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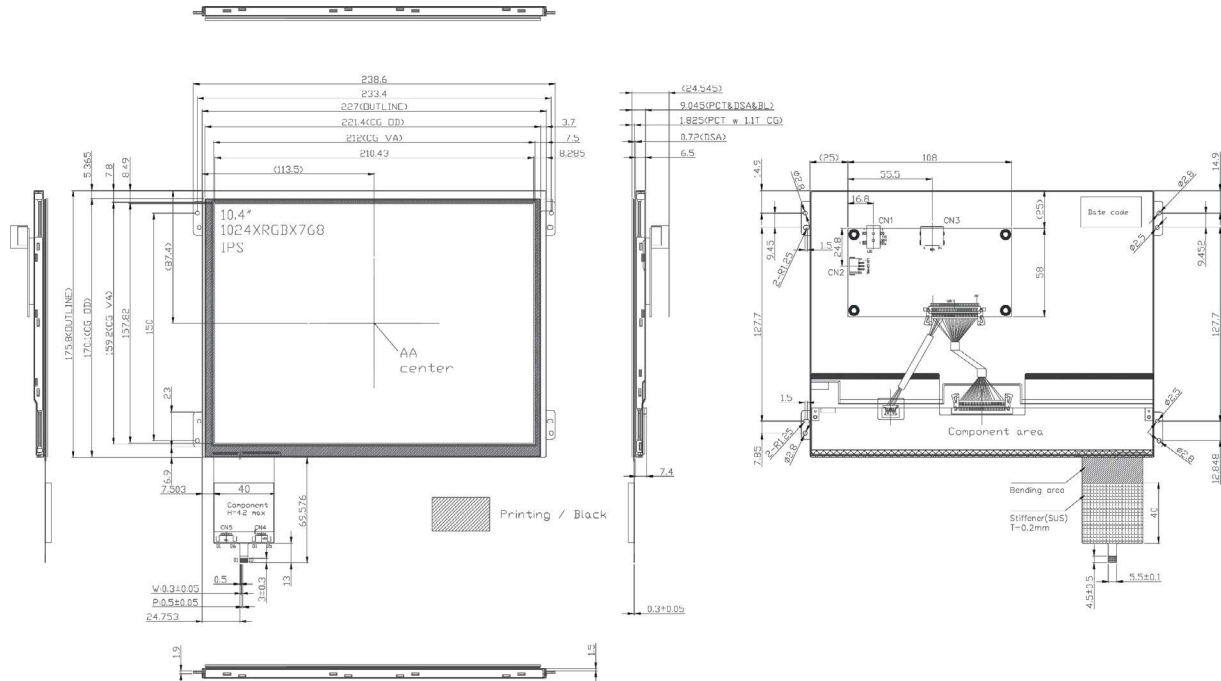
Description

MP010838 is a 10.4 (4:3) inch diagonally measured active display with high resolution XGA 1024x768 display and high brightness. This model is composed of a TFT LCD panel, backlight system, a projected capacitive touch panel 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 10.4" TFT model comes in 1024x768 resolution that would be great for embedded computing usage too.

Features

No.	Item	Specification	Unit
1	Panel Size	10.4"	Inch
2	Number of Pixels	1024 (W) × RGB × 768 (H)	Pixels
3	Active Area	210.432 (W) × 157.824 (H)	mm
4	Pixel Pitch	0.2055 (W) × 0.2055 (H)	mm
5	Outline Dimension	238.6 (W) × 175.8 (H) × 24.545 (T)	mm
6	Number of Colours	16.7M	--
7	Display Mode	IPS / Normally Black / Transmissive	--
8	View Direction	Wide viewing angle	--
9	Display Format	RGB vertical stripe	--
10	Surface Treatment	Clear (7H)	--
11	Contrast Ratio	1000 (Typ.)	--
12	Luminance (cd/m ²)	800 (Typ.)	cd/m ²
13	Video Input Interface	HDMI (Compliance HDMI V1.4)	--
14	Backlight	White LED	--
15	Operation Temperature	-30 to 80	°C
16	Storage Temperature	-30 to 80	°C
17	Weight	(TBD)	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	
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	N.C.	-	N.C.	
3	PWM	I	Back-light Dimming control (internal pull up to 3.3V)	*1

