PRODUCT SPECIFICATION

5.0" TN TFT LCD MODULE
MODEL: T050800480-A3TMN-068   Ver:1.0

< ◇ >   Preliminary Specification

< ◆ >   Finally Specification

CUSTOMER'S APPROVAL	
CUSTOMER :	
SIGNATURE:	DATE:

APPROVED BY	PM REVIEWED	PD REVIEWED	PREPARED BY

Revision History

Revision	Date	Originator	Detail	Remarks
1.0	2017.04.25	ZFY	Initial Release	

Table of Contents

1. General Description

The specification is a transmissive type color active matrix liquid crystal display (LCD) which uses amorphous thin film transistor (TFT) as switching devices. This product is composed of a TFT-LCD panel, driver Ics   and a backlight unit.

2. Module Parameter

Features	Details	Unit
Display Size(Diagonal)	5.0"	
LCD type	TN TFT	
Display Mode	Normally White/Transmissive	
Resolution	800 RGB x 480	Pixels
View Direction	12 O'clock	Best Image
Gray Scale Inversion Direction	6 O'clock	
Module Outline	120.7 (H) x 75.8 (V) x 3.1 (T)　(Note1)	mm
Active Area	108 (H) x 64.8(V)	mm
Pixel Size	135 (H) x 135(V)	um
Pixel Arrangement	R.G.B Vertical Stripe	
Polarizer Surface Treatment	Anti-Glare	
Display Colors	16.7M	
Interface	24-bit RGB interface	
With or Without Touch Panel	Without	
Operating Temperature	**-20～70**	℃
Storage Temperature	**-30～80**	℃
Weight	60	g

Note 1: Exclusive hooks, posts, FFC/FPC tail etc.

3. Absolute Maximum Ratings

V_{SS}=0V, Ta=25℃

Item	Symbol	Min.	Max.	Unit
Supply Voltage	VDD	-0.5	5.0	V
Storage temperature	T_{STG}	-30	+80	℃
Operating temperature	T_{OP}	-20	+70	℃

Note 1: If Ta below 50℃, the maximal humidity is 90%RH, if Ta over 50℃, absolute humidity should be less than 60%RH.

Note 2: The response time will be extremely slow when the operating temperature is around -10℃, and the back ground will become darker at high temperature operating.
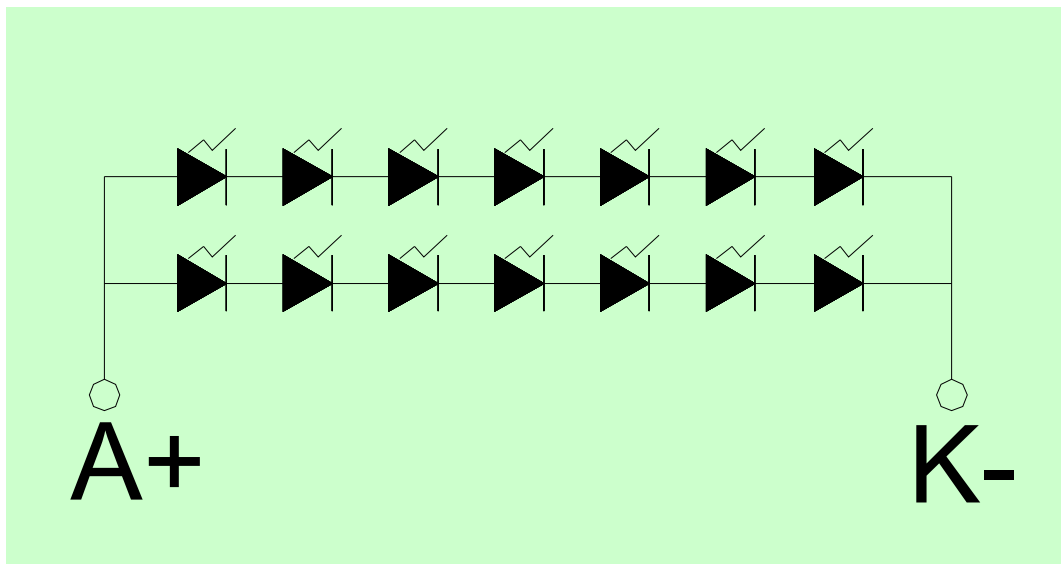
4. DC Characteristics

Item		Symbol	Min.	Typ.	Max.	Unit
Supply Voltage		VDD	3.0	3.3	3.6	V
Logic Low input voltage		V_{IL}	0	-	0.3*VDD	V
Logic High input voltage		V_{IH}	0.7*VDD	-	VDD	V
Logic Low output voltage		V_{OL}	-	-	VSS+0.4	V
Logic High output voltage		V_{OH}	VDD-0.4	-	-	V
Current Consumption	Logic	$I_{CC+}\ I_{IN}$	-	110	200	mA
All Black	Analog					

5. Backlight Characteristic

5.1. Backlight Characteristics

Item	Symbol	Condition	Min.	Typ.	Max.	Unit
Backlight Voltage	V_{LED}	Ta=25 ℃, I_F=20mA/LED	**19.6**	**22.4**	**23.8**	V
Backlight Current	I_{LED}	Ta=25 ℃, V_F=3.2V/LED	**-**	**40**	**-**	mA
Power dissipation	P_D		-	896	-	mW
Uniformity	Avg		75	80	-	%
Drive method	**Constant current**					
LED Configuration	14 White LEDs(7 LEDs in one string and 2 groups in parallel)					

5.2. Backlighting circuit

6. Touch Screen Panel Specifications

6.1. Electrical Characteristics

Item	Min.	Typ.	Max.	Unit	Note
Linearity	-1.5	-	1.5	%	Analog X and Y directions
Terminal resistance	350	-	1000	Ω	X (Film side)
	100	-	450	Ω	Y (Glass side)
Insulation resistance	20	-	-	MΩ	DC ≤10V
Voltage	-	-	10	V	DC
Chattering	-	-	10	ms	

Caution (1) : Do not operate it with a thing except a polyacetal pen (tip R0.8mm or less) or a finger, especially those with hard or sharp tips such as a ball point pen or a mechanical pencil.

