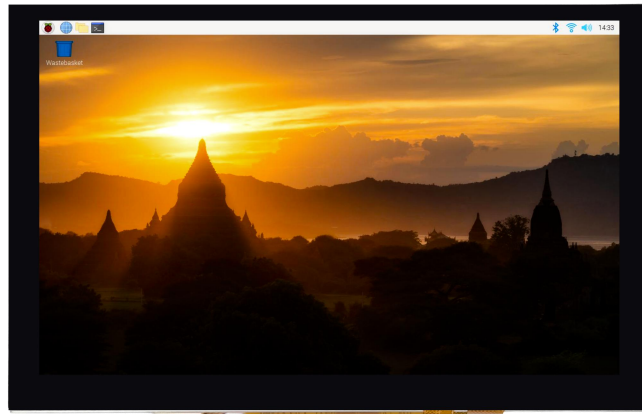




上海冠显光电科技有限公司
Shanghai Top Display Optoelectronics Co., LTD

MIPI DSI Display SPECIFICATION



Module No.: TS050WVH02CA-B1714A

Date: 2026.05.12

Version: 1.2

Approved by	Checked by	Prepared by
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RECORD OF REVISION

Version	Revised Date	Page	Content
V1.0	2026.3.10	--	First Issued
V1.1	2026.4.3	--	Update mechanical specification
V1.2	2026.5.12	--	Add detailed descriptions of materials

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1. GENERAL DESCRIPTION

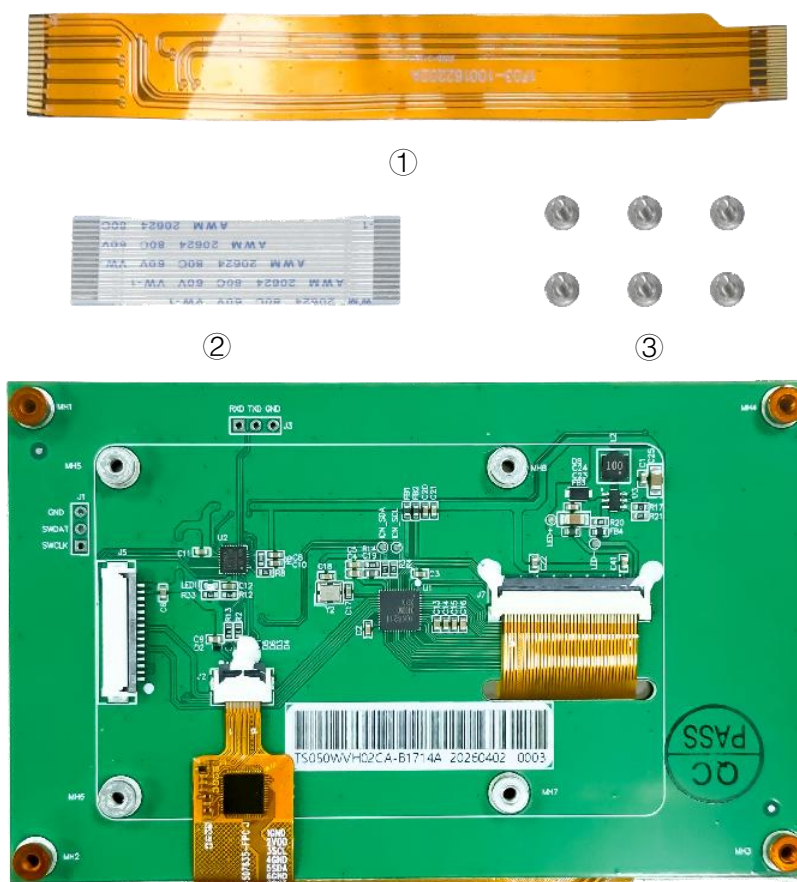
1.1 Description

TS050WVH02CA-B1714A is a 5.0 inch diagonally measured active display with 800X480 display. This model is composed of a Si-TFT LCD panel, backlight system, Capacitive touch panel and equipped with Raspberry Pi.

