Chefree Technology Corp.

TFT COLOR LCD MODULE

MODEL: CH084OLGLWH-001

(Complied with RoHS)

XGA
LVDS interface

Version: P01

Customer : _____

Approved By : _____

Date: _____

CHEFREE		
APPROVAL	CHECKER	PREPARE
Tim	Mark	Jacky

CONTENTS

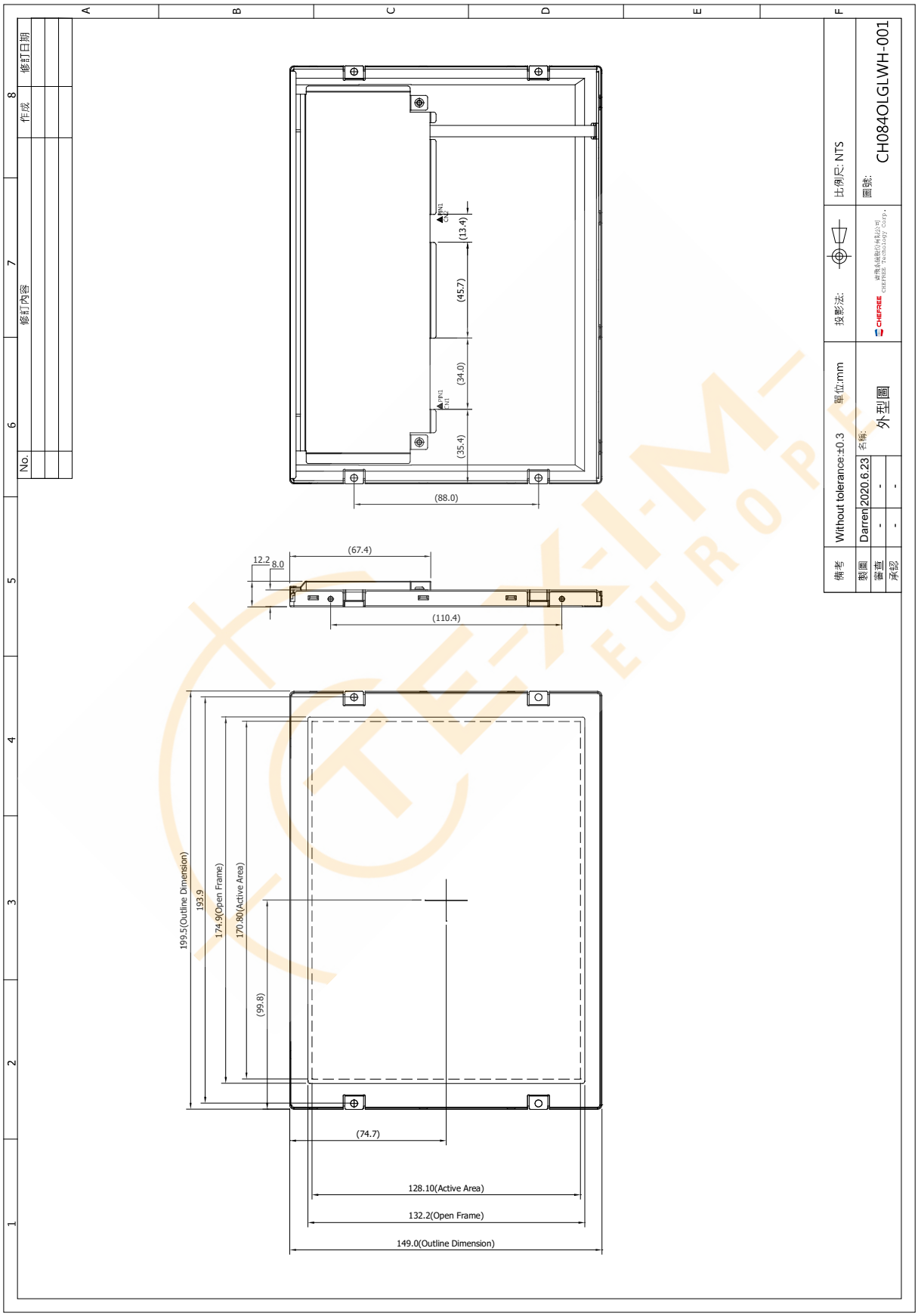
1. RECORD OF REVISION

REV	DATE	PAGE	SUMMARY
P01	2020.06.23	ALL	Preliminary specification was first issued.

