TFT LCD

RoHS Compliant

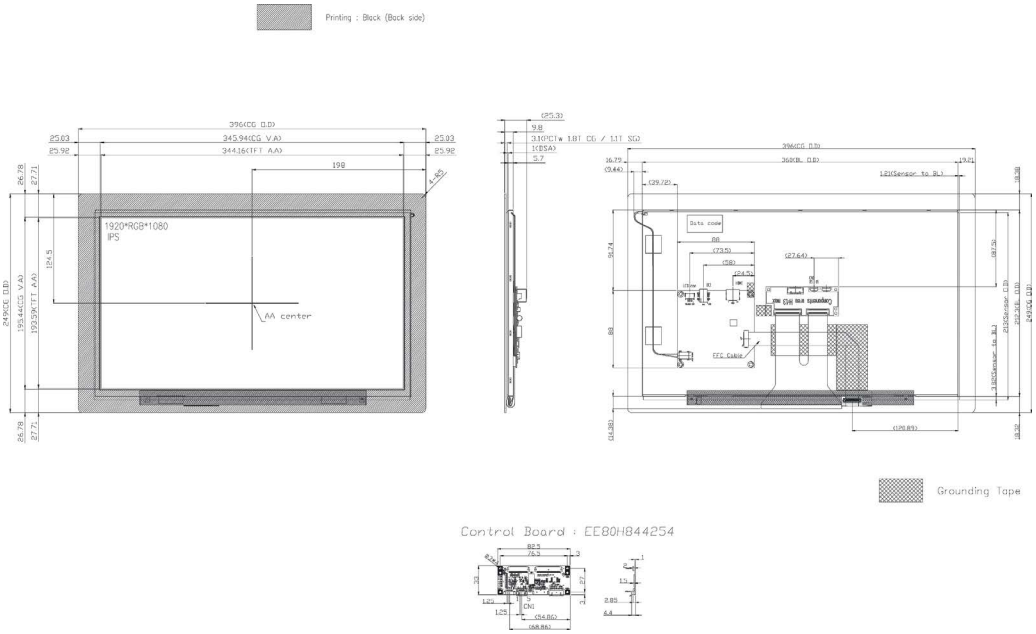
Description

MP010842 is a 15.6 (16:9) inch diagonally measured active display with high resolution 1920 × 1080 display and high brightness. This model is composed of a TFT LCD panel, backlight system, projected capacitive touch panel and HDMI input. 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 15.6” TFT model comes in 1920 × 1080 resolution that would be great for embedded computing usage too.

Features

No.	Item	Specification	Unit
1	Panel Size	15.6”	Inch
2	Number of Pixels	1920 (W) × RGB × 1080 (H)	Pixels
3	Active Area	344.16 (W) × 193.59 (H)	mm
4	Pixel Pitch	0.17925 (W) x 0.17925 (H)	mm
5	Outline Dimension	396.0 (W) × 249.00 (H) × 25.3 (T)	mm
6	Number of Colours	16.7M	- -
7	Display Mode	Normally Black	- -
8	View Direction	Free direction	- -
9	Display Format	RGB vertical stripe	- -
10	Surface Treatment	Clear (≥6H)	- -
11	Contrast Ratio	1000 (Typ.)	- -
12	Luminance (cd/m^2)	850 (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	(1270)	g

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	NC	--	NC	

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

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

Absolute Maximum Ratings

Electrical Absolute Rating
HDMI TFT LCD Module

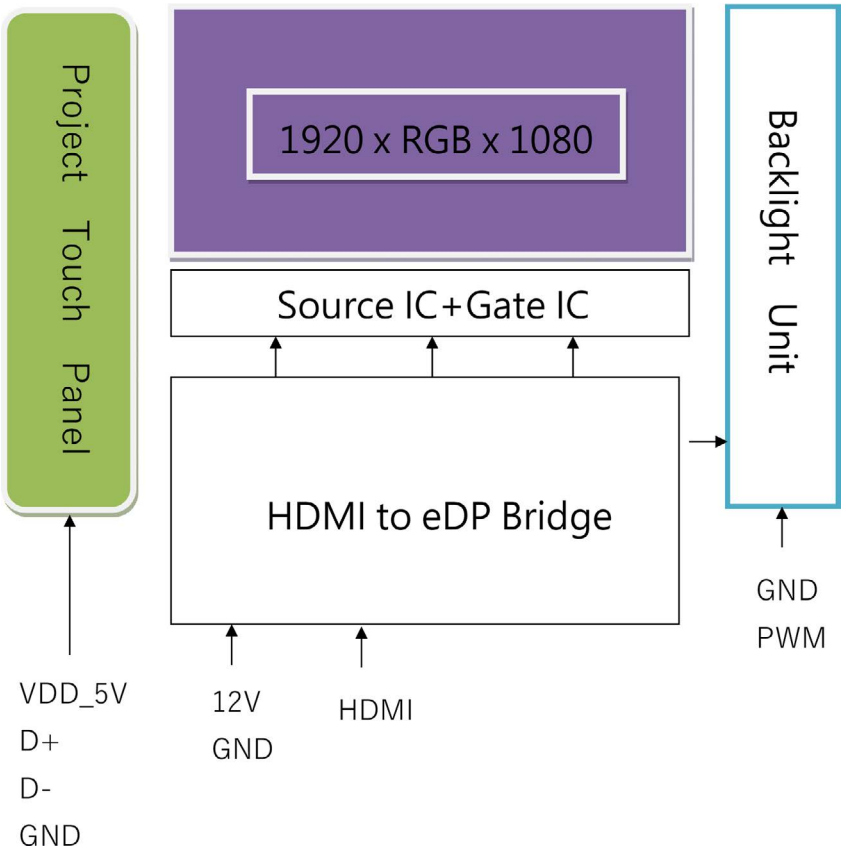
Item	Symbol	Values		Unit
		Min	Max.	
Power supply voltage	12V	11	14	V

