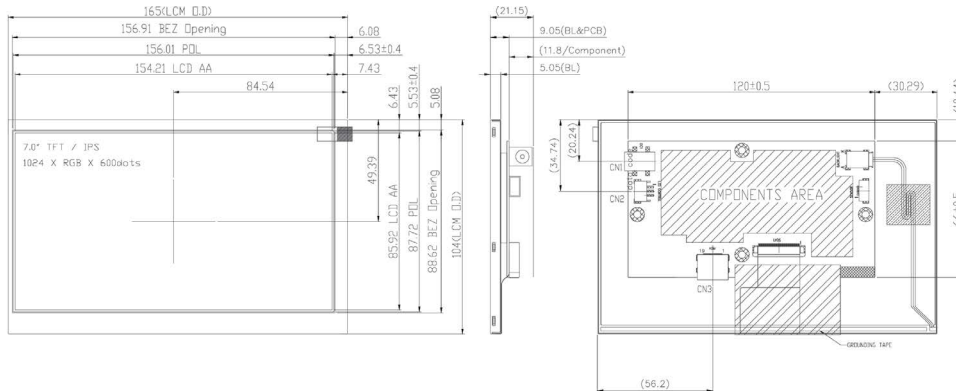# TFT LCD

RoHS Compliant

Description

MP010831 is a 7.0 (16:9) inch diagonally measured active display with high resolution WXGA 1024x600 display and high brightness. This model is composed of a TFT LCD panel, backlight system and HDMI . It is designed to make Raspberry Pi usage easy. You can simply use this TFT display with your Raspberry Pi, or also you can use this as computer display with any device which has HDMI output. This 7.0" TFT model comes in 1024x600 resolution that would be great for embedded computing usage too.

Features

No.	Item	Specification	Unit
1	Panel Size	7"	Inch
2	Number of Pixels	1024 (W) × RGB × 600 (H)	Pixels
3	Active Area	154.21 (W) ×85.92 (H)	mm
4	Pixel Pitch	0.1506 (W) × 0.1432 (H)	mm
5	Outline Dimension	165 (W) × 104 (H) × 21.15 (T)	mm
6	Number of Colours	16.7M	- -
7	Display Mode	IPS / Normally Black / Transmissive	- -
8	View Direction	Free direction	- -
9	Display Format	RGB vertical stripe	- -
10	Surface Treatment	Anti-Glare	- -
11	Contrast Ratio	600 (Typ.)	- -
12	Luminance (cd/m^2)	1600 (Typ.)	cd/m2
13	Video Input Interface	HDMI (Compliance HDMI V1.4)	- -
14	Backlight	White LED	- -
15	Operation Temperature	-20 to 70	°C
16	Storage Temperature	-30 to 80	°C
17	Weight	(160)	g

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Mechanical Specification

Pin Description

Power Input(CN1) [DC JACK:SCD480CCS000B00GE or compatible]

Pin No.	Symbol	I/O	Function	Note
1	12V	P	Power Supply +12V	12V
2	GND	P	Ground	

Back-light Control(CN2) [WAFER P2.0mm:2001S-03-RTE or compatible]

Pin No.	Symbol	I/O	Function	Note
1	GND	P	Ground	
2	PWM	I	Back-light Dimming control (internal pull up to 3.3V)	*1
3	N.C.	-	N.C.	

*1: When PWM not connected, back-light default is typical brightness.

Absolute Maximum Ratings

Electrical Absolute Rating
HDMI TFT LCD Module

Item	Symbol	Values		Unit
		Min	Max.	
Power supply voltage	12V	10	14	V

Environment Absolute Rating

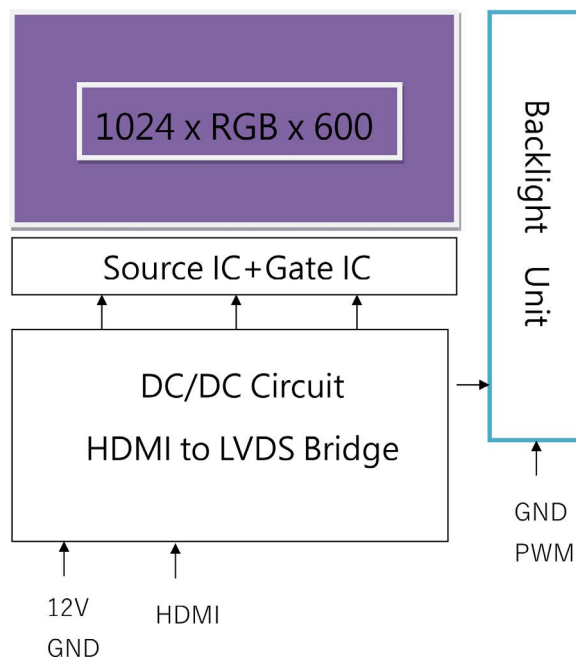| Item	Symbol	Values		Unit	Note
		Min	Max.		
Operating Temperature	Top	-20	70	°C	Ambient temperature
Storage Temperature	Tst	-30	80		

