50S-0.5SH manufactured by Hirose.

Pin No.	Symbol	I/O	Function	Remark
1	LED +	P	LED Anode	
2	LED +	P	LED Anode	
3	LED -	P	LED Cathode	
4	LED -	P	LED Cathode	
5	GND	P	Power ground	
6	V_{COM}	I	Common voltage	
7	V_{CC}	P	Power for Digital circuit	
8	MODE	I	DE/SYNC mode select	Note3
9	DE	I	Data Input Enable	
10	VS	I	Vertical Sync Input	
11	HS	I	Horizontal Sync Input	
12	B7	I	Blue data(MSB)	
13	B6	I	Blue data	
14	B5	I	Blue data	
15	B4	I	Blue data	
16	B3	I	Blue data	
17	B2	I	Blue data	
18	B1	I	Blue data	
19	B0	I	Blue data(LSB)	
20	G7	I	Green data (MSB)	
21	G6	I	Green data	
22	G5	I	Green data	
23	G4	I	Green data	
24	G3	I	Green data	
25	G2	I	Green data	
26	G1	I	Green data	
27	G0	I	Green data (LSB)	
28	R7	I	Red data (MSB)	
29	R6	I	Red data	
30	R5	I	Red data	
31	R4	I	Red data	

32	R3	I	Red data	
33	R2	I	Red data	
34	R1	I	Red data	
35	R0	I	Red data (LSB)	
36	GND	P	Power ground	
37	DCLK	I	Sample clock	
38	GND	P	Power ground	
39	L/R	I	Right/ left selection	Note2,5
40	U/D	I	Up/down selection	Note2,5
41	V_{GH}	P	Gate ON voltage	
42	V_{GL}	P	Gate OFF voltage	
43	AV_{DD}	P	Power for Analog circuit	
44	RESET	I	Global reset pin.	Note1
45	NC	-	No connection	
46	V_{COM}	I	Common voltage	
47	DITHB	I	Dithering function	Note 4
48	GND	P	Power ground	
49	NC	-	No connection	
50	NC	-	No connection	

I: input, O: output, P: Power

Note 1: Global reset pin. Active Low to enter Reset State. Suggest to connecting with an RC reset circuit for stability. Normally pull high.

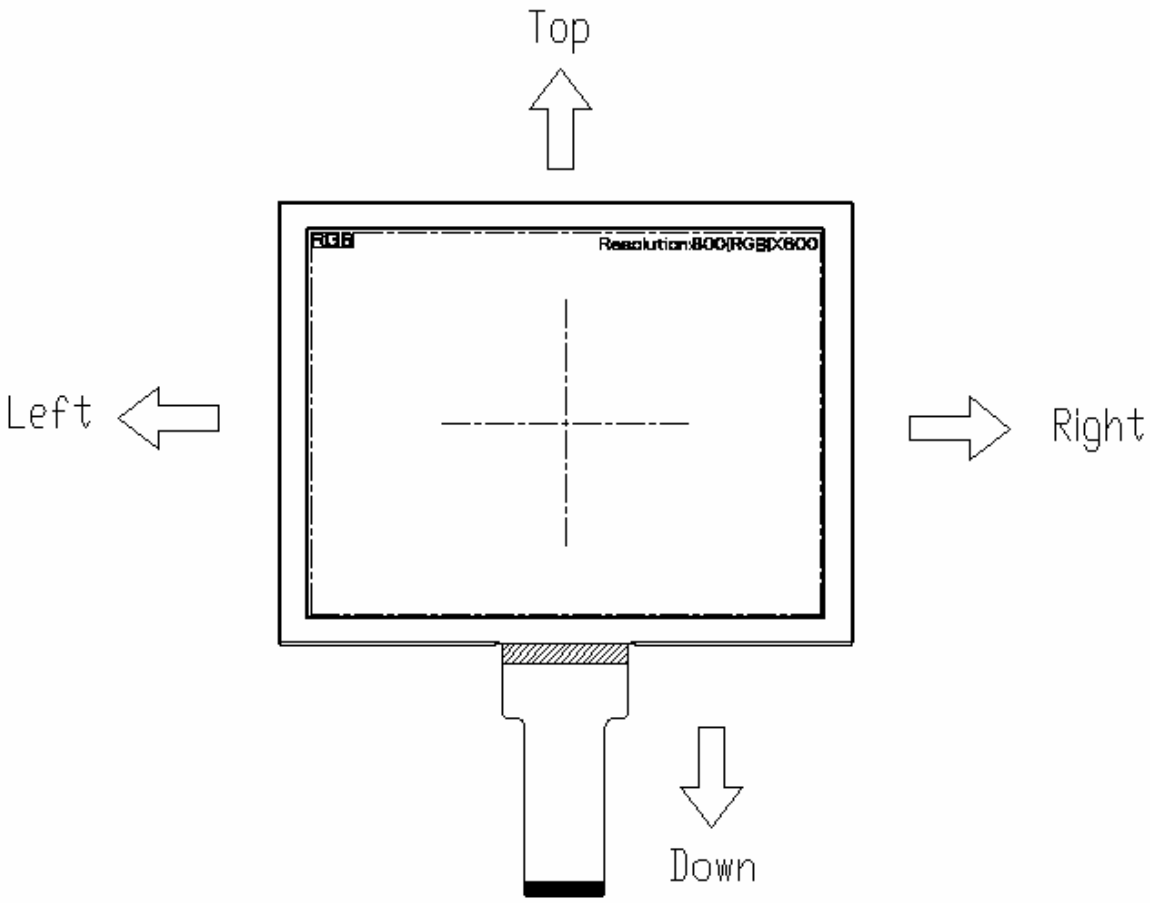
Note 2: Selection of scanning mode

Setting of scan control input		Scanning direction
U/D	R/L	
GND	V_{CC}	Up to down, left to right
V_{CC}	GND	Down to up, right to left
GND	GND	Up to down, right to left
V_{CC}	V_{CC}	Down to up, left to right

Note 3: DE/SYNC mode select, Normally pull high.
H: DE mode.
L: HS/VS mode.

Note4: Dithering function enable control. Normally pull high.
DITHB="1",Disable internal dithering function. For 18bit RGB interface, connect two LSB bits of all the R/G/B data buses to GND.
DITHB="0",Enable internal dithering function, For TTL 24bit parallel RGB image data input.

Note 5: Definition of scanning direction.
Refer to the figure as below:



2.2. Touch Panel Pin Connections

Pin No.	Description
1	Y1
2	X1
3	Y2
4	X2

3. Operation Specifications

3.1. Absolute Maximum Rating

(GND=AV_{SS}=0V, Note 1)

Item	Symbol	Values		Unit	Remark
		Min.	Max.		
Power voltage	V_{CC}	-0.3	5.0	V	
	AV_{DD}	-0.5	13.5	V	
	V_{GH}	13.0	19.0	V	
	V_{GL}	-12.0	-2.0	V	
	V_{GH}-V_{GL}	-	31.0	V	
Operation Temperature	T_{OP}	-20	70	℃	
Storage Temperature	T_{ST}	-30	80	℃	
LED Reverse Voltage	V_R	-	1.2	V	each LED Note 2
LED Forward Current	I_F	-	25	mA	each LED

Note 1: The absolute maximum rating values of this product are not allowed to be exceeded at any times. Should a module be used with any of the absolute maximum ratings exceeded, the characteristics of the module may not be recovered, or in an extreme case, the module may be permanently destroyed.