6.2. Mechanical & Reliability Characteristics

Item	Min.	Typ.	Max.	Unit	Note
Activation force	20	-	100	g	(1)
Durability-surface scratching	Write 20,000	-	-	characters	(2)
Durability-surface pitting	1,000,000	-	-	touches	(3)
Surface hardness	3	-	-	H	

Note (1) Stylus pen Input R0.8mm polyacetal pen or Finger
Note (2) Measurement for Surface area
- Force: 150-250gf
- Speed: 60mm/sec
- Stylus: R0.8 polyacetal pen or Finger
Note (3) Pit 1,000,000 times on the Film with a R3.75 silicon rubber.
- Force: Force: 2.45N
- Speed: 3times/sec

7. Optical Characteristics

7.1. Optical Characteristics

Ta=25ºC, V_{DD}=3.3V, TN LC+ Polarizer

Item		Symbol	Condition	Specification			Unit
				Min.	Typ.	Max.	
Backlight On (Transmissive Mode)	Luminance on TFT(I_f=20mA/LED)	Lv	Normally viewing angle θX = φY =0º	240	300	-	cd/m²
	Contrast ratio(See 7.3)	CR		-	350	-	
	Response time (See 7.2)	TR+TF		-	20	-	ms
	Chromaticity Transmissive (See 7.5) Red	XR		0.559	0.609	0.659	
		YR		0.307	0.357	0.407	
	Green	XG		0.277	0.327	0.377	
		YG		0.560	0.610	0.660	
	Blue	XB		0.102	0.152	0.202	
		YB		0.068	0.118	0.168	
	White	XW		0.237	0.287	0.337	
		YW		0.280	0.330	0.380	
	Viewing Angle (See 7.4) Horizontal	θX+	Center CR≥10	60	70	-	Deg.
		θX-		60	70	-	
	Vertical	φY+		45	50	-	
		φY-		60	70	-	
	NTSC Ratio(Gamut)			-	50	-	%

7.2. Definition of Response Time
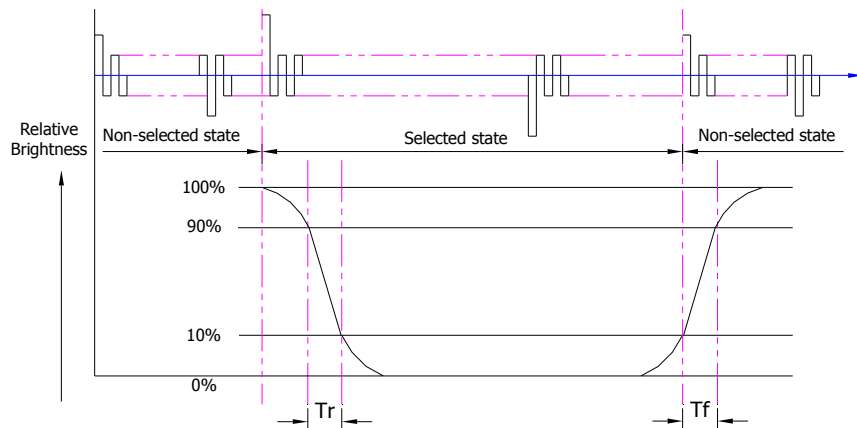
7.2.1. Normally Black Type (Negative)
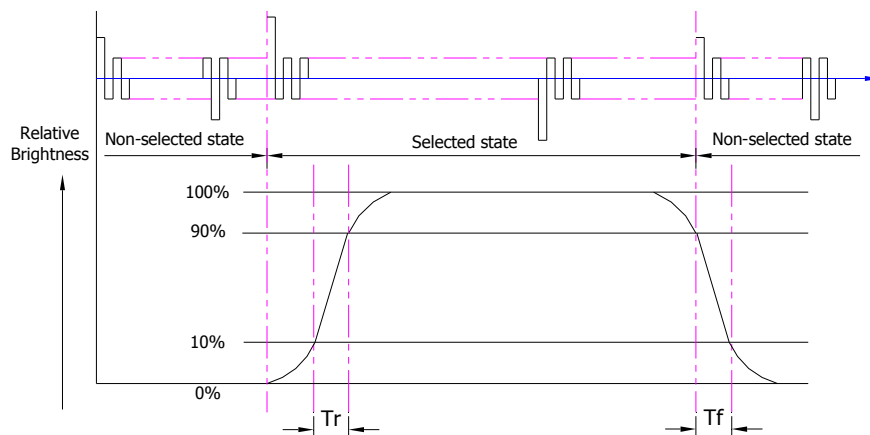
Tr is the time it takes to change form non-selected stage with relative luminance 10% to selected state with relative luminance 90%;

Tf is the time it takes to change from selected state with relative luminance 90% to

non-selected state with relative luminance 10%

Note : Measuring machine: LCD-5100

7.2.2. Normally White Type (Positive)

Tr is the time it takes to change form non-selected stage with relative luminance 90% to selected state with relative luminance 10%;

Tf is the time it takes to change from selected state with relative luminance 10% to non-selected state with relative luminance 90%;

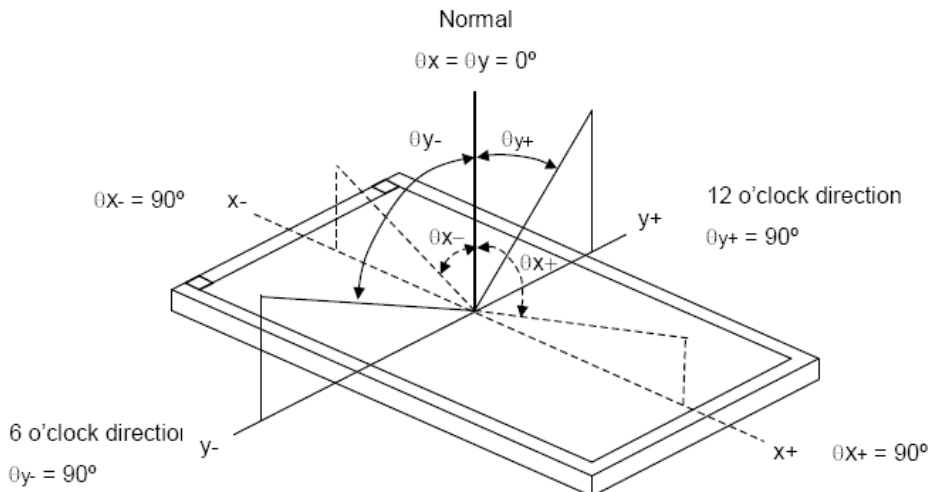Note : Measuring machine: LCD-5100 or EQUI

7.3. Definition of Contrast Ratio

Contrast is measured perpendicular to display surface in reflective and transmissive mode.

The measurement condition is:

Measuring Equipment	Eldim or Equivalent
Measuring Point Diameter	3mm//1mm
Measuring Point Location	Active Area centre point
Test pattern	A: All Pixels white
	B: All Pixel black
Contrast setting	Maximum

Definitions: CR (Contrast) = Luminance of White Pixel / Luminance of Black Pixel
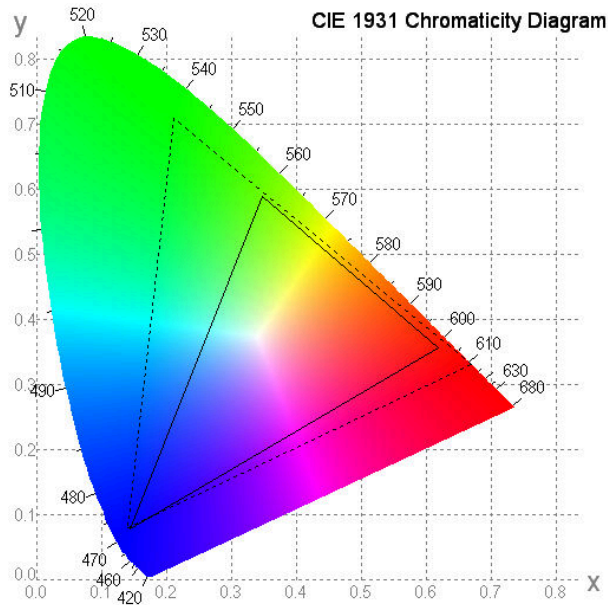
7.4. Definition of Viewing Angles

