



## ASI-T-430FAA3NT/C

No.	Item	Specification
1	Panel Size	4.3
2	Number of Pixels	480(H) x RGB x 272(V)
3	Active Area	95.04(H) x 53.86 (V)
4	Pixel Pitch	0.198(H) x 0.198(V)
5	Outline Dimension	105.5(H)x67.1(W)x4.05(D)
6	Number of Colors	16.7M
7	Pixel Arrangement	RGB Vertical Stripe
8	Display Mode	Normally White TN
9	Brightness	350(TYP)
10	Contrast Ratio	350(TYP)
11	Response time (Tr+Tf)	20(TYP)
12	Viewing Direction	6 o'clock
13	Input Interface	RGB interface
14	Driver IC	HX8257A
15	Panel	F04302-003D
16	Viewing Angle (H/V)	Wide View Angle
17	Backlight unit	LEDx7
18	Surface Treatment(Polarizer)	Hard Coating (SWV)
19	Touch Panel	4 Wire Resistive Touch Panel
20	Weight	-





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ASI-T-430FAA3NT/C

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## 1. General Description

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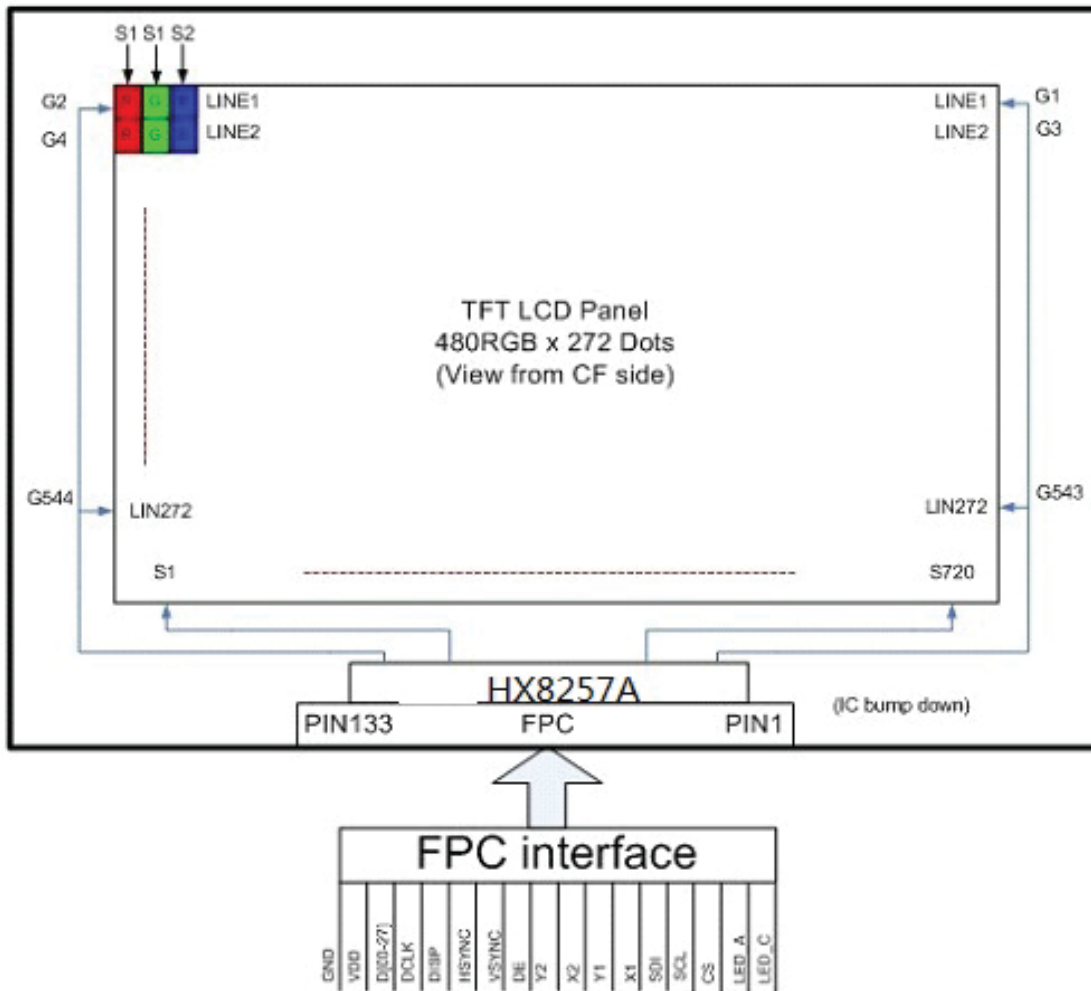
### 1.1 Description

