



Winstar Display Co., LTD

華凌光電股份有限公司



住址: 407 台中市中清路 163 號
No.163 Chung Ching RD.,
Taichune, Taiwan, R.O.C

WEB: <http://www.winstar.com.tw>
E-mail: winstar@winstar.com.tw
Tel:886-4-24262208 Fax : 886-4-24262207

SPECIFICATION



CUSTOMER : _____

MODULE NO.: WF70HTIFGDBC0#
20130705

<p align="center">APPROVED BY:</p> <p>(FOR CUSTOMER USE ONLY)</p>	<p>PCB VERSION: _____</p> <p>DATA: _____</p>
--	--

SALES BY	APPROVED BY	CHECKED BY	PREPARED BY
ISSUED DATE:	2013-9-5		



RECORDS OF REVISION

DOC. FIRST ISSUE

VERSION	DATE	REVISED PAGE NO.	SUMMARY
0	2013.9.5		First issue

Contents

- 1. Module Classification Information**
- 2. Summary**
- 3. General Specification**
- 4. Absolute Maximum Ratings**
- 5. Electrical Characteristics**
- 6. DC Characteristics**
- 7. Interface Timing**
- 8. Optical Characteristics**
- 9. Interface**
- 10. Block Diagram**
- 11. Reliability**
- 12. Touch Panel Information**
- 13. Contour Drawing**
- 14. Package Specification**
- 15. Initial Code For Reference**

1.Module Classification Information

W F 70 H T I F G D B C 0 #
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫ ⑬

①	Brand : WINSTAR DISPLAY CORPORATION						
②	Display Type : H→Character Type, G→Graphic Type F→TFT Type						
③	Display Size : 7.0” TFT						
④	Model serials no.						
⑤	Backlight Type :	F→CCFL, White			T→LED, White		
⑥	LCD Polarize Type/ Temperature range/ Gray Scale Inversion Direction	I→Transmissive, W. T, 6:00 L→Transmissive, W.T,12:00					
⑦	A : TFT LCD B : TFT+FR+CONTROL BOARD C : TFT+FR+A/D BOARD D : TFT+FR+A/D BOARD+CONTROL BOARD E : TFT+FR+POWER BOARD F : TFT+CONTROL BOARD			G : TFT+FR H : TFT+D/V BOARD I : TFT+FR+D/V BOARD J : TFT+POWER BD			
⑧	Solution:						
	A: 128160	B:320234	C:320240	D:480234	E:480272	F: 640480	G: 800480
	H:1024600	I:320480	J:240320	K:800600	L:240400	M :1024768	
⑨	D: Digital L : LVDS						
⑩	Interface : N : without control board A : 8Bit B : 16Bit						
⑪	TS : N : Without TS T : resistive touch panel C : capacitive touch panel						
⑫	Version						
⑬	Special Code	#:Fit in with ROHS directive regulations					

2.Summary

This technical specification applies to 7.0' color TFT-LCD panel. The 7.0' color TFT-LCD panel is designed for camcorder, digital camera application and other electronic products which require high quality flat panel displays. This module follows RoHS.

3.General Specification

Item	Dimension	Unit
Dot Matrix	800 x RGBx480(TFT)	dots
Module dimension	165 x 104.8 x 10.5	mm
Active area	152.4 x 91.44	mm
Dot pitch	0.0635 x 0.1905	mm
LCD type	TFT, Negative, Transmissive	
View Direction	12 o'clock	
Gray Scale Inversion Direction	6 o'clock	
Backlight Type	LED ,Normally White	
Controller IC	SSD1963	
Interface	Digital 8080 family MPU	
TS Type	Capacitive Touch Panel (CTP)	
TS Interface	I2C	

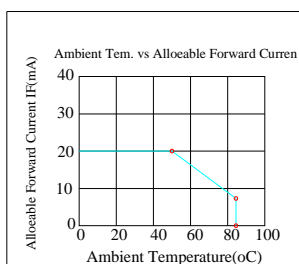
*Color tone slight changed by temperature and driving voltage.

4.Absolute Maximum Ratings

Item	Symbol	Min	Typ	Max	Unit
Operating Temperature	TOP	-20	—	+70	°C
Storage Temperature	TST	-30	—	+80	°C

Note: Device is subject to be damaged permanently if stresses beyond those absolute maximum ratings listed above

1. Temp. $\leq 60^{\circ}\text{C}$, 90% RH MAX. Temp. $> 60^{\circ}\text{C}$, Absolute humidity shall be less than 90% RH at 60°C



5. Electrical Characteristics

5.1. Operating conditions:

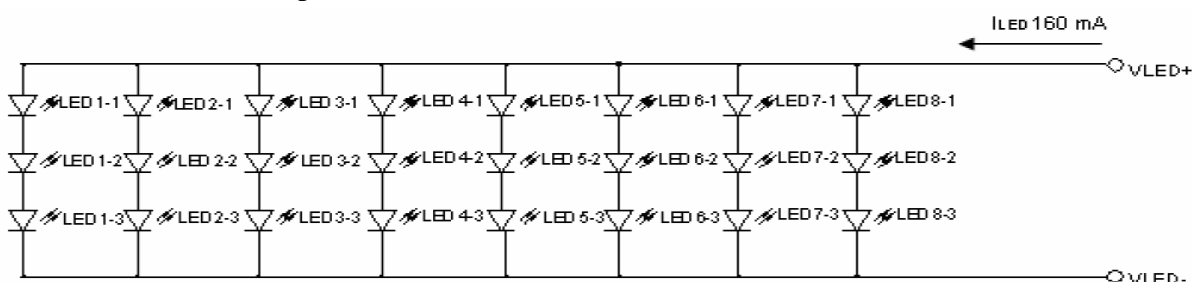
Item	Symbol	Condition	Min	Typ	Max	Unit	Remark
Supply Voltage For LCM	VDD	—	3.0	3.3	3.6	V	—
Supply Voltage For CTP	VDDT	—	2.8	—	3.3	V	—
Supply Current For LCM	IDD	—	—	170	300	mA	Note1
Power Consumption	—	—	—	560	1080	mW	VDD=3.3V

Note 1 : This value is test for VDD=3.3V , Ta=25 °C only

5.2 LED driving conditions

Parameter	Symbol	Min.	Typ.	Max.	Unit	Remark
LED current	-	-	160	-	mA	-
Power Consumption	-	-	1584	-	mW	-
LED voltage	VBL+	-	9.9	-	V	Note 1
LED Life Time	-	-	50,000	-	Hr	Note 2,3,4

Note 1 : There are 1 Groups LED



Note 2 : Ta = 25 °C

Note 3 : Brightness to be decreased to 50% of the initial value

Note 4 : The single LED lamp case

6. DC Characteristics

Parameter	Symbol	Rating			Unit	Condition
		Min	Typ	Max		
Low level input voltage	V _{IL}	0	-	0.3 VDD	V	
High level input voltage	V _{IH}	0.7 VDD	-	VDD	V	