Environment Absolute Rating

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

Block Diagram

TFT LCD Module



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	-		
Supply Current	ICC(12V)	-	1400	1500	mA	
LED life time		-	50000	-	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.

Projected Capacitive Panel Specifications

Main Feature

Item	Specification	Unit
Screen Size	15.6 inches	Diagonal
Type	Transparent Type Projected Capacitive Touch Panel	--
Input Mode	Human's Finger	--
View Area	345.94 (H)(typ.) × 195.44 (V)(typ.)	mm
Interface	USB	--
Operating system OS	Windows / Linux / Android/ Mac/ QNX	
Touch number	10 points	
Cover glass pencil-hardness	6H(min.)	--
Report Rate	>100Hz	--
Response time	25 (typ.)	ms
Digital Power Supply	USB:5V DC (typ.)	V
Power Consumption	TBD	mA
Controller Model	EE80H844254	

CN1(USB) Pin Assignments and Definitions

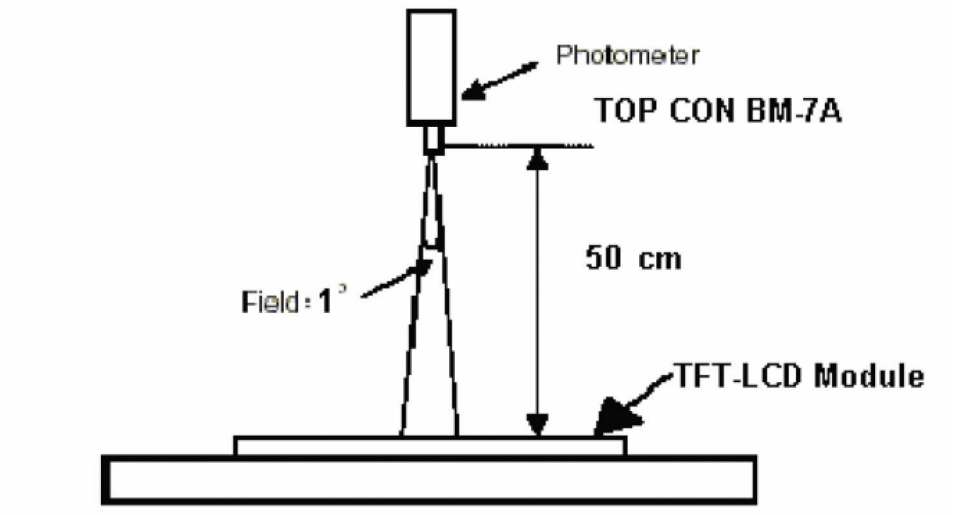
Item	Name	I/O	Unit
1	GND	P	Ground
2	VDD_5V		Power Supply Voltage
3	GND		Ground
4	D+	I/O	D+
5	D-		D-

Optical Characteristics

Item		Symbol	Condition	Min.	Typ.	Max.	Unit
Brightness		--	Note1, Note 3, (θ= 0˚, Normal Viewing Angle)	680	850	--	cd/m2
Uniformity		B-uni		--	70	--	--
Contrast Ratio		CR		800	1000	--	--
Response Time		Tr + Tf		--	25	30	ms
Colour Chromaticity	White	Wx		0.24	0.29	0.34	--
		Wy		0.26	0.31	0.36	--
	Red	Rx		0.542	0.592	0.642	
		Ry		0.31	0.36	0.41	
	Green	Gx		0.292	0.342	0.392	
		Gy		0.507	0.557	0.607	
	Blue	Bx		0.108	0.158	0.208	
		By		0.059	0.109	0.159	
View angle	Horizontal	θx+	Center CR≥10	80	--	--	
		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.