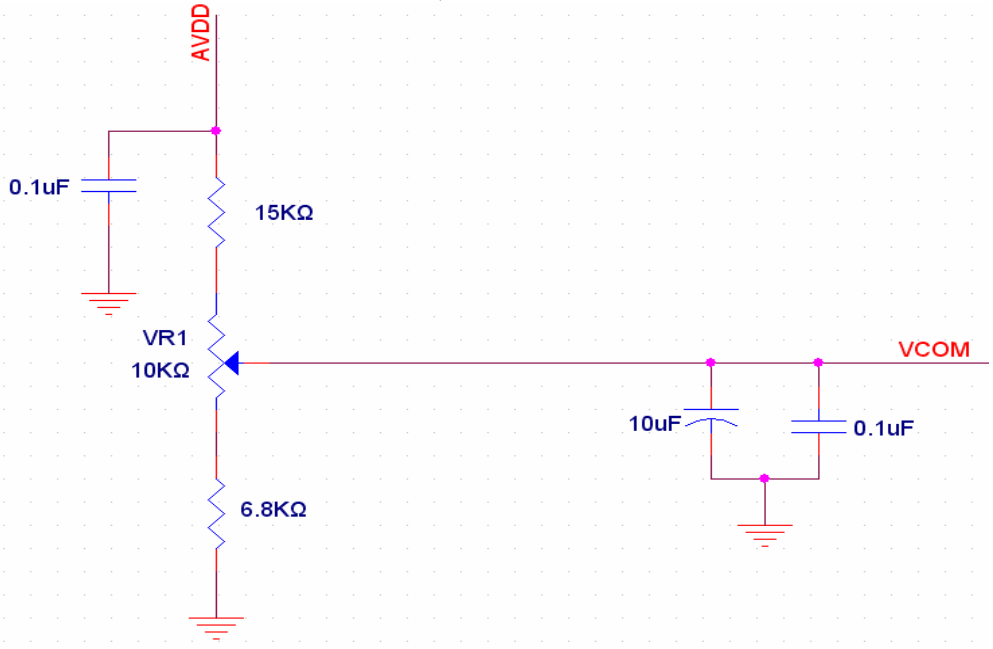
Note 2: V_R Conditions: Zener Diode 20mA

3.1.1. Typical Operation Conditions

(GND=AV_{SS}=0V, Note 1)

Item	Symbol	Values			Unit	Remark
		Min.	Typ.	Max.		
Power voltage	V_{CC}	3.0	3.3	3.6	V	Note 2
	AV_{DD}	10.2	10.4	10.6	V	
	V_{GH}	15.3	16.0	16.7	V	
	V_{GL}	-7.7	-7.0	-6.3	V	
Input signal voltage	V_{COM}	2.8	(3.8)	4.8	V	Note 4
Input logic high voltage	V_{IH}	0.7V_{CC}	-	V_{CC}	V	Note 3
Input logic low voltage	V_{IL}	0	-	0.3V_{CC}	V	

Note 1: Be sure to apply V_{CC} and V_{GL} to the LCD first, and then apply V_{GH}.
Note 2: V_{CC} setting should match the signals output voltage (refer to Note 3) of customer's system board .
Note 3: DCLK,HS,VS,RSTB,UPDN,STLR,MODE,DITHB.
Note 4: Typical V_{COM} is only a reference value, it must be optimized according to each LCM. Be sure to use VR;



3.1.2. Current Consumption

(GND=AV_{SS}=0V)

Item	Symbol	Values			Unit	Remark
		Min.	Typ.	Max.		
Current for Driver	I_{GH}	-	0.2	0.5	mA	V_{GH} =16.0V
	I_{GL}	-	0.2	1.0	mA	V_{GL} = -7.0V
	I_{CC}	-	5.5	10.0	mA	V_{CC} =3.3V
	IAV_{DD}	-	32.0	50.0	mA	AV_{DD} =10.4V

3.1.3. Backlight Driving Conditions

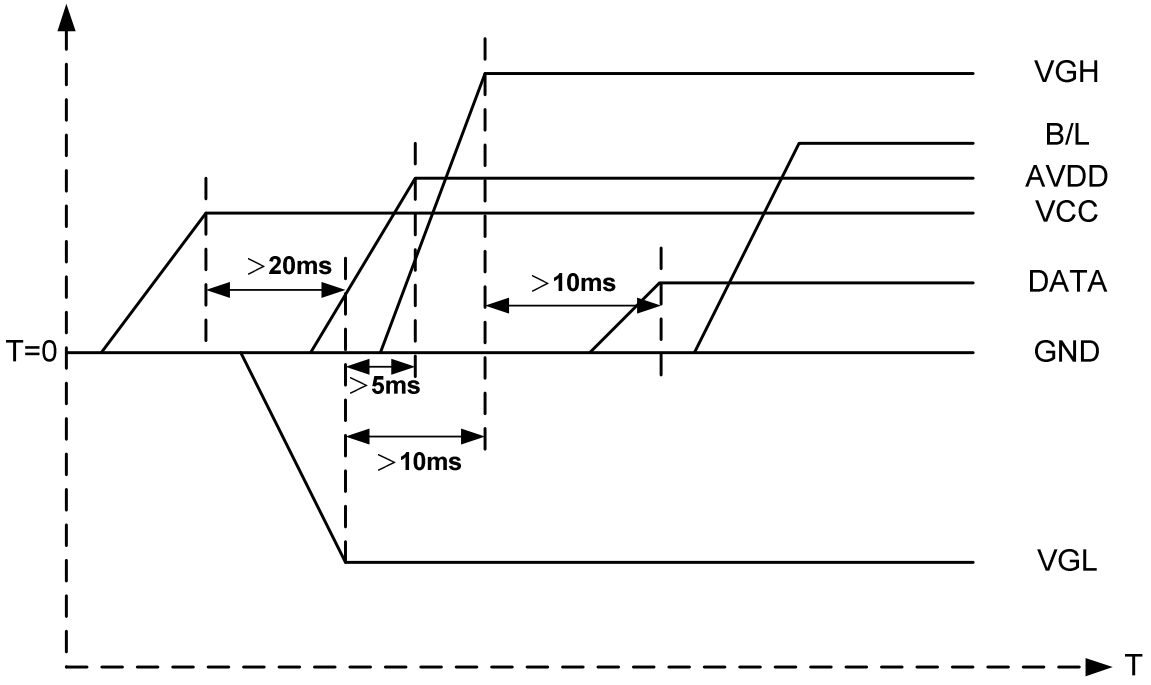
Item	Symbol	Values			Unit	Remark
		Min.	Typ.	Max.		
Voltage for LED backlight	V_L	9.3	9.9	10.5	V	Note 1
Current for LED backlight	I_L	162	180	198	mA	
LED life time	-	20,000	-	-	Hr	Note 2

Note 1: The LED Supply Voltage is defined by the number of LED at Ta=25℃ and I_L =180mA.

Note 2: The “LED life time” is defined as the module brightness decrease to 50% original brightness at Ta=25℃ and I_L =180mA. The LED lifetime could be decreased if operating I_L is lager than 180 mA.

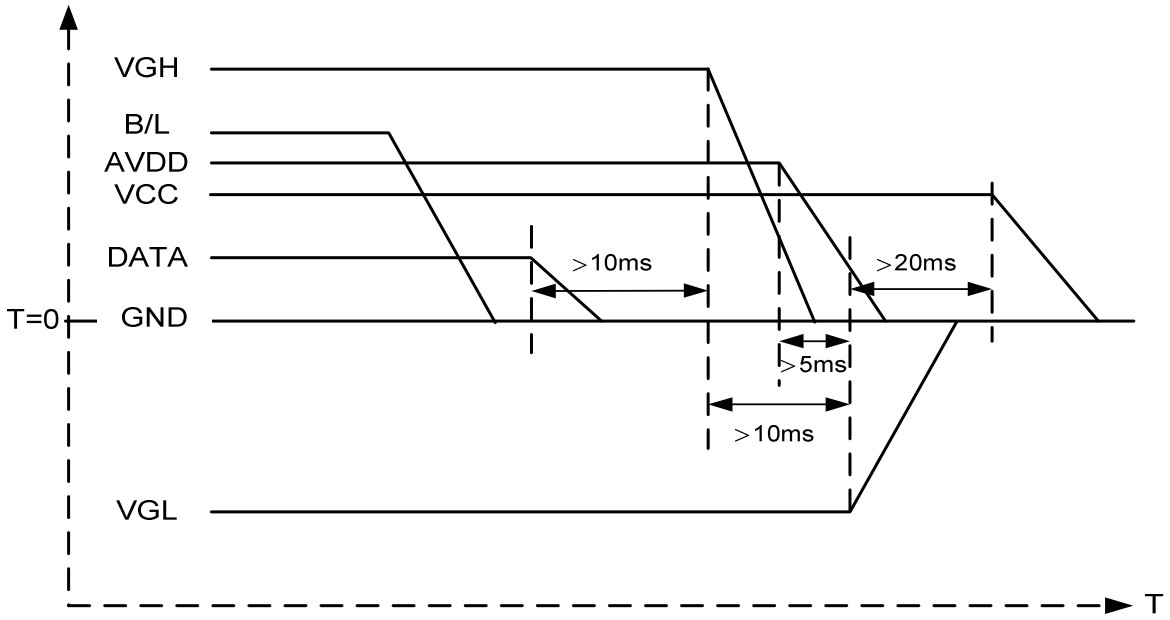
3.2. Power Sequence

3.2.1. Power on:



VCC→VGL→AVDD→VGH→Data→B/L

3.2.2. Power off:



B/L→Data→VGH→AVDD→VGL→VCC

Note: Data include R0~R5, B0~B5, GO~G5, STLR,UPDN, DCLK, HS,VS,DE.