Measuring machine: LCD-5100 or EQUI

7.5. Definition of Color Appearance

R,G,B and W are defined by (x, y) on the IE chromaticity diagram

NTSC=area of RGB triangle/area of NTSC triangleX100%

Measuring picture: Red, Green, Blue and White (Measuring machine: BM-7)

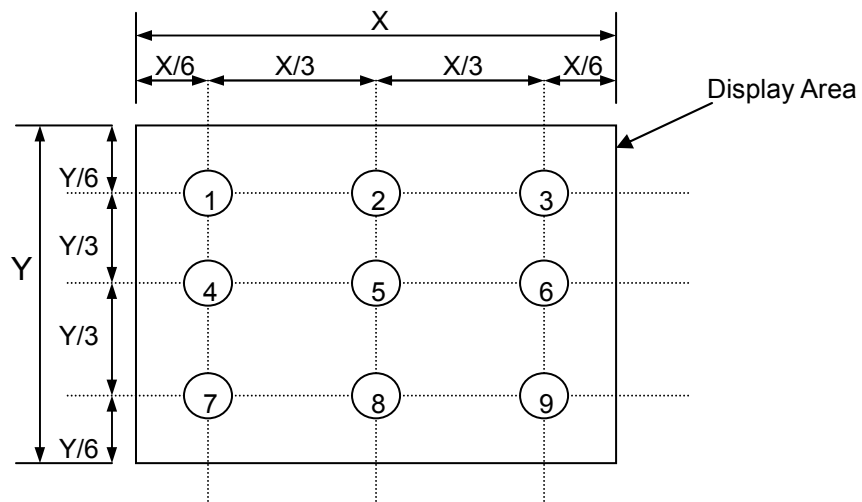## 7.6. Definition of Surface Luminance, Uniformity and Transmittance

Using the transmissive mode measurement approach, measure the white screen luminance of the display panel and backlight.
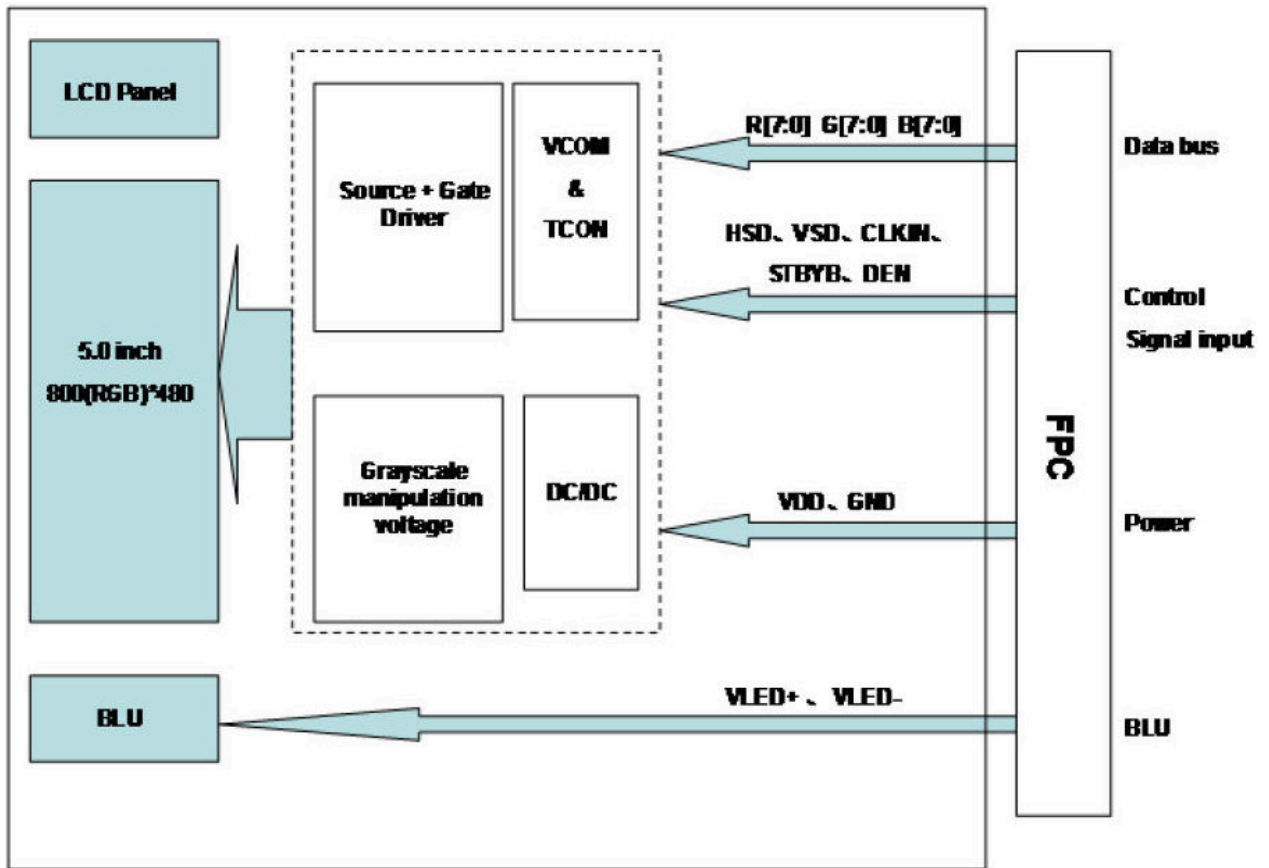
7.6.1. Surface Luminance: L_V = average (L_{P1}:L_{P9})

7.6.2. Uniformity = Minimal (L_{P1}:L_{P9}) / Maximal (L_{P1}:L_{P9}) * 100%

7.6.3. Transmittance = L_V on LCD / L_V on Backlight * 100%

Note: Measuring machine: BM-7

8. Block Diagram and Power Supply

9. Interface Pins Definition

| No.	Symbol	Function	Remark
1	VLED-	Ground (Cathode).	
2	VLED+	LED Input Terminal (Anode).	
3	GND	Ground.	
4	VDD	Power voltage.	
5	R0	Red data (LSB).	
6	R1	Red data.	
7	R2	Red data.	
8	R3	Red data.	
9	R4	Red data.	
10	R5	Red data.	
11	R6	Red data.	
12	R7	Red data (MSB).	
13	G0	Green data (LSB).	
14	G1	Green data.	
15	G2	Green data.	
16	G3	Green data.	
17	G4	Green data.	
18	G5	Green data.	
19	G6	Green data.	
20	G7	Green data (MSB).	
21	B0	Blue data (LSB).	
22	B1	Blue data.	
23	B2	Blue data.	
24	B3	Blue data.	
25	B4	Blue data.	
26	B5	Blue data.	
27	B6	Blue data.	
28	B7	Blue data (MSB).	
29	GND	Ground.	
30	CLKIN	Clock for input data. Data latched at falling edge of this signal.	
31	STBYB	Display on/off.	
32	HSD	Horizontal sync signal.	
33	VSD	Vertical sync signal.	
34	DEN	Data enable.	
35	NC	No connection.	
36	GND	Ground.	
37	NC	No connection.	
38	NC	No connection.	
39	NC	No connection.	
40	NC	No connection.	

