晶采光電科技股份有限公司
AMPIRE CO., LTD.

SPECIFICATIONS FOR LCD MODULE

CUSTOMER	
CUSTOMER PART NO.	
AMPIRE PART NO.	AMA-121A03-DI2511-G010-01
APPROVED BY	
DATE	

☐Approved For Specifications
☐**Approved For Specifications & Sample**

AMPIRE CO., LTD.
4F., No.116, Sec. 1, Xintai 5th Rd., Xizhi Dist., New Taipei City221, Taiwan (R.O.C.)
新北市汐止區新台五路一段 **116** 號 **4** 樓**(**東方科學園區 **A** 棟**)**
TEL:886-2-26967269 , FAX:886-2-26967196 or 26967270

APPROVED BY	CHECKED BY	ORGANIZED BY

RECORD OF REVISION

Revision Date	Page	Contents	Editor
2019/05/31	--	New Release	Raymond
2019/09/10	3	Update weight of module	
	6,7	Update I_{DD}, P_{DD}, I_{LED}, P_{LED}	Raymond
2020/12/04	31, 32	Update OUTLINE DIMENSION Fixing holes position change	Tank

1. GENERAL DESCRIPTION

The screen format is intended to support 1280H) x 800(V)screen and 16.7M(RGB 6/8-bits)。

1.1 Display Characteristics

The following items are characteristics summary on the table under 25 ℃ 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	
Overall dimension	309.1(W)x230.0(H)x12.875(D)	mm
Display Mode	Transmissive, Normally Black	
Brightness	380	cd/m^2
Backlight unit	LED	
Display color	16.7M	colors
Electrical Treatment	1 channel LVDS, 6/8bit selectable	
Driver IC	EK79202	
Weight	752	g

Note 1: Viewing direction for best image quality is different from TFT definition; there is a 180 degree shift.

Note 2 : Requirements on Environmental Protection: Q/S0002

Note 3 : LCM weight tolerance : ±5%

2. Input / Output Terminals

2.1 TFT LCD Panel

Connector type: 093G30-B0001A-G4(Starconn) Matching Connector: JAE FI-X30CL or compatible

Pin	Name	I/O	Description
1	VLED	P	Backlight power supply +12V
2	VLED	P	Backlight power supply +12V
3	VLED	P	Backlight power supply +12V
4	VLED	P	Backlight power supply +12V
5	VLED_EN	P	Backlight on/off control (1: ON, 0: OFF)
6	VLED_PWM	P	Backlight dimming control
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	SEL 6/8	-	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	-20	70	℃	
Storage Temperature	TST	-30	80	℃	
Relative Humidity (Note2)	RH	--	≦95	%	Ta≦40℃
		--	≦85	%	40℃<Ta≦50℃
		--	≦55	%	50℃<Ta≦60℃
		--	≦36	%	60℃<Ta≦70℃
		--	≦24	%	70℃<Ta≦80℃
Absolute Humidity	AH	--	≦70	g/m^3	Ta>70℃

Table 3.1 absolute maximum rating

Note1: Input voltage include Rxin0-/+, Rxin1-/+, Rxin2-/+, Rxin3-/+, RxCLK-/+, PWM, EN, 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

VCC=3.3V,GND=0V, Ta=25℃

Item		Symbol	Min	Typ.	Max	Units	Remark
Power supply Voltage		VDD	3.0	3.3	3.6	V	
Power supply ripple		V_{P-P}	-	-	100	mV	
Power supply current		I_{DD}	-	110	-	mA	
Power consumption		P_{DD}	-	363	-	mW	Note 1
Differential input voltage		|Vid|	200	-	600	mV	
Differential input common voltage		Vcm	-	1.2	-	V	
Differential input threshold voltage	Low level	VTL	-100	-	-	mV	
	High level	VTH	-	-	100	mV	
Inrush Current		I_{rush}	--	--	1.5	A	

Table 4.1 LCD module electrical characteristics

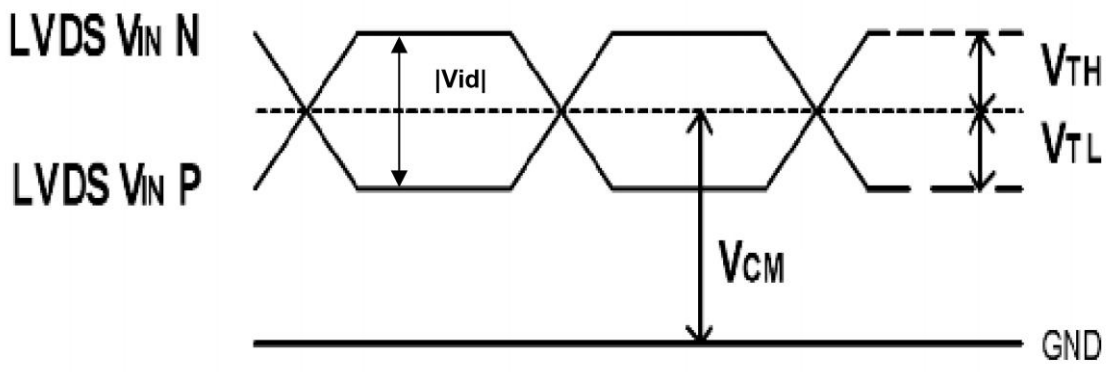


Fig 4.1 LVDS characteristics

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

4.2 Driving Backlight

Input signals shall be low or Hi-Z state when VDD is off.

Item		Symbol	Min.	Typ.	Max	Unit	Remark
Backlight power supply voltage		V_{LED}	10	12	15	V	
Backlight power supply current		I_{LED}	-	580	-	mA	
Backlight power consumption		P_{LED}	-	6.96	-	W	
Input voltage for VLED_PWM signal	High level	-	2.0	-	5.0	V	
	Low level	-	0	-	0.4	V	
Input voltage for VLED_EN	High level	-	2.0	-	5.0	V	
	Low level	-	0	-	0.4	V	
VLED_PWM frequency		Fpwm	200	-	20K	Hz	
VLED_PWM duty		D	1	-	100	%	Note 1
Operating Life Time		-	50000	-	-	hrs	Note 2

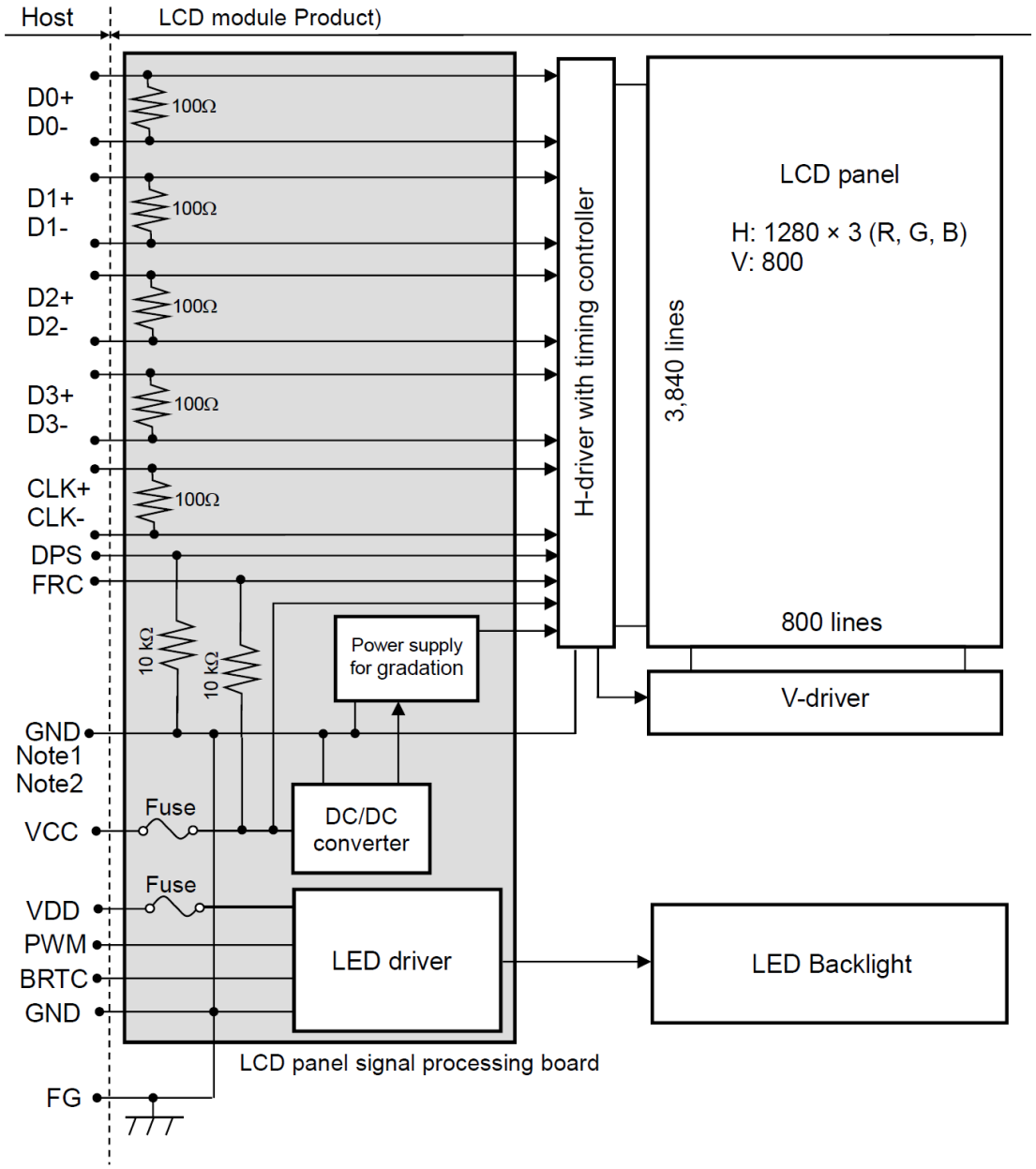
Note 1: According to LED driver IC characteristics, the minimum value of VELD_PWM duty may vary with VLED_PWM frequency, higher the frequency, bigger the duty.

