AMP DISPLAY INC.

A Brighter Solution

SPECIFICATIONS

CUSTOMER	
CUSTOMER PART NO.	
AMP PART NO.	**AM-800600M2TNQW-TA0H**
APPROVED BY	
DATE	

☐ Approved For Specifications

☑ **Approved For Specifications & Sample**

AMP DISPLAY INC

9856 SIXTH STREET RANCHO CUCAMONGA CA 91730
TEL: 909-980-13410 FAX: 909-980-1419
WWW.AMPDISPLAY.COM

APPROVED BY	CHECKED BY	ORGANIZED BY

RECORD OF REVISION

Revision Date	Page	Contents	Editor
2010/8/3	--	New Release	Kokai
2010/8/30		Modify Surface Capacitive Touch Panel controller Protocol	
2012/7/17		To modify VCOM circuit in order to avoid the flicker in 20~50% brightness. 1. Add VR1 100K ohm 2. Add U6 BA10358 Remove RV2,RV4,RV6	Kokai

1 INSTRUCTION

Ampire 8.4” Display Module is a color active matrix TFT-LCD that uses amorphous silicon TFT as a switching device. This model is composed of a TFT-LCD panel and **Surface Capacitor Touch Panel**. This TFT-LCD has a high resolution (800(R.G.B) X 600) and can display up to 262,144 colors.

1.1 Features

(1) Construction: a-Si TFT-LCD with driving system, White LED Backlight, LED Driver IC, **Surface Capacitor Touch Panel and Surface Capacitor Touch Panel controller**.

(2) LCD type : Transmissive , Normally White

(3) Number of the Colors : 262K colors (R,G,B 6 bit digital each)

(4) TFT Display interface: **LVDS Interface.**

(5) Surface capacitor Touch Panel (SCT) : **SPI**

(6) LCD Power Supply Voltage : 3.3V power input for TFT panel.

(7) Build-in LED Driver IC (VLED=5V).

(7) ROHS compliant.

2 PHYSICAL SPECIFICATIONS

Item	Specifications	unit
Display resolution(dot)	800RGB (W) x 600(H)	dots
Active area	170.40 (W) x 127.80(H)	mm
Pixel pitch	213 (W) x 213 (H)	um
Color configuration	R.G.B -stripe	
Overall dimension	203.0(W) x 145.5(H) x 18.2(D)	mm
Weight	T.BD	g
Backlight unit	LED	
Display color	262K	colors

3 ABSOLUTE MAXIMUM RATINGS

Item	Symbol	Min.	Max.	Unit	Note
Supply voltage range	VDD	-0.3	4	V	(1)
LED Driver Supply voltage range	VLED	-0.3	6.5	V	(1)
Voltage range at any terminal	VI	-0.3	VDD + 0.3	V	
Operating Temperature	Top	-20	70	℃	
Storage Temperature	Tstg	-30	80	℃	

Note : All voltage values are with respect to the GND terminals unless otherwise noted.

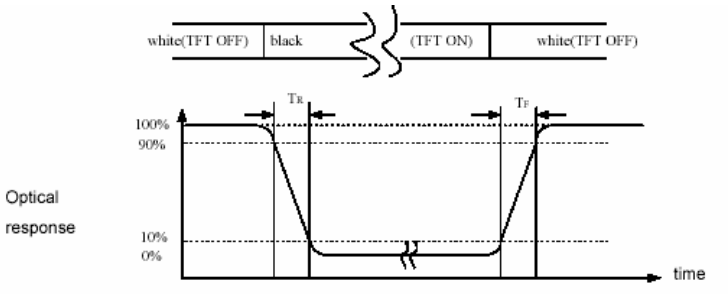
4 OPTICAL CHARACTERISTICS

Item		Symbol	Condition	Min.	Typ.	Max.	Unit	Note
Response Time		$T_r + T_f$	Θ=Φ=0°	-	8	16	ms	(1)
Contrast ratio		CR		480	600	-	-	(2)(3)
Viewing Angle	Horizontal	ΘL	CR≧10	65	75	-	Deg.	(5)
		ΘR		65	75	-		
	Vertical	ΘU		50	60	-		
		ΘD		60	70	-		
Luminance (Center)		L	Θ=Φ=0°	250	315	--	cd/m²	(3)(4) IL=60mA Ta=25℃
Luminance Uniformity		ΔL		-	70	-	%	(3)(4)
Color chromaticity	White	Wx		0.26	0.31	0.367		
		Wy		0.28	0.33	0.38		

NOTE :

- These items are measured by BM-5A(TOPCON) or CA-1000(MINOLTA) in the dark room (no ambient light)

(1) Definition of Response Time (White-Black)



(2) Definition of Contrast Ratio

Measure contrast ratio on the below 5 points(refer to figurel,#1~#5point) and take the average value

Contrast ratio is calculated with the following formula :

Contrast Ratio(CR)=(White)Luminance of ON ÷ (Black)Luminance of OFF

(3) Definition of Luminance :

Measure white luminance on the center point (point 5) and take the value.

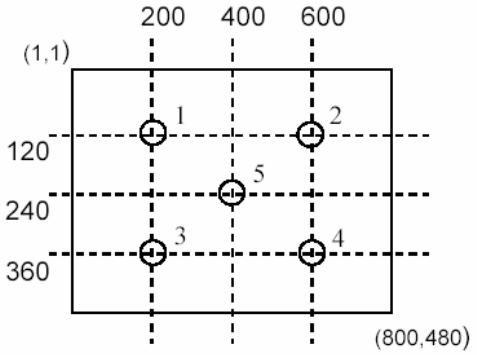


Fig.1 Measuring point

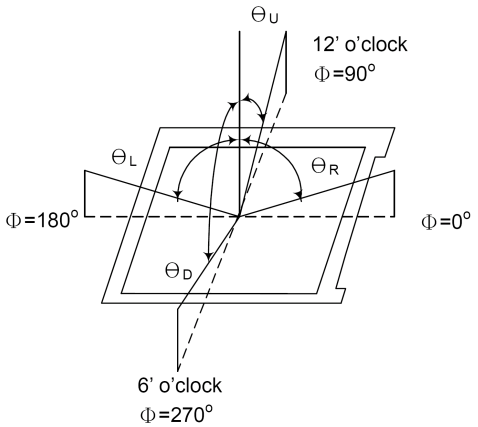
(4)Definition of Luminance Uniformity :

Measured Maximum luminance[L(MAX)] and Minimum luminance[L(MIN)] on the 5 points

Luminance Uniformity is calculated with the following formula :

ΔL =[L(MIN) / L (MAX)] X 100%

(5)Definition of Viewing Angle



5 ELECTRICAL CHARACTERISTICS

5.1 Power Specification

Item	Symbol	Min.	Typ.	Max.	Unit	Note
Logic Supply Voltage	VDD	3.0	3.3	3.6	V	
LED driver supply voltage	VLED	4.5	5.0	5.5	V	
Logic Input Voltage	VIH	VDDx0*7	--	VDD	V	(2)
	VIL	0	--	VDD*0.3	V	(2)
VDD Current	IDD	--	(175)	--	mA	(1)
LVDS DRIVER DC SPECIFICATIONS						
Differential Output Voltage	VOD	250	350	450	mV	RL=100ohm
Change in VOD between Complimentary Output States	ΔVOD	--	--	35	mV	
Common Mode Voltage	VOC	1.125	1.25	1.375	V	
Change in VOC between Complimentary Output States	ΔVOC	--	--	35	mV	
LVDS RECEIVER DC SPECIFICATIONS						
Differential Input High Threshold	VTH	--	--	+100	mV	VOC=+1.2V
Differential Input Low Threshold	VTL	-100	--	--	mV	