10. Timing Chart

1) Parallel RGB AC Characteristics

(VDDD=2.3 to 3.6V,AVDD=6.5 to 13.5V, GND=AGND=0V,TA=-20 to +85℃)

Parameter	Symbol	MIN.	Typ.	MAX.	UNIT	Conditions
CLKIN Frequency	Fclk	-	33	50	MHz	VDDD = 2.3V ~ 3.6V
CLKIN Cycle Time	Tclk	20	30	-	ns	
CLKIN Pulse Duty	Tcwh	40	50	60	%	Tclk
Time from HSD to Source Output	Thso	-	Tld		CLKIN	
Time from HSD to LD	Thld	-	Tld		CLKIN	
Time from HSD to STV	Thstv	-	2		CLKIN	
Time from HSD to CKV	Thckv	-	20		CLKIN	
Time from HSD to OEV	Thoev	-	4		CLKIN	
LD Pulse	Twld	-	10		CLKIN	
CKV Pulse Width	Twckv	-	66		CLKIN	
OEV Pulse Width	Twoev	-	Tld+10		CLKIN	

2) Input Clock and Data Timing Diagram
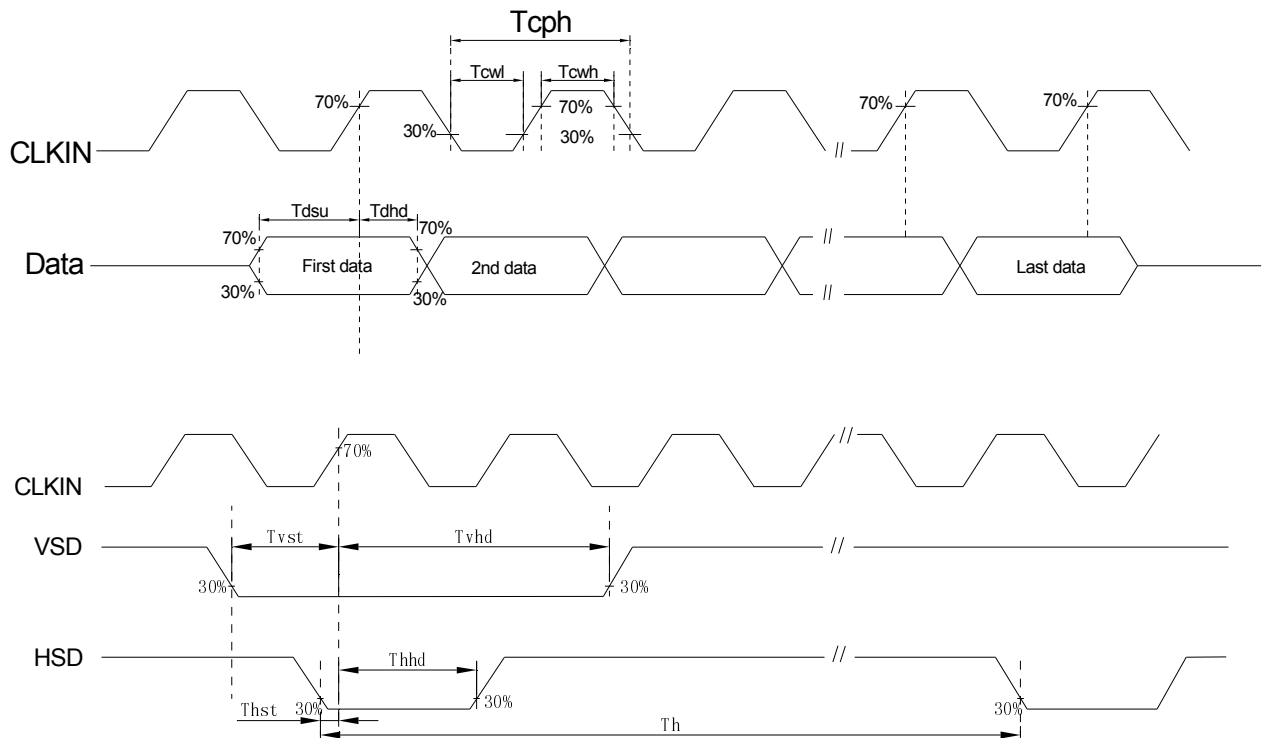
3) Data Input Format

Vertical input Format
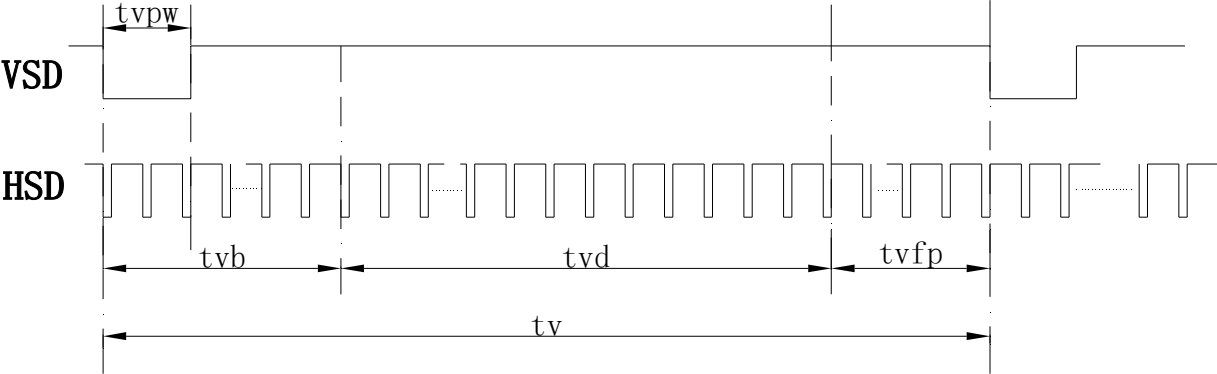
Horizontal input timing
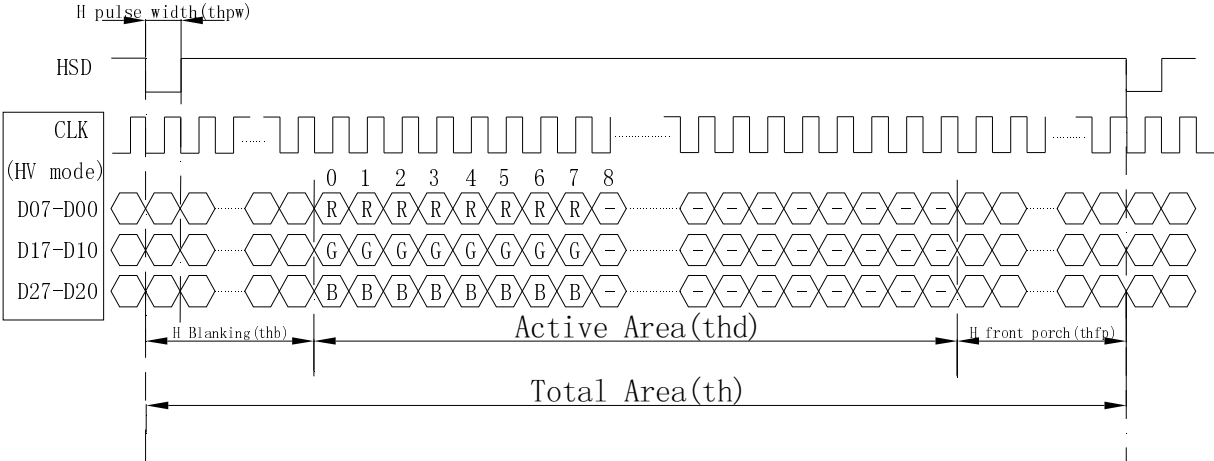
Timing Characteristics