Note 2: Optical performance should be evaluated at Ta=25℃ only.

Note 3: If LED is driven by high current, high ambient temperature & humidity condition. The life time of LED will be reduced.

Note 4: Operating life means brightness goes down to 50% of initial brightness. Typical operating life time is estimated data.

4.3 Driving Backlight



Note 1: Relation between GND (Signal ground and LED driver ground) and FG (Frame ground) in the LCD module is as follows.

GND-FG	Connected

Note 2: GND and FG must be connected to customer equipment's ground, and it is recommended that these grounds to be connected together in customer equipment.

5 Timing Chart

5.1 LVDS signal timing characteristics

VCC=3.3V, GND=0V, Ta=25℃

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:

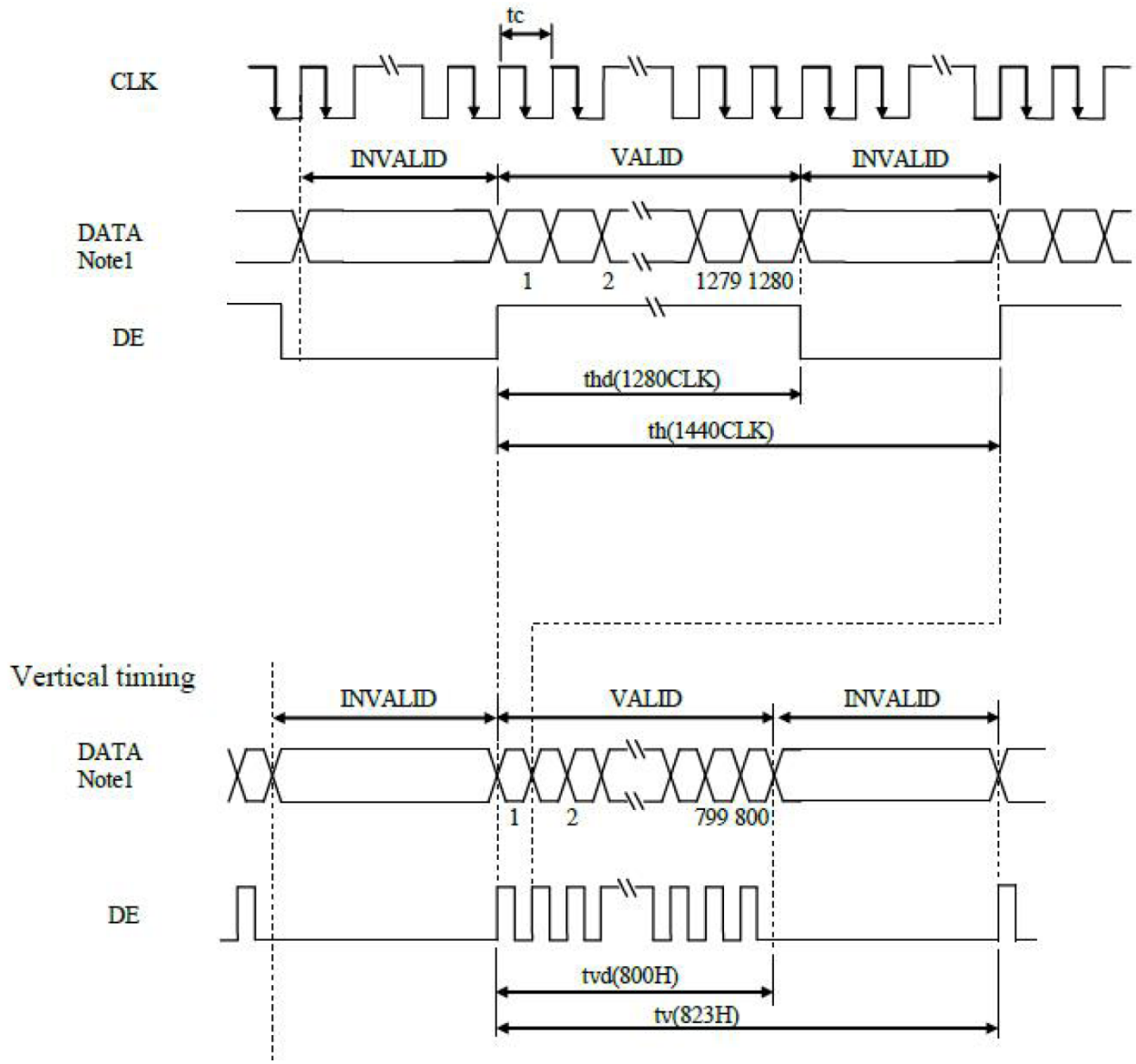
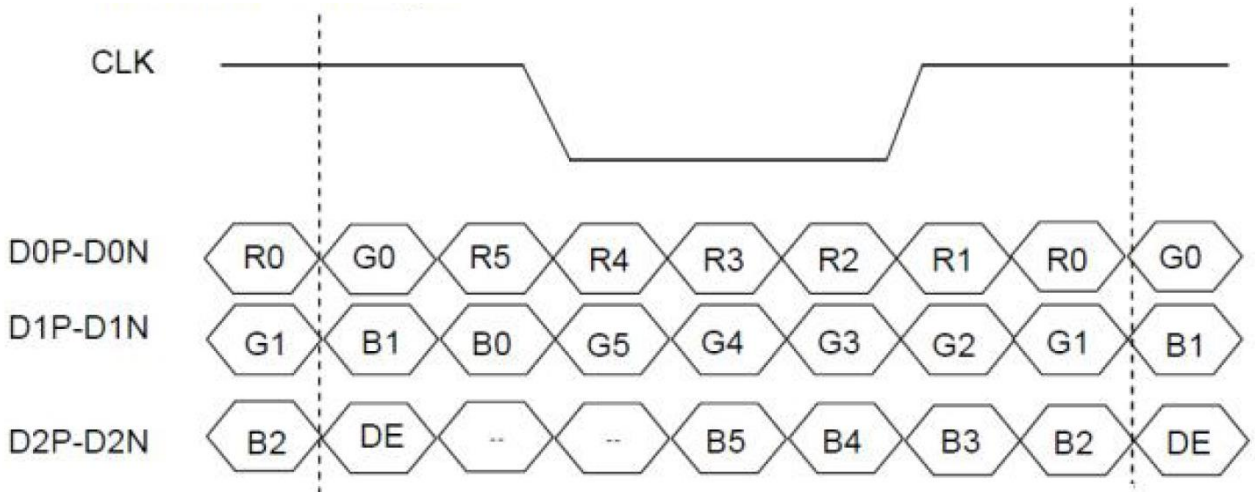


