

# SPECIFICATIONS FOR LCD MODULE

<b>CUSTOMER</b>	
<b>CUSTOMER PART NO.</b>	
<b>AMPIRE PART NO.</b>	<b>AM-1280800Q9TZQW-T45H</b>
<b>APPROVED BY</b>	
<b>DATE</b>	

☐ Preliminary Specification

☒ Formal Specification

Approved by	Checked by	Organized by
<i>Patrick</i>	<i>Jessica</i>	<i>Mantle</i>

This Specification is subject to change without notice.

## RECORD OF REVISION

Revision Date	Page	Contents	Editor
2021/11/25	--	New Release	Mantle

## 1. GENERAL DESCRIPTION

The screen format is intended to support 1280(H) x 800(V)screen and 16.7M(RGB 8-bits)。

Enhance display color performance by wide color gamut LED Back-light.

Projective Capacitive Touch Panel

■ Controller:EXC80W46

■ Interface: mini-USB

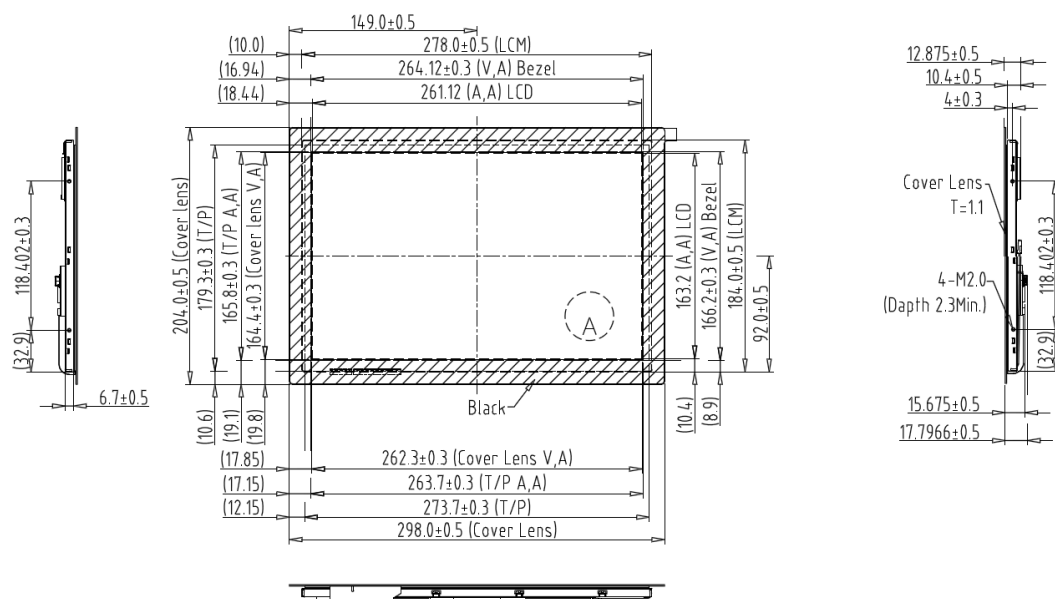
■ Cover Glass: 1.1mm

HDMI / VGA Board

### 1.1 Display Characteristics

The following items are characteristics summary on the table under 25 °C condition:

Item	Specifications	unit
Screen Diagonal	12.1	inch
Display resolution(dot)	1280 (RGB) x 800	dots
Display area	261.1 (W) x 163.2 (H)	mm
Pixel pitch	0.204(W) x 0.204 (H)	mm
Color configuration	R.G.B Vertical stripe	
Display Mode	SFT, Normally Black	
Brightness	1020	cd/m <sup>2</sup>
Backlight unit	LED	
Display color	16.7M	colors
Electircal Treatment	1 channel LVDS , 6/8bit selectable	



## 2. Input/Output Terminals

### 2.1 TFT LCD Panel

Mating Connector: 093G30-B0001A-G4(Starconn) or compatible

Pin	Name	I/O	Description
1	NC	-	No Connection
2	NC	-	No Connection
3	NC	-	No Connection
4	NC	-	No Connection
5	NC	-	No Connection
6	NC	-	No Connection
7	GND	P	Power ground
8	GND	P	Power ground
9	VDD	P	Power Supply +3.3V
10	VDD	P	Power Supply +3.3V
11	GND	P	Power ground
12	GND	P	Power ground
13	Rxin0-	I	-LVDS differential data input(R0~R5,G0)
14	Rxin0+	I	+LVDS differential data input(R0~R5,G0)
15	GND	P	Power ground
16	Rxin1-	I	-LVDS differential data input(G1~G5,B0~B1)
17	Rxin1+	I	+LVDS differential data input(G1~G5,B0~B1)
18	GND	P	Power ground
19	Rxin2-	I	-LVDS differential data input(B2~B5,-,-,DE)
20	Rxin2+	I	+LVDS differential data input(B2~B5,-,-,DE)
21	GND	P	Power ground
22	RxCLK-	I	-LVDS differential data input
23	RxCLK+	I	+LVDS differential data input
24	GND	P	Power ground
25	Rxin3-	I	-LVDS differential data input(R6~R7,G6~G7,B6~B7)
26	Rxin3+	I	+LVDS differential data input(R6~R7,G6~G7,B6~B7)
27	GND	P	Power ground
28	SEL6/8	-	Low-->6 bit input mode High or NC-->8 bit input mode
29	GND	P	Power ground
30	GND	P	Power ground

Note: I/O definition:

I-----Input    P----Power/Ground

### 3 Absolute Maximum Ratings

#### 3.1 Driving TFT LCD Panel

GND=0V

Item	Symbol	MIN	MAX	Unit	Remark
Voltage Input	Vin	-0.5	5.0	V	Note1
Operation Temperature	TOP	-30	85	°C	
Storage Temperature	TST	-30	85	°C	
Relative Humidity (Note2)	RH	--	≤95	%	Ta≤40°C
		--	≤85	%	40°C<Ta≤50°C
		--	≤55	%	50°C<Ta≤60°C
		--	≤36	%	60°C<Ta≤70°C
		--	≤24	%	70°C<Ta≤80°C
Absolute Humidity	AH	--	≤70	g/m <sup>3</sup>	Ta>70°C

Table 3.1 absolute maximum rating

Note1: Input voltage include Rxin0-/+, Rxin1-/+, Rxin2-/+, Rxin3-/+, RxCLK-/+, SEL6/8,VDD.

Note2: Ta means the ambient temperature.It is necessary to limit the relative humidity to the specified temperature range. Condensation on the module is not allowed.