Horizontal input timing

Parameter		Symbol	Value			Unit
			Min.	**Typ.**	**Max.**	
Horizontal display area		thd		800		DCLK
DCLK frequency		fclk	-	30	50	MHZ
1 Horizontal Line		th		928		DCLK
HSD pulse width	Min.	thpw		1		
	Typ.			48		
	Max.			-		
HSD Back Porch(Blanking)		thb	-	88	-	
HSD Front Porch		thfp	-	40	-	

Vertical input timing

Parameter	Symbol	Value			Unit
		Min.	**Typ.**	**Max.**	
Vertical display area	tvd		480		H
VSD period time	tv	-	525	-	H
VSD pulse width	tvpw	-	3	-	H
VSD Back Porch(Blanking)	tvb	-	32	-	H
VSD Front Porch	tvfp	-	13	-	H

4) Power ON/Off Sequence

In order to prevent IC from power on reset fail, the rising time (T_{POR}) of the digital power supply VDD should be maintained within the specifications. Refer to "AC Characteristics" for more detail on timing.

Power-On/Off Timing Sequence:
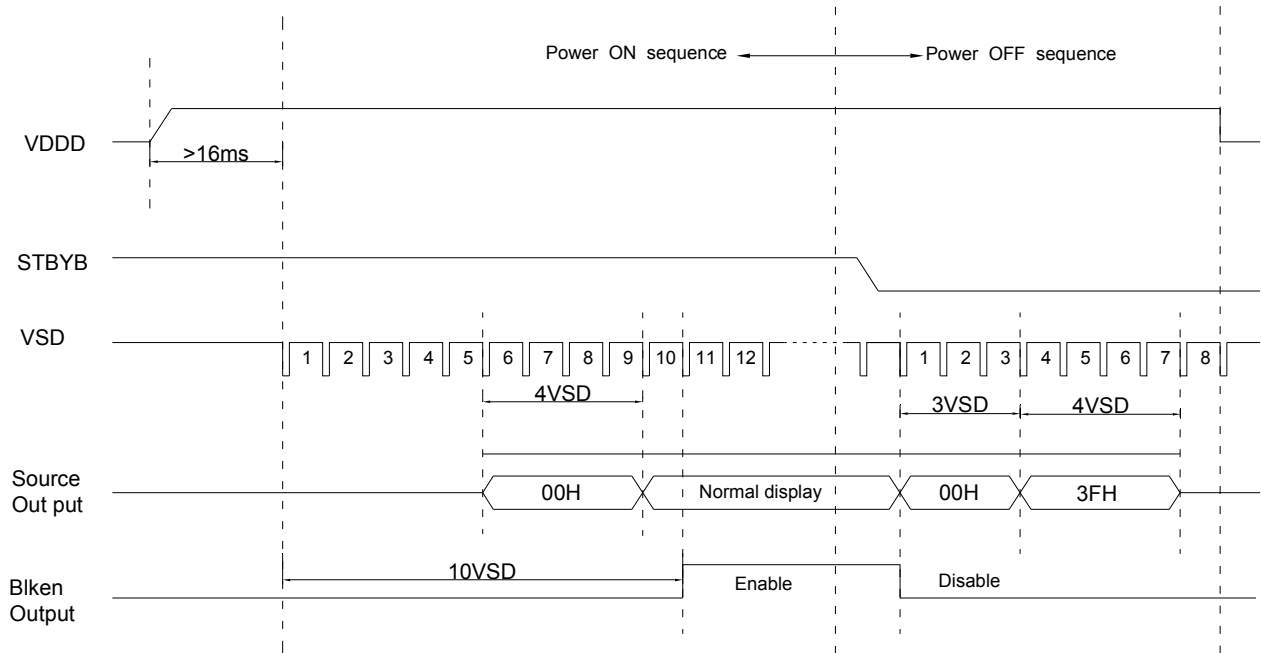
Enter and Exit Standby Mode Sequence:
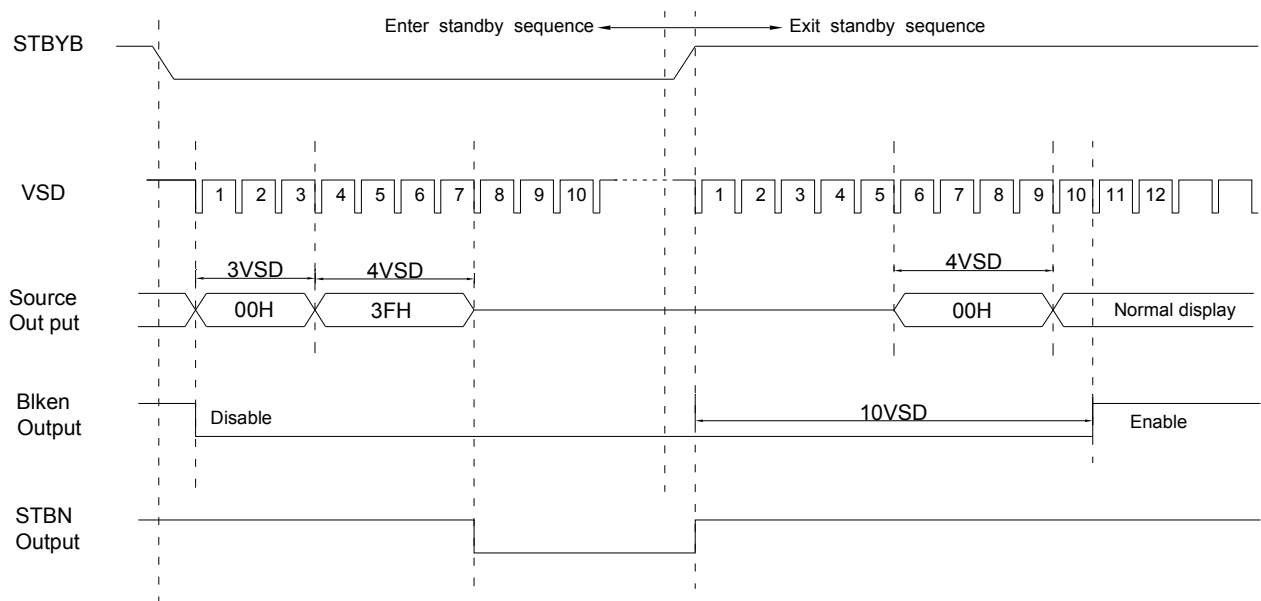
11. Quality Assurance

11.1. Purpose

This standard for Quality Assurance assures the quality of LCD module products supplied to customer.

