SPECIFICATIONS FOR LCD MODULE

CUSTOMER	
CUSTOMER PART NO.	
AMPIRE PART NO.	AM-800480AYTZQW-TBRH
APPROVED BY	
DATE	

☐ Preliminary Specification
☐ Formal Specification

Approved by	Checked by	Organized by
Patrick	Jessica	Mantle

This Specification is subject to change without notice.

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RECORD OF REVISION

Revision Date	Page	Contents	Editor
2020/12/28	--	New Release	Mantle

1.0 General Descriptions

1.1 Features

- 7 inch (16:9 diagonal) configuration
- 16.7M colors (R , G , B, 8bit digital each)
- RoHS
- Projective capacitive touch Panel
  - I2C interface
  - Touch Controller IC : ILI 2511

1.2 Product Summary

NO	Item	Specification	Remark
1	LCD Size	7.0 inch (Diagonal)	
3	Resolution	800 x 3 (RGB) x 480	
4	Display Mode	Normally Black.	
5	Pixel pitch	0.1926 (W) x 0.179(H) mm	
6	Active area	154.08(W) x 85.92(H) mm	
7	Module Size	184.0(W) x 128.0(H) x 12.1 (T) mm	Note 1
9	Color arrangement	RGB-stripe	
10	Luminance	470 Cd/m^2	Cd/m^2
11	Viewing Direction	All direction	

(Note1) Refer to the mechanical drawing.

2.0 Absolute Maximum Ratings

Item	Symbol	Values		UNIT	Note
		Min.	Max.		
Power voltage	VCC	-0.5	3.96	V	GND=0V
Power voltage of LED Driver IC	VLED	-0.3	6	V	GND=0V
Voltage range at any terminal		-0.5	VCC+0.3	V	

2.1 Environment Absolute Rating

Item	Symbol	Min.	Max.	Unit	Note
Operating Temperature	Topa	-20	70	℃	
Storage Temperature	Tstg	-30	80	℃	

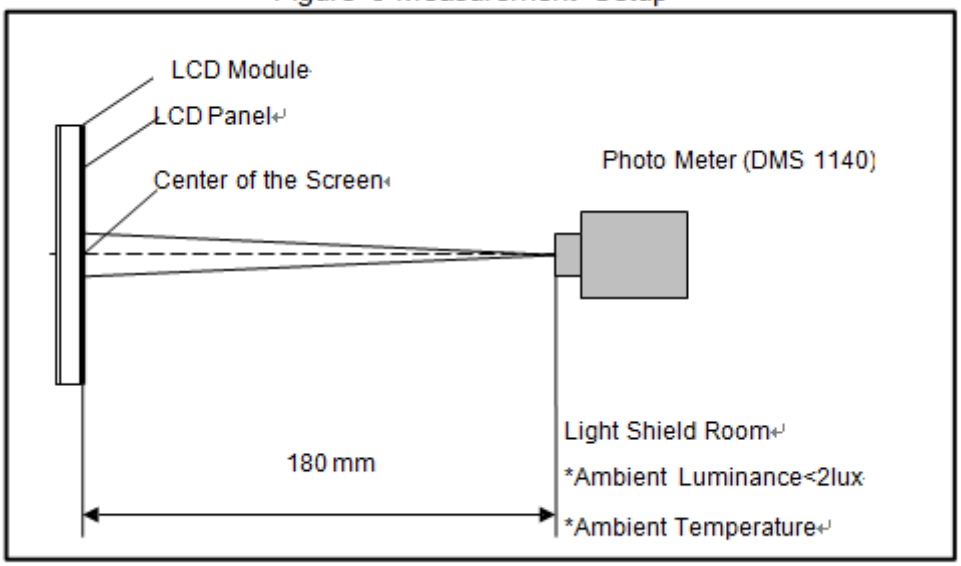
3.0 Optical Specifications

Item	Conditions		Min.	Typ.	Max.	Unit	Note
Viewing Angle (CR>10)	Horizontal	θ_L	(80)	(88)	-	degree	(1),(2),(3)
		θ_R	(80)	(88)	-		
	Vertical	θ_U	(80)	(88)	-		
		θ_D	(80)	(88)	-		
Contrast Ratio	Center		(700)	(900)	-	-	(1),(2),(4) θx=θy=0°
Response Time	Rising + Falling		-	(30)	(40)	ms	(1),(2),(5) θx=θy=0°
Color Chromaticity (CIE1931)	Red x		Typ (+0.05)	(0.633)	Typ (+0.05)	-	(1),(2),(3) θx=θy=0°
	Red y			(0.329)		-	
	Green x			(0.320)		-	
	Green y			(0.613)		-	
	Blue x			(0.150)		-	
	Blue y			(0.053)		-	
	White x		Typ. (-0.05)	(0.308)	Typ. (+0.05)	-	
	White y			(0.332)		-	
NTSC	-		--	(70)	-	%	(1),(2),(3) θx=θy=0°
White Luminance	Center Point		(380)	(470)	-	cd/m^2	(1),(2),(6) θx=θy=0°

Note (1) Measurement Setup:

The LCD module should be stabilized at given temperature(25℃) for 15 minutes to avoid abrupt temperature change during measuring. In order to stabilize the luminance, the measurement should be executed after lighting backlight for 15 minutes in a windless room.

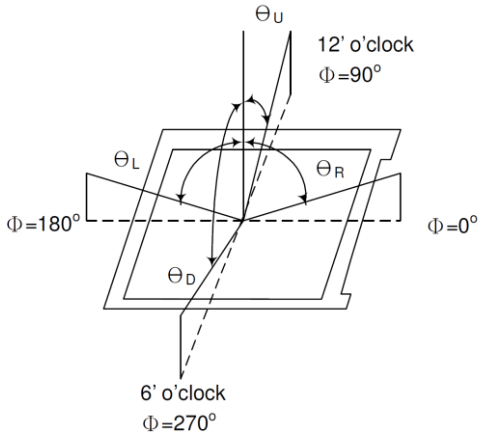
Figure 3 Measurement Setup



Note (2) The LED input parameter setting as:

I_LED: 180mA

Note (3) Definition of Viewing Angle



Note (4) Definition Of Contrast Ratio (CR)

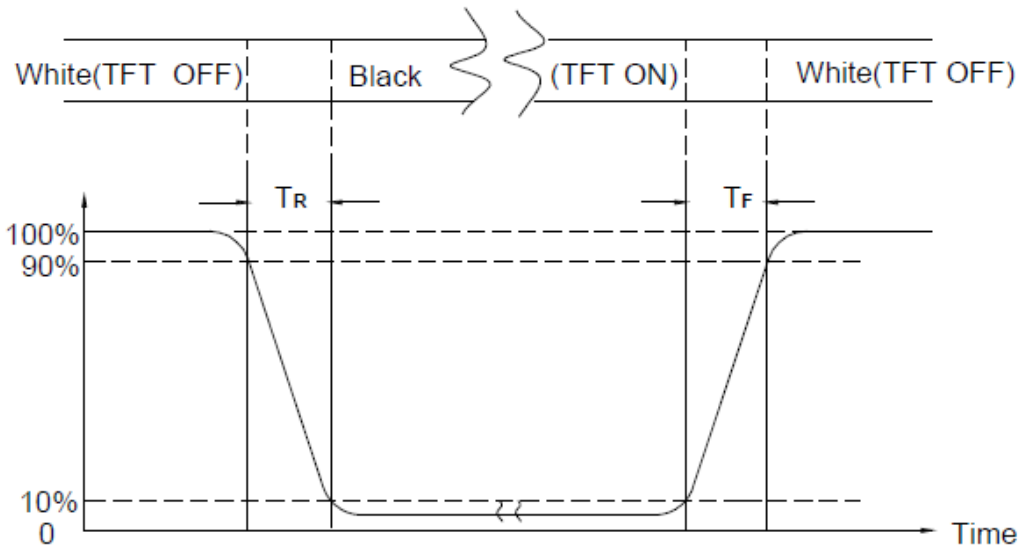
The contrast ratio can be calculated by the following

expression: Contrast Ratio (CR) = L255 / L0

L255: Luminance of gray level 255, L0: Luminance of gray level 0

Note (5) Definition Of Response Time (T_R, T_F)