## 4. ELECTRICAL CHARACTERISTICS

### 4.1 Driving TFT LCD Panel

VDD=3.3V, GND=0V, Ta=25°C

Item		Symbol	Min	Typ	Max	Units	Remark
Power supply Voltage		VDD	3.0	3.3	3.6	V	
Power supply ripple		V <sub>P-P</sub>	-	-	100	mV	
Power supply current		I <sub>DD</sub>	-	TBD	-	mA	
Power consumption		P	-	TBD	-	mW	Note 1
Differential input voltage		V <sub>id</sub>	200	-	600	mV	
Differential input common voltage		V <sub>cm</sub>	-	1.2	-	V	
Differential input threshold voltage	Low level	V <sub>TL</sub>	-100	-	-	mV	
	Hight level	V <sub>TH</sub>	-	-	100	mV	
Inrush Current		I <sub>rush</sub>	--	--	1.5	A	

Table 4.1 LCD module electrical characteristics

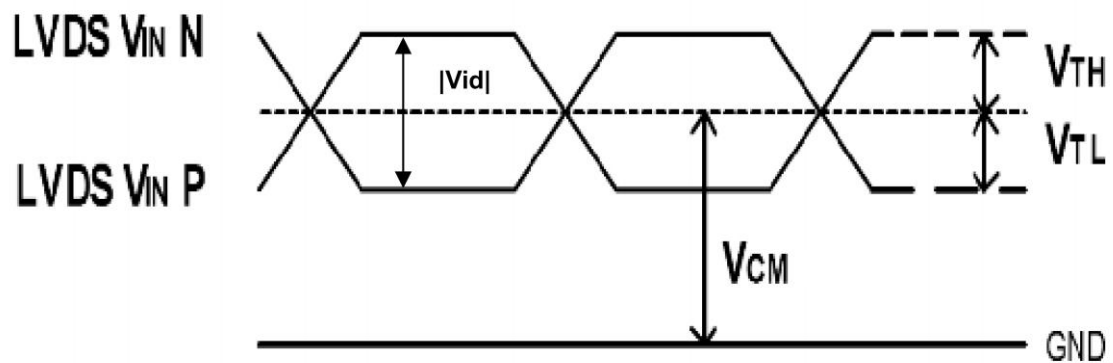


Fig 4.1 LVDS characteristics

Note1: To test the current dissipation, using the “white pattern” shown.

## 4.2 LED Driving Conditions

ITEM	SYMBOL	MIN	TYP	MAX	UNIT	CONDITION
LED Backlight Voltage	$V_F$	16.2	18	21.6	V	For reference
LED Backlight Current	$I_F$	-	600	--	mA	<b>Ta=25°C</b>
LED Life Time		--	50K	-	KHr	

Note 1: Ta means ambient temperature of TFT-LCD module.

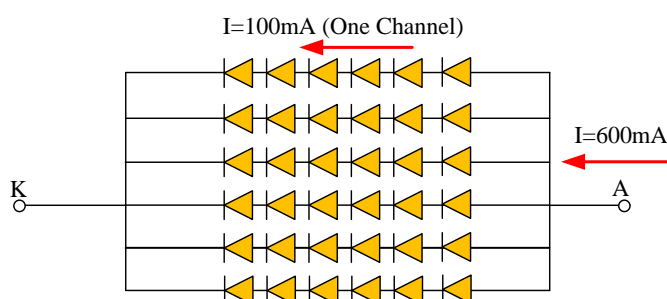
Note 2:  $V_F$ ,  $I_F$  are defined for LED B/L.

Note 3: If the module is driven by high current or at high ambient temperature & humidity condition. The operating life will be reduced.

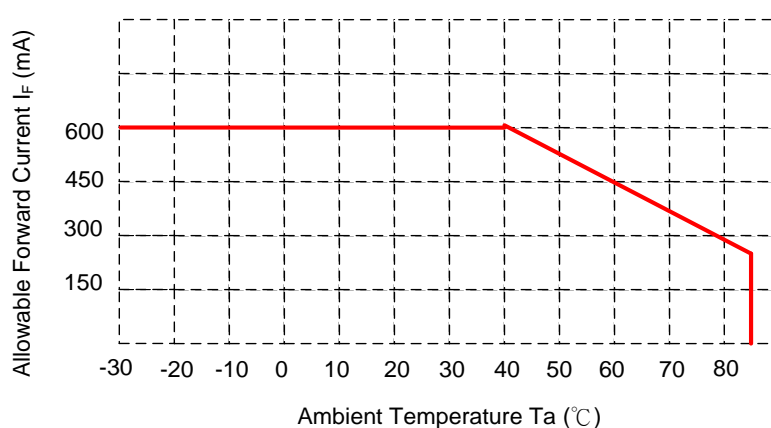
Note 4: Operating life means brightness goes down to 50% minimum brightness.

LED life time is estimated data. Ta=25°C

Note 5: the structure of LED B/L shows as below.



When LCM is operated over 40°C ambient temperature, the  $I_F$  should be follow :



## 5 Timing Chart

### 5.1 LVDS signal timing characteristics

VDD=3.3V, GND=0V, Ta=25°C

Parameter	Symbol	Min	Typ	Max	Unit
CLK frequency	$1/t_c$	67	71	75	MHz
Horizontal display area	thd	-	1280	-	tc
Horizontal period	th	1290	1440	-	tc
Vertical display area	tvd	-	800	-	th
Vertical period	tv	810	823	-	th
Frame Rate	F	-	60	-	HZ