Note1: Ta=25℃ , Display pattern : All Black

Note2: SCT_SCK,SCT_CS,SCT_MOSI,SCT_MISO

5.2 LED BACKLIGHT DRIVER UNIT

Item	Symbol	Min.	Typ.	Max.	Unit	Note
Input Voltage	VLED	4.5	5.0	5.5	V	
Input Current	ILED	--	510	--	mA	100% PWM duty
ADJFrequency	Fpwm	100		200	Hz	
LED Forward Current	IF	--	60.6	63.63	mA	Ta=25℃
LED Forward Voltage	VF		35.1	43.8	V	IF=60.6mA, Ta=25℃
LED life time			50,000	-	Hr	IF=60.6mA, Ta=25℃

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

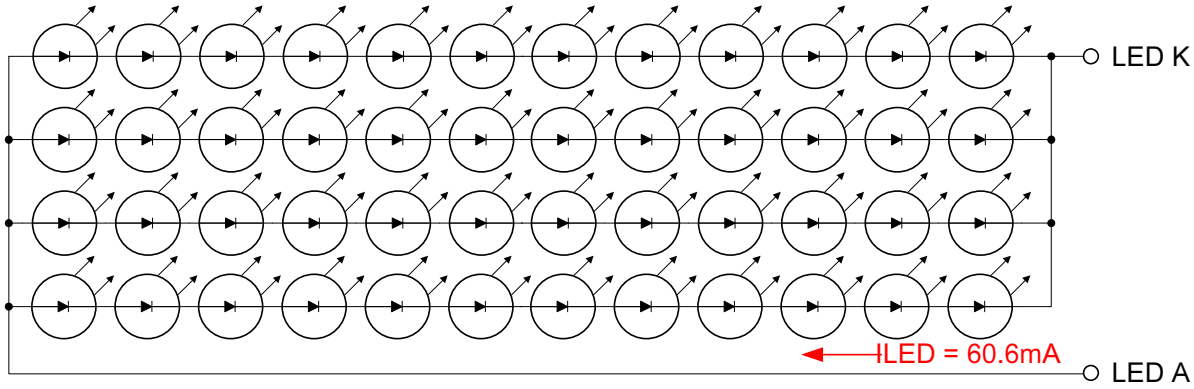
Note 2: VLED, ILED are defined for LED B/L. (100% duty of PWM dimming)

Note 3: IF, VF, Fpwm are defined for LED Driver.

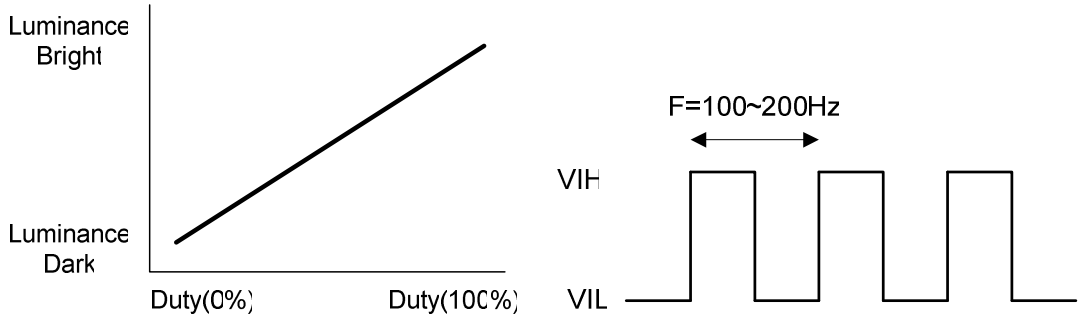
Note 4: If the module is driven by high current or at high ambient temperature & humidity condition. The operating life will be reduced.

Note 5: Operating life means brightness goes down to 50% minimum brightness. LED life time is estimated data.

Note 6: the structure of LED B/L shows as below.



PWM Dimming Control



6 INTERFACE

CN1 : LVDS INTERFACE CN1: HRS DF19G-20P-1H or Equivalent

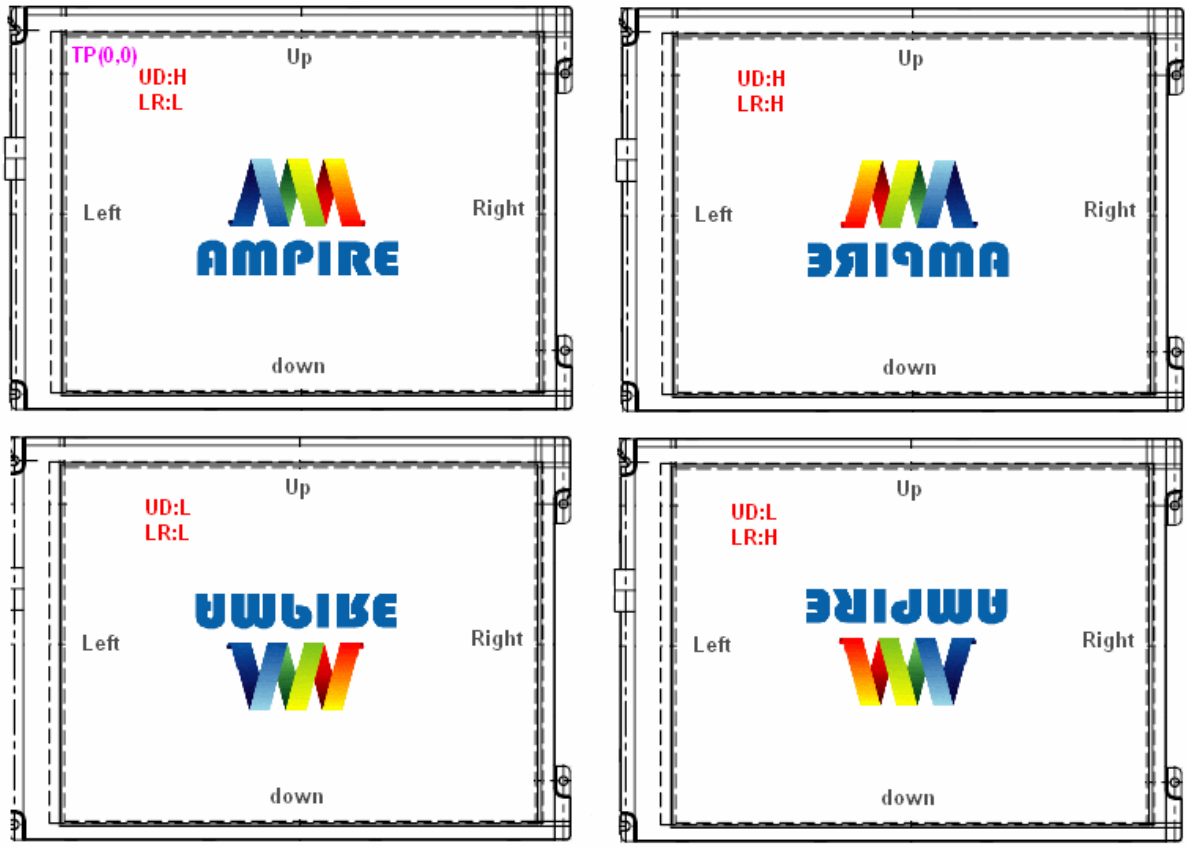
Pin No.	Symbol	I/O	Description	Note
1	VDD	P	Power supply for digital circuit (3.3V)	
2	VDD	P	Power supply for digital circuit (3.3V)	
3	GND	P	Power ground	
4	GND	P	Power ground	
5	IN0-	I	LVDS receiver negative signal channel 0	
6	IN0+	I	LVDS receiver positive signal channel 0	
7	GND	P	Power ground	
8	IN1-	I	LVDS receiver negative signal channel 1	
9	IN1+	I	LVDS receiver positive signal channel 1	
10	GND	P	Power ground	
11	IN2-	I	LVDS receiver negative signal channel 2	
12	IN2+	I	LVDS receiver positive signal channel 2	
13	GND	P	Power ground	
14	CLK-	I	LVDS receiver negative signal clock	
15	CLK+	I	LVDS receiver positive signal clock	
16	GND	P	Power ground	
17	NC	-	No connection	
18	NC	-	No connection	
19	GND	P	Power ground	
20	GND	P	Power ground	