The specifications is a transmissive type color active matrix liquid crystal display (LCD) which uses amorphous thin film transistor (TFT) as switching devices. This product is composed of a TFT LCD panel, driver ICs, FPC, touch Panel, and a backlight unit  
The following table described the features of ASI-T-430FAA3NT/C

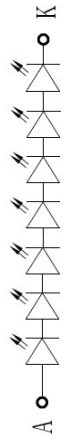
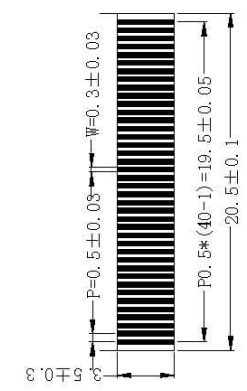
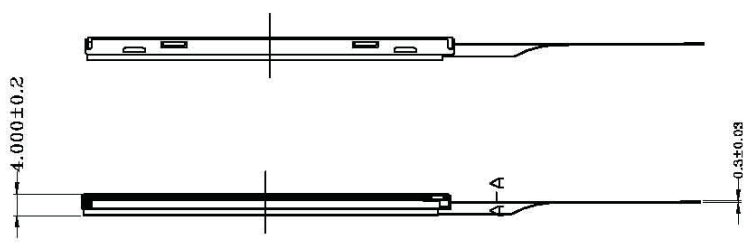
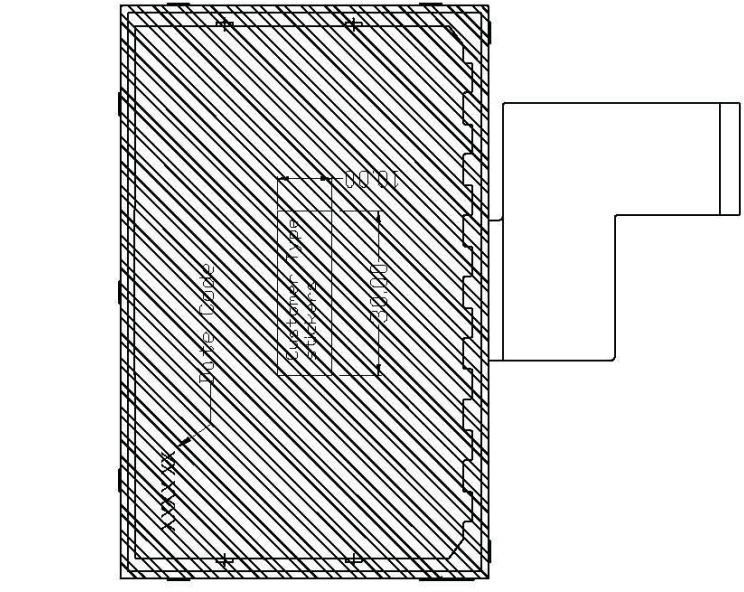
### 1.2 Features:

No.	Item	Specification	Unit
1	Panel Size	4.3	inch
2	Number of Pixels	480(H) x RGB x 272(V)	Pixels
3	Active Area	95.04(H) x 53.86 (V)	mm
4	Pixel Pitch	0.198(H) x 0.198(V)	mm
5	Outline Dimension	105.5(H)x67.1(W)x4.05(D)	mm
6	Number of Colors	16.7M	-
7	Pixel Arrangement	RGB Vertical Stripe	-
8	Display Mode	Normally White TN	-
9	Brightness	350(MIN)	cd/m <sup>2</sup>
10	Contrast Ratio	350(TYP)	-
11	Response time (Tr+Tf)	20(TYP)	ms
12	Viewing Direction	6 o'clock	-
13	Input Interface	RGB interface	-
14	Driver IC	HX8257A	-
15	Panel	F04302-003D	-
16	Viewing Angle (H/V)	Wide View Angle	degree
17	Backlight unit	LEDx7	-
18	Surface Treatment(Polarizer)	Hard Coating (SWV)	-
19	Touch Panel	4 Wire Resistive Touch Panel	-
20	Weight	-	g