3.3. Timing Characteristics

3.3.1. AC Electrical Characteristics

Item	Symbol	Values			Unit	Remark
		Min.	Typ.	Max.		
HS setup time	T_{hst}	8	-	-	Ns	
HS hold time	T_{hhd}	8	-	-	Ns	
VS setup time	T_{vst}	8	-	-	Ns	
VS hold time	T_{vhd}	8	-	-	Ns	
Data setup time	T_{dsu}	8	-	-	Ns	
Data hole time	T_{dhd}	8	-	-	Ns	
DE setup time	T_{esu}	8	-	-	Ns	
DE hole time	T_{ehd}	8	-	-	Ns	
VDD Power On Slew rate	T_{POR}	-	-	20	ms	
RSTB pulse width	T_{Rst}	10	-	-	us	
CLKIN cycle time	T_{coh}	20	-	-	Ns	
CLKIN pulse duty	T_{cwh}	40	50	60	%	
Output stable time	T_{sst}	-	-	6	us	

3.3.2. Timing

Item	Symbol	Values			Unit	Remark
		Min.	Typ.	Max.		
Horizontal Display Area	thd	-	800	-	DCLK	
DCLK Frequency	fclk	-	40	50	MHz	
One Horizontal Line	th	862	1056	1200	DCLK	
HS pulse width	thpw	1	-	40	DCLK	
HS Back Porch(Blanking)	thb	46	46	46	DCLK	
HS Front Porch	thfp	16	210	354	DCLK	

Item	Symbol	Values			Unit	Remark
		Min.	Typ.	Max.		
Vertical Display Area	tvd	-	600	-	TH	
VS period time	tv	624	635	700	TH	
VS pulse width	tvpw	1	-	20	TH	
VS Back Porch(Blanking)	tvb	23	23	23	TH	
VS Front Porch	tvfp	1	12	77	TH	

3.3.3. Timing Diagram

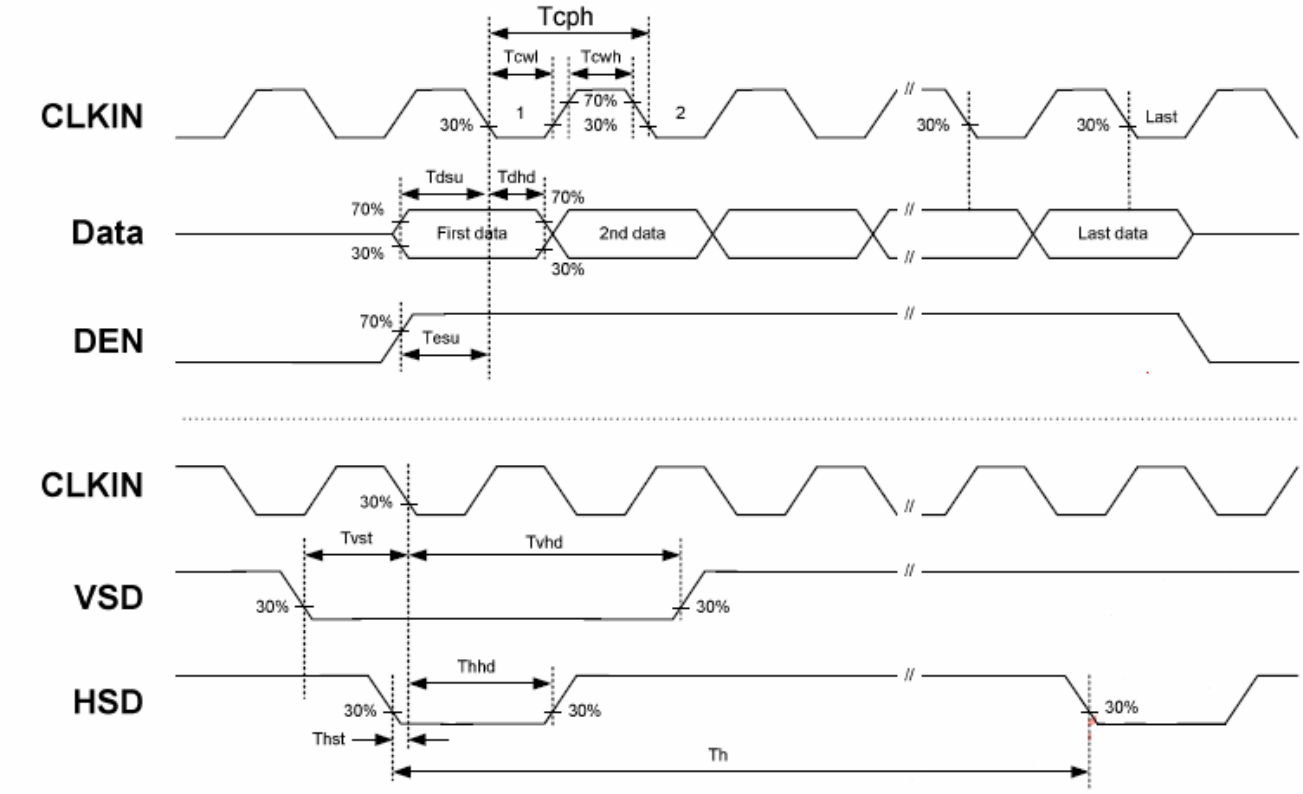


Figure 3.1 Input Clock and Data Timing Diagram

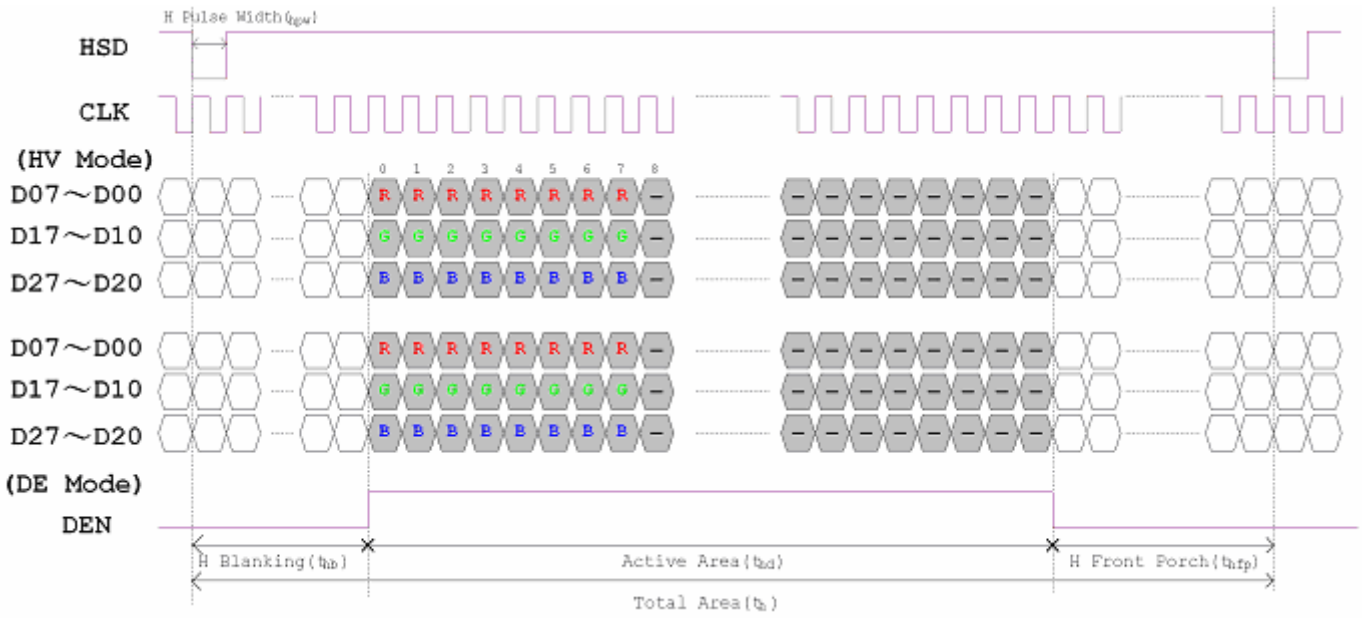


Figure 3.2 Horizontal input timing diagram.