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

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

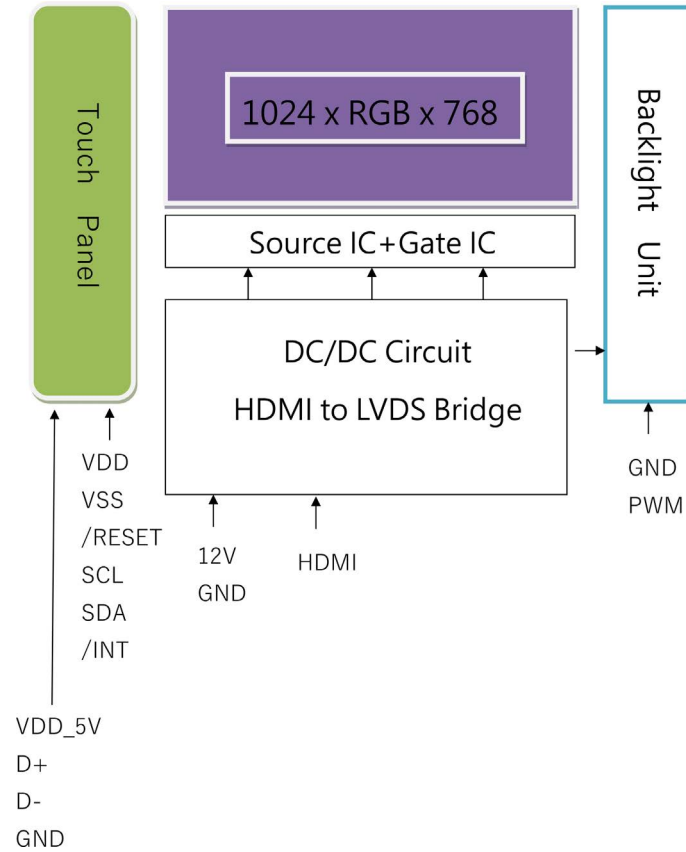
Item	Symbol	Values		Unit
		Min	Max.	
Power supply voltage	12V	10	14	V

Environment Absolute Rating

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

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		1K	-	20K	Hz	
PWM Duty		10	-	100	%	
PWM Dimming Voltage	V _{PWM-IH}	3	3.3	5	V	
	V _{PWM-IL}	0	-	0.3		
LED Enable Control Voltage	V _{LED_EN-IH}	3	3.3	5		
	V _{LED_EN-IL}	-	-	0.3		
Supply Current	ICC(12V)	-	TBD	-	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.

Touch Screen Panel Specifications

Main Feature

Item	Specification	Unit
Screen Size	10.4 inches	Diagonal
Type	Transparent Type Projected Capacitive Touch Panel	
Input Mode	Human's Finger	
Interface	12C or USB	
Touch number	10 points	
Cover glass pencil-hardness	7H	
Response time	≤25ms	ms
Controller IC	ILI2511	

PCT Control:USB (CN4) [WAFER P1.25mm:50271-0050L-002 or compatible]

Pin No.	Symbol	I/O	Function
1	GND -EARTH	P	Earth Ground(Shield)
2	VDD_5V		Power supply for USB I/F
3	GND		Power Ground
4	D+	I/O	USB data +
5	D-		USB data -

PCT Control:IIC (CN5) [WAFER P1.25mm:50271-0060L-002 or compatible]

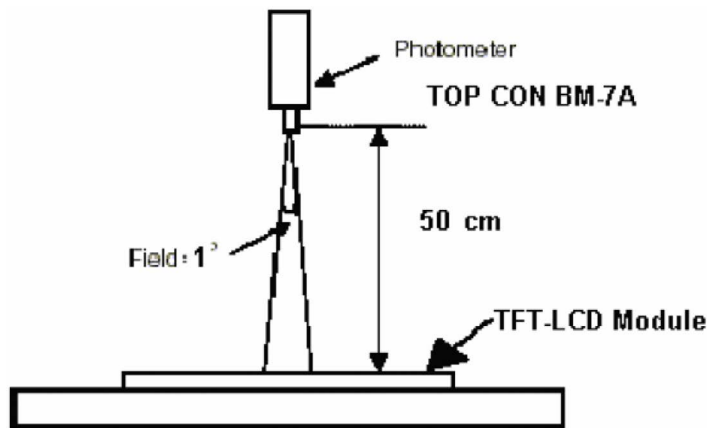
Pin No.	Symbol	I/O	Function
1	GND	P	Ground
2	VDD	P	Power supply for IIC
3	SCL	I	IIC SCL to PCT Controller
4	SDA	I/O	IIC SDA to PCT Controller
5	INT	O	Interrupt
6	RESET	I	Reset

Optical Characteristics

Item	Symbol	Condition	Min.	Typ.	Max.	Unit
Brightness	--	Note1, Note 3, ($\theta = 0^\circ$, Normal)	640	800	--	cd/m ²
Contrast Ratio	CR		800	1000	--	--
Response Time	Tr+Tf		--	25	35	ms
Colour Chromaticity	White	Wx	0.26	0.31	0.36	--
		Wy	0.282	0.332	0.382	
View angle	Horizontal	θ_{x+}	Viewing Angle) Center CR \geq 10	80	--	
		θ_{x-}				
	Vertical	θ_{Y+}				
		θ_{Y-}				

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 $25^\circ\text{C} \pm 2^\circ\text{C}$. The measurement method is shown in Note1.

