Sample Approved Sheet

Model No : BLT1222420I-13A

Customer: _____

Version: A

Date: 2015-02-04

CUSTOMER'S Accept APPROVAL&DATE:_____

CUSTOMER'S APPROVAL :

A: Configuration: ☐ **OK** ☐**NG**

B: Function: ☐ **OK** ☐**NG**

C: Standard for product check: ☐ **OK** ☐**NG**

D: Other: ☐ **OK** ☐**NG**

CUSTOMER'S SIGNATURE &DATE:_____

Engineering by : **Quality by :** **Approvedby :**

Product Specification

Product	Standard LCD Module 240(RGB) x204 Dots graphic type 1.22”TFT 1.6M Transmissive LCD COG bonding type Wide temperature LED back light Without Touch Panel Digital interface

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1. Summary

This technical specification applies to 1.22" color TFT-LCD is a color active matrix thin film transistor (TFT) liquid crystal display(LCD) that uses amorphous silicon TFT as a switching device. It is composed of a TFT LCD panel, a timing controller, voltage reference, common voltage, column driver, and row driver circuit. This TFT LCD has a 1.22-inch diagonally measured active display area with resolution (204 vertical by 240 horizontal pixel array)

2. Features

- **1.22" TFT LCD Panel**
- **LED Light-bar Backlight System**
- **Supported (V:204 lines, H:240 pixels) Resolution**
- **Dual Gate**

3.General Specifications

NO	Item	Contents	Contents	Unit
(1)	Module Outsize(mm)	33.76 x 33.40 x 1.24		mm
(2)	LCD Active area(mm)	33.36(H)x 32.70(V)		mm
(3)	Display resolution(dot)	240 x RGB x 204		dot
(4)	Screen size(inch)	1.22		Inch
(5)	Dot pitch(mm)	0.129(H) x 0.129 (V)		mm
(6)	Color configuration	R.G. B vertical stripe		-
(7)	Support color	16.7 M		-
(8)	Display Mode	Normally Black		-
(9)	Gray Scale inversion	80/80/80/80		-
(10)	LCD type	a-si TFT		-
(11)	Electrical Interface(Logic)	Digital		-
(12)	Weight	--		g
(13)	Panel surface treatment	Anti-Glare		
(14)	White Luminance	500(Min.)		Cd/m^2
(15)	Input Voltage(V)	+2.8 (Typ.)		V

4. Electrical Specifications

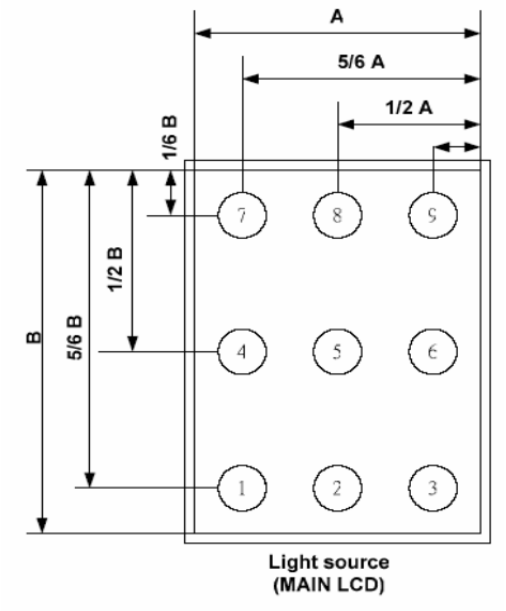
4.1 Electrical Characteristics of LCD (DVDD=3.3 V, Ta=25℃)

Item	Symbol	Condition	Min	TYP	Max	Unit
Supply Voltage	VDD	--	2.4	2.8	3.3	V
Interface Operation Voltage	VDDI	--	1.65	1.8	3.3	
High-level Input voltage	VIHC	AVDD=8.6	0.7Vddi	--	Vddi	V
Low-level Input voltage	VILC	AVDD=8.6	0	--	0.3 Vddi	V
TFT Gate ON voltage	VGH	DVDD=3.3	12.2	--	14.97	V
TFT Gate OFF voltage	VGL	DVDD=3.3	-12.5	--	-7.16	V
Consumption current of LED	ILED	VLED=3.1	--	40	--	mA