4. Optical Specifications

Item	Symbol	Condition	Values			Unit	Remark
			Min.	Typ.	Max.		
Viewing angle (CR≥ 10)	θ_L	Φ=180°(9 o'clock)	60	70	-	degree	Note 1
	θ_R	Φ=0°(3 o'clock)	60	70	-		
	θ_T	Φ=90°(12 o'clock)	40	50	-		
	θ_B	Φ=270°(6 o'clock)	60	70	-		
Response time	T_{ON}	Normal θ=Φ=0°	-	10	20	msec	Note 3
	T_{OFF}		-	15	30	msec	Note 3
Contrast ratio	CR		400	500	-	-	Note 4
Color chromaticity	W_X		0.26	0.31	0.36	-	Note 2 Note 5 Note 6
	W_Y		0.28	0.33	0.38	-	
Luminance	L		160	200	-	cd/m2	Note 8
Luminance uniformity	Y_U		70	75	-	%	Note 7

Test Conditions:

1. V_{CC}=3.3V, I_L=180mA (Backlight current), the ambient temperature is 25℃.
2. The test systems refer to Note 2.

Note 1: Definition of viewing angle range

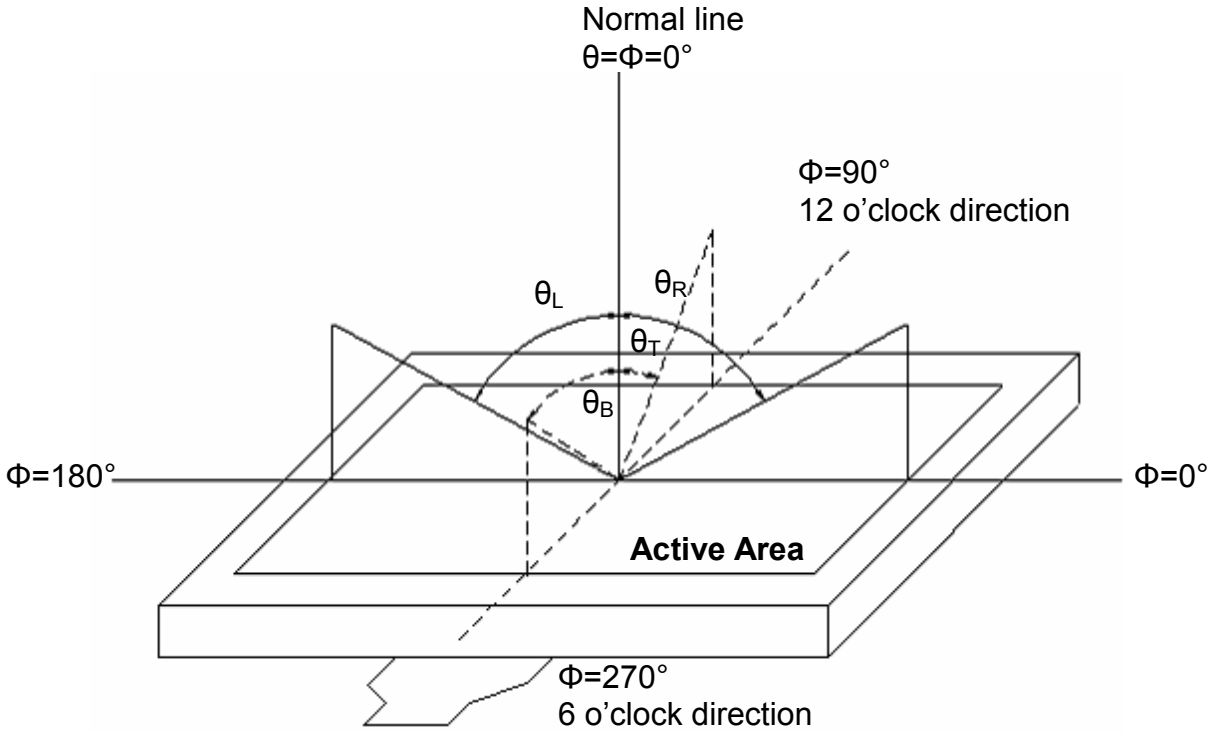


Fig. 4-1 Definition of viewing angle

Note 2: Definition of optical measurement system.

The optical characteristics should be measured in dark room. After 30 minutes operation, the optical properties are measured at the center point of the LCD screen. (Response time is measured by Photo detector TOPCON BM-7, other items are measured by BM-5A/Field of view: 1° /Height: 500mm.)

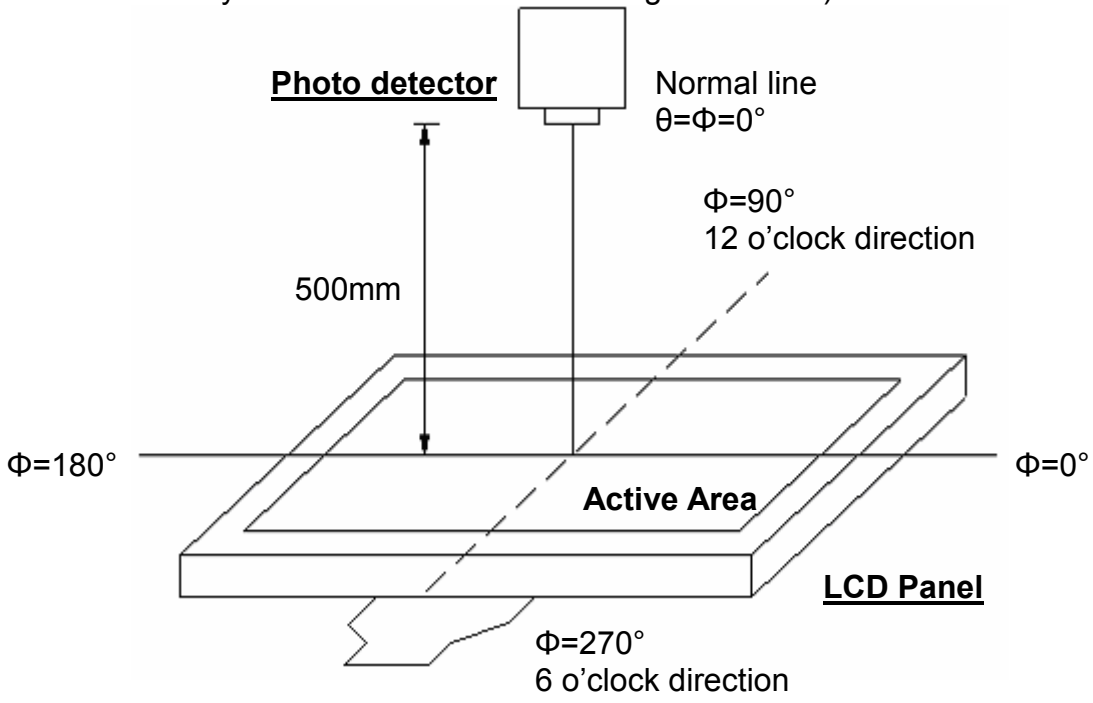


Fig. 4-2 Optical measurement system setup

Note 3: Definition of Response time

The response time is defined as the LCD optical switching time interval between "White" state and "Black" state. Rise time (T_{ON}) is the time between photo detector output intensity changed from 90% to 10%. And fall time (T_{OFF}) is the time between photo detector output intensity changed from 10% to 90%.

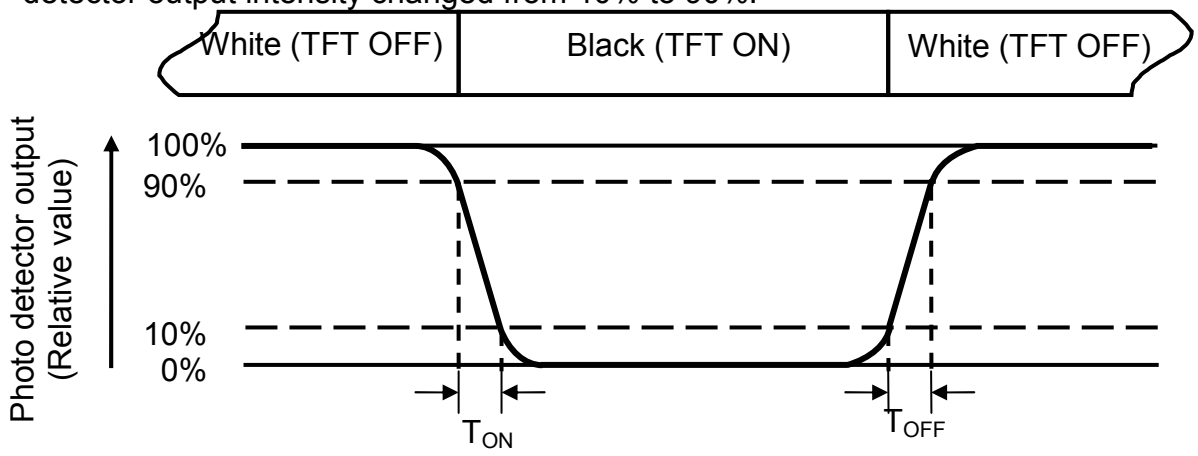


Fig. 4-3 Definition of response time

Note 4: Definition of contrast ratio

$$\text{Contrast ratio (CR)} = \frac{\text{Luminance measured when LCD on the "White" state}}{\text{Luminance measured when LCD on the "Black" state}}$$

Note 5: Definition of color chromaticity (CIE1931)

Color coordinates measured at center point of LCD.