Figure 5.2 Input signal data timing

5.3 LVDS data input format

6-bit mode data input



8-bit mode data input

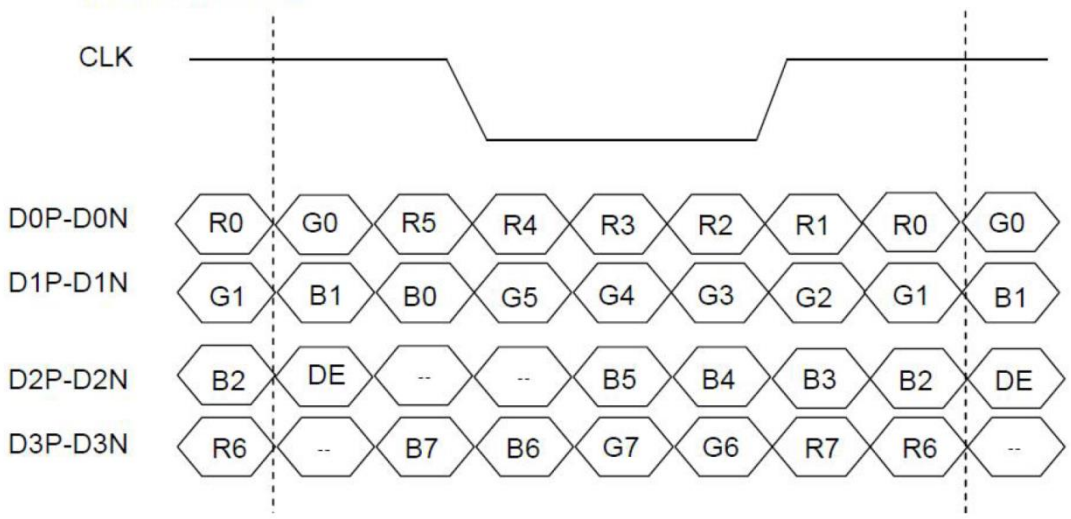


Figure 5.3 LVDS data input format (VESA standard)

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 VELD 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

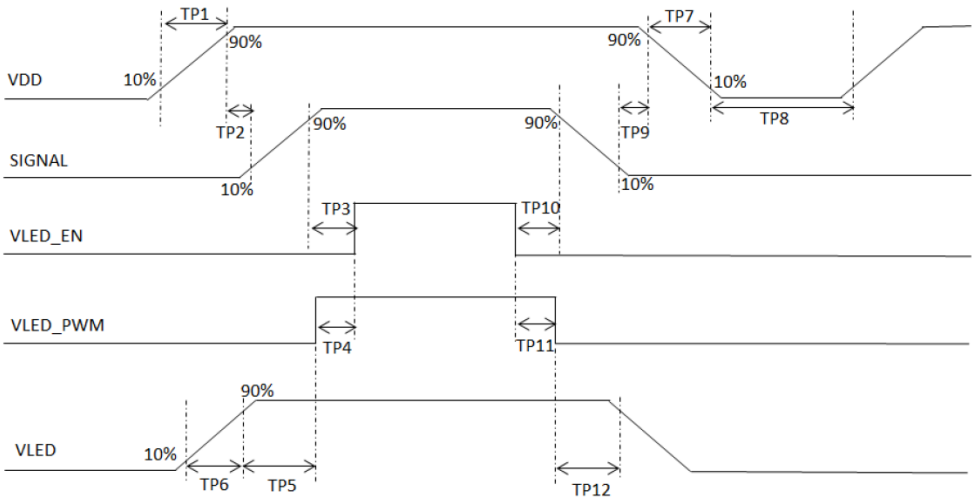


Figure 5.4 Interface power on/off sequence

Note: It is advised that backlight turned on later than display stabled.

6 Optical specification

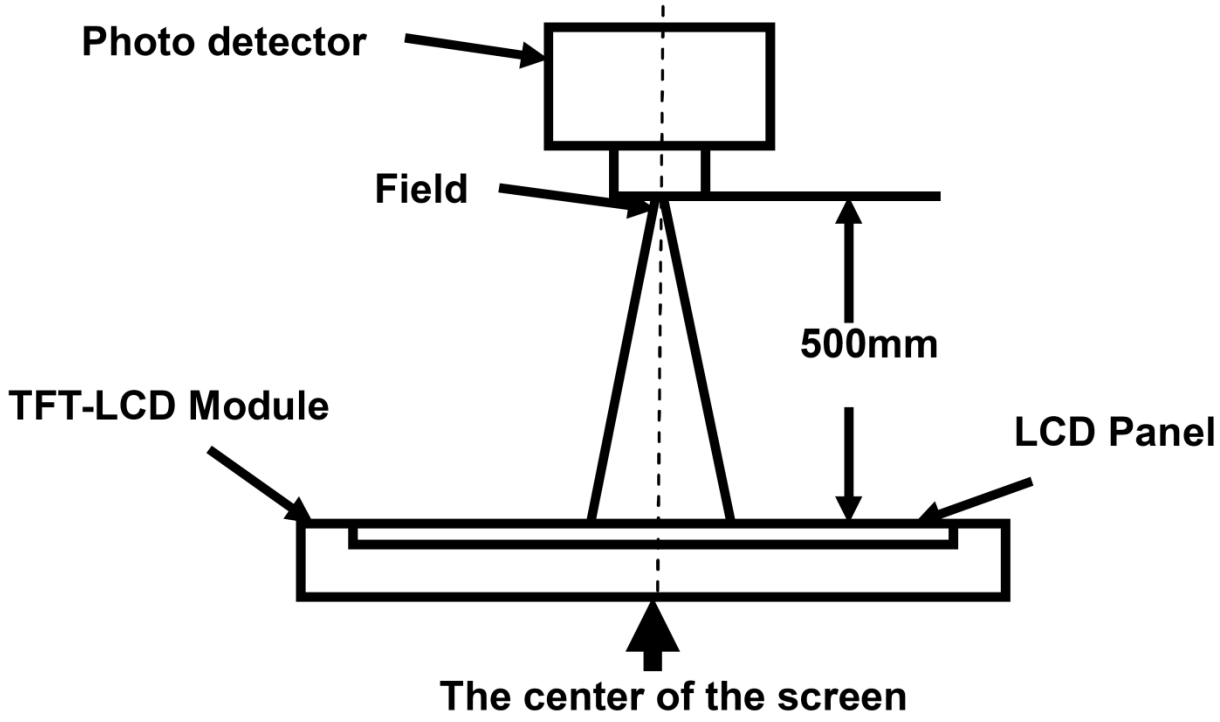
6.1 Optical characteristic of the LCD

Item		Symbol	Condition	Min.	Typ.	Max.	Unit	Remark
View Angles		θT	CR≧10	75	85	--	Degree	Note 2
		θB		75	85	--		
		θL		75	85	--		
		θR		75	85	--		
Contrast Ratio		CR	θ=0°	800	1000	--		Note 1 Mote 3
Response Time		T_{ON}	25℃	--	TBD	--	ms	Note 1 Note 4
		T_{OFF}		--	TBD	--		
Chromaticity	White	X	Backlight is ON	-0.05	0.300	+0.05	--	Note 1 Note 5
		Y			0.320			
	Red	X			--			
		Y			--			
	Green	X			--			
		Y			--			
	Blue	X			--			
		Y			--			
Uniformity		U		70	75	--	%	Note 1 Note 6
NTSC				67	72	--	%	Note 5
Luminance		L		300	380	--	Cd/m^2	Note 1 Note 7

Test Conditions:

