



ASI-T-283DA2CN/D

Item	Contents	Unit
Size	2.83	inch
Resolution	240(RGB) x 320	/
Interface	CPU	/
Technology type	a-Si	/
Pixel pitch	0.18x0.18	mm
Pixel Configuration	R.G.B. Vertical Stripe	
Outline Dimension (W x H x D)	50.0x69.2x2.2	mm
Active Area	43.2 x 57.45	mm
Display Mode	Transmissive, Normally white	/
Backlight Type	LED	/
Driver IC	ILI9341	/



ASI-T-283DA2CN/D Ver1.2

1. Scope

This data sheet is to introduce the specification of ASI-T-283DA2CN/D 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.

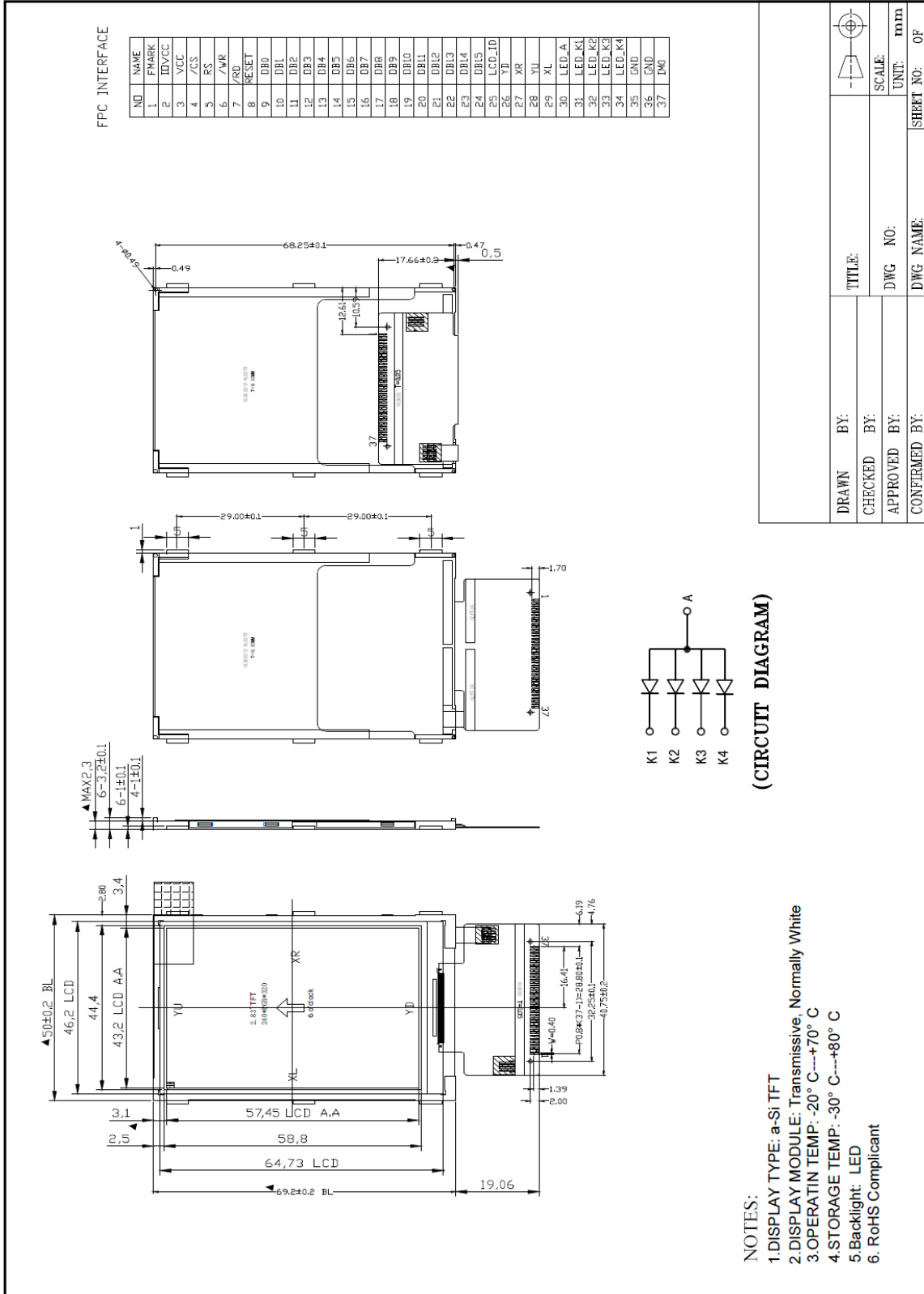
2. Application

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

3. General Information

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4. Outline Drawing



5. Interface signals

NO	Symbol	I/O	Description
1	FMARK	I	Tear Effect Output Pin
2	IOVCC	P	TYP: 1.8V
3	VCC	P	TYP: 2.8V
4	/CS	I	Chip select
5	RS	I	Register select
6	/WR	I	Write Enable
7	/RD	I	Read Enable
8	RESET	I	System Reset
9~16	DB0~DB7	I/O	Low 8 bit Data Bus (please connect to GND)
17~24	DB8~DB15	I/O	High 8 Bit Data Bus
25	NC	/	No Connect
26	YD (NC)	I	Touch panel Bottom Film Terminal