7. Interface Timing

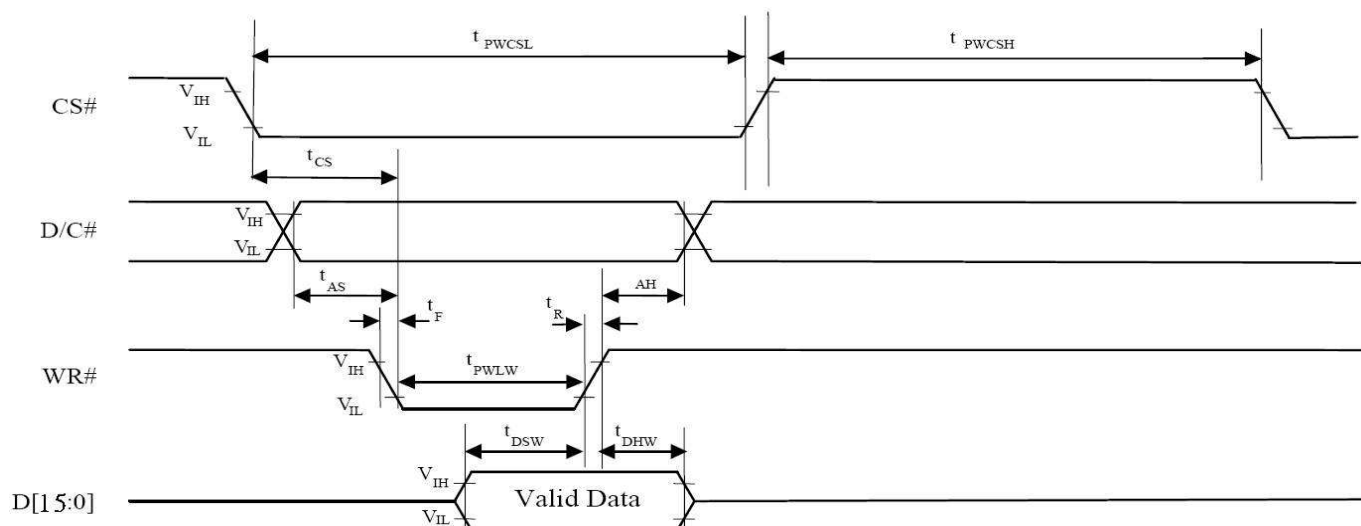
7.1.1 8080 Mode

The 8080 mode MCU interface consist of CS#, D/C#, RD#, WR#, D[15:0] and TE signals. This interface use WR# to define a write cycle and RD# for read cycle. If the WR# goes low when the CS# signal is low, the data or command will be latched into the system at the rising edge of WR#. Similarly, the read cycle will start when RD# goes low and end at the rising edge of RD#.

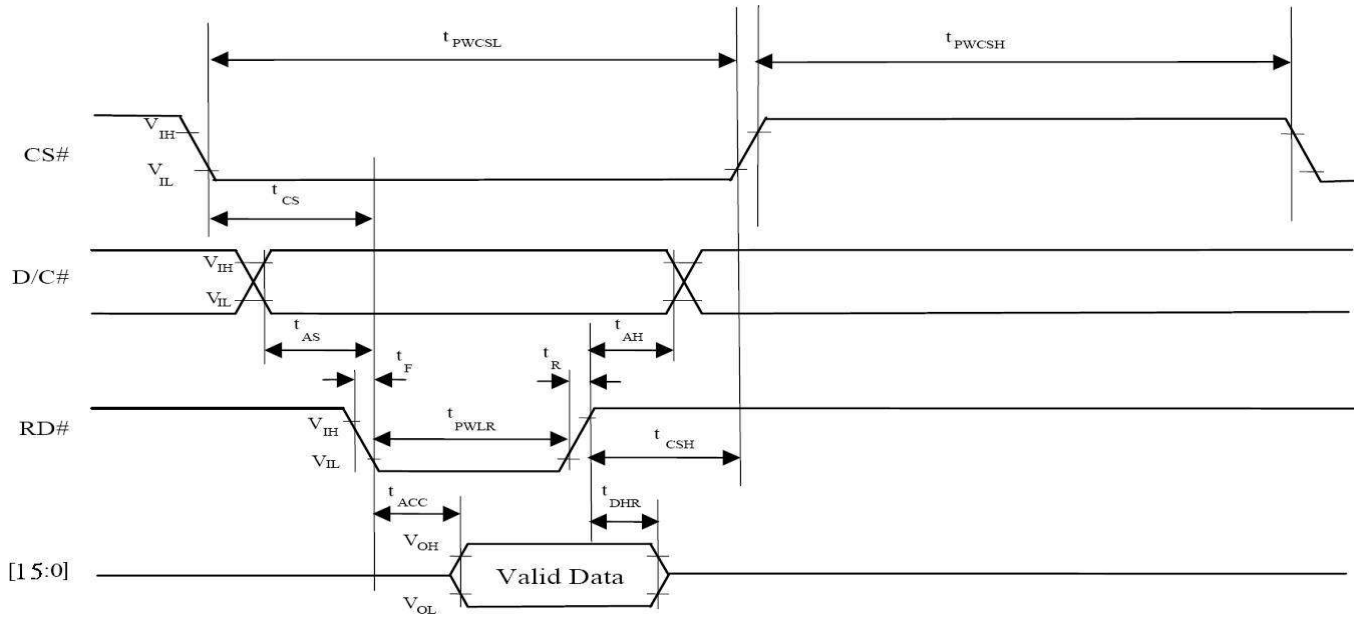
7.1.2 8080 Mode Write Cycle

Symbol	Parameter	Min	Typ	Max	Unit
fMCLK	System Clock Frequency	1	-	110	MHz
tMCLK	System Clock Period	1/fMCLK	-	-	ns
tPWCSH	Control Pulse High Width Write Read	13 30	1.5* tMCLK 3.5* tMCLK	-	ns
tPWCSL	Control Pulse Low Width Write (next write cycle) Write (next read cycle) Read	13 80 80	1.5* tMCLK 9* tMCLK 9* tMCLK	-	ns
tAS	Address Setup Time	1	-	-	ns
tAH	Address Hold Time	2	-	-	ns
tDSW	Write Data Setup Time	4	-	-	ns
tDHW	Write Data Hold Time	1	-	-	ns
tPWLW	Write Low Time	12	-	-	ns
tDHR	Read Data Hold Time	1	-	-	ns
tACC	Access Time	32	-	-	ns
tPWLR	Read Low Time	36	-	-	ns
tR	Rise Time	-	-	0.5	ns
tF	Fall Time	-	-	0.5	ns
tCS	Chip select setup time	2	-	-	ns
tCSH	Chip select hold time to read signal	3	-	-	ns