2. MECHANICAL SPECIFICATIONS

(1)	Number of Pixel	1024 X RGB X 768
(2)	Module Size(mm)	199.5 (H) X 149.0 (V) X 12.2 (D)
(3)	Active Area(mm)	170.8032 (H) X 128.1024 (V)
(4)	Pixel Pitch(mm)	0.1668 (H) X 0.1668 (V)
(5)	LCD / Polarizer Model	TFT , Transmissive , Normally Black
(6)	Backlight Color	White LED
(7)	Viewing Direction	Wide View Angle
(8)	Electrical Interface	LVDS Interface (6/8 bits)
(9)	Color Configuration	R.G.B Stripe
(10)	Module Weight(g)	TBD±5%

3. OUTLINE DIMENSIONS



4. INTERFACE PIN CONNECTION

4.1 LCM PINS (CN1)

Connector : JAE FI-SEB-20P-HPE or Equivalent

PIN NO.	SIGNAL	I/O	FUNCTION
1	VDD	P	Power supply for TFT LCD
2	VDD	P	Power supply for TFT LCD
3	GND	P	Ground
4	GND	P	Ground
5	RxIN0-	I	Negative LVDS differential data input
6	RxIN0+	I	Positive LVDS differential data input
7	GND	P	Ground
8	RxIN1-	I	Negative LVDS differential data input
9	RxIN1+	I	Positive LVDS differential data input
10	GND	P	Ground
11	RxIN2-	I	Negative LVDS differential data input
12	RxIN2+	I	Positive LVDS differential data input
13	GND	P	Ground
14	RxCLK-	I	Negative LVDS differential clock input
15	RxCLK+	I	Negative LVDS differential clock input
16	GND	P	Ground
17	RxIN3-	I	Negative LVDS differential data input
18	RxIN3+	I	Positive LVDS differential data input
19	SELB	I	6 bits/8 bits select pin (Note 1)
20	SC	I	Display function select pin (Note 2)

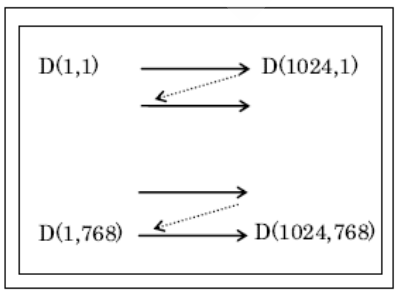
Note: “P” Stand for Power; “I” stand for Input.

Note 1: 8 Bit Mode (SELB=”High” or NC); 6 Bit Mode (SELB =”Low”)

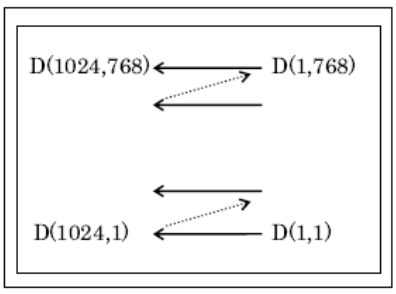
Note 2: Normal display (SC=”Low”); Reverse display (SC=”High”)

Display position and scan Direction

SC=”Low”



SC=”High”



