

SPECIFICATION

规格书

客户名称 Customer	
产品型号 Part NO.	
产品内容 Product type	Mode: Transmissive type .Normally Black. TFT LCD Module LCD Module: Graphic 800RGB*480Dot-matrix
备注栏 Remarks	<input type="checkbox"/> APPROVAL FOR SEPCIFICATIONS ONLY <input checked="" type="checkbox"/> APPROVAL FOR SEPCIFICATIONS AND SAMPLE
客户确认签章 Signature by Customer:	

PREPARED BY	CHECKED BY	APPROVED BY

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3. PRODUCT INFORMATION

3.1. Description

MRK430WV01P40 is a color active matrix LCD module incorporating amorphous silicon TFT(Thin Film Transistor). It is composed of a color TFT-LCD panel, driver ICs, FPC, and a backlight unit, capacitive touch panel. The 4.3" display area contains 800 (RGB) x 480 pixels and can display up to 16.7M colors.

3.2. Features

- Resolution: 800(RGB) x 480 Dots
- Interface for Display: MIPI 2 Lane
- Capacitive touch panel: USB interface,Multi Touch(5 points)
- 8 serial 2 parallel White LED backlight

3.4. General Specifications

ITEM	Standard value	UNIT
LCD SIZE	4.3(Diagonal)	Inch
LCD Type	TFT Transmissive	---
Driver Element	a-Si TFT Active matrix	---
Number of Dots	800*(RGB)*480	Dots
Pixel Arrangement	RGB Vertical Stripe	---
Active Area	95.04(H)*53.856(V)	mm
Viewing Direction	ALL	O'Clock
CTP Driver IC	GT911	---
Module Size(H*V*T)	105.72(W)*67.20(L)*2.*(H)	mm
Backlight	16 White LED Parallel	---
Approx. Weight	TBD	g

4. ABSOLUTE MAXIMUM RATINGS

Item	Symbol	Min.	Max.	Unit	Remark
LC Operating Voltage	VOP	---	4.5	V	25°C
Storage Temperature	TST	-30	+80	°C	-
Operation Temperature	TOP	-20	+70	°C	-

Note:

4-1: No parameter is allowed to exceed to the temperature range.

4-2: 95% RH Max. (40 °C ≥ Ta) Maximum wet-bulb temperature at 39°C or less. (Ta >40 °C) No dew condensation.

4-3: Only operation is guarantied at operating temperature. Contrast, response time and another display quality are evaluated at +25°C.

4-4: The ambient temperature, when backlight is on. (Reference)

5. ELECTRICAL SPECIFICATIONS(Ta=25°C)

5.1. TFT-LCD Panel Driving Section

Item	Symbol	Min.	Typ.	Max.	Unit	Remark
Power voltage	VCC	3.0	3.3	3.6	V	-
Input logic high voltage	VIH	0.7IOVCC	-	IOVCC	V	-
Input logic low voltage	VIL	0	-	0.3IOVCC	V	-
Output logic high voltage	VOH	0.8IOVCC	-	IOVCC	V	
Output logic low voltage	VOL	0	-	0.2IOVCC	V	
I/O power supply	IOVCC	-	-	-	V	
Current for Drive	ICC	-	-	-	mA	-

5.2.Backlight

Item	Symbol	Min.	Typ.	Max.	Unit	Remark
Average Luminous	Iv	-	700	-	cd/m2	
Chromaticity	X	-	-	-		
	Y	-	-	-		
LED Voltage	Vf	22.4	24.8	26.4	V	
LED Current	I _{LED}	-	40	-	mA	
Luminous TOLERANCE	IV-M	70	-		%	
LED life time		20,000	-	-	Hr	

Note1:The LED supply voltage is defined by the number of LED at Ta=25°C and IL=40mA;

Note2:The “LED life time” is defined as the module brightness decrease to 50% original brightness at Ta=25°C and IL=40mA,The LED life time could be decreased if operating IL is larger than 40mA;

5.3. Capacitive touch panel

Item	Symbol	Min.	Typ.	Max.	Unit	Remark
Power supply voltage	USB+5V	4.8	5.0	5.2	V	
Power supply voltage	USB_If	-	TBD	TBD	mA	
Power consumption			TBD	TBD	mW	
Interface		USB			-	
Function		Multi touch			--	
Driver IC		GT911			-	
Fingers		5			points	
Operating System		Windows/Android/Raspberry Pi				
Plug mode		Support hot plug				

6. OPTICAL SPECIFICATIONS(Ta=25°C)

Item	Symbol	Min.	Typ.	Max.	Unit	Remarks
Contrast Ratio	CR	-	1200	-		Fig.1
Brightness		-	700	-	cd/m2	Full White Pattern
Brightness Uniformity		70	-	-	%	Full White Pattern Fig.1,2
Response Time	Tr+Tf	-	30	-	ms	Fig.3
Color Coordinate	WHITE	Wx	0.281	0.311	0.341	IBL=40mA Full White Pattern
		Wy	0.308	0.338	0.368	
view angle	θ_l	70	80	-	Degree	Fig.4 Center (C/R>5)
	θ_r	70	80	-		
	θ_u	70	80	-		
	θ_d	70	80	-		

