ALL SHORE INDUSTRIES

ASI-T-283DA5SRN/D V 1.1

Item	Contents	Unit
Size	2.83	inch
Resolution	240(RGB) x 320	/
Interface	3-wire SPI &RGB	/
Technology type	a-Si TFT	/
Pixel pitch	0.18x0.18	mm
Pixel Configuration	R.G.B. Vertical Stripe	
Outline Dimension (W x H x D)	49.00x69.00x2.6	mm
Active Area	43.2 x 57.60	mm
Display Mode	Transmissive , Normally white	/
Backlight Type	LED	/
Driver IC	ILI9341	/

Customer Approval

Name:
Title:
Signature:
Date:

Record of Revision

Date	Revision No.	Summary
2014-05-13	1.0	Rev 1.0 was issued
2014-05-19	1.1	Modify 3.0 4.0 5.0 6.0

1. Scope

This data sheet is to introduce the specification of ASI-T-283DA5SRN/D V 1.1 active matrix TFT module. It is composed of a color TFT-LCD panel, driver ICs, FPC and a backlight unit. The 2.83'' display area contains 240(RGB) x 320 pixels.
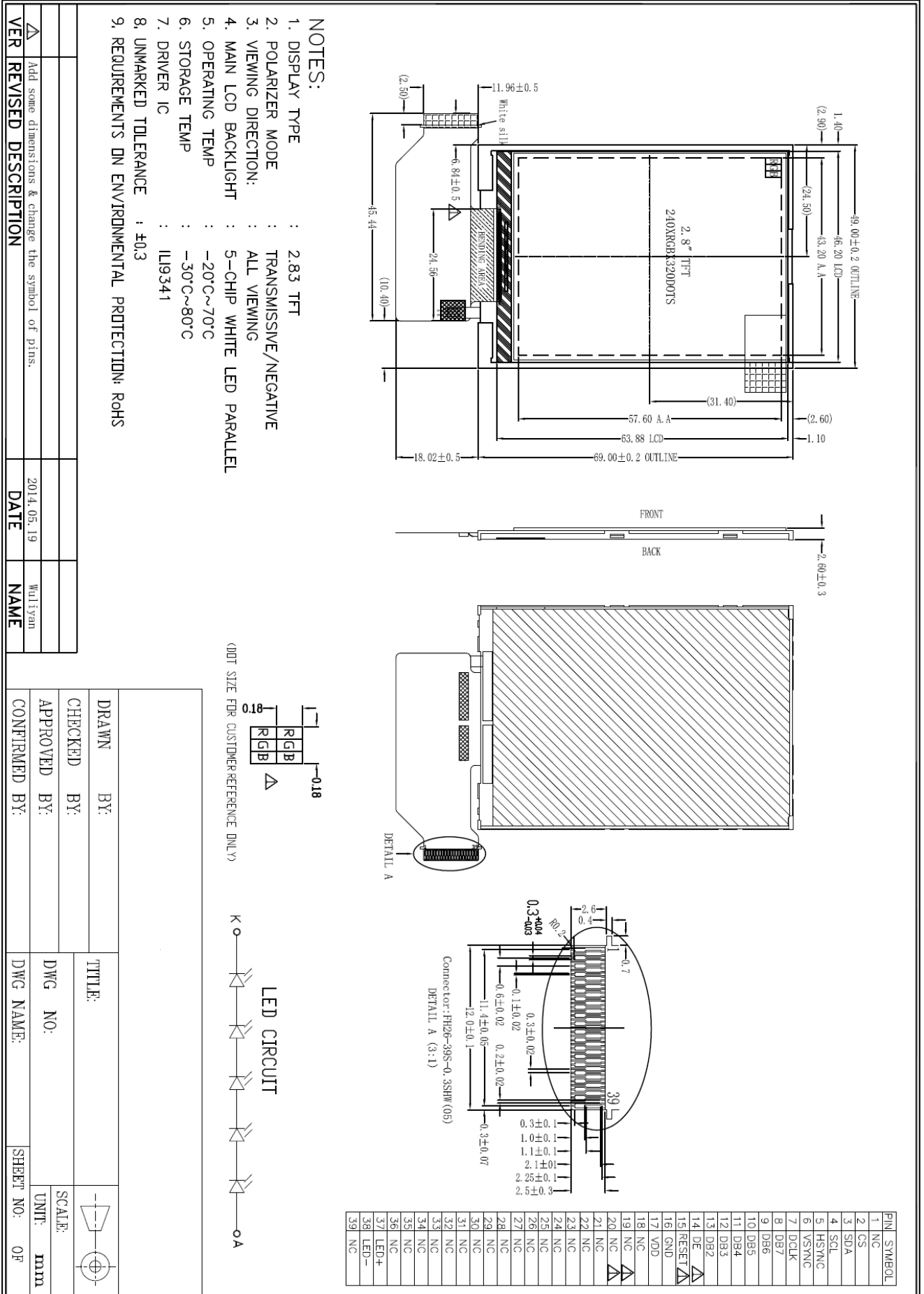
2. Application

