PRODUCT SPECIFICATION

4.9" Mono TFT LCD MODULE
MODEL: T049300080-A0WMN-001   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	2018.04.16	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)	4.9"	
Display Mode	Transmissive / Normally black	
Resolution	300 x 80	Pixels
View Direction	Full viewing	Best Image
Module Outline	130.9(H) x 51.35(V) x 2.6(T)　(Note1)	mm
Active Area	119.98(H) x 31.98(V)	mm
Pixel Pich	400(H) x 400(V)	um
Pixel Arrangement	W-Stripe	
Surface polarizer treatment	Glare	
Interface	18-bit MCU interface	
Driver IC	HX8347-A	-
With or Without Touch Panel	Without	
Operating Temperature	-20〜70	℃
Storage Temperature	-30〜80	℃
Weight	TBD	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	VCI	-0.3	4.6	V
	IOVCC	-0.3	4.6	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

V_{SS}=0V, Ta=25ºC

Item		Symbol	Min.	Typ.	Max.	Unit
Supply Voltage		VCI	2.4	3.3	3.37	V
		IOVCC	1.65	3.3	3.37	V
Logic Low input voltage		V_{IL}	-0.3	-	0.2* IOVCC	V
Logic High input voltage		V_{IH}	0.8* IOVCC	-	IOVCC	V
Logic Low output voltage		V_{OL}	-	-	0.2* IOVCC	V
Logic High output voltage		V_{OH}	0.8* IOVCC	-	-	V
Current Consumption All white	Logic	$I_{CC+} I_{IN}$	-	TBD	-	mA
	Analog					

5. Backlight Characteristic

5.1. Backlight Characteristic

Item	Symbol	Condition	Min	Typ	Max	Unit
Forward Voltage	V_F	Ta=25 ºC, I_F=20mA/LED	**16.8**	**18.6**	**10.4**	V
Forward Current	I_F	Ta=25 ºC, V_F=3.1V/LED	-	**60**	-	mA
Power dissipation	P_D	-	-	1116	-	W
Uniformity	Avg	-	-	80	-	%
LED working life(25℃)	-		-	20000	-	Hrs
Drive method	**Constant current**					
LED Configuration	18 White LEDs(6 LEDs in one string and 3 groups in parallel)					

Note1：LED life time defined as follows: The final brightness is at 50% of original brightness.

The environmental conducted under ambient air flow, at Ta=25±2 ºC,60%RH±5%, I_F=20mA

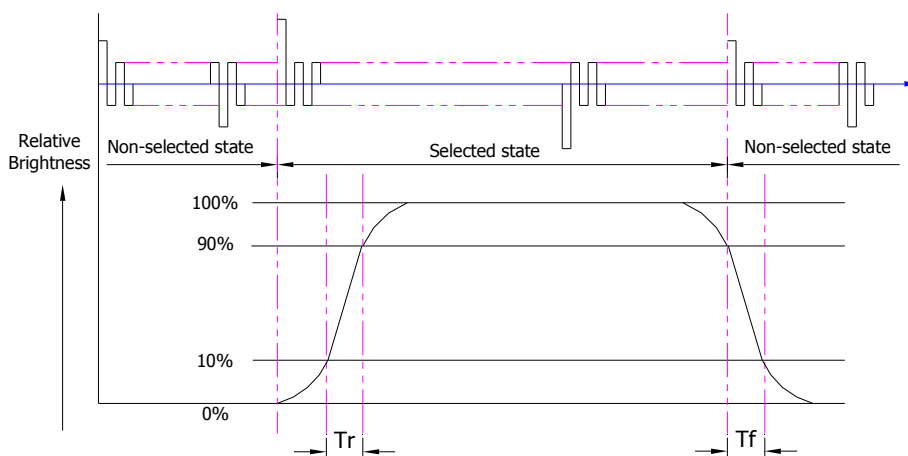### 5.2. Backlighting circuit
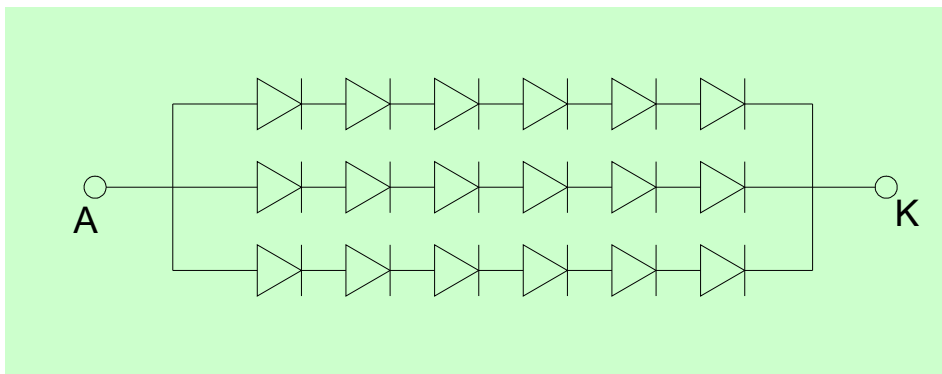
6. Optical Characteristics

6.1. Optical Characteristics

Ta=25ºC,

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	520	650	-	cd/m²
Contrast ratio(See 6.3)		CR		-	1000	-	
Response time (See 6.2)		TR+TF		-	35	123	ms
Chromaticity Transmissive (See 6.5)	Red	XR	Backlight is on		TBD		-
		YR			TBD		-
	Green	XG			TBD		-
		YG			TBD		-
	Blue	XB			TBD		-
		YB			TBD		-
	White	XW			TBD		-
		YW			TBD		-
Viewing Angle (See 6.4)	Horizontal	θX+	Center CR≥10		80	-	Deg.
		θX-			80	-	
	Vertical	φY+			80	-	
		φY-			80	-	