1.2 Features:

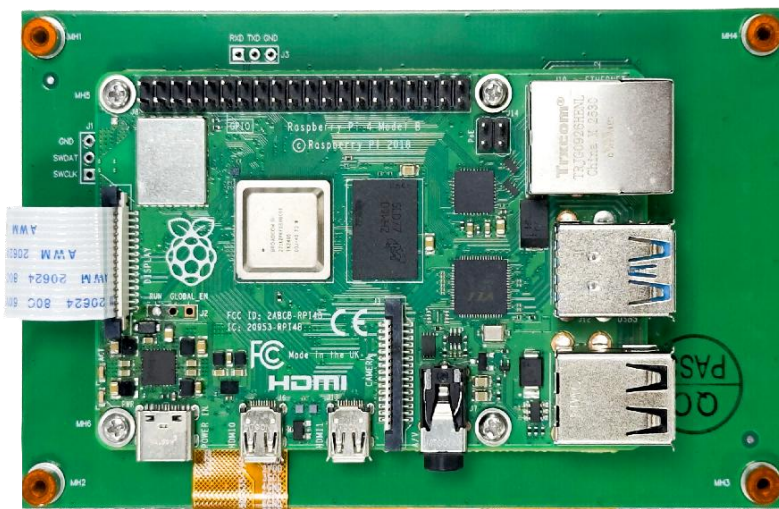
No.	Item	Specification	Unit
1	Panel Size	5.0"	Inch
2	Number of Pixels	800 (RGB) × 480	Pixels
3	Active Area	108.0 (W) × 64.8 (H)	mm
4	Pixel Pitch	0.045 (H) × 0.135 (V)	mm
5	Outline Dimension	164.9(W) × 100.0 (H)	mm
6	Number of Colors	16.7M	--
7	Display Mode	Normally Black, Transmissive	--
8	View Direction	All	--
9	Display Format	RGB stripe	--
10	Surface Treatment	/	--
11	Contrast Ratio	1200(Typ.)	--
12	Luminance (cd/m ²)	550(Typ.)	cd/m ²
13	Video Input Interface	MIPI DSI	
14	Touch panel	With CTP	--
15	Backlight	LED	--
16	Operation Temperature	-20 to 70	°C
17	Storage Temperature	-30 to 80	°C
18	Weight	(TBD)	g

Note1:

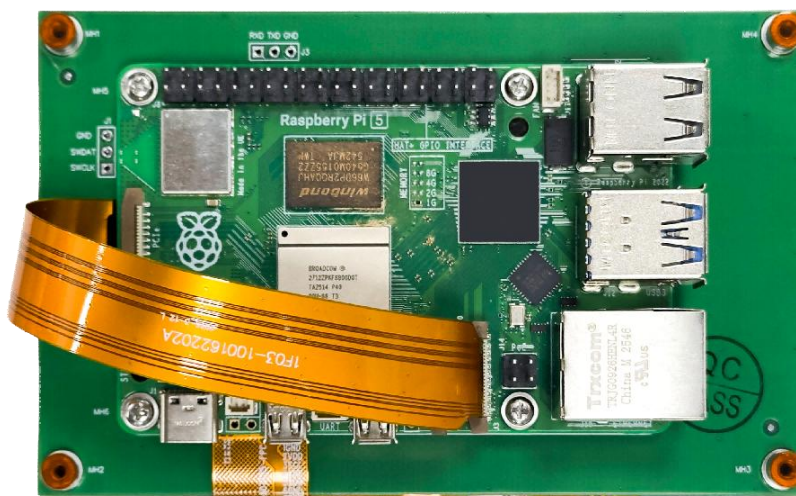


- ① **22pin to 15pin DSI cable:** Applicable to Raspberry Pi 5.
- ② **15pin DSI cable:** Applicable to Raspberry Pi 4B/3B/3B+.
- ③ **M2.5X5 screws:** Fix the PCBA and the Raspberry Pi.

