



深圳市一众显示科技有限公司

SHEN ZHEN TEAM SOURCE DISPLAY TECH. CO, LTD.

TFT-LCD Module Specification

Module NO.: TST080HDBJ-16

Version: V1.0

APPROVAL FOR SPECIFICATION

APPROVAL FOR SAMPLE

For Customer' s Acceptance:	
Approved by	Comment

Team Source Display:		
Designer	Checked	Approved

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1. LCM Specification

1.1 Description

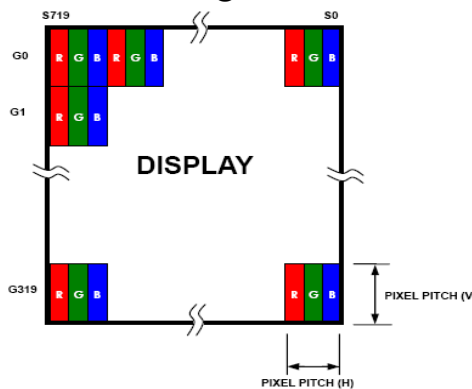
TST080HDBJ-16 is a transmissive type color active matrix liquid crystal display (LCD) which uses amorphous thin film transistor (TFT) as switching devices. This product is composed of a TFT LCD panel, a drive IC, a FPC, and a WLED-backlight unit. The active display area is 8.0 inches diagonally measured and the native resolution is 800*RGB*1280. Features of this product are listed in the following table.

1.2 Functions & Features

Table1.1 Module Functions & Features

Parameter	Value	Unit
LCD Mode	a-Si TFT/transmissive	-
Color	16.7M	-
Display Resolution	800*3(RGB)*1280	pixels
Outline Dimension	114.6(H) *184.1(V) * 2.9MAX(T)	mm
Active Area(A.A)	107.64(H) * 172.22(V)	mm
Pixel Arrangement	RGB-stripe	-
Viewing Direction	Free	
Display Mode	Normally Black	
IC Package Type	COG	-
Surface Treatment	Anti-Glare,Hardness:3H	
Back-light	White LED*21CHIP	pcs
Operation Temperature	-10~50	℃
Storage Temperature	-20~60	℃

Pixel Arrangement



2. Mechanical Specification

LCD Type	8.0" TFT, Transmissive, Normally black
Resolution	800(RGB)*1280
View Direction	All O'CLOCK
Driver IC	JD9366AB
Color Depth	16.7M
Interface Types	MIP1
Operating voltage	3.3V
TPLens	Without
Backlight LEDs	21 LEDs, 140mA, 8~10V
Surface luminance	200(Min) 250 (Typ) cd/m2
Operating temperature	-10 °C ~ 50 °C
Storage Temperature	-20 °C ~ 60 °C
Storage Humidity	60% C 90% max

GENERAL TOLERANCE: ±0.2

Need to pay attention to the key size with *

版本 (Version)	变更记录 (Change History)	日期 (Date)	视角 (View):	比例 (Proportion)	1:1	设计 (DESIGN)	审核 (AUDITING)	批准 (APPROVED)
A0	Initial version	2019.5.15	单位 (Unit):	页 数 (Page):	1 / 1			
	产品型号 (Product Type):		版本 (Version)					
	TST080HDBJ-16		A0					
	2019.5.15							

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PIN:SYMBOL	1 LEDA
	2 LEDA
	3 LEDA
	4 NC
	5 LEDK
	6 LEDK
	7 LEDK
	8 LEDK
	9 GND
	10 GND
	11 MIP1-2P
	12 MIP1-2N
	13 GND
	14 MIP1-1P
	15 MIP1-1N
	16 GND
	17 MIP1-CLR
	18 MIP1-CLN
	19 GND
	20 MIP1-0P
	21 MIP1-0N
	22 GND
	23 MIP1-3P
	24 MIP1-3N
	25 GND
	26 NC
	27 RESET
	28 GND
	29 I/OVCC
	30 VCC
	31 VCC

