OSD Displays

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Customer:	
Model Number:	OSD070T0884-37TS
Specification Number:	
Date:	7/6/2010
Version:	1.0

For Customer's Acceptance

Approved by	Comments

Approved by	Reviewed by	Prepared by

RECORD OF REVISION

Revision Date	Page	Contents	Editor
2010/3/17	--	New Release	John
2010/5/14	11-13	Add Sample code & I2C interface description for capacitive touch panel.	John
2010/5/25	11&21	Remodify the thickness of capacitive touch tape and the operation voltage of capacitive touch panel.	John
2010/7/6	11	Modify XRESET data	John

1. INTRODUCTION

This OSD Displays Module is a color active matrix TFT-LCD that uses amorphous silicon TFT as a switching device . This model is composed of a TFT-LCD panel, timing controller and capacitive touch panel. This TFT-LCD has a high resolution (800(R.G.B) X 480) and can display up to 262,144 colors .

1-1. Features

- 7” WVGA (16:9 diagonal) configuration
- LCM Input interface voltage : 3.3V
- Data enable mode
- Capacitive touch panel VDD : 5.0V

1-2. Applications

- Portable TV
- Car user DVD
- Industrial application
- HMI (Human machine interface)

2. PHYSICAL SPECIFICATIONS

Item	Specifications	unit
Display resolution(dot)	800RGB (W) x 480(H)	Dots
Active area	152.4 (W) x 91.44 (H)	mm
Pixel pitch	0.1905 (W) x 0.1905 (H)	mm
Color configuration	R.G.B Vertical stripe	
Overall dimension	165.0(W)x104.44(H)X10.14(T)	mm
Brightness	300 nit	cd/m^2
Contrast ratio	400 : 1	
Backlight unit	LED	
Display color	262,144	Colors

3. ABSOLUTE MAX. RATINGS

ITEM	SYMBOL	MIN	MAX	UNIT
Power Supply Voltage for LCD	Vcc	-0.5	6.0	V
Signal input voltage	DCLK DE R0~R5 G0~G5 B0~b5	-0.5	VCC+0.3	V
Operation Temperature	Top	-20	70	℃
Storage Temperature	Tstg	-30	80	℃

The following values are maximum operation conditions , If exceeded , it may cause faulty operation or damage

4. ELECTRICAL CHARACTERISTICS

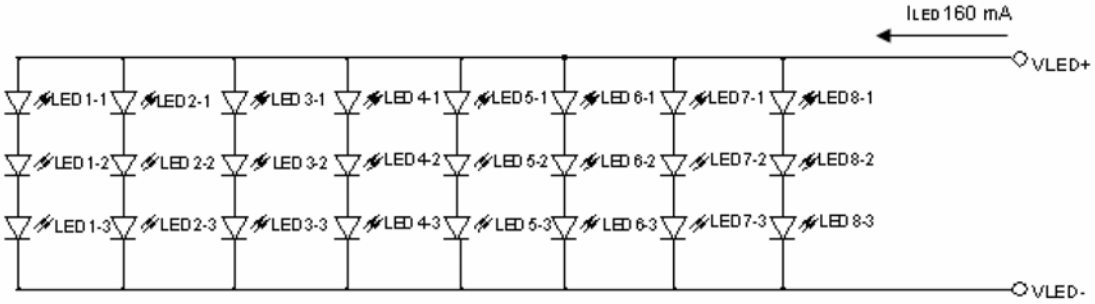
4-1 TFT LCD Module voltage

ITEM		SYMBOL	MIN	TYP	MAX	UNIT	CONDITION
Power Supply Voltage For LCD		Vcc	3.0	3.3	3.6	V	
Power Supply Current For LCD		Icc	-	200	260	mA	VCC=3.3V
LED Backlight Voltage		V_{BL}	-	9.9	-	V	For reference
LED Backlight Current		I_{BL}	-	160	-	mA	
Logic Input Voltage	Input Voltage	V_{IN}	0	-	Vcc	V	
	Threshold Voltage(High)	V_{TH}	0.7Vcc	-	Vcc	V	
	Threshold Voltage(Low)	V_{TL}	0	-	0.3Vcc	V	

4-2 LED Driving Conditions

ITEM	SYMBOL	MIN	TYP	MAX	UNIT	CONDITION
LED Backlight Voltage	V_{BL}	-	9.9	-	V	Note1
LED Backlight Current	I_{BL}	-	160	-	mA	
LED Life Time	-	10000	20000		Hr	Note2

Note 1 : There are 8 Groups LED shown as below , V_{LED}=9.9V , I_{LED}=160mA.



Note 2 : Brightess to be decreased to 50% of the initial value.

5. INTERFACE

Pin no	Symbol	Function
1	GND	Ground
2	GND	Ground
3	NC	No connection
4	VCC	Power supply for Digital Circuit
5	VCC	Power supply for Digital Circuit
6	VCC	Power supply for Digital Circuit
7	VCC	Power supply for Digital Circuit
8	NC	No connection
9	DE	Data Enable Timing Signal
10	GND	Ground
11	GND	Ground
12	GND	Ground
13	B5	Blue data (MSB)
14	B4	Blue data
15	B3	Blue data
16	GND	Ground
17	B2	Blue data
18	B1	Blue data
19	B0	Blue data (LSB)
20	GND	Ground
21	G5	Green data (MSB)
22	G4	Green data
23	G3	Green data
24	GND	Ground
25	G2	Green data
26	G1	Green data
27	G0	Green data (LSB)
28	GND	Ground
29	R5	Red data (MSB)
30	R4	Red data
31	R3	Red data
32	GND	Ground
33	R2	Red data
34	R1	Red data
35	R0	Red data (LSB)
36	GND	Ground
37	GND	Ground
38	DCLK	Data Clock :Latch Data at Falling Edge
39	GND	Ground
40	GND	Ground

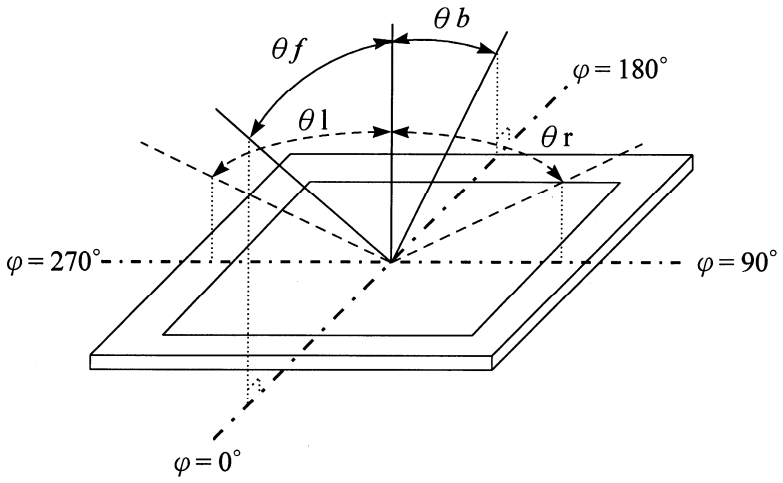
Note: User's connector part number is **PF050-40ZSG-F09-S** manufactured by UJU or equivalent.