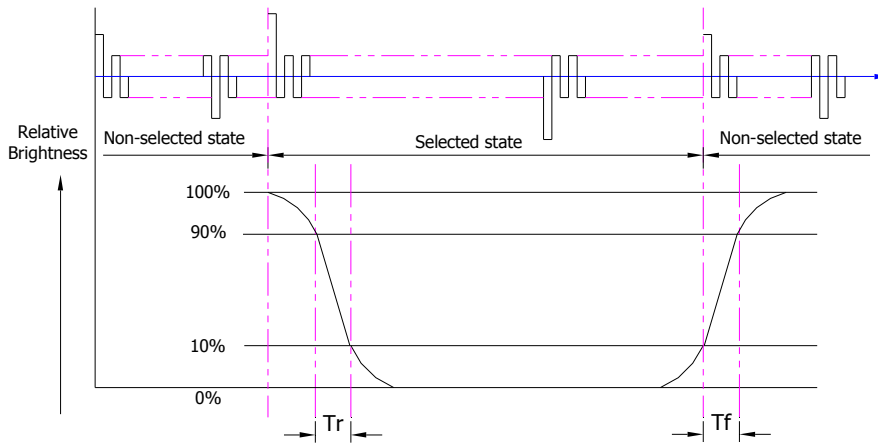### 6.2. Definition of Response Time

6.2.1. 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

6.2.2. 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

6.3. 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
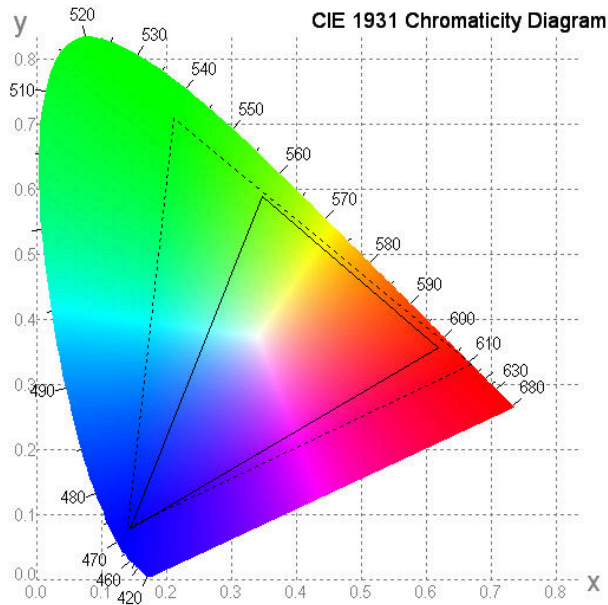
6.4. Definition of Viewing Angles
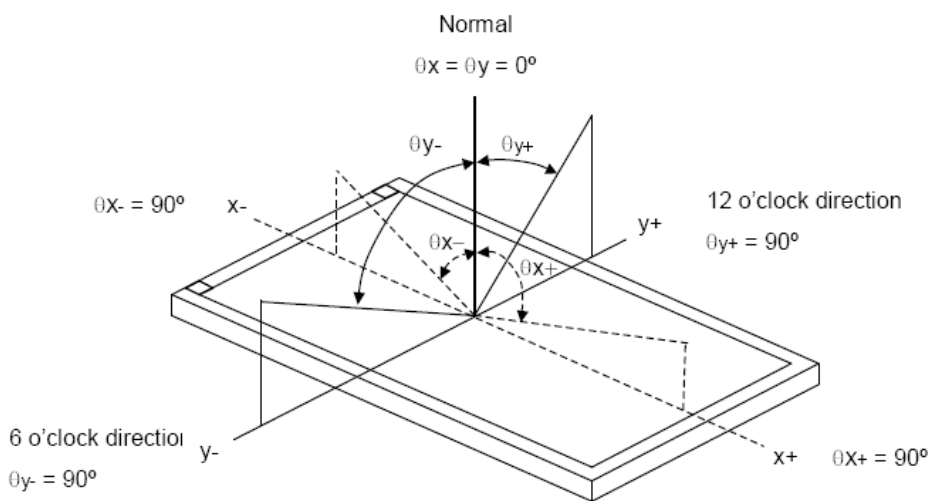
Measuring machine: LCD-5100 or EQUI

6.5. 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)
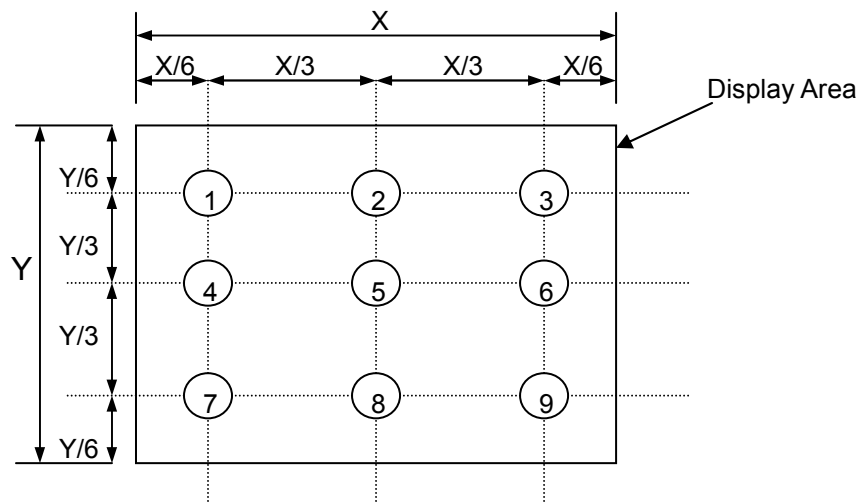

## 6.6. Definition of Surface Luminance, Uniformity and Transmittance

Using the transmissive mode measurement approach, measure the white screen luminance of the display panel and backlight.