Figure 5 Definition of Response Time



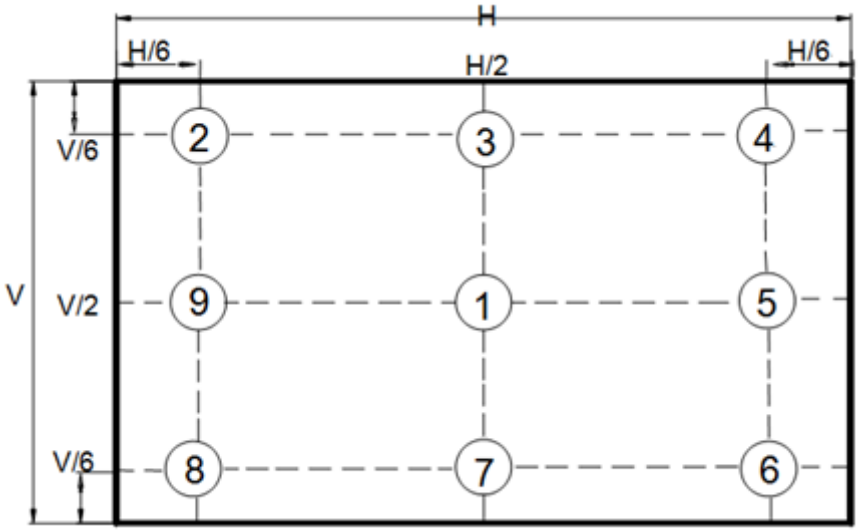
Note (6) Definition of Luminance Uniformity (Ref.: Active Area)

Measure the luminance of gray level 255 at 9 points.

Luminance Uniformity= Min.(L1, L2, ... L9) / Max.(L1, L2, ... L9)

H—Active Area Width, V—Active Area Height, L—Luminance

Figure 6 Measurement Locations of 9 Points



4.0 Interface

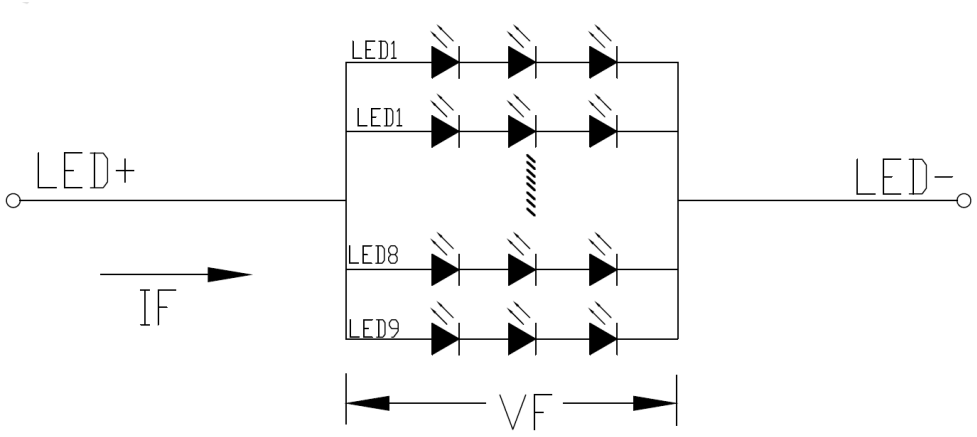
Pin No	Symbol	Function
1	GND	Power Ground
2	GND	Power Ground
3	Vcc	Power Supply for LCD
4	Vcc	Power Supply for LCD
5	PD16	Data 16➔Red 0
6	PD17	Data 17➔Red 1
7	PD18	Data 18➔Red 2
8	PD19	Data 19➔Red 3
9	PD20	Data 20➔Red 4
10	PD21	Data 21➔Red 5
11	PD22	Data 22➔Red 6
12	PD23	Data 23➔Red 7
13	PD8	Data 8➔Green 0
14	PD9	Data 9➔Green 1
15	PD10	Data 10➔Green 2
16	PD11	Data 11➔Green 3
17	PD12	Data 12➔Green 4
18	PD13	Data 13➔Green 5
19	PD14	Data 14➔Green 6
20	PD15	Data 15➔Green 7
21	PD0	Data 0➔Blue 0
22	PD1	Data 1➔Blue 1
23	PD2	Data 2➔Blue 2
24	PD3	Data 3➔Blue 3
25	PD4	Data 4➔Blue 4
26	PD5	Data 5➔Blue 5
27	PD6	Data 6➔Blue 6
28	PD7	Data 7➔Blue 7
29	GND	Power Ground
30	DCLK	Clock Signals
31	NC	NC
32	Hsync	Horizontal SYNC. (Sync mode used)
33	Vsync	Vertical SYNC. (Sync mode used)
34	DE	Data Enable
35	VLED	Power Supply for Backlight : 5V
36	VLED	
37	GND	Power Ground
38	GND	Power Ground
39	VLEDADJ	LED PWM Signal
40	VLEDADJ	

5. Backlight Unit

Item	Symbol	Min.	Typ.	Max.	Unit	Note
LED Driver Voltage	VLED	4.5	5.0	5.5	V	
Power Supply Current For LED Driver	ILED	-	380	-	mA	VLED=5V VADJ=3.3V (duty 100%)
ADJ Input Voltage	V_{ADJ}	-	3.3	-	V	duty=100% Note(1)
LED voltage	V_{BL}	9.0	9.3	9.6	V	IBL=180mA
LED current	IBL	--	180	--	mA	Ta=25℃
LED Life Time	-	--	20K	--	Hour	

Note (1) The constant current source is needed for white LED back-light driving.
When LCM is operated over 60 deg.C ambient temperature, the I_{LED} of the LED back-light should be adjusted to 135mA max

Note (2) Brightness to be decreased to 50% of the initial value(Ta=25℃).



Note (3) VLEDADJ is PWM signal input. It is for brightness control.