6. OPTICAL CHARACTERISTICS

Item		Symbol	Condition	Min.	Typ.	Max.	Unit	Note
Viewing Angle	Front	θ f	CR≧10	50	60	--	deg.	(1)(2)(3)
	Back	θ b		60	70	--		
	Left	θ l		60	70	--		
	Right	θ r		60	70	--		
Contrast ratio		CR	Θ=Φ=0°	250	400	--	--	(1)(3)
Response Time		T_r	Θ=Φ=0°	--	5	10	ms	(1)(4)
		T_f		--	11	16	ms	(1)(4)
Color chromaticity	White	Wx		0.249	0.299	0.349	--	(1)
		Wy		0.278	0.328	0.378		
Luminance		L	Θ=Φ=0°	255	300	--	cd/m^2	(1)(5)
Luminance Uniformity		ΔL	Θ=Φ=0°	70	--	--	%	(1)(5)(6)

Note 1: Ta=25°C. To be measured on the center area of panel after 10 minutes operation.

Note 2: Definition of Viewing Angle



Note 3: Definition of contrast ratio:

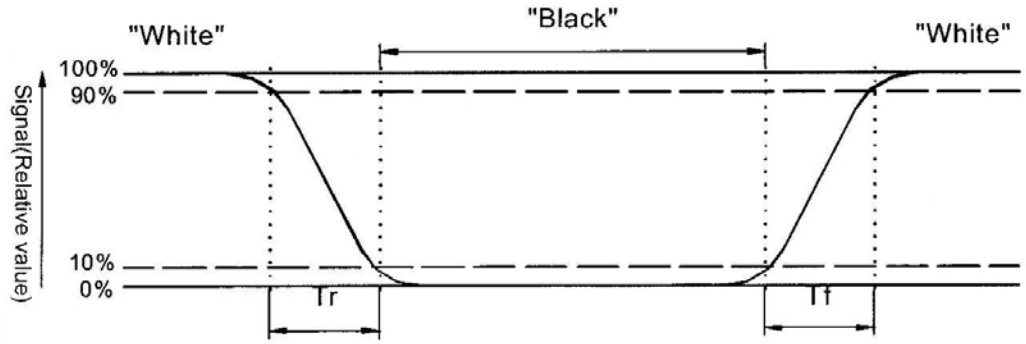
Contrast ratio is calculated with the following formula.

$$\text{Contrast ratio(CR)} = \frac{\text{Photo detector output when LCD is at "White" state}}{\text{Photo detector Output when LCD is at "Black" state}}$$

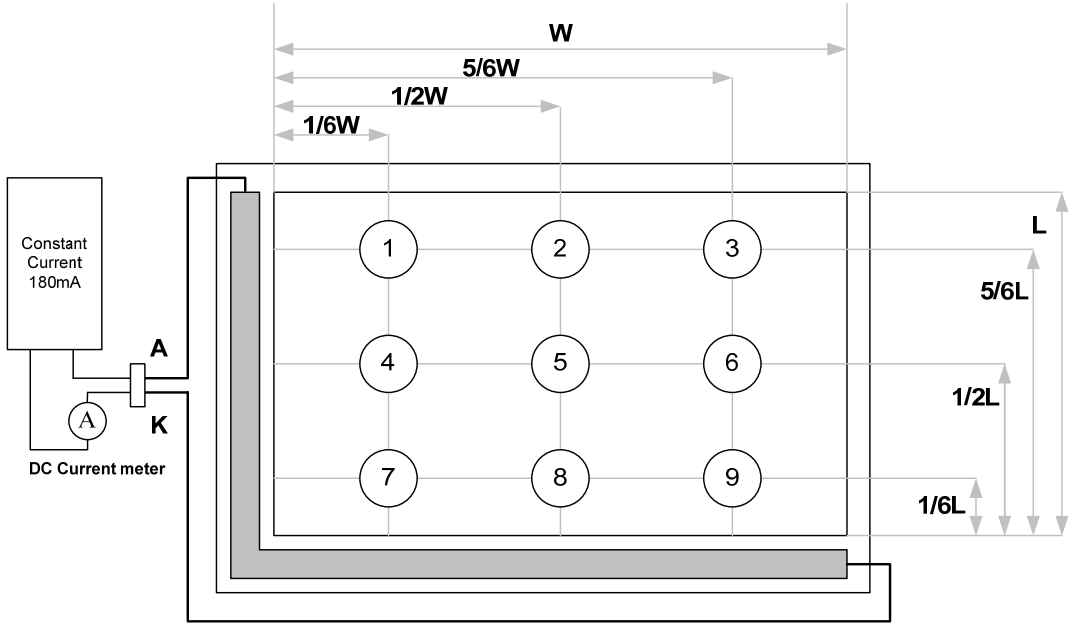
Note 4: Definition of response time:

The output signals of photo detector are measured when the input signals are

changed from “black“ to “white”(falling time) and from ”white” to “black” (rising time) respectively. The response time is defined as the time interval between the 10% and 90% of amplitudes. Refer to figure as below.



Note 5 : Luminance is measured at point 5 of the display.