6.6.1.   Surface Luminance: L_V = average (L_{P1}:L_{P9})

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

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

Note : Measuring machine: BM-7

7. Block Diagram and Power Supply
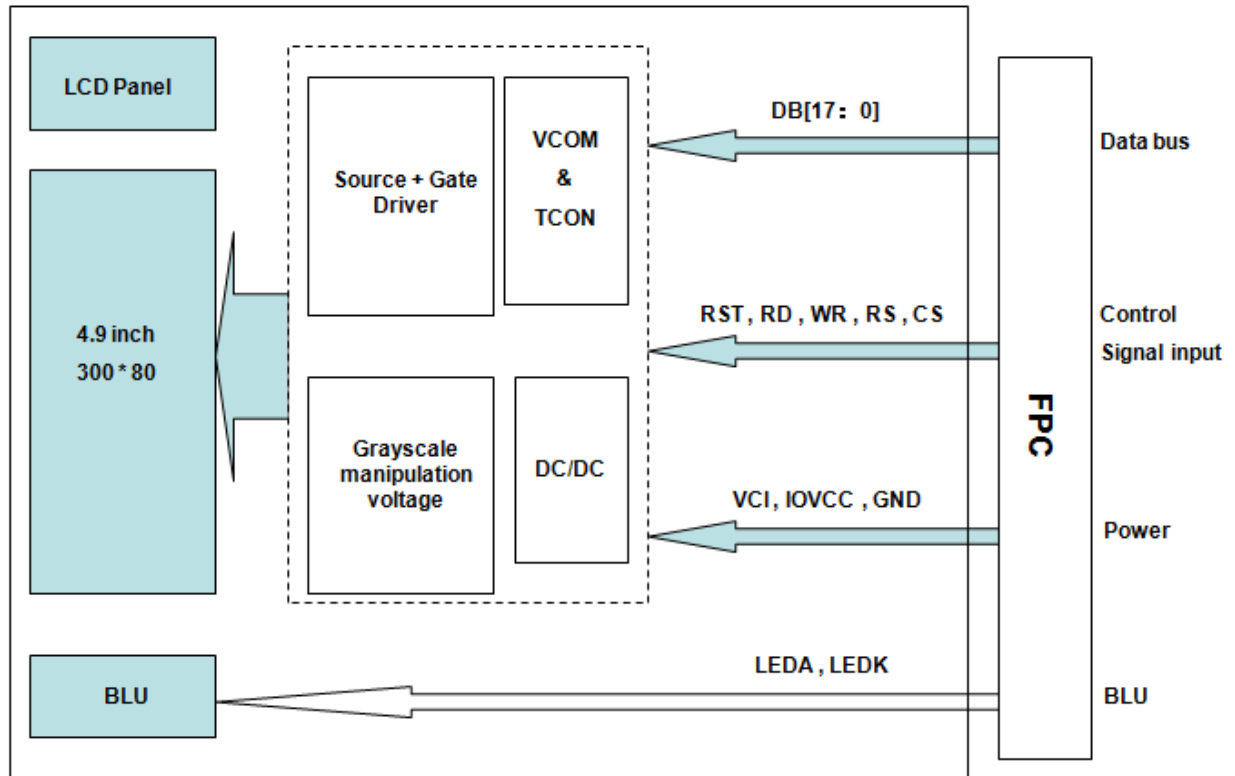
8. Interface Pins Definition

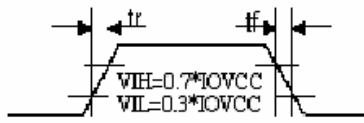| No.	Symbol	Function	Remark
1	GND	Ground	
2	GND	Ground	
3	NC	No connection	
4	NC	No connection	
5	IOVCC	Power supply.	
6	GND	Ground	
7	VCI	Power supply.	
8	RST	Reset	
9	GND	Ground	
10	DB17	18-bit bus interface	
11	DB16	18-bit bus interface	
12	DB15	18-bit bus interface	
13	DB14	18-bit bus interface	
14	DB13	18-bit bus interface	
15	DB12	18-bit bus interface	
16	DB11	18-bit bus interface	
17	DB10	18-bit bus interface	
18	DB9	18-bit bus interface	
19	DB8	18-bit bus interface	
20	DB7	18-bit bus interface	
21	DB6	18-bit bus interface	
22	DB5	18-bit bus interface	
23	DB4	18-bit bus interface	
24	DB3	18-bit bus interface	
25	DB2	18-bit bus interface	
26	DB1	18-bit bus interface	
27	DB0	18-bit bus interface	
28	GND	Ground	
29	RD	Read enable input pin	
30	WR	Write enable input pin	
31	RS	Data/Command pin	
32	CS	Chip select input pin	
33	GND	Ground	
34~36	LEDK	LED Cathode.	
37~39	LEDA	LED Anode.	
40	GND	Ground	