1. The ambient temperature is 25±2℃.humidity is 65±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)。

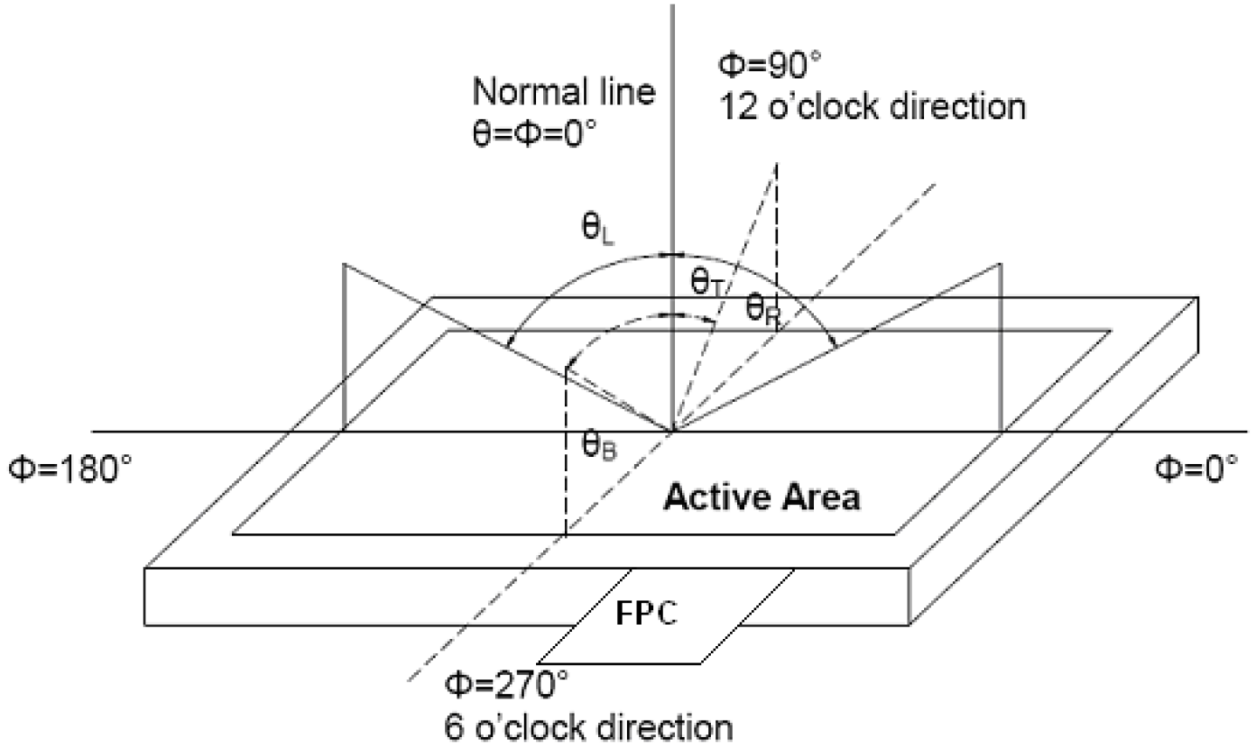


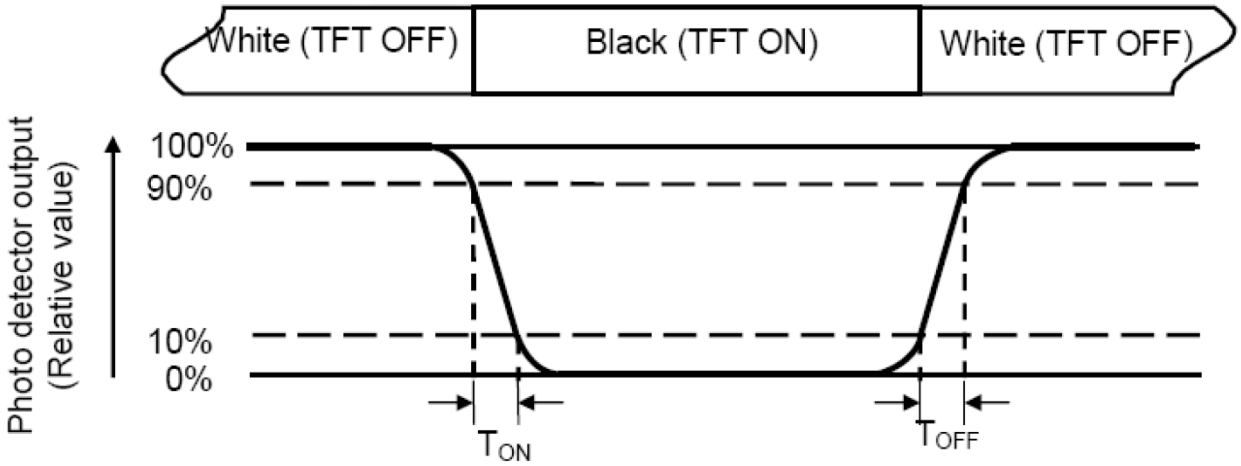
Fig. 1 Definition of viewing angle

Note 3: Definition of contrast ratio

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

"White state ": The state is that the LCD should drive by V_{white}.
"Black state": The state is that the LCD should drive by V_{black}.
V_{white}: To be determined V_{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_{ON}) is the time between photo detector output intensity changed from 90% to 10%. And fall time (T_{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

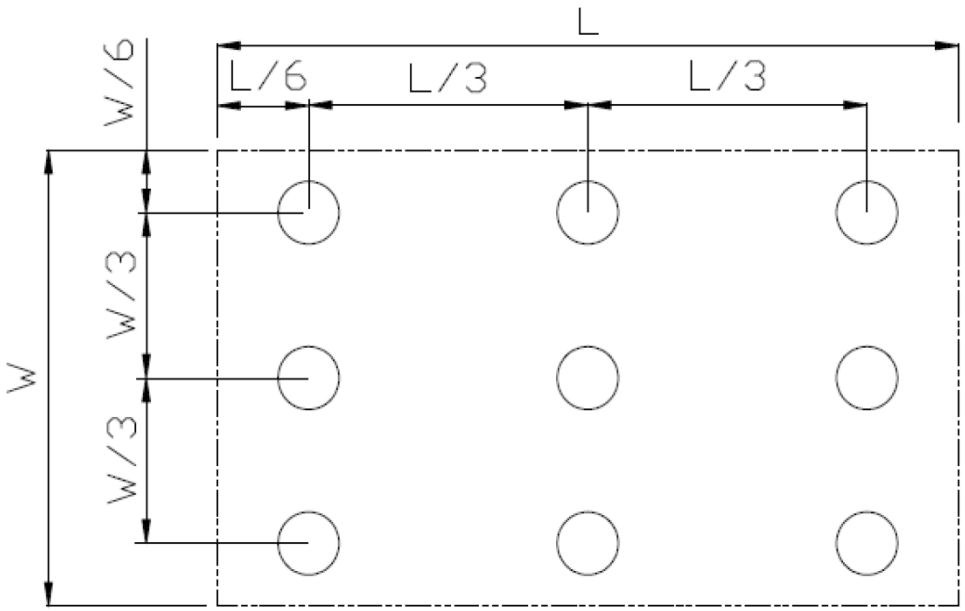


Fig. 2 Definition of uniformity

Lmax: The measured maximum luminance of all measurement position.

Lmin: 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
Interface Type	Projective Capacitive Multi-Touch Panel
Activation	Multi-touch
X/Y Position Reporting	Absolute Position
Touch Force	No contact pressure required
Calibration	No need for calibration
Report Rate	Approx. 100 points/sec
Interface	IIC
Control IC	ILI2511
Protocol	V3.X(IIC interface)

7-2 Electrical Characteristic

7-2-1 IIC Interface

Specify the normal operating condition

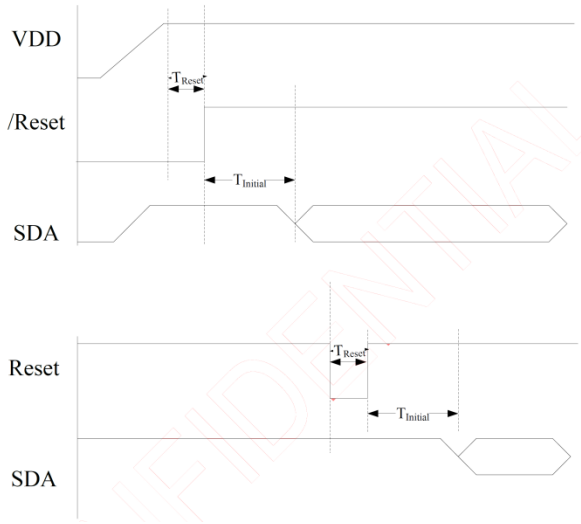
(GND=0V)

Item		Symbol	Min.	Typ.	Max.	Unit	Note
Power Supply Voltage		VDD	3	3.3	3.6	V	
Signal IIC Interface Logic level	Low	V_{IL}	0	-	0.6*VDD	V	
	High	V_{IH}	0.7*VDD	-	VDD	V	
Power Consumption		I_{VDD}		50		mA	Ref.