### 5.2 Input Clock and Data timing Diagram:

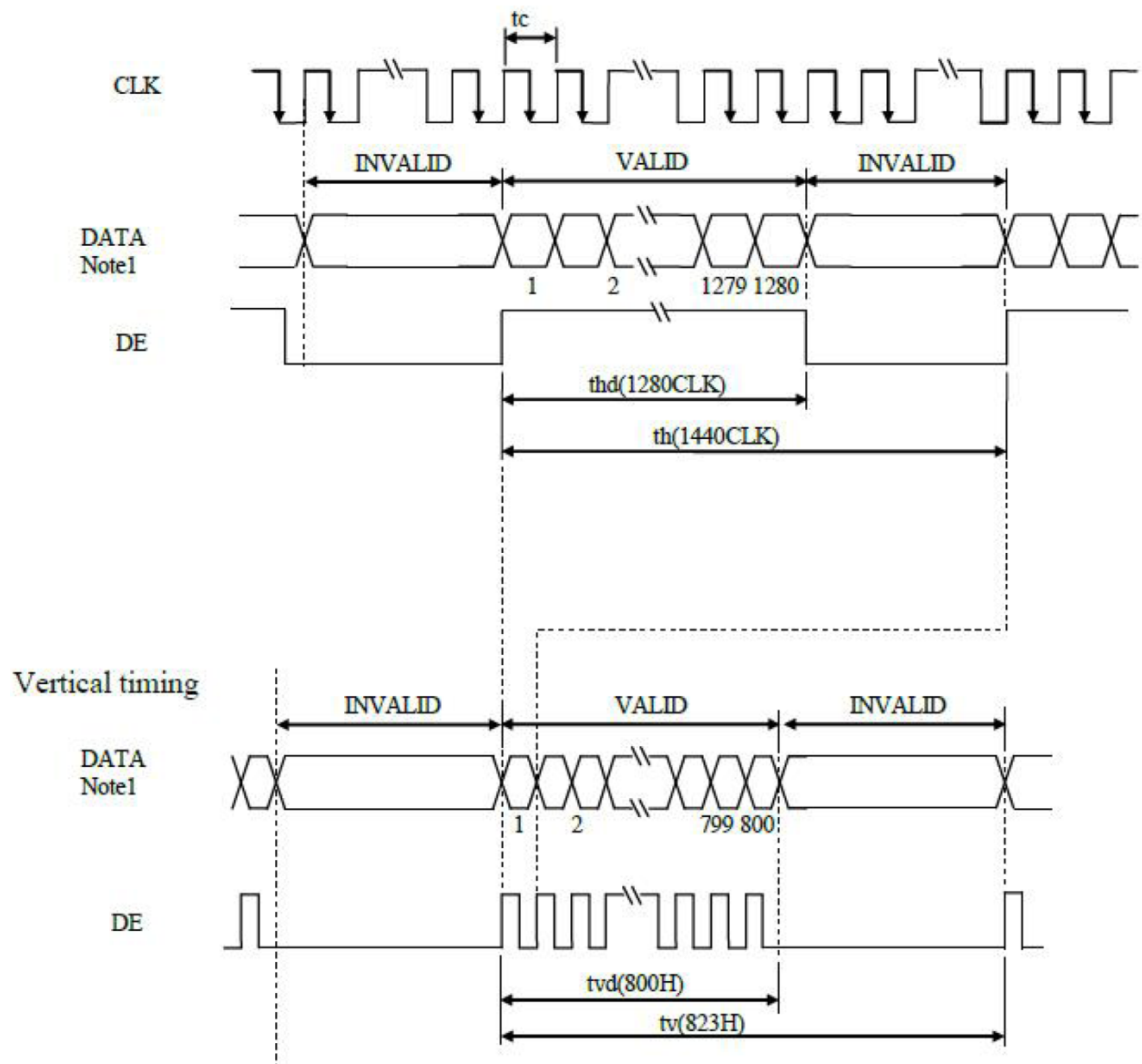
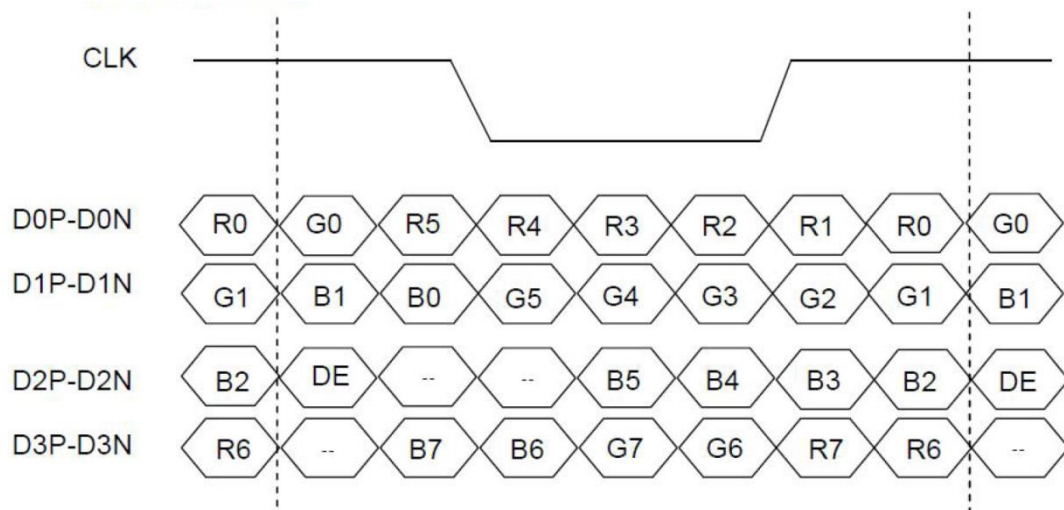


Figure 5.2 Input signal data timing



## 5.3 LVDS data input format

### 8-bit mode data input



### 8-bit mode data input

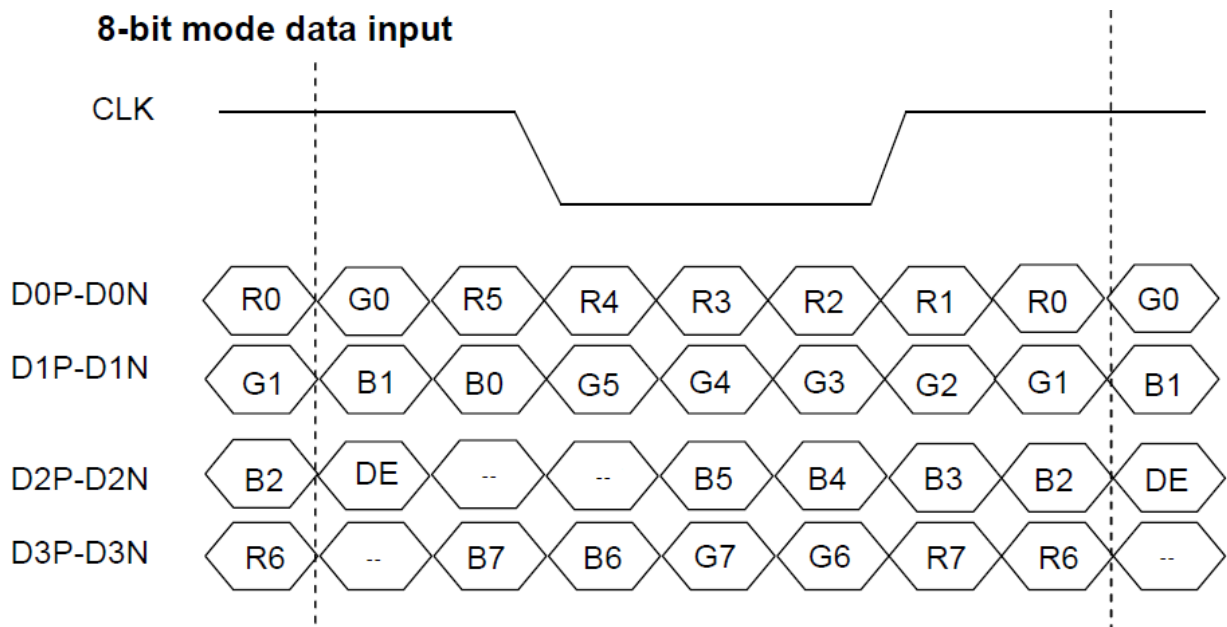


Figure 5.3 LVDS data input format

Note: This LCD module supports DE mode only, so HSYNC&VSYNC signal can be ignored.

## 5.4 Power On/Off Sequence

Item	Symbol	Min	Typ	Max	Unit
VDD on to VDD stable	Tp1	0.5	-	10	ms
VDD stable to signal on	Tp2	0	-	50	ms
Signal on to VLED_EN on	Tp3	200	-	-	ms
PWM on to VLED_EN on	Tp4	0	-	200	ms
VLED to PWM on	Tp5	10	-	-	ms
VLED on to VLED stable	Tp6	0.5	-	10	ms
VDD off time	Tp7	0	-	10	ms
VDD off to next VDD on	Tp8	500	-	-	ms
Signal off before VDD off	Tp9	0	-	50	ms
VLED_EN off before signal off	Tp10	200	-	-	ms
VLED_EN off before PWM off	Tp11	0	-	200	ms
PWM off before VLED off	Tp12	10	-	-	ms