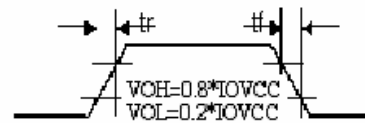# 9. AC Characteristics

9.1. Parallel Interface Characteristics
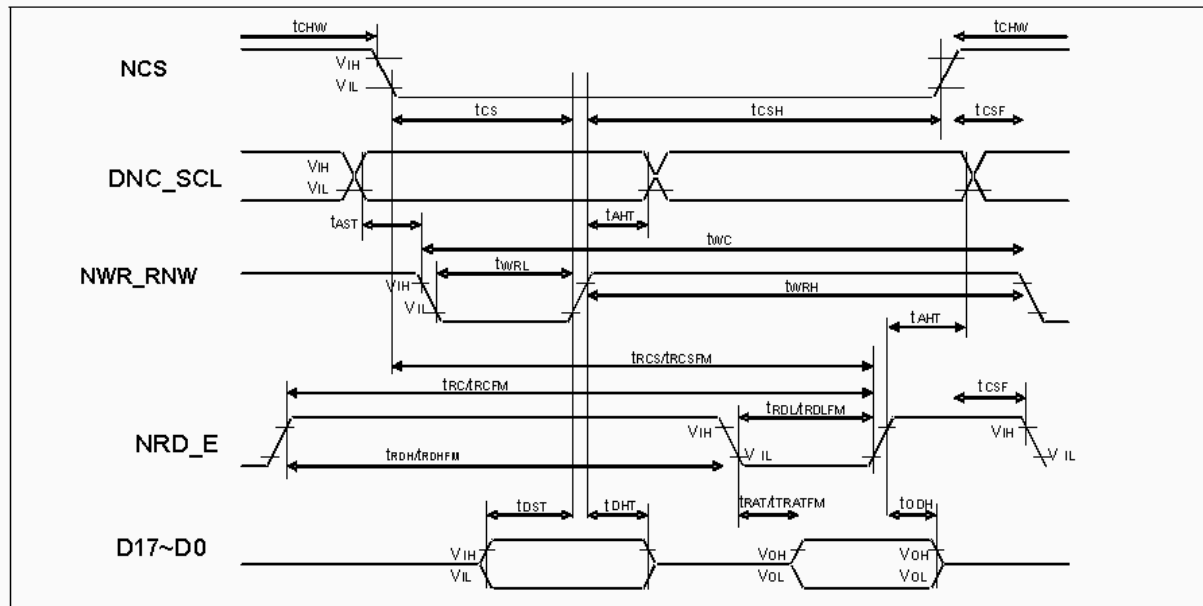
Signal	Symbol	Parameter	Min.	Max.	Unit	Description
DNC_SCL	t_{AST}	Address setup time	10	-	ns	-
	t_{AHT}	Address hold time (Write/Read)	10	-		
NCS	t_{CHW}	Chip select "H" pulse width	0	-	ns	-
	t_{CS}	Chip select setup time (Write)	35	-		
	t_{RCSFM}	Chip select setup time	355	-		
	t_{CSF}	Chip select wait time (Write/Read)	10	-		
	t_{CSH}	Chip select hold time	10	-		
NWR_RNW	t_{WC}	Write cycle	100	-	ns	-
	t_{WRH}	Control pulse "H" duration	35	-		
	t_{WRL}	Control pulse "L" duration	35	-		
NRD_E	t_{RCFM}	Read cycle	450	-	ns	When read from GRAM
	t_{RDHFM}	Control pulse "H" duration	90	-		
	t_{RDLFM}	Control pulse "L" duration	355	-		
D17 to D0	t_{DST}	Data setup time	15	-	ns	For maximum C_L=30pF For minimum C_L=8pF
	t_{DHT}	Data hold time	10	-		
	t_{RATFM}	Read access time	-	340		
	t_{ODH}	Output disable time	20	80		

