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Forenex Technology Ltd.

SPECIFICATION

CUSTOMER :	
MODULE NO.:	**CLAA057VA01CWTS4+**

CPT 5.7" TFT module with 4 wires Touch panel
RoHS Compliance

APPROVED BY: **(FOR CUSTOMER USE ONLY)**	**PCB VERSION:** **DATA:**

SALES BY	APPROVED BY	CHECKED BY	PREPARED BY

ISSUED DATE:

輔晟科技有限公司

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			MODLE NO：
RECORDS OF REVISION			**DOC. FIRST ISSUE**
VERSION	DATE	REVISED PAGE NO.	**SUMMARY**
	2007/10/22		First issue

Contents

1.Physical Specification:

****CPT CLAA057VA01CW**

NO.	Item	Specification	Remark
1	Display resolution(dot)	640 X3(H)x480(V)	
2	Active area(mm)	116.16(W)x87.12(H)	
3	Screen size(inch)	5.7.0(Diagonal)	
4	Pixel pitch(mm)	0.1815(W)x0.1815(H)	
5	Color configuration	R. G. B. stripe	
6	Overall dimension(mm)	127(W)x100(H)x7(D)	
7	Backlight unit	LED (180 cd/m2)	With touch
8	Touch Panel	4 wires resistive type	

2. Electrical specification

2.1: Absolute Maximum Ratings

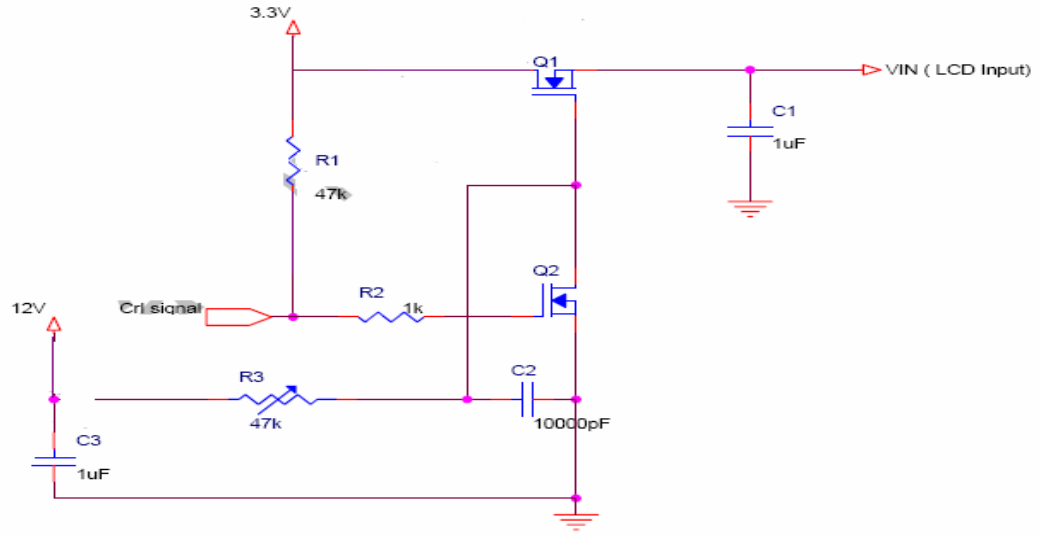
Item	Symbol	Min.	Max.	Unit	Note
Power Supply Voltage	Vcc	-0.5	5.0	V	
Signal Input Voltage	DCLK,DE,R0,G0 ,B0~R5,G5,B5	-0.5	Vcc + 0.5	V	
Static Electricity	VESDc	-200	+200	V	*2)
	VESDm	-15K	+15K	V	
ICC Rush Current	IRUSH	-	1	A	*3)
Operation Temperature	T_{op}	-30	85	℃	*1)
Storage Temperature	T_{stg}	-40	95	℃	*1)
Forward Current (per LED)	If	---	30	mA	
Reverse Voltage (per LED)	VR	---	5	V	
Pulse forward current (per LED)	Ifp	---	100	mA	*4)

Remarks：

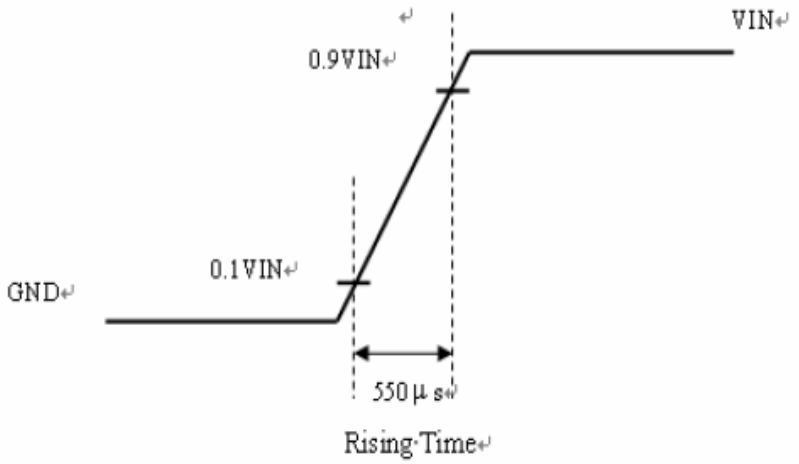
*1) If users use the product out off the environmemt operation range（temperature and humidity）,it will concern for visual quality.

*2) Test Condition: IEC 61000-4-2 ,
VESDc ：Contact discharge to input connector
VESDm：Contact discharge to module

*3) The input pulse-current measurement system as below：



Control signal:High(+3.3V)→Low(GND)
Supply Voltage of rising time should be from R3 and C2 tune to 550 us.