7-2-2 Pin definition

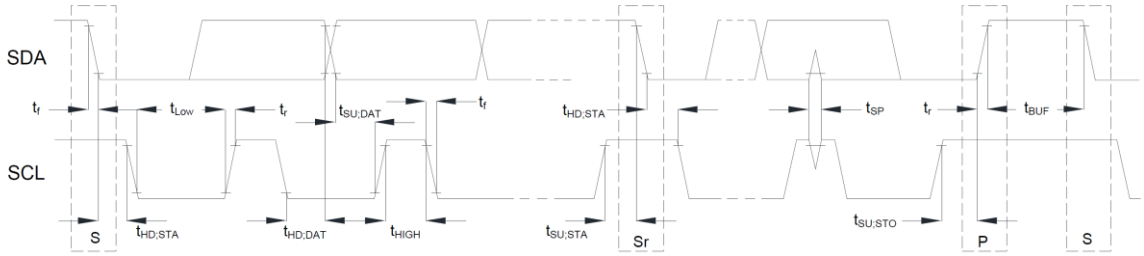
Pin	Name	Description
1	VDD	Power supply 3.3V
2	SCL	IIC Clock
3	SDA	IIC Data
4	INT	Interrupt signal Active “Low”
5	/RESET	Reset touch panel controller Active “Low”
6	GND	Power GND

7-2-3 Power- on Timing Chart (IIC interface)



Symbol	Parameter	MIN.	MAX.	Unit
$T_{Initial}$	After powering-on or resetting the device, the device needs I_{nitial} time to configure the system.	-	100	ms
T_{Reset}	/Reset pin low hold time	50	-	μs

7-2-4 IIC AC Waveform



7-2-5 IIC Characteristics

Symbol	Parameter	100KHz			400KHz		
		Min	Max	Unit	Min	Max	Unit
f_{SCL}	SCL clock frequency	0	100	kHz	0	400	KHz
$t_{HD;STA}$	Hold time (repeated) START condition. After this period, the first clock pulse is generated	4.0	–	μs	0.6	–	μs
t_{LOW}	LOW period of the SCL clock	4.7	–	μs	1.3	–	μs
t_{HIGH}	HIGH period of the SCL clock	4.0	–	μs	0.6	–	μs
$t_{SU;STA}$	Set-up time for a repeated START condition	4.7	–	μs	0.6	–	μs
$t_{HD;DAT}$	Data hold time	0	3.45	μs	0	0.9	μs
$t_{SU;DAT}$	Data set-up time	250	–	ns	100	–	ns
t_r	Rise time of both SDA and SCL signals	–	1000	ns	–	300	ns
t_f	Fall time of both SDA and SCL signals	–	300	ns	–	300	ns
$t_{SU;STO}$	Set-up time for STOP condition	4.0	–	μs	0.6	–	μs
t_{BUF}	Bus free time between a STOP and START condition	4.7	–	μs	1.3	–	μs

7-2-6 Format Protocol

Protocol V3.X Command List

CMD Code	Name	Set /Get	Note	b7	b6	b5	b4	b3	b2	b1	b0
0x10	Touch Information	Get		0: No touch 1: Last Report at ID 0 to ID 5 (include release status) 2: Last Report at ID 6 to ID 9 (include release status)							
			ID0	1: Touch Down, 0: Touch Off	0	X_High direction coordinate					
				X_Low direction coordinate							
				0	0	Y_High direction coordinate					
				Y_Low direction coordinate							
				Touch Pressure							
			ID1	1: Touch Down, 0: Touch Off	0	X_High direction coordinate					
				X_Low direction coordinate							
				0	0	Y_High direction coordinate					
				Y_Low direction coordinate							
				Touch Pressure							
			ID2	1: Touch Down, 0: Touch Off	0	X_High direction coordinate					
				X_Low direction coordinate							
				0	0	Y_High direction coordinate					
				Y_Low direction coordinate							
				Touch Pressure							
			ID3	1: Touch Down, 0: Touch Off	0	X_High direction coordinate					
				X_Low direction coordinate							
				0	0	Y_High direction coordinate					
				Y_Low direction coordinate							
				Touch Pressure							
			ID4	1: Touch Down, 0: Touch Off	0	X_High direction coordinate					
				X_Low direction coordinate							
				0	0	Y_High direction coordinate					
				Y_Low direction coordinate							
				Touch Pressure							

			ID5	1: Touch Down, 0: Touch Off	0	X_High direction coordinate
				X_Low direction coordinate		
				0	0	Y_High direction coordinate
				Y_Low direction coordinate		
				Touch Pressure		
0x14	Touch Information 2	Get	ID6	1: Touch Down, 0: Touch Off	0	X_High direction coordinate
				X_Low direction coordinate		
				0	0	Y_High direction coordinate
				Y_Low direction coordinate		
				Touch Pressure		
			ID7	1: Touch Down, 0: Touch Off	0	X_High direction coordinate
				X_Low direction coordinate		
				0	0	Y_High direction coordinate
				Y_Low direction coordinate		
				Touch Pressure		
			ID8	1: Touch Down, 0: Touch Off	0	X_High direction coordinate
				X_Low direction coordinate		
				0	0	Y_High direction coordinate
				Y_Low direction coordinate		
				Touch Pressure		
			ID9	1: Touch Down, 0: Touch Off	0	X_High direction coordinate
				X_Low direction coordinate		
				0	0	Y_High direction coordinate
				Y_Low direction coordinate		
				Touch Pressure		
0x20				The maximum X coordinate (bit 7:0)		
				The maximum X coordinate (bit 15:8)		
				The maximum Y coordinate (bit 7:0)		
				The maximum Y coordinate (bit 15:8)		
				The channel numbers of X direction		
				The channel numbers of Y direction		
				The maximum report points		

				The channel numbers of TouchKey / Scrolling Bar
				For Touch Key Application (Maximum supports 31 Touch Key) Byte 8 : The Touch Key number (<32) Byte 9: 0xFF
0x30	Enter Sleep Mode	Set		--
0x40	Firmware Version	Get		Chip ID Code
				Major firmware version
				Minor firmware version
				Release firmware version
				For Customer Firmware Version
				For Customer Firmware Version
				For Customer Firmware Version
				For Customer Firmware Version
0x42		Get		Major protocol version : 0x03
				Minor protocol version : XX
				Release protocol version : XX

Protocol V3.X Data Format

CMD Code	Name	Set / Get	Note	b7	b6	b5	b4	b3	b2	b1	b0
0x10	Touch Information	Get	Packet Number	0: No touch 1: Last Report at ID 0 to ID 5 (include release status) 2: Last Report at ID 6 to ID 9 (include release status)							
			ID0	1: Touch Down, 0: Touch Off	0	X_High direction coordinate					
				X_Low direction coordinate							
				0	0	Y_High direction coordinate					
				Y_Low direction coordinate							
				Touch Pressure							

			ID1	1: Touch Down, 0: Touch Off	0	X_High direction coordinate
				X_Low direction coordinate		
				0	0	Y_High direction coordinate
				Y_Low direction coordinate		
				Touch Pressure		
			ID2	1: Touch Down, 0: Touch Off	0	X_High direction coordinate
				X_Low direction coordinate		
				0	0	Y_High direction coordinate
				Y_Low direction coordinate		
				Touch Pressure		
			ID3	1: Touch Down, 0: Touch Off	0	X_High direction coordinate
				X_Low direction coordinate		
				0	0	Y_High direction coordinate
				Y_Low direction coordinate		
				Touch Pressure		
			ID4	1: Touch Down, 0: Touch Off	0	X_High direction coordinate

				X_Low direction coordinate		
				0	0	Y_High direction coordinate
				Y_Low direction coordinate		
				Touch Pressure		
			ID5	1: Touch Down, 0: Touch Off	0	X_High direction coordinate
				X_Low direction coordinate		
				0	0	Y_High direction coordinate
				Y_Low direction coordinate		
				Touch Pressure		

7-2-7 Interrupt Pin (INT) Control

When a finger touches on the sensor surface, the INT pin will be pull low. TP controller supports two different type control method.