27	XR (NC)	I	Touch panel Right Glass Terminal
28	YU (NC)	I	Touch panel Top Film Terminal
29	XL (NC)	I	Touch panel Left Glass Terminal
30	A	P	Anode pin of Backlight
31	K1	P	Cathode pin of Backlight
32	K2	P	Cathode pin of Backlight
33	K3	P	Cathode pin of Backlight
34	K4	P	Cathode pin of Backlight
35	GND	P	Data bus
36	GND	P	Data bus
37	NC	/	No Connect



6. Absolute maximum Ratings

6.1. Electrical Absolute max. ratings

Parameter	Symbol	MIN	MAX	Unit	Remark
Logic Supply Voltage	VCC	-0.3	+4.6	V	
Input Voltage for Logic	VIN	-0.3	VCC+0.3	V	

6.2. Environment Conditions

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

7. Electrical Specifications

7.1 Electrical characteristics

GND=0V, Ta=25°C

Item	Symbol	MIN	TYP	MAX	Unit	Remark
Logic Power Supply	VCC	1.6	2.8	3.3	V	
Input Signal Voltage	VIL	0	--	0.2xVCC	V	Note
	VIH	0.8xVCC	--	VCC	V	
Output Signal Voltage	VOL	--	--	0.2xVCC	V	
	VOH	0.8xVCC	--	--	V	

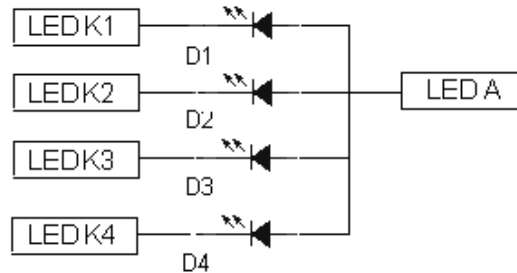
Note: /CS,/RD,/WR,RS, /RESET, Data bus.

7.2 LED Backlight

Ta=25°C

Item	Symbol	MIN	TYP	MAX	Unit	Remark
Forward Current	ILED	--	60	--	mA	4 LEDs (in parallel)
Forward Voltage	VLED	--	3.2	--	V	