CN6: ZIF connector Pitch 1.0 x 10 Pin

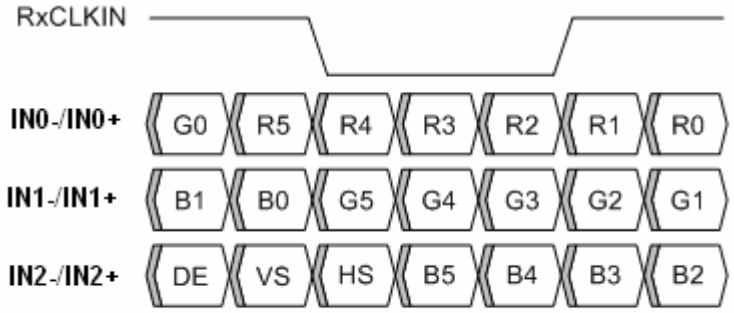
Pin No.	Symbol	I/O	Description	Note
1	VLED	P	Power supply for LED circuit and SCT controller (5.0V)	
2	VLED	P		
3	GND	P	Power ground	
4	GND	P		
5	ADJ	I	Adjust the LED brightness by PWM	
6	SCT_SCK	I	SCT controller SPI clock input	
7	SCT_CS	I	SCT controller SPI Chip select. The SCT controller is active when the pin drives to low.	
8	SCT_MOSI	I	SCT controller SPI data input pin. Serial Data input if SCT_CS is LOW, data is latched on rising edge of the SCT_SCK	
9	SCT_MISO	O	SCT controller SPI data output pin. Data is shifted on the falling edge of SCT_SCK. This output is high impendence when SCT_CS is High	
10	SCT_IRQ	O	SCT controller Interrupt output pin. When SCT controller sense touch, the SCT_IRQ is low.	

Jumper Setting

Setting of scan control input		Scanning direction
UD JP5	LR JP4	
VDD 2,3 short	GND 1,2 short	Up to Down, Left to Right (Default)
GND 1,2 short	VDD 2,3 short	Down to Up, Right to Left
VDD 2,3 short	VDD 2,3 short	Up to Down, Right to Left
GND 1,2 short	GND 1,2 short	Down to Up, Left to Right



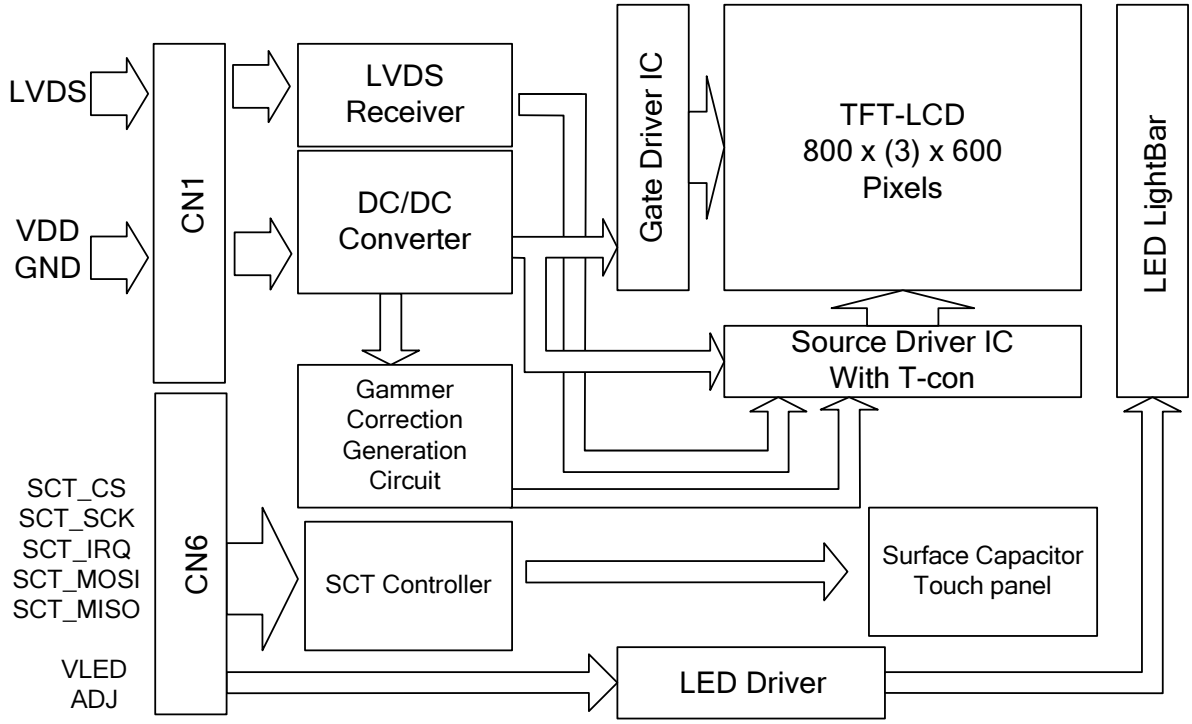
LVDS Input Data Format



Note : R/G/B data 5 : MSB, R/G/B data 0 : LSB

Signal Name	Description	Remark
R5 R4 R3 R2 R1 R0	Red Data 5 (MSB) Red Data 4 Red Data 3 Red Data 2 Red Data 1 Red Data 0 (LSB)	Red-pixel Data Each red pixel's brightness data consists of these 6 bits pixel data.
G5 G4 G3 G2 G1 G0	Green Date 5 (MSB) Green Date 4 Green Date 3 Green Date 2 Green Date 1 Green Date 0 (LSB)	Green-pixel Data Each green pixel's brightness data consists of these 6 bits pixel data.
B5 B4 B3 B2 B1 B0	Blue Data 5 (MSB) Blue Data 4 Blue Data 3 Blue Data 2 Blue Data 1 Blue Data 0 (LSB)	Blue-pixel Data Each blue pixel's brightness data consists of these 6 bits pixel data.
RxCLKIN+ RxCLKIN-	LVDS Clock Input	
DE	Display Enable	
VS	Vertical Sync	
HS	Horizontal Sync	

7 BLOCK DIAGRAM



8 SURFACE CAPACITOR TOUCH PANEL

Feature	**Description**
Type	Capacitive
Input Method	Finger
Glass Thickness	2.8mm +/- 10% typical (glass only , not including tape , wire and solder if used)
Optical	**Description**
Light Transmittance	92% +/- 2% per ASTM D1003
Haze(AG)	7%
Gloss R'60 (AG type)	110 +/- 20GU
Durability	**Description**
Abrasion Test	Fit accuracy specification (Follow MIL-C-675C)
Adhesion Test	No deterioration,Tape test (Follow ASTM D3359)
Surface Scratch Hardness	More than 9H pre ASTM-D3363

9 SURFACE CAPACITIVE TOUCH PANEL CONTROLLER PROTOCOL

The module is with surface capacitor touch panel (SCT) controller. The SCT controller report the X,Y position and pressure data via SPI interface. The SCT controller is a slave device in the SPI interface. HOST MCU send the command via SCT_CS, SCT_MOSI, SCT_SCK pins. And the SCT controller output the data via SCT_CS, SCT_MISO, SCT_CSK pins.