11.2. Standard for Quality Test

11.2.1 Sampling Plan:

GB2828.1-2012

Single sampling, general inspection level II

11.2.2 Sampling Criteria:

Visual inspection: AQL 1.5%

Electrical functional: AQL 0.65%.

11.2.3 Reliability Test:

Detailed requirement refer to Reliability Test Specification.

11.3. Nonconforming Analysis & Disposition

11.3.1 Nonconforming analysis:

11.3.1.1 Customer should provide overall information of non-conforming sample for their complaints.

11.3.1.2 After receipt of detailed information from customer, the analysis of nonconforming parts usually should be finished in one week.

11.3.1.3 If can not finish the analysis on time, customer will be notified with the progress status.

11.3.2 Disposition of nonconforming:

11.3.2.1 Non-conforming product over PPM level will be replaced.

11.3.2.2 The cause of non-conformance will be analyzed. Corrective action will be discussed and implemented.

11.4. Agreement Items

Shall negotiate with customer if the following situation occurs:

11.4.1 There is any discrepancy in standard of quality assurance.

11.4.2 Additional requirement to be added in product specification.

11.4.3 Any other special problem.

11.5. Standard of the Product Visual Inspection

11.5.1 Appearance inspection:

11.5.1.1 The inspection must be under illumination about 1000 – 1500 lx, and the distance of view must be at 30cm ± 2cm.

11.5.1.2 The viewing angle should be 45° from the vertical line without reflection light or follows customer's viewing angle specifications.

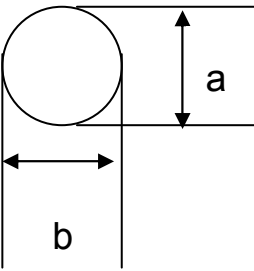11.5.1.3 Definition of area: A Zone: Active Area, B Zone: Viewing Area,
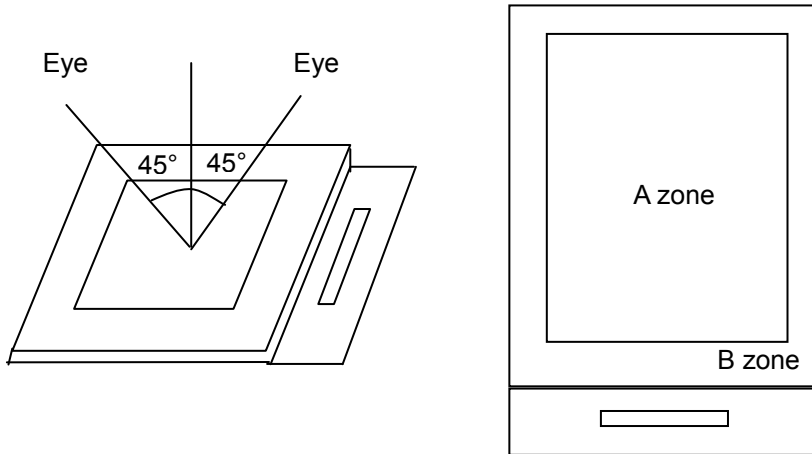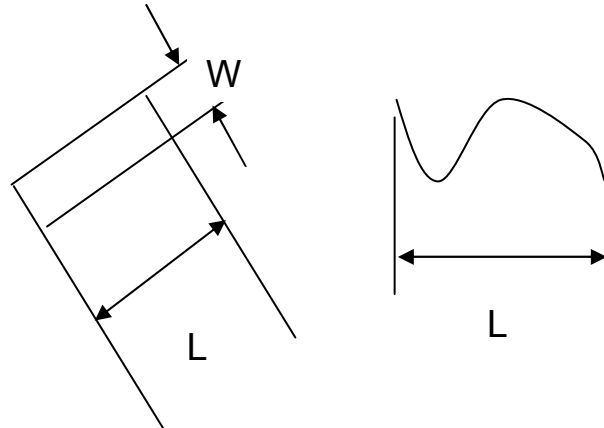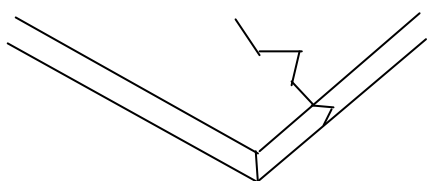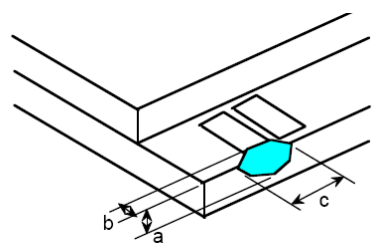
11.5.2 Basic principle:

      11.5.2.1 A set of sample to indicate the limit of acceptable quality level must be discussed by both us and customer when there is any dispute happened.
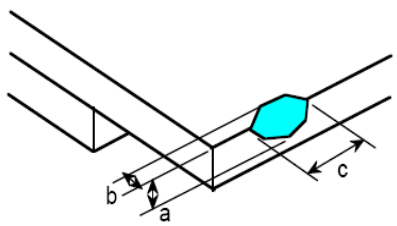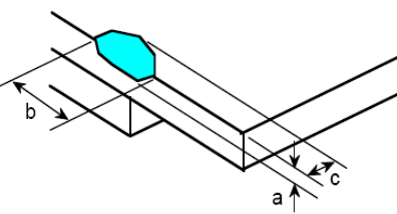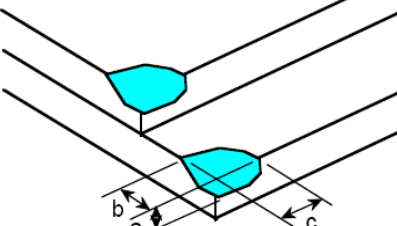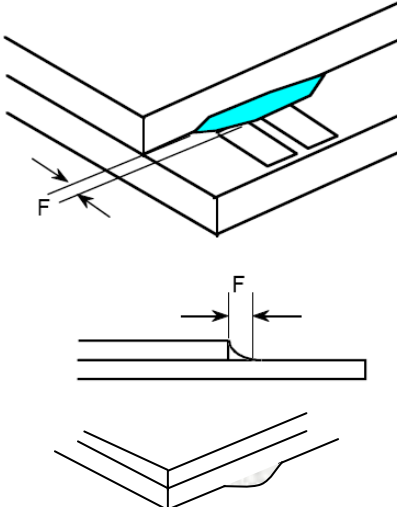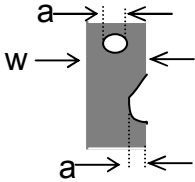
      11.5.2.2 New item must be added on time when it is necessary.

11.6.   Inspection Specification

No.	Item	Criteria (Unit: mm)		
01	Black / White spot Foreign material (Round type) Pinholes Stain Particles inside cell. (Minor defect)	$\varphi = (a + b)/2$ Distance between 2 defects should more than 5mm apart.		

Size \ Area	Acc. Qty
$\varphi \leqslant 0.20$	Ignore
$0.20 < \varphi \leqslant 0.50$	$N \leqslant 3$
$0.50 < \varphi$	0

02	Electrical Defect (Minor defect)			

	Display Area	Total	
Bright dot	$N \leqslant 2$	$N \leqslant 2$	Note1
Dark dot	$N \leqslant 4$	$N \leqslant 4$	
Total dot	$N \leqslant 4$	$N \leqslant 4$	
Mura	Not visible through 5% ND filters.		Note2

Remark:
1. Bright dot caused by scratch and foreign object accords to item 1.