Table 5.4 Power on/off sequence

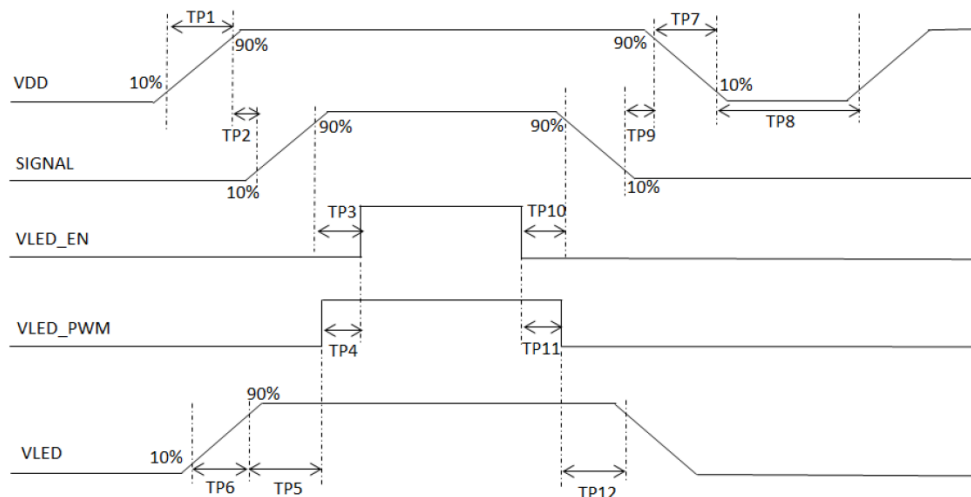


Figure 5.4 Interface power on/off sequence

## 6 Optical specification

### 6.1 Optical characteristic of the LCD

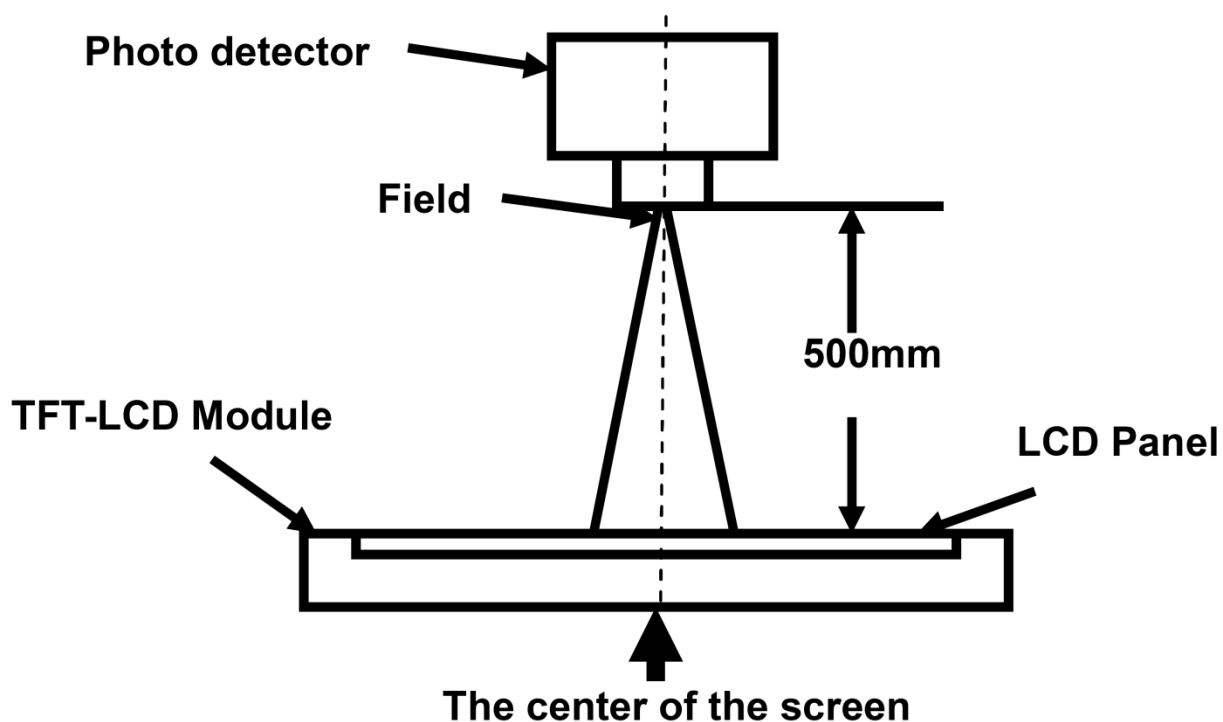
Item		Symbol	Condition	Min.	Typ.	Max.	Unit	Remark
View Angles		θT	CR≥10	75	89	--	Degree	Note 2
		θB		75	89	--		
		θL		75	89	--		
		θR		75	89	--		
Contrast Ratio		CR	θ=0°	800	1000	--		Note 1 Note 3
Response Time		T <sub>ON</sub>	25℃	--	12	--	ms	Note 1 Note 4
		T <sub>OFF</sub>		--	13	--		
Chromaticity	White	X	Backlight is ON	-0.05	0.329	+0.05	--	Note 1 Note 5
		Y			0.376			
	Red	X			0.664			
		Y			0.320			
	Green	X			0.281			
		Y			0.718			
	Blue	X			0.145			
		Y			0.094			
Uniformity		U		70	75	--	%	Note 1 Note 6
NTSC				--	94	--	%	Note 5
Luminance		L		816	1020	--	Cd/m <sup>2</sup>	Note 1 Note 7

Test Conditions:

1. The ambient temperature is  $25 \pm 2^\circ C$ . humidity is  $65 \pm 7\%$
2. The test systems refer to Note1 and Note 2.

Note 1: Definition of optical measurement system.

The optical characteristics should be measured in dark room. After 5 minutes operation, the optical properties are measured at the center point of the LCD screen. All input terminals LCD panel must be ground when measuring the center area of the panel.



Note 2: Definition of viewing angle range and measurement system.

viewing angle is measured at the center point of the LCD by CONOSCOPE (ergo-80).