7.1.2.1 Parallel 8080-series Interface Timing Diagram(Write Cycle)



7.1.2.2 Parallel 8080-series Interface Timing Diagram(Read Cycle)



7.1.3 Pixel Data Format

Interface	Cycle	D[23]	D[22]	D[21]	D[20]	D[19]	D[18]	D[17]	D[16]	D[15]	D[14]	D[13]	D[12]	D[11]	D[10]	D[9]	D[8]	D[7]	D[6]	D[5]	D[4]	D[3]	D[2]	D[1]	D[0]		
24 bits	1 st	R7	R6	R5	R4	R3	R2	R1	R0	G7	G6	G5	G4	G3	G2	G1	G0	B7	B6	B5	B4	B3	B2	B1	B0		
18 bits	1 st							R5	R4	R3	R2	R1	R0	G5	G4	G3	G2	G1	G0	B5	B4	B3	B2	B1	B0		
16 bits (565 format)	1 st									R5	R4	R3	R2	R1	G5	G4	G3	G2	G1	G0	B5	B4	B3	B2	B1		
16 bits	1 st									R5	R4	R3	R2	R1	R0	X	X	G5	G4	G3	G2	G1	G0	X	X		
	2 nd									B5	B4	B3	B2	B1	B0	X	X	R5	R4	R3	R2	R1	R0	X	X		
	3 rd									G5	G4	G3	G2	G1	G0	X	X	B5	B4	B3	B2	B1	B0	X	X		
9 bits	1 st																	R5	R4	R3	R2	R1	R0	G5	G4	G3	
	2 nd																	G2	G1	G0	B5	B4	B3	B2	B1	B0	
8 bits	1 st																			R5	R4	R3	R2	R1	R0	X	X
	2 nd																			G5	G4	G3	G2	G1	G0	X	X
	3 rd																			B5	B4	B3	B2	B1	B0	X	X

X: Don't Care

8. Optical Characteristic

Item	Symbol	Condition.	Min	Typ.	Max.	Unit	Remark	
Response time	Tr	$\theta = 0^\circ$ 、 $\Phi = 0^\circ$	-	5	10	ms	Note 3,5	
	Tf		-	11	16	ms		
Contrast ratio	CR	At optimized viewing angle	250	400	-	-	Note 4,5	
Color Chromaticity	White	Wx	$\theta = 0^\circ$ 、 $\Phi = 0^\circ$	0.26	0.31	0.36		Note 2,6,7
		Wy		0.28	0.33	0.38		
Viewing angle	Hor.	Θ_R	$CR \geq 10$	65	70	-	Deg.	Note 1
		Θ_L		65	70	-		
	Ver.	Φ_T		55	60	-		
		Φ_B		55	60	-		
Brightness	-	-	280	370	-	cd/m ²	Center of display	

Ta=25±2°C, IL=160mA

Note 1: Definition of viewing angle range

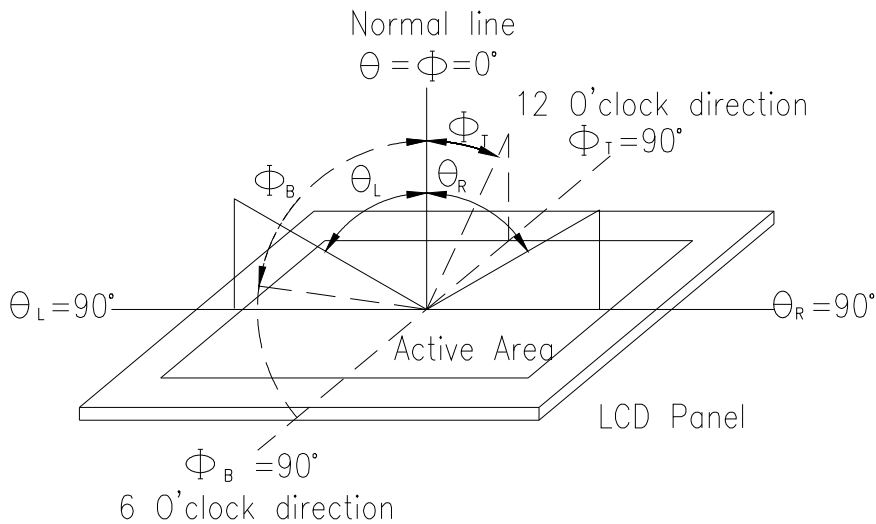


Fig. 8-1 Definition of viewing angle

Note 2: Test equipment setup:

After stabilizing and leaving the panel alone at a driven temperature for 10 minutes, the measurement should be executed. Measurement should be executed in a stable, windless, and dark room. Optical specifications are measured by Topcon BM-7 or BM-5 luminance meter 1.0° field of view at a distance of 50cm and normal direction.

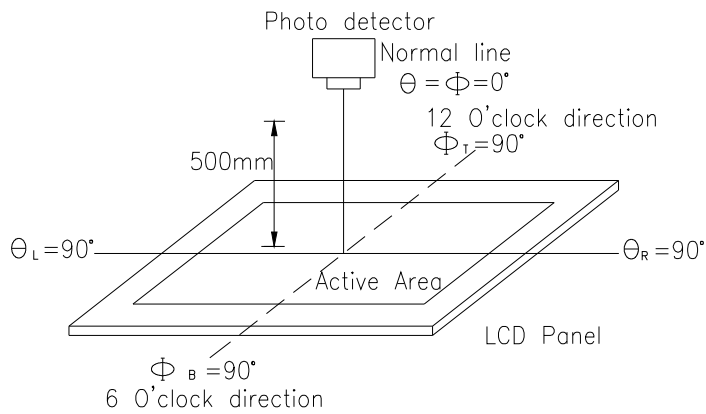
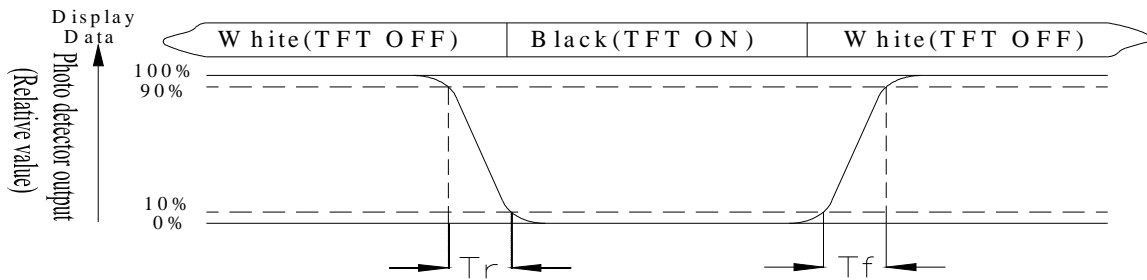


Fig. 8-2 Optical measurement system setup

Note 3: 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_r , is the time between photo detector output intensity changed from 90% to 10%. And fall time, T_f , is the time between photo detector output intensity changed from 10% to 90%



Note 4: Definition of contrast ratio:

The contrast ratio is defined as the following expression.

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

Note 5: White $V_i = V_{i50} \pm 1.5V$

Black $V_i = V_{i50} \pm 2.0V$

“±” means that the analog input signal swings in phase with VCOM signal.

“±” means that the analog input signal swings out of phase with VCOM signal.

The 100% transmission is defined as the transmission of LCD panel when all the input terminals of module are electrically opened.