03	Black and White line Scratch Foreign material (Line type) (Minor defect)	

For item 03:

Length	Width	Acc. Qty
/	$W \leqq 0.1$	Ignore
$L \leqq 2.5$	$0.1 < W \leqq 0.2$	3
$L > 2.5$	$0.2 < W$	0
Total		3

Distance between 2 defects should more than 3mm apart. Scratches not viewable through the back of the display are acceptable.

04	Glass Crack (Minor defect)	

Crack is potential to enlarge, any type is not allowed.

05	Glass Chipping Pad Area: (Minor defect)	

For item 05:

Length and Width	Acc. Qty
c > 3.0, b< 1.0	1
c< 3.0, b< 1.0	3
a<Glass Thickness	

06	Glass Chipping Rear of Pad Area: (Minor defect)	

Length and Width	Acc. Qty
c > 3.0, b< 1.0	1
c< 3.0, b< 1.0	2
c< 3.0, b< 0.5	4
a<Glass Thickness	

07	Glass Chipping Except Pad Area: (Minor defect)	

Length and Width	Acc. Qty
c > 3.0, b< 1.0	1
c< 3.0, b< 1.0	2
c< 3.0, b< 0.5	4
a<Glass Thickness	

08	Glass Corner Chipping: (Minor defect)	

Length and Width	Acc. Qty
c < 3.0, b< 3.0	Ignore
a<Glass Thickness	

09	Glass Burr: (Minor defect)	

Length	Acc. Qty
F < 1.0	Ignore

Glass burr don't affect assemble and module dimension.

10	FPC Defect: (Minor defect)	10.1 Dent, pinhole width a<w/3. (w: circuitry width.) 10.2 Open circuit is unacceptable. 10.3 No oxidation, contamination and distortion.
11	Bubble on Polarizer (Minor defect)	<table><tr><td>Diameter</td><td>Acc. Qty</td></tr><tr><td>φ≤0.30</td><td>Ignore</td></tr><tr><td>0.30 <φ≤0.50</td><td>N≤2</td></tr><tr><td>0.50 < φ</td><td>N=0</td></tr></table>
12	Dent on Polarizer (Minor defect)	<table><tr><td>Diameter</td><td>Acc. Qty</td></tr><tr><td>φ≤0.25</td><td>Ignore</td></tr><tr><td>0.25 <φ≤0.50</td><td>N≤4</td></tr><tr><td>0.50 < φ</td><td>None</td></tr></table>
13	Bezel	13.1 No rust, distortion on the Bezel. 13.2 No visible fingerprints, stains or other contamination.

14	Touch Panel	D: Diameter W: width L: length 14.1 Spot: D<0.25 is acceptable
		        0.25≤D≤0.4
		2dots are acceptable and the distance between defects should more than 10 mm.
		        D>0.4 is unacceptable
		14.2 Dent: D>0.40 is unacceptable
		14.3 Scratch: W≤0.03, L≤10 is acceptable,
		        0.03<W≤0.10, L≤10 is acceptable
		Distance between 2 defects should more than 10 mm.
		        W>0.10 is unacceptable.

15	LCD Ripple	Touch the touch panel, cannot see the LCD ripple. Pen: R 0.8mm silicon rubber. Operation Force:100g
16	PCB	16.1 No distortion or contamination on PCB terminals. 16.2 All components on PCB must same as documented on the BOM/component layout. 16.3 Follow IPC-A-600F.

17	Soldering	Follow IPC-A-610C standard
18	Electrical Defect (Major defect)	The below defects must be rejected. 18.1 Missing vertical / horizontal segment, 18.2 Abnormal Display. 18.3 No function or no display. 18.4 Current exceeds product specifications. 18.5 LCD viewing angle defect. 18.6 No Backlight. 18.7 Dark Backlight. 18.8 Touch Panel no function.

Remark: LCD Panel Broken shall be rejected. Defect out of LCD viewing area is acceptable.

11.7. Classification of Defects

11.7.1 Visual defects (Except no / wrong label) are treated as minor defect and electrical defect is major.

11.7.2 Two minor defects are equal to one major in lot sampling inspection.

11.8. Identification/marking criteria

Any unit with illegible / wrong /double or no marking/ label shall be rejected.

11.9. Packaging

11.9.1 There should be no damage of the outside carton box, each packaging box should have one identical label.

11.9.2 Modules inside package box should have compliant mark.

11.9.3 All direct package materials shall offer ESD protection

Note1: Bright dot is defined as the defective area of the dot is larger than 50% of one sub-pixel area.
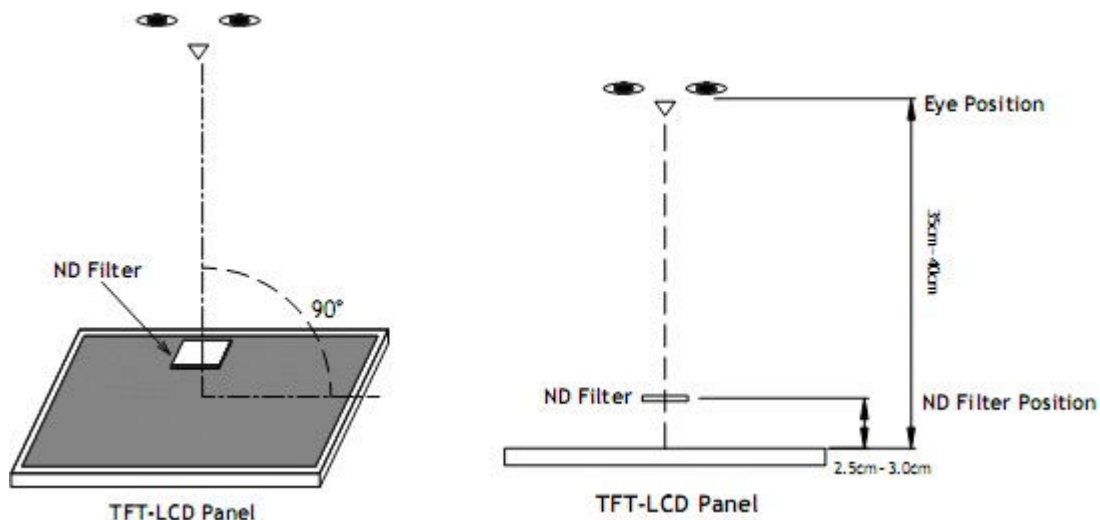
Bright dot: The bright dot size defect at black display pattern. It can be recognized by 2% transparency of filter when the distance between eyes and panel is 350mm±50mm.

Dark dot: Cyan, Magenta or Yellow dot size defect at white display pattern. It can be recognized by 5% transparency of filter when the distance between eyes and panel is 350mm±50mm.

Note2: Mura on display which appears darker / brighter against background brightness on parts of display area.