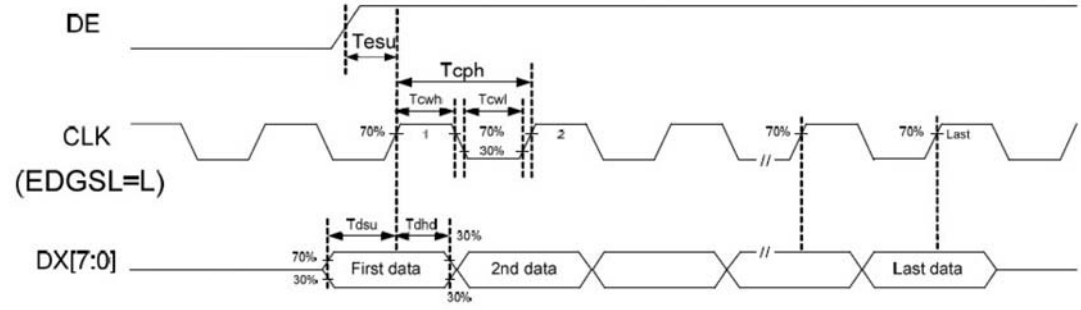
Note 6 : Definition of Luminance Uniformity

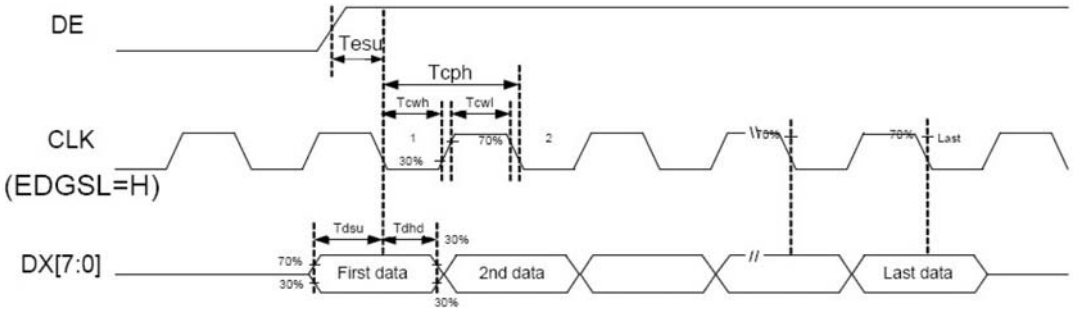
ΔL = [L(min.) of 9 points / L(max.) of 9 points] X 100%

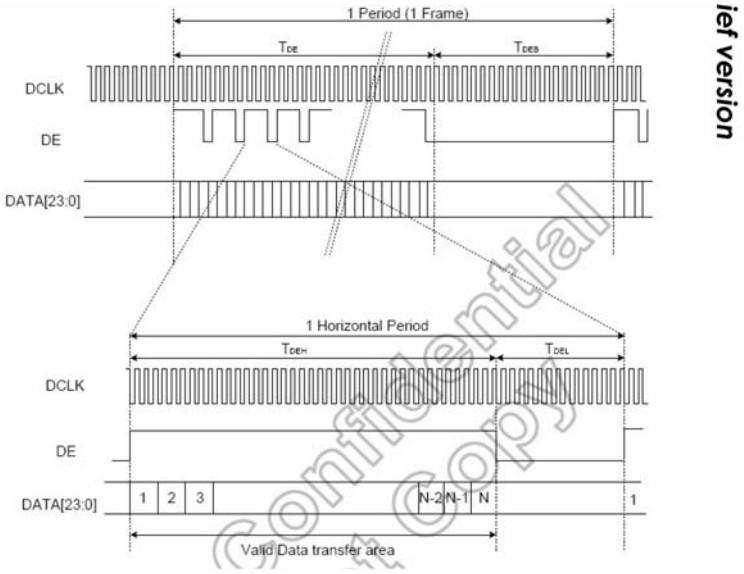
7. INPUT SIGNAL (DE ONLY MODE)

Parameter	Symbol	Rating			Unit
		Min.	Typ.	Max.	
Data setup time	Tdsu	6	-	-	ns
Data hold time	Tdhd	6	-	-	Tcph
DE setup time	Tesu	6	-	-	Tcph
CLK frequency	F_{CPH}		33.26		MHz
CLK period	T_{CPH}		30.06		ns
CLK pulse duty	T_{CWH}	40	50	60	%
DE period	$T_{DEH}+T_{DEL}$	1000	1056	1200	T_{CPH}
DE pulse width	T_{DEH}	-	800	-	T_{CPH}
DE frame blanking	T_{DEB}	10	45	110	$T_{DEH}+T_{DEL}$
DE frame width	T_{DE}	-	480	-	$T_{DEH}+T_{DEL}$

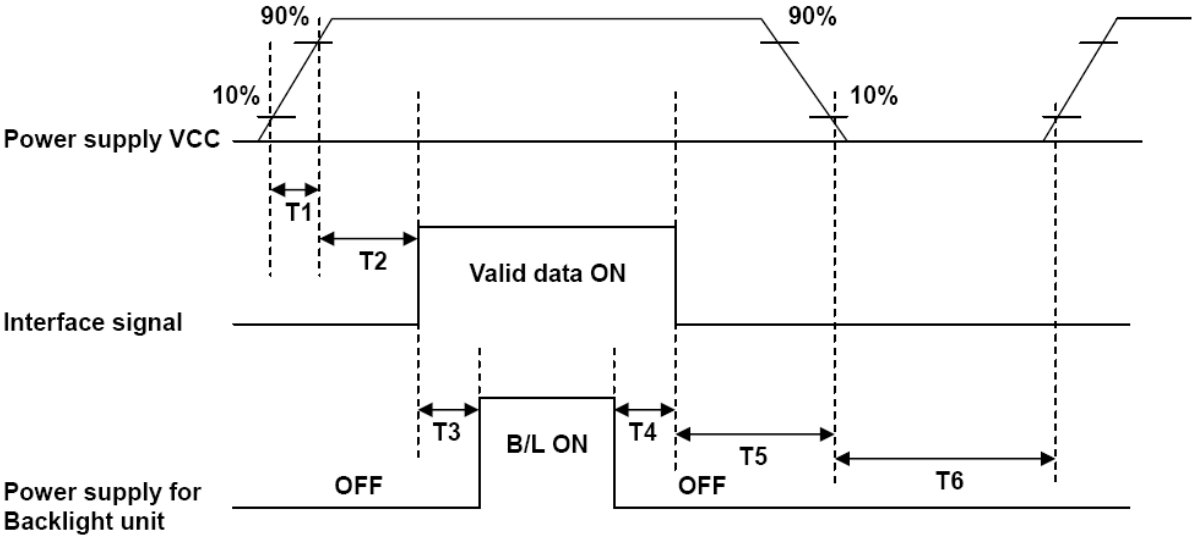
Note：We suggest using the typical value, so it can have better performance.