Input Signal Slope

Output Signal Slope

$VIH=0.7*IOVCC$
$VIL=0.3*IOVCC$

$VOH=0.8*IOVCC$
$VOL=0.2*IOVCC$

NCS

NWR_RNW

NRD_E

t_{CHW}

t_{WC}

t_{CSF}

Min. 5ns

Note: Logic high and low levels are specified as 30% and 70% of IOVCC

NCS

NWR_RNW

NRD_E

twrh

trdh
trdhfm

Note: Logic high and low levels are specified as 30% and 70% of IOVCC
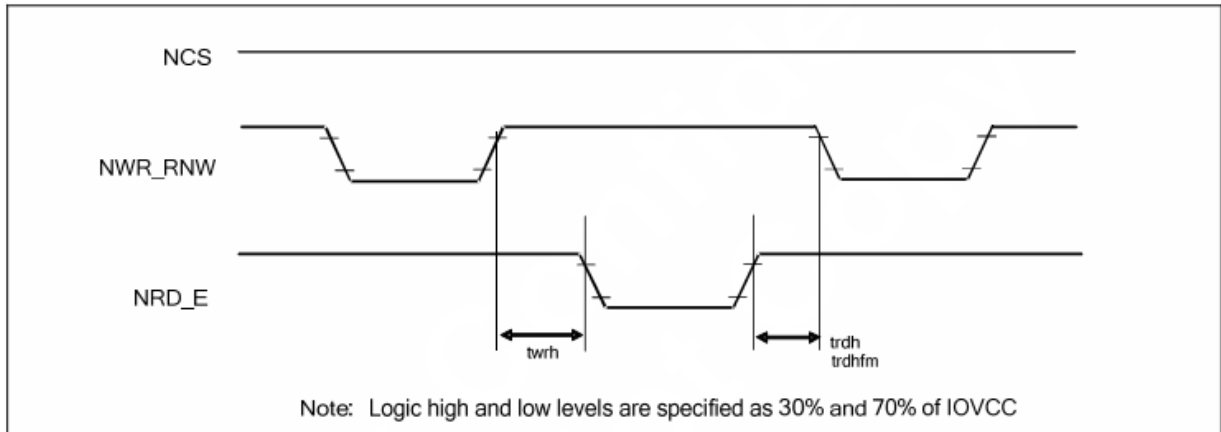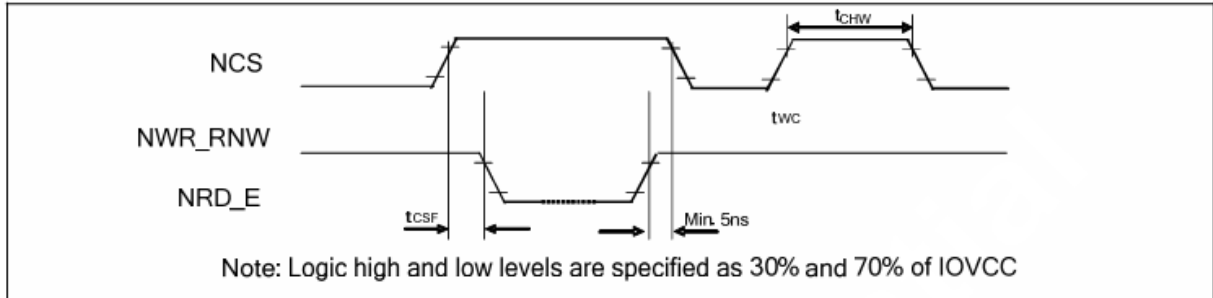
9.2. Reset input timing
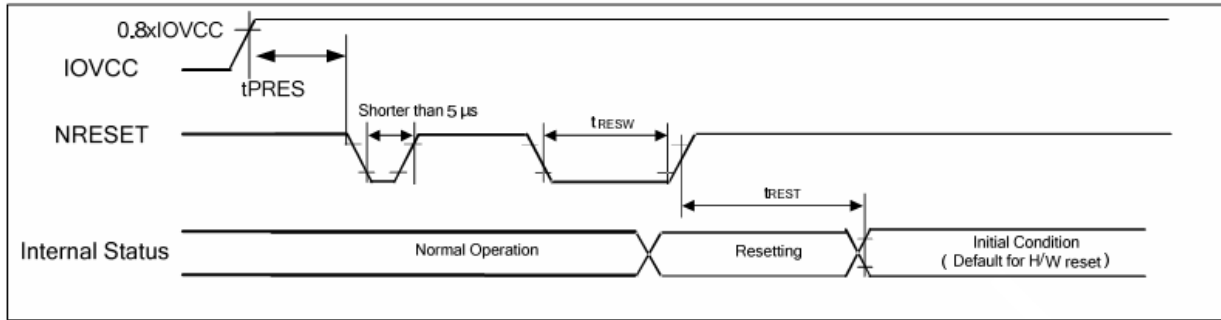
Symbol	Parameter	Related Pins	Min.	Typ.	Max.	Note	Unit
tRESW	Reset low pulse width[1]	NRESET	10	-	-	-	µs
tREST	Reset complete time[2]	-	-	-	5	When reset applied during STB mode	ms
		-		-	120	When reset applied during STB mode	ms
tPRES	Reset goes high level after Power on time	NRESET & IOVCC	1	-	-	Reset goes high level after Power on	ms

Note: (1) Spike due to an electrostatic discharge on NRESET line does not cause irregular system reset according to the table below.

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

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

(3) During Reset Complete Time, ID2 and VCOMOF value in OTP will be latched to internal register during this period. This loading is done every time when there is H/W reset complete time (tREST) within 5ms after a rising edge of NRESET.

(4) Spike Rejection also applies during a valid reset pulse as shown below:
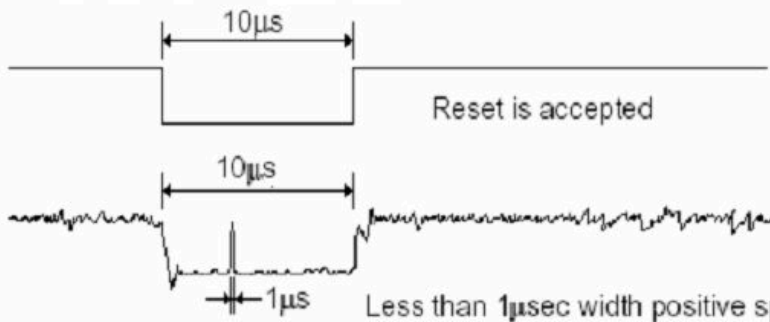
(5) It is necessary to wait 5msec after releasing !RES before sending commands. Also STB Out command cannot be sent for 120msec.

10. Quality Assurance

10.1 Purpose

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

10.2 Standard for Quality Test

10.2.1 Sampling Plan:

GB2828.1-2012.

Single sampling, normal inspection.

10.2.2 Sampling Criteria:

Visual inspection: AQL 1.5%

Electrical functional: AQL 0.65%.

10.2.3 Reliability Test:

Detailed requirement refer to Reliability Test Specification.

10.3 Nonconforming Analysis & Disposition

10.3.1 Nonconforming analysis:

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

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

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

10.3.2 Disposition of nonconforming:

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

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

10.4 Agreement Items

Shall negotiate with customer if the following situation occurs:

10.4.1 There is any discrepancy in standard of quality assurance.

10.4.2 Additional requirement to be added in product specification.

10.4.3 Any other special problem.

10.5 Standard of the Product Visual Inspection

10.5.1 Appearance inspection:

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

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

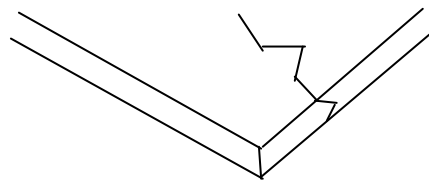10.5.1.3 Definition of area: A Zone: Active Area, B Zone: Viewing Area,
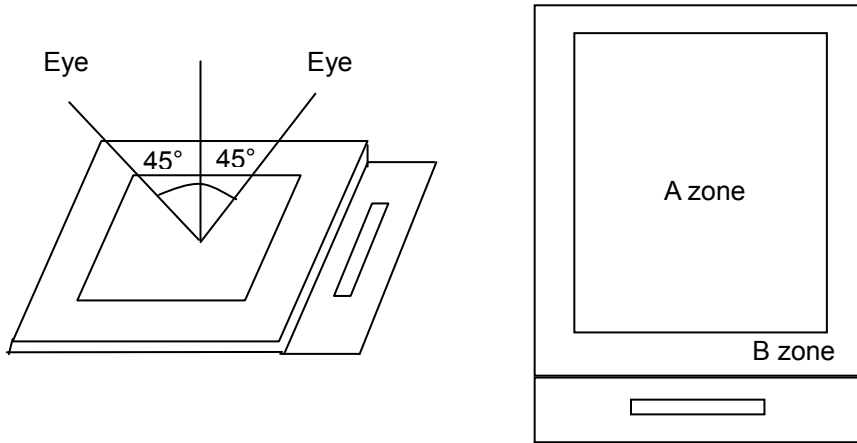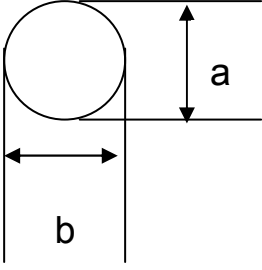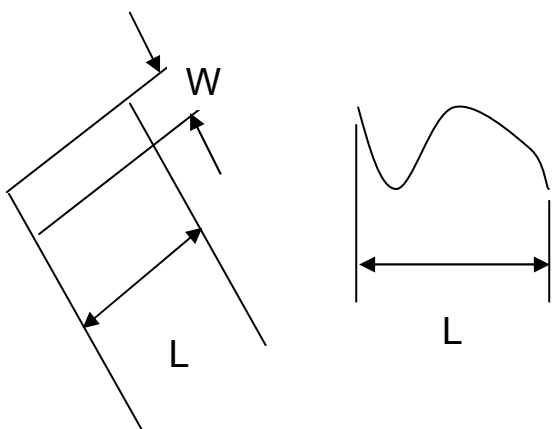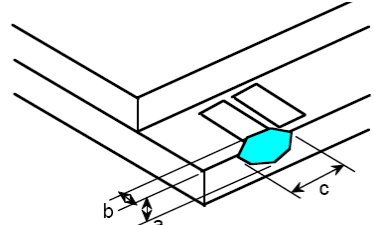
10.5.2 Basic principle:

    10.5.2.1 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.
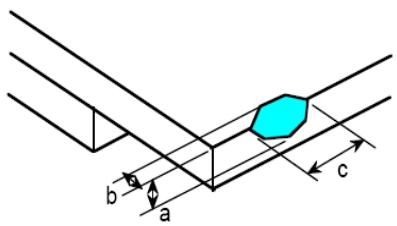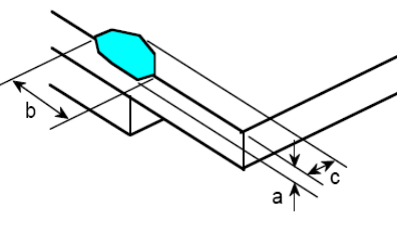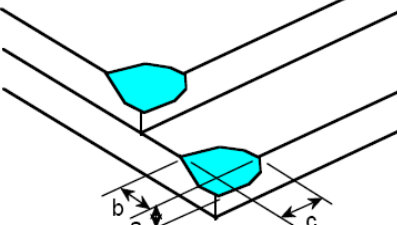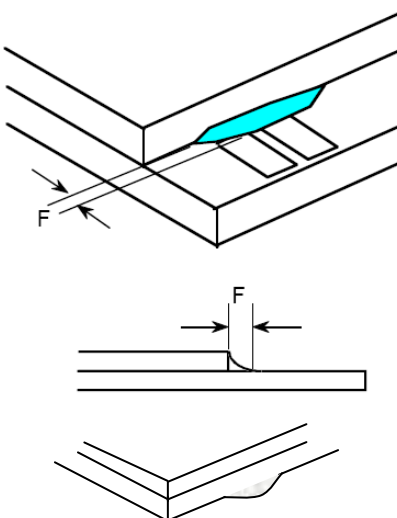
    10.5.2.2 New item must be added on time when it is necessary.
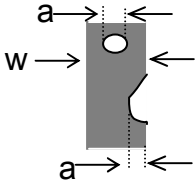
10.6   Inspection Specification

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.		

Table for item 01:

Size \ Area	Acc. Qty
$\varphi \leqslant 0.10$	Ignore
$0.10 < \varphi \leqslant 0.15$	2
$0.15 < \varphi \leqslant 0.25$	1
$0.25 < \varphi$	0
Total	2 no include $\varphi \leqslant 0.10$

No.	Item				
02	Electrical Defect (Minor defect)		Display Area	Total	
		Bright dot	0	0	Note1
		Dark dot	N≤2	N≤2	
		Total dot	N≤2	N≤2	
		Mura	Not visible through 5% ND filters.		Note 2

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)	

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) 	

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) a→ ⟶ w → ⟶ a→ ⟶	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	PCB	15.1 No distortion or contamination on PCB terminals. 15.2 All components on PCB must same as documented on the BOM/component layout. 15.3 Follow IPC-A-600F.
16	Soldering	Follow IPC-A-610C standard

17	Electrical Defect (Major defect)	The below defects must be rejected. 17.1 Missing vertical / horizontal segment, 17.2 Abnormal Display. 17.3 No function or no display. 17.4 Current exceeds product specifications. 17.5 LCD viewing angle defect. 17.6 No Backlight. 17.7 Dark Backlight. 17.8 Touch Panel no function.