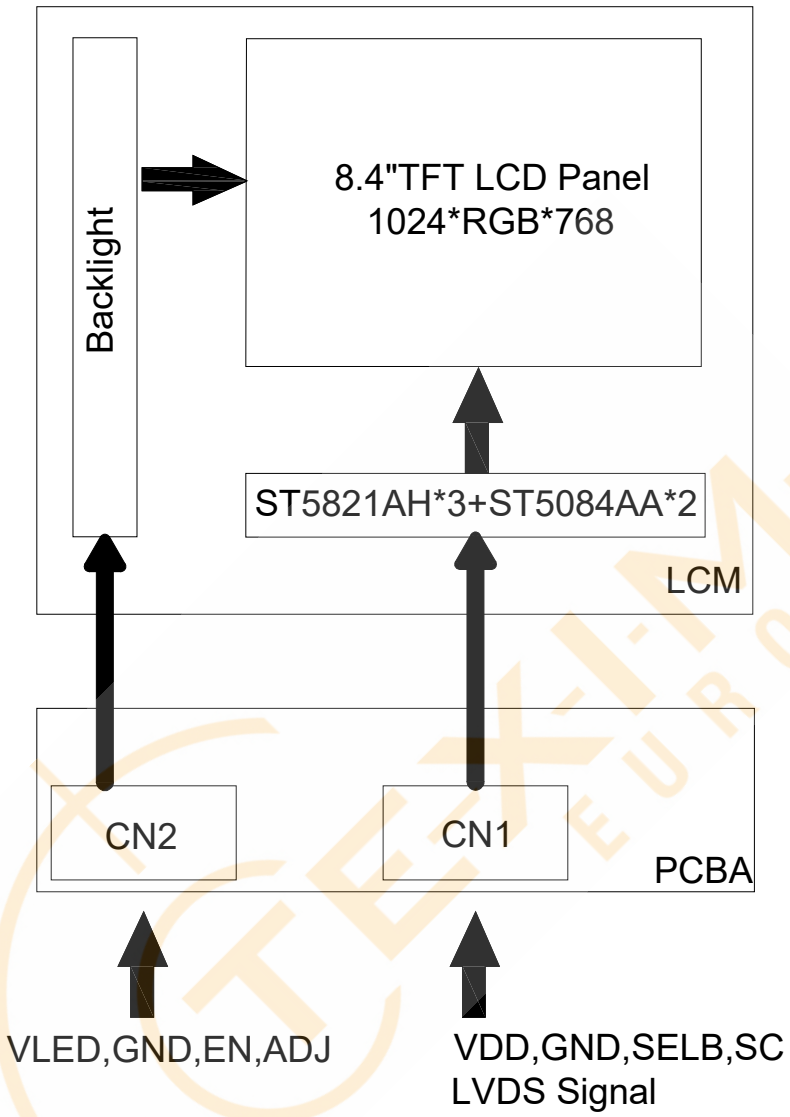
4.2 BACKLIGHT PINS (CN2)

Connector : JAE FI-S06P-HFE or Equivalent

PIN NO.	SIGNAL	I/O	FUNCTION
1	VLED	P	Power supply Input Voltage
2	VLED	P	Power supply Input Voltage
3	GND	P	Ground
4	GND	P	Ground
5	EN	I	Backlight ON-OFF (High : ON, Low: OFF)
6	ADJ	I	PWM Input Voltage(High active)

Note: “P” stand for Power; “I” stand for Input .

5. BLOCK DIAGRAM



6. ABSOLUTE MAXIMUM RATINGS

6.1 ELECTRICAL ABSOLUTE MAXIMUM RATINGS

ITEM	SYMBOL	MIN.	MAX.	UNIT	REMARK
Power Supply for TFT LCD	VDD	-0.5	5.0	V	
Power Supply for Backlight circuit	VLED	-0.3	45	V	

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

6.2 ENVIRONMENTAL ABSOLUTE MAXIMUM RATINGS

ITEM	OPERATING		STORAGE		REMARK
	MIN.	MAX.	MIN.	MAX.	
Ambient Temperature(℃)	Ta=-30	Ts=80	Ta=-30	Ta=80	Note 1,2.
Humidity(% RH)	5~90		5~90		

Note 1：The response time will become lower when operated at low temperature.