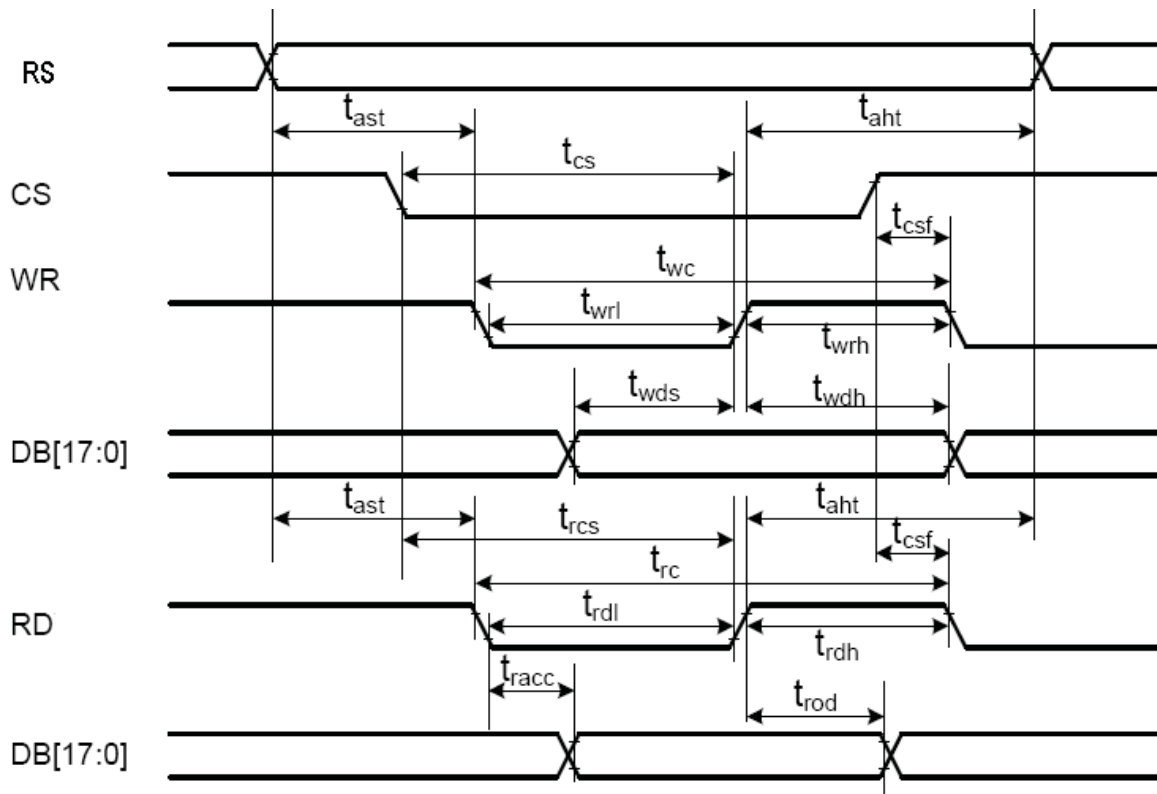
Note: Figure below shows the connection of backlight LED.



8. Command/AC Timing

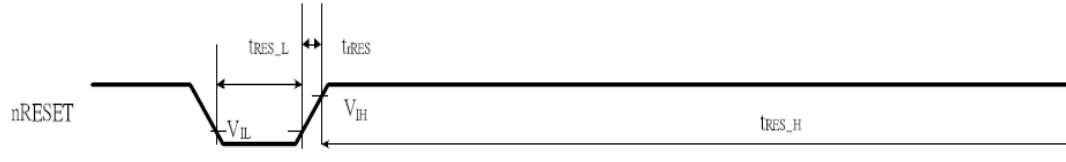
8.1 CPU Interface Timing

Signal	Symbol	Parameter	Min	Max	Unit
RS	tast	Address setup time	0	-	ns
	taht	Address hold time(Write/Read)	10	-	ns
CS	tcs	Chip Select setup time(Write)	15	-	ns
	trcs	Chip Select setup time(Read)	45	-	ns
	tcsf	Chip Select Wait time(Write/Read)	10	-	ns
WR	twc	Write cycle	66	-	ns
	twrh	Write Control pulse H duration	15	-	ns
	twrl	Write Control pulse L duration	15	-	ns
RD	trc	Read cycle	160	-	ns
	trdh	Read Control pulse H duration	90	-	ns
	trdl	Read Control pulse L duration	45	-	ns
DB[17:0]	twds	Write data setup time	10	-	ns
DB[15:0]	twdh	Write data hold time	10	-	ns
DB[8:0]	tracc	Read access time	-	340	ns
DB[7:0]	trod	Read output disable time	20	80	ns