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

10.7 Classification of Defects

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

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

10.8 Identification/marking criteria

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

10.9 Packing

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

10.9.2 Modules inside package box should have compliant mark.

10.9.3 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-pixelarea.
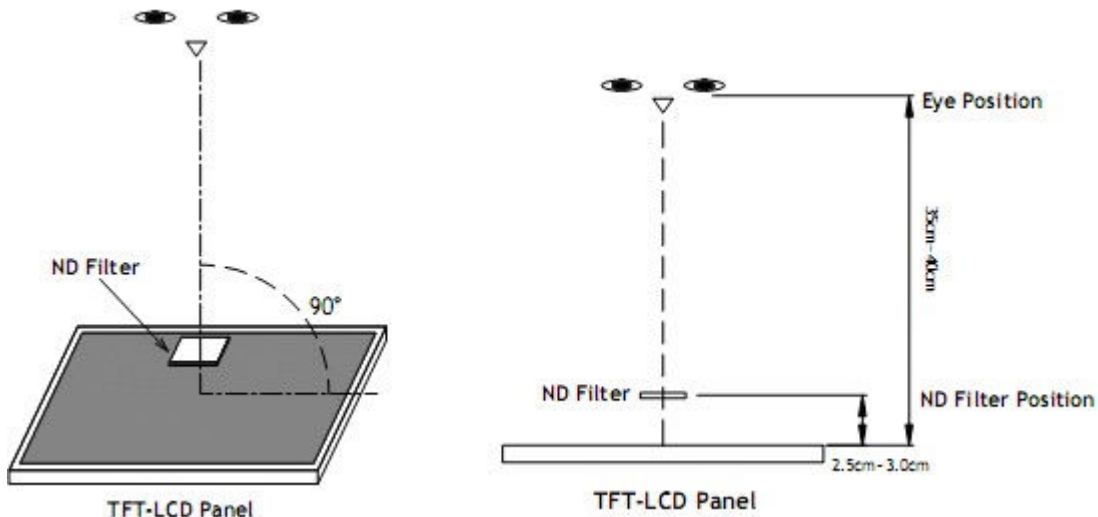
Bright dot:The bright dot size defect at black display pattern.It can be recognized by 2% transparency of filter when the distance between eyes and panel is 350mm±50mm.

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.

11. 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:±4KV 150pF/330Ω 5 times Contact:±2KV 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

12. Precautions and Warranty

12.1. Safety

12.1.1 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.

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

12.2. Handling

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

12.2.2 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.

12.3. Storage

12.3.1. not store the LCD module beyond the specified temperature ranges.

12.3.2. Strong light exposure causes degradation of polarizer and color filter

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

12.4.1 Pins of LCD and Backlight

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

12.4.1.2 Recommended Soldering Conditions

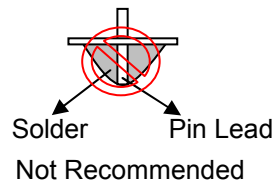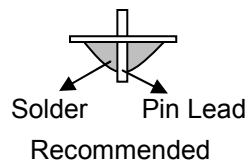Solder Type: Sn96.3~94-Ag3.3~4.3-Cu0.4~1.1

Maximum Solder Temperature: 370℃

Maximum Solder Time: 3s at the maximum temperature

Recommended Soldering Temp: 350±20℃

Typical Soldering Time: ≤3s

12.4.1.3 Solder Wetting

Solder Pin Lead   Solder Pin Lead

Recommended   Not Recommended

12.4.1 Pins of EL

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

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

12.4.2.3 Recommended Soldering Conditions

Solder type: Nippon Alimit Leadfree SR-34, size 0.5mm
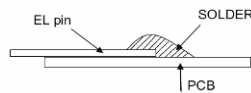
Recommended Solder Temperature: 270~290℃

Typical Soldering Time: ≤2s

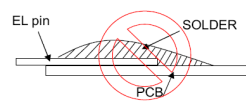Minimum solder distance from EL lamp (body):2.0mm

12.4.2.4 No horizontal press on the EL leads during soldering.

12.4.2.5 180° bend EL leads three times is not allowed.
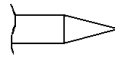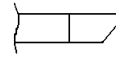
12.4.2.6 Solder Wetting

Recommended   Not Recommended
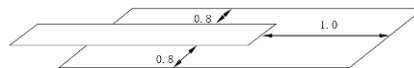
12.4.2.7 The type of the solder iron:

Recommended   Not Recommended

12.4.2.8 Solder Pad

12.5. Operation

12.5.1. Do not drive LCD with DC voltage

12.5.2. Response time will increase below lower temperature

12.5.3. Display may change color with different temperature

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

12.5.5. Do not connect or disconnect the LCM to or from the system when power is on.

12.5.6. Never use the LCM under abnormal condition of high temperature and high humidity.

12.5.7. Module has high frequency circuits. Sufficient suppression to the electromagnetic interface shall be done by system manufacturers. Grounding and shielding methods may be important to minimize the interference.

12.5.8. Do not display the fixed pattern for long time（we suggest the time not longer than one hour）because it may develop image sticking due to the TFT structure.

12.6. Static Electricity

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

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

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

12.7. Limited Warranty

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

12.7.2. 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

12.7.3. 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.