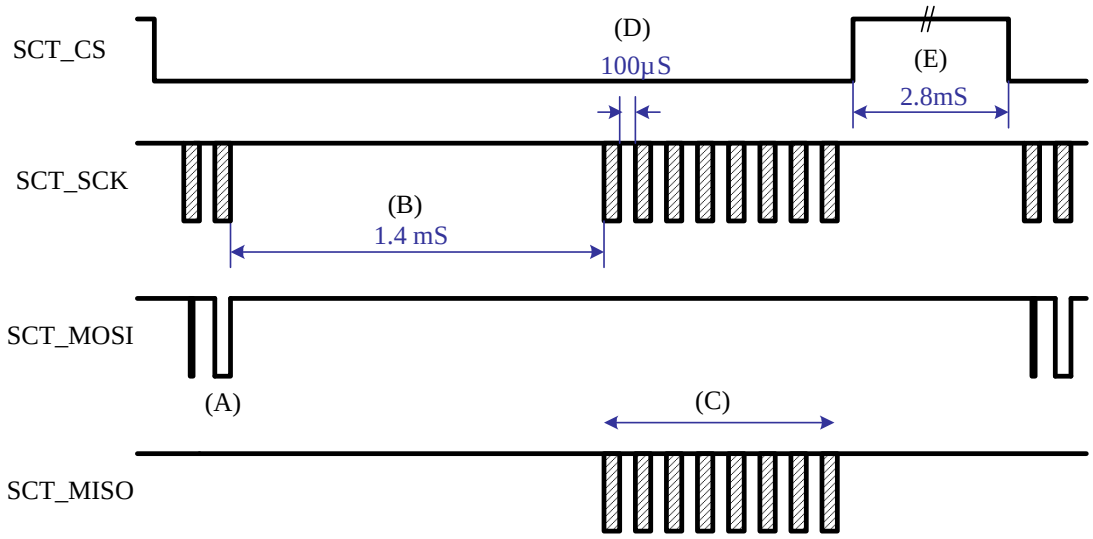
9.1 Read Mode Step

Command(W) + RW_ID[0x00](W) + Read Data[0](R) + Read Data[1](R) + Read Data [2](R) + ….+ Read Data [7](R)

9.2 Command List :

0x10: Read X/Y position and pressure.

The complete protocol **must** includes 1 command (W) byte , 1 RW_ID Byte and 8 Read data (R) bytes.



Step (A): Host send the 0x10 command and 0x00 to SCT controller.

Step (B): Host must delay 1.4mS at least. The SCT controller takes time to calculate and prepare the data.

Step (C): Then 8 Read out data :

Name:	Deception	Remark
Read data [0]	Point Gesture	0x01: Touch , 0x00 No touch
Read data [1]	Pressure	
Read data [2]	Point X position Low Byte	(0~799)
Read data [3]	Point X position High Byte	
Read data [4]	Point Y position Low Byte	(0~599)
Read data [5]	Point X position High Byte	
Read data [6]	T.B.D	No meaning, The SCT_SCK can't be ignored
Read data [7]	T.B.D	

Step (D): The delay time between n byte to n+1 byte is 100µS.

Step (E): If Host MCU needs to read the next protocol, the delay time 2.8mS is needed.

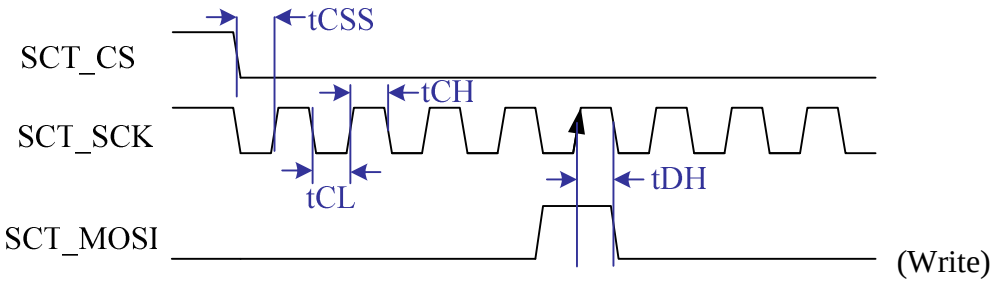
9.3 Sample code :

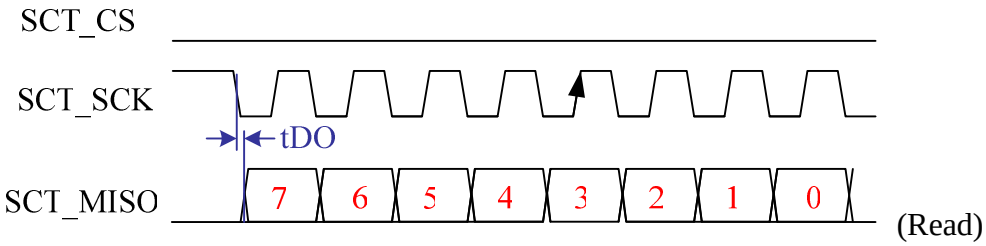
```
/*******************************************************************************
* Function Name   : u8* WT5750SPI_Read(u8 SPI_ID)
* Description     : send SPI command and read 8 byte data
* Input           : u8 SPI_ID ; normal 0x10
* Return          : pointer to SCT out data arry.
*                     gbCommonDataBuffer [0] = Point Gesture
*                     gbCommonDataBuffer [1] = Point Pressure;
*                     gbCommonDataBuffer [2] = Point X Position Low Byte;
*                     gbCommonDataBuffer [3] = Point X Position High Byte;
*                     gbCommonDataBuffer [4] = Point Y Position Low Byte;
*                     gbCommonDataBuffer [5] = Point Y Position High Byte;
*                     gbCommonDataBuffer [6] = T.B.D;
*                     gbCommonDataBuffer [7] = T.B.D;
*******************************************************************************/
u8* WT5750SPI_Read(u8 SPI_ID)        //input: SPI_ID;
{
   u8 SPIData,i,j;
   u16 ReadBit;
   u8 gbCommonDataBuffer[8];
   u8 SendByte[2];

   SET_DCLK;                          // STC_SCK =0
   CLR_TPCS1;                  // SCT_CS=0

        SendByte[0]= SPI_ID;
        SendByte[1]= 0x00;         //0:Read, 1:Write

        for(j=0;j<2;j++)
        {
           for(i=0;i<8;i++)              //clock 1~8 Write SPI_ID=0x10 to SCT controller
         {
            CLR_DCLK;                 // Data Ready at Low

           if(SendByte[j] & 0x80)
            {
              SET_DI;
            }
          else
            {
            CLR_DI;
            }
               Delay_NOP1(1);
             SET_DCLK;             //Data Latch at Rising Edge
             Delay_NOP1(1);
            SendByte[j]<<=1;
          }

            Delay_NOP1(100);        //Delay 100uS for SCT controller read byte delay
        }

     Delay_NOP1(1400);          //Delay 1.4mS for SCT controller data ready

 for(i=0;i<8;i++)
 {
         SPIData=0;
  for(j=0;j<8;j++)
```

```
  {

        CLR_DCLK;
        Delay_NOP1(1);    //

         SET_DCLK;
         Delay_NOP1(1);

         if((ReadDI(ReadBit))>1)
         {
           SPIData=(SPIData<<1)+1;

         }
         else
        {
            SPIData=(SPIData<<1);

        }
   }

        Delay_NOP1(100);          //Delay 100uS for SCT controller read byte delay
  gbCommonDataBuffer[i]=SPIData;

 }

        SET_DCLK;                 //SCT_SCK=1
        SET_TPCS1;                      //SCT_CS=1


  return gbCommonDataBuffer;
}
```

```
/*******************************************************************************
* Function Name  : EXTI4_IRQHandler
* Description    : This function handles External interrupt Line 4 request.
* Input          : None
* Output         : None
* Return         : None
*******************************************************************************/
void EXTI4_IRQHandler(void)
{
   u16 LLCD_X,LLCD_Y , Temp_X , Temp_Y;
   u16 i;
   u8 *pDataBuffer , DataBuffer[8];

        EXTI_DeInit();     // Stop INT ,

Temp_X=0xFFFF;    // Give the 1st comparetion data
Temp_Y=0xFFFF;

    while((ReadINT1())==0)       // while SCT_IRQ=0
          {
           pDataBuffer=WT5750SPI_Read(0x10);          // Get SCT X,Y data

            for(i=0;i<8;i++)
            {
              DataBuffer[i]=*pDataBuffer;
              pDataBuffer++;
            }
                 {
                 LLCD_X=((u16)((u16)(DataBuffer[3])<<8) + DataBuffer[2]);
                 LLCD_Y=((u16)((u16)(DataBuffer[5])<<8) + DataBuffer[4]);

                  If ( (LLCD_X==Temp_X) & (LLCD_Y==Temp_Y)) // software debonce
                    {
                       GUI_Circle(LLCD_X, LLCD_Y, 10, rand()%0xffff);

                    }
                  Temp_X=LLCD_X;
                  Temp_Y=LLCD_Y;
                }
               Delay_NOP1(200);
           }
 }
```