ITEM	SYMBOL	MIN	TYP	MAX	UNIT
ADJ signal frequency	f_{PWM}	100	--	50K	Hz
ADJ signal logic level High	VIH	2V	--	VLED (5.0V)	V
ADJ signal logic level Low	VIL	0	--	0.5	V

6.ELECTRICAL CHARACTERISTICS

TTL mode AC electrical characteristics

Parameter	Symbol	Condition	Spec.			Unit
			Min.	Typ.	Max.	
VDD Power on alew rate	TPOR	From 0V to 90% VDD	-	-	20	ms
GRB pulse width	TGRB	DCLK=65MHz	50	-	-	μs
DCLK cycle time	Tcph	-	14	-	-	ns
DCLK pulse duty	Tcwh	-	40	50	60	%
VSD setup time	Tvst	-	5	-	-	ns
VSD hold time	Tvhd	-	5	-	-	ns
HSD setup time	Thst	-	5	-	-	ns
HSD hold time	Thhd	-	5	-	-	ns
Data setup time	Tdsu	D0[7:0], D1[7:0], D2[7:0] to DCLK	5	-	-	ns
Data hold time	Tdhd	D0[7:0], D1[7:0], D2[7:0] to DCLK	5	-	-	ns
DE setup time	Tesu	-	5	-	-	ns
DE hold time	Tehd	-	5	-	-	ns
Output stable time	Tsst	10% to 90% target voltage. CL=90pF, R=10K. **(Cascade)**	-	-	6	μs
		Dual gate			3	

Table 4.2 AC electrical characteristics

7. Timing Chart

7.1

TTL mode data input format
Vertical timing

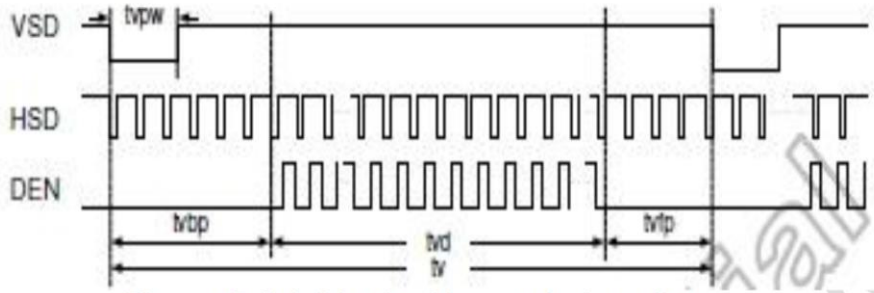


Figure 5.1.1: Vertical input timing diagram

Horizontal timing

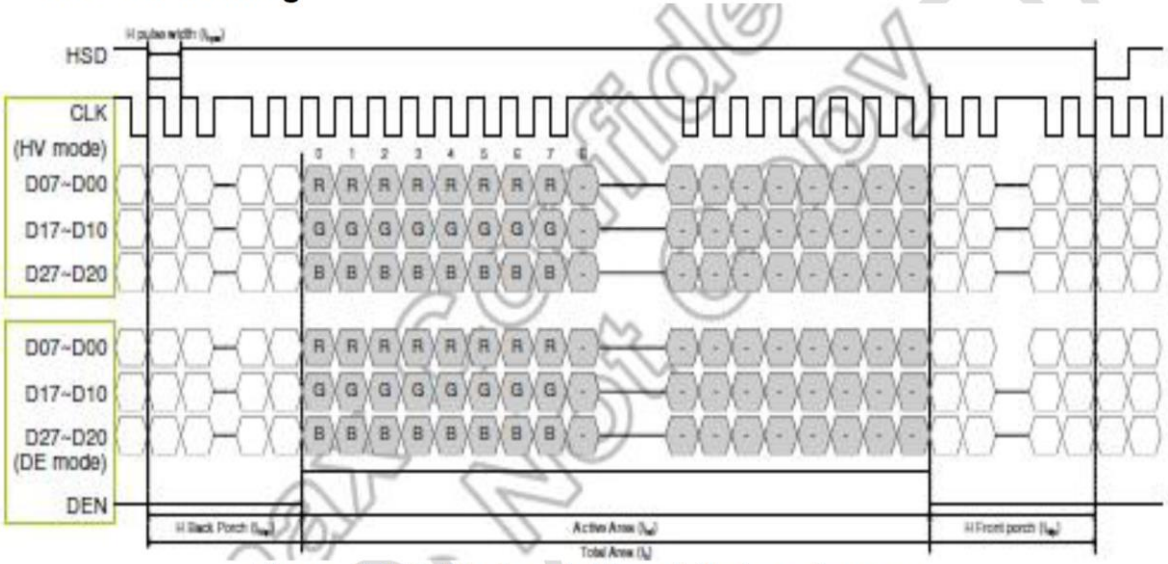


Figure 5.1.2: Horizontal input timing diagram

7.2 Parallel RGB input timing table

DE mode

Parameter	Symbol	Spec.			Unit
		Min.	Typ.	Max.	
DCLK frequency	fclk	26.2	29.2	54.6	MHz
Horizontal display area	thd		800		DCLK
HSD period	th	890	928	1300	DCLK
HSD blanking	thb+ thfp	90	128	500	DCLK
Vertical display area	tvd		480		T_H
VSD period	tv	490	525	700	T_H
VSD blanking	tvbp+ tvfp	10	45	220	T_H

HV mode

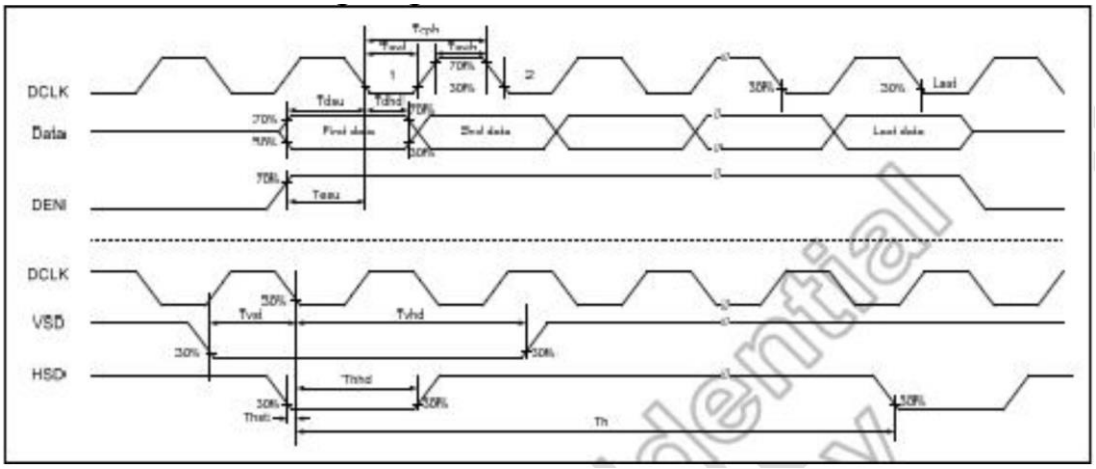
Horizontal timing

Parameter	Symbol	Spec.			Unit
		Min.	Typ.	Max.	
DCLK frequency	fclk	27.7	29.2	39.6	MHz
Horizontal display area	thd		800		DCLK
HSD period	th	900	928	1100	DCLK
HSD pulse width	thpw	1	-	40	DCLK
HSD back porch	thbp		88		DCLK
HSD front porch	thfp	12	40	212	DCLK