Note 6: Definition of luminance:

Measured at the center area of the panel when LCD panel is driven at "white" state. The LED driving condition is I_L=180mA .

Note 7: Definition of Luminance Uniformity

Active area is divided into 9 measuring areas (Refer to Fig. 4-4).Every measuring point is placed at the center of each measuring area.

$$Luminance\ \ Uniformity\ (Yu) = \frac{B_{min}}{B_{max}}$$

L-------Active area length W----- Active area width

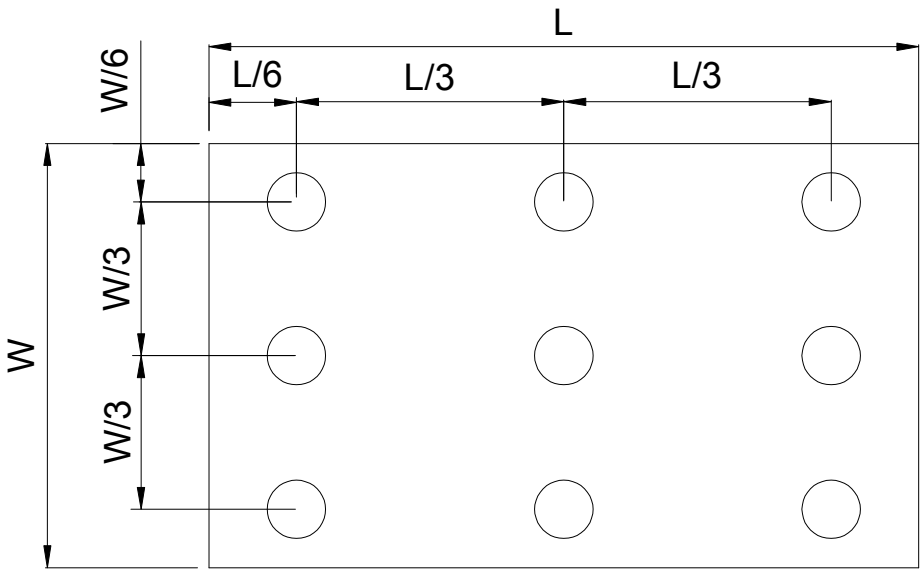


Fig. 4-4 Definition of measuring points

B_{max}: The measured maximum luminance of all measurement position.
B_{min}: The measured minimum luminance of all measurement position.

Note 8: Measure the Luminance with Touch Panel.

5. Reliability Test Items

(Note3)

Item	Test Conditions	Remark
High Temperature Storage	Ta = 80℃ 240hrs	Note 1，Note 4
Low Temperature Storage	Ta = -30℃ 240hrs	Note 1，Note 4
High Temperature Operation	Ts = 70℃ 240hrs	Note 2，Note 4
Low Temperature Operation	Ta = -20℃ 240hrs	Note 1，Note 4
Operate at High Temperature and Humidity	+40℃, 90%RH 240hrs	Note 4
Thermal Shock	-30℃/30 min ~ +80℃/30 min for a total 100 cycles, Start with cold temperature and end with high temperature.	Note 4
Vibration Test	Frequency range:10~55Hz Stroke:1.5mm Sweep:10Hz~55Hz~10Hz 2 hours for each direction of X. Y. Z. (6 hours for total)	
Mechanical Shock	100G 6ms,±X, ±Y, ±Z 3 times for each direction	
Package Vibration Test	Random Vibration : 0.015G*G/Hz from 5-200HZ, -6dB/Octave from 200-500HZ 2 hours for each direction of X. Y. Z. (6 hours for total)	
Package Drop Test	Height:60 cm 1 corner, 3 edges, 6 surfaces	
Electro Static Discharge	± 2KV, Human Body Mode, 100pF/1500Ω	

Note 1: Ta is the ambient temperature of samples.
Note 2: Ts is the temperature of panel's surface.
Note 3: 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 don't guarantee all of the cosmetic specification.
Note 4: Before cosmetic and function test, the product must have enough recovery time, at least 2 hours at room temperature.

6. Touch Screen Panel Specification

6.1. Characteristics

6.1.1. Optical Characteristics

Item	Specification	Remark
Transparency	82% Typ. (Inside of guaranteed active area)	JIS K-7105
Haze	5.0% Typ.	JIS K-7105

6.1.2. Environmental Characteristics

Item	Specification	Remark
Operation temperature	-10℃ ~ 60℃	Max. wet Temp. is 38℃ (No dew)
Storage temperature	-30℃ ~ 70℃	
Operation Humidity	20% ~ 90%RH	
Storage Humidity	10% ~ 90%RH	

6.1.3. Mechanical Characteristics

Item	Specification		Remark
Hardness of surface	Pencil hardness 3H		JIS K-5400 150gf, 45°
FPC peeling strength	Min. : 5N		Peeling upward by 90°
FPC Bending	Max. : 3 times		R 1.0mm
FPC pull out and insert	Max. : 5 times		
Operation force	Pen	Max : 50gf	Within “guaranteed active area”, but not on the age and Dot-Spacer
	Finger		

6.1.4. Electrical Characteristics

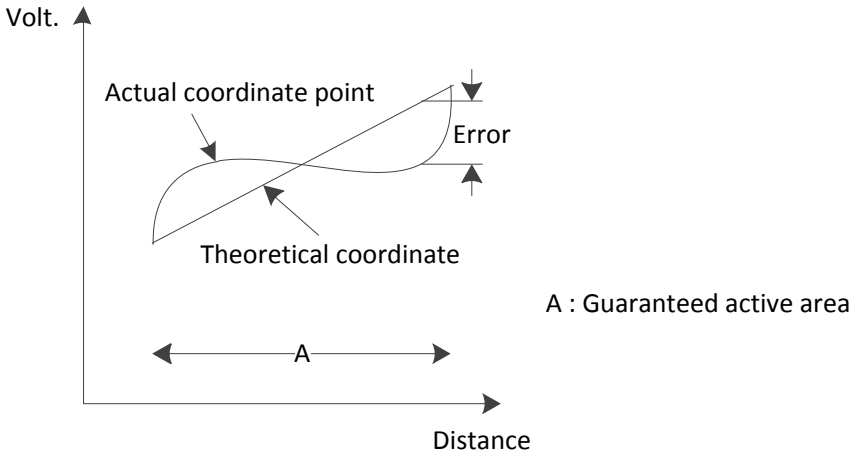
Item	Specification	Remark
Rated voltage	Max. : DC 7V	
Resistance	X-axis : 300Ω ~ 1100Ω (Glass side)	At connector
	Y-axis : 150Ω ~ 650Ω (Film)	
Linearity	Max. [initial value]: ±1.5% Max. [After environmental & life test] : ±3.0%	
Chattering	Max. 10ms at connector pin	
Insulation Resistance	Min. 20MΩ (DC 25V)	

Note-1 :

Measurement condition of Linearity

Difference between actual voltage & Theoretical voltage is an error at any points.

Linearity is the value max. error voltage divided by voltage difference on active area.