Note 2：Background color changes slightly depending on ambient temperature.

Note 3：Operation Ta=60℃ & RH=90% ≦ TBD.

7. ELECTRICAL CHARACTERISTICS

7.1 LCM ELECTRICAL CHARACTERISTICS

Ta=25℃

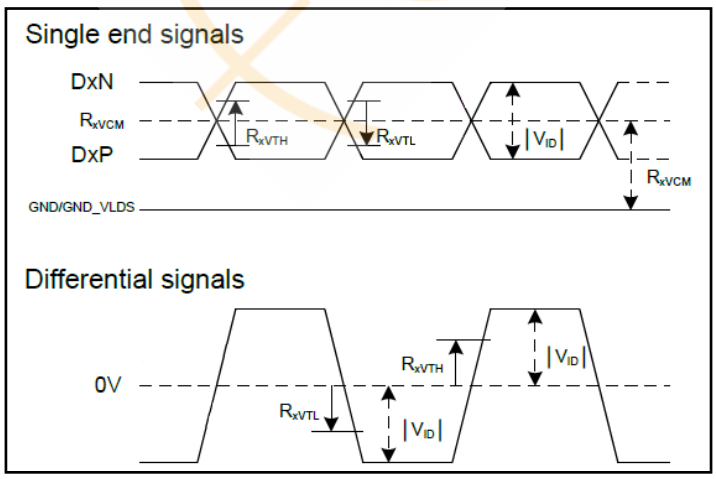
ITEM	SYMBOL	MIN.	TYP.	MAX.	UNIT	REMARK
Power Voltage For LCD	VDD	3.0	3.3	3.6	V	
	IDD	-	TBD	-	mA	Note 1
High Level Input Voltage	VIH	0.7VDD	-	VDD	V	
Low Level Input Voltage	VIL	GND	-	0.3VDD	V	

Note 1：Test condition：VDD =3.3V；Test Pattern：White pattern

7.2 LVDS RECEIVER CHARACTERISTIC

Ta=25℃

ITEM	SYMBOL	MIN.	TYP.	MAX.	UNIT	REMARK
Differential input high threshold voltage	RxVTH			100	mV	RxVCM = 1.2V
Differential input low threshold voltage	RxVTL	-100			mV	RxVCM = 1.2V
Input voltage range (singled-end)	RxVIN	0		VDD-1.0	V	
Differential input common mode voltage	RxVCM	|VID|/2		2.4-|VID|/2	V	
Differential input voltage	|VID|	0.2		0.6	V	



7.3 BACKLIGHT UNITS

Ta=25℃

ITEM	SYMBOL	MIN.	TYP.	MAX.	UNIT	Condition
LED Driving Voltage	VLED	10	12.0	14	V	
LED Driving Current	ILED	-	920	-	mA	1000 cd/m2
ADJ Frequency	-	100		2000	Hz	
LED Life Time	-	80,000		-	Hrs	Note1

Note1 : The LED life time define as the estimated time to 50% degradation of initial luminous.

8. OPTICAL CHARACTERISTICS

Ta=25℃

ITEM		SYMBOL	CONDITIONS	MIN.	TYP.	MAX.	UNIT	REMARK
Contrast Ratio		CR	θx=θy=0°	-	TBD	-	-	Note 1
Chromaticity	White	x		0.270	0.320	0.360	-	Note 4
		y		0.280	0.330	0.370	-	
Viewing Angle	Hor.	θx+	Center CR≧10	-	80	-	Deg.	Note 3
		θx -		-	80	-		
	Ver.	θy+		-	80	-		
		θy -		-	80	-		
Brightness		L	PWM=100% θx=θy=0°	900	1000	-	cd/m²	Note 5
Uniformity		YU		-	-	--	%	