*4) Ifp Conditions ： Pulse Width=0.1msec and Duty=1/10。

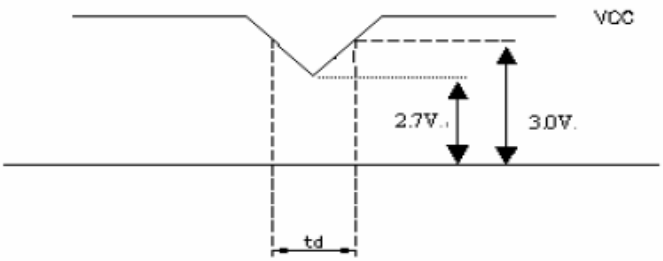
2.2: Electrical Characteristics

2.2.1: TFT LCD

Ta=25℃

Item	Symbol	Min.	Typ	Max.	Unit	Note
Power Supply Voltage For LCD	VCC	3.0	3.3	3.6	V	*1)
Power Supply Voltage For LED	VDD	2.7	3.3	5	V	
Logic Input Voltage	VIH	VCC*0.7	--	VCC	V	
	VIL	0	--	VCC*0.3	V	

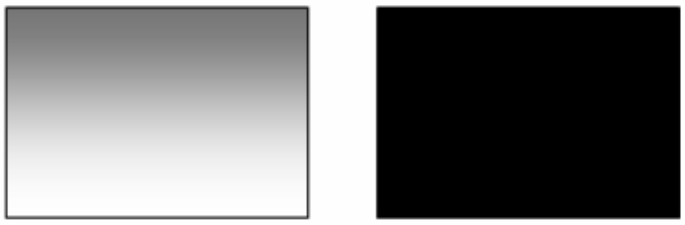
Remarks：
*1) VCC –dip codition:
When 2.7 V≦VCC＜3.0V，td≦10ms.
VCC＞3.0V，VCC-dip condition should be same as VCC-turn-on condition.



2.2.2: Current consumption conditions

Item	Symbol	Min.	Typ	Max.	Unit	Note
LCD power current	ICC	--	TBD	TBD	mA	*1)
LED power current	IDD		TBD	TBD	mA	*2)