Method 1(Polling): The $\overline{INT}$ will continue to be low until the finger leaves the sensor surface.

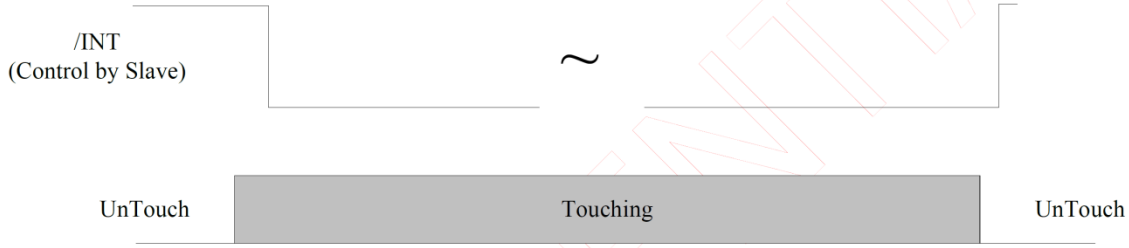


Fig 9: Method 1: $\overline{INT}$ Pin Control Diagram (Finger Touch)

Method 2(Interrupt): The INT will continue to be pull low until host read 0x10 command.

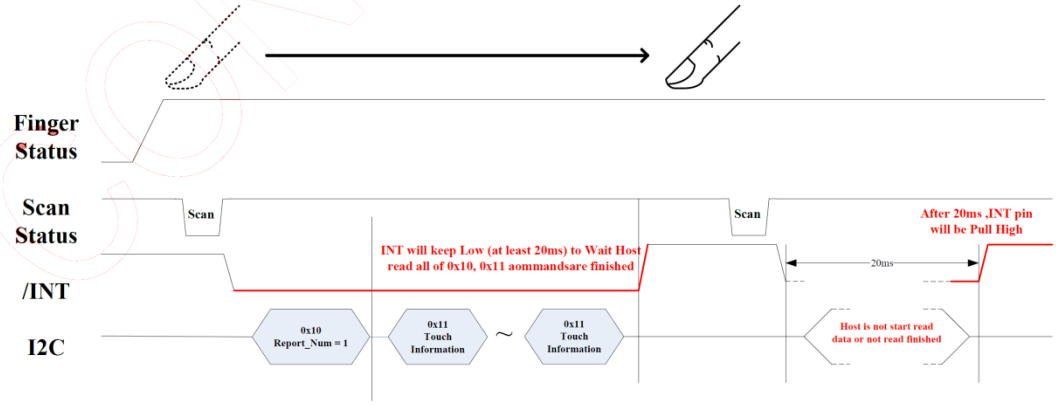


Fig 10: Method 2: $\overline{INT}$ Pin Control Diagram (Finger Touch)

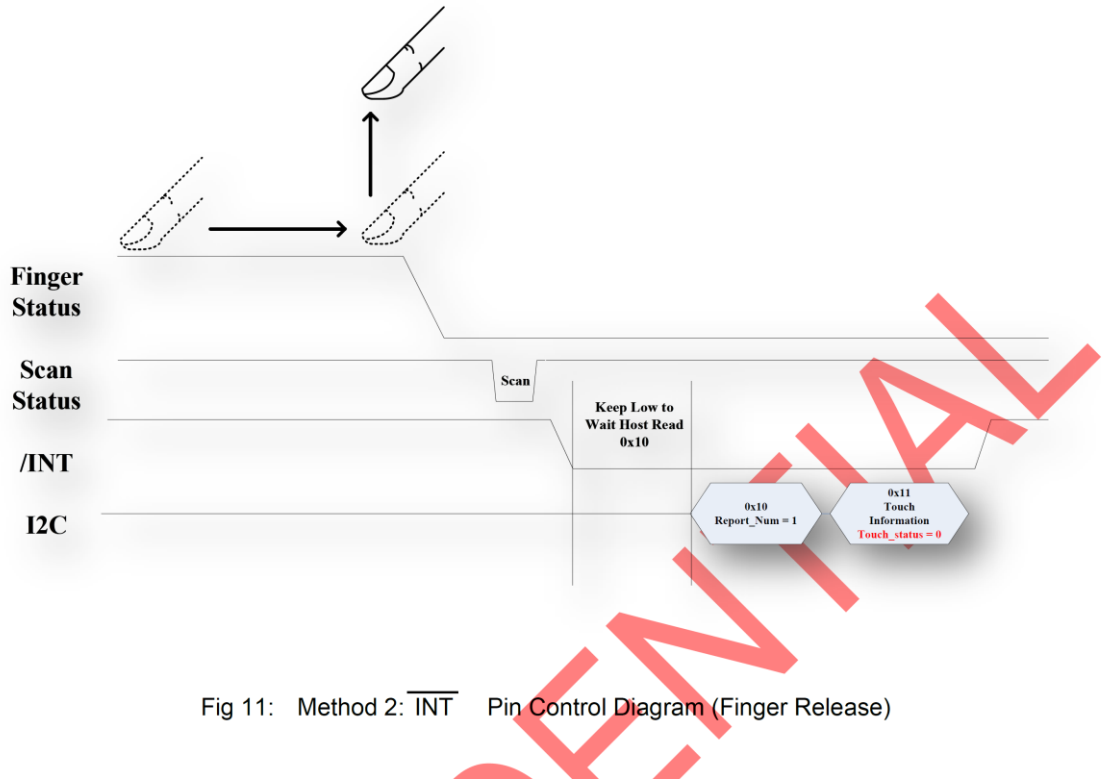


Fig 11: Method 2: $\overline{\text{INT}}$ Pin Control Diagram (Finger Release)

7-2-8 Device Address

MSB							LSB
1	0	0	0	0	0	1	0/1
Device Address							R/W

7-bit Device Address: 0x41

8-bit Device Read Address:0x83

8-bit Device Write Address:0x82

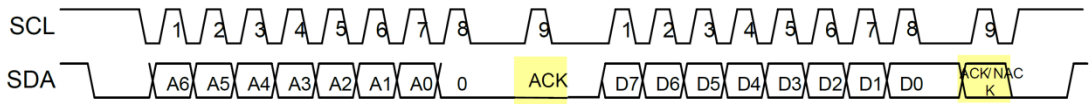
7-2-9 Data Transfer

Data is transferred over the IIC bus with 8-bit address and 8-bit data.

1	7	1	1	8	1	1
S	Slave Address	Wr	A	Data Byte	A	P

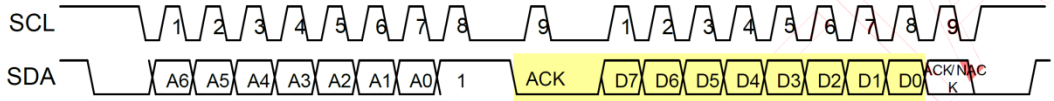
S	Start Condition
Sr	Repeated Start Condition
Rd	Read (bit value of 1)
Wr	Write (bit value of 0)
A/NA	Acknowledge (this bit position may be '0' for an ACK or '1' for a NACK)
P	Stop Condition
	Master-to-Slave
	Slave-to-Master
---	Continue