Note2:



Equipped with **Raspberry Pi 4B**



Equipped with **Raspberry Pi 5**

(Pictures for reference only. This product does not include Raspberry Pi)

Rev.1.2

[illegible]

3. PIN DESCRIPTION

3.1 MIPI Connector (J7)[Connector TYPE:AFA07-S15FCC-00 or compatible]

Pin	Symbol	I/O	Function	Note
1	GND	P	Ground	
2	DSI_B1N	I	MIPI DSI differential data pair (Data lane 1)	
3	DSI_B1P	I	MIPI DSI differential data pair (Data lane 1)	
4	GND	P	Ground	
5	DSI_BCN	I	MIPI DSI differential clock pair	
6	DSI_BCP	I	MIPI DSI differential clock pair	
7	GND	P	Ground	
8	DSI_B0N	I	MIPI DSI differential data pair (Data lane 0)	
9	DSI_B0P	I	MIPI DSI differential data pair (Data lane 0)	
10	GND	P	Ground	
11	SCL	I	IIC Clock signal	
12	SDA	I/O	IIC Data signal	
13	GND	P	Ground	
14	3V3	P	Power output	
15	3V3	P	Power output	

4. ABSOLUTE MAXIMUM RATINGS

4.1 Electrical Absolute Rating

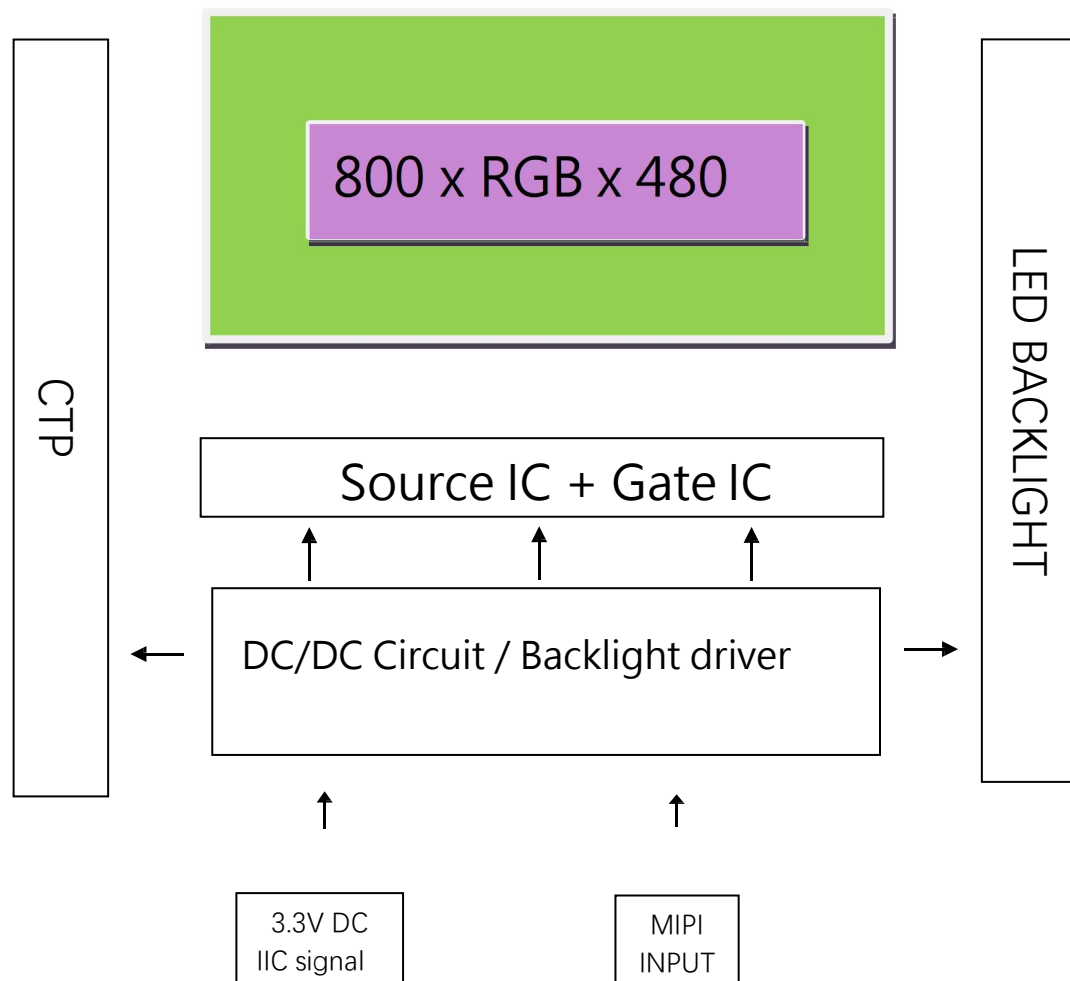
MIPI TFT LCD Module

Item	Symbol	Values			Unit	Note
		Min	TYP	Max.		