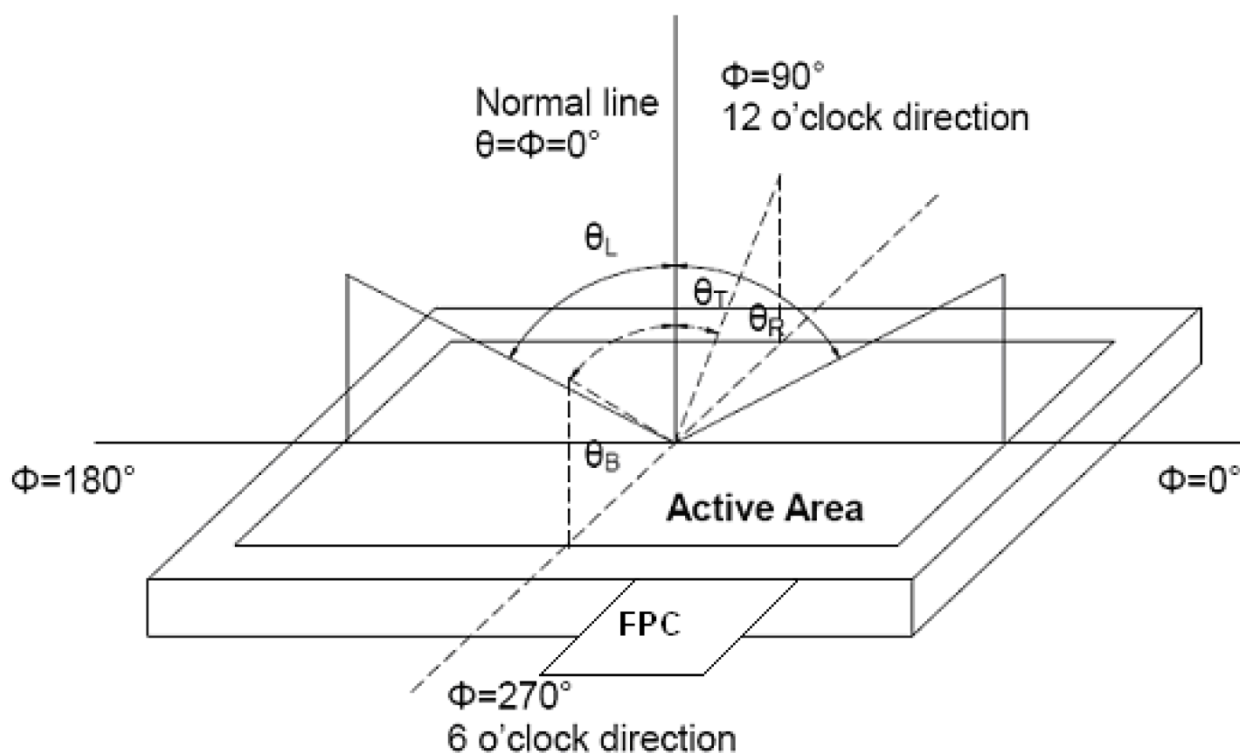


Fig. 1 Definition of viewing angle

Note 3: Definition of contrast ratio

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

“White state “: The state is that the LCD should driven by  $V_{\text{white}}$ .

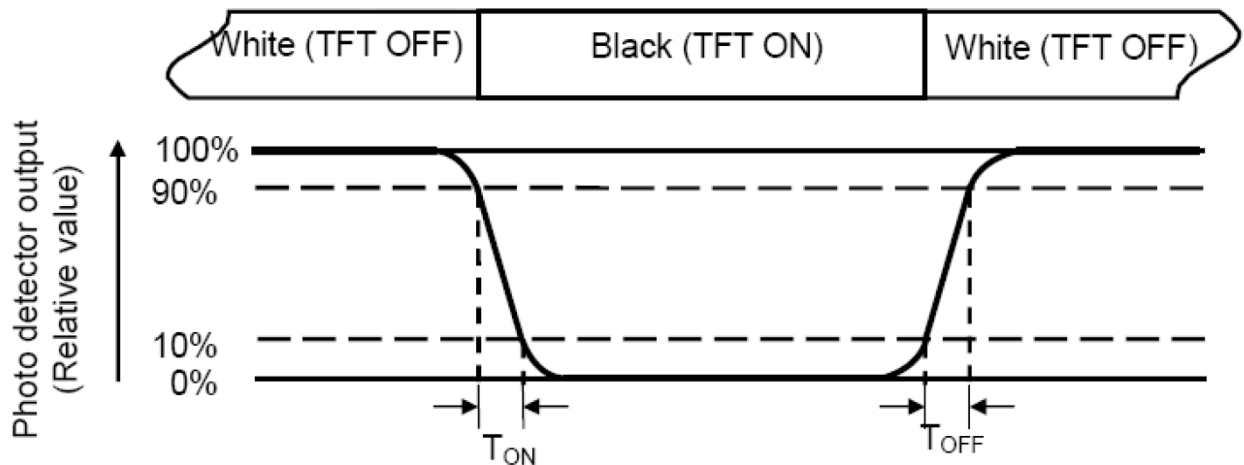
“Black state”: The state is that the LCD should driven by  $V_{\text{black}}$ .

$V_{\text{white}}$ : To be determined

$V_{\text{black}}$ : To be determined.

Note 4: Definition of Response time

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



Note 5: Definition of color chromaticity (CIE1931)

Color coordinates measured at center point of LCD.

Note 6: Definition of Luminance Uniformity

Active area is divided into 9 measuring areas (Refer Fig. 2). Every measuring point is placed at the center of each measuring area.

$$\text{Luminance Uniformity (U)} = \frac{L_{\min}}{L_{\max}}$$

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

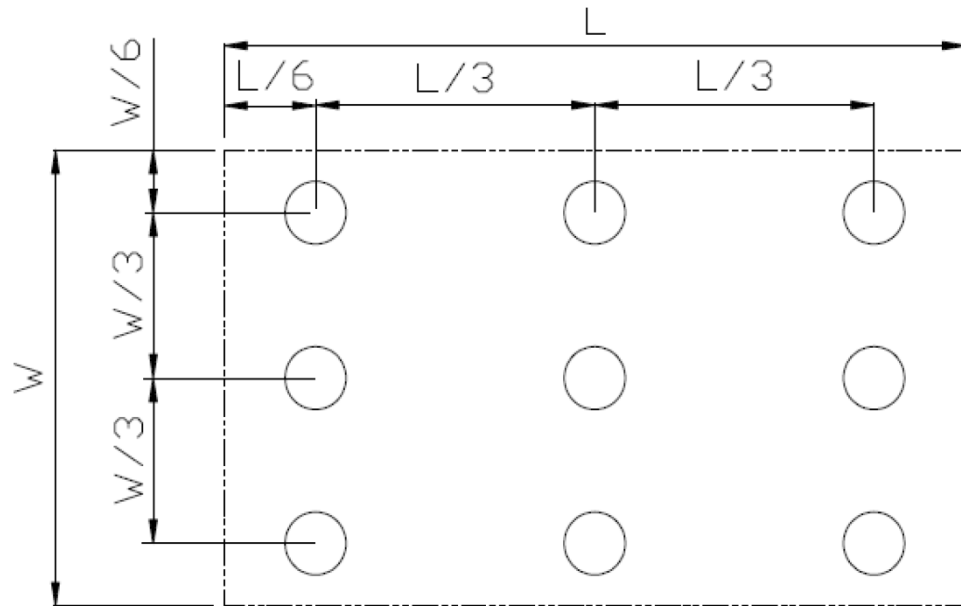


Fig. 2 Definition of uniformity

$L_{max}$ : The measured maximum luminance of all measurement position.

$L_{min}$ : The measured minimum luminance of all measurement position.

Note 7: Definition of Luminance :

Measure the luminance of white state at center point.