*1) Typical: Under 64 gray pattern
Maximum: Under black pattern

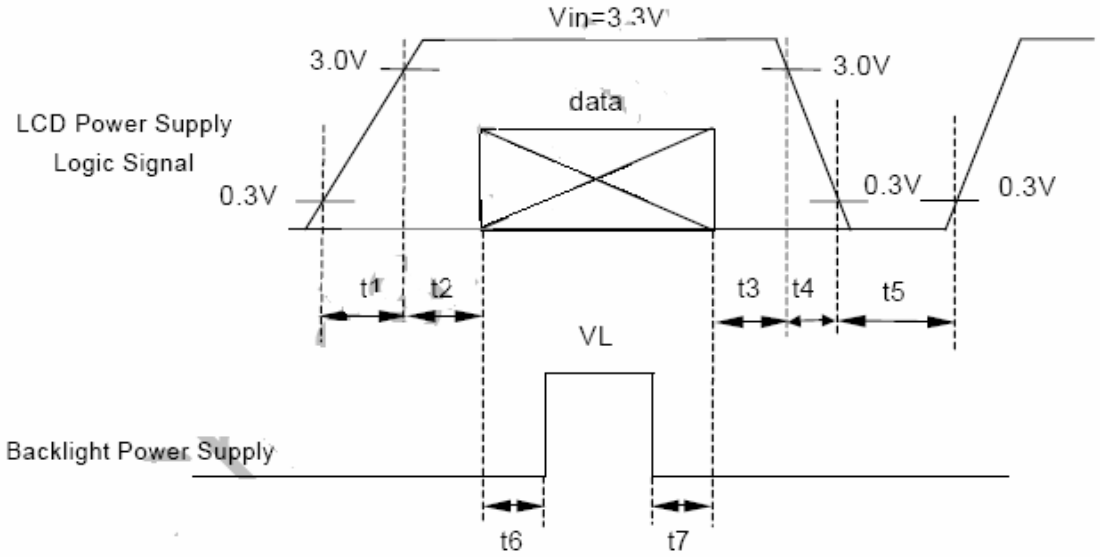


(a)64 Gray Pattern (b)Black Pattern

*2) Typical: When VDD is 3.3V
Maximum: When VDD is 2.7V

3.3 Power、Signal sequence

t1≦10ms 1 sec≦t5
50ms≦t2 200ms≦t6
0＜t3≦50ms 200ms≦t7
0＜t4≦10ms



Data: RGB DATA, DCLK, DENA

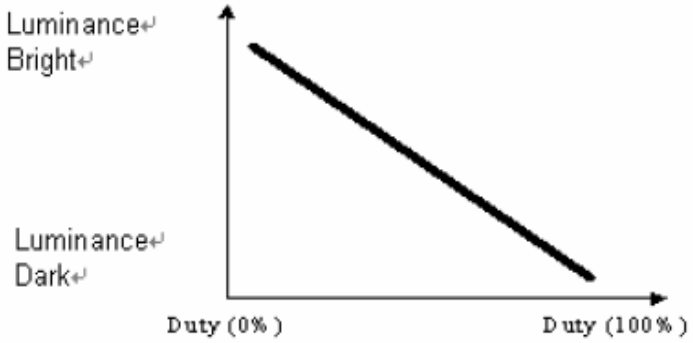
3. Pin assignment

(Connector type: 40 pin_0.5mm pitch/bottom contact)-089N40-000R00-G2

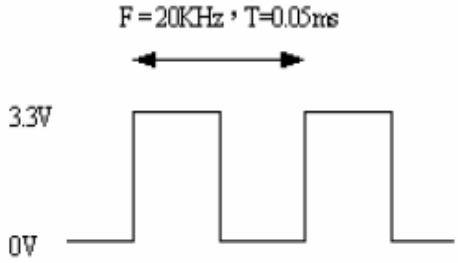
Pin no	Symbol	Description
1	U/D	Up or Down scan control input
2	DMS	Select DE or Sync
3	Hsync	Horizontal SYNC
4~7	VCC	Power supply for digital circuit
8	Vsync	Vertical SYNC
9	DE	Data Enable
10~11	VSS	Power Ground
12	ADJ	Adjust for LED Brightness
13	B5	Blue data (MSB)
14~15	B4~B3	Blue data
16	VSS	Power Ground
17~18	B2~B1	Blue data
19	B0	Blue data (LSB)
20	VSS	Power Ground
21	G5	Green data (MSB)
22~23	G4~G3	Green data
24	VSS	Power Ground
25~26	G2~G1	Green data
27	G0	Green data (LSB)
28	VSS	Power Ground
29	R5	Red data (MSB)
30~31	R4~R3	Red data
32	VSS	Power Ground
33~34	R2~R1	Red data
35	R0	Red data (LSB)
36~37	VSS	Power Ground
38	DCLK	Clock signal
39	VSS	Power Ground
40	L/R	Left or right display control

Remarks：

1).ADJ adjust brightness to control Pin，Pulse duty the more small the more bright



2) ADJ signal =0~3.3V，operation frequency:20KHZ



3) GND Pin must ground contact，can not be floating.

4) U/D and L/R are controled function

L/R	U/D	Function
1	0	Normally display
0	0	Left and Right opposite
1	1	Up and Down opposite
0	1	Left and Right opposite，Up and Down opposite

5) DMS (Selection DE / SYNC mode)

DMS	Function
1	DE Mode
0	SYNC Mode

4. Input signal (Only DE Mode)

4.1 Timing Specification

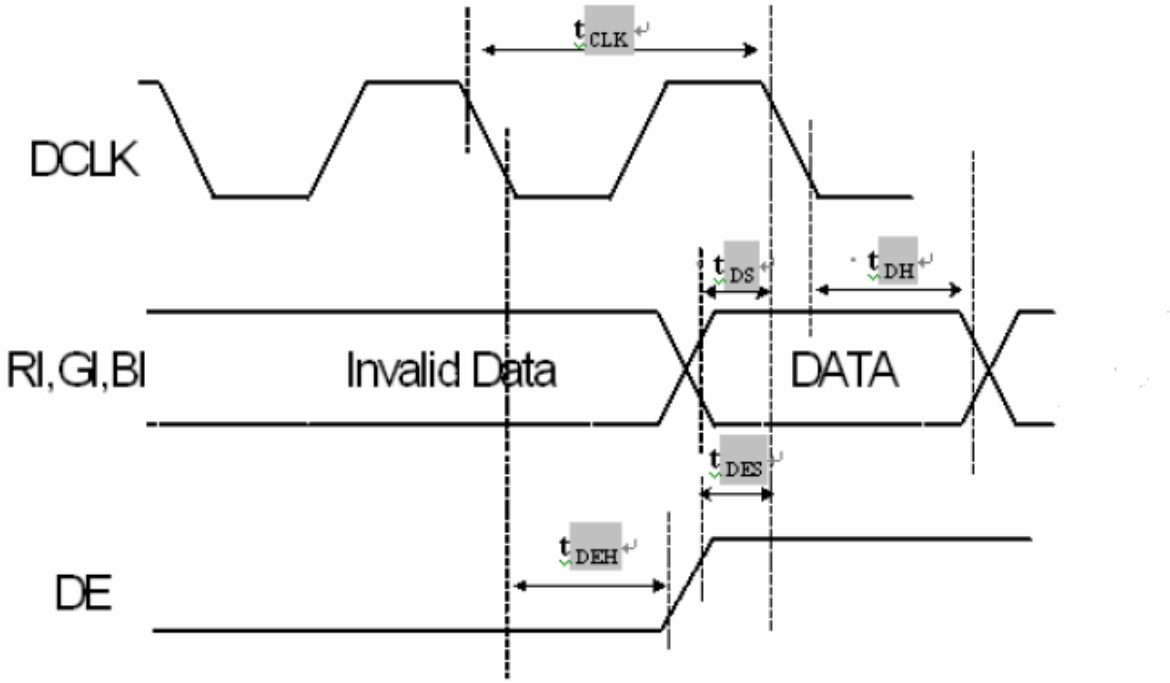
ITEM		SYMBOL	MIN.	TYP.	MAX.	UNIT
DCLK	Period	t_{CLK}	16.67			ns
	Dot Clock	f_{CLK}	5	-	40	MHz
	Low Level Width	t_{WCL}	0.3	-	-	ns
	High Level Width	t_{WCH}	0.3	-	-	
DE	Setup Time	t_{DES}	5	-	-	ns
	Hold time	t_{DEH}	10	-	-	
	Horizontal Period	t_{HP}	750	800	900	t_{CLK}
	Horizontal Valid	t_{HV}	640			
	Horizontal Blank	t_{HBK}	110	160	260	
	Vertical Period	t_{VP}	515	525	560	t_{HP}
	Vertical Valid	t_{VV}	480			
	Vertical Blank	t_{VBK}	35	45	80	
	Vertical Frequency	f_V	55	60	65	Hz
DATA	Setup Time	t_{DS}	4	-	-	ns
	Hold Time	t_{DH}	8	-		