Power supply voltage			3.3		V	

Environment Absolute Rating

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

5. BLOCK DIAGR



6. OPTICAL CHARACTERISTICS

Ta=25°C

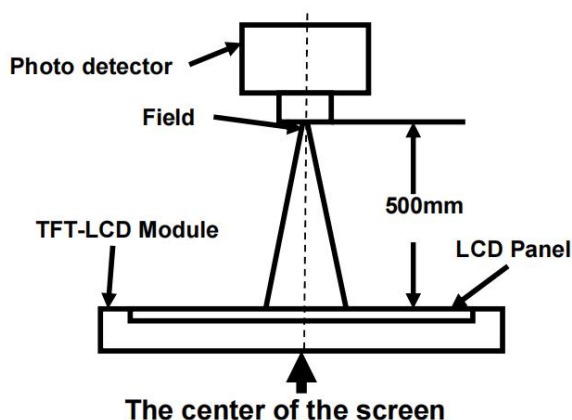
Item	Symbol	Condition	Min.	Typ.	Max.	Unit
Luminance	L		--	550	--	cd/m ²
Uniformity	U		80	85	--	%
Contrast Ratio	CR	$\theta=0^\circ$	1000	1200	--	--
Response Time	T _{ON}	25°C	--	30	40	ms
	T _{OFF}		--			ms
View angle	θ_T	CR ≥ 10	70	80	--	Degree
	θ_B		70	80	--	
	θ_L		70	80	--	
	θ_R		70	80	--	
NTSC	--	--	50	55	--	%

Note:

1. I_F= 40 mA, and the ambient temperature is 25±2°C .humidity is 65±7%
2. The test systems refer to Note 1 and Note 2.

Note1: Definition of optical measurement system.

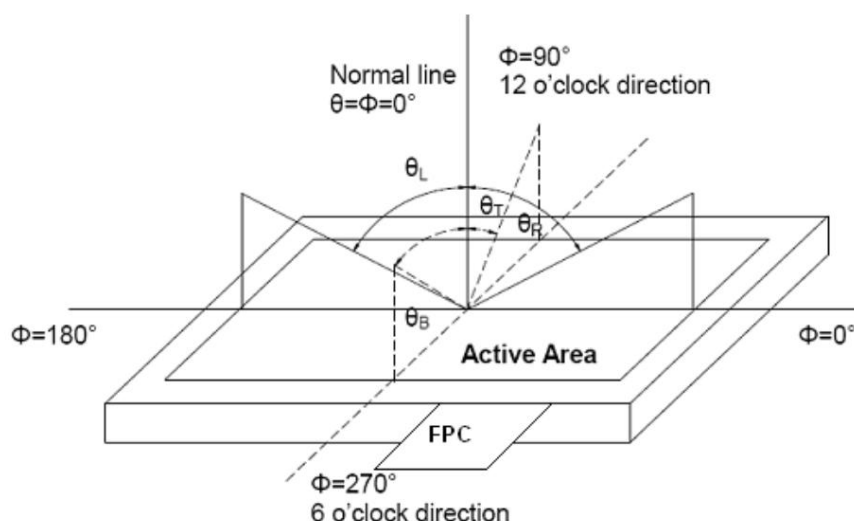
The optical characteristics should be measured in dark room. After 5 minutes operation, the optical properties are measured at the center point of the LCD screen. All input terminals LCD panel must be ground when measuring the center area of the panel.