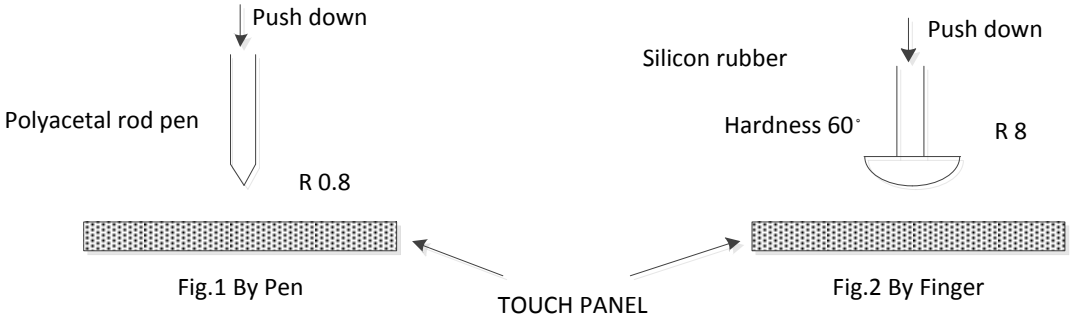
6.2. Life Test Condition

6.2.1. Mechanical Characteristics

Notes life	Min. : 10^5 words	Within "guaranteed active area"
Input life	Min. : 10^6 times	Within "guaranteed active area"

Measurement condition of operation force

Resistance between X & Y axis must be equal or lower than 2kΩ ($R_{on} \leq 2\text{k}\Omega$)



※ Notes life test condition (by pen)

Notes area for pen notes life test is $10 \times 9\text{mm}$. Size of word is $7.5 \times 6.75\text{mm}$. Word is any A.B.C……word. Center of each word is changed at random in notes area.

- Sharp of pen end : R 0.8 (Refer Fig.1)
- Material of pen : polyacetal
- Load : 250g
- Speed : 60mm/s

[Judge base]

Operation force, Insulation resistance & Resistance stated before as 5.3, 5.4 must be within spec.

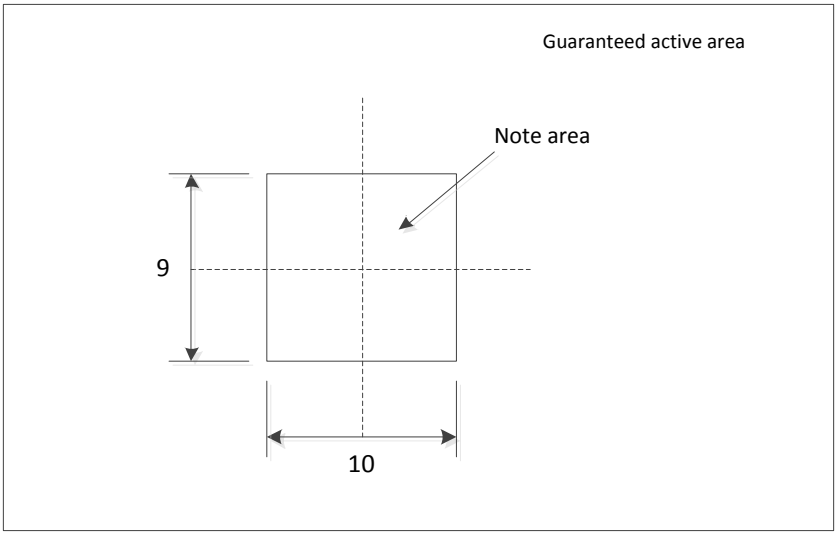
※ Input life test condition (by finger)

By silicon rubber tapping at same point.

- Sharp of rubber end : R8 Hardness 60° (Refer fig.2)
- Load : 200g
- Frequency : 5Hz

[Judge base]

Operation force, Insulation resistance & Resistance stated before as 5.3, 5.4 must be within spec.

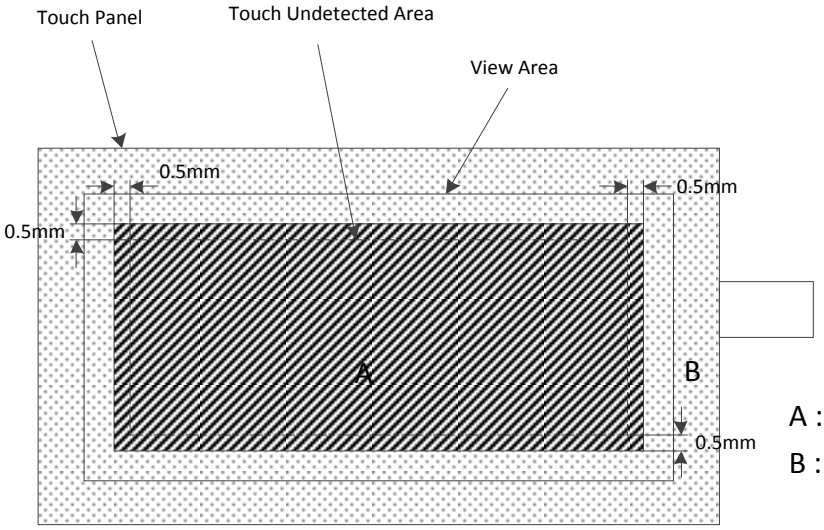


6.2.2. Environmental Test Condition

Item	Specificaiton	Remark
High temperature storage	70℃, 240hrs (After 1 hr room temp. and test)	Operation force, Insulation resistance & Resistance stated before as 5.3, 5.4 must be with spec.
Low temperature storage	-30℃, 240hrs (After 1 hr room temp. and test)	
High temperature high Humidity storage	40℃, 95%RH, 240hrs (After 24 hrs room temp. and test)	
Temperature Cycling	-30℃ ~ +70℃ (0.5hr each), 50 cycle	

6.3. Appearance

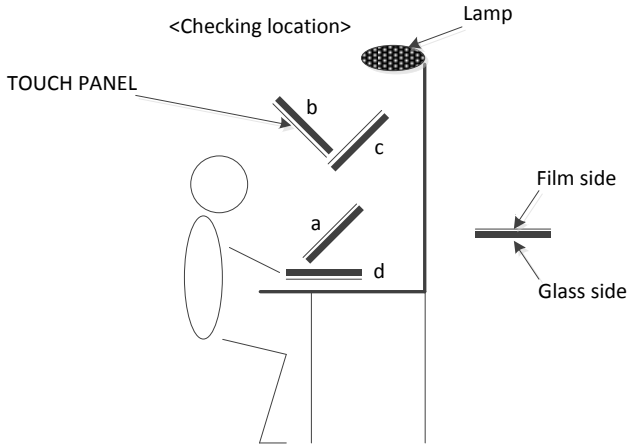
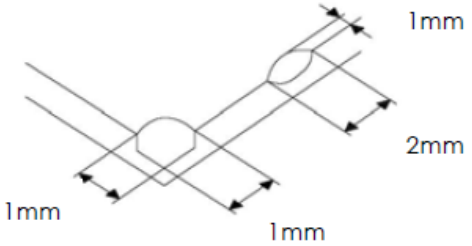
6.3.1. Scope of Reject Criteria



Area	Specification
A	Without any defect point to effect on normal operation
B	None-specify

A : Inside of Boundary Line of Top Enclosure
B : Without A area

6.3.2. Reject Criteria

Description	Reject Criteria
Film / Glass Scratch Foreign material between glass & film	$0.3mm < D$: Zero $0.1mm < D \leq 0.33mm$: Max.: 2points $D \leq 0.1mm$: disregard
Film fish eye	$0.25mm < D$: Zero $D \leq 0.25mm$: Max.: 2points
Film / Glass Scratch (Line type) Foreign material between glass & film (Line type)	$0.05mm < W$: Zero $0.025mm < W \leq 0.05mm$ & $L \leq 5mm$: Max.: 2points $W \leq 0.025mm$ & $L \leq 10mm$: disregard
Total Defects	Max. : 4 points
Minimum distances between defects	Min. : 1mm
Newton ring	Not seen from PANEL film side under fluorescent lamp, exclude from PANEL glass side. (Distance 20~30cm from eyes to Touch Panel)
 S : Area, W : Width, L : Length.	
Glass flaw	To be no flow which size is over the drawing specified as below. Number of flaw is non-specify. Traveling flaw is none. Flaw of thickness direction size is maximum. 

Film size	Film is in glass area (or size) (Exclude double-side adhesive tape)
Foreign material for FPC	Foreign material can not short two patterns.
FPC Scratch	Scratch can not effect electrical characteristics.
FPC Crumple	Crumple can not effect electrical characteristics.
Adhesive Tape size	Adhesive Tape out of Panel Outline is excluded.

7. General Precautions

7.1. TFT LCD

7.1.1 Safety

Liquid crystal is poisonous. Do not put it in your mouth. If liquid crystal touches your skin or clothes, wash it off immediately by using soap and water.

7.1.2 Handling

1. The LCD panel is plate glass. Do not subject the panel to mechanical shock or to excessive force on its surface.
2. The polarizer attached to the display is easily damaged. Please handle it carefully to avoid scratch or other damages.
3. To avoid contamination on the display surface, do not touch the module surface with bare hands.
4. Keep a space so that the LCD panels do not touch other components.
5. Put cover board such as acrylic board on the surface of LCD panel to protect panel from damages.
6. Transparent electrodes may be disconnected if you use the LCD panel under environmental conditions where the condensation of dew occurs.
7. Do not leave module in direct sunlight to avoid malfunction of the ICs.