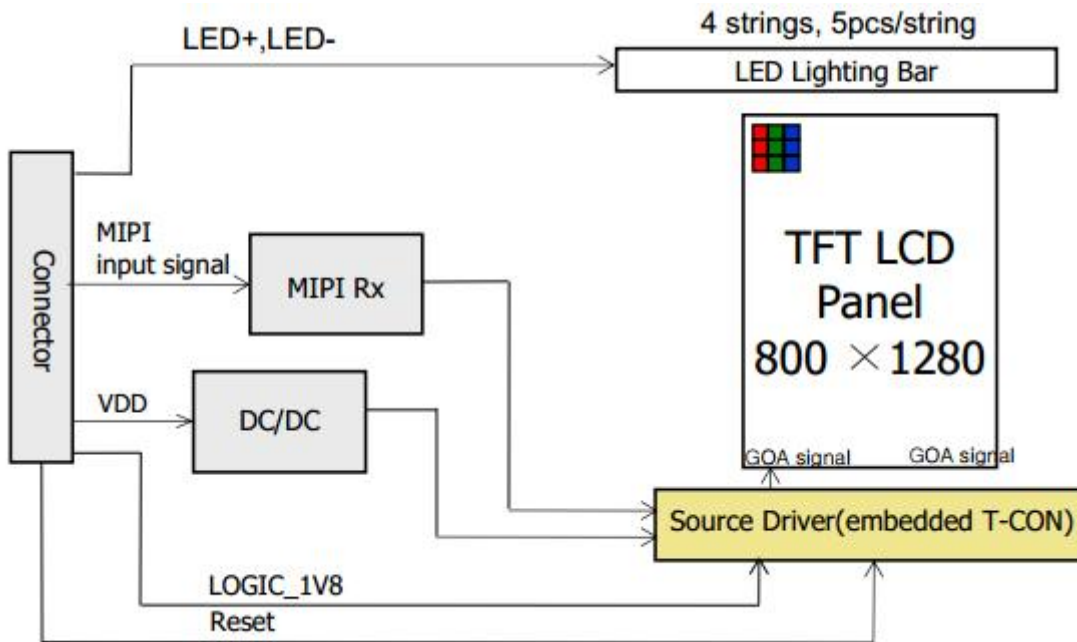
3. Pin Assignment

The electronics interface connector is FH26-31S-0.3SH. The connector interface pin assignments are listed in Table 6.

Pin NO.	Function Descriptions	Symbol
1-3	LED Anode	LEDA
4	Not connect	NC
5-8	LED Cathode	LEDK
9-10	Ground	GND
11	MIPI-DSI data Lane 2 positive-end input/output pin	MIPI_2P
12	MIPI-DSI data Lane 2 negative-end input/output pin	MIPI_2N
13	Ground	GND
14	MIPI-DSI data Lane 1 positive-end input/output pin	MIPI_1P
15	MIPI-DSI data Lane 1 negative-end input/output pin	MIPI_1N
16	Ground	GND
17	MIPI-DSI clock Lane positive-end input pin	MIPI_CLKP
18	MIPI-DSI clock Lane negative-end input pin	MIPI_CLKN
19	Ground	GND
20	MIPI-DSI data Lane 0 positive-end input/output pin	MIPI_0P
21	MIPI-DSI data Lane 0 negative-end input/output pin	MIPI_0N
22	Ground	GND
23	MIPI-DSI data Lane 3 positive-end input/output pin	MIPI_3P
24	MIPI-DSI data Lane 3 negative-end input/output pin	MIPI_3N
25	Ground	GND
26	LCM_ID	ID
27	Reset signal	RESET
28	Ground	GND
29	I/O power supply	IOVCC
30-31	Power supply	VCC

4.ELECTRICAL CHARACTERISTICS

4.1 Introduction



4.2 Electrical Specifications

Parameter	Symbol	Values			Unit	Notes
		Min	Typ	Max		
Power Supply1 Input Voltage	VDD3V3	3	3.3	3.6	Vdc	1
Power Supply1 Ripple Voltage	VRP	0	300	360	mV	
Power Supply1 Current	IVDD3V3	90	125	137	mA	
Power Supply2 Input Voltage	LOGIC1V8	1.7	1.8	1.9	Vdc	
Power Supply2 Current	I_LOGIC1V8	14	15	16	mA	
Power Consumption	@VDD3V3	P_VDD3V3	300.0	415.0	450.0	
	@LOGIC1V8	P_LOGIC1V8	25.2	27.0	28.8	mWatt
	LOGIC TOTAL	P_TOTAL	325.2	442.0	478.8	mWatt
Rush current	IRUSH	-	0.7	1	A	2