Power Sequence



Parameter	SPEC.			Unit
	Min.	Typ.	Max.	
T1	1		2	ms
T2	0	60		ms
T3	200			ms
T4	200			ms
T5	1			ms
T6	1000			ms

8. Capacitive Touch Panel ELECTRICAL SPECIFICATION

● Feature

Motion Detection Method Capacitive sensing using a Sigma-Delta modulator

X/Y Position Reporting Absolute Position

Touch Force No contact pressure required

Calibration No need for calibration

Touch Dual touch

Interface I2C

Report Rate Approx 25 points/sec.

Screen Size Supported: 7.0”

Resolution 800x480

● Interface Specifications

Communication with the Host Device

I2C connected as slave

Slave address 0x09

Clock Speed: Up to 400Khz

PinOut:

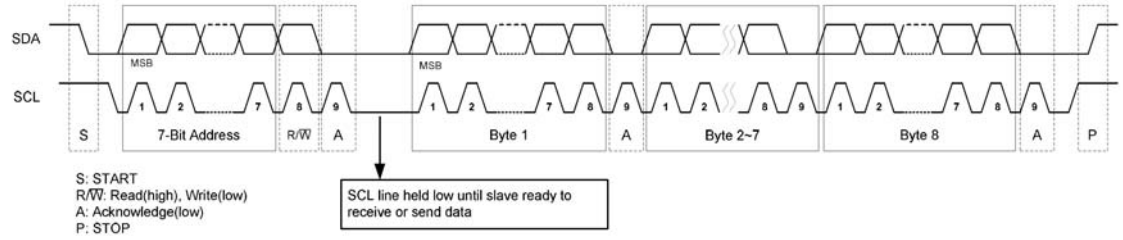
Pin No	Symbol	Function
1	GND	Ground
2	SDA	I2C Data
3	SCL	I2C clock
4	VDD	**5.0V**
5	INT	Interrupt*
6	XREST	Reset input / Active High. System is reset and initializes when High.

● I2C Interface (T/P Controller)

CY8C24894 equipped with I2C provide two wires, serial data (SDA) and serial clock (SCL), to carry information transfers at up to 400 kbit/s. CY8C24894 plays a slave role in I2C transfer. Both SDA and SCL are bidirectional lines, connected to IOVDD via pull-up resistors. All transactions begin with a START (S) and can be terminated by a STOP (P). 7-Bit address follows START to recognize device. Each bye is 8-bit length and followed by an acknowledge bit. A HIGH to LOW transition on the SDA line while SCL is HIGH defines a START condition. A LOW to HIGH transition on the SDA line while SCL is HIGH defines a STOP condition.

The data on the SDA line must be stable during the HIGH period of the clock. The HIGH or LOW state of the data line can only change when the clock signal on the SCL line is

LOW.



* 7-Bit Address=0x09
* Read mode only.

Data Byte Format

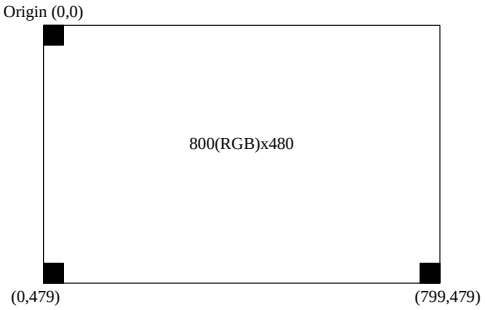
	BIT 7	BIT 6	BIT 5	BIT 4	BIT 3	BIT 2	BIT 1	BIT 0
BYTE 1	0	0	0	0	0	0	$X_1$9	$X_1$8
BYTE 2	$X_1$7	$X_1$6	$X_1$5	$X_1$4	$X_1$3	$X_1$2	$X_1$1	$X_1$0
BYTE 3	0	0	0	0	0	0	$Y_1$9	$Y_1$8
BYTE 4	$Y_1$7	$Y_1$6	$Y_1$5	$Y_1$4	$Y_1$3	$Y_1$2	$Y_1$1	$Y_1$0
BYTE 5	0	0	0	0	0	0	$X_2$9	$X_2$8
BYTE 6	$X_2$7	$X_2$6	$X_2$5	$X_2$4	$X_2$3	$X_2$2	$X_2$1	$X_2$0
BYTE 7	0	0	0	0	0	0	$Y_2$9	$Y_2$8
BYTE 8	$Y_2$7	$Y_2$6	$Y_2$5	$Y_2$4	$Y_2$3	$Y_2$2	$Y_2$1	$Y_2$0
BYTE 9	-	-	-	-	-	-	-	-
BYTE 10	*	*	*	*	*	*	*	*

* BYTE 9: Not Used

*BYTE 10: Counter

1）The first 2-byte data is the X coordinate for the first finger;
2）the second 2-byte data is the Y coordinate for the first finger;
3）the third 2-byte data is the X coordinate for the second finger;
4）the fourth 2-byte data is the Y-coordinate for the second finger;
5）the ninth byte is not used;
6）the tenth byte is the counter that increase by one for every complete scan

*If there is a touch, the interrupt pin will be zero. This pin will stay at zero until the finger is released. If the finger stays on the touch screen the coordinates will be updated in about every 35ms. When the finger is released from the touch screen, the interrupt pin will be “1” and all the coordinates will be 7FFF.

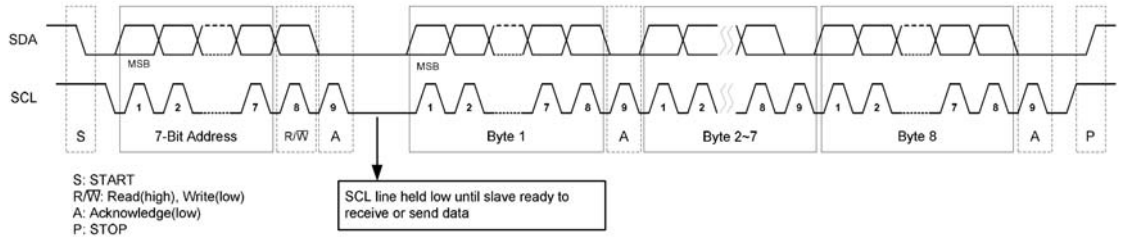


● Sample code:

```
if((ReadINT())==0)
   {
    I2C_EE_BufferRead(pbuffer,0x13,8);   // Slave address 0x09 ; 0x13 = 0x09<<1+1 ; I2C Read
                                         // 8 ; read Byte1~Byte8 ;
    PCT_X[0]=(u16) ((u16)(pbuffer[0]<<8)+pbuffer[1] );     //first X position
    PCT_Y[0]=(u16) ((u16)(pbuffer[2]<<8)+pbuffer[3] );     //first Y position
    PCT_X[1]=(u16) ((u16)(pbuffer[4]<<8)+pbuffer[5] );     //second point X position
    PCT_Y[1]=(u16) ((u16)(pbuffer[6]<<8)+pbuffer[7] );     //second point Y position
   }
```