7.1.3 Static Electricity

1. Be sure to ground module before turning on power or operating module.
2. Do not apply voltage which exceeds the absolute maximum rating value.

7.1.4 Storage

1. Store the module in a dark room where must keep at 25±10℃ and 65%RH or less.
2. Do not store the module in surroundings containing organic solvent or corrosive gas.
3. Store the module in an anti-electrostatic container or bag.

7.1.5 Cleaning

1. Do not wipe the polarizer with dry cloth. It might cause scratch.
2. Only use a soft sloth with IPA to wipe the polarizer, other chemicals might permanent damage to the polarizer.

7.2. Touch Screen Panel

(1) Since touch panel is consist of glass, please. Be careful your hand and other part from injury at handling. You must wear gloves at handling.

(2) Do not put a heavy shock or stress on touch panel.

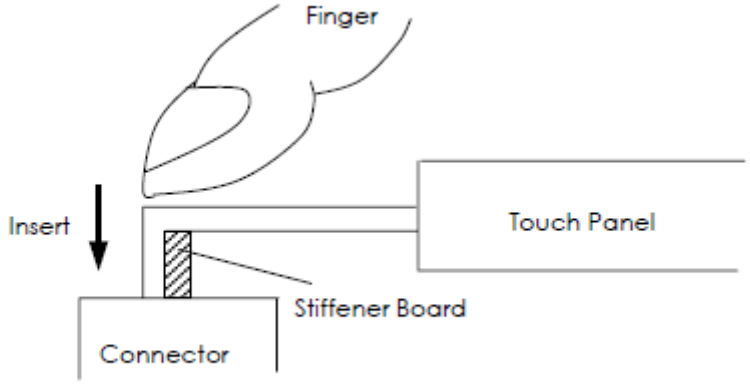
(3) Do not lift Touch Panel by cable (FPC).

(4) Do not add any stress only film face.
(Ex. Don't transfer the panel by film face with vacuum)

(5) Please use dry cloth or soft cloth with neutral detergent (after wring dry) or one with ethanol at cleaning. Do not use any organic solvent, acid or alkali solution.

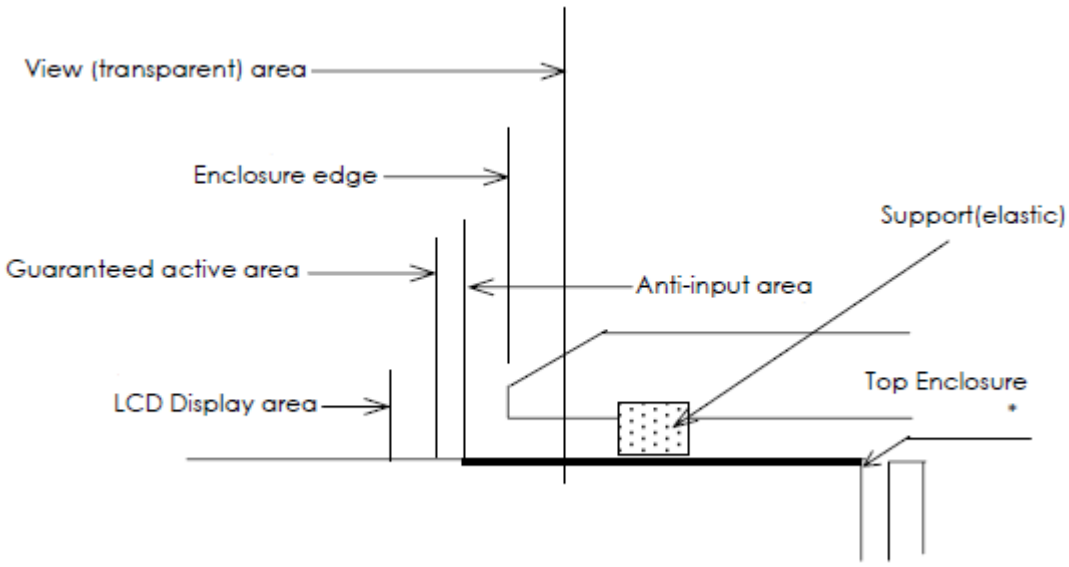
(6) Do not pile Touch Panel. Do not put heavy goods on Touch Panel.

(7) Do not bend a cable of Touch Panel for prevent happen to line cut failure. Please don't use following method for insert the cable to connector.



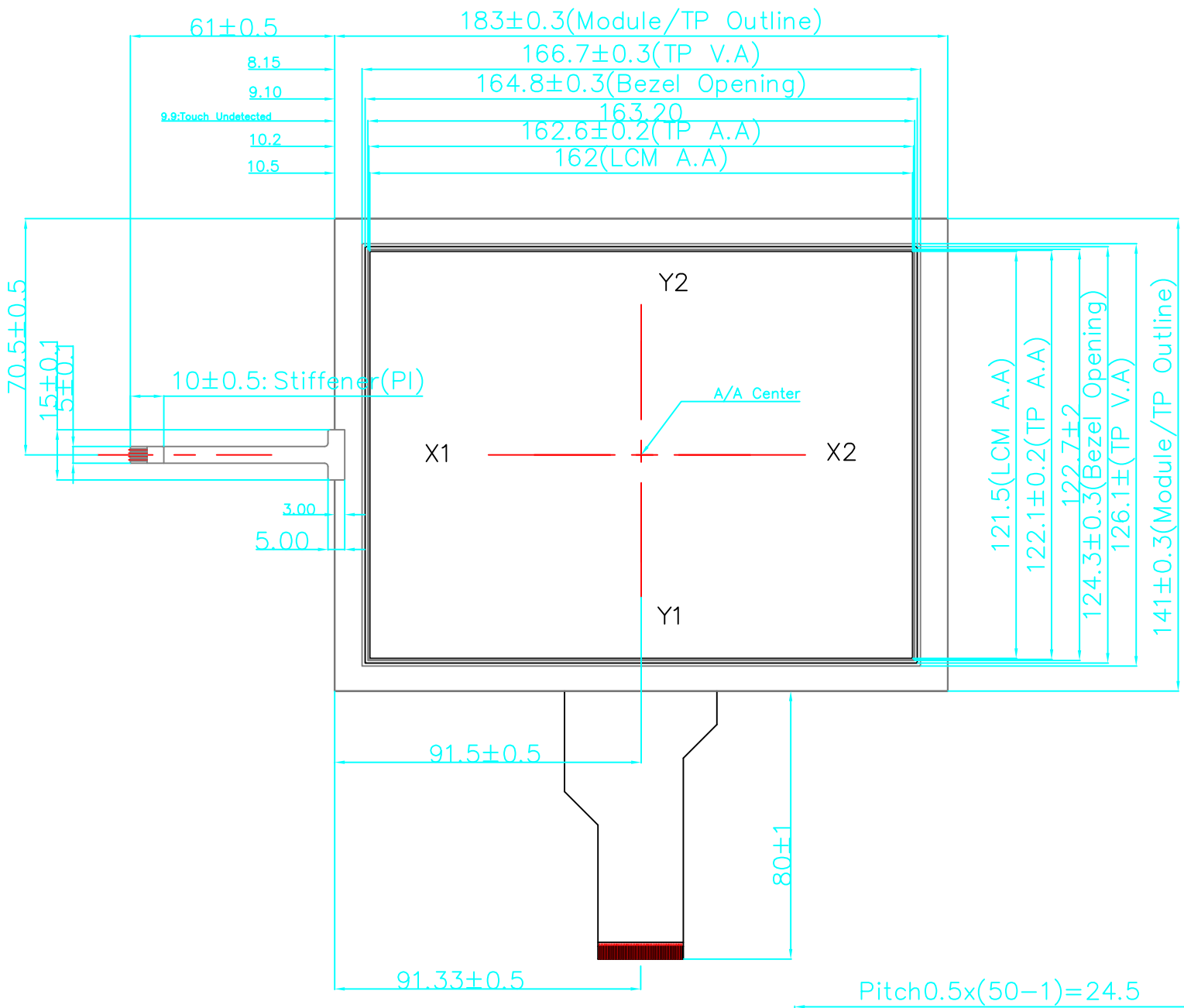
(8) Please pay attention for the matter as stated below at mounting design of touch panel & enclosure.
-1. Enclosure support to fix touch panel must be out of view (transparent) area. (Do not design enclosure presses the view area to protect from miss input)
-2. Enclosure edge must be between view area & Guaranteed active area. (Enclosure edge must not touch with view area)
-3. We recommend the material of support to fix touch panel is elastic material.
-4. Do not bond top surface (film) of touch panel with enclosure.
-5. The corner parts has conductivity. Do not touch any metal part after mounting.
-6. Special design is required for water resistance use.
-7. Cleaning Touch Panel by Air gun, pressure 2kg/cm^2 below is suggested. This is preventing FPC to peel off when air is blowing to FPC from glass side.