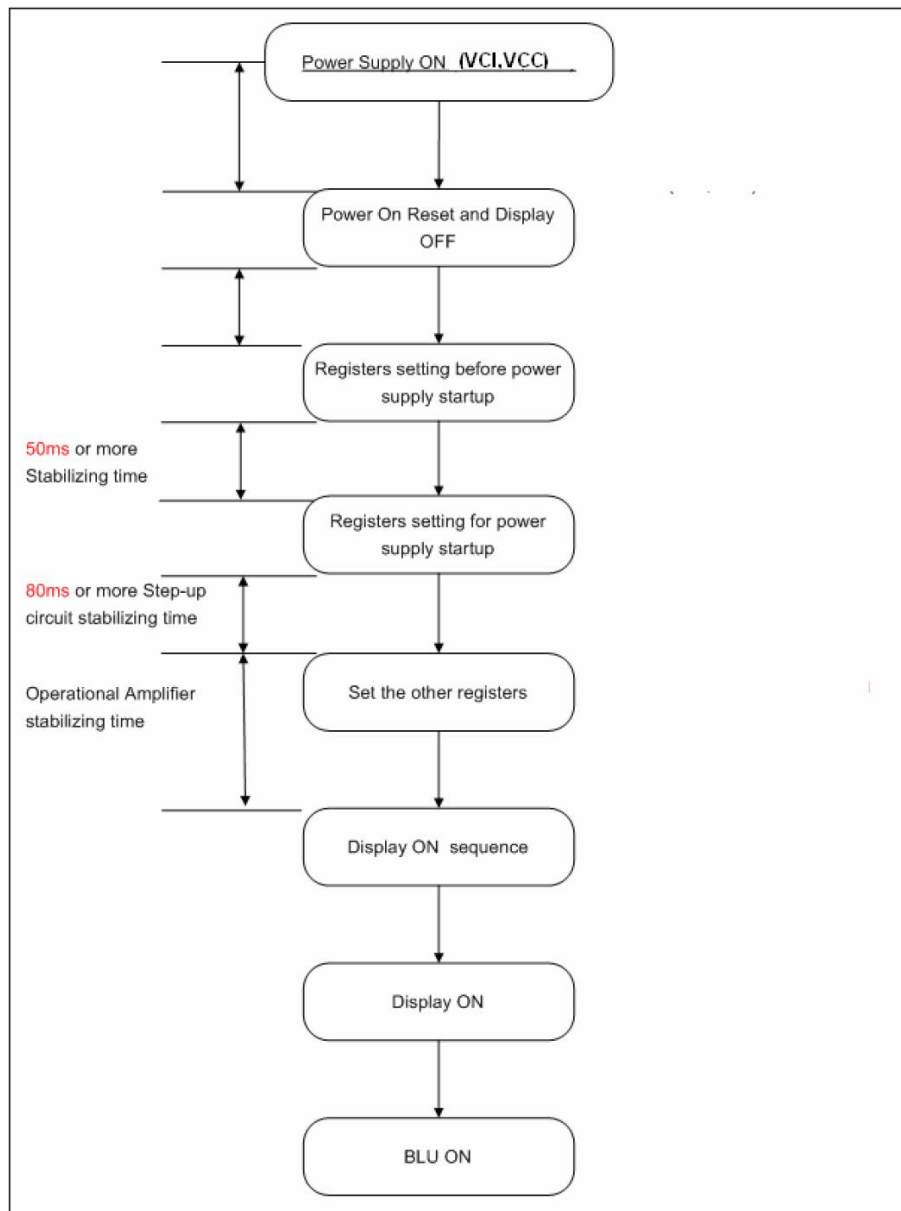
8.2 Reset Timing Characteristics

Item	Symbol	Min.	Typ.	Max.	Unit
RESET low-level width	tRES_L	1	-	-	ms
RESET rise time	trRES	-	-	10	s
Reset high-level width	tRES_H	50			ms