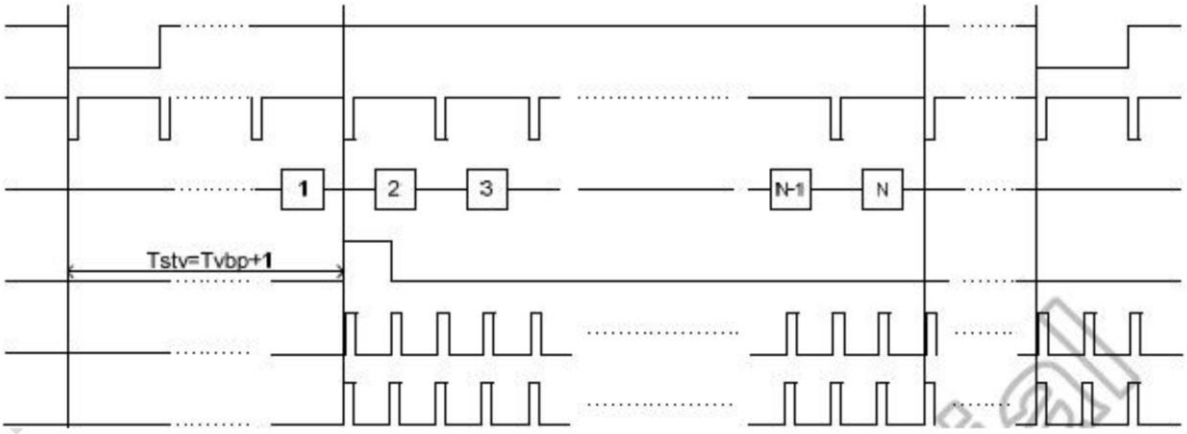
Vertical timing

Parameter	Symbol	Spec.			Unit
		Min.	Typ.	Max.	
Vertical display area	tvd		480		T_H
VSD period	tv	513	525	600	T_H
VSD pulse width	tvpw	1	-	3	T_H
VSD back porch	tvbp		32		T_H
VSD front porch	tvfp	1	13	88	T_H

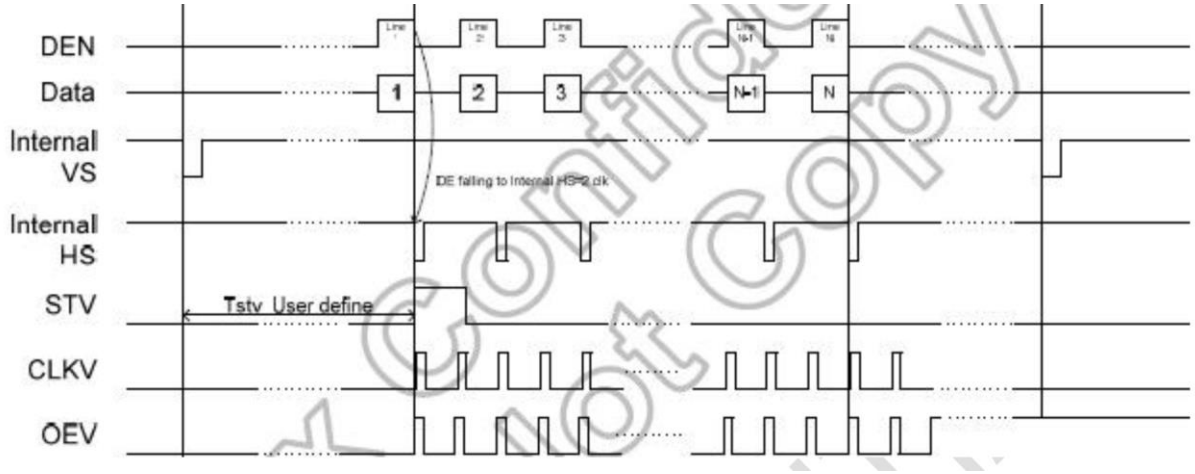
7.3 Input clock and data timing diagram



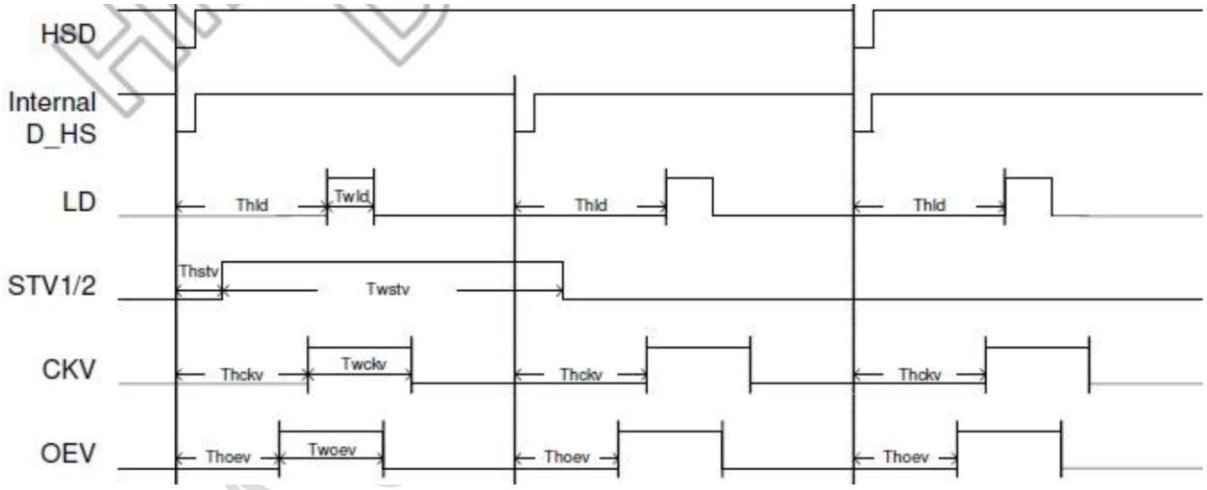
7.4 Vertical timing diagram HV(dual gate)



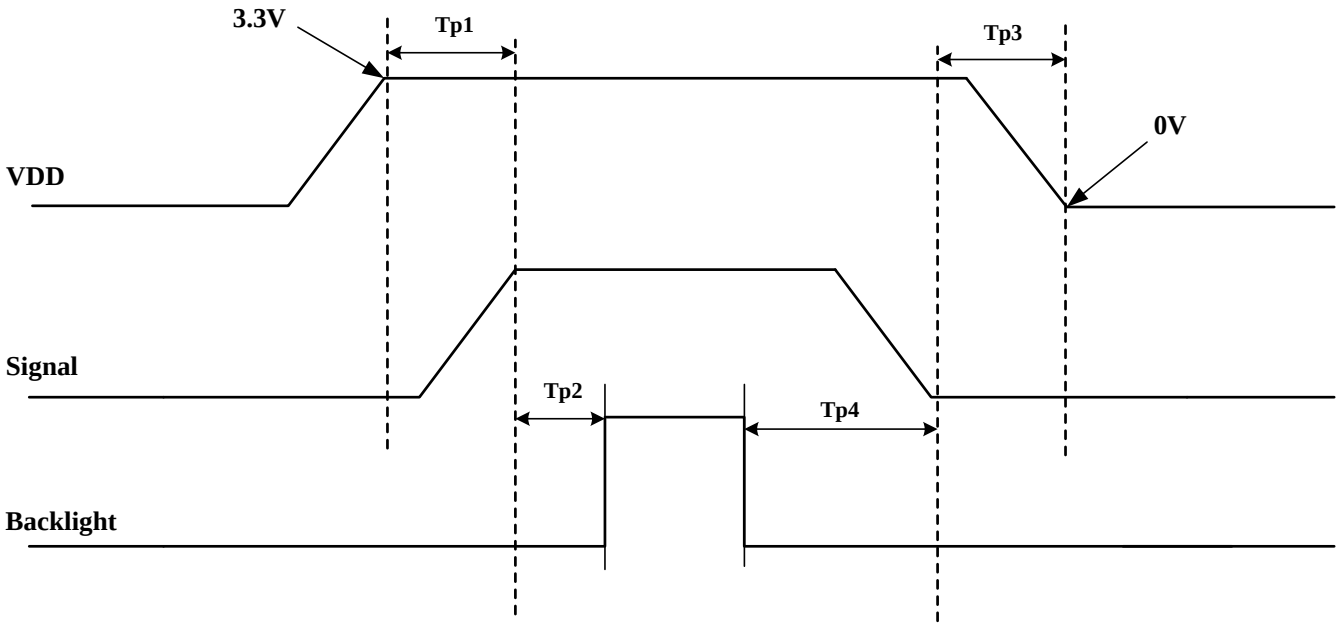
7.5 Vertical timing diagram DE(dual gate)