## 2. Functional Block Diagram



PIN	FUNCTION
1	VLED-
2	VLED+
3	GND
4	VDD
5	R0
6	R1
7	R2
8	R3
9	R4
10	R5
11	R6
12	R7
13	G0
14	G1
15	G2
16	G3
17	G4
18	G5
19	G6
20	G7
21	B0
22	B1
23	B2
24	B3
25	B4
26	B5
27	B6
28	B7
29	GND
30	PCLK
31	DTSP
32	HSYNC
33	VSYNC
34	TE
35	NC
36	GND
37	X1
38	Y1
39	X2
40	Y2

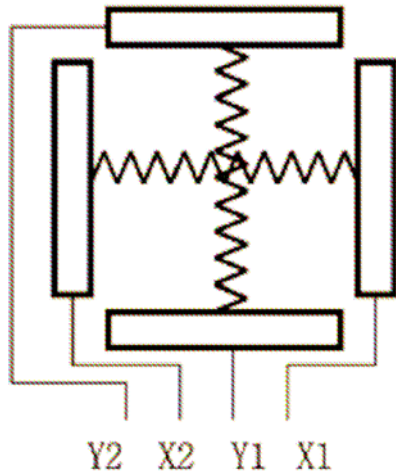


DETAIL "A" (S=3:1)

- NOTES:**
1. DISPLAY TYPE: 4.3TFT, TRANSMISSIVE
  2. VIEWING DIRECTION : 6 O' CLOCK
  3. Top : -20° C ~ 70° C, Tst : -30° C ~ 80° C

### 3 . Touch Screen Panel Specification

#### .1 Block Diagram



Top View

X : Upper electrode

Y : Lower electrode

Pin No.	Symbol	I/O	Function
1	X1	Right	Right electrode - differential analog
2	Y1	Bottom	Bottom electrode - differential analog
3	X2	Left	Left electrode - differential analog
4	Y2	Top	Top electrode - differential analog

#### 3 .2 Electrical Characteristics

Item	Min.	Typ.	Max.	Unit	Note
Terminal resistance	100	-	900	$\Omega$	X (Film Side)
	100	-	900	$\Omega$	Y (Glass Side)
Insulation resistance	20	-	-	M $\Omega$	DC 25V
Input voltage	-	5	7	V	
Chattering	-	-	10	ms	100K $\Omega$ pull-up
Transparency	-	80	-	%	JISK7105

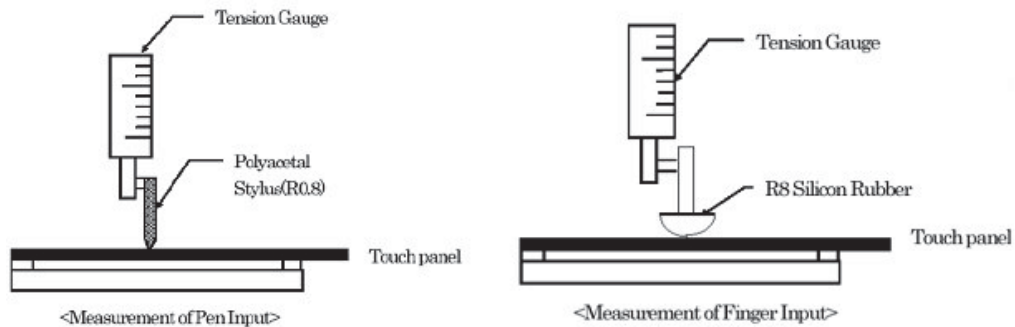
Note: Avoid operating with hard or sharp material such as a ballpoint pen or a mechanical pencil except a polyacetal pen (tip R0.8mm or less) or a finger.

### 3 .3 Mechanical & Reliability Characteristics

Item	Min.	Typ.	Max.	Unit	Note
Activation force	80	-	-	gf	(1)
Durability -surface scratching	Write 100,000	-	-	Characters	(2)
Durability -surface pitting	1,000,000	-	-	touches	(3)
Surface hardness	3	-	-	H	JIS K5400

Note (1) Activation Force Test Condition

1. Input DC 5V on X direction, drop off polyacetal stylus (R0.8), until output voltage stabilized.
2. R0.8mm silicon rubber for finger activation force test.
3. Test points: 9 points.