## 7 Projected capacitive-type touch panel specifications

### 7.1 Basic Characteristic

ITEM	SPECIFICATION
Type	Projective Capacitive Touch Panel
Activation	Two-fingers or Single-finger
X/Y Position Reporting	Absolute Position
Touch Force	No contact pressure required
Calibration	No need for calibration
Report Rate	Approx. 80 points/sec
Control IC	EXC80W46

### 7.2 Electrical Absolute Max Rating

Item	Symbol	Value		Unit	Note
		Min.	Max.		
Power supply voltage	VIN	-0.3	5.5	V	GND=0V

### 7.3 ELECTRICAL CHARACTERISTICS

Specify the normal operating condition  
(PGND=0V)

Item	Symbol	Min.	Typ.	Max.	Unit	Note
Power supply voltage	VIN	-	5	-	V	

Interface		
Pin No.	Symbol	Function
1	GND	Ground
2	DA-	USB Data-
3	DA+	USB Data+
4	VIN	Power supply
5	NA	NC
6	NA	NC

## 8 Reliability Test Items

Test Item	Test Conditions	Note
High Temperature Operation	Ts = 85°C , t=240 hrs	
Low Temperature Operation	Ta = -30°C , t=240 hrs	
High Temperature Storage	Ta = 85°C , t=240 hrs	1,2
Low Temperature Storage	Ta = -30°C , t=240 hrs	1,2
Storage at High Temperature and Humidity	Ta = 60°C, 90% RH , 240 hrs	1,2
Thermal Shock Test	-30°C (30min) ~ 80°C (30min) Change time:5min, 100 cycles	1,2
Vibration Test (Packing)	Frequency range:10~55Hz, Stroke:1.5mm Sweep:10Hz ~ 55Hz ~ 10Hz 2hours for each direction of X.Y.Z (6 hours total)	2

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)

Note(3) The module shouldn't be tested over one condition, and all the tests are independent.

Note(4) All reliability tests should be done without the protective film.

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.



## 9 USE PRECAUTIONS

### 9.1 Handling Precautions

- 9.1.1. The display panel is made of glass. Do not subject it to a mechanical shock by dropping it from a high place, etc.
- 9.1.2. If the display panel is damaged and the liquid crystal substance inside it leaks out, be sure not to get any in your mouth, if the substance comes into contact with your skin or clothes, promptly wash it off using soap and water.
- 9.1.3. Do not apply excessive force to the display surface or the adjoining areas since this may cause the color tone to vary.
- 9.1.4. The polarizer covering the display surface of the LCD module is soft and easily scratched. Handle this polarizer carefully.
- 9.1.5. If the display surface is contaminated, breathe on the surface and gently wipe it with a soft dry cloth. If still not completely clear, moisten cloth with one of the following solvents:
  - Isopropyl alcohol
  - Ethyl alcoholSolvents other than those mentioned above may damage the polarizer. Especially, do not use the following:
  - Water
  - Ketone
  - Aromatic solvents
- 9.1.6. Do not attempt to disassemble the LCD Module.
- 9.1.7. If the logic circuit power is off, do not apply the input signals.
- 9.1.9. To prevent destruction of the elements by static electricity, be careful to maintain an optimum work environment.
  - 9.1.9.1. Be sure to ground the body when handling the LCD Modules.
  - 9.1.9.2. Tools required for assembly, such as soldering irons, must be properly ground.
  - 9.1.9.3. To reduce the amount of static electricity generated, do not conduct assembly and other work under dry conditions.
  - 9.1.9.4. The LCD Module is coated with a film to protect the display surface. Be care when peeling off this protective film since static electricity may be generated.

## 9.2 Storage Precautions

- 9.2.1. When storing the LCD modules, avoid exposure to direct sunlight or to the light of fluorescent lamps.
- 9.2.2. The LCD modules should be stored under the storage temperature range. If the LCD modules will be stored for a long time, the recommend condition is:  
Temperature : 0°C ~ 40°C Relatively humidity: ≤80%
- 9.2.3. The LCD modules should be stored in the room without acid, alkali and harmful gas.

## 9.3 Transportation Precautions

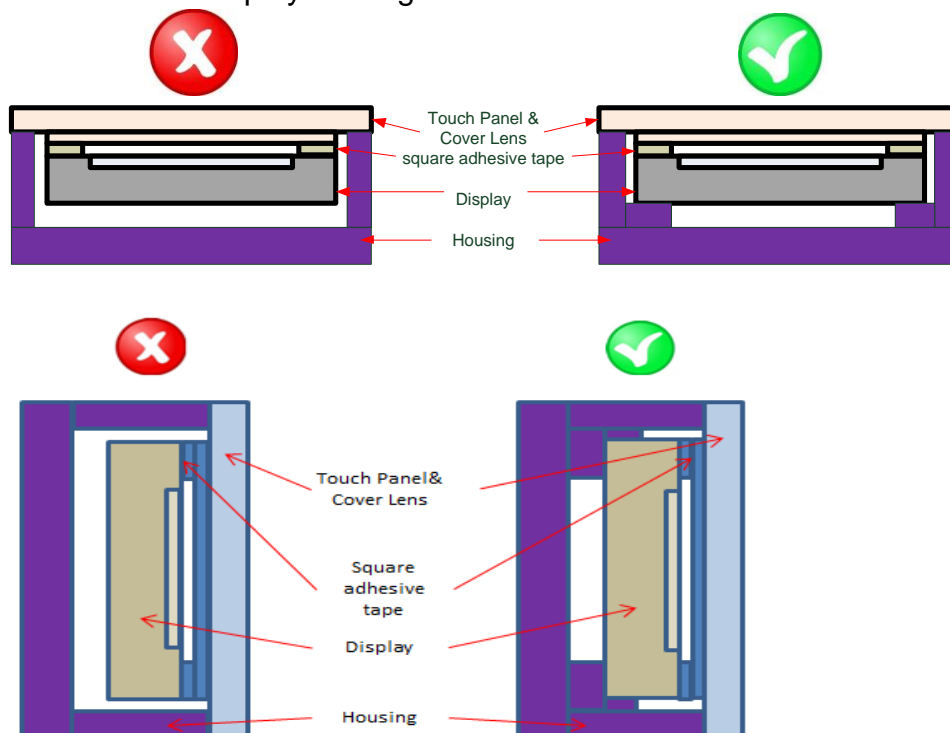
The LCD modules should be no falling and violent shocking during transportation, and also should avoid excessive press, water, damp and sunshine.

## 9.4 Other

- 9.4.1 AMIPRE will provide one year warrantee for all products and three months warrantee for all repairing products.
- 9.4.2 Do not keep the LCD at the same display pattern continually. The residual image will happen and it will damage the LCD. Please use screen saver.

## 9.5 Mechanism (if the LCM using air bonding)

- (1) Please mount LCD module by using mounting holes arranged in four corners tightly.
- (2) The square adhesive tape which is between the touch panel and display can't provide well supporting in the long term and high ambient temperature condition. Whether upright or horizontal position the support holder which is in the back side of the display is needed. Do not let the display floating.



The diagram illustrates the electrical connections for a touch screen assembly. At the top is a blue rectangular block labeled 'TP' (Touch Panel). Below it is a black rectangular block labeled 'LCD'. Underneath the LCD is a green rectangular block labeled 'LCD PCBA'. To the right of the LCD and TP is an orange rectangular block labeled 'Touch Controller'. Red vertical lines with double horizontal bars at the bottom represent connection points between the TP and the LCD. Arrows indicate the following connections:
 

- From the left side of the LCD, an arrow points down to 'Ground1'.
- From the right side of the LCD, an arrow points down to 'Ground2'.
- From the bottom of the LCD PCBA, an arrow points down to 'Ground2'.
- From the bottom of the Touch Controller, an arrow points down to 'Ground3'.

 Below the diagram, a text box states: 'GND1, GND2 and GND3 should be connected together to have the same ground'.