Item	Photo detector	Field
Contrast Ratio	BM-7A or similar equipment	1°
Luminance		
Chromaticity		
Lum Uniformity		
Response Time	CA310	2°

Note2:Definition of viewing angle range and measurement system.

Viewing angle is measured at the center point of the LCD by CONOSCOPE(ergo-80).



Note3: Definition of contrast ratio

$$\text{Contrast ratio (CR)} = \frac{\text{Luminance measured when LCD is on the "White" state}}{\text{Luminance measured when LCD is on the "Black" state}}$$

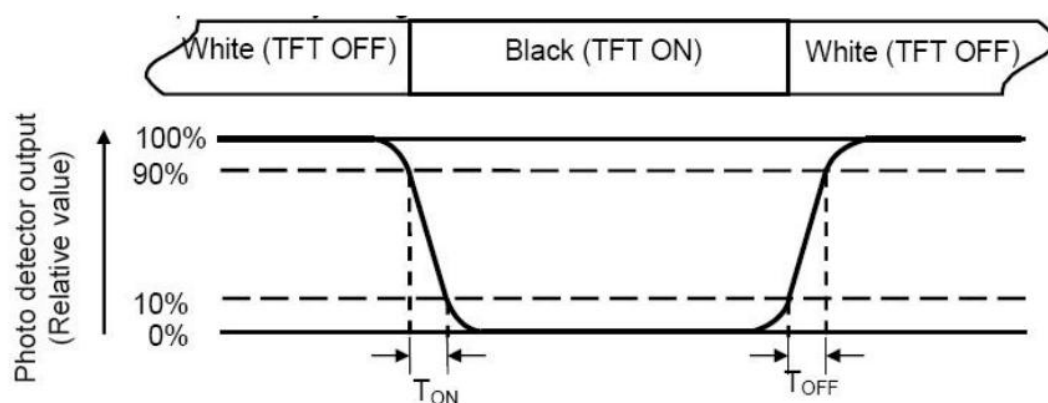
“White state “: The state is that the LCD should drive by V_{white} .

“Black state”: The state is that the LCD should drive by V_{black} .

V_{white} : To be determined V_{black} : To be determined

Note 4: Definition of response time

The response time is defined as the LCD optical switching time interval between “White” state and “Black” state. Rise time (T_{ON}) is the time between photo detector output intensity changed from 90% to 10%. And fall time (T_{OFF}) is the time between photo detector output intensity changed from 10% to 90%.



Note 5: Definition of color chromaticity (CIE1931)

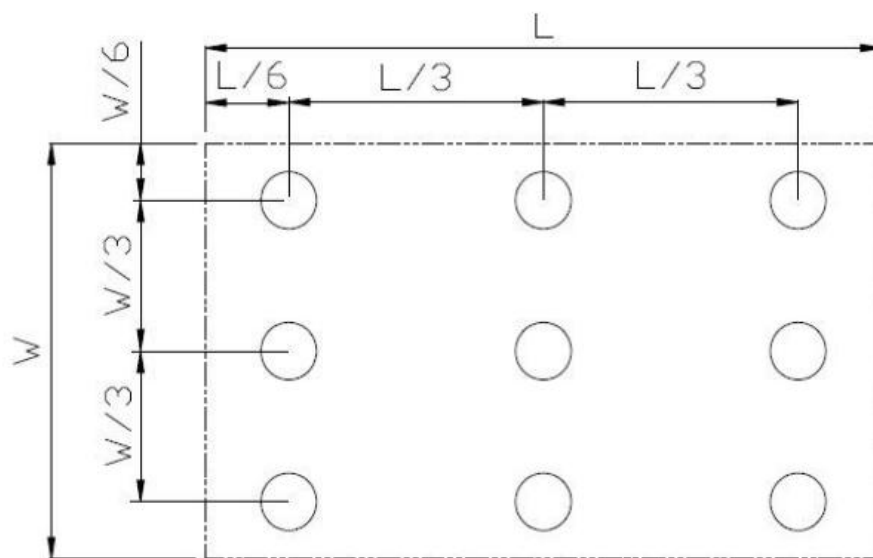
Color coordinates measured at center point of LCD.