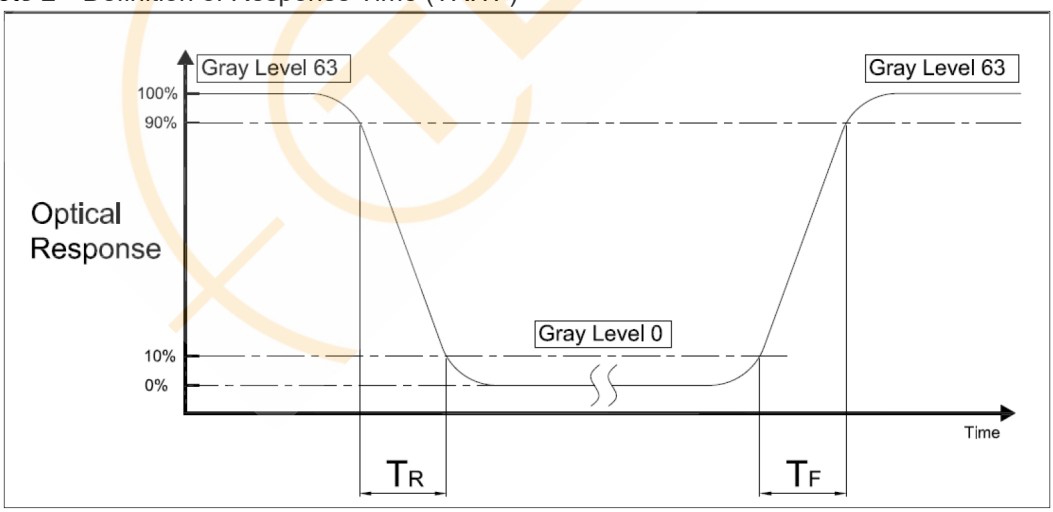
Note 1：Definition of Contrast Ratio (CR)：

The contrast ratio can be calculated by the following expression. ;Contrast Ratio (CR) = L63/L0

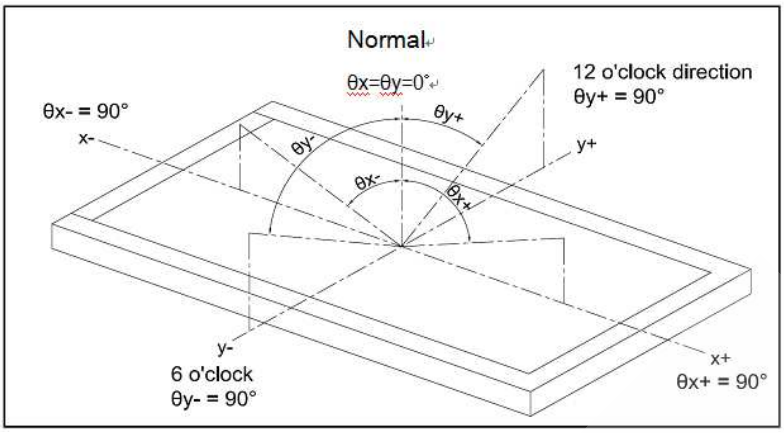
L63：Luminance of gray level 63 ; L0：Luminance of gray level 0

CR = CR(5) ;CR(X) is corresponding to the Contrast Ratio of the point X at Figure in Note 5

Note 2：Definition of Response Time (TR.TF)