Digital equipments which need color display, mobile phone, mobile navigator/video systems.

3. General Information

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Outline Drawing

NOTES:
1. DISPLAY TYPE   : 2.83 TFT
2. POLARIZER MODE   : TRANSMISSIVE/NEGATIVE
3. VIEWING DIRECTION: : ALL VIEWING
4. MAIN LCD BACKLIGHT   : 5-CHIP WHITE LED PARALLEL
5. OPERATING TEMP   : −20°C~70°C
6. STORAGE TEMP   : −30°C~80°C
7. DRIVER IC   : ILI9341
8. UNMARKED TOLERANCE   : ±0.3
9. REQUIREMENTS ON ENVIRONMENTAL PROTECTION: RoHS

2.8″ TFT
240XRGBX320DOTS

DOT SIZE FOR CUSTOMER REFERENCE ONLY

0.18

| R | G | B |
| R | G | B |

0.18

LED CIRCUIT

Connector:FH26-39S-0.3SHW(05)
DETAIL A (3:1)

DETAIL A

FRONT
BACK
2.60±0.3

PIN	SYMBOL
1	NC
2	CS
3	SDA
4	SCL
5	HSYNC
6	VSYNC
7	DCLK
8	DB7
9	DB6
10	DB5
11	DB4
12	DB3
13	DB2
14	DE
15	RESET
16	GND
17	VDD
18	NC
19	NC
20	NC
21	NC
22	NC
23	NC
24	NC
25	NC
26	NC
27	NC
28	NC
29	NC
30	NC
31	NC
32	NC
33	NC
34	NC
35	NC
36	NC
37	LED+
38	LED-
39	NC

VER	REVISED DESCRIPTION	DATE	NAME
	Add some dimensions & change the symbol of pins.	2014.05.19	Wuliyan

DRAWN   BY:
CHECKED   BY:
APPROVED   BY:
CONFIRMED BY:

TITLE:
DWG   NO:
DWG NAME:

SCALE:
UNIT: mm
SHEET NO: OF

5. Interface signals

NO	Symbol	Description	Remark
1	NC	No connect	
2	CS	SPI enable	
3	SDA	SPI data input/output	
4	SCL	SPI clock input	
5	HSYNC	Horizontal sync input.(HSD)	
6	VSYNC	Vertical sync input.(VSD)	
7	DCLK	Data clock input.(CLKIN)	
8	DB7	Data input; MSB	
9	DB6	Data input	
10	DB5	Data input	
11	DB4	Data input	
12	DB3	Data input	
13	DB2	Data input	
14	DE	Data enable signal for RGB interface operation.	
15	RESET	Reset signal, it is active low.	
16	GND	Power ground	
17	VDD	Power supply	
18	NC	No connect	
19	NC	No connect	
20	NC	No connect	
21	NC	No connect	
22	NC	No connect	

23	NC	No connect	
24	NC	No connect	
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	NC	No connect	
32	NC	No connect	
33	NC	No connect	
34	NC	No connect	
35	NC	No connect	
36	NC	No connect	
37	LED+	LED power anode	
38	LED-	LED power cathode	
39	NC	No connect	