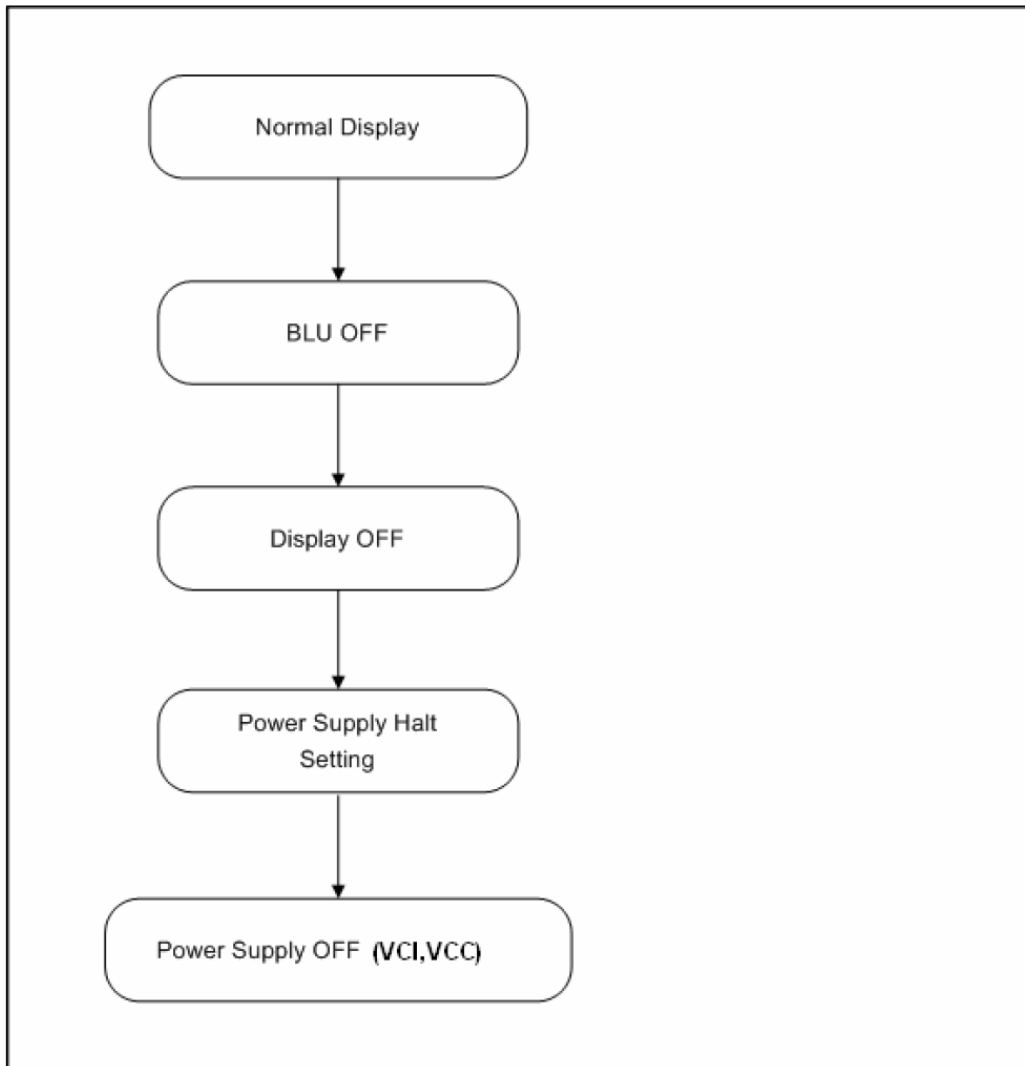


8.3 Power ON/Off Sequence

Power on



Power off



9. Optical Specification

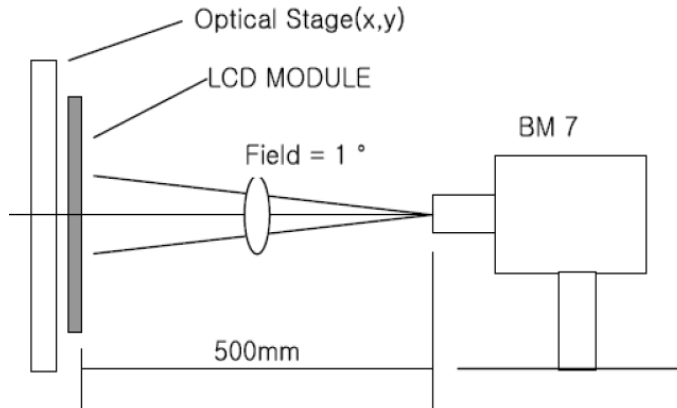
Ta=25°C

Item		Symbol	Condition	Min	Typ.	Max.	Unit	Remark
Contrast Ratio		CR	$\theta=0^{\circ}$	300	400	-		Note1 Note2
Response Time		Tr+Tf	25℃	-	25	35	ms	Note1 Note3
View Angles		θT	$CR \geq 10$		50	-	Degree	Note 4
		θB			35	-		
		θL			45	-		
		θR			45	-		
Chromaticity	White	x	Brightness is on	0.259	0.309	0.359		Note5, Note1
		y		0.295	0.345	0.395		
	Red	x		0.579	0.629	0.679		
		y		0.270	0.320	0.370		
	Green	x		0.240	0.290	0.340		
		y		0.558	0.608	0.658		