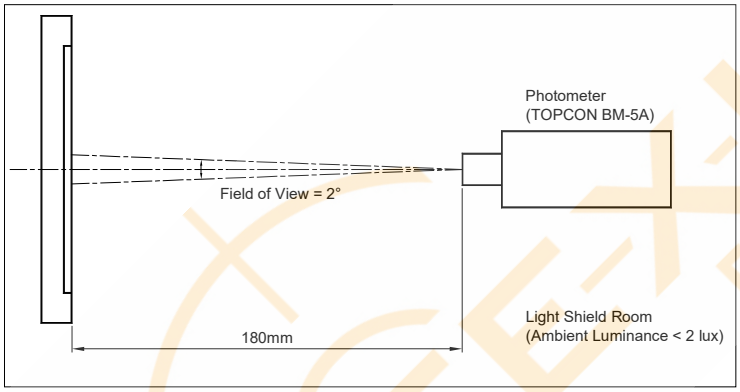


Note 3：Definition of Viewing Angle

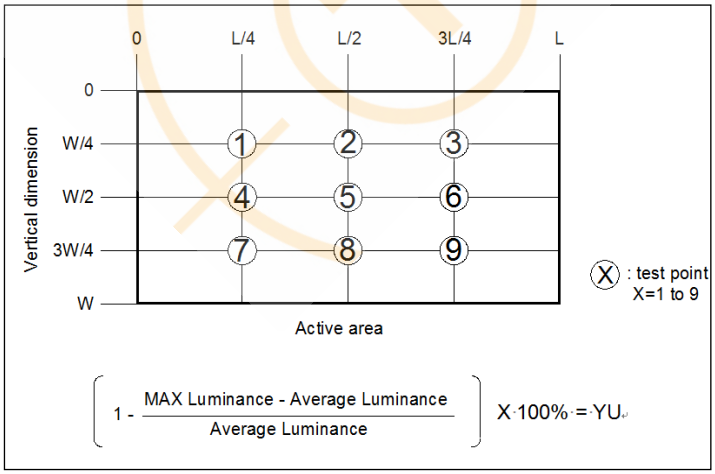


Note 4：Measurement Set-Up:

The LCD module should be stabilized at a given temperature for 20 minutes to avoid abrupt temperature change during measuring. In order stabilize the luminance, the measurement should be executed after lighting Backlight for 20 minutes in a windless room.



Note 5：

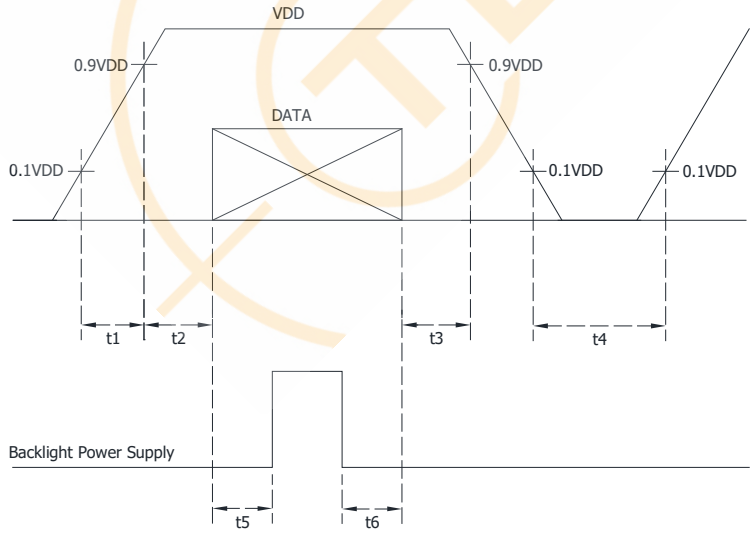


9. TIMING SPECIFICATIONS

9-1 INPUT TIMING

ITEM	SYMBOL	VALUE			UNIT	NOTE
		MIN.	TYP.	MAX.		
CLK frequency	t_{CLK}	48.4	52.4	61.5	MHz	
Horizontal blanking time	t_{HBT}	20	56	180	t_{CLK}	t_{HBP} + t_{HFP}
Horizontal back porch	t_{HBP}	5	5	180- t_{HFP}	t_{CLK}	
Horizontal display area	t_{HD}	1024	1024	1024	t_{CLK}	
Horizontal front porch	t_{HFP}	15	51	175	t_{CLK}	
Horizontal period	t_H	1044	1080	1204	t_{CLK}	
Horizontal pulse width	t_{HPW}	1	1	256	t_{CLK}	
Vertical blanking time	t_{VBT}	5	40	83	t_H	t_{VBP} + t_{VFP}
Vertical back porch	t_{VBP}	2	2	83- t_{VFP}	t_H	
Vertical display area	t_{VD}	768	768	768	t_H	
Vertical front porch	t_{VFP}	3	38	81	t_H	
Vertical period	t_V	773	808	851	t_H	
Vertical pulse width	t_{VPW}	1	1	128	t_H	