6. Absolute maximum Ratings

6.1. Electrical Absolute max. ratings

Parameter	Symbol	MIN	MAX	Unit	Remark
Supply Voltage	VDD	-0.3	+4.6	V	

6.2. Environment Conditions

Item	Symbol	MIN	MAX	Unit	Remark
Operating Temperature	TOPR	-20	70	℃	
Storage Temperature	TSTG	-30	80	℃	

7. Electrical Specifications

7.1 Electrical characteristics

GND=0V, Ta=25℃

Item	Symbol	MIN	TYP	MAX	Unit	Remark
Logic Power Supply	VDD	1.65	2.8	3.3	V	
Input Signal Voltage	VIL	0		0.3IOVCC	V	
	VIH	0.7IOVCC		IOVCC	V	
Output Signal Voltage	VOL	0		0.2IOVCC	V	
	VOH	0.8IOVCC		IOVCC	V	

.

7.2 LED Backlight

Ta=25℃

Item	Symbol	MIN	TYP	MAX	Unit	Remark
Forward Current	ILED		20	25	mA	
Forward Voltage	VLED	15.5	16	16.5	V	

Note: Figure below shows the connection of backlight LED.

LED CIRCUIT

K o———▷|———▷|———▷|———▷|———▷|———o A
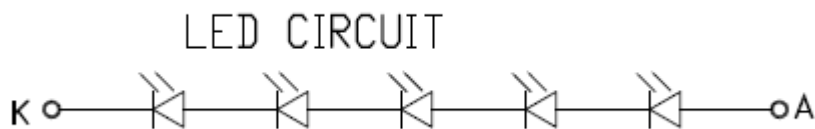
8. Command/AC Timing

8.1 The timing chart of 6-bit RGB interface mode is shown as below

VLW : VSYNC Low Width
HLW : HSYNC Low Width
DTST : Data Transfer Startup Time
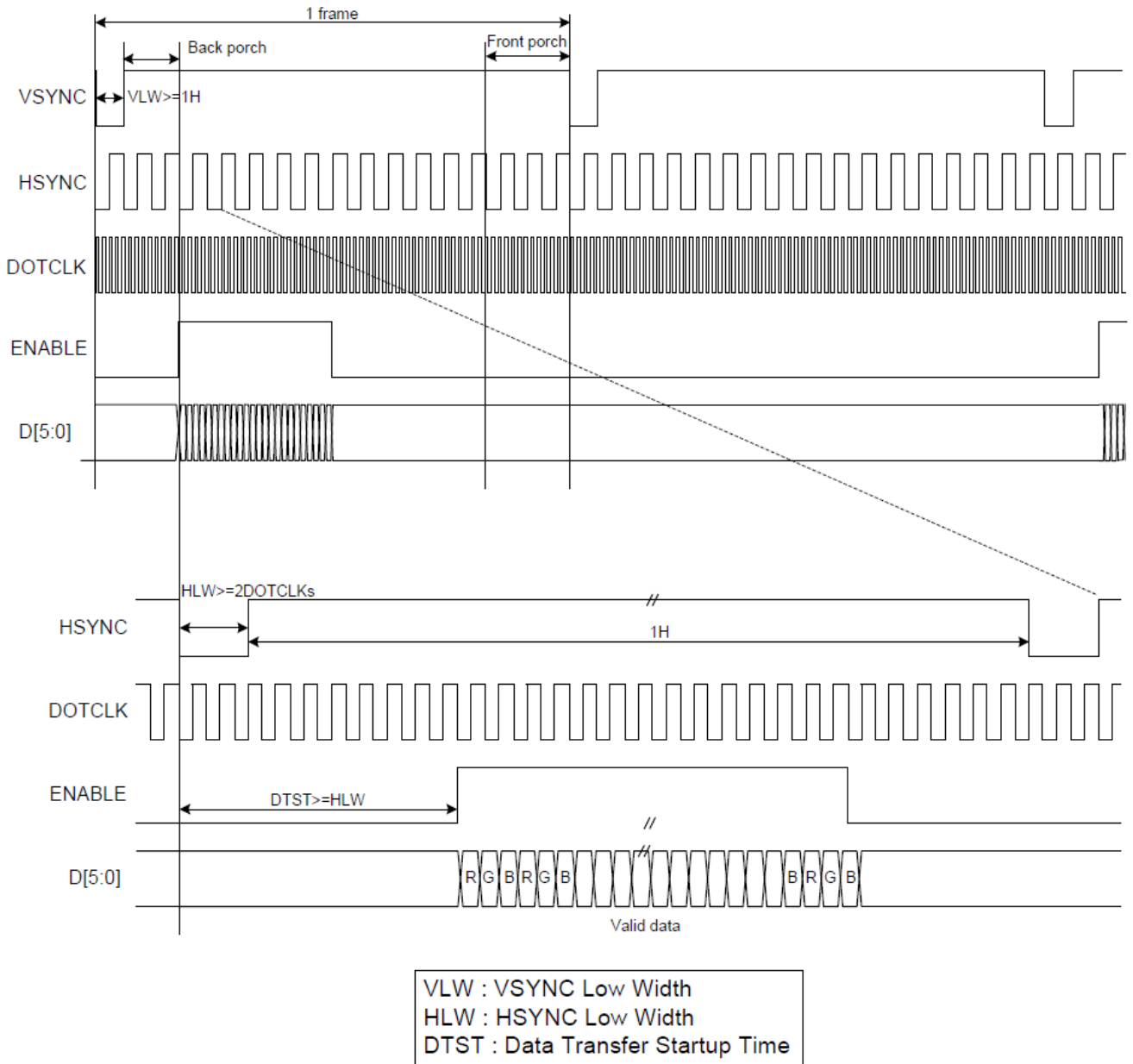
9. Optical Specification