1. **Thermal Gradient: -0.05%/℃**

4.2LED Back light specification

Item	Symbol	Condition	Min	TYP	Max	Unit
Forware Voltage	Vf	If=40mA	2.8	**3.1**	**3.4**	V
Reverse Voltage	Vr	--	--	**--**	**--**	V
Forward current	If	--	--	40	--	mA
Power Consumption	PBL	If=40mA	--	124	--	mW
Uniformity (with L/G)	--	If=40mA	80%	--	--	--
Luminous color	White					
Chip connection	2-chip 1-Serial+2-Paralle					



5. Optical characteristics

Main LCD: (Ta = 25°C)

Item		Symbol	Condition	Min	TYP	Max	Unit	Note
Transmittance		T%	Viewing normal angle Θx= Θy =0 °	--	7.1	--	%	NTSC:50% Light :C light
Contrast Ratio		CR		--	1000	--	-	
Response Time		Ton+Toff		--	30	35	ms	
Color chromaticity	White	Xw		0.287	0.302	0.317	-	
		Yw		0.314	0.329	0.344	-	
Viewing Angle	Hor.	ΘL	Center CR≧10	70	85	--	Deg.	
		Θr		70	85	--		
	Ver.	ΘT		70	85	--		
		ΘB		70	85	--		
LCM Brightness	-	L	θ =0°	500	--	--	Nits	Without T/P

*Note(1) Definition of Contrast Ratio(CR):

The contrast ratio can be calculated by the following expression.

Contrast Ratio(CR)=L63/L0

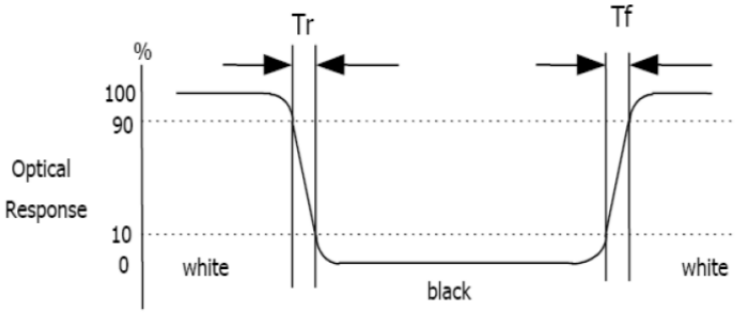
L63: Luminance of gray level 63

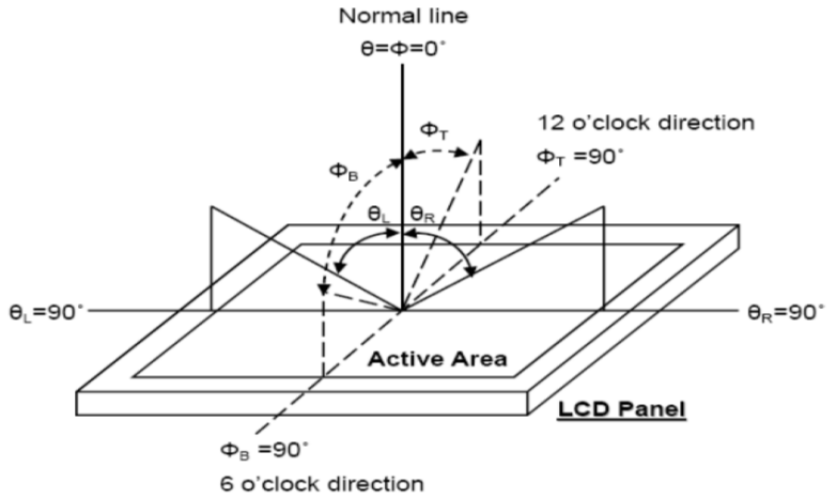
L0: luminance of gray level 0

CR = CR(10)