	Blue	x		0.094	0.144	0.194		
		y		0.078	0.128	0.178		
NTSC		S		--	50	--	%	Note5
Luminance		L		200	--	--	cd/m ²	Note1 Note6
Uniformity		U		--	80	--	%	Note1 Note7

Note 1: Definition of optical measurement system.

Temperature = 25°C (±3°C)

LED back-light: ON, Environment brightness < 150 lx

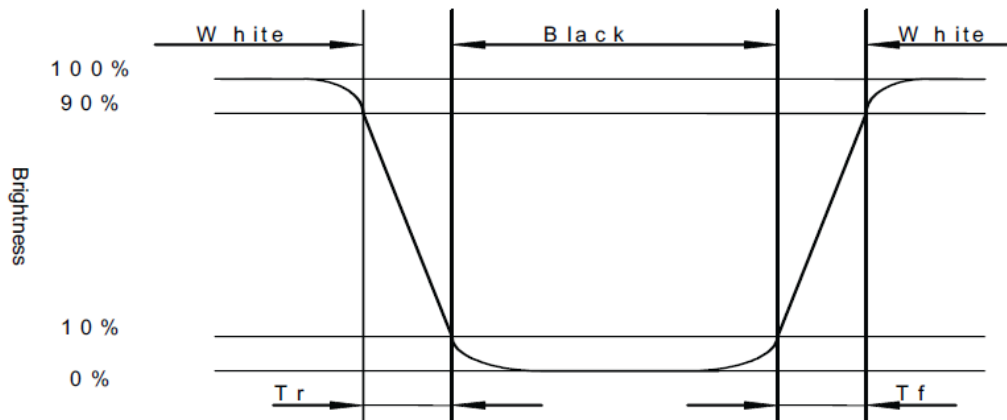


Note 2: Contrast ratio is defined as follow:

$$\text{Contrast Ratio} = \frac{\text{Surface Luminance with all white pixels}}{\text{Surface Luminance with all black pixels}}$$

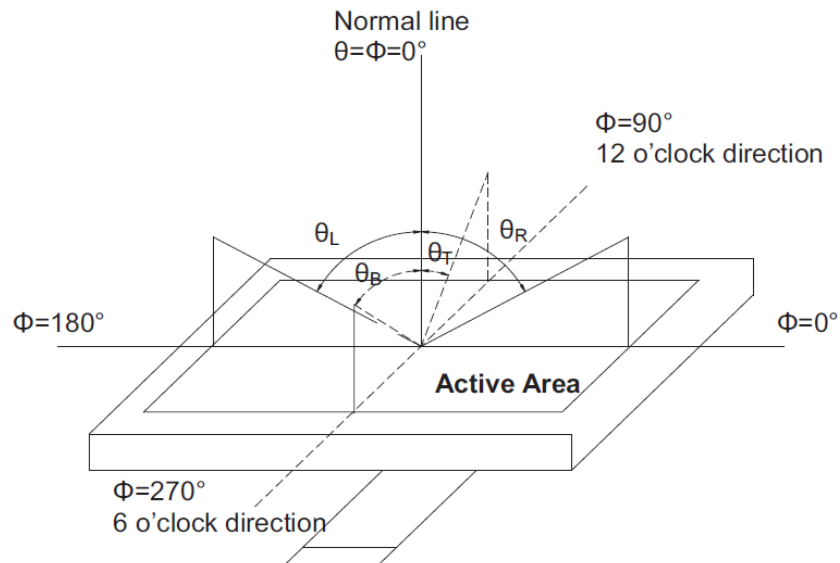
Note 3: Response time is defined as follow:

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).



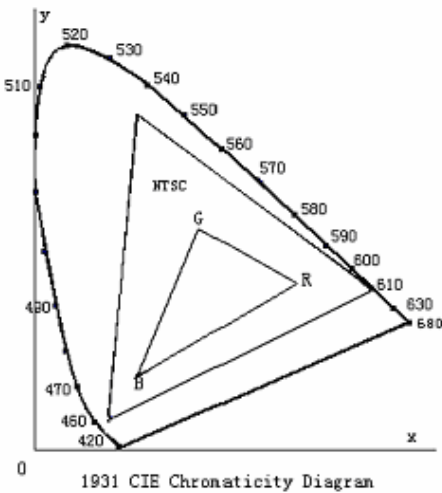
Note Viewing angle ranges defined as follow:

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



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

Color coordinates measured at center point of LCD.



$$S = \frac{\text{area of RGB triangle}}{\text{area of NTSC triangle}} \times 100\%$$

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.

$$\text{Uniformity (U)} = \frac{\text{Minimum Luminance (brightness) in 9 points}}{\text{Maximum Luminance (brightness) in 9 points}}$$

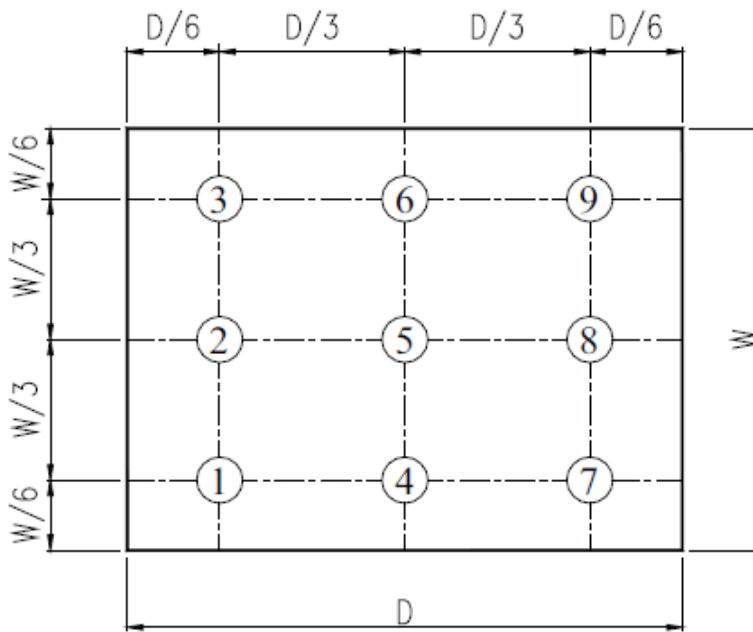


Fig. 2 Definition of uniformity

10. Environmental / Reliability Tests

No	Test Item	Condition	Judgment criteria
1	High Temp Operation	Ts=+70°C, 240hrs	Per table in below
2	Low Temp Operation	Ta=-20°C, 240hrs	Per table in below
3	High Temp Storage	Ta=+80°C, 240hrs	Per table in below
4	Low Temp Storage	Ta=-30°C, 240hrs	Per table in below
5	High Temp & High Humidity Storage	Ta=+60°C, 90% RH 240 hours	Per table in below (polarizer discoloration is excluded)
6	Thermal Shock (Non-operation)	-30°C 30 min~+80°C 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 $+25^{\circ}\text{C} \pm 10^{\circ}\text{C}$ 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.