9-2 POWER SEQUENCE



1.5ms < t1 < 3ms ; t2 > 100ms

t3 > 100ms ; t4 > 200ms

t5 > 500ms ; t6 > 500ms

DATA : LVDS, SELB,SC

10. RELIABILITY TEST

ENVIRONMENTAL TEST				
NO.	ITEM	CONDITIONS	TIME PERIOD	REMARK
1	High Temperature Storage	Ta=80℃	TBD	Note 1,3
2	Low Temperature Storage	Ta=-30℃	TBD	Note 1,3
3	High Temperature Operation	Ts=80℃	TBD	Note 2,3
4	Low Temperature Operation	Ta=-30℃	TBD	Note 1,3
5	Storage Temperature Cycle	Ta=-30℃~ 80℃	TBD	Note 1,3
6	High Temperature Humidity Operation	60℃ 90%RH	TBD	Note 2,4

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 1：Ta is the ambient temperature of samples.

Note 2：Ts is the temperature of panel's surface.

Note 3：Before cosmetic and function test, the product must have enough recovery time, at least 2 hours at room temperature.

Note 4：Start with cold temperature and end with high temperature.

11. LCM INSPECTION STANDARD

Inspection specifications refer Document Number：TBD

12. PACKAGE INFORMATION

LCM Model	LCM Qty. in the box (pcs)	Outer box Size (mm)	Weight (Kg)
CH084OLGLWH-001	TBD	TBD	TBD

13. PRECAUTIONS FOR USE

13.1 SAFETY

(1)Do not swallow any liquid crystal, even if there is no proof that liquid crystal is poisonous.
(2)If the LCD panel breaks, be careful not to get liquid crystal to touch your skin.
(3)If skin is exposed to liquid crystal, wash the area thoroughly with alcohol or soap.

13.2 STORAGE CONDITIONS

(1)Store the panel or module in a dark place where the temperature is 23±5°C and the humidity is below 50±20%RH.
(2)Store in anti-static electricity container.
(3)Store in clean environment, free from dust, active gas, and solvent.
(4)Do not place the module near organics solvents or corrosive gases.
(5)Do not crush, shake, or jolt the module.

13.3 HANDLING PRECAUTIONS

(1)Avoid static electricity which can damage the CMOS LSI.
(2)The polarizing plate of the display is very fragile. So, please handle it very carefully.
(3)Do not give external shock.
(4)Do not apply excessive force on the surface.
(5)Do not wipe the polarizing plate with a dry cloth, as it may easily scratch the Surface of plate.
(6)Do not use ketonic solvent & Aromatic solvent, use with a soft cloth soaked with a cleaning naphtha solvent.
(7)Do not operate it above the absolute maximum rating.
(8)Do not remove the panel or frame from the module.
(9)When the module is assembled, it should be attached to the system firmly, Be careful not to twist and bend the module.
(10)Wipe off water droplets or oil immediately . If you leave the droplets for a long time, staining and discoloration may occur.
(11)If the liquid crystal material leaks from the panel, it should be kept away from the eyes or mouth. In case of contact with hands, legs or clothes, it must be washed away thoroughly with soap.

13.4 WARRANTY

(1)Acceptance inspection period. The period is within one month after the arrival of contracted commodity at the buyer's factory site.
(2)Applicable warrant period. The period is within 12 months since the date of shipping out under normal using and storage conditions.

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