Note 6: Definition of color chromaticity (CIE 1931)

Color coordinates measured at the center point of LCD

Note 7: Measured at the center area of the panel when all the input terminals of LCD panel are electrically opened.

$$\text{Note 8: Uniformity (U)} = \frac{\text{Brightness(min)}}{\text{Brightness(max)}} \times 100\%$$

9. Interface

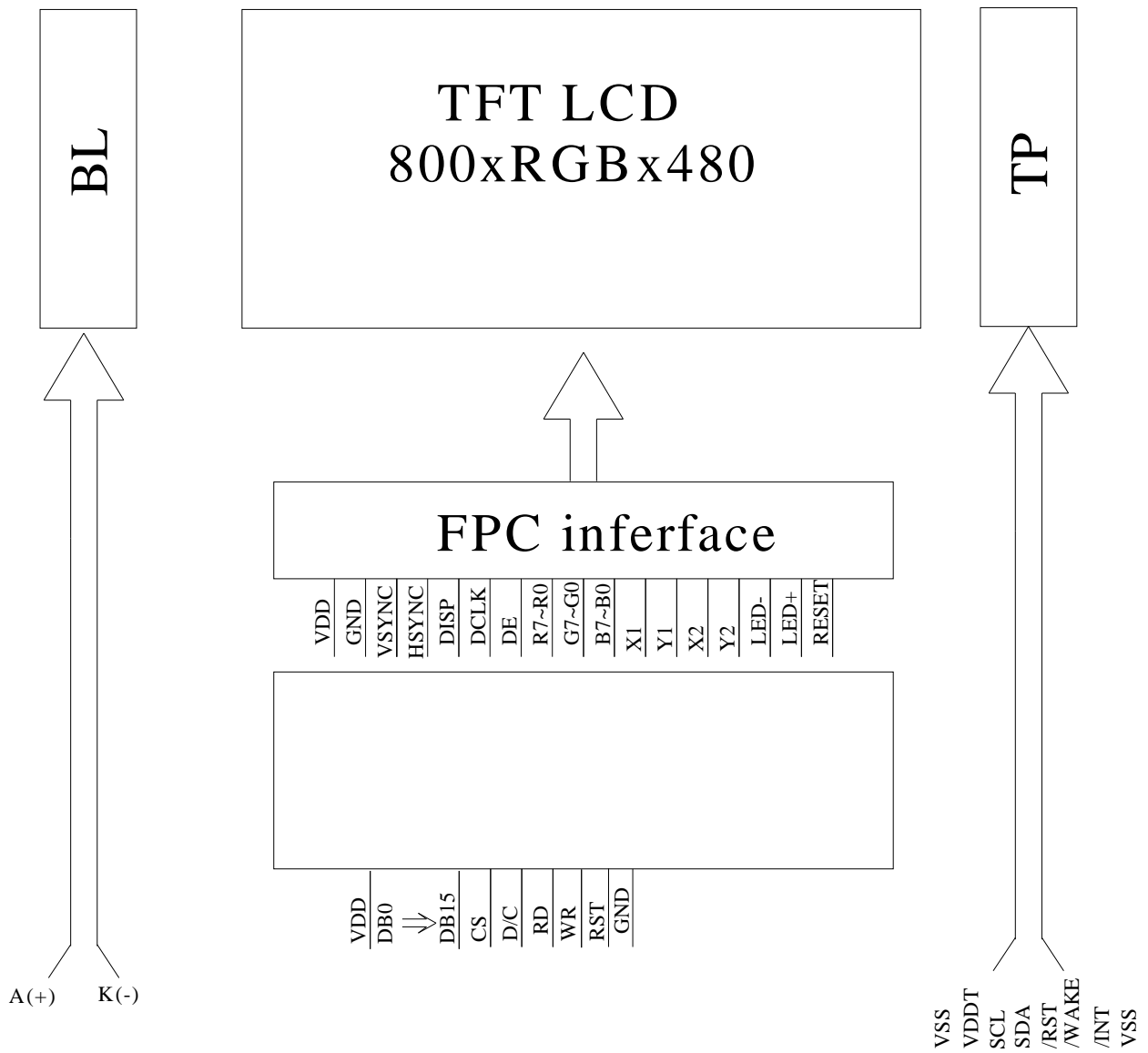
9.1. LCM PIN Definition

Pin	Symbol	Function	Remark
1	VDD	Power Supply : +3.3V	
2	VDD	Power Supply : +3.3V	
3	DB0	Data bus	
4	DB1	Data bus	
5	DB2	Data bus	
6	DB3	Data bus	
7	DB4	Data bus	
8	DB5	Data bus	
9	DB6	Data bus	
10	DB7	Data bus	
11	DB8	Data bus	
12	DB9	Data bus	
13	DB10	Data bus	
14	DB11	Data bus	
15	DB12	Data bus	
16	DB13	Data bus	
17	DB14	Data bus	
18	DB15	Data bus	
19	CS	Chip select	
20	D/C	Display/Command data	
21	RD	Read strobe signal	
22	WR	Write strobe signal	
23	NC	No connect	
24	RST	Hardware reset	
25	NC	No connect	
26	NC	No connect	
27	NC	No connect	
28	NC	No connect	
29	NC	No connect	
30	NC	No connect	
31	GND	System ground	
32	GND	System ground	

9.2. CTP PIN Definition

Pin	Symbol	Function	Remark
1	VSS	Ground for analog circuit	
2	VDDT	Power Supply : +3.3V	
3	SC	SPI Slave mode, chip select, active low I2C clock input	
4	NC	No connect	
5	SDA	SPI Slave mode, data input I2C data input and output	
6	NC	No connect	
7	/RST	External Reset, Low is active	
8	/WAKE	External interrupt from the host	
9	/INT	External interrupt to the host	
10	VSS	Ground for analog circuit	

10. Block Diagram



11. Reliability

Content of Reliability Test (Wide temperature, -20°C ~70°C)