Data Byte Format

	BIT 7	BIT 6	BIT 5	BIT 4	BIT 3	BIT 2	BIT 1	BIT 0
BYTE 1	0	0	0	0	0	0	$X_1$9	$X_1$8
BYTE 2	$X_1$7	$X_1$6	$X_1$5	$X_1$4	$X_1$3	$X_1$2	$X_1$1	$X_1$0
BYTE 3	0	0	0	0	0	0	$Y_1$9	$Y_1$8
BYTE 4	$Y_1$7	$Y_1$6	$Y_1$5	$Y_1$4	$Y_1$3	$Y_1$2	$Y_1$1	$Y_1$0
BYTE 5	0	0	0	0	0	0	$X_2$9	$X_2$8
BYTE 6	$X_2$7	$X_2$6	$X_2$5	$X_2$4	$X_2$3	$X_2$2	$X_2$1	$X_2$0
BYTE 7	0	0	0	0	0	0	$Y_2$9	$Y_2$8
BYTE 8	$Y_2$7	$Y_2$6	$Y_2$5	$Y_2$4	$Y_2$3	$Y_2$2	$Y_2$1	$Y_2$0
BYTE 9	-	-	-	-	-	-	-	-
BYTE 10	*	*	*	*	*	*	*	*



9. **QUALITY AND RELIABILITY**

9.1 TEST CONDITIONS

Tests should be conducted under the following conditions :

Ambient temperature : 25 ± 5°C

Humidity : 60 ± 25% RH.

9.2 SAMPLING PLAN

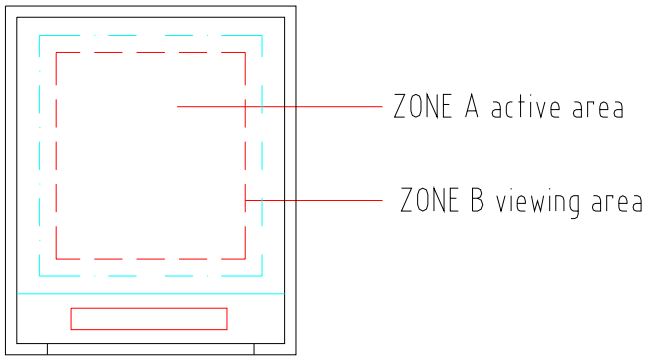
Sampling method shall be in accordance with MIL-STD-105E , level II, normal single sampling plan .

9.3 ACCEPTABLE QUALITY LEVEL

A major defect is defined as one that could cause failure to or materially reduce the usability of the unit for its intended purpose. A minor defect is one that does not materially reduce the usability of the unit for its intended purpose or is an infringement from established standards and has no significant bearing on its effective use or operation.

9.4 APPEARANCE

An appearance test should be conducted by human sight at approximately 30 cm distance from the LCD module under florescent light. The inspection area of LCD panel shall be within the range of following limits.



9.5 Incoming Inspection Standard

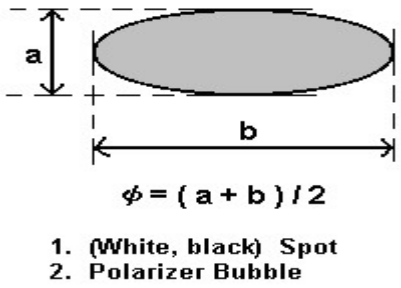
9.51 LCM Module:

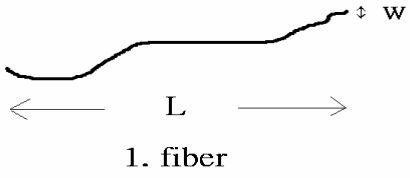
Defect Type			Limit						Note
Visual Defect	Internal	Spot	φ＜0.15mm			Ignore			(1)
			0.15mm≦φ≦0.5mm			N≦4			
			0.5mm＜φ			N=0			
		Fiber	0.1mm<W≦0.5mm, L≦1.5mm			N≦4			(1)
			1.0mm＜W, 1.5mm＜L			N=0			
		Polarizer Bubble	φ＜0.15mm			Ignore			(1)
			0.15mm≦φ≦0.5mm			N≦4			
			0.5mm＜φ			N=0			
		Mura	It' OK if mura is slight visible through 6%ND filter						
Electrical Defect	Bright Dot		A Grade			B Grade			
			C Area	O Area	Total	C Area	O Area	Total	(3)
			N≦0	N≦2	N≦2	N≦2	N≦3	N≦5	(2)
	Dark Dot		N≦2	N≦4	N≦4	N≦3	N≦5	N≦8	
	Total Dot		N≦4			N≦5	N≦6	N≦8	(2)
	Two Adjacent Dot		N≦0	N≦1 pair	N≦1 pair	N≦1 pair	N≦1 pair	N≦1 pair	(4)
	Three or More Adjacent Dot		Not Allowed						
	Line Defect		Not Allowed						

(1) One pixel consists of 3 sub-pixels, including R,G, and B dot.(Sub-pixel = Dot)

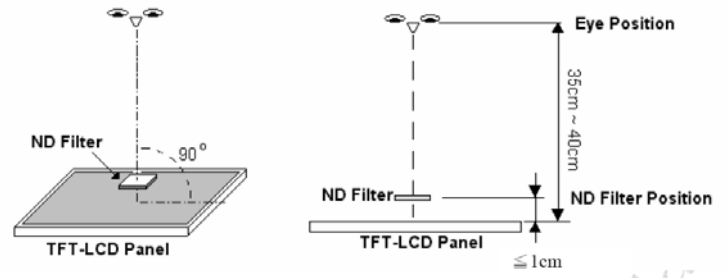
(2) LITTLE BRIGHT DOT acceptable under 6% ND-Filter

[Note1] W : Width[mm], L : Length[mm], N : Number, φ: Average Diameter

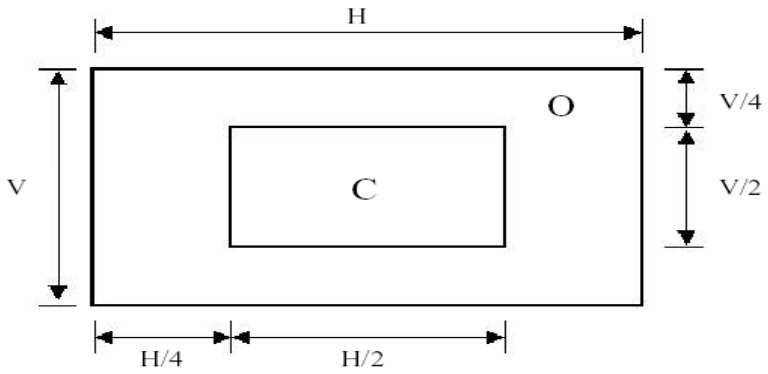




[Note2] Bright dot is defined through 6% transmission ND Filter as following.