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HDMI (CN3) [HDMI A TYPE:PHD0911A2301E or compatible]

Pin No.	Symbol	I/O	Function
1	TMDS 2+	I	TMDS Data2+
2	GND	P	TMDS Data2 Shield
3	TMDS 2-	I	TMDS Data2–
4	TMDS 1+	I	TMDS Data1+
5	GND	P	TMDS Data1 Shield
6	TMDS 1-	I	TMDS Data1–
7	TMDS 0+	I	TMDS Data0+
8	GND	P	TMDS Data0 Shield
9	TMDS 0-	I	TMDS Data0–
10	TMDS CLK+	I	TMDS Clock+
11	GND	P	TMDS Clock Shield
12	TMDS CLK-	I	TMDS Clock–
13	N.C.	-	N.C.
14	N.C.	-	N.C.
15	DDC_SCL	I	IIC SCL to EDID ROM
16	DDC_SDA	I/O	IIC SDA to EDID ROM
17	GND	P	DDC/CEC Ground
18	HD_5V	P	+5V Power
19	HPD	O	Hot Plug Detect

Block Diagram

TFT LCD Module

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Electrical Characteristics

HDMI TFT LCD Module

Item	Symbol	Values			Unit	Note
		Min	**Typ.**	**Max.**		
Supply Voltage	12V	11	12	13	V	
PWM frequency		100	-	10K	Hz	
PWM Duty		17	-	100	%	<17%=OFF
PWM Dimming Voltage	V_{PWM-IH}	3.3	-	8	V	
	V_{PWM-IL}	-	0.3	-	V	
Supply Current	ICC(12V)	-	590	610	mA	
LED life time		70000	-	-	Hr	(1)

Note
The "LED life time" is defined as the module brightness decrease to 50% original brightness that the ambient temperature is 25°C 60% RH.

Optical Characteristics

Item		Symbol	Condition	Min.	Typ.	Max.	Unit
Brightness		--	Note1, Note 3, (θ= 0˚, Normal Viewing Angle)	1280	1600	--	cd/m2
Uniformity		B-uni		70	75	-	%
Contrast Ratio		CR		400	600	--	--
Response Time		Tr		--	4	8	ms
		Tf		--	12	24	
Colour Chromaticity	White	Wx		0.26	0.31	0.36	--
		Wy		0.28	0.33	0.38	
View angle	Horizontal	θx+	Center CR≥10	80	85	--	
		θx-					
	Vertical	θY+					
		θY-					

Note: The following optical specifications shall be measured in a darkroom or equivalent state (ambient luminance ≤1 lux, and at room temperature). The operation temperature is 25˚C±2˚C. The measurement method is shown in Note1.