9.4 SCT controller AC Timing :





Item	DESCRIPTION	Min	TYP	MAX	unit	Remark
tCSS	SCT_CS falling to first SCT_SCK rising	1.5	--	--	µS	
tCL	STC_SCK Low	1.5	--	--	µS	
tCH	SCT_SCK High	1.5	--	--	µS	
tDH	SCT_MOSI Data Hold after DCLK High	T.B.D	1.5	--	µS	
tDO	SCT_DCLK falling to SCT_MISO valid	--	--	T.B.D	nS	

10 AC Timing characteristic

10.1 AC Timing characteristic of LVDS

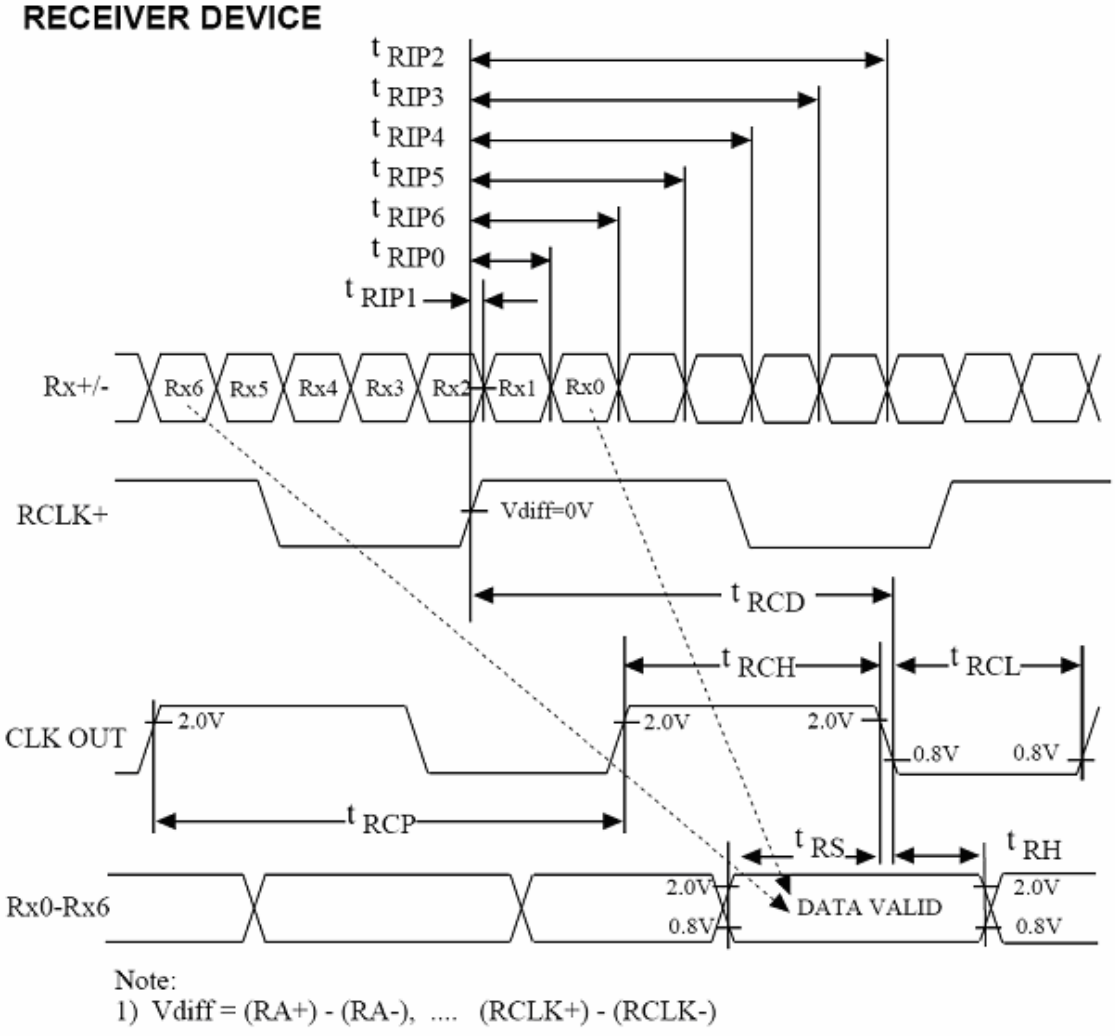
Switching Characteristics

Vcc = 3.0 - 3.6V, Ta = -10 - +70 ˚C

RECEIVER

t_{RCP}	CLK OUT Period	11.76	T	50.0	ns
t_{RCH}	CLK OUT High Time		4T/7		ns
t_{RCL}	CLK OUT Low Time		3T/7		ns
t_{RCD}	RCLK+/- to CLK OUT Delay		5T/7		ns
t_{RS}	TTL Data Setup to CLK OUT	3T/7-2.5			ns
t_{RH}	TTL Data Hold from CLK OUT	4T/7-3.5			ns
t_{TLH}	TTL Low to High Transition Time		3.0	5.0	ns
t_{THL}	TTL High to Low Transition Time		3.0	5.0	ns
t_{RIP1}	Input Data Position 0 (T=11.76ns)	-0.4	0.0	0.4	ns
t_{RIP0}	Input Data Position 1 (T=11.76ns)	T/7-0.4	T/7	T/7+0.4	ns
t_{RIP6}	Input Data Position 2 (T=11.76ns)	2T/7-0.4	2T/7	2T/7+0.4	ns
t_{RIP5}	Input Data Position 3 (T=11.76ns)	3T/7-0.4	3T/7	3T/7+0.4	ns
t_{RIP4}	Input Data Position 4 (T=11.76ns)	4T/7-0.4	4T/7	4T/7+0.4	ns
t_{RIP3}	Input Data Position 5 (T=11.76ns)	5T/7-0.4	5T/7	5T/7+0.4	ns
t_{RIP2}	Input Data Position 6 (T=11.76ns)	6T/7-0.4	6T/7	6T/7+0.4	ns
t_{RPLL}	Phase Lock Loop Set			10.0	ms