13. Packaging

TBD

T049300080-A0WMN-001
Rev:1.0
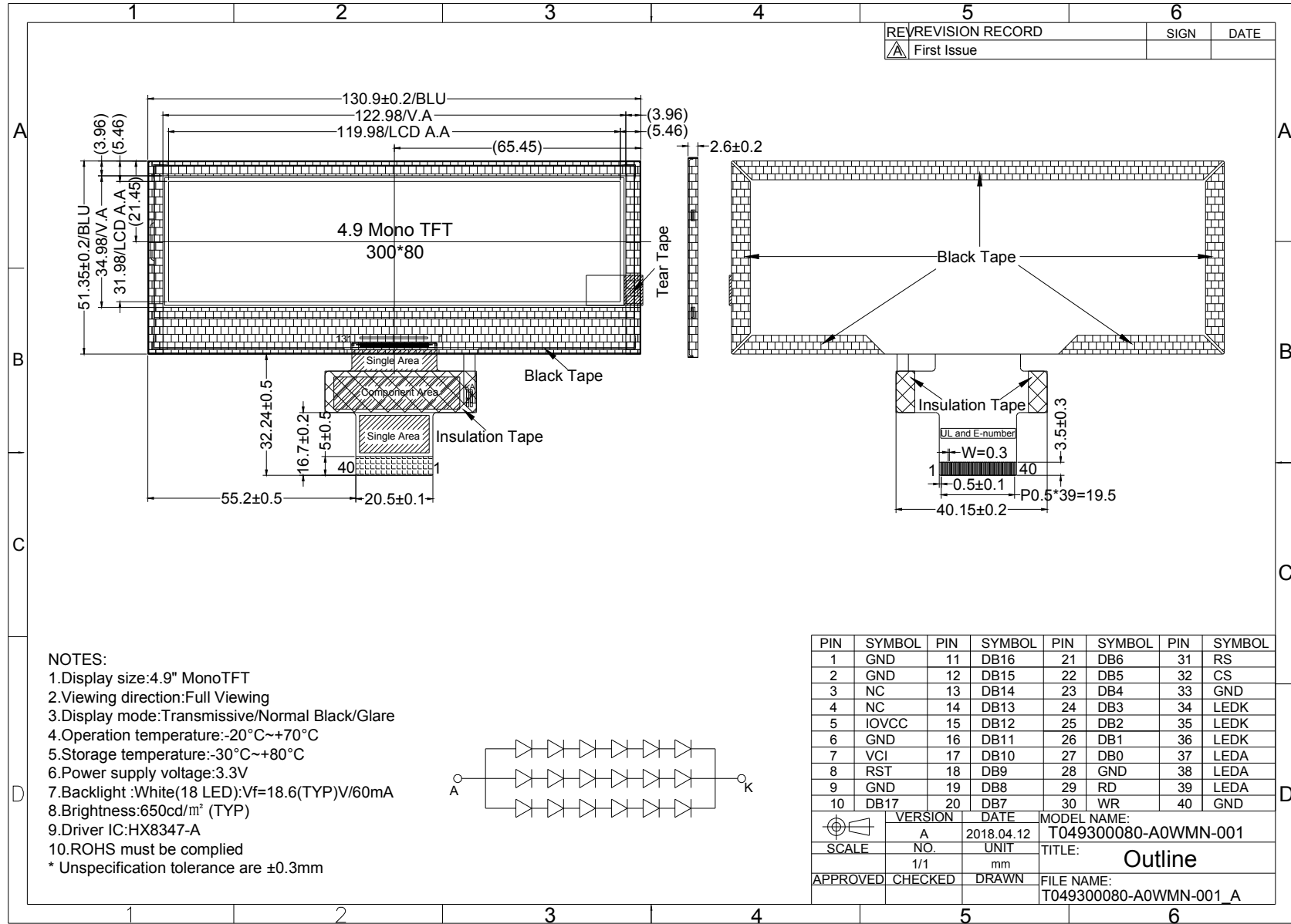
REV	REVISION RECORD	SIGN	DATE
A	First Issue		

4.9 Mono TFT
300*80

130.9±0.2/BLU
122.98/V.A
119.98/LCD A.A
(65.45)
(3.96)
(5.46)
2.6±0.2

51.35±0.2/BLU
34.98/V.A
31.98/LCD A.A
(3.96)
(5.46)
(21.45)

Tear Tape
Black Tape
Single Area
Component Area
Single Area
Insulation Tape

32.24±0.5
16.7±0.2
5±0.5
40
1
55.2±0.5
20.5±0.1

Black Tape
Insulation Tape

UL and E-number
W=0.3
1 40
0.5±0.1
P0.5*39=19.5
40.15±0.2
3.5±0.3

NOTES:
1.Display size:4.9" MonoTFT
2.Viewing direction:Full Viewing
3.Display mode:Transmissive/Normal Black/Glare
4.Operation temperature:-20°C~+70°C
5.Storage temperature:-30°C~+80°C
6.Power supply voltage:3.3V
7.Backlight :White(18 LED):Vf=18.6(TYP)V/60mA
8.Brightness:650cd/㎡ (TYP)
9.Driver IC:HX8347-A
10.ROHS must be complied
* Unspecification tolerance are ±0.3mm

A

K
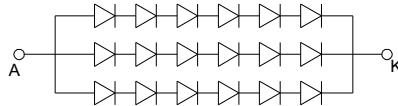
PIN	SYMBOL	PIN	SYMBOL	PIN	SYMBOL	PIN	SYMBOL
1	GND	11	DB16	21	DB6	31	RS
2	GND	12	DB15	22	DB5	32	CS
3	NC	13	DB14	23	DB4	33	GND
4	NC	14	DB13	24	DB3	34	LEDK
5	IOVCC	15	DB12	25	DB2	35	LEDK
6	GND	16	DB11	26	DB1	36	LEDK
7	VCI	17	DB10	27	DB0	37	LEDA
8	RST	18	DB9	28	GND	38	LEDA
9	GND	19	DB8	29	RD	39	LEDA
10	DB17	20	DB7	30	WR	40	GND

	VERSION	DATE	MODEL NAME:
	A	2018.04.12	T049300080-A0WMN-001
SCALE	NO.	UNIT	TITLE:
	1/1	mm	Outline
APPROVED	CHECKED	DRAWN	FILE NAME: T049300080-A0WMN-001_A