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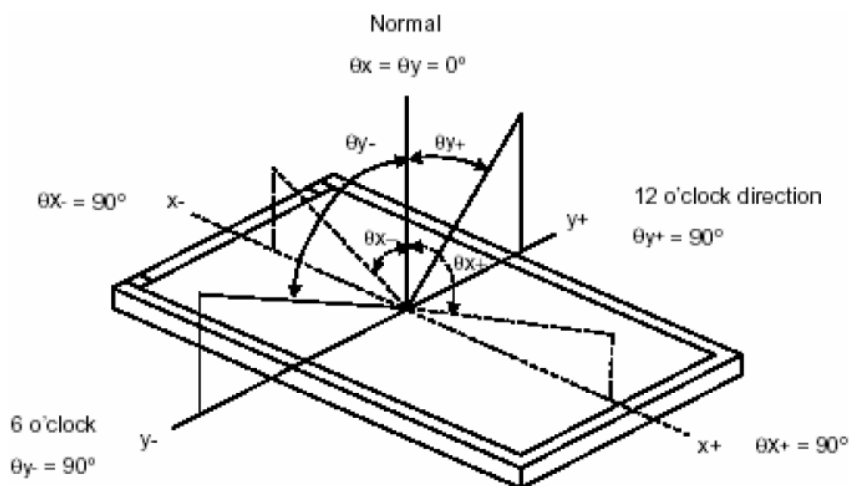
Note1: The method of optical measurement
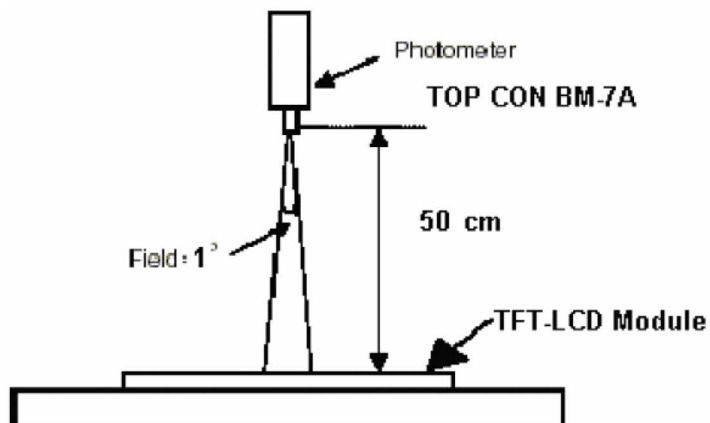
Note2: Measured at the center area of the panel and at the viewing angle of the θx=θy=0˚
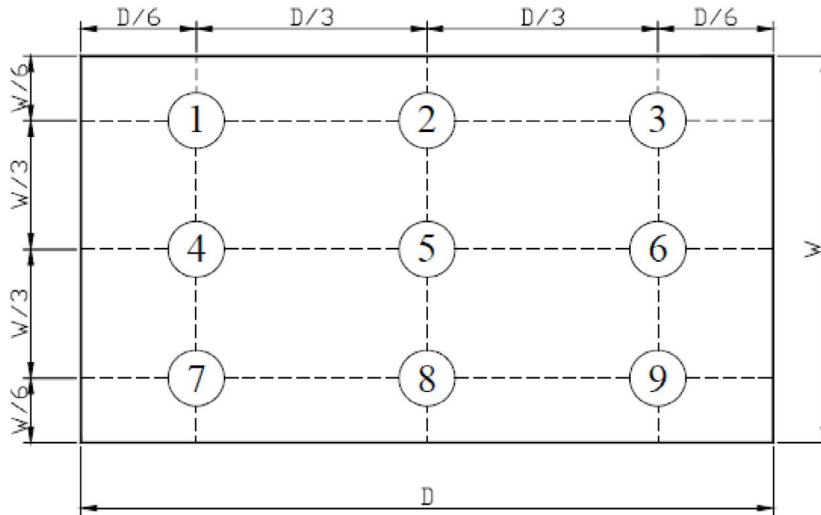Note3: Definition of Contrast Ratio (CR):
CR = Luminance with all pixels in white state ÷ Luminance with all pixels in Black state
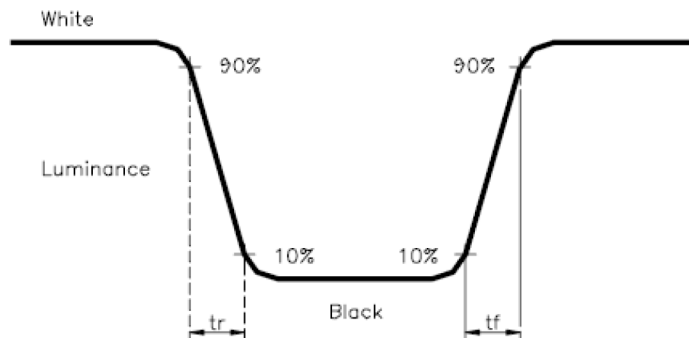
Definition of Viewing Angle

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Definition of Brightness Uniformity (B-uni)

B-uni = (Minimum luminance of 9 points÷Maximum luminance of 9points)X100%

Note 6: Definition of Response Time:
The Response Time is set initially by defining the "Rising Time (Tr)" and the "Falling Time (Tf)" respectively. Tr and Tf are defined as following figure

Note 7: Definition of Chromaticity:
The color coordinates (Wx,Wy),(Rx,Ry),(Gx,Gy),and (Bx,By) are obtained with all pixels in the viewing field at white, red, green, and blue states, respectively.

Part Number Table

Description	Part Number
TFT LCD, 7.0", HDMI, 1024 × 600	MP010831

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