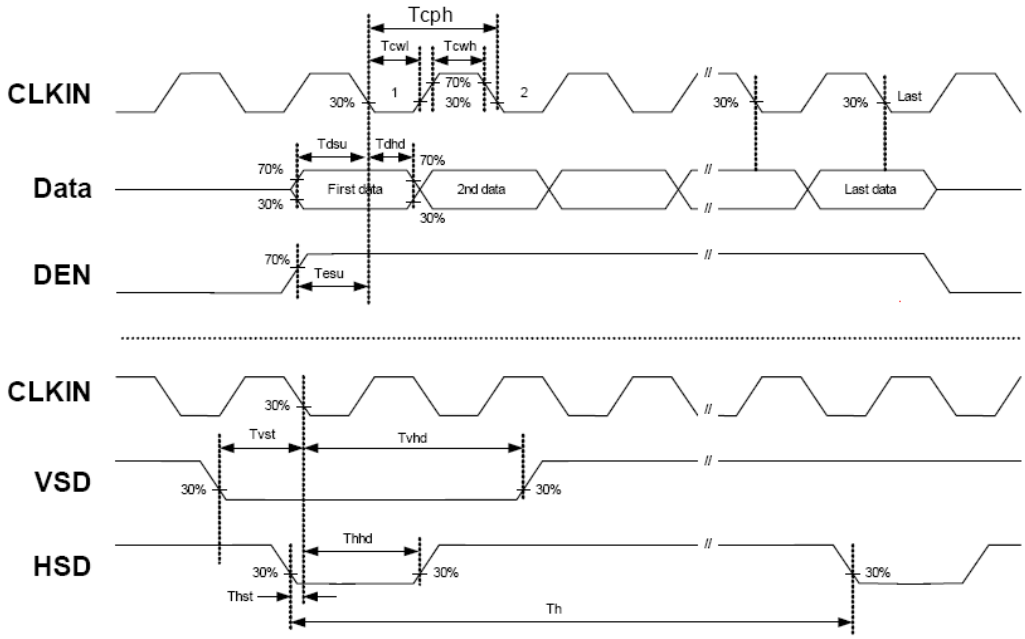
RECEIVER DEVICE



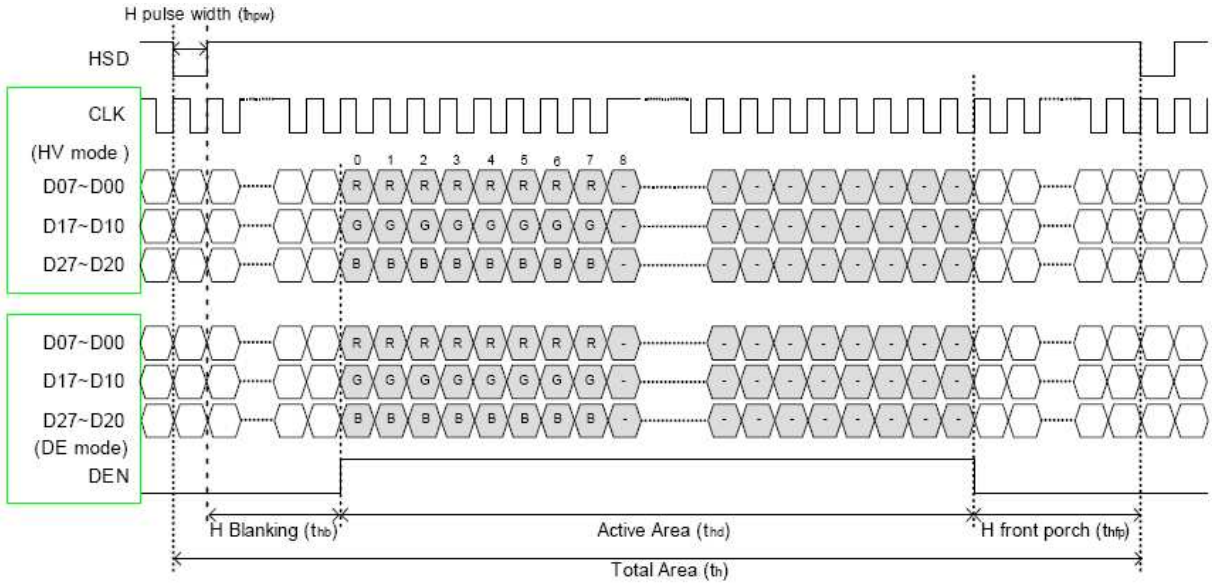
Note:
1) Vdiff = (RA+) - (RA-), ... (RCLK+) - (RCLK-)

10.2 Timing characteristic of Panel

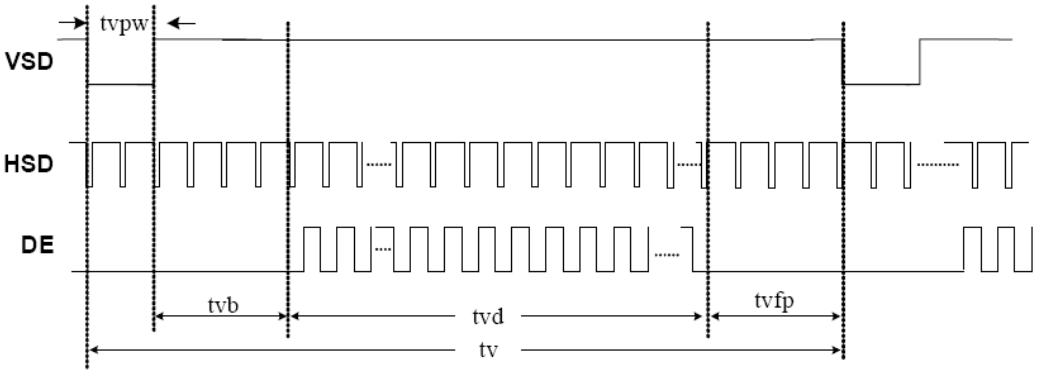
Item	Symbol	Min.	Typ.	Max.	Unit	Note
DCLK cycle time	Tcph	20			ns	
DCLK frequency	fclk		40	50	MHz	
DCLK pulse duty	Tcwh	40	50	60	%	
VSD setup time	Tvst	8			ns	
VSD hold time	Tvhd	8			ns	
HSD setup time	Thst	8			ns	
HSD hold time	Thhd	8			ns	
Data setup time	Tdsu	8			ns	
Data hold time	Tdhd	8			ns	
DE setup time	Tesu	8			ns	
DE hold time	Tehd	8			ns	
Horizontal display area	thd		800		Tcph	
HSD period time	th		1000		Tcph	
HSD pulse width	thpw	1	48		Tcph	
HSD back porch	thb		40		Tcph	
HSD front porch	thfp		112		Tcph	
Vertical display area	tvd		600		th	
VSD period time	tv		660		th	
VSD pulse width	tvpw		3		th	
VSD back porch	tvb		39		th	
VSD front porch	tvfp		18		th	