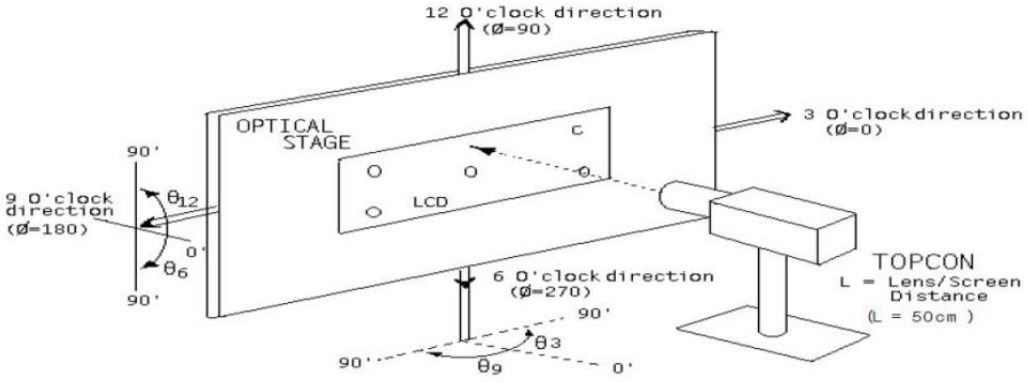
CR(X) is corresponding to the Contrast Ratio of the point X at figure in Note(5).

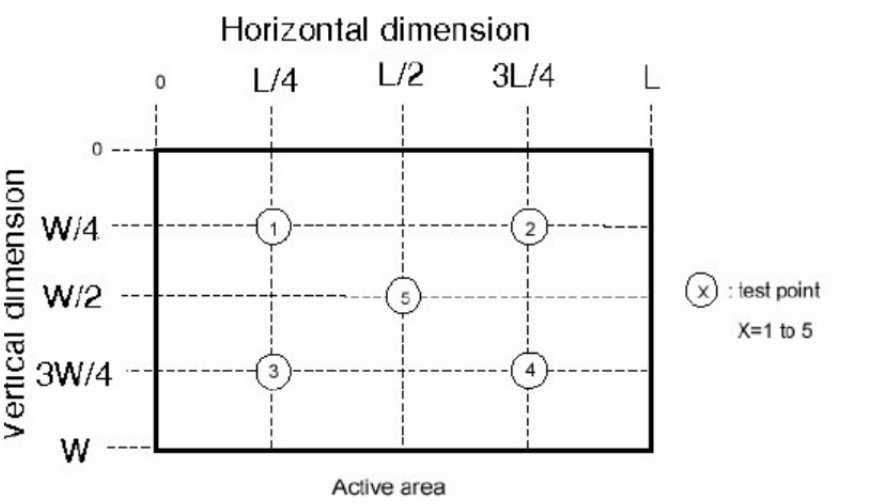
*Note(2) Definition of response time(Tr,Tf):





Note(4) Measurement setup:
The LCD module should be stabilized at a given temperature for 20 minutes to avoid abrupt temperature change during measuring. In order to stabilize the luminance, the measurement should be executed after lighting Backlight for 20 minutes in a windless room.





6. Interface Connector

NO.	Symbol	Description
1	LEDK2	Power for LED backlight (Cathode)
2	LEDK1	Power for LED backlight (Cathode)
3	LEDA	Power for LED backlight (Anode)
4	GND	Ground
5	FMARK	Serves TE (Tearing Effect) output signal
6	DA0	Serial data input/output1
7	DA1	Serial data input2
8	SCL	Serial interface clock
9	CS	Chip selection pin
10	RESET	Global reset pin
11	IOVCC	Power supper(1.8V)
12	VCC	Power supper(2.8V)
13	GND	Ground

7. OUTLINE DIMENSION