7.6 Gate output timing diagram(dual gate)



7.7 Power On / Off Sequence



Item	Symbol	Value			Units	Remark
		Min.	Typ.	Max.		
VDD on to signal starting	Tp1	5	-	50	ms	
Signal starting to backlight on	Tp2	150	-	-	ms	
Signal off to VDD off	Tp3	5	-	50	ms	
Backlight off to signal off	Tp4	150	-	-	ms	

8. Touch Panel Unit

8.1 Basic Characteristic

ITEM	SPECIFICATION
Type	Projective Capacitive Touch Panel
Activation	Max 10-fingers or Signal-finger
X/Y Position Reporting	Absolute Position
Touch Force	No contact pressure required
Calibration	No need for calibration
Report Rate	Approx. 100 points/sec
Interface	I2C
Control IC	ILI2511

8.2 ELECTRICAL CHARACTERISTICS

Specify the normal operating condition

(GND=0V)

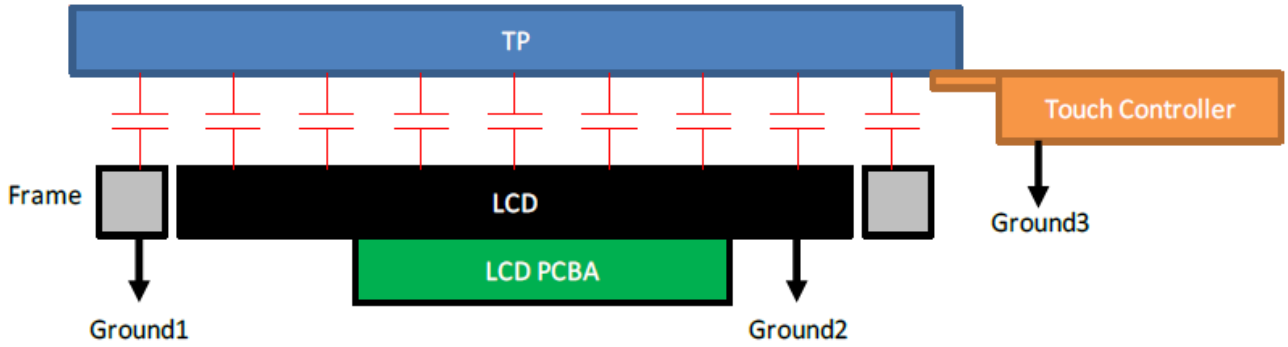
Item	Symbol	Min.	Typ.	Max.	Unit	Note
Power Supply Voltage	VIN	3.14	3.3	3.46	V	
Low Level Input Voltage	VIL	0	--	0.3*VDD	V	1
High Level Input Voltage	VIH	0.6*VDD	--	VDD	V	1
Power Consumption	I_{VIN}		T.B.D		mA	

8.3 Interface

(Connector : ENTERY 3808K-F06N-03L)

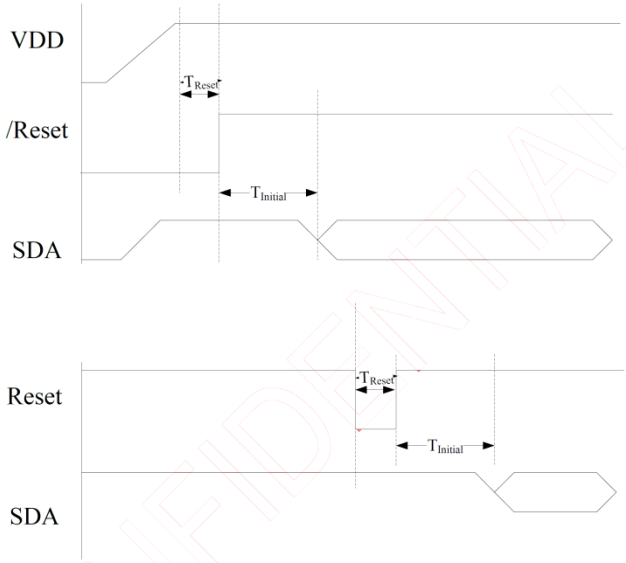
Pin No.	Symbol	Function
1	GND	Power Ground
2	SDA	I^2C Data
3	SCL	I^2C Clock
4	VIN	Power supply 3.3V
5	INT	Active “Low”
6	/RST	Reset Signal. Active Low.

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.



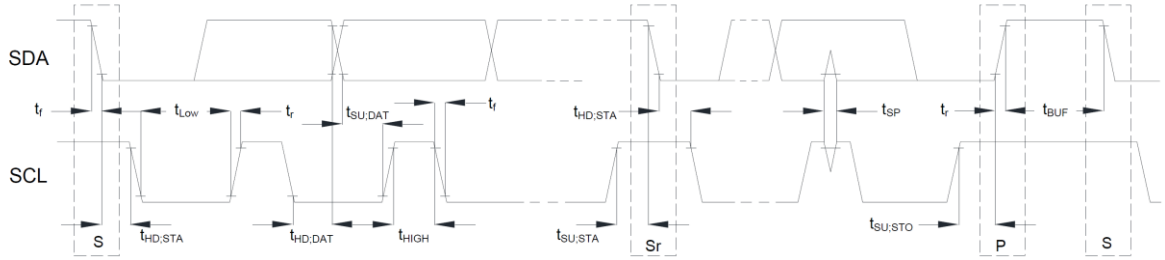
GND1, GND2 and GND3 should be connected together to have the same ground

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

IC AC Waveform



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

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		

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.