Sampling clock timing

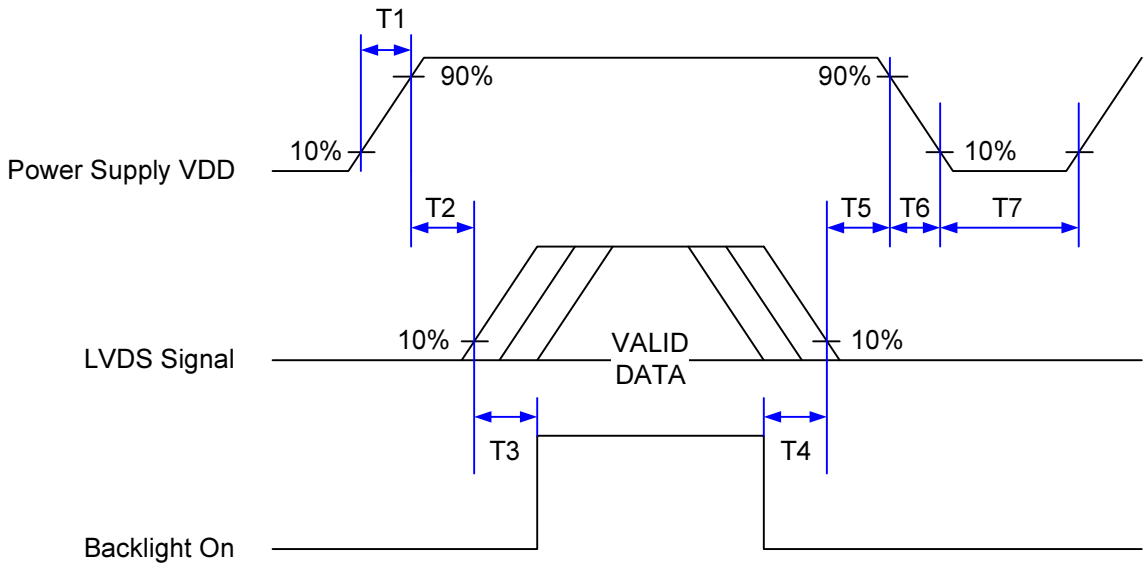


Horizontal display timing range



Vertical timing

8.3 Power ON/OFF Sequence



8.3.1 Power ON/OFF sequence timing

Symbol	Value			Unit
	Min.	Typ.	Max.	
T1	0.5	--	20	ms
T2	0	40	50	ms
T3	200	--	--	ms
T4	200	--	--	ms
T5	0	40	50	ms
T6	0	--	20	ms
T7	1000	--	--	ms

9 . RELIABILITY TEST

Test Item	Test Conditions	Note
High Temperature Operation	70±3°C , t=96 hrs	
Low Temperature Operation	-20±3°C , t=96 hrs	
High Temperature Storage	80±3°C , t=96 hrs	1,2
Low Temperature Storage	-30±3°C , t=96 hrs	1,2
Thermal Shock Test	-20°C ~ 25°C ~ 70°C 30 m in. 5 min. 30 min. (1 cycle) Total 5 cycle	1,2
Humidity Test	60 °C, Humidity 90%, 96 hrs	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℃ , 45-65%RH).

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. USE PRECAUTIONS

10.1 Handling precautions

1) The polarizing plate may break easily so be careful when handling it. Do not touch, press or rub it with a hard-material tool like tweezers.
2) Do not touch the polarizing plate surface with bare hands so as not to make it dirty. If the surface or other related part of the polarizing plate is dirty, soak a soft cotton cloth or chamois leather in benzine and wipe off with it. Do not use chemical liquids such as acetone, toluene and isopropyl alcohol. Failure to do so may bring chemical reaction phenomena and deteriorations.
3) Remove any spit or water immediately. If it is left for hours, the suffered part may deform or decolorize.
4) If the LCD element breaks and any LC stuff leaks, do not suck or lick it. Also if LC stuff is stuck on your skin or clothing, wash thoroughly with soap and water immediately.

10.2 Installing precautions

1) The PCB has many ICs that may be damaged easily by static electricity. To prevent breaking by static electricity from the human body and clothing, earth the human body properly using the high resistance and discharge static electricity during the operation. In this case, however, the resistance value should be approx. 1MΩ and the resistance should be placed near the human body rather than the ground surface. When the indoor space is dry, static electricity may occur easily so be careful. We recommend the indoor space should be kept with humidity of 60% or more. When a soldering iron or other similar tool is used for assembly, be sure to earth it.
2) When installing the module and ICs, do not bend or twist them. Failure to do so may crack LC element and cause circuit failure.
3) To protect LC element, especially polarizing plate, use a transparent protective plate (e.g., acrylic plate, glass etc) for the product case.
4) Do not use an adhesive like a both-side adhesive tape to make LCD surface (polarizing plate) and product case stick together. Failure to do so may cause the polarizing plate to peel off.

10.3 Storage precautions

1) Avoid a high temperature and humidity area. Keep the temperature between 0℃ and 35℃ and also the humidity under 60%.
2) Choose the dark spaces where the product is not exposed to direct sunlight or fluorescent light.
3) Store the products as they are put in the boxes provided from us or in the same conditions as we recommend.