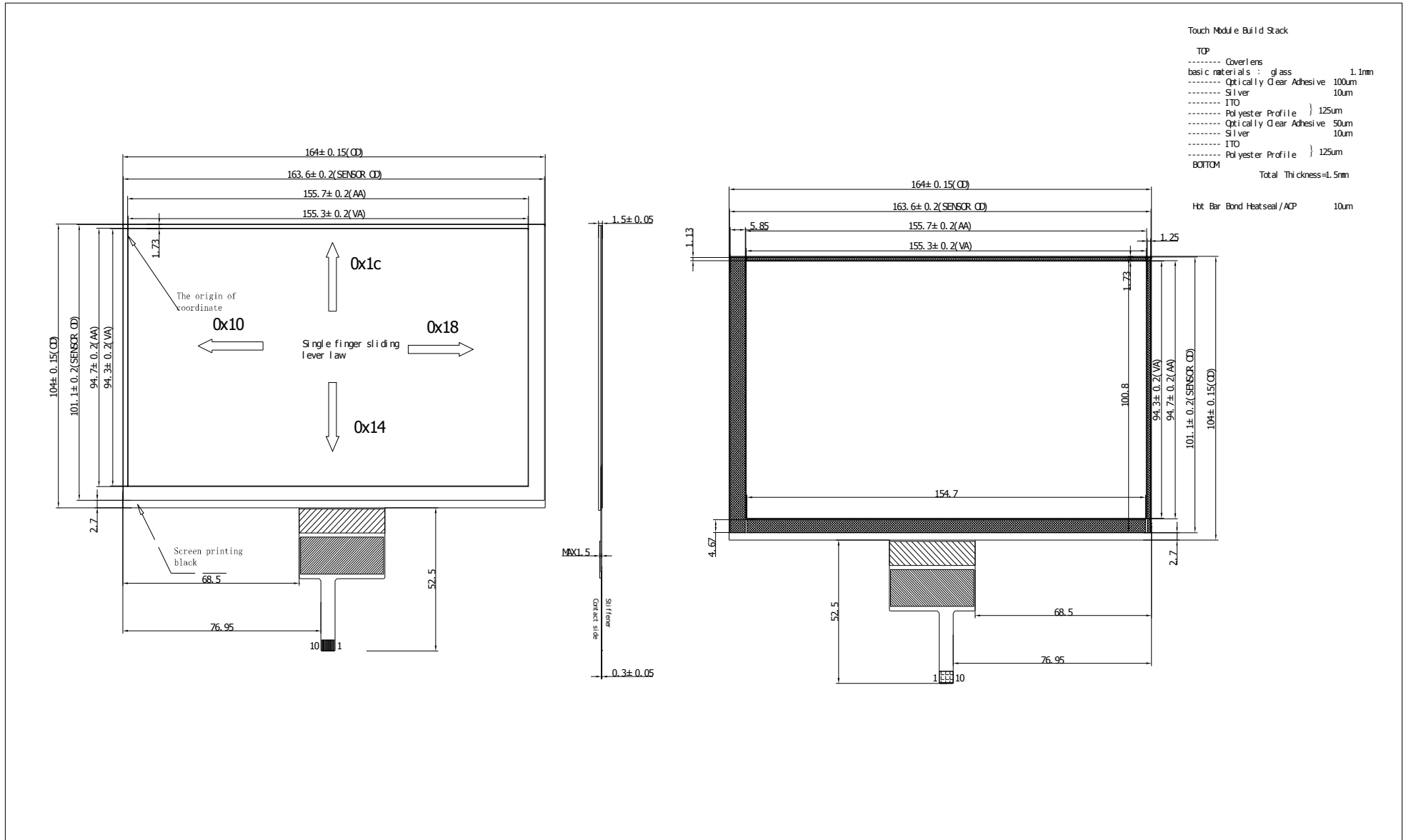
Environmental Test			
Test Item	Content of Test	Test Condition	Note
High Temperature storage	Endurance test applying the high storage temperature for a long time.	80°C 200hrs	2
Low Temperature storage	Endurance test applying the high storage temperature for a long time.	-30°C 200hrs	1,2
High Temperature Operation	Endurance test applying the electric stress (Voltage & Current) and the thermal stress to the element for a long time.	70°C 200hrs	—
Low Temperature Operation	Endurance test applying the electric stress under low temperature for a long time.	-20°C 200hrs	1
High Temperature/ Humidity Operation	The module should be allowed to stand at 60 °C, 90%RH max For 96hrs under no-load condition excluding the polarizer, Then taking it out and drying it at normal temperature.	60°C, 90%RH 96hrs	1,2
Thermal shock resistance	The sample should be allowed stand the following 10 cycles of operation <div style="text-align: center;"> <p style="margin: 0;">-20°C 25°C 70°C</p> <p style="margin: 0;">←—————→</p> <p style="margin: 0;">30min 5min 30min</p> <p style="margin: 0;">1 cycle</p> </div>	-20°C/70°C 10 cycles	—
Vibration test	Endurance test applying the vibration during transportation and using.	Total fixed amplitude : 15mm Vibration Frequency : 10~55Hz One cycle 60 seconds to 3 directions of X,Y,Z for Each 15 minutes	3
Static electricity test	Endurance test applying the electric stress to the terminal.	VS=800V, RS=1.5kΩ CS=100pF 1 time	—

Note1: No dew condensation to be observed.

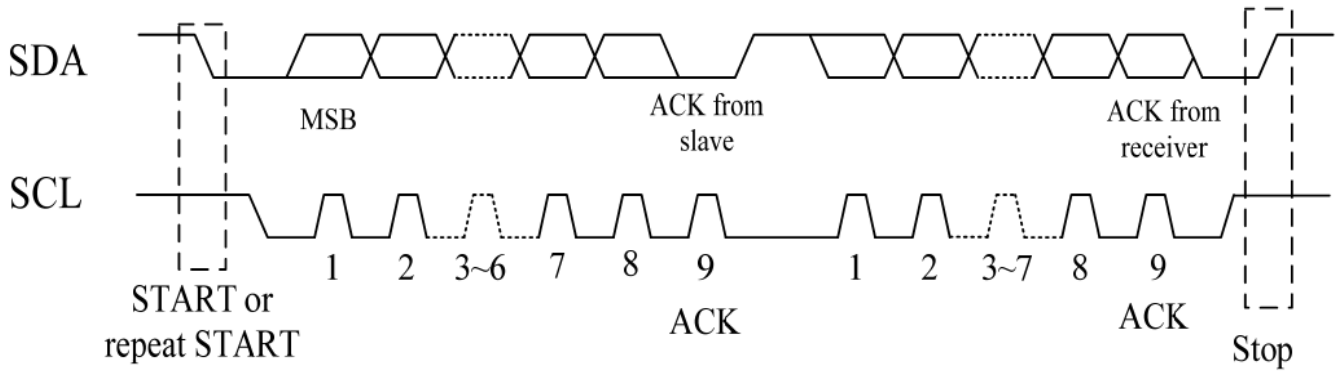
Note2: The function test shall be conducted after 4 hours storage at the normal Temperature and humidity after remove from the test chamber.

Note3: Vibration test will be conducted to the product itself without putting it in a container.

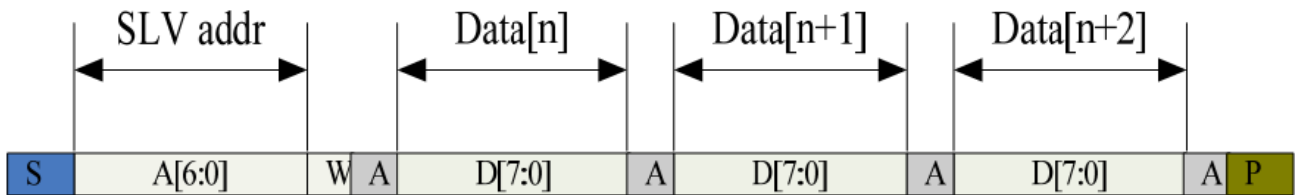
12. Touch Panel Information



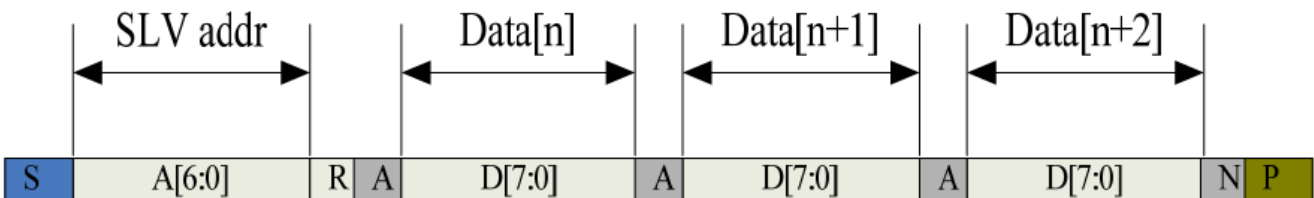
12.1 CTP I2C Timing:



I2C Serial Data Transfer Format



I2C master write, slave read



I2C master read, slave write

Mnemonics	Description
S	12C Start or 12C Restart
A[6:0]	Slave address A[6:4]:3'b011 A[3:0]:data bits are identical to those of 12CCON[7:4]register
W	1'b0:Write
R	1'b1:Read
A(N)	ACK(NACK)
P	STOP :the indication of the end of a packet(if this bit is missing, S will indicate the end of the current packet and beginning of the next packet)

Lists the meanings of the mnemonics used in the above figures

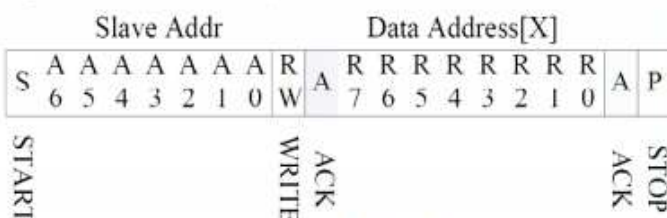
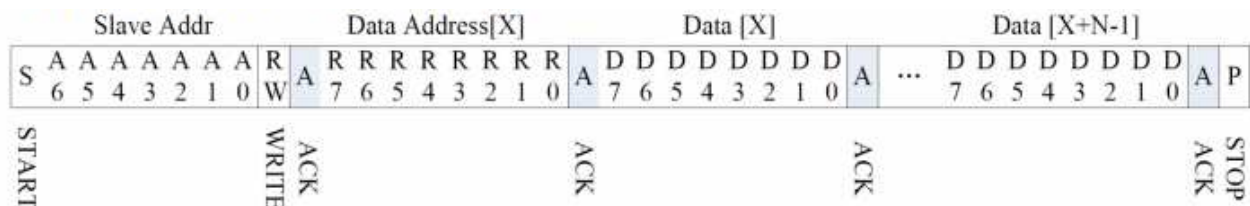
Parameter	Unit	Min	Max
SCL frequency	KHz	0	400
Bus free time between a STOP and START condition	us	4.7	\
Hold time (repeated) START condition	us	4.0	\
Data setup time	ns	250	\
Setup time for a repeated START condition	us	4.7	\
Setup time for STOP condition	us	4.0	\

Interface Timing Characteristics

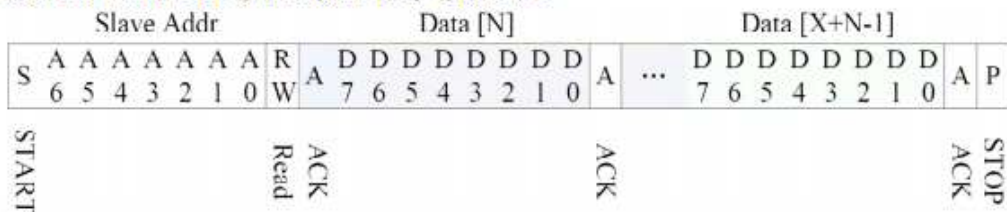
AS FOR STANDARD CTM, HOST NEED TO USE BOTH INTERRUPT CONTROL SIGNAL AND SERIAL DATA INTERFACE TO GET THE TOUCH DATA.

HERE IS THE TIMING TO GET TOUCH DATA.

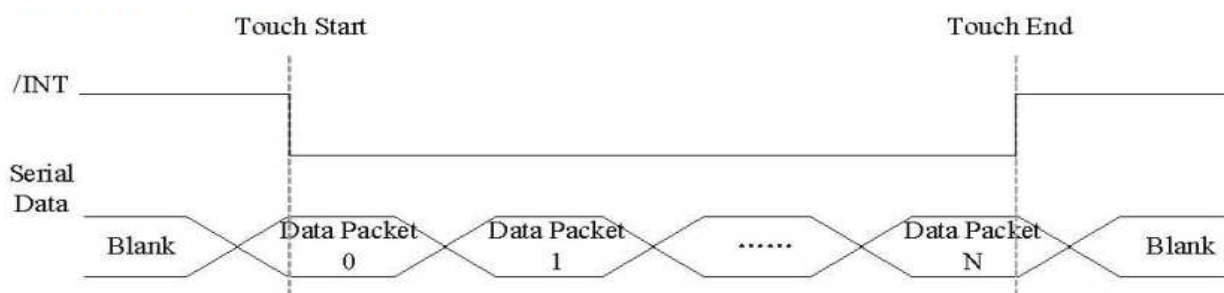
12.1 WRITE BYTES TO I2C SLAVE



READ X BYTES FROM I2C SLAVE



AS FOR STANDARD CTM, HOST NEED TO USE BOTH INTERRUPT CONTROL SIGNAL AND SERIAL DATA INTERFACE TO GET THE TOUCH DATA, HERE IS THE TIMING TO GET TOUCH DATA.