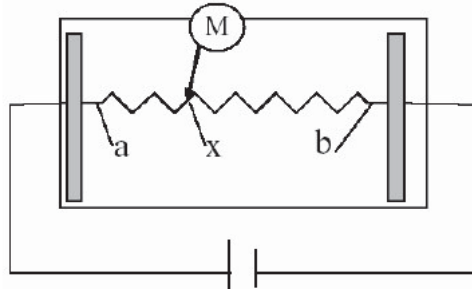
Note (2) Measurement for surface area (Scratching)

1. Scratch 100,000 times straight line on the film with a stylus change every 20,000 times.
2. Force: 250 gf.
3. Speed: 60 mm/sec.
4. Stylus: R0.8 polyacetal tip.

Note (3) Measurement for surface area (Pitting)

1. Pit 1,000,000 times on the film with a R8 silicon rubber.
2. Force: 250 gf.
3. Speed: 2 times/sec.

### 3.4 Linearity Definition



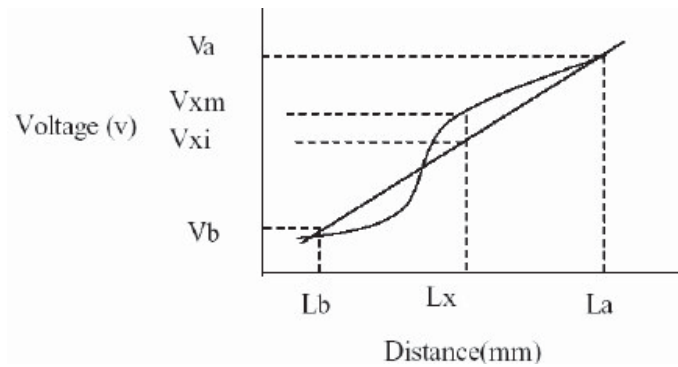
Va: maximum voltage in the active area of touch panel

Vb: minimum voltage in the active area of touch panel

X: random measuring point

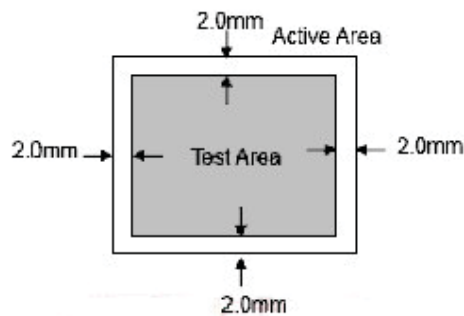
Vxm: actual voltage of Lx point

Vxi: theoretical voltage of Lx point



$$\text{Linearity} = \frac{|V_{xi} - V_{xm}|}{(V_a - V_b)} * 100\%$$

Note: Test area is as follows and operation force is 100gf.



## 4. Pin Description

### 4.1 Interface Pin Description

No.	Symbol	I/O	Function	Remark
1	VLED-	P	Backlight unit (-)	
2	VLED+	P	Backlight unit (+)	
3	GND	P	System Ground	
4	VDD	P	Power Supply Voltage	
5	R0	I/O	Red signal data bus	
6	R1	I/O	Red signal data bus	
7	R2	I/O	Red signal data bus	
8	R3	I/O	Red signal data bus	
9	R4	I/O	Red signal data bus	
10	R5	I/O	Red signal data bus	
11	R6	I/O	Red signal data bus	
12	R7	I/O	Red signal data bus	
13	G0	I/O	Green signal data bus	
14	G1	I/O	Green signal data bus	
15	G2	I/O	Green signal data bus	
16	G3	I/O	Green signal data bus	
17	G4	I/O	Green signal data bus	
18	G5	I/O	Green signal data bus	
19	G6	I/O	Green signal data bus	
20	G7	I/O	Green signal data bus	
21	B0	I/O	Blue signal data bus	
22	B1	I/O	Blue signal data bus	
23	B2	I/O	Blue signal data bus	
24	B3	I/O	Blue signal data bus	
25	B4	I/O	Blue signal data bus	
26	B5	I/O	Blue signal data bus	
27	B6	I/O	Blue signal data bus	
28	B7	I/O	Blue signal data bus	
29	GND	P	System Ground	
30	DCLK	I/O	Dot clock signal	
31	DISP	I/O	Display Mode Contro	
32	HSYNC	I/O	Horizontal synchronous signal	
33	VSYNC	I/O	Vertical synchronous signal	