Note 6: Definition of luminance uniformity

Active area is divided into 9 measuring areas (Refer Fig. 2). Every measuring point is placed at the center of each measuring area.

Luminance Uniformity (U) = L_{min} / L_{max}

L-----Active area length W----- Active area width



L_{max} : The measured Maximum luminance of all measurement position.

L_{min} : The measured Minimum luminance of all measurement position.

Note 7: Definition of luminance:

Measure the luminance of white state at center point.

7. ENVIRONMENTAL / RELIABILITY TEST

No	Test Item	Condition	Remarks
1	High Temperature Operation	Ts = +70°C, 120 hours	No abnormalities in functions
2	Low Temperature Operation	Ta = -20°C, 120 hours	No abnormalities in functions
3	High Temperature Storage	Ta = +80°C, 120 hours	No abnormalities in functions
4	Low Temperature Storage	Ta = -30°C, 120 hours	No abnormalities in functions
5	Storage at High Temperature and Humidity	Ta = +60°C, 90% RH max, 120 hours	No abnormalities in functions
6	Thermal Shock (non-operating)	-30°C 30 min ~ +70°C 30 min, Change time: 0.5 hour ← 5 min → 0.5 hour. 10 Cycle	Start with cold temperature, End with high temperature,

Remark:

1. The test samples should be applied to only one test item.
2. Sample size for each test item is 1~10 pcs.
3. In case of malfunction defect caused by ESD damage, if it would be recovered to normal state after resetting, it would be judged as a good part.

7.1 JUDGMENT STANDARD

The judgment of the above test should be made as follow:

Pass: Normal display image with no obvious non-uniformity and no line defect. Partial transformation of the module parts should be ignored.

Fail: No display image, obvious non-uniformity, or line defects.

8. PRECAUTION RELATING PRODUCT HANDLING

8.1 SAFETY

8.1.1 If the LCD panel breaks, be careful not to get the liquid crystal to touch your skin.

8.1.2 If the liquid crystal touches your skin or clothes, please wash it off immediately by using soap and water.

8.2 HANDLING

8.2.1 Avoid any strong mechanical shock which can break the glass.

8.2.2 Avoid static electricity which can damage the CMOS LSI—When working with the module, be sure to ground your body and any electrical equipment you may be using.

8.2.3 Do not remove the panel or frame from the module.

8.2.4 The polarizing plate of the display is very fragile. So, please handle it very carefully, do not touch, push or rub the exposed polarizing with anything harder than an HB pencil lead (glass, tweezers, etc.)

8.2.5 Do not wipe the polarizing plate with a dry cloth, as it may easily scratch the surface of plate.

8.2.6 Do not touch the display area with bare hands, this will stain the display area.

8.2.7 Do not use ketonics solvent & aromatic solvent. Use with a soft cloth soaked with a cleaning naphtha solvent.

8.2.8 To control temperature and time of soldering is $280 \pm 10^{\circ}\text{C}$ and 3-5 sec.

8.2.9 To avoid liquid (include organic solvent) stained on LCM.

8.3 STORAGE

8.3.1 Store the panel or module in a dark place where the temperature is $25^{\circ}\text{C} \pm 5^{\circ}\text{C}$ and the humidity is below 65% RH.

8.3.2 Do not place the module near organics solvents or corrosive gases.

8.3.3 Do not crush, shake, or jolt the module.