TOUCH DATA READ PROTOCOL

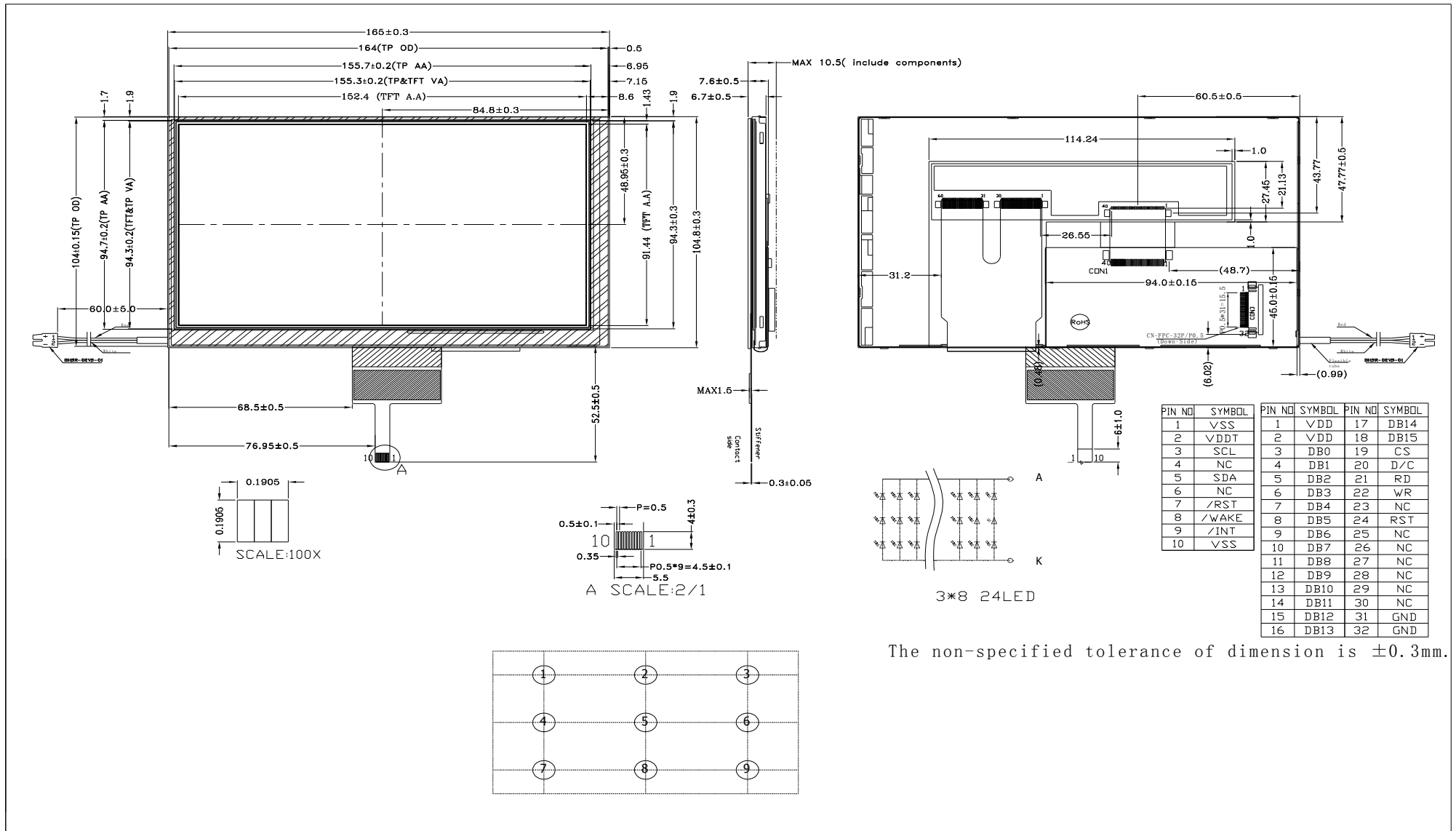
NAME	VALUE	DESCRIPTION
START CH	0XF9	START COMMAND FOR CTPM TOUCH DATA PACKET,HOST MUST SEND CTPM A START CH COMMAND BEFORE READ TOUCH DATA
1st READ BYTE~ LAST READ BYTE		TOUCH DATA PACKET SENT BY CTPM,EACH BYTE HAS 8-BIT DATA ,A TOUCH DATA PACKET CONSISTS OF N BYTE

A DATA PACKET STARTS WITH A HEADER AND ENDS WITH CRC CODE,AS FOR 5 POINTS DATA PACKET,THE LENGTH OF THE PACKET IS ALWAYS 26 BYTES IN SPITE OF ACTUAL TOUCH POINTS.

Address	Name	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0	Host Access
00h	Devide__Mode		Device Model[2:0]							RW
01h	Gest__ID	Gesture ID[7:0]								R
02h	TD__Status					Number of touch points[3:0]			R	
03h	Touch1__XH	1 st Event Flag				1 st Touch X Position[11:8]			R	
04h	Touch1__XL	1 st Touch X Position[7:0]								R
05h	Touch1__YH	1 st Touch ID[3:0]					1 st Touch Y Position[11:8]			R
06h	Touch1__YL	1 st Touch Y Position[7:0]								R
09h	Touch2__XH	2 nd Event Flag				2 nd Touch X Position[11:8]			R	
0Ah	Touch2__XL	2 nd Touch X Position[7:0]								R

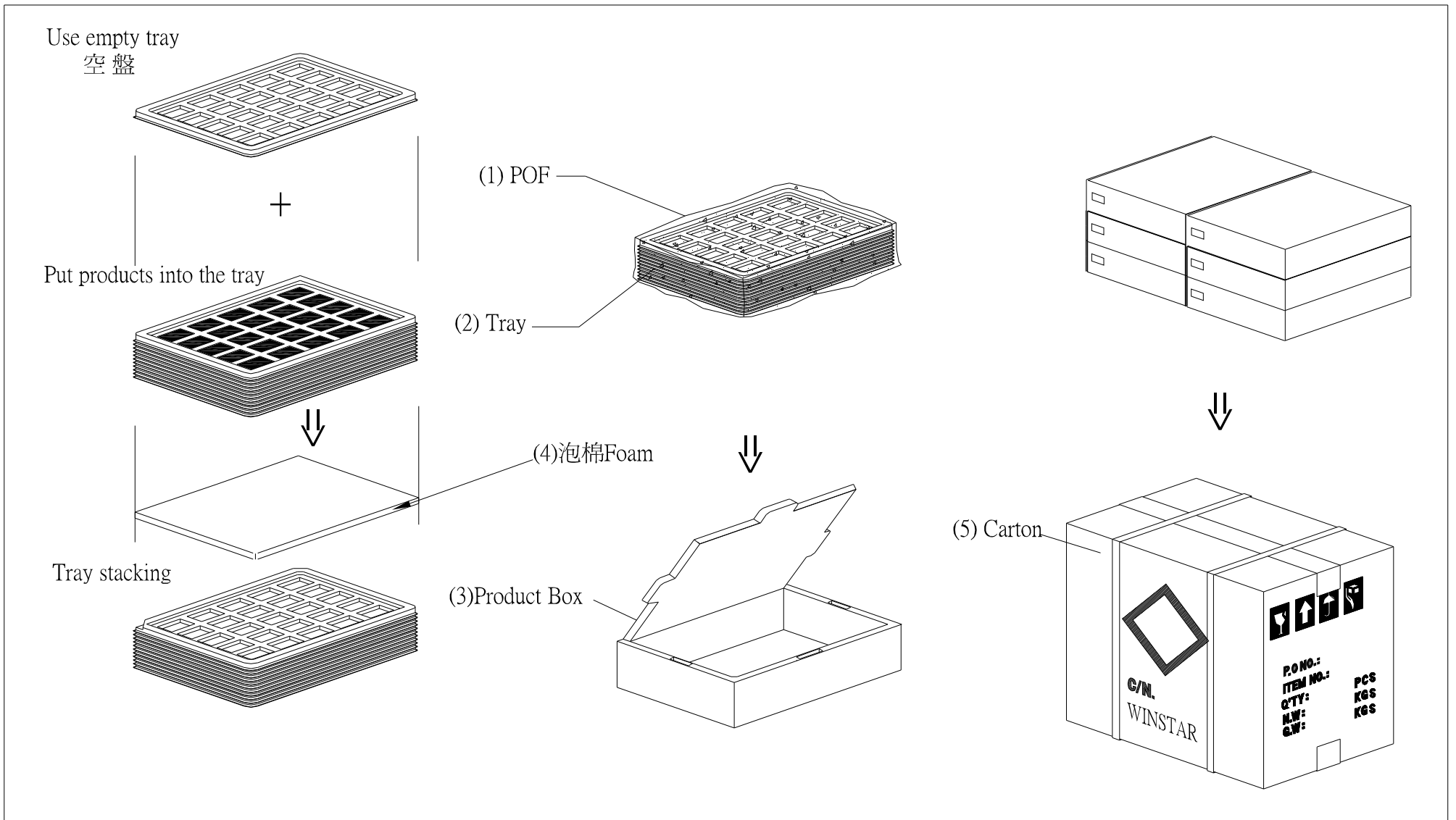
0Bh	Touch2__YH	2nd Touch ID[3:0]	2ndTouch Y Position[11:8]	R
0Ch	Touch2__YL	2nd Touch Y Position[7:0]		R
0Fh	Touch3__XH	3rdEvent Flag	3rdTouch X Position[11:8]	R
10h	Touch3__XL	3rd Touch X Position[7:0]		R
11h	Touch3__YH	3rdTouch ID[3:0]	3rdTouch Y Position[11:8]	R
12h	Touch3__YL	3rd Touch Y Position[7:0]		R
15h	Touch4__XH	4thEvent Flag	4thTouch X Position[11:8]	R
16h	Touch4__XL	4th Touch X Position[7:0]		R
17h	Touch4__YH	4thTouch ID[3:0]	4thTouch Y Position[11:8]	R
18h	Touch4__YL	4th Touch Y Position[7:0]		R
1Bh	Touch5__XH	5thEvent Flag	5thTouch X Position[11:8]	R
1Ch	Touch5__XL	5th Touch X Position[7:0]		R
1Dh	Touch5__YH	5thTouch ID[3:0]	5thTouch Y Position[11:8]	R
1Eh	Touch5__YL	5th Touch Y Position[7:0]		R