34	DE	I/O	Data enable signal	
35	NC	-	Not Connect	
36	GND	P	System Ground	
37	X1	I	Touch panel unit (XR)	
38	Y1	I	Touch panel unit (YD)	
39	X2	I	Touch panel unit (XL)	
40	Y2	I	Touch panel unit (YU)	

## 5. Electrical Characteristics

### 5.1 Absolute Maximum Ratings

#### 5.1.1 Electronic Absolute Maximum Ratings

Item	Symbol	Values		Unit	Remark
		Min	Max.		
Power Supply Voltages	VDD	-0.3	5	V	GND=0
Input signal voltage	V <sub>I</sub>	-0.3	VDD+0.3	V	-
LED Forward Voltage	V <sub>F</sub>	3.2		V	One LED
LED Forward Current	I <sub>F</sub>	20		mA	
LED Power Dissipation	P <sub>d</sub>	64		mW	
Storage Temperature	T <sub>ST</sub>	-30	80	°C	
Operating Temperature (Ambient Temperture)	T <sub>opa</sub>	-20	70	°C	

### 5.2 DC Electrical Characteristics

#### 5.2.1 LCD DC Characteristics

Typical Operating Conditions (Ta=25°C)

Item	Symbol	Values			Unit	Remark
		Min	Typ	Max.		
Operating voltage	VDD	1.8	2.8	3.6	V	
Input high voltage	V <sub>IH</sub>	0.8VDD	-	VDD	V	
Input low voltage	V <sub>IL</sub>	0	-	0.2VDD	V	
Output high voltage	V <sub>OH</sub>	0.9VDD	-	VDD	V	
Output low voltage	V <sub>OL</sub>	0	-	0.1VDD	V	
Current Consumption	I <sub>VCC</sub>	-	14.0	-	mA	VCC=2.8V
Power Consumption	P <sub>LCD</sub>	-	46.2	-	mW	

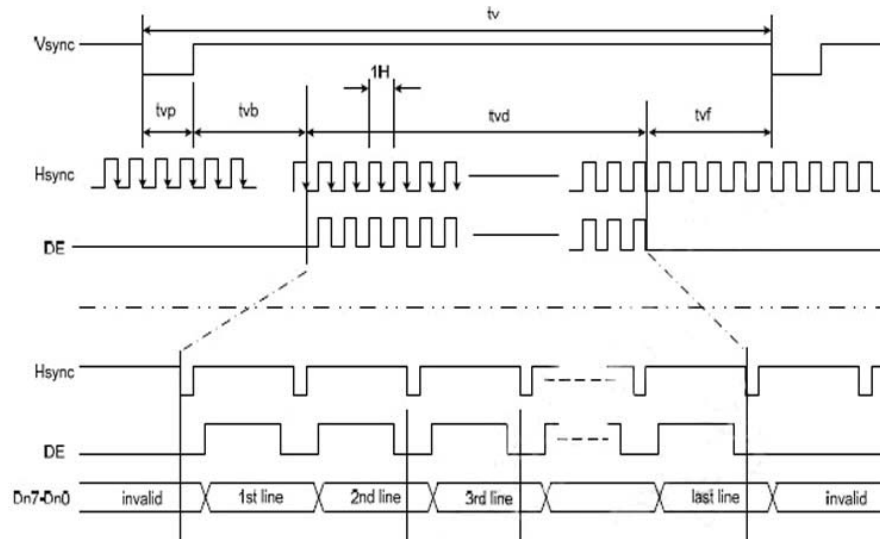
#### 5.2.2 Backlight Unit (GND=0V)