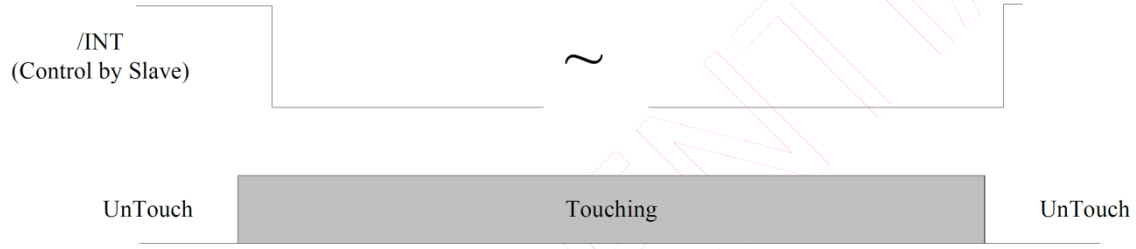


Fig 9: Method 1: $\overline{INT}$ Pin Control Diagram (Finger Touch)

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

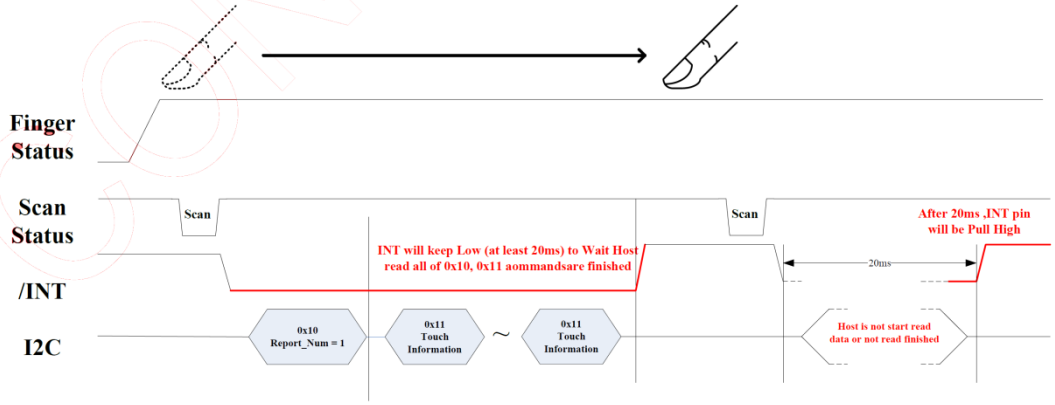


Fig 10: Method 2: $\overline{INT}$ Pin Control Diagram (Finger Touch)

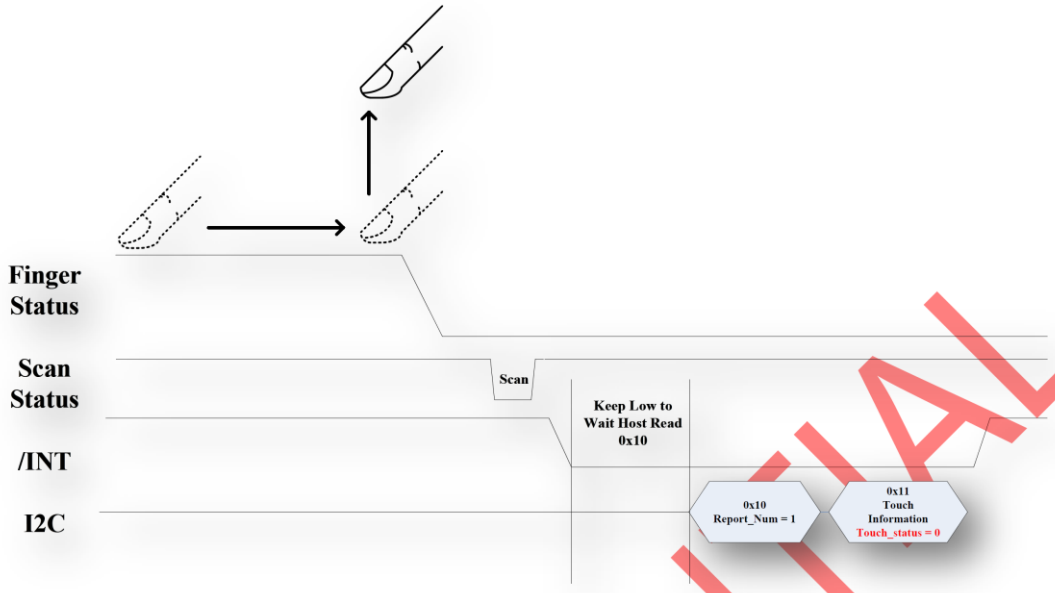


Fig 11: Method 2: $\overline{\text{INT}}$ Pin Control Diagram (Finger Release)

Device Address

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

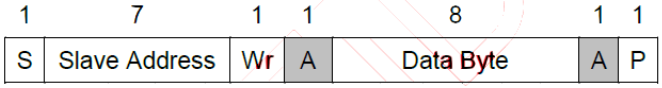
7-bit Device Address: 0x41

8-bit Device Read Address:0x83

8-bit Device Write Address:0x82

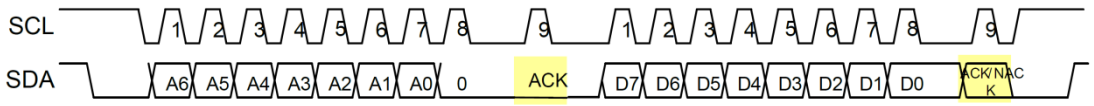
Data Transfer

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



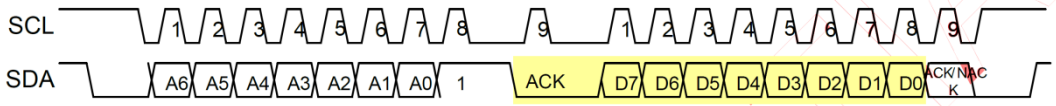
S	Start Condition
Sr	Repeated Start Condition
Rd	Read (bit value of 1)
Wr	Write (bit value of 0)
A/NA	Acknowledge (this bit position may be '0' for an ACK or '1' for a NACK)
P	Stop Condition
	Master-to-Slave
	Slave-to-Master
---	Continue

I2C Write timing



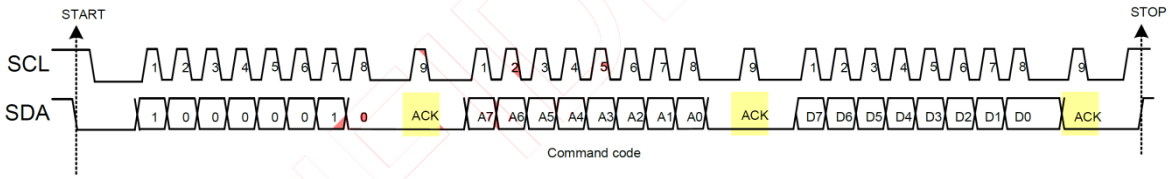
=> slave to master

I2C Read timing



=> slave to master

Byte Write



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

F Byte Write

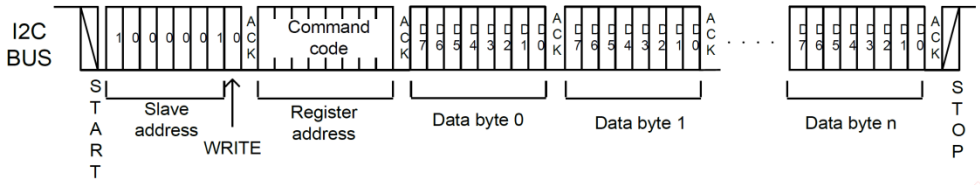
Byte Read

c

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

F Byte Read

Multi-Byte Write

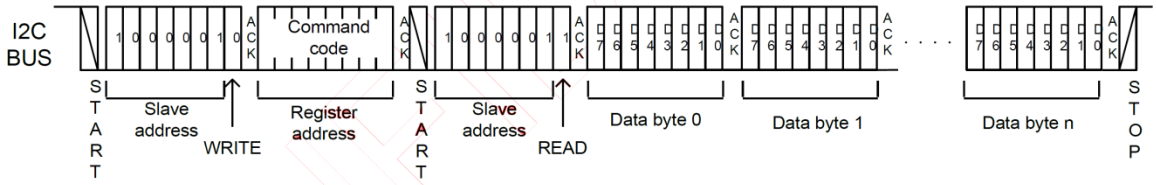


S	Slave Address	Wr	A	Command Code	A	Data Byte 0	A	Data Byte 1	A

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

F 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

F Multi-Byte Read

9 .Reliability Test Items

Test Item	Test Conditions	Note
High Temperature Operation	70±3°C , t=240 hrs	
Low Temperature Operation	-20±3°C , t=240 hrs	
High Temperature Storage	80±3°C , t=240 hrs	1,2
Low Temperature Storage	-30±3°C , t=240 hrs	1,2
Storage at High Temperature and Humidity	60°C, 90% RH , 240 hrs	1,2
Thermal Shock Test	-30°C (30min) ~ 80°C (30min) 100 cycles	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