[Note3]

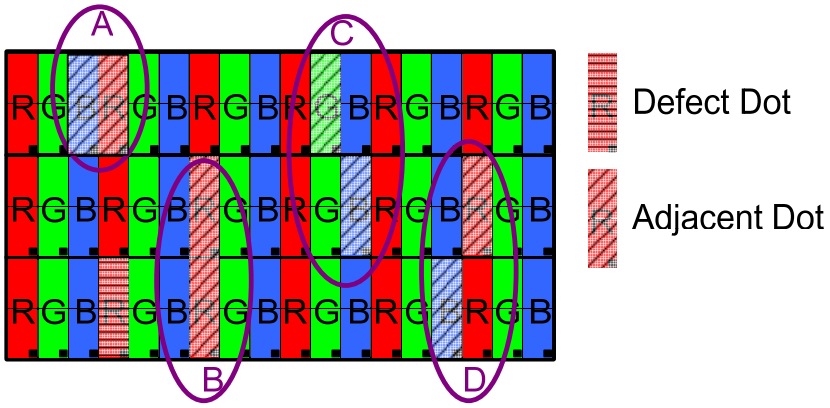


C Area: Center of display area

C Area: Outer of display area

[Note4]

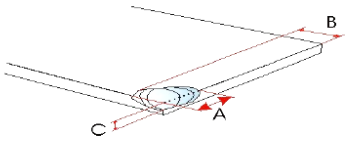
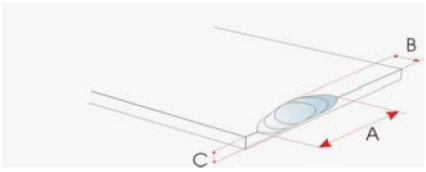
Judge defect dot and adjacent dot as following. Allow below (as A, B, C and D status) adjacent defect dots, including bright and dart adjacent dot. And they will be counted 2 defect dots in total quantity.



(1) The defects that are not defined above and considered to be problem shall be reviewed and discussed by both parties.

(2) Defects on the Black Matrix, out of Display area, are not considered as a defect or counted.

9.52 Capacitive Touch Panel:

Cosmetic/Visual Specifications		
Defect	**Condition**	**Decision**
Scratch	W ≤ 0.002″	Ignore
	W>0.002″-0.004″ L ≤ 0.5″ W>0.004″-0.005″ L ≤ 0.3″	Max 5 Separated by 1.0″
Pits, Bubbles	<0.005″	Ignore
	<0.02″	Max 5 Separated by 1.0″
Translucent Defects	<0.005″	Ignore
	<0.03″	Max 5 Separated by 1.0″
Linear Foreign	≤0.002	Ignore
	W ≤0.004″ L ≤0.125″	Separated by 1.0″
Note:		
▪ Sensors < 9″ total of 5 defects separated by.5″ ▪ Sensors between 9″ and 14″ total of 8 defects separated by .5″ ▪ Sensors > 14″ total of 12 defects separated by .5″ ▪ Defects less then 0.005″ not counted ▪ Inspection performed at 18″ with sensor held at 90 degree angle for 12 seconds.		
Defect	**Condition**	**Decision**
Glass Fragment	 **Corner Fragment**	a ≤ .08″ b ≤ .08″ c ≤ *t* inch (*t* : Glass Thickness) No more than 2 is qualified (PASS)
	 **Side Fragment**	a ≤ .12″ b ≤ .08″ c ≤ ½ *t* inch (*t* : Glass Thickness) Allow 3 fragments interval distance above .80″ every side is qualified (PASS)

9.6 RELIABILITY TEST CONDITIONS

Test Item	Test Conditions	Note
High Temperature Operation	70±3°C ,Dry t=240 hrs	
Low Temperature Operation	-20±3°C, Dry t=240 hrs	
High Temperature Storage	80±3°C , Dry t=240 hrs	1,2
Low Temperature Storage	-30±3°C ,Dry t=240 hrs	1,2
Thermal Shock Test	-15°C ~ 25°C ~ 70°C 30 m in. 5 min. 30 min. (1 cycle) Total 50cycle(Dry)	1,2
Humidity Test	40 °C, Humidity 90%, 240 hrs	1,2
Vibration Test (Packing)	Sweep frequency : 10 ~ 55 ~ 10 Hz/1min Amplitude : 0.75mm Test direction : X.Y.Z/3 axis Duration : 30min/each axis	2
Electro Static Discharge Test	150pF, 330Ω , ±8KV(Contact)/±15KV(Air), 5 points/panel,5 times/point	

Note 1 : Condensation of water is not permitted on the module.

Note 2 : The module should be inspected after 1 hour storage in normal conditions

(15-35°C , 45-65%RH).

Definitions of life end point :

- Current drain should be smaller than the specific value.
- Function of the module should be maintained.
- Appearance and display quality should not have degraded noticeably.
- Contrast ratio should be greater than 50% of the initial value.

10. USE PRECAUTIONS

10-1 Handling precautions

(1) The polarizing plate may break easily so be careful when handling it. Do not touch, press or rub it with a hard-material tool like tweezers.

(2) Do not touch the polarizing plate surface with bare hands so as not to make it dirty. If the surface or other related part of the polarizing plate is dirty, soak a soft cotton cloth or chamois leather in benzine and wipe off with it. Do not use chemical liquids such as acetone, toluene and isopropyl alcohol. Failure to do so may bring chemical reaction phenomena and deteriorations.

(3) Remove any spit or water immediately. If it is left for hours, the suffered part may deform or decolorize.