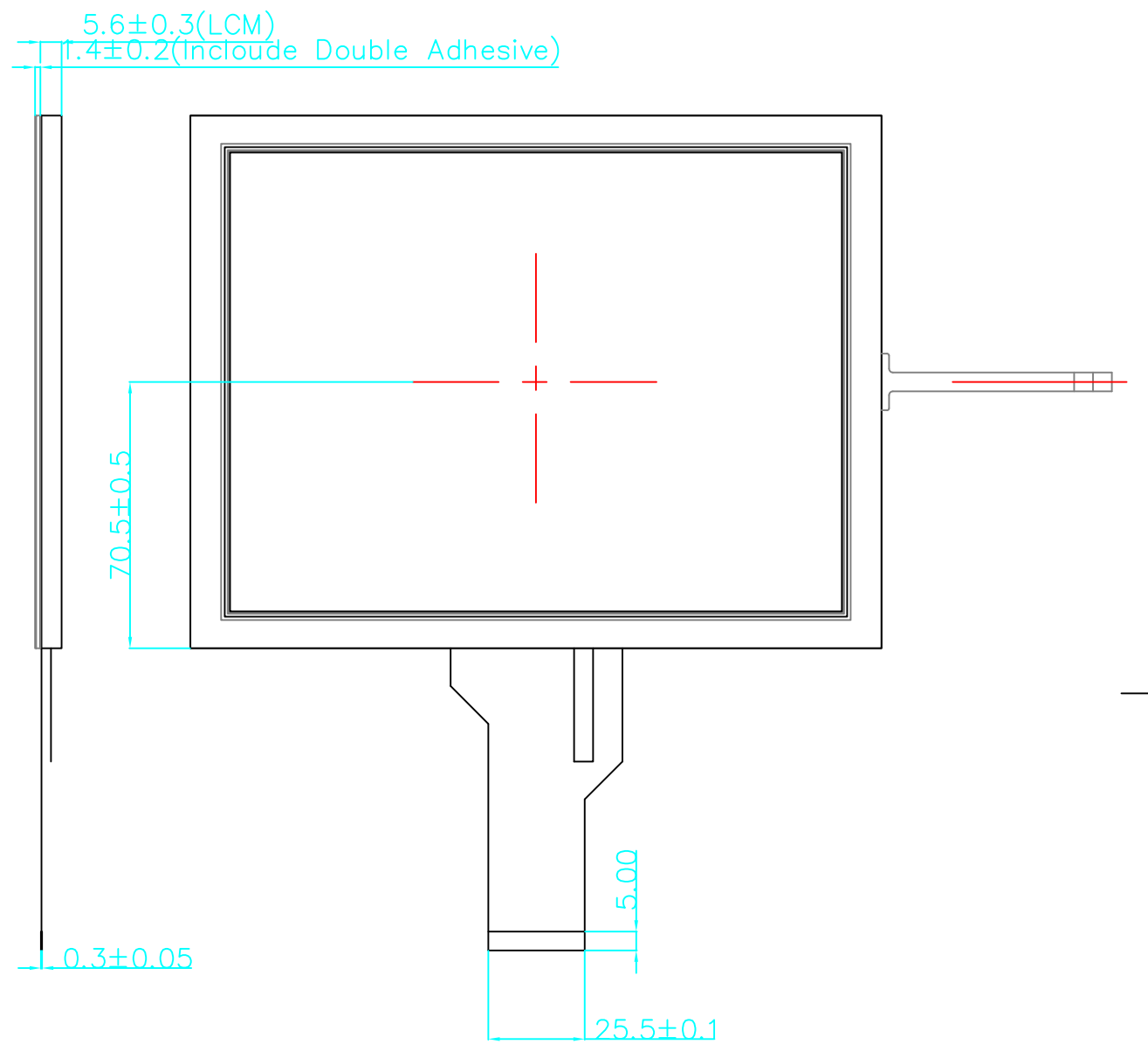
[Mounting condition example]

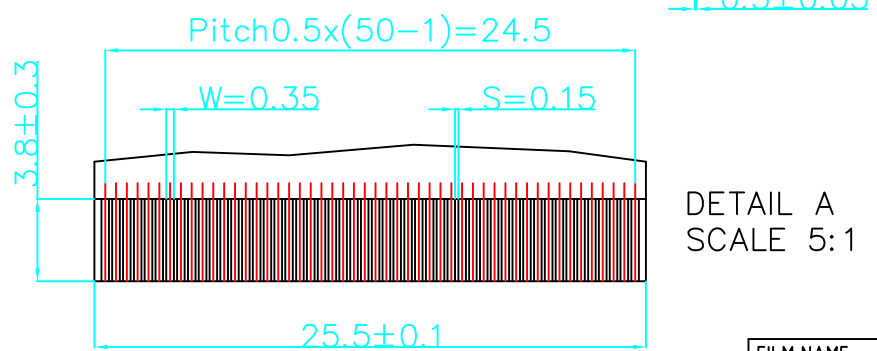


8. Mechanical Drawing

修訂號	修訂說明	日期	簽名	審查







DETAIL A
SCALE 5:1

Notes:
1. FPC connector suggest to be Hirose "FH12A-50S-0.5H";
2. The bending radius of FPC shoudle be large than 1mm;
3. General tolerance ±0.3mm;
4. Pen&Finger input type;
5. TP surface hardness: 3H;
6. TP transmittance: 82% Typ(JIS-K7105);
7. TP film: Anti-Glare.

PIN No.	Description
1	Y1
2	X1
3	Y2
4	X2

FILM NAME		FSCM NO	UNIT: MM	SCALE: 1:1
SIZE			3rd ANGLE	
DRAW			INTELTRONIC INC.	
CHECK			DRAWING_SUBTITLE	
APPROVAL				
ISSUE			DRAWING NO: LMTE080TD02N41-4RTP	
REVISION				
CONTRACT				

9.Inspection Specifications

The buyer (customer) shall inspect the modules within twenty calendar days since the delivery date (the "inspection period") at its own cost. The results of the inspection (acceptance or rejection) shall be recorded in writing, and a copy of this writing will be promptly sent to the seller.

The buyer may, under commercially reasonable reject procedures, reject an entire lot in the delivery involved if, within the inspection period, such samples of modules within such lot show an unacceptable number of defects in accordance with this incoming inspection standards, provided however that the buyer must notify the seller in writing of any such rejection promptly, and not later than within three business days of the end of the inspection period.

Should the buyer fail to notify the seller within the inspection period, the buyer's right to reject the modules shall be lapsed and the modules shall be deemed to have been accepted by the buyer.

10. Warranty

Inteltronic Inc. warrants to you, the original purchaser, that each of its products will be free from defects in materials and workmanship for one year from the date of purchase.

Inteltronic Inc. will be limited to replace or repair any of its module which is found and confirmed defective electrically or visually when inspected in accordance with Inteltronic Inc. general module inspection standard.

This warranty does not apply to any products which have been on customer's production line, repaired or altered by persons other than repair personnel authorized by Inteltronic Inc., or which have been subject to misuse, abuse, accident or improper installation. Inteltronic Inc. assumes no liability under the terms of this warranty as a consequence of such events.

If an Inteltronic Inc. product is defective, it will be repaired or replaced at no charge during the warranty period. For out-of-warranty repairs, you will be billed according to the cost of replacement materials, service time and freight.

In returning the modules, they must be properly packaged with original package; there should be detailed description of the failures or defect.

11. RMA

Products purchased through Inteltronic Inc. and under warranty may be returned for replacement.

Contact support@inteltronicinc.com for RMA number and procedures.

Office Locations

INTELTRONIC

Inteltronic Inc.
www.inteltronicinc.com
Office: 510-471-9900
Fax: 510-471-9901
Address: 29470 Union City Blvd
Union City, CA 94587

www.wahlee.com
Wah Lee Industrial Corp.
HSINCHU OFFICE
18F, No.8, Zihciang S. Rd., Jhubei,
Hsinchu 302, Taiwan, R.O.C.
Tel : 886-3-6205880
FAX: 886-3-6205833