Item	Symbol	Values			Unit	Remark
		Min	Typ	Max.		
LED Voltage	V <sub>L</sub>	21.0	22.4	23.1	V	NOTE2
LED Current	I <sub>F</sub>	18	20	22	mA	NOTE1
Power Consumption	P <sub>LED</sub>	-	448	-	mW	
<p>Note1:LED life time 10000 hour.The LED life time is defined as the module brightness decrease to 50%. Original brightness that the ambient temperature is 25 centigrade and IF = 20mA. The LED lifetime could be decreased if operating IF is larger than 20mA.</p>						
<p>Note2:The LED Supply Voltage is defined by the number of LED at Ta=25centigrade and IF=20mA.</p>						

### 5.3 AC Electrical Characteristics

#### 5.3.1 AC Timing Diagrams

Characteristics	Symbol	Values			Unit	Remark
		Min	Typ	Max.		
Clock cycle	fclk	-	9	15	MHz	
Hsync cycle	1/th	-	17.14	-	KHz	
Vsync cycle	1/tv	-	59.94	-	Hz	
Horizontal Signal						
Horizontal cycle	th	525	525	605	CLK	
Horizontal display period	thd	480	480	480	CLK	
Horizontal front porch	thf	2	2	82	CLK	
Horizontal pulse width	thp	2	41	41	CLK	
Horizontal back porch	thb	2	2	41	CLK	
Vertical Signal						
Vertical cycle	tv	285	286	511	H	
Vertical display period	tvd	272	272	272	H	
Vertical front porch	tvf	1	2	227	H	
Vertical pulse width	tvp	1	10	11	H	
Vertical back porch	Tvb	1	2	11	H	



## 6. Optical Characteristics

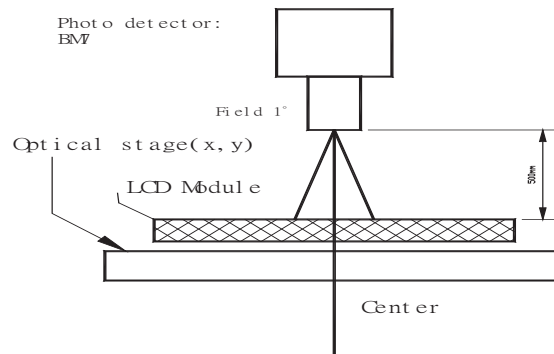
The following items are measured under stable conditions. The optical characteristics should be measured in a dark room or equivalent state with the methods shown in Note.1.

### 6.1 Main LCD Optical Characteristics(Including TouchPanel)

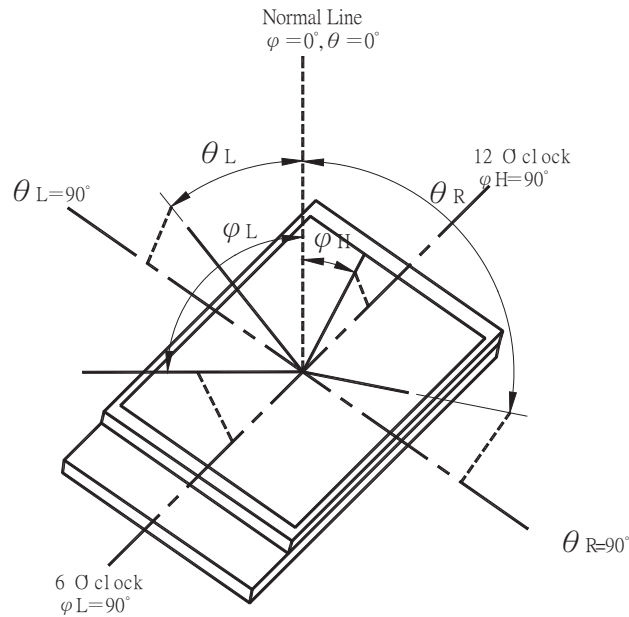
Item	Symbol	Condition	Min.	Typ.	Max.	Unit	Remark	
Viewing Angle	Top	$\Phi H$	$CR \geq 10$	-	50	-	degree	Note.2
	Bottom	$\Phi L$		-	55	-		
	Left	$\Theta L$		-	60	-		
	Right	$\Theta R$		-	60	-		
Response time( $T_r+T_f$ )		$\Theta=0$	-	20	-	ms	Note.3	
Uniformity	$\Delta B$	$I_F=20mA$	-	80		%	Note.0	
Brightness		Center	350		410	$cd/m^2$		
Contrast Ratio	CR	At optimized viewing angle	-	350	-	-	Note.4	
Color Chromaticity	White	$X_w$	Viewing normal angle $\Phi, \Theta=0$	TBD	TBD	TBD	-	Note.5
		$Y_w$		TBD	TBD	TBD		
	Red	$X_R$		TBD	TBD	TBD	-	-
		$Y_R$		TBD	TBD	TBD		
	Green	$X_G$		TBD	TBD	TBD	-	-
		$Y_G$		TBD	TBD	TBD		
	Blue	$X_B$		TBD	TBD	TBD	-	-
		$Y_B$		TBD	TBD	TBD		