13. Contour Drawing



14. Package Specification

LCM Model	WF70HTIFGDBC0#	LCM 包裝規格書 LCM Packaging Specifications	Approve	Check	Contact
Drawing NO.			DATE	初版	版次 Ver
			13'08/15	13'08/15	0
1.包裝材料規格表 (Packaging Material) :(per carton)					
NO.	Item	Model	Dimensions	Quantity	
1	成品 (LCM)	WF70HTIFGDBC0#	165*104.8*10.5mm	60	
2	TRAY 盤 (2)	PKCA1XXXXXXXXXXXX0294	315*265mm	5	
3	BP01 內盒(3)Product Box	PK3R1XXXXXXXXXXXX0001	332*280*100mm	6	
4	泡棉(4)Foam	-	-	6	
5	外紙箱(5)Carton	PK4Q1XXXXXXXXXXXX0000	565*340*320mm	1	
6					
7					
8					
9					
2.單箱數量規格表(Packaging Specifications and Quantity) :					
(1)LCM quantity per box : no per tray 2 x no of tray 5 =10					
(2)Total LCM quantity in carton : quantity per box 10 x no of boxes 6 =60					
特 記 事 項 (REMARK)					
1. Label Specifications :					
MOOEL: LOT NO : QUANTITY: CHECK:					



15. Initial Code For Reference

```
void Initial_SSD1963()
```

```
{
```

```
    Write_Command(0x01);
```

```
    Delay_ms(10);
```

```
    Write_Command(0xe0);
```

```
    Write_Parameter(0x01);
```

```
    Delay_ms(5);
```

```
    Write_Command(0xe0);
```

```
    Write_Parameter(0x03);
```

```
    Delay_ms(5);
```

```
    Write_Command(0xb0);
```

```
    Write_Parameter(0x08);
```

```
    Write_Parameter(0x80);
```

```
    Write_Parameter(0x03);
```

```
    Write_Parameter(0x1f);
```

```
    Write_Parameter(0x01);
```

```
    Write_Parameter(0xdf);
```

```
    Write_Parameter(0x00);
```

```
    Write_Command(0xf0);
```

```
    Write_Parameter(0x03);
```

```
    Write_Command(0xe2);
```

```
    Write_Parameter(0x1d);
```

```
    Write_Parameter(0x02);
```

```
    Write_Parameter(0x54);
```

```
    Write_Command(0xe6);
```

```
    Write_Parameter(0x04);
```

```
    Write_Parameter(0x6f);
```

```
    Write_Parameter(0x47);
```

```
    Write_Command(0xb4);
```

```
    Write_Parameter(0x04);
```

```
    Write_Parameter(0x20);
```

```
    Write_Parameter(0x01);
```

```
Write_Parameter(0x00);  
Write_Parameter(0x00);  
Write_Parameter(0x00);  
Write_Parameter(0x00);  
Write_Parameter(0x00);
```

```
Write_Command(0xb6);  
Write_Parameter(0x02);  
Write_Parameter(0x0d);  
Write_Parameter(0x00);  
Write_Parameter(0x2d);  
Write_Parameter(0x00);  
Write_Parameter(0x00);  
Write_Parameter(0x00);
```

```
Write_Command(0x2a);  
Write_Parameter(0x00);  
Write_Parameter(0x00);  
Write_Parameter(0x03);  
Write_Parameter(0x1f);
```

```
Write_Command(0x2b);  
Write_Parameter(0x00);  
Write_Parameter(0x00);  
Write_Parameter(0x01);  
Write_Parameter(0xdf);
```

```
Write_Command(0x29);  
Write_Command(0x2c);
```

```
}
```



LCM Sample Estimate Feedback Sheet

Module Number : _____

Page: 1

1、Panel Specification :

1. Panel Type : Pass NG , _____
2. View Direction : Pass NG , _____
3. Numbers of Dots : Pass NG , _____
4. View Area : Pass NG , _____
5. Active Area : Pass NG , _____
6. Operating Temperature : Pass NG , _____
7. Storage Temperature : Pass NG , _____
8. Others : _____

2、Mechanical Specification :

1. PCB Size : Pass NG , _____
2. Frame Size : Pass NG , _____
3. Material of Frame : Pass NG , _____
4. Connector Position : Pass NG , _____
5. Fix Hole Position : Pass NG , _____
6. Backlight Position : Pass NG , _____
7. Thickness of PCB : Pass NG , _____
8. Height of Frame to PCB : Pass NG , _____
9. Height of Module : Pass NG , _____
10. Others : Pass NG , _____

3、Relative Hole Size :

1. Pitch of Connector : Pass NG , _____
2. Hole size of Connector : Pass NG , _____
3. Mounting Hole size : Pass NG , _____
4. Mounting Hole Type : Pass NG , _____
5. Others : Pass NG , _____

4、Backlight Specification :

1. B/L Type : Pass NG , _____
2. B/L Color : Pass NG , _____
3. B/L Driving Voltage (Reference for LED Type) : Pass NG , _____
4. B/L Driving Current : Pass NG , _____
5. Brightness of B/L : Pass NG , _____
6. B/L Solder Method : Pass NG , _____
7. Others : Pass NG , _____

>> **Go to page 2** <<



winstar

Module Number : _____

Page: 2

5、Electronic Characteristics of Module :

- 1. Input Voltage : Pass NG , _____
- 2. Supply Current : Pass NG , _____
- 3. Driving Voltage for LCD : Pass NG , _____
- 4. Contrast for LCD : Pass NG , _____
- 5. B/L Driving Method : Pass NG , _____
- 6. Negative Voltage Output : Pass NG , _____
- 7. Interface Function : Pass NG , _____
- 8. LCD Uniformity : Pass NG , _____
- 9. ESD test : Pass NG , _____
- 10. Others : Pass NG , _____

6、Summary :

Sales signature : _____

Customer Signature : _____

Date : ____ / ____ / ____