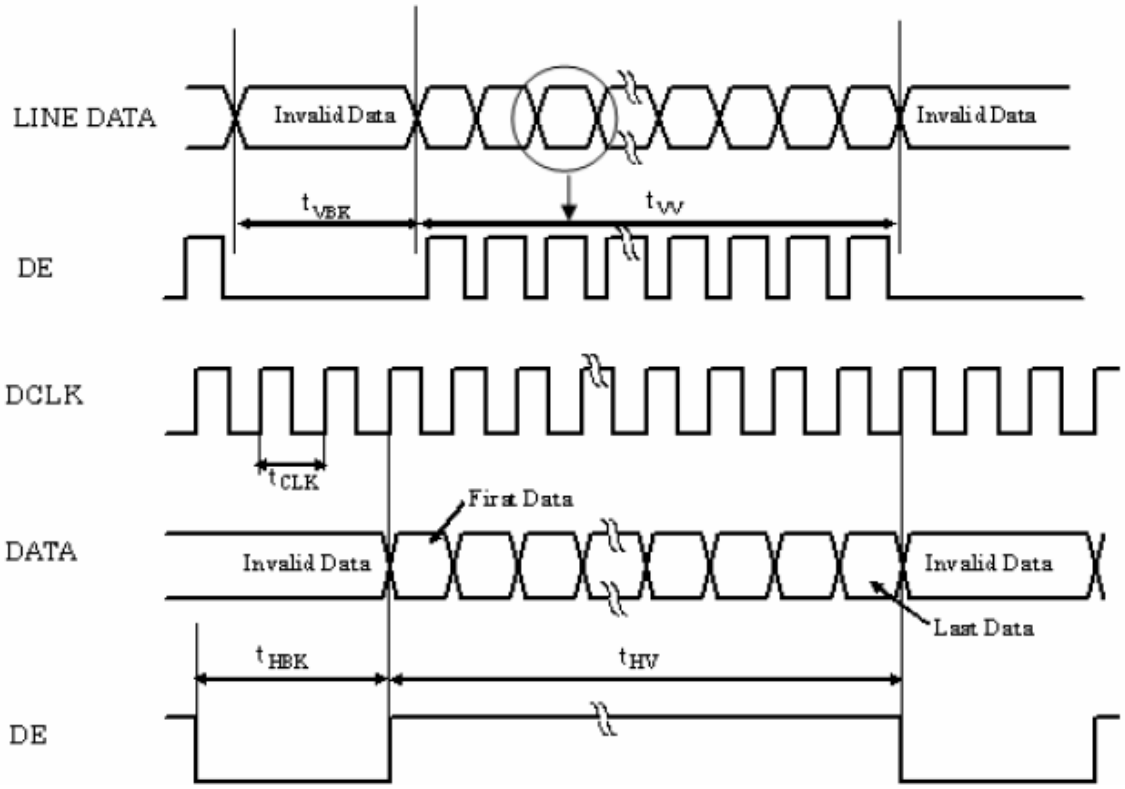
Remarks：

*1) High level of logic signal is 80% ◦ Low level of logic signal is 20% ◦

*2) This module is operated by DE only mode

4.2 Timing Sequence (Timing chart)





4.3 Color data Assignment

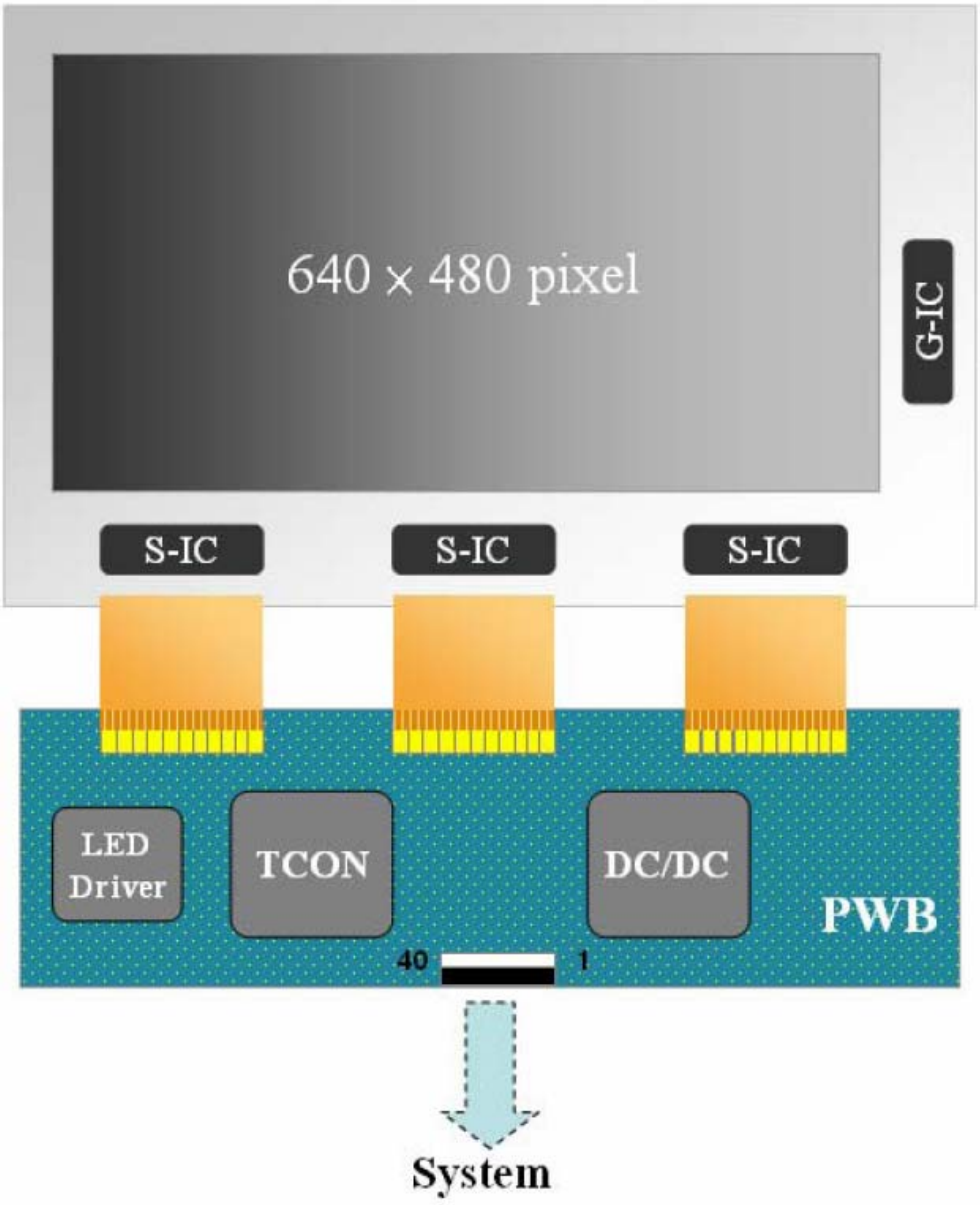
COLOR	INPUT	R DATA						G DATA						B DATA					
	DATA	R5	R4	R3	R2	R1	R0	G5	G4	G3	G2	G1	G0	B5	B4	B3	B2	B1	B0
		MSB					LSB	MSB					LSB	MSB					LSB
	BLACK	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	RED(63)	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0
BASIC	GREEN(63)	0	0	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0
COLOR	BLUE(63)	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1
	CYAN	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1
	MAGENTA	1	1	1	1	1	1	0	0	0	0	0	0	1	1	1	1	1	1
	YELLOW	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0
	WHITE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	RED(0)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	RED(1)	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
	RED(2)	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
RED																			
	RED(62)	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
	RED(63)	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0
	GREEN(0)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	GREEN(1)	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
	GREEN(2)	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
GREEN																			
	GREEN(62)	0	0	0	0	0	0	1	1	1	1	1	0	0	0	0	0	0	0