12. Reliability Specification

No	Item	Condition	Quantity	Criteria
1	High Temperature Operating	70℃, 96Hrs	2	GB/T2423.2 -2008
2	Low Temperature Operating	-20℃, 96Hrs	2	GB/T2423.1 -2008
3	High Humidity	50℃, 90%RH, 96Hrs	2	GB/T2423.3 -2006
4	High Temperature Storage	80℃, 96Hrs	2	GB/T2423.2 -2008
5	Low Temperature Storage	-30℃, 96Hrs	2	GB/T2423.1 -2008
6	Thermal Cycling Test	-20℃, 60min~70℃, 60min, 20 cycles.	2	GB/T2423.22 -2012
7	Packing vibration	Frequency range:10Hz~50Hz Acceleration of gravity:5G X, Y, Z 30 min for each direction.	2	GB/T5170.14 -2009
8	Electrical Static Discharge	Air:±8KV 150pF/330Ω 5 times Contact:±4KV 150pF/330Ω 5 times	2	GB/T17626.2 -2006
9	Drop Test (Packaged)	Height:80 cm,1 corner, 3 edges, 6 surfaces.	2	GB/T2423.8 -1995

Note1.   No defection cosmetic and operational function allowable.

Note2.   Total current Consumption should be below double of initial value

13. Precautions and Warranty

13.1. Safety

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

13.1.2 Since the liquid crystal cells are made of glass, do not apply strong impact on them. Handle with care.

13.2. Handling

13.2.1 Reverse and use within ratings in order to keep performance and prevent damage.

13.2.2 Do not wipe the polarizer with dry cloth, as it might cause scratch. If the surface of the LCD needs to be cleaned, wipe it swiftly with cotton or other soft cloth soaked with petroleum IPA, do not use other chemicals.

13.3. Storage

13.3.1 Do not store the LCD module beyond the specified temperature ranges.

13.4. Metal Pin (Apply to Products with Metal Pins)

13.4.1 Pins of LCD and Backlight

13.4.1.1 Solder tip can touch and press on the tip of Pin LEAD during the soldering

13.4.1.2 Recommended Soldering Conditions

Solder Type: Sn96.3~94-Ag3.3~4.3-Cu0.4~1.1

Maximum Solder Temperature: 370℃

Maximum Solder Time: 3s at the maximum temperature

Recommended Soldering Temp: 350±20℃

Typical Soldering Time: ≤3s

13.4.1.3 Solder Wetting

Solder   Pin Lead   Solder   Pin Lead

Recommended   Not Recommended
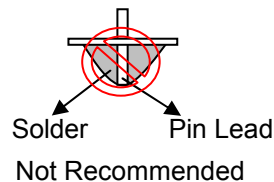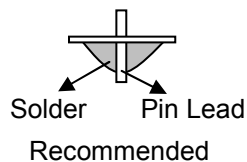
13.4.2 Pins of EL

13.4.2.1 Solder tip can touch and press on the tip of EL leads during soldering.

13.4.2.2 No Solder Paste on the soldering pad on the motherboard is recommended.

13.4.2.3 Recommended Soldering Conditions

Solder type: Nippon Alimit Leadfree SR-34, size 0.5mm

Recommended Solder Temperature: 270～290℃

Typical Soldering Time: ≤2s

Minimum solder distance from EL lamp (body):2.0mm

13.4.2.4 No horizontal press on the EL leads during soldering.

13.4.2.5 180° bend EL leads three times is not allowed.

13.4.2.6 Solder Wetting
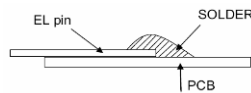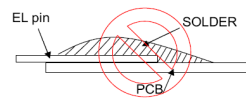
Recommended   Not Recommended

13.4.2.7 The type of the solder iron:
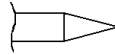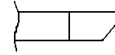
Recommended   Not Recommended

13.4.2.8 Solder Pad
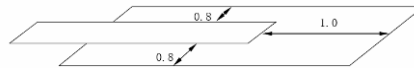
13.5. Operation

13.5.1 Do not drive LCD with DC voltage

13.5.2 Response time will increase below lower temperature

13.5.3 Display may change color with different temperature

13.5.4 Mechanical disturbance during operation, such as pressing on the display area, may cause the segments to appear "fractured".

13.6. Static Electricity

13.6.1. CMOS LSIs are equipped in this unit, so care must be taken to avoid the electro-static charge, by ground human body, etc.

13.6.2. The normal static prevention measures should be observed for work clothes and benches.

13.6.3. The module should be kept into anti-static bags or other containers resistant to static for storage.

13.7. Limited Warranty

13.7.1 Our warranty liability is limited to repair and/or replacement. We will not be responsible for any consequential loss.

13.7.2 If possible, we suggest customer to use up all modules in six months. If the module storage time over twelve months, we suggest that recheck it before the module be used.

13.7.3 After the product shipped, any product quality issues must be feedback within three months, otherwise, we will not be responsible for the subsequent or consequential events.

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14. Packaging

TBD

T050800480-A3TMN-068
Rev:1.0

REV	REVISION RECORD	SIGN	DATE
⚠	First Issue		

5.0" TFT

800(RGB)*480

FRONT

BACK

Contact side

STIFFENER (PI)

COMPONENT AREA

SINGLE AREA

120.7±0.3
111.1±0.2(Bezel Opening)
108(TFT A,A)
4.8±0.2
(6.35)
1.82±0.2
(3.35)
75.8±0.3
67.9±0.2(Bezel Opening)
64.8(TFT A,A)
46±0.3
16.15±0.3
23±0.2
26.15±0.3
3.5±0.3
0.5±0.1
W=0.3
1   40
P0.5*39=19.5±0.05
70.06±0.3
3.1±0.2
(5)
8
(5)   25
T050800480-A3TMN-068
YYYY/MM/DD
20±0.2
10±0.2
5±0.5
20.5±0.1
R0.3
0.3±0.05

NO.	PIN NAME
1	VLED-
2	VLED+
3	GND
4	VDD
5	R0
6	R1
7	R2
8	R3
9	R4
10	R5
11	R6
12	R7
13	G0
14	G1
15	G2
16	G3
17	G4
18	G5
19	G6
20	G7
21	B0
22	B1
23	B2
24	B3
25	B4
26	B5
27	B6
28	B7
29	GND
30	CLKIN
31	STBYB
32	HSD
33	VSD
34	DEN
35	NC
36	GND
37	NC(XR)
38	NC(YD)
39	NC(XL)
40	NC(YU)

A+   K-

NOTES:
1.Display size:5.0"TFT
2.Viewing direction:12 O'CLOCK
3.Gary Scale inversion direction:6 O'CLOCK
4.Display mode:Transmissive/Normal white/Anti-glare
5.Operation temperature:-20°C~+70°C
6.Storage temperature:-30°C~+80°C
7.Power supply voltage:3.3V
8.Backlight :White(14 LED)/22.4(TYP)V/40mA
9.Brighness: 300(TYP)cd/m2
10.ROHS must be complied
* Unspecification tolerance are ±0.2mm

VERSION	DATE	MODEL
A	2017.04.19	NAME: T050800480-A3TMN-068
SCALE	NO.	UNIT	TITLE:
	1/1	mm	Outline
APPROVED	CHECKED	DRAWN	FILE NAME: T050800480-A3TMN-068_A