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 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.

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.

10.0 General Precaution

10.1 Use Restriction

This product is not authorized for use in life supporting systems, aircraft navigation control systems, military systems and any other application where performance failure could be life-threatening or otherwise catastrophic.

10.2 Handling Precaution

1. Please mount LCD module by using mounting holes arranged in four corners tightly.
2. Do not disassemble or modify the module. It may damage sensitive parts inside LCD module, and may cause scratches or dust on the display. IVO does not warrant the module, if customers disassemble or modify the module.
3. If LCD panel is broken and liquid crystal spills out, do not ingest or inhale liquid crystal, and do not contact liquid crystal with skin. If liquid crystal contacts mouth or eyes, rinse out with water immediately. If liquid crystal contacts skin or cloths, wash it off immediately with alcohol and rinse thoroughly with water.
4. Disconnect power supply before handling LCD module.
5. Refrain from strong mechanical shock and /or any force to the module.
6. Do not exceed the absolute maximum rating values, such as the supply voltage variation, input voltage variation, variation in parts parameters, environmental temperature; etc otherwise LCD module may be damaged. It's recommended employing protection circuit for power supply.
7. Do not touch, push or rub the polarizer with anything harder than HB pencil lead. Use fingerstalls of soft gloves in order to keep clean display quality, when persons handle the LCD module for incoming inspection or assembly.
8. When the surface is dusty, please wipe gently with absorbent cotton or other soft material. When cleaning the adhesives, please use absorbent cotton wetted with a little petroleum benzene or other adequate solvent.
9. Wipe off saliva or water drops as soon as possible. If saliva or water drops contact with polarizer for a long time, they may causes deformation or color fading.
10. Protection film must remove very slowly from the surface of LCD module to prevent from electrostatic occurrence.
11. Because LCD module uses CMOS-IC on circuit board and TFT-LCD panel, it is very weak to electrostatic discharge, please be careful with electrostatic discharge. Persons who handle the module should be grounded through adequate methods.
12. Do not adjust the variable resistor located on the module.

10.3 Storage Precaution

1. Please do not leave LCD module in the environment of high humidity and high temperature for a long time.
2. (2) The module shall not be exposed under strong light such as direct sunlight. Otherwise, display characteristics may be changed.
3. (3) The module should be stored in a dark place. It is prohibited to apply sunlight or

fluorescent light in storage.

10.4 Operation Precaution

1. Do not connect or disconnect the module in the "Power On” condition.
2. Power supply should always be turned on/off by "Power On/Off Sequence".
3. Module has high frequency circuits. Sufficient suppression to the electromagnetic interference should be done by system manufacturers. Grounding and shielding methods may be important to minimize the interference.
4. After installation of the TFT module into an enclosure, do not twist nor bend the TFT module even momentary. At designing the enclosure, it should be taken into consideration that no bending/twisting forces are applied to the TFT module from outside. Otherwise the TFT module may be damaged.

10.5 Others

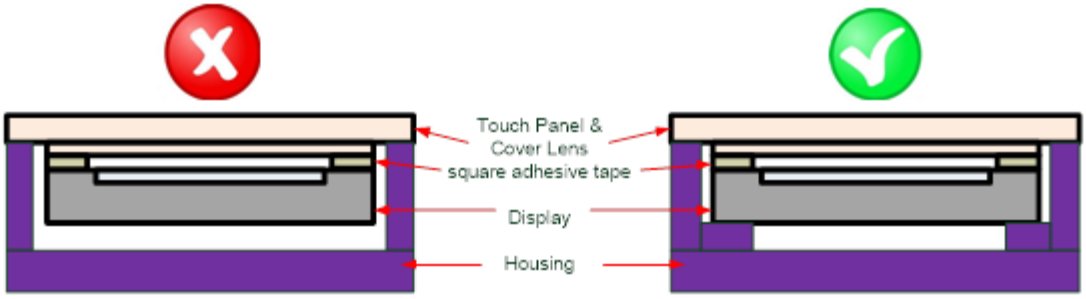
1. Ultra-violet ray filter is necessary for outdoor operation.
2. Avoid condensation of water which may result in improper operation or disconnection of electrode.
3. If the module keeps displaying the same pattern for a long period of time, the image may be "sticked" to the screen.
4. This module has its circuitry PCB's on the rear side and should be handled carefully in order not to be stressed.
5. 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.

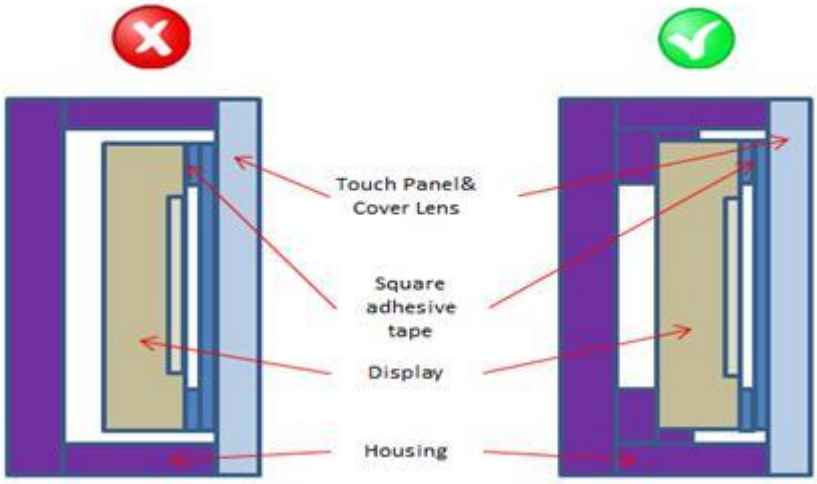
10.6 Disposal

When disposing LCD module, obey the local environmental regulations.

