TFT LCD

RoHS Compliant

Description

This product is a 12.1″ (4:3) inch diagonally measured active display with high resolution XGA 1024×768 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. 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 12.1″ TFT model comes in 1024×768 resolution that would be great for embedded computing usage too.

Specifications

Panel Size	: 12.1″
Number of Pixels	: 1024 (W) × RGB × 768 (H) Pixels
Active Area	: 245.76mm (W) × 184.32mm (H)
Pixel Pitch	: 0.24mm (W) × 0.24mm (H)
Outline Dimension	: 289.47mm (W) × 222mm (H) × 26mm (T)
Number of Colours	: 16.7M
Display Mode	: IPS / Normally Black / Transmissive
View Direction	: Free Direction
Display Format	: RGB vertical stripe
Surface Treatment	: Clear (≥6H)
Contrast Ratio	: 900 (Typ.)
Luminance	: 1400cd/m^2 (Typ.)
Video Input Interface	: HDMI (Compliance HDMI V1.4)
Backlight	: White LED
Operation Temperature	: -30°C to +80°C
Storage Temperature	: -30°C to +80°C
Weight	: 1010g

Absolute Maximum Ratings

Electrical Absolute Rating
HDMI TFT LCD Module

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

Environment Absolute Rating

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

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)	-	TBD	-	mA	
LED life time		50000	-	-	Hr	(1)

Note 1:
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)	1120	1400	-	cd/m^2
Contrast Ratio		CR		600	900	-	-
Response Time		Tr + Tf		-	30	40	ms
Colour Chromaticity	White	Wx		0.251	0.291	0.331	-
		Wy		0.288	0.328	0.368	-
View angle	Horizontal	θx+	Centre CR≥10	80	85	-	
		θx-		80	85		
	Vertical	θY+		80	85		
		θY-		80	85		

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.

Projected Capacitive Touch Panel Specification

Main Feature

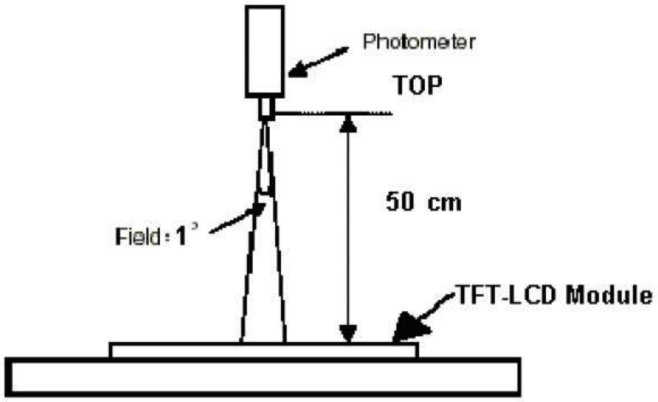
Item	Specification	Unit
Screen Size	12.1 inches	Diagonal
Type	Transparent Type Projected Capacitive Touch Panel	
Input Mode	Human’s Finger	
View Area	245.99 (H)(typ.) × 184.49 (V)(typ.)	mm
Interface	USB	
Operating system OS	Windows / Linux / Android	
Touch number	10 points	

Item	Specification	Unit
Cover glass pencil-hardness	6H (min.)	
Report Rate	>100Hz	
Response time	25 (typ.)	ms
Digital Power Supply	5V DC	V
Power Consumption	TBD	mA
Controller Model	EE80H462938	

CN3(USB) Pin Assignments and Definitions

Pin No.	Symbol	I/O	Function
1	VDD_5V	P	Power Supply Voltage, 5V DC
2	D+	I/O	D+
3	D-	I/O	D-
4	GND	P	Ground
5	N.C.	-	No Connection
6	N.C.	-	No Connection
7	N.C.	-	No Connection
8	N.C.	-	No Connection
9			
10			

Note 1: The method of optical measurement

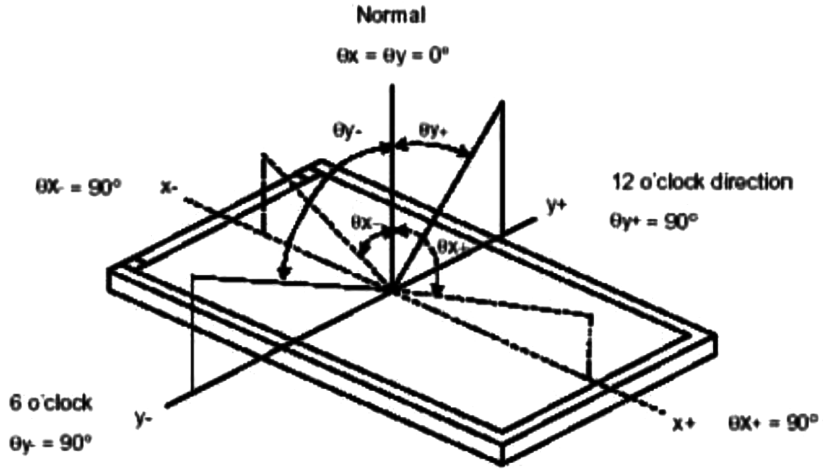


Note 2: Measured at the centre area of the panel and at the viewing angle of the θx=θy =0°