	GREEN(63)	0	0	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0
	BLUE(0)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	BLUE(1)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	BLUE(2)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
BLUE																			
	BLUE(62)	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	0
	BLUE(63)	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1

Remarks：

(1) Definition of Gray Scale
color(n)：n is series of Gray Scale
The more n value is, the bright Gray Scale.

(2)Data:1-High,0-Low

4.4 Block Diagram

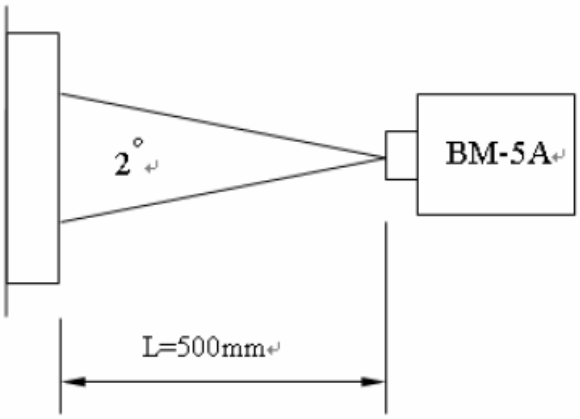


5. Optical Specification

ITEM		SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT	Remarks
Constrast Ratio		CR	Point-5	200	300	--	--	*1)*2)*3)
Luminance		Lw	Point-5	180	220	--	cd/m^2	*1)*3)
Luminance Uniformity		ΔL		70	80	--	%	*1)*3)
Response Time (White - Black)		Tr+ Tf	Point-5	--	30	50	ms	*1)*3)*5)
Viewing Angle	Horizontal	ϕ	CR≧10 Point-5	120	140	--	°	*1)*2)*4)
	Vertical	θ		80	100	--	°	*1)*2)*4)
Color Coordinate	White	Wx Wy	Point-5	0.273 0.289	0.313 0.329	0.353 0.369	--	*1)*3)
	Red	Rx Ry		TBD	TBD	TBD		
	Green	Gx Gy		TBD	TBD	TBD		
	Blue	Bx By		TBD	TBD	TBD		

Remarks：

*1)Measure condition：25℃±2℃，60±10%RH，under10 Lux in the dark room.BM-5A (TOPCON)，viewing angle2°，VCC=3.3V，VDD=3.3V.



*2）Definition of contrast ratio：
Contrast Ratio (CR)= (White) Luminance of ON ÷ (Black) Luminance of OFF

*3) Definition of luminance :

Measure white luminance on the point 5 as figure8-1

Definition of Luminance Uniformity:

Measure white luminance on the point1、2、3、4、5 as figure8-1

△L = [L(MIN)/L(MAX)]×100

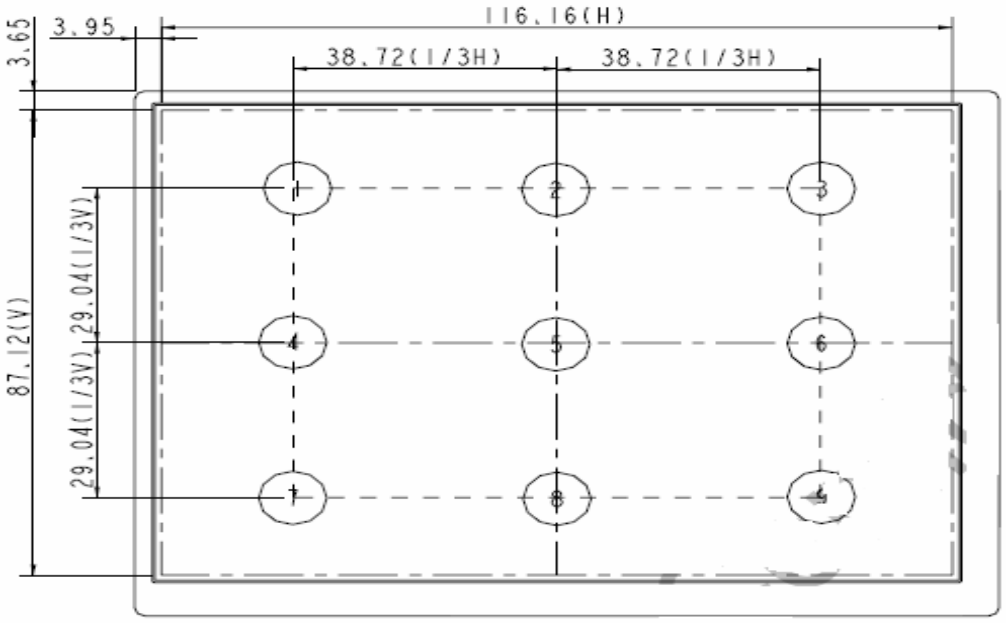


Fig8-1 Measuring point

*4) Definition of Viewing Angle(θ,ψ),refer to Fig8-2 as below :

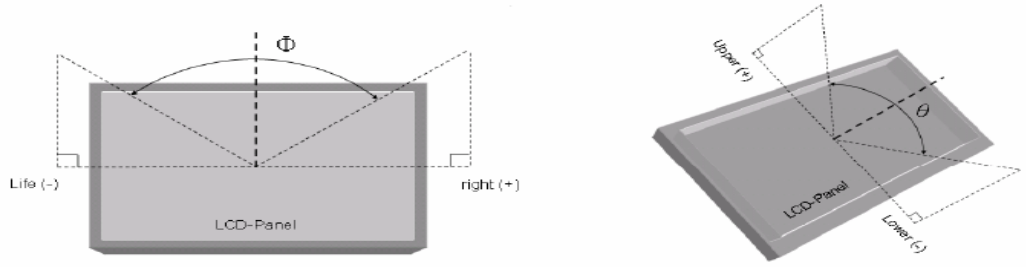
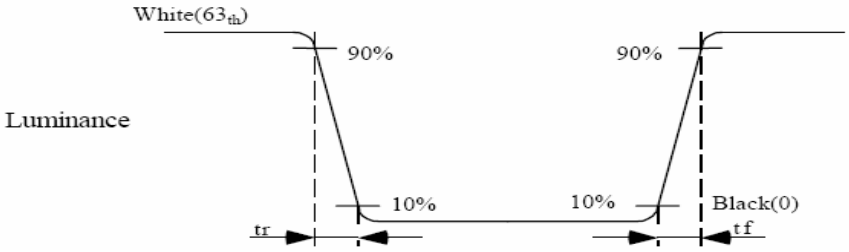


Fig8-2 Definition of Viewing Angle

*5) Definition of Response Time.(White-Black)



6. Touch Panel Specification

*****Item No.: TS056-126101--W4**

6.1Operate Voltage:

Item	Min.	Typ.	Max.	Unit	Remark
Operate Voltage	--	--	5	V	

6.2 Structure & Materials

Structure	Material
ITO Film	0.188 mm (Polish or Anti-glare
ITO Glass	1.1 mm (Normal type)
Input Mode	Pen or Finger
Tail	FPC Tail, Female pins with housing

6.3: General Specification

Frame Size	126.5 mm± 0.3 x 101.2mm± 0.3
View Area	116 mm± 0.2 x 87.5 mm± 0.2
Active Area	115 mm± 0.2 x 85.9 mm± 0.2
Total Thickness	1.4 mm± 0.2
Tail Length	81.5 mm± 1

6.4: Optical Characteristics

Item	Specification
Transparency	72% ~80% @wavelength 550mm
Newton Ring	As per actual sample provide

Note: Transparency & Haze is measured by using BYK- Gardner instrument.