Notes : 1. The supply voltage is measured and specified at the interface connector of LCM.
The current draw and power consumption specified is for VDD=3.3V, Frame rate $f_v=60\text{Hz}$ and Clock frequency = 68.4MHz. Test pattern of power supply current is : Typ. and Max. @Red Pattern
2. The duration of rush current is about 2ms and rising time of Power input is 1ms(min)

4.3 Recommended Driving Condition for Backlight

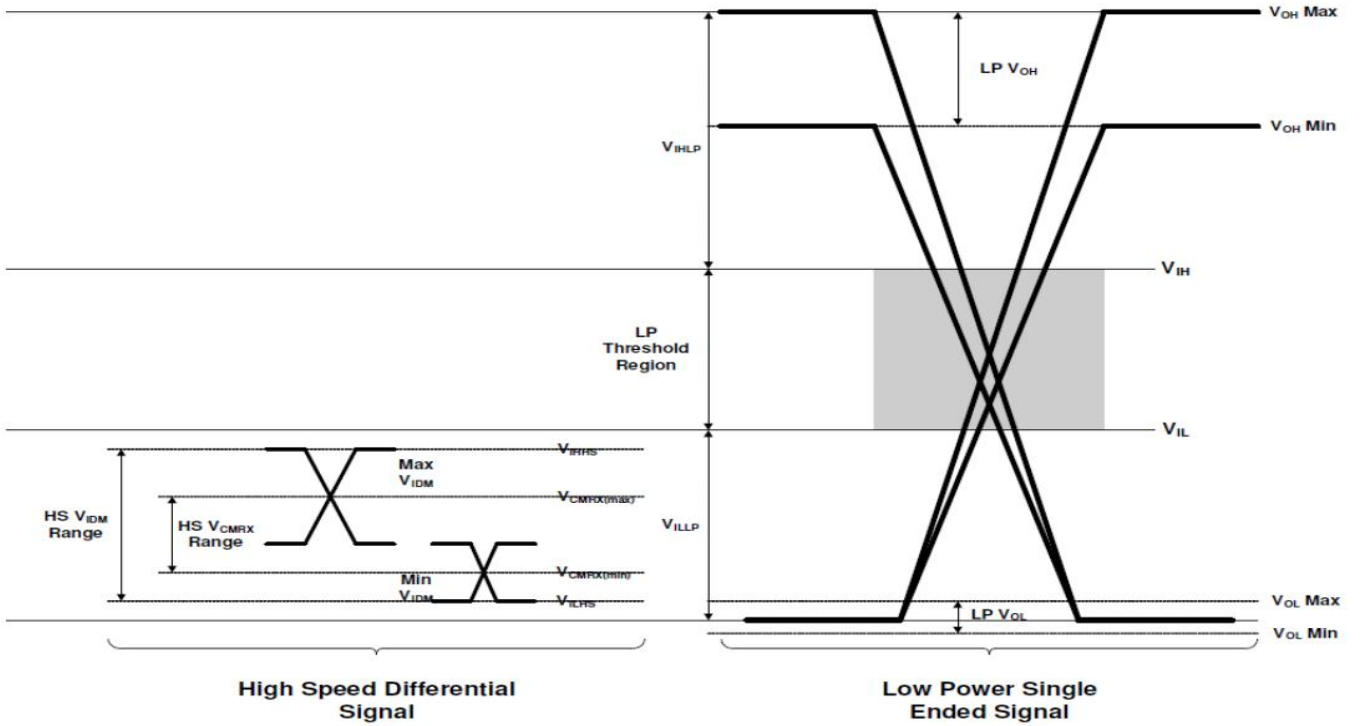
Table 3.3 Back-light Specification

Item	Symbol	Conditions	Min.	Typ.	Max.	Unit
Supply Voltage	VF	Only Backlight	8.0	9.2	10	V
Supply Current	IF			140	-	mA
Uniformity	B	IF=140mA	75	-	-S	(%)
Backlight Power Consumption			-	1288	-	mW
Backlight lifetime	T	IF=140mA	20000	30000	-	hrs
Color	White					