Ta=25℃

Item		Symbol	Condition	Min	Typ.	Max.	Unit	Remark
Contrast Ratio		CR	θ=0°	400	500			Note1 Note2
Response Time		Tr+Tf	25℃		25	30	ms	Note1 Note3
View Angles		θT	CR≧10	60	65		Degree	Note 4
		θB		50	65			
		θL		60	65			
		θR		60	65			
Chromaticity	White	x	Brightness is on		0.298			Note5, Note1
		y			0.354			
	Red	x			0.649			
		y			0.323			
	Green	x			0.289			
		y			0.588			
	Blue	x			0.133			
		y			0.133			
NTSC		S			50		%	Note5
Luminance		L			400		cd/m^2	Note1 Note6
Uniformity		U		80			%	Note1 Note7

Note 1: Definition of optical measurement system.

Temperature = 25℃(±3℃)

LED back-light: ON, Environment brightness < 150 lx
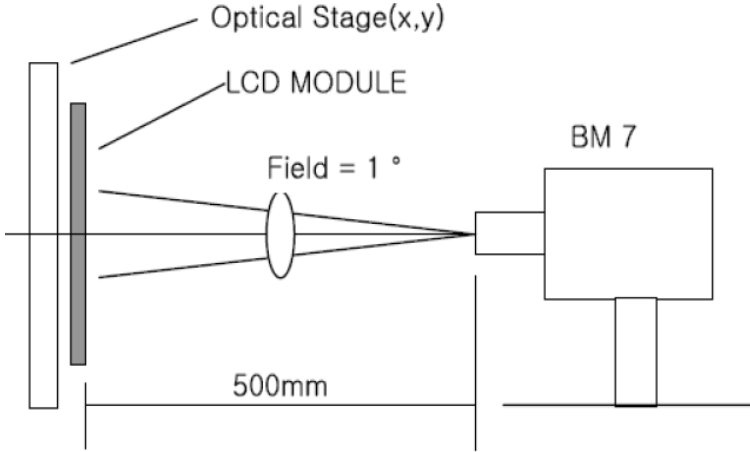
Note 2: Contrast ratio is defined as follow:

$$\text{Contrast Ratio} = \frac{\text{Surface Luminance with all white pixels}}{\text{Surface Luminance with all black pixels}}$$
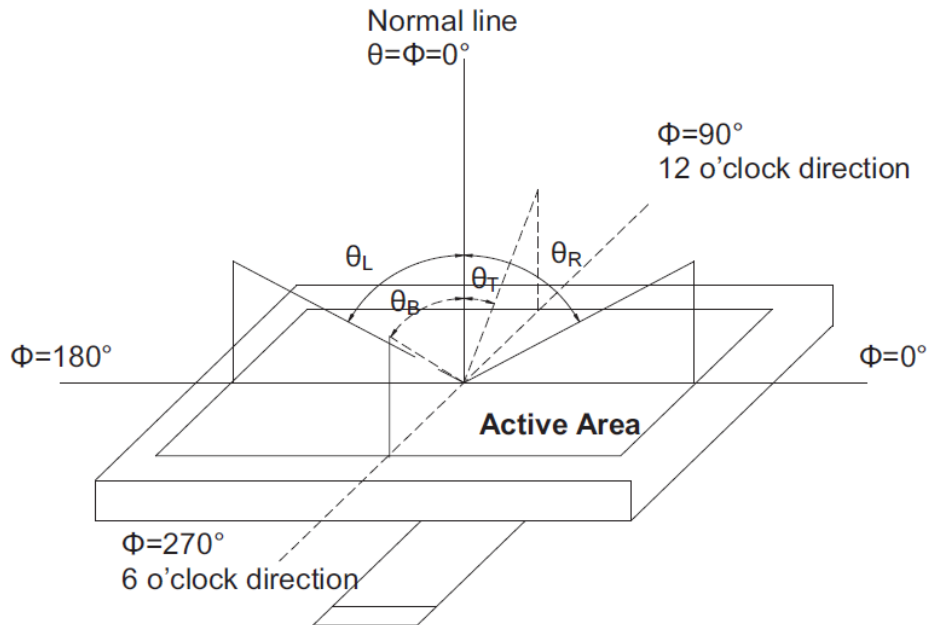
Note 3: Response time is defined as follow:

Response time is the time required for the display to transition from black to white (Rise Time, Tr) and from white to black(Decay Time, Tf).


One Edgewater Plaza, Staten Island, NY 10305 * Tel. 718-720-0018 * Fax. 718-720-0225 * Email: sales@allshore.com
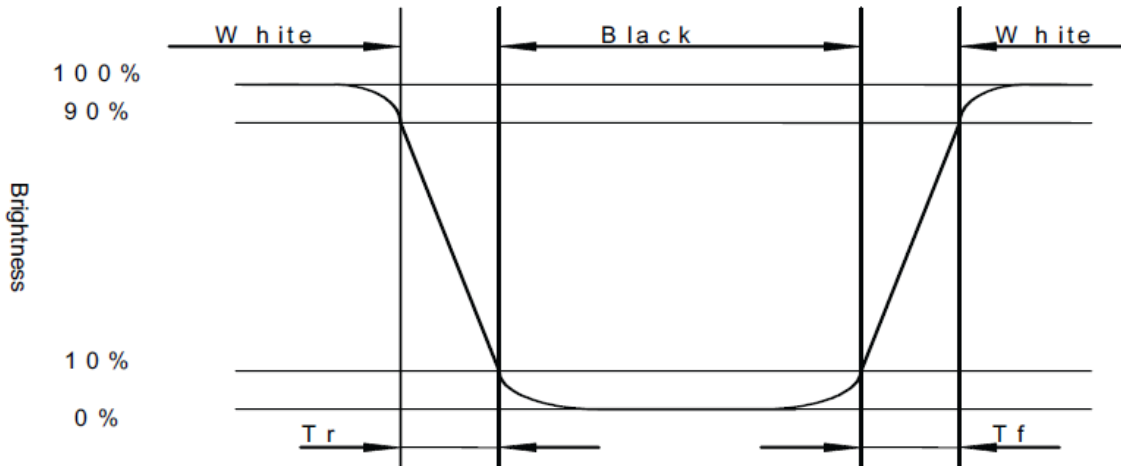
Note 4: Viewing angle range is defined as follow:

Viewing angle is measured at the center point of the LCD.