Note1: The method of optical measurement

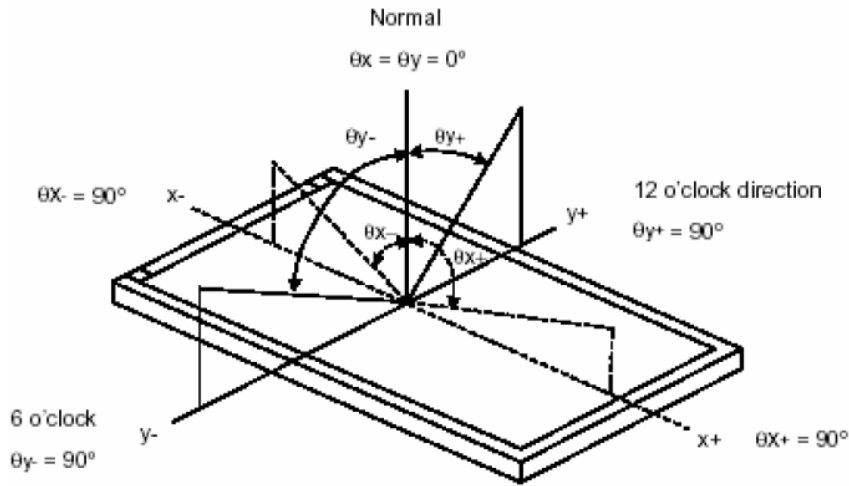


Note2: Measured at the center area of the panel and at the viewing angle of the $\theta_x = \theta_y = 0^\circ$

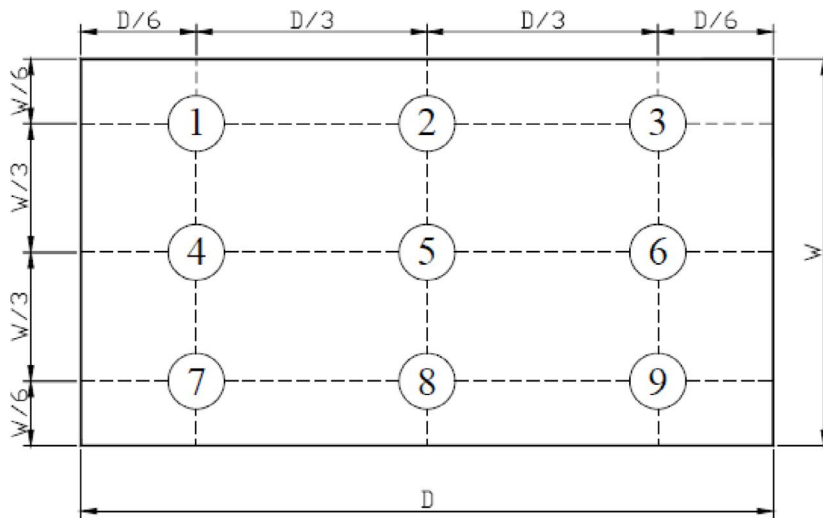
Note3: Definition of Contrast Ratio (CR):

CR = Luminance with all pixels in white state \div Luminance with all pixels in Black state

Definition of Viewing Angle



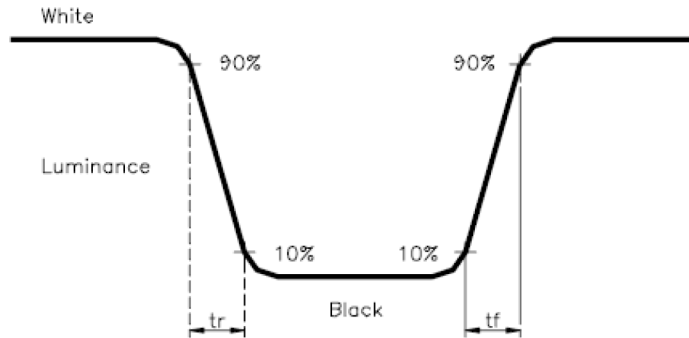
Definition of Brightness Uniformity (B-uni)



B-uni = (Minimum luminance of 9 points ÷ Maximum luminance of 9 points) × 100%

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, Capacitive Touch Panel, 10.4", HDMI, 1024 × 768	MP010838

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