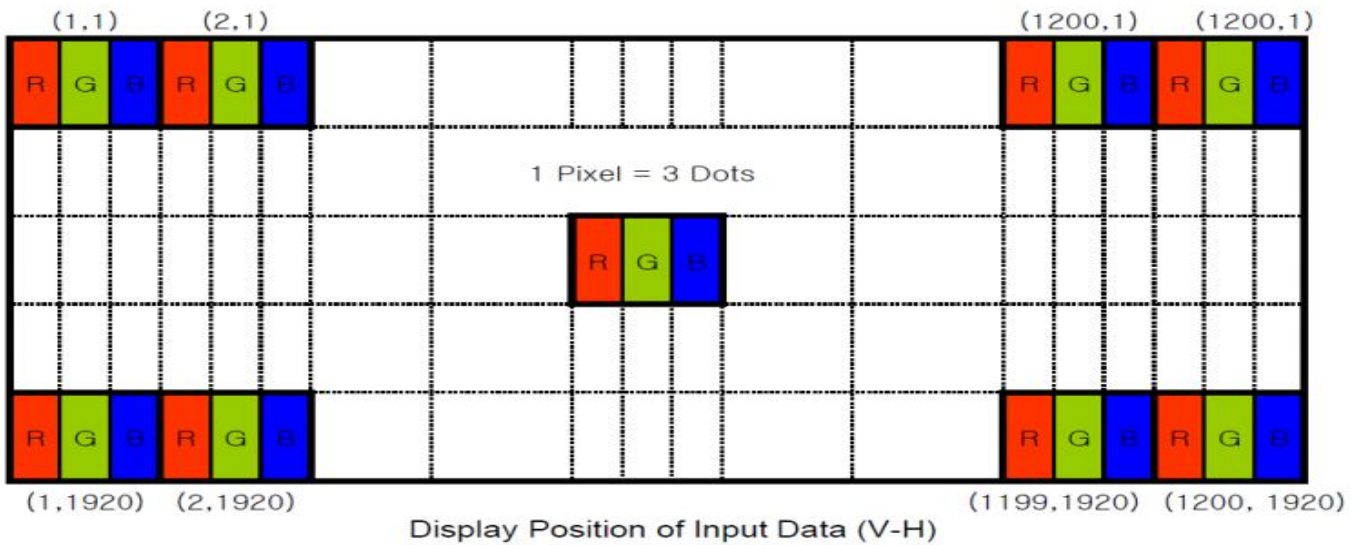
5.0 Electrical Specification

5.1 .1Timing Parameters

Parameter	Symbol	Min	Typ	Max	Unit	Condition
MIPI digital operation current	I_{VCCIF}	14	15	16	mA	-
MIPI digital stand-by current	$I_{VCCIFST}$	-	200	-	uA	-
MIPI Characteristics for High Speed Receiver						
Single-ended input low voltage	V_{ILHS}	-40	-	-	mV	
Single-ended input high voltage	V_{IHHS}	-	-	460	mV	
Common-mode voltage	V_{CMRXDC}	155	-	330	mV	
Differential input impedance	Z_{ID}	80	100	125	Ω	
HS transmit differential voltage($V_{OD}=V_{DP}-V_{DN}$)	$ V_{OD} $	85	200	250	mV	
MIPI Characteristics for Low Power Receiver						
Pad signal voltage range	V_I	-50	-	1350	mV	
Ground shift	V_{GNDSH}	-50	-	50	mV	
Output low level	V_{OL}	-150	-	150	mV	
Output high level	V_{OH}	1.1	1.2	1.3	V	