I2C Write timing



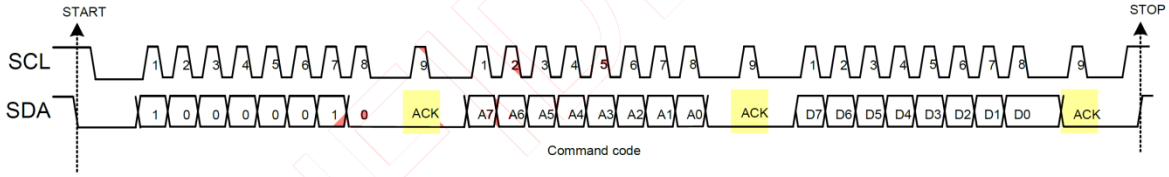
=> slave to master

I2C Read timing



=> slave to master

Byte Write



S	Slave Address	Wr	A	Command Code	A	Data Byte	A	P

: Byte Write

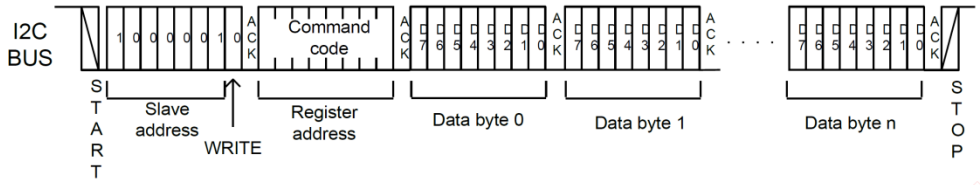
Byte Read

c

S	Slave Address	Wr	A	Command Code	A	Sr	Slave Address	Rd	A	Data Byte	A	P

: Byte Read

Multi-Byte Write

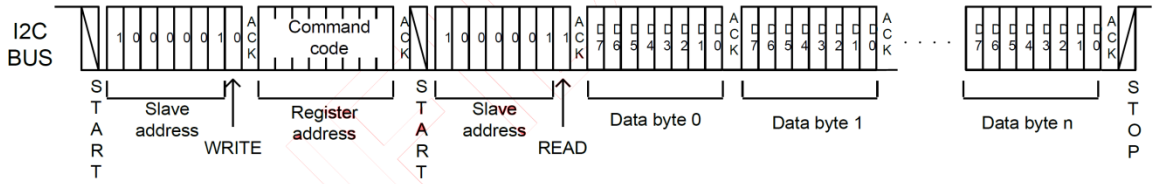


S	Slave Address	Wr	A	Command Code	A	Data Byte 0	A	Data Byte 1	A

Data Byte 2	A	-----	A	Data Byte N	A	P

: Multi-Byte Write

Multi-Byte Read



S	Slave Address	Wr	A	Command Code	A	Sr	Slave Address	Rd	A	Data Byte 0	A

Data Byte 1	A	-----	A	Data Byte N	NA	P

: Multi-Byte Read

8 Reliability Test Items

Test Item	Test Conditions	Note
High Temperature Operation	Ts = 70°C , t=240 hrs	
Low Temperature Operation	Ta = -20°C , t=240 hrs	
High Temperature Storage	Ta = 80°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: Ts is the temperature of panel's surface.

Note 2: Ta is the ambient temperature of sample.

Note 3: The module shouldn't be tested more than one condition, and all the test conditions are independent.

Note 4: All the reliability tests should be done without protective film on the module.

9 USE PRECAUTIONS

9.1 Handling Precautions

1. The display panel is made of glass. Do not subject it to a mechanical shock by dropping it from a high place, etc.
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.
3. Do not apply excessive force to the display surface or the adjoining areas since this may cause the color tone to vary.
4. The polarizer covering the display surface of the LCD module is soft and easily scratched. Handle this polarizer carefully.
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 alcohol

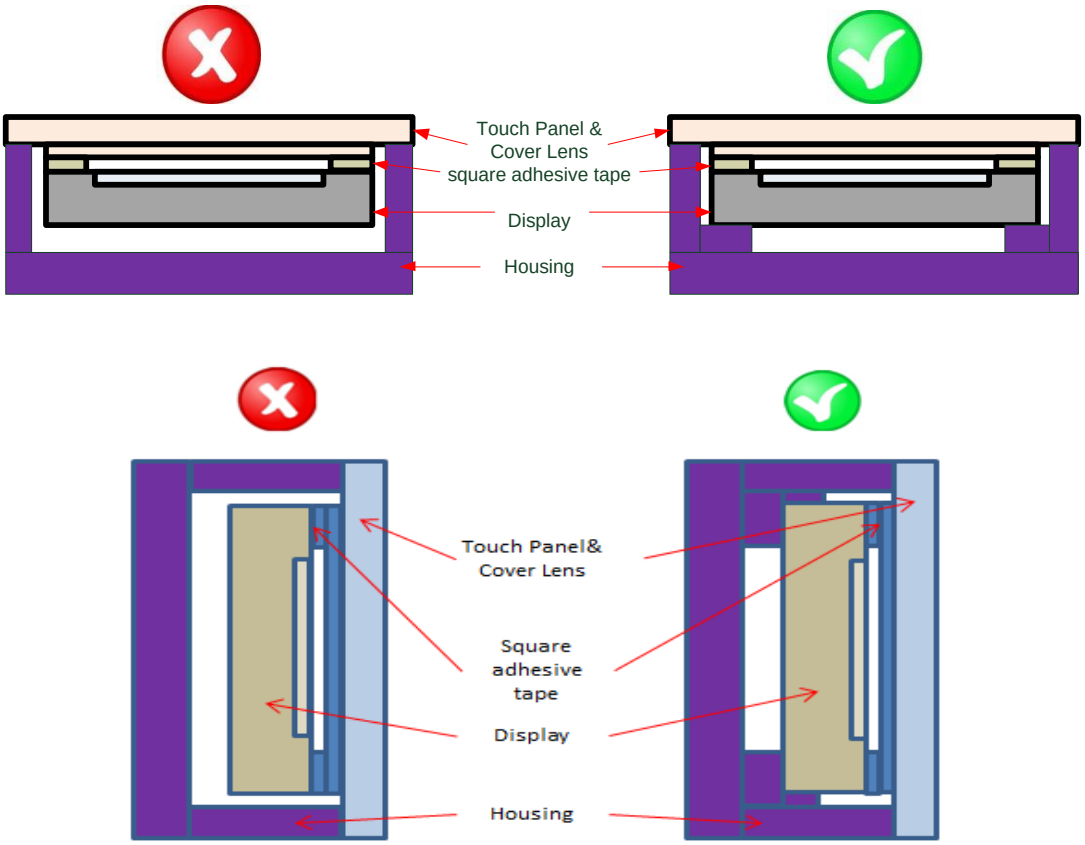
   Solvents other than those mentioned above may damage the polarizer. Especially, do not use the following:
   - Water
   - Ketone
   - Aromatic solvents
6. Do not attempt to disassemble the LCD Module.
7. If the logic circuit power is off, do not apply the input signals.
8. To prevent destruction of the elements by static electricity, be careful to maintain an optimum work environment.
   a. Be sure to ground the body when handling the LCD Modules.
   b. Tools required for assembly, such as soldering irons, must be properly ground.
   c. To reduce the amount of static electricity generated, do not conduct assembly and other work under dry conditions.
   d. 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

1. When storing the LCD modules, avoid exposure to direct sunlight or to the light of fluorescent lamps.
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℃ ～ 40℃ Relatively humidity: ≤80%
3. The LCD modules should be stored in the room without acid, alkali and harmful gas.

9.2 Mechanism Precautions

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.