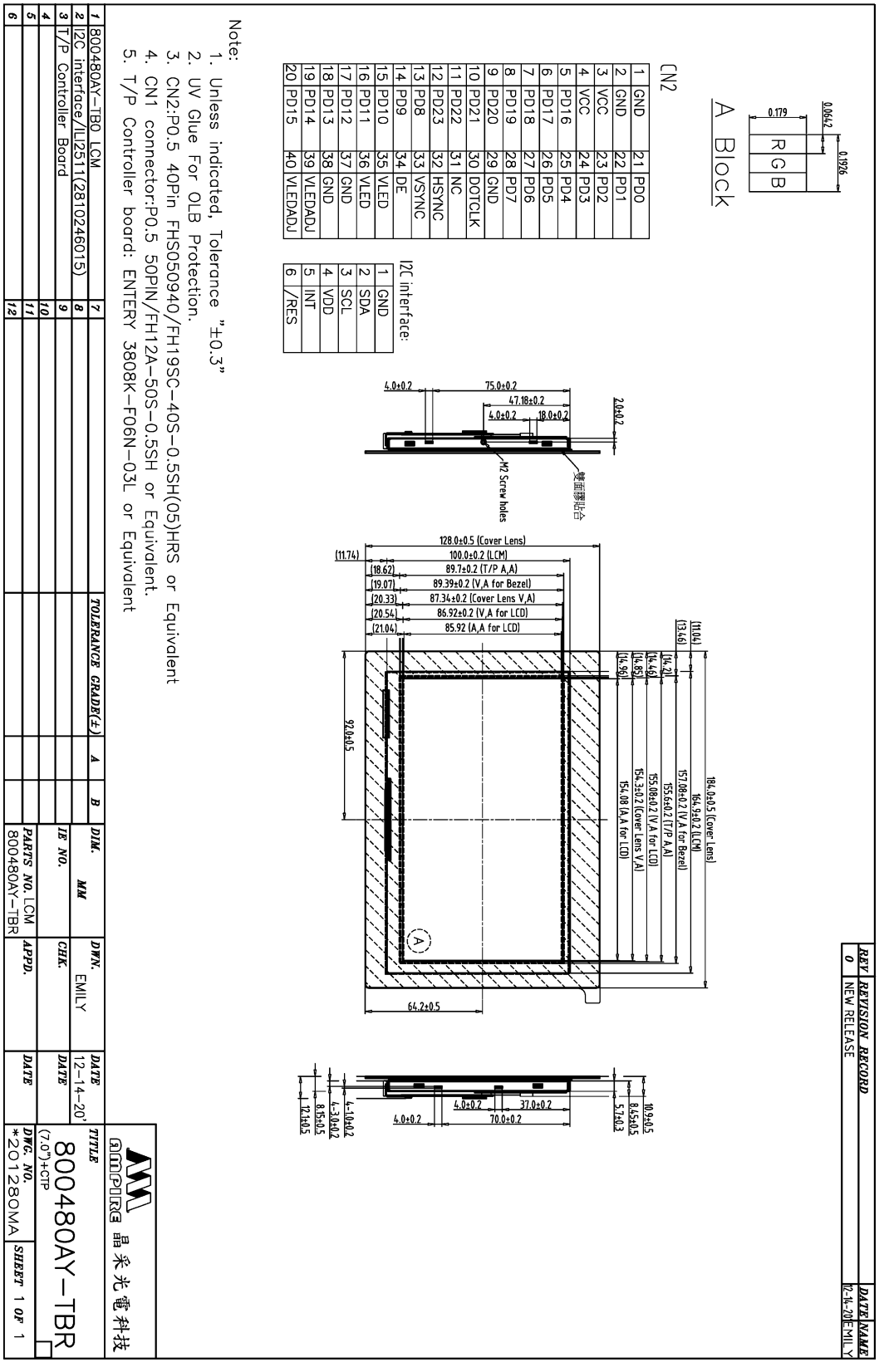
10.7 Mechanism

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.





11.0 Outline Dimension



Note:

1. Unless indicated, Tolerance "±0.3"
2. UV Glue For OLB Protection.
3. CN2:P0.5 40Pin FHS050940/FH19SC-40S-0.5SH(05)HRS or Equivalent
4. CN1 connector:P0.5 50PIN/FH12A-50S-0.5SH or Equivalent.
5. T/P Controller board: ENTERY 3808K-F06N-03L or Equivalent

REV.	REVISION RECORD	DATE	NAME
0	NEW RELEASE	12-14-20	EMILY

1	800480AY-TBD LCM	7			TOLERANCE GRADE(±)	A	B	DIM.	DWN.	DATE
2	I2C interface/ILI2511(2810246015)	8						MM	EMILY	12-14-20'
3	T/P Controller Board	9						TF NO.	CHK.	DATE
4		10								
5		11						PARTS NO. LCM 800480AY-TBR	APPD.	DATE
6		12								

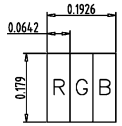
AMPIRE 晶采光電科技

TITLE: 800480AY-TBR (7.0")+CTP

DWG. NO. *2012801MA

SHEET 1 OF 1

REV	REVISION RECORD	DATE	NAME
0	NEW RELEASE	12-14-20	EMILY



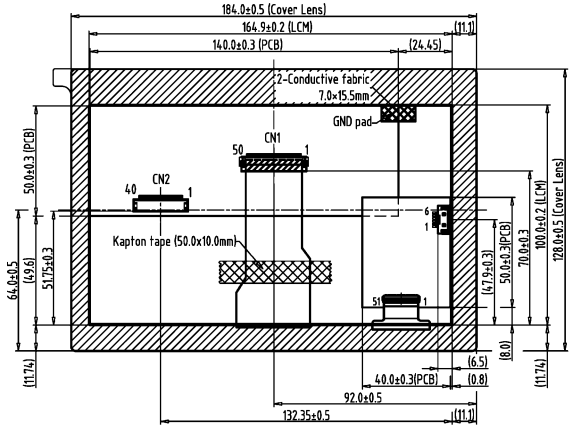
A Block

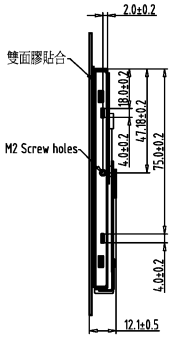
CN2

1	GND	21	PD0
2	GND	22	PD1
3	VCC	23	PD2
4	VCC	24	PD3
5	PD16	25	PD4
6	PD17	26	PD5
7	PD18	27	PD6
8	PD19	28	PD7
9	PD20	29	GND
10	PD21	30	DOTCLK
11	PD22	31	NC
12	PD23	32	HSYNC
13	PD8	33	VSYNC
14	PD9	34	DE
15	PD10	35	VLED
16	PD11	36	VLED
17	PD12	37	GND
18	PD13	38	GND
19	PD14	39	VLEDADJ
20	PD15	40	VLEDADJ

I2C interface:

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





Back View

Note:

1. Unless indicated, Tolerance "±0.3"
2. UV Glue For OLB Protection.
3. CN2:P0.5 40Pin FHS050940/FH19SC-40S-0.5SH(05)HRS or Equivalent
4. CN1 connector:P0.5 50PIN/FH12A-50S-0.5SH or Equivalent.
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				TOLERANCE GRADE(±)	A	B
1	800480AY-TB0 LCM	7				
2	I2C interface/ILI2511(2810246015)	8				
3	T/P Controller Board	9				
4		10				
5		11				
6		12				

DIM. MM	DWN. EMILY	DATE 12-14-20'	TITLE 800480AY-TBR (7.0")+CTP
IE NO.	CHK.	DATE	
PARTS NO. LCM-1 800480AY-TBR	APPD.	DATE	DWG. NO. *201281MA / SHEET 1 OF 1

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