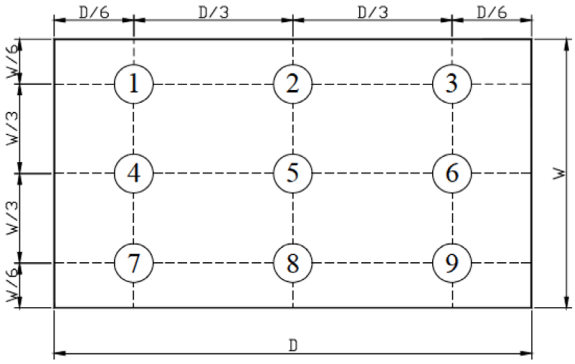
Note 3: Definition of Contrast Ratio (CR):

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

Note 4: Definition of Viewing Angle:



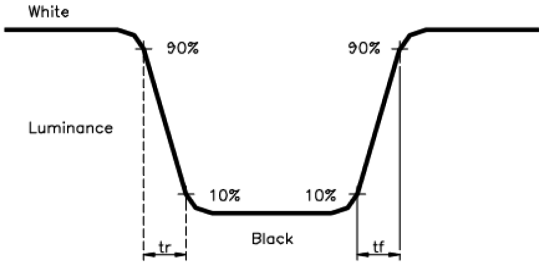
Note 5: Definition of Brightness Uniformity (B-uni):



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

Note 6: Definition of Response Time:

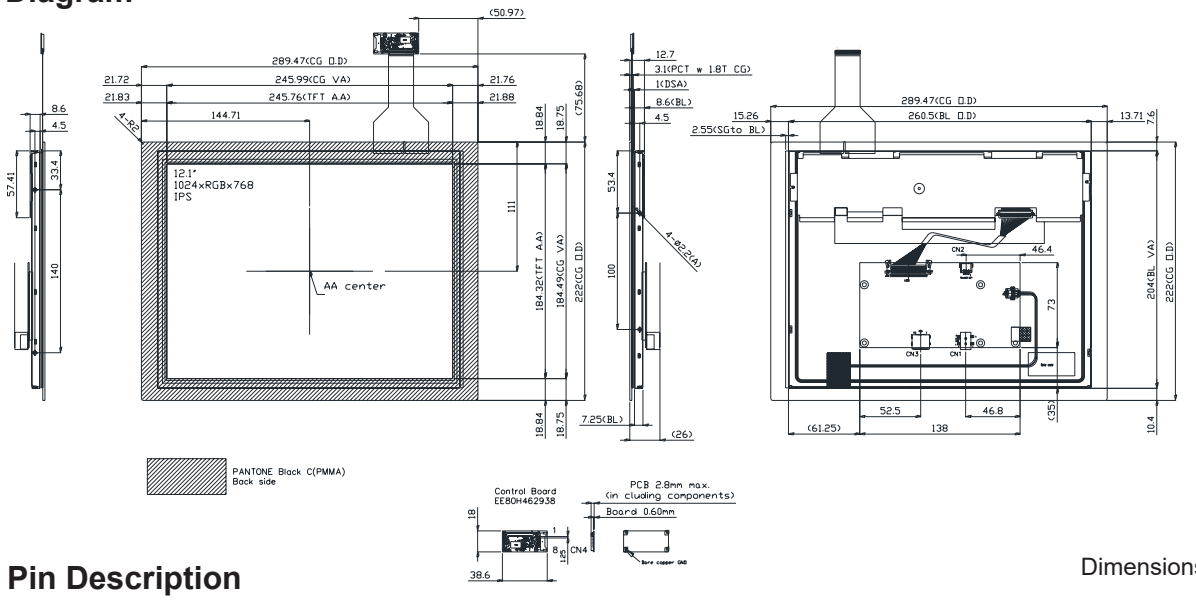
The Response Time is set initially by defining the “Rising Time (Tr)” and the “Falling Time (Tf)” respectively. Tr and Tf are defined as following figure



Note 7: Definition of Chromaticity:

The colour 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.

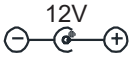
Diagram



Dimensions : Millimetres

Pin Description

Power Input (CN1)

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

Back-light Control (CN2)

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)	*

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

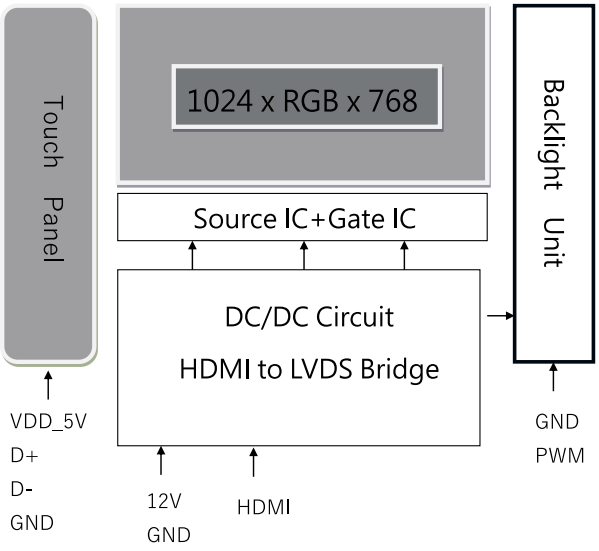
HDMI (CN3)

Pin No.	Symbol	I/O	Function	Note
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+	

Pin No.	Symbol	I/O	Function	Note
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



Part Number Table

Description	Part Number
TFT LCD, 12.1″, HDMI, 1024×768, Capacitive Touch	MP013334