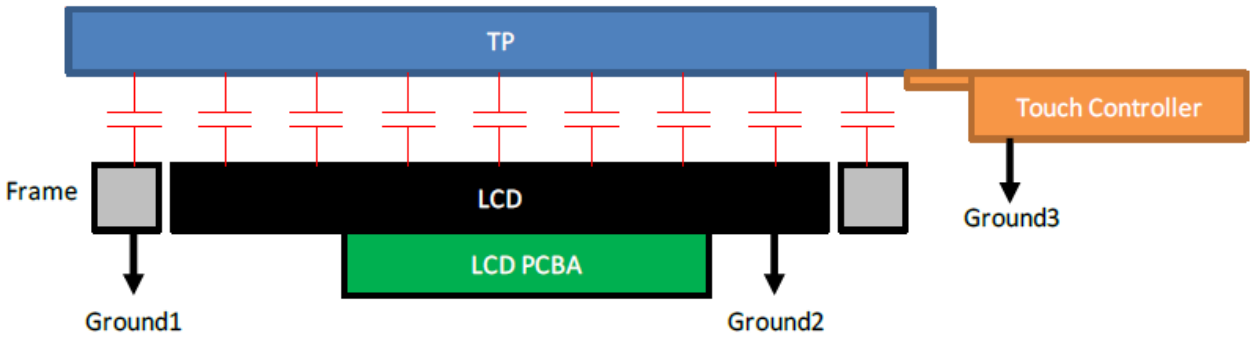


9.3 Transportation Precautions

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

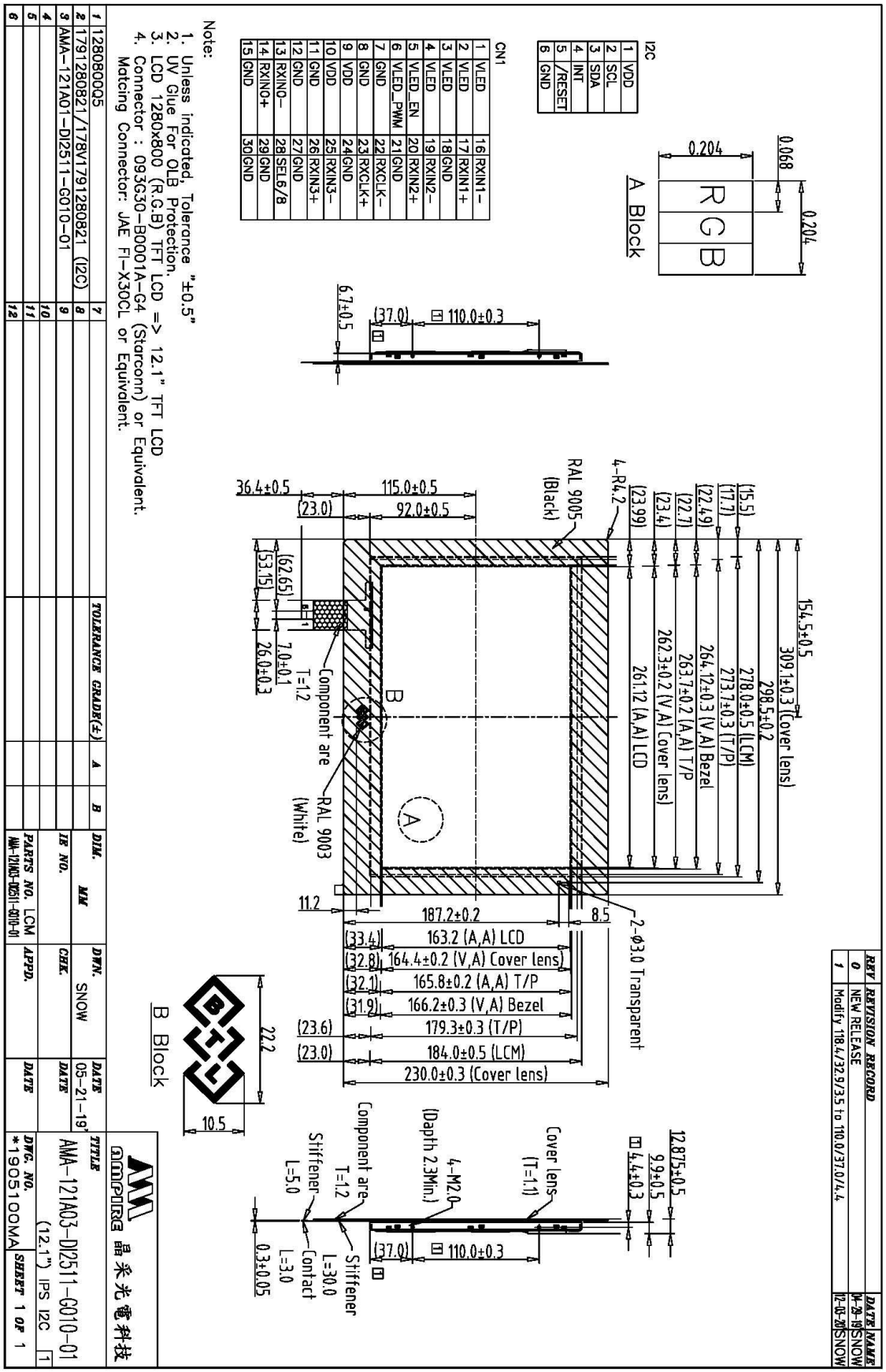
1. AMIPRE will provide one year warrantee for all products and three months warrantee for all repairing products.
2. TP needs to work in environment with stable stray capacitance. In order to minimize the variation in stray capacitance, all conductive mechanical parts must not be floating. Intermittent floating any conductive part around the touch sensor may cause significant stray capacitance change and abnormal touch function. It is recommended to keep all conductive parts having same electrical potential as the GND of the touch controller module.



GND1, GND2 and GND3 should be connected together to have the same ground

3. 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.

10. OUTLINE DIMENSION

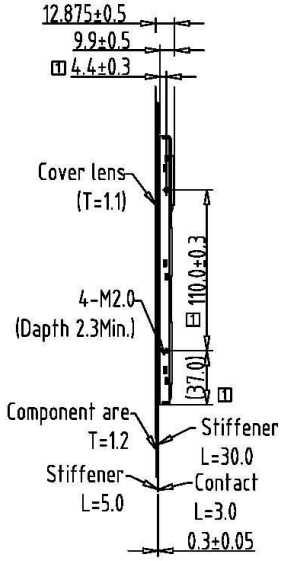


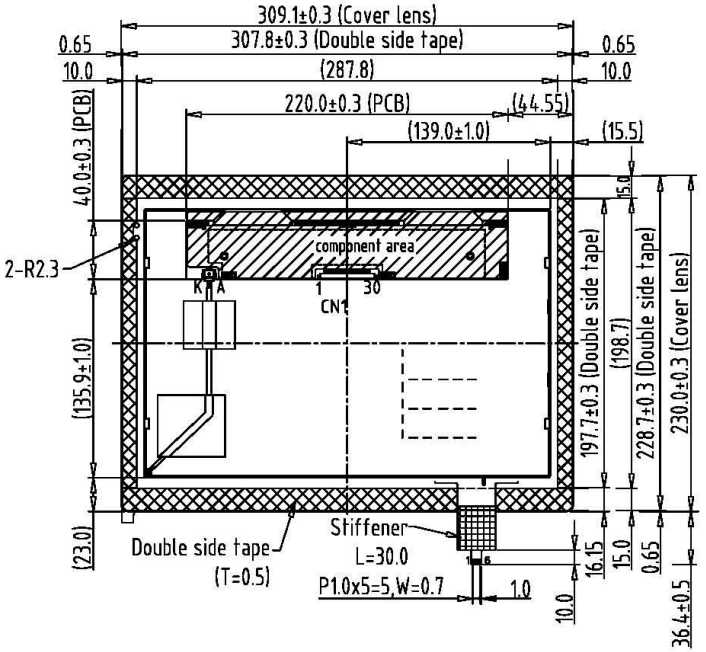
REV	REVISION RECORD	DATE	NAME
0	NEW RELEASE	05-21-19	SNOW
1	Modify 118.4/32.9/3.5 to 110.0/37.0/4.4	12-03-20	SNOW

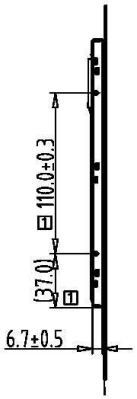
I2C

1	VDD
2	SCL
3	SDA
4	INT
5	/RESET
6	GND

1	VLED	16	RXIN1−
2	VLED	17	RXIN1+
3	VLED	18	GND
4	VLED	19	RXIN2−
5	VLED_EN	20	RXIN2+
6	VLED_PWM	21	GND
7	GND	22	RXCLK−
8	GND	23	RXCLK+
9	VDD	24	GND
10	VDD	25	RXIN3−
11	GND	26	RXIN3+
12	GND	27	GND
13	RXIN0−	28	SEL6/8
14	RXIN0+	29	GND
15	GND	30	GND







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.
   Matcing Connector: JAE FI-X30CL or Equivalent.

				TOLERANCE GRADE(±)	A	B	DIM. MM	DWN. SNOW	DATE 05-21-19	TITLE AMA-121A03-DI2511-G010-01 (12.1") IPS I2C 1
1	1280800Q5	7								
2	1791280821/178V1791280821 (I2C)	8					IE NO.	CHK.	DATE	
3	AMA-121A01-DI2511-G010-01	9								
4		10								
5		11					PARTS NO. LCM-1 AMA-121A03-DI2511-G010-01	APPD.	DATE	DWG. NO. *1905101MA SHEET 1 OF 1
6		12								

晶采光電科技

AMPIRE CO., LTD.

Date : 2020/12/04