Note.0:  $\Delta B=B(\min)/B(\max)$

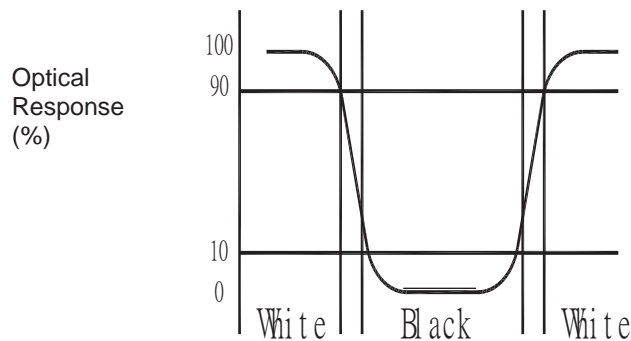
Note.1: After stabilizing and leaving the panel alone at a given temperature for 30 minutes, the measurement should be executed. Measurement should be executed in a stable, windless, and dark room. Optical specifications are measured by Topcon BM-7(fast) with a viewing angle of  $1^\circ$  at a distance of 50cm and normal direction.



Note.2: Definition of Viewing Angle: Refer to figure as below:



Note.3: Definition of Response Time: TR and TF  
 The figure below is the output signal of the photo detector.



Note.4: Definition of Contrast Ratio (CR)  
 Ratio of gray max (G max )& gray min(G min)  
 Contrast ratio (CR) =(G max) / (G min)  
 (G max)=luminance with all pixel white  
 (G min)=luminance with all pixel black

Note.5: Measured at the center area of the panel when all the input terminals of LCD panel are electrically opened.

## **7. Reliability**

**T.B.D**

## **8. Cosmetic Criteria of LCD Screen**

**T.B.D**

## **9. Package**

**T.B.D**

## **10. Precautions for Use**

### **10.1 Safety**

- (1) Do not swallow any liquid crystal, even if there is no proof that liquid crystal is poisonous.
- (2) If the LCD panel breaks, be careful not to get liquid crystal to touch your skin.
- (3) If skin is exposed to liquid crystal, wash the area thoroughly with alcohol or soap.

### **10.2 Storage Conditions**

- (1) Store the panel or module in a dark place where the temperature is  $23\pm 5^{\circ}\text{C}$  and the humidity is below  $50\pm 20\% \text{RH}$ .
- (2) Store in anti-static electricity container.
- (3) Store in clean environment, free from dust, active gas, and solvent.
- (4) Do not place the module near organics solvents or corrosive gases.
- (5) Do not crush, shake, or jolt the module.

### **10.3 Handling Precautions**

- (1) Avoid static electricity which can damage the CMOS LSI.
- (2) The polarizing plate of the display is very fragile. So, please handle it very carefully.
- (3) Do not give external shock.
- (4) Do not wipe the polarizing plate with a dry cloth, as it may easily scratch the surface of plate.
- (5) Do not use ketonics solvent & Aromatic solvent, use with a soft cloth soaked with a cleaning naphtha solvent.
- (6) Do not operate it above the absolute maximum rating.
- (7) Do not remove the panel or frame from the module.
- (8) Please wear clean finger sacks, gloves and mask to protect the products from fingerprint or stain attach, and also hold the portion outside the view area when handling the panel.
- (9) Do not put one product on the other. Otherwise, it may cause the product to be scratched and/or change on cosmetic occur (ex. Newton ring).
- (10) Do not put a heavy, hard or sharp object on the product.

### **10.4 Warranty**

- (1) The period is within twelve months since the date of shipping out under normal using and storage conditions.
- (2) All process and material comply ROHS.