6.5 Reliability Test

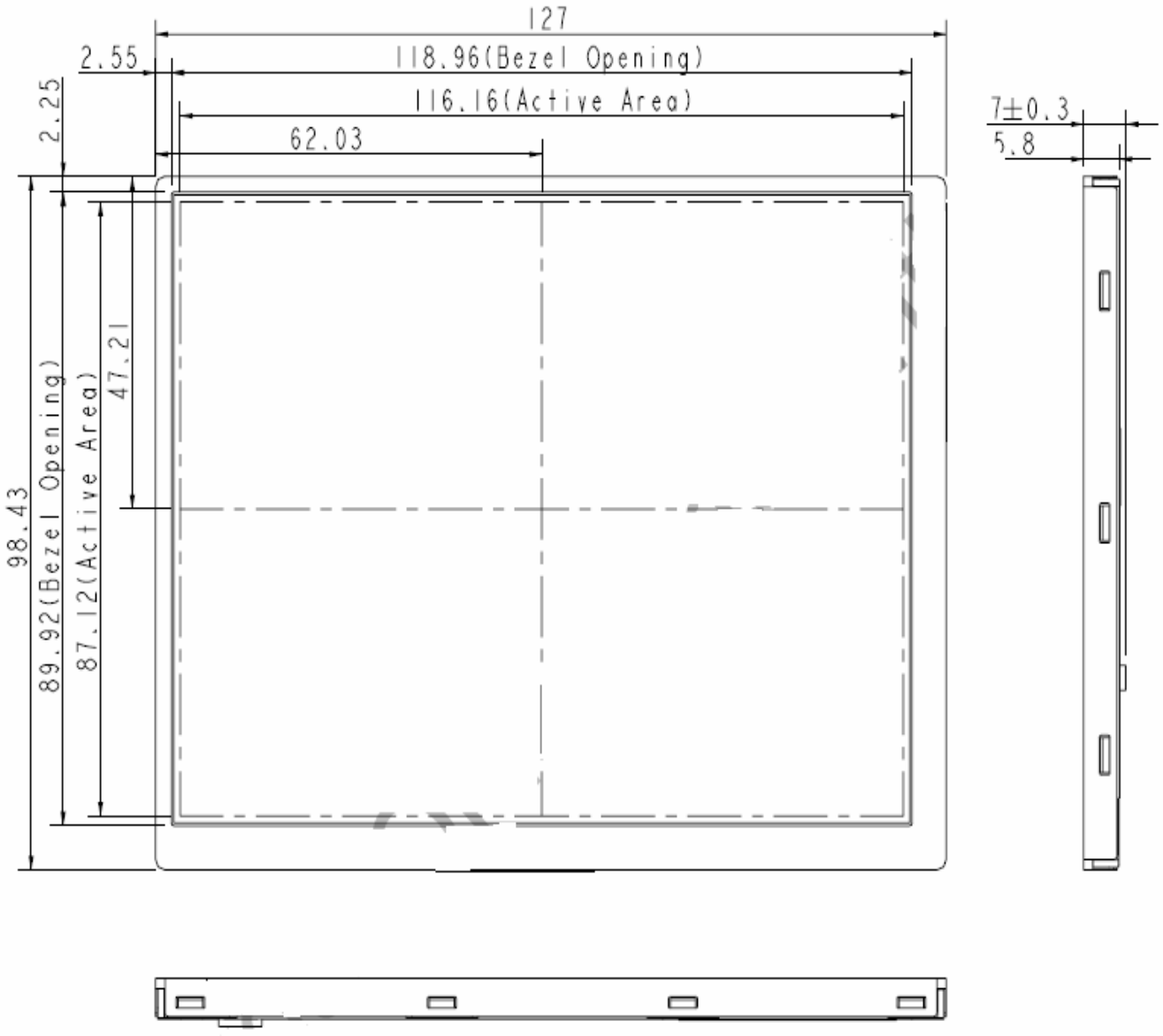
No.	Test Item	Condition	Remarks
1	High temperature storage	Ta= 70℃ 8Hrs	
2	Low temperature storage	Ta= -30℃ 8Hrs	
3	High temperature operation	Tp= 60℃ 8Hrs	
4	Low temperature operation	Ta= -5℃ 8Hrs	
5	High temperature and high humidity	Tp=40℃, 90% RH 8Hrs	

Note1: Ta: Ambient Temperature.
Note2: Tp: Panel Surface Temperature
Note3: In the standard conditions, there is not display function NG issue occurred. All the cosmetic specification is judged before the reliability stress.