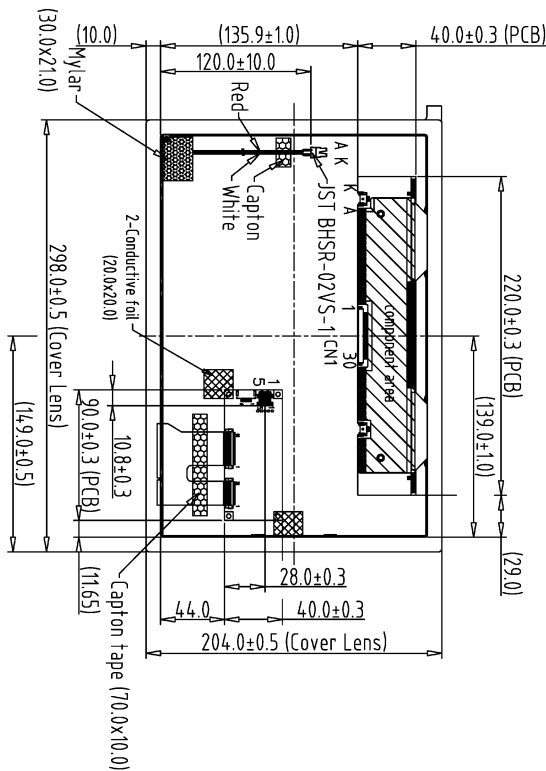
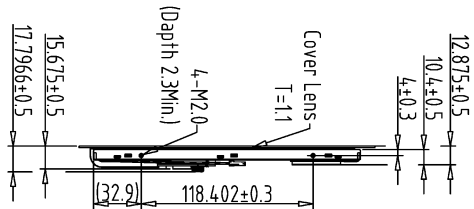
REV	REVISION RECORD	DATE NAME
0	NEW RELEASE	12-21-20 SNOW

1	VIN
2	D-
3	D+
4	NC
5	GND

USB interface:

1	NC	16	RXIN1-
2	NC	17	RXIN1+
3	NC	18	GND
4	NC	19	RXIN2-
5	NC	20	RXIN2+
6	NC	21	GND
7	GND	22	RXCCLK-
8	GND	23	RXCCLK+
9	VDD	24	GND
10	VDD	25	RXIN3-
11	GND	26	RXIN3+
12	GND	27	GND
13	RXINO-	28	SEL6/8
14	RXINO+	29	GND
15	GND	30	GND

CN1



Back view

Note:

1. Unless indicated, Tolerance "±0.5"
2. UV Glue For OLB Protection.
3. LCD 1280x800 (R.G.B) TFT LCD => 12.1" TFT LCD
4. Connector : 093G30-B0001A-G4 (Starconn) or Equivalent.
5. T/P Controller board: Mini USB Type B/5Pin/CS04-SAM15B0-R0-LF or Equivalent

1	128080008	7		TOLERANCE GRADE(E)	A	B	DM.	MM	DWN.	SNOW	DATE	12-21-20
2	1791280817A	8									DATE	
3	2812808023A	9					IE NO.		CHK.		DATE	
4	mini USB	10										
5		11										
6		12					PARTS NO. LCM-1		APPD.		DATE	
							128080009-T40				DWG. NO.	*2012118MA
											SHEET	1 OF 1

AMPIRE 晶采光電科技

128080009-T40

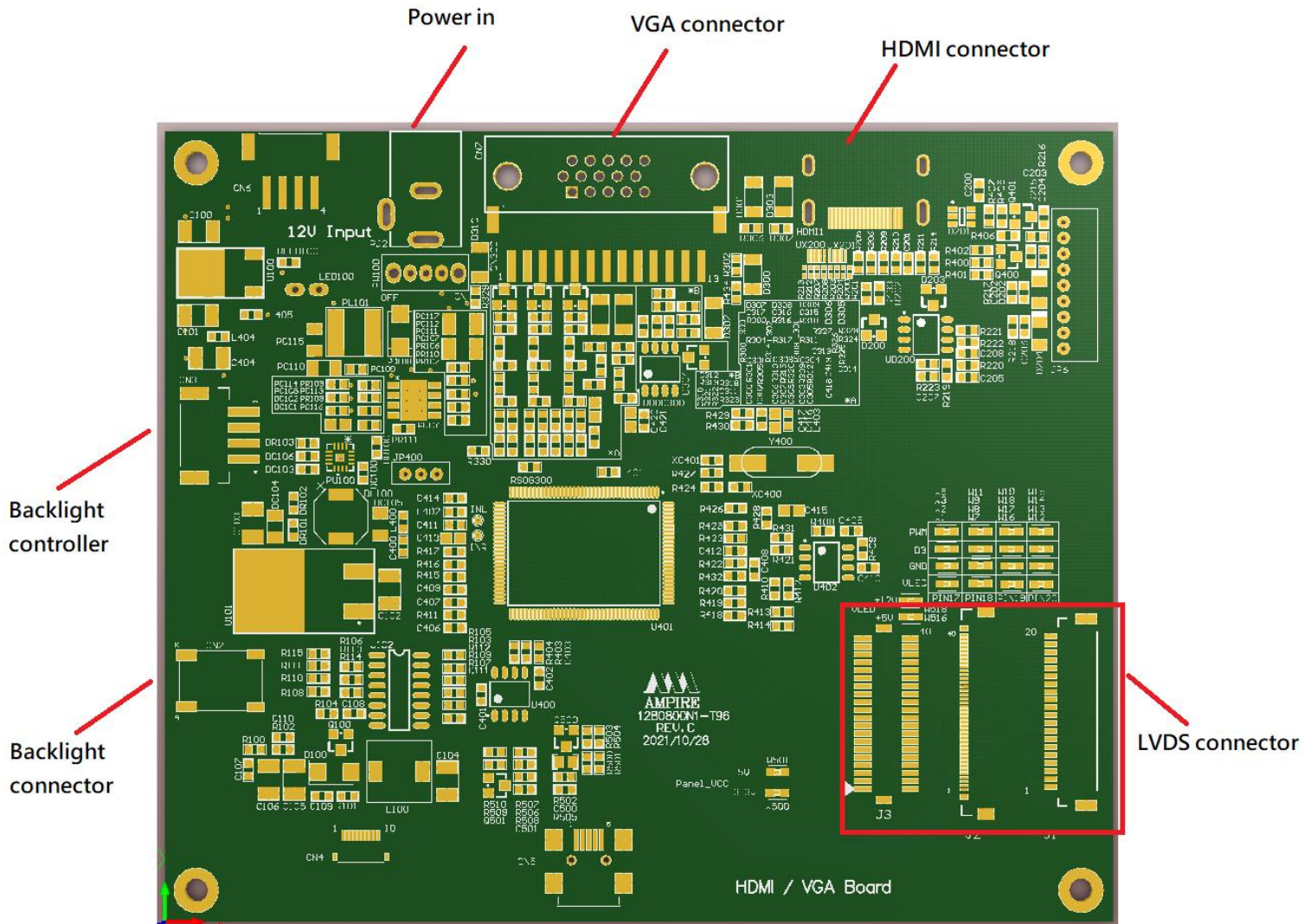
(12.1" IPS USB

## 11. HDMI / VGA Board

### 1. GENERAL SPECIFICATIONS

Item	Specifications
Scaler Solution	RTD2486AD
Number of Colors	Dual channel 6 or 8 bit , 16.7 million colors
Panel Signal	LVDS
Vertical Refresh Rate	Up to 60Hz at WUXGA (1920x1200)
Graphics Formats	Standard VGA, SVGA, XGA, SXGA, WXGA+, SXGA+, WSXGA+, UXGA, WUXGA
Graphics Input	Analog RGB / HDMI1.3 Input
Signal Input Connector Type	VGA analog ( 15pin D-sub ) HDMI (A-TYPE )
OSD Control (Optional)	Power, Menu/Select, Up/Right, Down/Left, Auto/Exit, Source
Voltage Output for LCD	+3.3V / +5V DC
Input voltage	+12V ~+24V DC
Controller Dimensions	(T.B.D)
Storage temperature limits	-20°C to +85°C
Operating Temperature	0°C to +60°C