(1) If the LCD element breaks and any LC stuff leaks, do not suck or lick it. Also if LC stuff is stuck on your skin or clothing, wash thoroughly with soap and water immediately.

10-2 Installing precautions

(1) The PCB has many ICs that may be damaged easily by static electricity. To prevent breaking by static electricity from the human body and clothing, earth the human body properly using the high resistance and discharge static electricity during the operation. In this case, however, the resistance value should be approx. 1MΩ and the resistance should be placed near the human body rather than the ground surface. When the indoor space is dry, static electricity may occur easily so be careful. We recommend the indoor space should be kept with humidity of 60% or more. When a soldering iron or other similar tool is used for assembly, be sure to earth it.

(2) When installing the module and ICs, do not bend or twist them. Failure to do so may crack LC element and cause circuit failure.

(3) To protect LC element, especially polarizing plate, use a transparent protective plate (e.g., acrylic plate, glass etc) for the product case.

(4) Do not use an adhesive like a both-side adhesive tape to make LCD surface (polarizing plate) and product case stick together. Failure to do so may cause the polarizing plate to peel off

10-3 Storage precautions

(1) Avoid a high temperature and humidity area. Keep the temperature between 0°C and 35°C and also the humidity under 60%.

(2) Choose the dark spaces where the product is not exposed to direct sunlight or fluorescent light.

(3) Store the products as they are put in the boxes provided from us or in the same conditions as we recommend.

10-4 Operating precautions

(1) Do not boost the applied drive voltage abnormally. Failure to do so may break ICs. When applying power voltage, check the electrical features beforehand and be careful. Always turn off the power to the LC module controller before removing or inserting the LC module input connector. If the input connector is removed or inserted while the power is turned on, the LC module internal circuit may break.

(2) The display response may be late if the operating temperature is under the normal standard, and the display may be out of order if it is above the normal standard. But this is not a failure; this will be restored if it is within the normal standard.

(3) The LCD contrast varies depending on the visual angle, ambient temperature, power voltage etc. Obtain the optimum contrast by adjusting the LC dive voltage.

(4) When carrying out the test, do not take the module out of the low-temperature space suddenly. Failure to do so will cause the module condensing, leading to malfunctions.

(5) Make certain that each signal noise level is within the standard (L level: 0.2Vdd or less and H level: 0.8Vdd or more) even if the module has functioned properly. If it is beyond the standard, the module may often malfunction. In addition, always connect the module when making noise level measurements.

(6) The CMOS ICs are incorporated in the module and the pull-up and pull-down function is not adopted for the input so avoid putting the input signal open while the power is ON.

(7) The characteristic of the semiconductor element changes when it is exposed to light emissions, therefore ICs on the LCD may malfunction if they receive light emissions. To prevent these malfunctions, design and assemble ICs so that they are shielded from light emissions.

(8) Crosstalk occurs because of characteristics of the LCD. In general, crosstalk occurs when the regularized display is maintained. Also, crosstalk is affected by the LC drive voltage. Design the contents of the display, considering crosstalk.

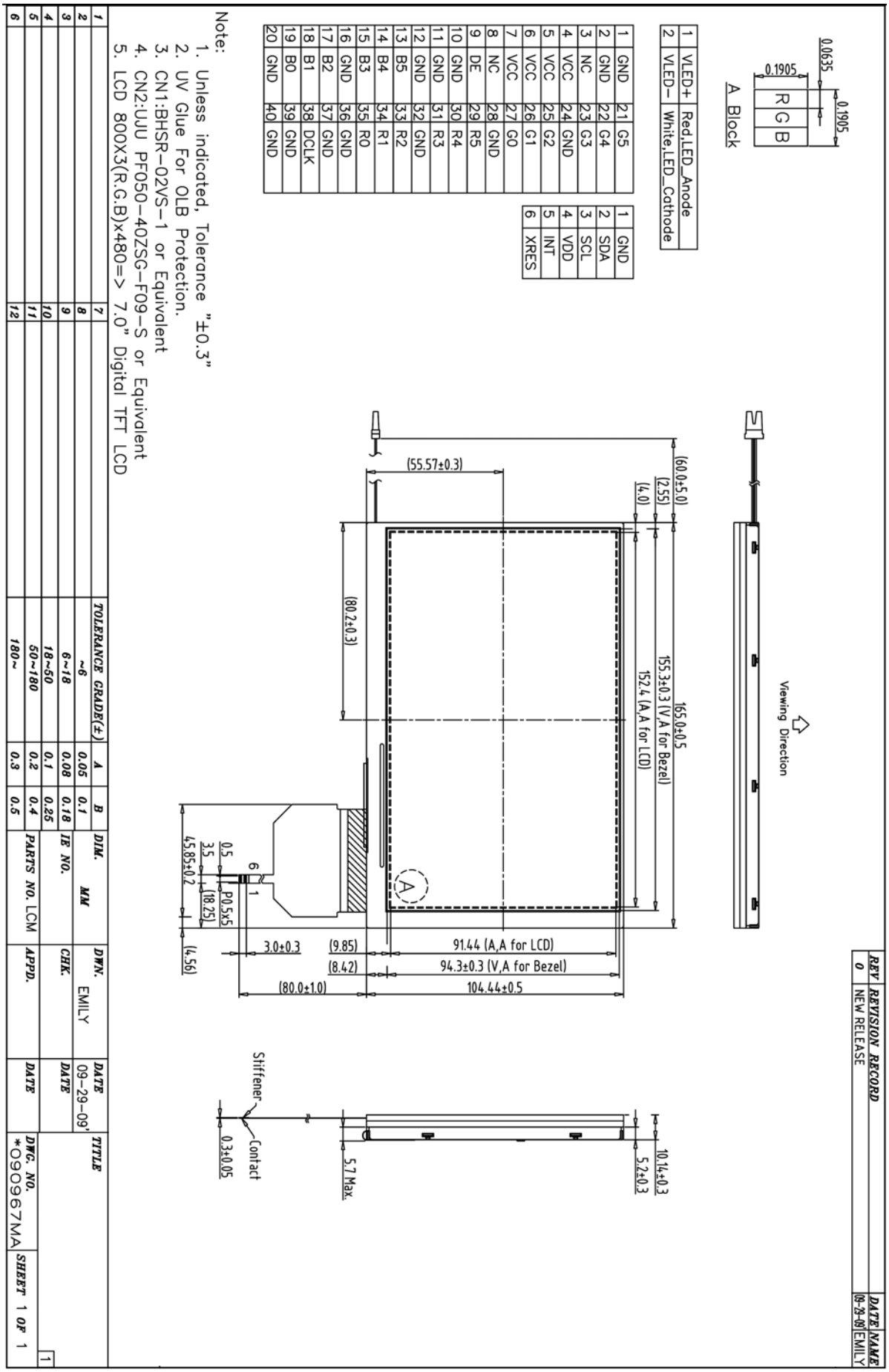
10-5 Other

(1) Do not disassemble or take the LC module into pieces. The LC modules once disassembled or taken into pieces are not the guarantee articles.