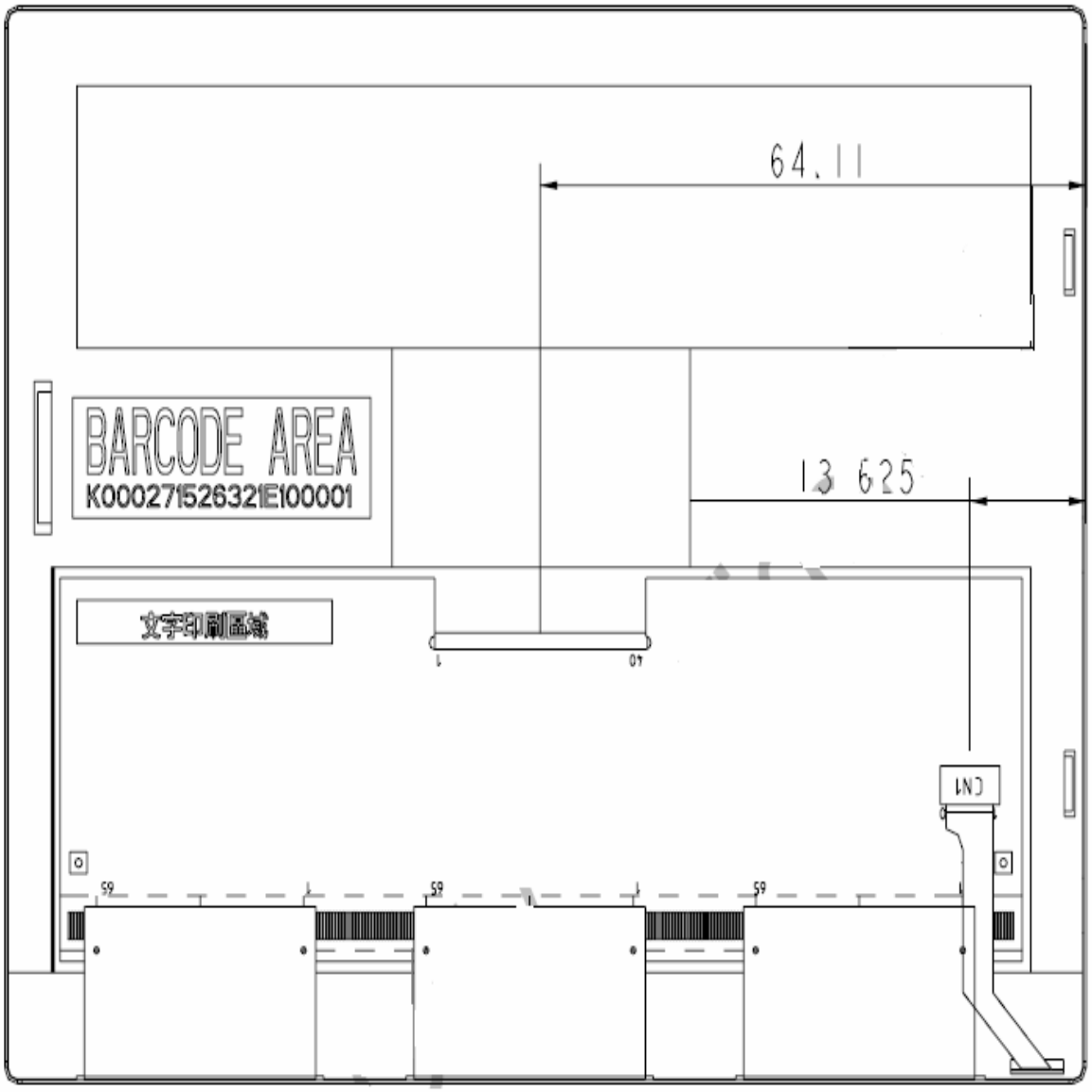
7.Counter Drawing

71: TFT outline dimension (mm)

****Front View**

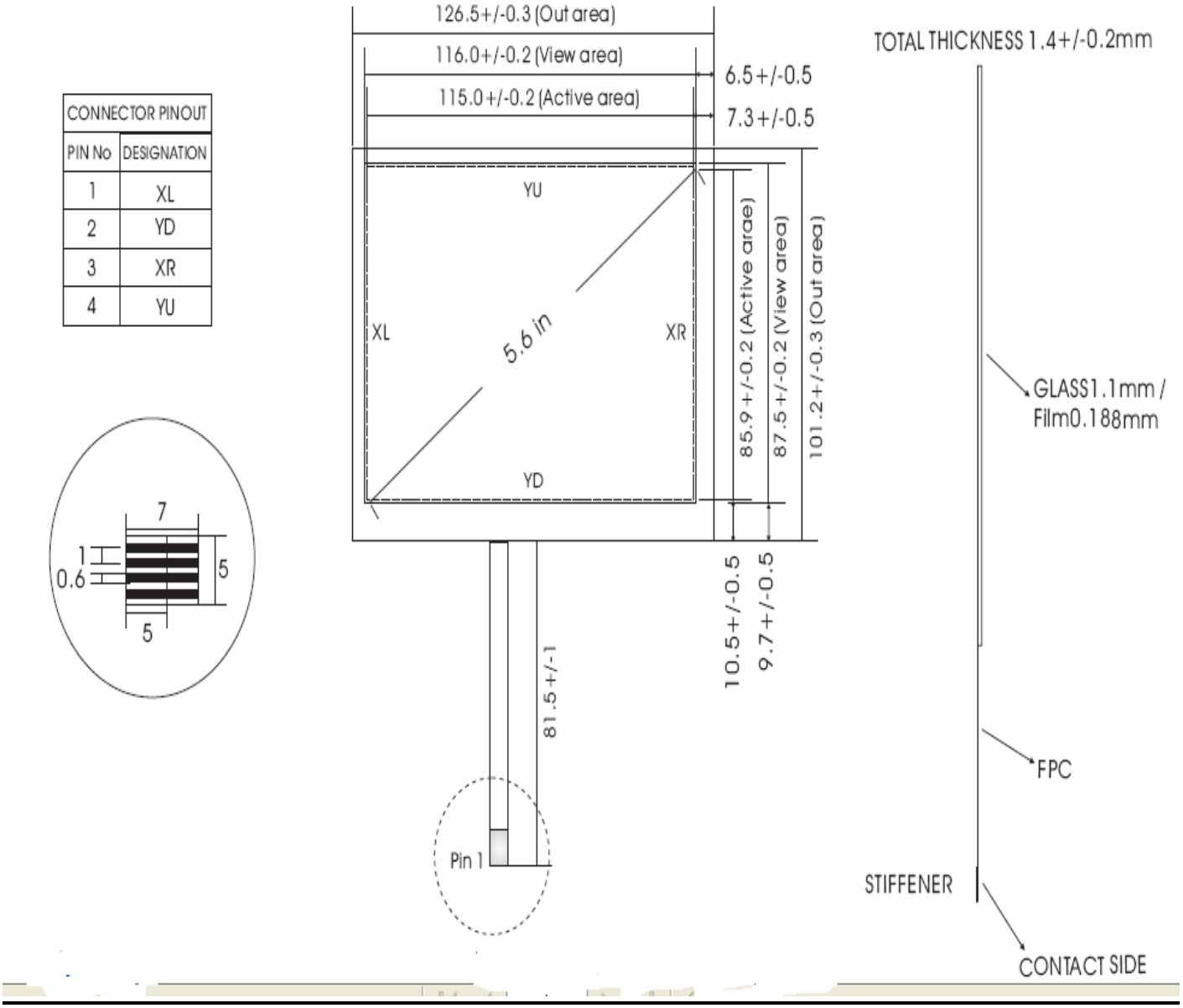


**Rea View



Remark：Un-indication tolerance is ±0.3mm

7.2 Touch panel dimension(mm)



CONNECTOR PINOUT	
PIN No	DESIGNATION
1	XL
2	YD
3	XR
4	YU