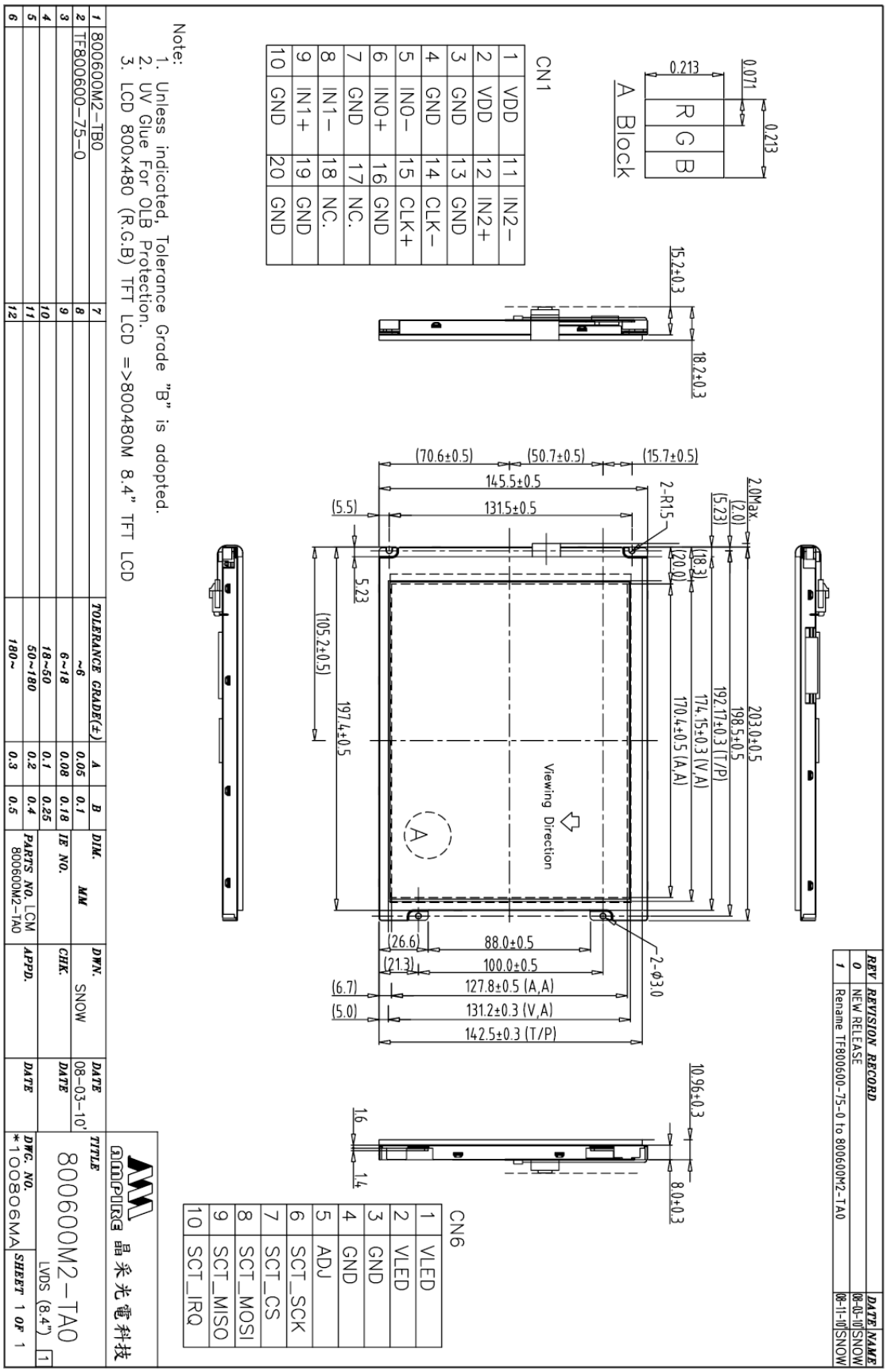
10.4 Operating precautions

1) Do not boost the applied drive voltage abnormally. Failure to do so may break ICs. When applying power voltage, check the electrical features beforehand and be careful. Always turn off the power to the LC module controller before removing or inserting the LC module input connector. If the input connector is removed or inserted while the power is turned on, the LC module internal circuit may break.
2) The display response may be late if the operating temperature is under the normal standard, and the display may be out of order if it is above the normal standard. But this is not a failure; this will be restored if it is within the normal standard.
3) The LCD contrast varies depending on the visual angle, ambient temperature, power voltage etc. Obtain the optimum contrast by adjusting the LC dive voltage.
4) When carrying out the test, do not take the module out of the low-temperature space suddenly. Failure to do so will cause the module condensing, leading to malfunctions.
5) Make certain that each signal noise level is within the standard (L level: 0.2Vdd or less and H level: 0.8Vdd or more) even if the module has functioned properly. If it is beyond the standard, the module may often malfunction. In addition, always connect the module when making noise level measurements.
6) The CMOS ICs are incorporated in the module and the pull-up and pull-down function is not adopted for the input so avoid putting the input signal open while the power is ON.
7) The characteristic of the semiconductor element changes when it is exposed to light emissions, therefore ICs on the LCD may malfunction if they receive light emissions. To prevent these malfunctions, design and assemble ICs so that they are shielded from light emissions.
8) Crosstalk occurs because of characteristics of the LCD. In general, crosstalk occurs when the regularized display is maintained. Also, crosstalk is affected by the LC drive voltage. Design the contents of the display, considering crosstalk.

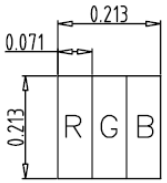
10.5 Other

1) Do not disassemble or take the LC module into pieces. The LC modules once disassembled or taken into pieces are not the guarantee articles.
2) The residual image may exist if the same display pattern is shown for hours. This residual image, however, disappears when another display pattern is shown or the drive is interrupted and left for a while. But this is not a problem on reliability.
3) AMIPRE will provide one year warranty for all products and three months warrantee for all repairing products.

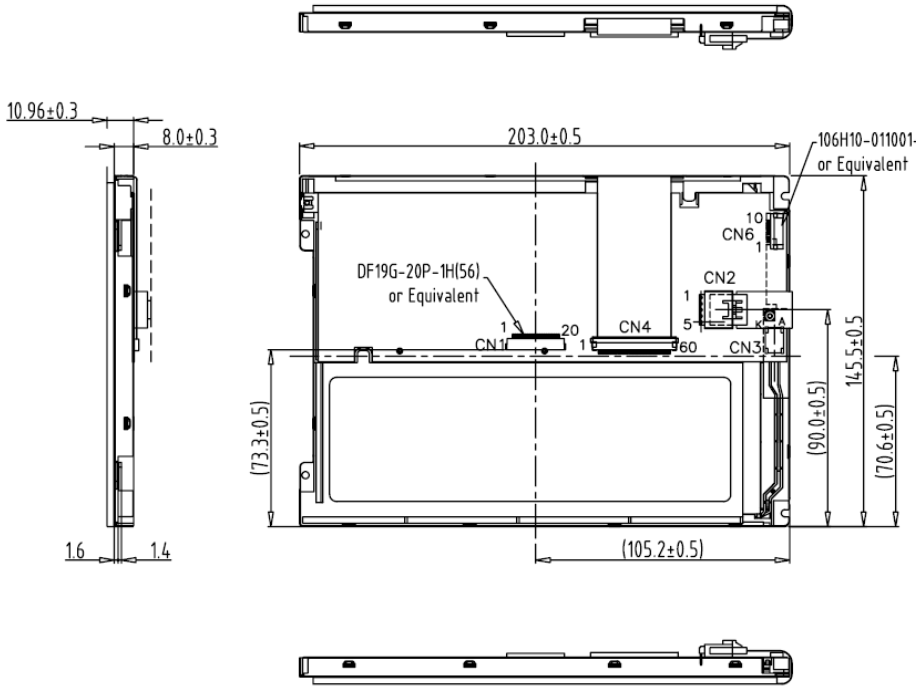
11. OUTLINE DIMENSION



REV	REVISION RECORD	DATE	NAME
0	NEW RELEASE	08-03-10'	SNOW
1	Rename TF800600-75-0 to 800600M2-TA0	08-11-10'	SNOW



A Block



Back View

CN1

1	VDD	11	IN2−
2	VDD	12	IN2+
3	GND	13	GND
4	GND	14	CLK−
5	IN0−	15	CLK+
6	IN0+	16	GND
7	GND	17	NC.
8	IN1−	18	NC.
9	IN1+	19	GND
10	GND	20	GND

CN6

1	VLED
2	VLED
3	GND
4	GND
5	ADJ
6	SCT_SCK
7	SCT_CS
8	SCT_MOSI
9	SCT_MISO
10	SCT_IRQ

Note:
1. Unless indicated, Tolerance Grade "B" is adopted.
2. UV Glue For OLB Protection.
3. LCD 800x480 (R.G.B) TFT LCD =>800480M 8.4" TFT LCD

				TOLERANCE GRADE(±)	A	B	DIM.	DWN.	DATE
1	800600M2-TB0	7					MM	SNOW	08-03-10'
2	TF800600-75-0	8		~6	0.05	0.1			
3		9		6~18	0.08	0.18	IE NO.	CHK.	DATE
4		10		18~50	0.1	0.25			
5		11		50~180	0.2	0.4	PARTS NO. LCM-1 800600M2-TA0	APPD.	DATE
6		12		180~	0.3	0.5			

AMPIRE 晶采光電科技

TITLE: 800600M2-TA0
LVDS (8.4") 1

DWG. NO. *100807MA
SHEET 1 OF 1

Date : 2012/7/17