(2) The residual image may exist if the same display pattern is shown for hours. This residual image, however, disappears when another display pattern is shown or the drive is interrupted and left for a while. But this is not a problem on reliability.

(3) OSD will provide a one year warrantyfor all new products and three months warranty for all repaired products..

11. OUTLINE DIMENSION



1	VLED+
2	VLED−

Red,LED_Anode	
White,LED_Cathode	

1	GND	21	G5
2	GND	22	G4
3	NC	23	G3
4	VCC	24	GND
5	VCC	25	G2
6	VCC	26	G1
7	VCC	27	G0
8	NC	28	GND
9	DE	29	R5
10	GND	30	R4
11	GND	31	R3
12	GND	32	GND
13	B5	33	R2
14	B4	34	R1
15	B3	35	R0
16	GND	36	GND
17	B2	37	GND
18	B1	38	DCLK
19	B0	39	GND
20	GND	40	GND

1	GND
2	SDA
3	SCL
4	VDD
5	INT
6	XRES

Note:
1. Unless indicated, Tolerance "±0.3"
2. UV Glue For OLB Protection.
3. CN1:BHSR-02VS-1 or Equivalent
4. CN2:UJU PF050-40ZSG-F09-S or Equivalent
5. LCD 800X3(R.G.B)x480=> 7.0" Digital TFT LCD

REV	REVISION RECORD	DATE	NAME
0	NEW RELEASE	09-29-09	EMILY

TOLERANCE GRADE(±)	A	B
~6	0.05	0.1
6~18	0.08	0.18
18~50	0.1	0.25
50~180	0.2	0.4
180~	0.3	0.5

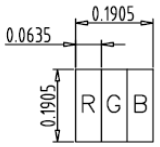
DIM.	MM	DWN.	DATE
IE NO.		EMILY	09-29-09
PARTS NO.	LCM	CHK.	DATE
APPD.		DATE	

TITLE

DWG. NO. *0909967MA

SHEET 1 OF 1

REV	REVISION RECORD	DATE	NAME
0	NEW RELEASE	09-29-09'	EMILY

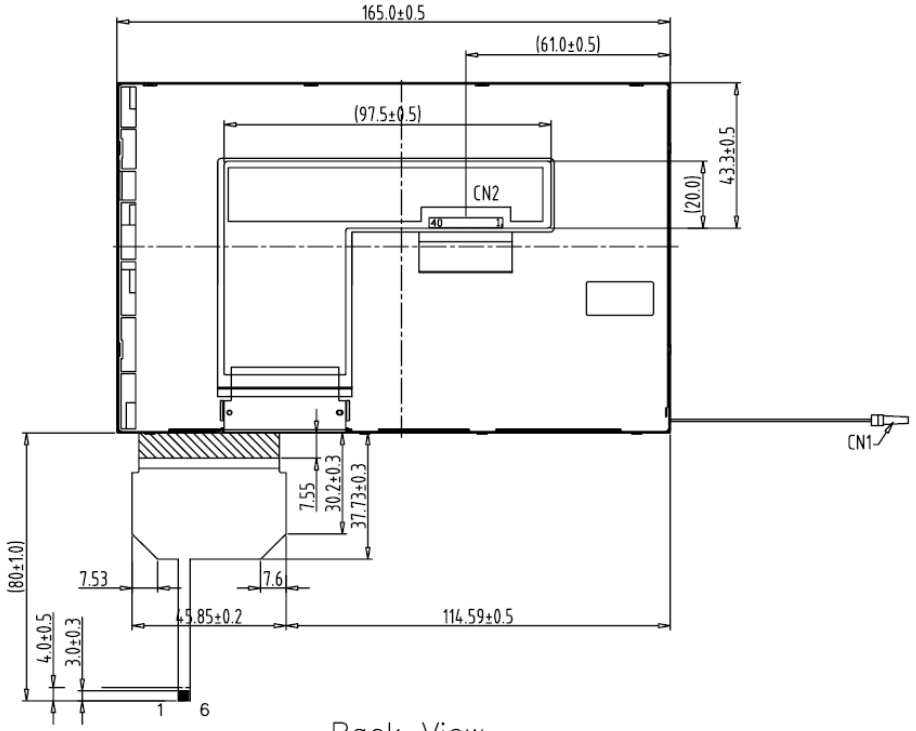


A Block

1	VLED+	Red,LED_Anode
2	VLED−	White,LED_Cathode

1	GND	21	G5
2	GND	22	G4
3	NC	23	G3
4	VCC	24	GND
5	VCC	25	G2
6	VCC	26	G1
7	VCC	27	G0
8	NC	28	GND
9	DE	29	R5
10	GND	30	R4
11	GND	31	R3
12	GND	32	GND
13	B5	33	R2
14	B4	34	R1
15	B3	35	R0
16	GND	36	GND
17	B2	37	GND
18	B1	38	DCLK
19	B0	39	GND
20	GND	40	GND

1	GND
2	SDA
3	SCL
4	VDD
5	INT
6	XRES



Back View

Note:

1. Unless indicated, Tolerance "±0.3"
2. UV Glue For OLB Protection.
3. CN1:BHSR−02VS−1 or Equivalent
4. CN2:UJU PF050−40ZSG−F09−S or Equivalent
5. LCD 800X3(R.G.B)x480=> 7.0" Digital TFT LCD

				TOLERANCE GRADE(±)	A	B	DIM.	DWN.	DATE	TITLE
1		7								
2		8		~6	0.05	0.1	MM	EMILY	09−29−09'	
3		9		6~18	0.08	0.18	IE NO.	CHK.	DATE	
4		10		18~50	0.1	0.25				1
5		11		50~180	0.2	0.4	PARTS NO. LCM−1	APPD.	DATE	DWG. NO. *090968MA
6		12		180~	0.3	0.5				SHEET 1 OF 1