Note1: The method of optical measurement:

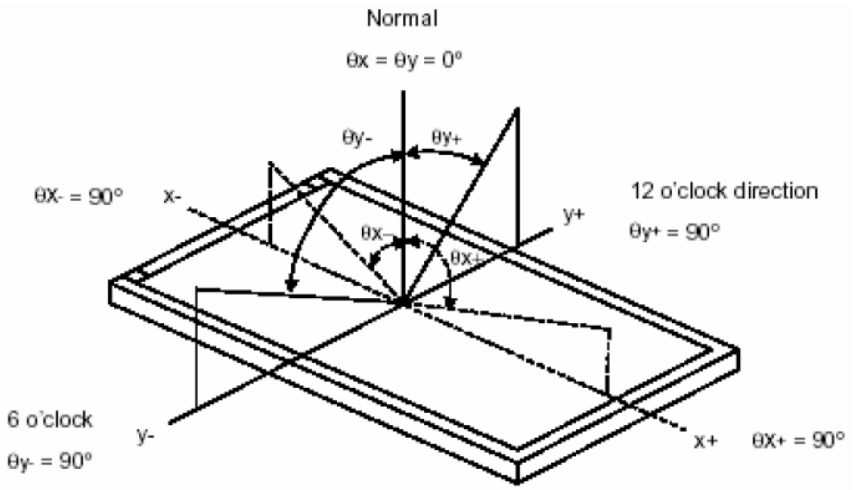


Note2: Measured at the center area of the panel and at the viewing angle of the θx=θy=0˚

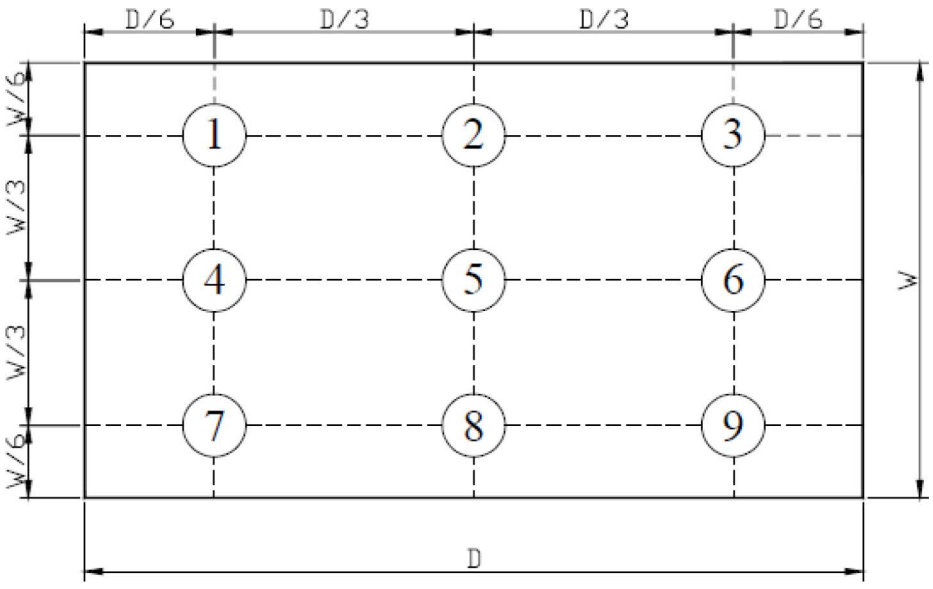
Note3: Definition of Contrast Ratio (CR):

CR = Luminance with all pixels in white state ÷ Luminance with all pixels in Black state

Definition of Viewing Angle:



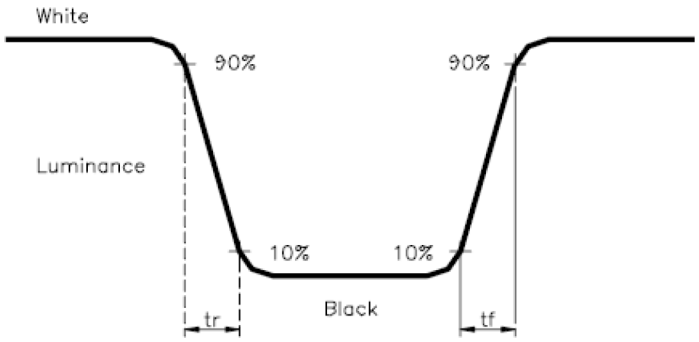
Definition of Brightness Uniformity (B-uni):



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

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



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, Capacitive Touch Panel, 15.6”, HDMI, 1920 × 1080	MP010842