## 2. MECHANICAL SPECIFICATION



### 3. CONNECTORS, PINOUTS & JUMPERS

PJ2	Power Input Supply Used Connector: DC Power Socket(2.1mm)	
Pin No.	Symbols	Description
	DC_IN	DC Power Input

HDMI1	HDMI Input Used Connector: HDMI A Type	
Pin No.	Symbols	Description
1	DAT2+	Positive data output (Channel 2 data)
2	GND	Ground
3	DAT2-	Negative data output (Channel 2 data)
4	DAT1+	Positive data output (Channel 1 data)
5	GND	Ground
6	DAT1-	Negative data output (Channel 1 data)
7	DAT0+	Positive data output (Channel 0 data)
8	GND	Ground
9	DAT0-	Negative data output (Channel 0 data)
10	DCLK+	Positive clock output
11	GND	Ground
12	DCLK-	Negative clock output
13	CEC	Consumer Electronic Control
14	NC	No connection
15	DDC SCL	Serial clock I/O pin for DDC
16	DDC SDA	Serial data I/O pin for DDC
17	GND	Ground
18	HDMI5	From PC support
19	HPD	Hot-plugging detect



VGA	VGA Input Used Connector: 15-pin D-Sub	
Pin No.	Symbols	Description
1	VGA_RED	Red video input signal
2	VGA_GREEN	Green video input signal
3	VGA_BLUE	Blue video input signal
4	GND	Ground
5	VGA_CON	Detect VGA signal
6	RED_GND	Ground for red video input signal
7	GREEN_GND	Ground for green video input signal
8	BLUE_GND	Ground for blue video input signal
9	PC5V	+5V DC from PC
10	GND	Ground
11	GND	Ground
12	DAT_DDC	Serial data I/O pin for DDC
13	HSI	Horizontal sync.
14	VSI	Vertical sync.
15	CLK_DDC	Serial clock I/O pin for DDC

CN3	Connector for Backlight Contoller Used Connector:	
Pin No.	Symbols	Description
1	VLED	Voltage for LED circuit
2	LED_EN	LED BLU ON/OFF.
3	GND	High level: ON; Low level: OFF
4	PWM	Adjust the LED brightness by PWM.

CN2	Connector for Backlight Used Connector: JST, BHSR-02VS-1	
Pin No.	Symbols	Description
1	A	LED Anode
2	K	LED Cathode

<b>J1</b>	<b>Connector for LCD</b> <b>Used Connector: CP100-S20G-H16 or Equivalent (P1.0, 20Pin)</b>	
<b>Pin No.</b>	<b>Symbols</b>	<b>Description</b>
1	VDD	Power Voltage for Logic: 3.3V
2	VDD	Power Voltage for Logic: 3.3V
3	GND	Ground
4	GND	Ground
5	IN0-	- LVDS differential data input
6	IN0+	+ LVDS differential data input
7	GND	Ground
8	IN1-	- LVDS differential data input
9	IN1+	+ LVDS differential data input
10	GND	Ground
11	IN2-	- LVDS differential data input
12	IN2+	+ LVDS differential data input
13	GND	Ground
14	CLK-	- LVDS differential clock input
15	CLK+	+ LVDS differential clock input
16	GND	Ground
17	Pin17	Can be chosen one
18	Pin18	Can be chosen one
19	Pin19	Can be chosen one
20	Pin20	Can be chosen one

\*Can be chosen one

	Pin17	Pin18	Pin19	Pin20
- /+ LVDS differential data input	IN3-	IN3+	IN3-	IN3+
Adjust the LED brightness by PWM.	PWM			
Power ground	GND			
LED BLU ON/OFF. High level: ON; Low level: OFF	LED_EN			

J2	Connector for LCD Used Connector: Starconn/300E40-0010RA-G3 or Equivalent	
Pin No.	Symbols	Description
1	NC	Not Connect
2	VDD	Power Supply, 3.3V (typical)
3	VDD	Power Supply, 3.3V (typical)
4-7	NC	Not Connect
8	IN0-	-LVDS differential data input
9	IN0+	+LVDS differential data input
10	GND	Ground
11	IN1-	-LVDS differential data input
12	IN1+	+LVDS differential data input
13	GND	Ground
14	IN2-	-LVDS differential data input
15	IN2+	+LVDS differential data input
16	GND	Ground
17	CLK-	-LVDS differential clock input
18	CLK+	+LVDS differential clock input
19	GND	Ground
20	IN3-	-LVDS differential data input
21	IN3+	+LVDS differential data input
22	GND	Ground
23	GND	Ground
24	GND	Ground
25	GND	Ground
26	NC	Not Connect
27	PWM	PWM Input Signal for LED Driver
28	LED_EN	LED Enable Pin
29	GND	Ground
30	NC	Not Connect
31	LED_VCC	Power Supply for LED Driver
32	LED_VCC	Power Supply for LED Driver
33	LED_VCC	Power Supply for LED Driver
34-40	NC	Not Connect

<b>J3</b>	<b>Connector for LCD</b> <b>Used Connector:</b>	
<b>Pin No.</b>	<b>Symbols</b>	<b>Description</b>
1-6	VDD	Power Supply, 3.3V (default)*
7-8	NC	Not Connect
9	GND	Ground
10	GND	Ground
11	E_IN3-	-LVDS differential data input
12	E_IN0-	-LVDS differential data input
13	E_IN3+	+LVDS differential data input
14	E_IN0+	+LVDS differential data input
15	GND	Ground
16	GND	Ground
17	E_CLK-	-LVDS differential clock input
18	E_IN2-	-LVDS differential data input
19	E_CLK+	+LVDS differential clock input
20	E_IN2+	+LVDS differential data input
21	GND	Ground
22	GND	Ground
23	IN0-	-LVDS differential data input
24	E_IN2-	-LVDS differential data input
25	IN0+	+LVDS differential data input
26	E_IN2+	+LVDS differential data input
27	GND	Ground
28	GND	Ground
29	IN1-	-LVDS differential data input
30	IN3-	-LVDS differential data input
31	IN1+	+LVDS differential data input
32	IN3+	+LVDS differential data input
33	GND	Ground
34	GND	Ground
35	IN2-	-LVDS differential data input
36	CLK-	-LVDS differential clock input
37	IN2+	+LVDS differential data input
38	CLK+	+LVDS differential clock input
39	GND	Ground
40	GND	Ground

\*5V can be chosen

# 12. HDMI / VGA Board connect LCM cable (T.B.D)