Normal line
$\theta = \Phi = 0°$

$\Phi = 90°$
12 o'clock direction

θ_L θ_R

θ_B θ_T

$\Phi = 180°$ $\Phi = 0°$

Active Area

$\Phi = 270°$
6 o'clock direction

Note 5: Color chromaticity is defined as follow: (CIE1931)

Color coordinates measured at center point of LCD.

1931 CIE Chromaticity Diagram
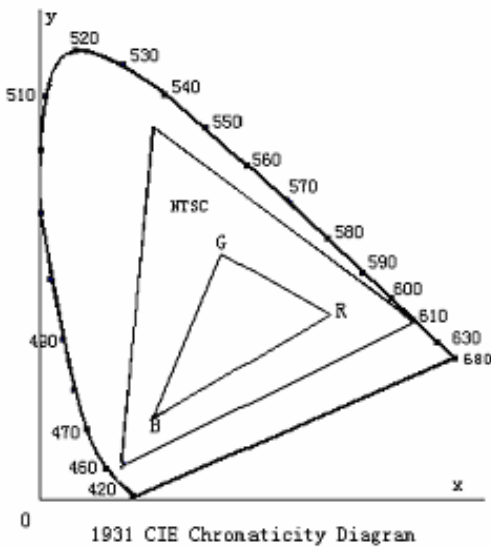
$$S = \frac{area \ of \ RGB \ triangle}{area \ of \ NTSC \ triangle} \times 100\%$$

Note 6: Luminance is defined as follow:

Luminance is defined as the brightness of all pixels "White" at the center of display area on optimum contrast.

Note 7: Luminance Uniformity is defined as follow:

Active area is divided into 9 measuring areas (Refer Fig. 2). Every measuring point is placed at the center of each measuring area.

$$\text{Uniformity (U)} = \frac{\text{Minimum Luminance(brightness) in 9 points}}{\text{Maximum Luminance(brightness) in 9 points}}$$
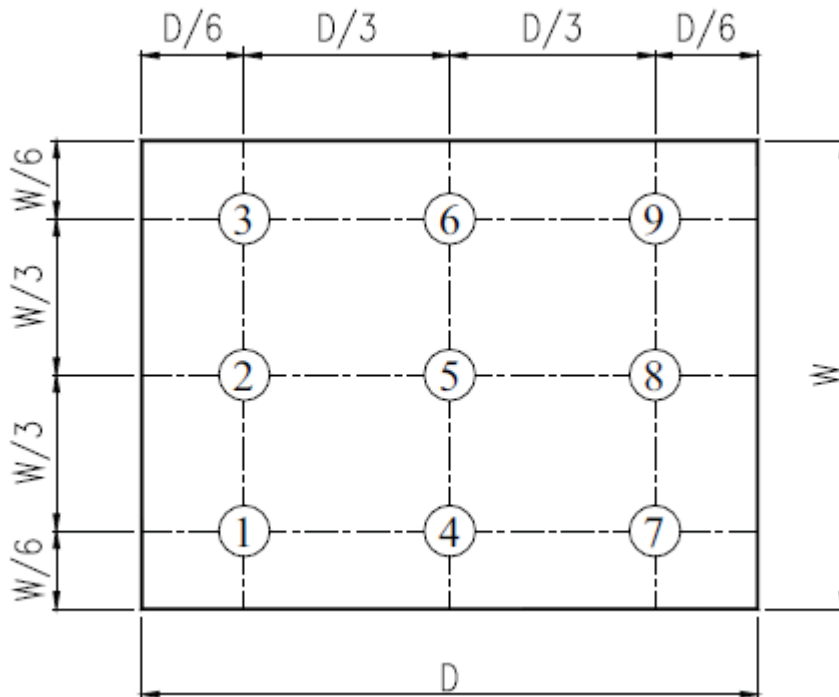
Fig. 2 Definition of uniformity