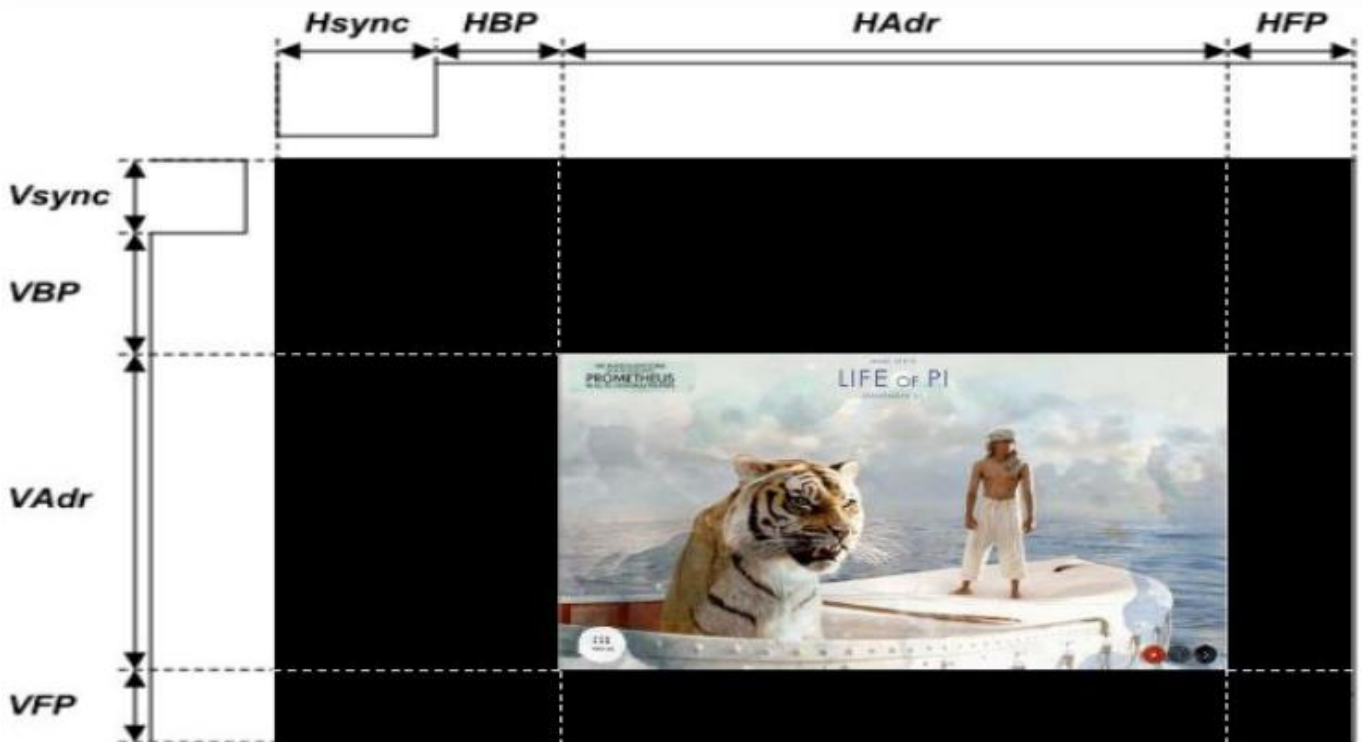


5.1.2 MIPI INPUT SIGNAL SPEC

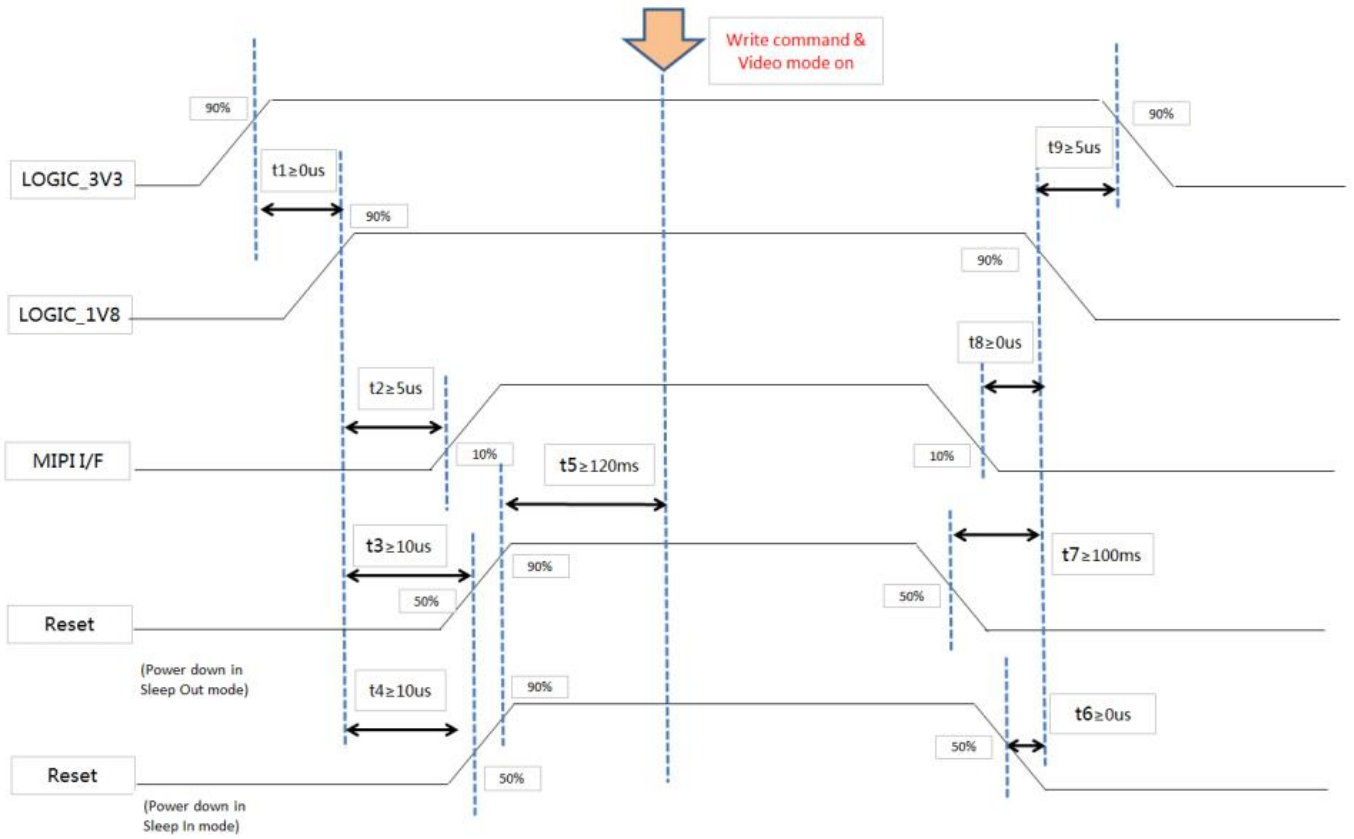


5.2 MIPI Timing Parameter

Item	Symbol	Min	Typ	Max	Unit	Remarks
Pixel CLK	Tpixclk		68.43		MHz	-
MIPI CLK	Period	4	4.44	4.8	ns	-
	Frequency	208	225	250	MHz	-
Hsync	Period	16			Tpixclk	-
	Frequency		77.76		KHz	-
Vsync	Period	4			Line	-
	Frequency		60	-	Hz	-
Horizontal Active Display Term rgb vporch 8 4 4 rgb hporch 16 48 16	HAdr		800	-	Tpixclk	-
	HBP	48			Tpixclk	-
	HFP	16			Tpixclk	-
	Total		880		Tpixclk	-
Vertical Active Display Term	Vadr		1280	-	Line	-
	VBP	4			Line	-
	VFP	8			Line	-
	Total		1296		Line	-



5.3 Power Sequence



Notes:

1. When the power supply VDD3V3 is 0V, keep the level of input signals on the low or keep high impedance.

2. Do not keep the interface signal high impedance when power is on.

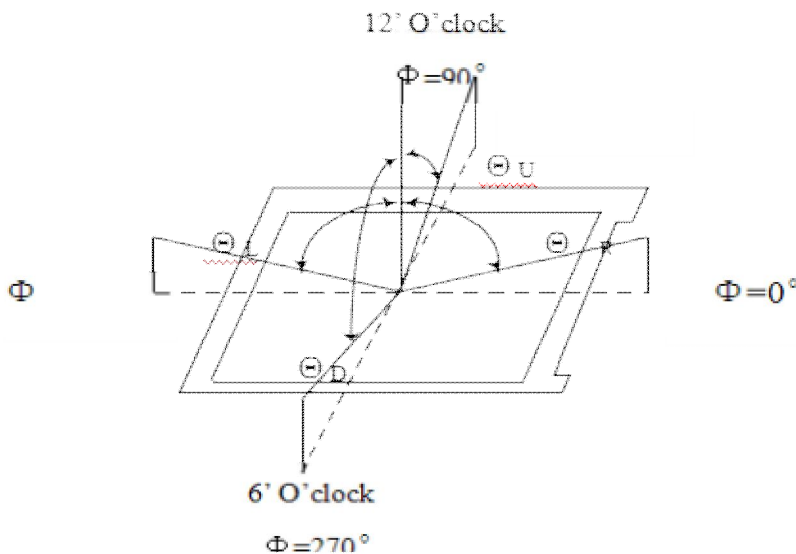
Back Light must be turn on after power for logic and interface signal are valid.

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6 Optical Specifications

Item	Symbol	Condition	Min.	Typ.	Max.	Unit	Note
Transmittance (With PZ)	T			TDB	—	%	
Contrast	CR	$\Theta = 0$ Normal viewing angle	700	800			(1)(2)
Response time (Rising+Falling)	TRT			30	40	msec	(1)(3)
White luminance(center)	YL		200	250	-	cd/m ²	I=140mA
Color gamut	S		45	50		%	C light
Color chromaticity (CIE1931)	White		W _x	-0.04	0.303	+0.04	
		W _y	0.332				
	Red	R _x	0.632				
		R _y	0.329				
	Green	G _x	0.278				
		G _y	0.560				
	Blue	B _x	0.142				
		B _y	0.136				
Viewing angle	Hor.	Θ L	CR>10	80	85	—	
		Θ R		80	85	—	
	Ver.	Θ U		80	85		
		Θ D		80	85		
Optima View Direction	Free						(5)

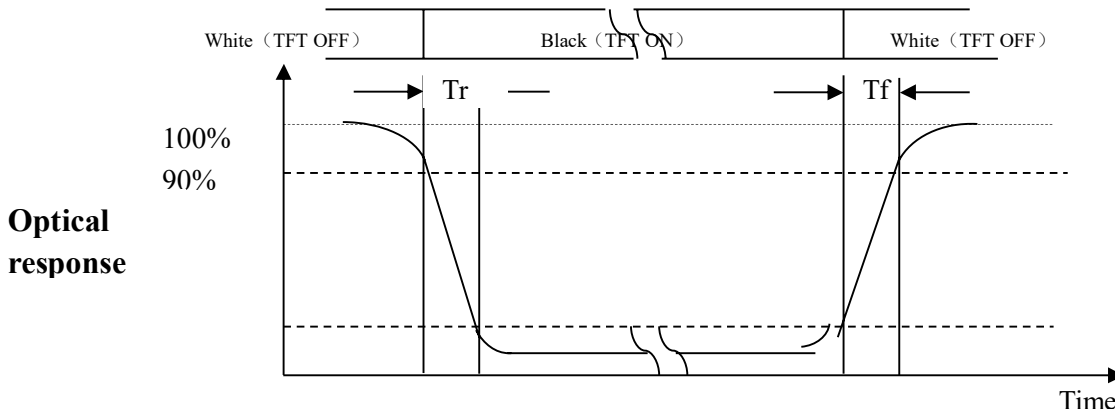
Note (1) Definition of Viewing Angle:



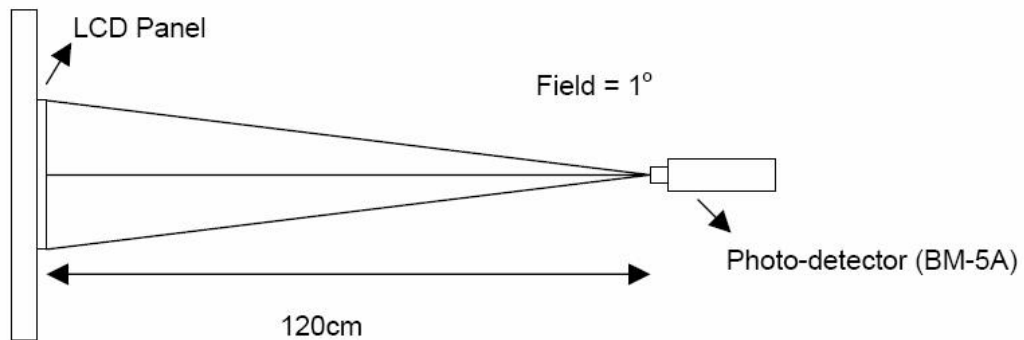
Note (2) Definition of Contrast Ratio (CR): measured at the center point of pane

$$CR = \frac{\text{Luminance with all pixels white}}{\text{Luminance with all pixels black}}$$

Note (3) Definition of Response Time: Sum of T_R and T_F



Note (4) Definition of optical measurement setup



Note (5) Rubbing Direction (The different Rubbing Direction will cause the different optimal view direction).

7. Reliability Test Items

No.	Item	Conditions	Remark
1	High Temperature Storage	Ta=+60oC, 240hrs	
2	Low Temperature Storage	Ta=-20oC, 240hrs	
3	High Temperature Operation	Ta=+50oC, 240hrs	
4	Low Temperature Operation	Ta=-10oC, 240hrs	
5	High Temperature and High Humidity (operation)	Ta=+60oC, 90%RH, 240hrs	
6	Thermal Cycling Test (non operation)	-30oC(30min) → +70oC(30min), 200cycles	
7	Electrostatic Discharge	±200V,200pF(0Ω) 1 time/each terminal	
8	Vibration	1. Random: 1.04Grms, 5~500Hz, X/Y/Z, 30min/each direction 2. Sine: Freq. Range: 8~33.3Hz Stoke: 1.3mm Sweep: 2.9G, 33.3~400Hz X/Z: 2hr, Y: 4hr, cyc: 15min	
9	Shock	100G, 6ms, ±X, ±Y, ±Z 3 time for each direction	JIS C7021, A-10 (Condition A)
10	Vibration (with carton)	Random: 0.015G ² /Hz, 5~200Hz -6dB/Octave, 200~400Hz XYZ each direction: 2hr	
11	Drop (with carton)	Height: 60cm 1 corner, 3 edges, 6 surfaces	JIS Z0202

Note: There is no display function NG issue occurred, all the cosmetic specification is judged before the reliability stress.

8. Handling Precautions

8.1 Safety

The liquid crystal in the LCD is poisonous. Keep away from your mouth and eyes. If the liquid crystal contacts with your skin, mouse or clothes, use soap to wash it off immediately.

8.2 Handling

- i. The LCD panel is made by thin glass. Prevent the panel from mechanical shock or putting excessive force on its surface.
- ii. The polarizer attached on the display is very easy to be damaged, handle it with special attention.
- iii. To avoid contamination on the display surface, do not touch the display surface with bare hands.
- iv. The transparent electrodes may be disconnected if you use the LCD panel under dew-condensing environment.
- v. The characteristics of the semiconductor devices may be affected when they are exposed to light, possibly resulting in malfunctioning of the ICs. To prevent such malfunctioning of the ICs, make sure the application and the mounting of the panel are designed so that the IC is not exposed to light.

8.3 Static Electricity

Ground soldering iron tips, tools and testers when you operate. Also ground your body when handling the products and store the products in an anti-electrostatic container.

8.4 Storage

Store the products in a dark place where the temperature is within the range of 25 ± 10 and with low humidity (65%RH or less). Do not store the LCD product in an atmosphere containing organic solvents or corrosive gases.

8.5 Cleaning

Do not wipe the polarizer with dry cloth, as it might cause scratching. Wipe the polarizer with a soft cloth soaked with petroleum IPA. Other chemical might damage the panel.