10. Environmental / Reliability Tests

No	Test Item	Condition	Judgment criteria
1	High Temp Operation	Ts=+70℃, 240hrs	Per table in below
2	Low Temp Operation	Ta=-20℃, 240hrs	Per table in below
3	High Temp Storage	Ta=+80℃, 240hrs	Per table in below
4	Low Temp Storage	Ta=-30℃, 240hrs	Per table in below
5	High Temp & High Humidity Storage	Ta=+60℃, 90% RH 240 hours	Per table in below (polarizer discoloration is excluded)
6	Thermal Shock (Non-operation)	-30℃ 30 min~+80℃ 30 min, Change time:5min, 100 Cycles	Per table in below
7	ESD (Operation)	C=150pF, R=330Ω，5points/panel Air:±8KV, 5times; Contact:±4KV, 5 times;	Per table in below
8	Vibration (Non-operation)	Frequency range:10~55Hz, Stroke:1.5mm Sweep:10Hz~55Hz~10Hz 2 hours for each direction of X.Y.Z.	Per table in below
9	Shock (Non-operation)	60G 6ms, ±X,±Y,±Z 3times, for each direction	Per table in below
10	Package Drop Test	Height:80 cm, 1 corner, 3 edges, 6 surfaces	Per table in below

INSPECTION	CRITERION(after test)
Appearance	No Crack on the FPC, on the LCD Panel
Alignment of LCD Panel	No Bubbles in the LCD Panel No other Defects of Alignment in Active area
Electrical current	Within device specifications
Function / Display	No Broken Circuit, No Short Circuit or No Black line No Other Defects of Display

11. Precautions for Use of LCD Modules

11.1 Safety
The liquid crystal in the LCD is poisonous. Do not put it in your mouth. If the liquid crystal touches your skin or clothes, wash it off immediately using soap and water.

11.2 Handling
A. The LCD and touch panel is made of plate glass. Do not subject the panel to mechanical shock or to excessive force on its surface.

B. Do not handle the product by holding the flexible pattern portion in order to assure the reliability

C. Transparency is an important factor for the touch panel. Please wear clear finger sacks, gloves and mask to protect the touch panel from finger print or stain and also hold the portion outside the view area when handling the touch panel.

D. Provide a space so that the panel does not come into contact with other components.

E. To protect the product from external force, put a covering lens (acrylic board or similar board) and keep an appropriate gap between them.

F. Transparent electrodes may be disconnected if the panel is used under environmental conditions where dew condensation occurs.

G. Property of semiconductor devices may be affected when they are exposed to light, possibly resulting in IC malfunctions.

H. To prevent such IC malfunctions, your design and mounting layout shall be done in the way that the IC is not exposed to light in actual use.

11.3 Static Electricity
A. Ground soldering iron tips, tools and testers when they are in operation.

B. Ground your body when handling the products.

C. Power on the LCD module before applying the voltage to the input terminals.

D. Do not apply voltage which exceeds the absolute maximum rating.

E. Store the products in an anti-electrostatic bag or container.

11.4 Storage
A. Store the products in a dark place at +25℃±10℃ with low humidity (40% RH to 60% RH). Don't expose to sunlight or fluorescent light.

B. Storage in a clean environment, free from dust, active gas, and solvent.

11.5 Cleaning
A. Do not wipe the touch panel with dry cloth, as it may cause scratch.

B. Wipe off the stain on the product by using soft cloth moistened with ethanol. Do not allow ethanol to get in between the upper film and the bottom glass. It may cause peeling issue or defective operation. Do not use any organic solvent or detergent other than ethanol.

11.6 Cautions for installing and assembling
Bezel edge must be positioned in the area between the Active area and View area. The bezel may press the touch screen and cause activation if the edge touches the active area. A gap of approximately 0.5mm is needed between the bezel and the top electrode. It may cause unexpected activation if the gap is too narrow. There is a tolerance of 0.2 to 0.3mm for the outside dimensions of the touch panel and tail. A gap must be made to absorb the tolerance in the case and connector.