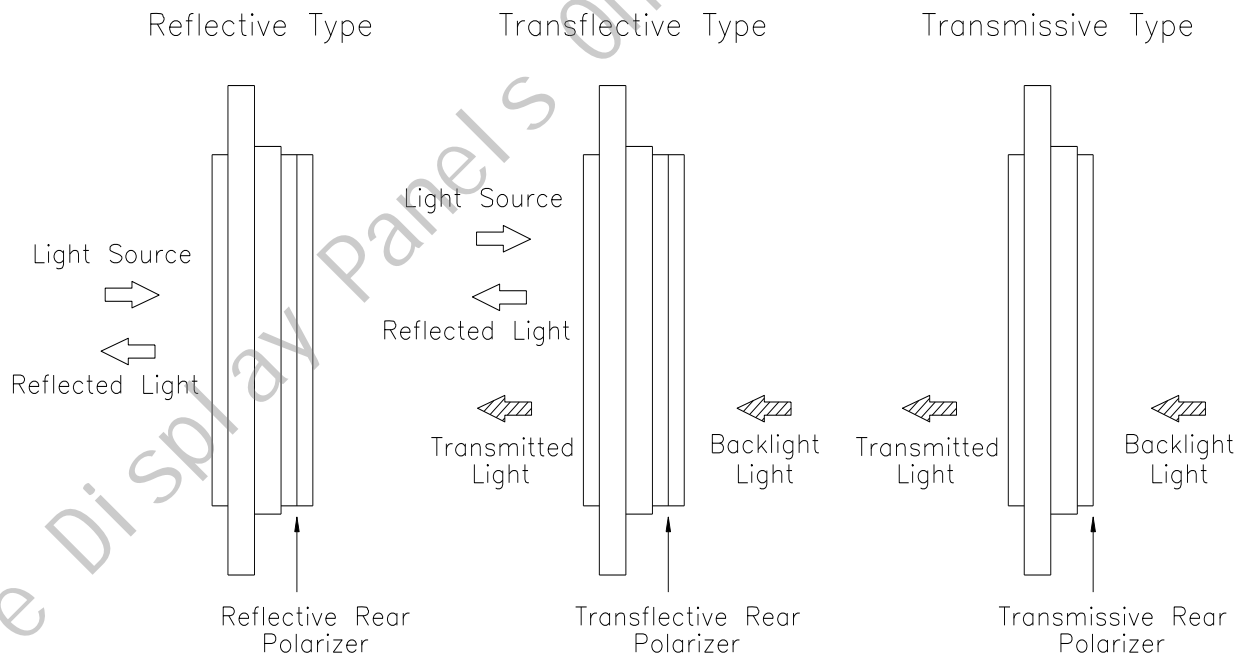
Note:

1. Contrast Ratio(CR) is defined mathematically as :

$$\text{Contrast Ratio} = \frac{\text{Surface Luminance with all white pixels}}{\text{Surface Luminance with all black pixels}}$$

- Surface luminance is the center point across the LCD surface 500mm from the surface with all pixels displaying white. For more information see FIG 1.
- Response time is the time required for the display to transition from black to white (Rise Time, Tr) and from white to black(Decay Time, Tf). For additional information see FIG 3.
- Viewing angle is the angle at which the contrast ratio is greater than 5. The angles are determined for the horizontal or x axis and the vertical or y axis with respect to the z axis which is normal to the LCD surface. For more information see FIG
- Optimum contrast is obtained by adjusting the LCD Threshold voltage (Vth& Vsat)

7. VIEWING MODES



8. ELECTRO-OPTICAL CHARACTERISTICS TEST METHOD

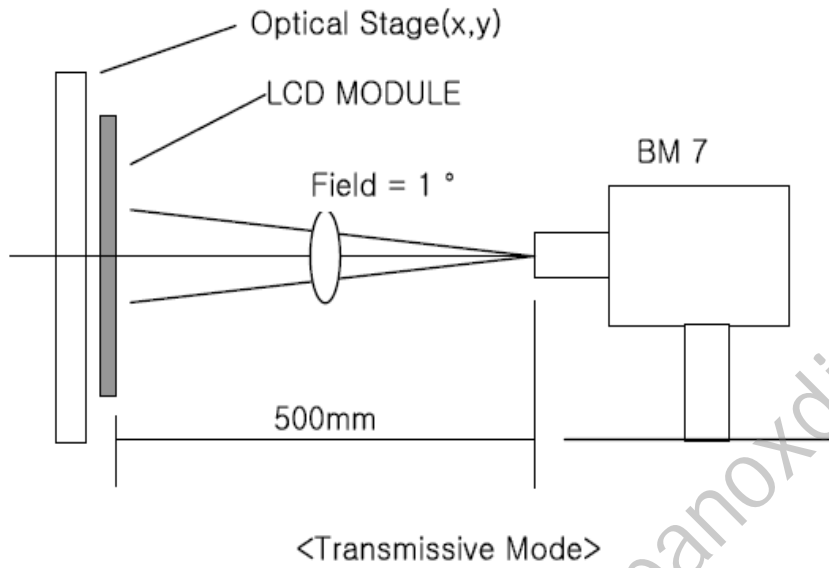
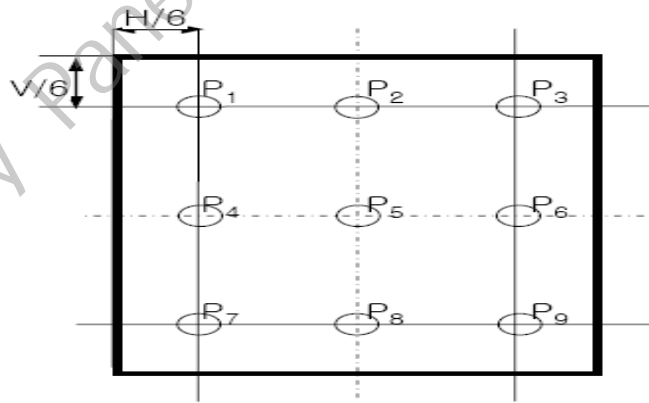
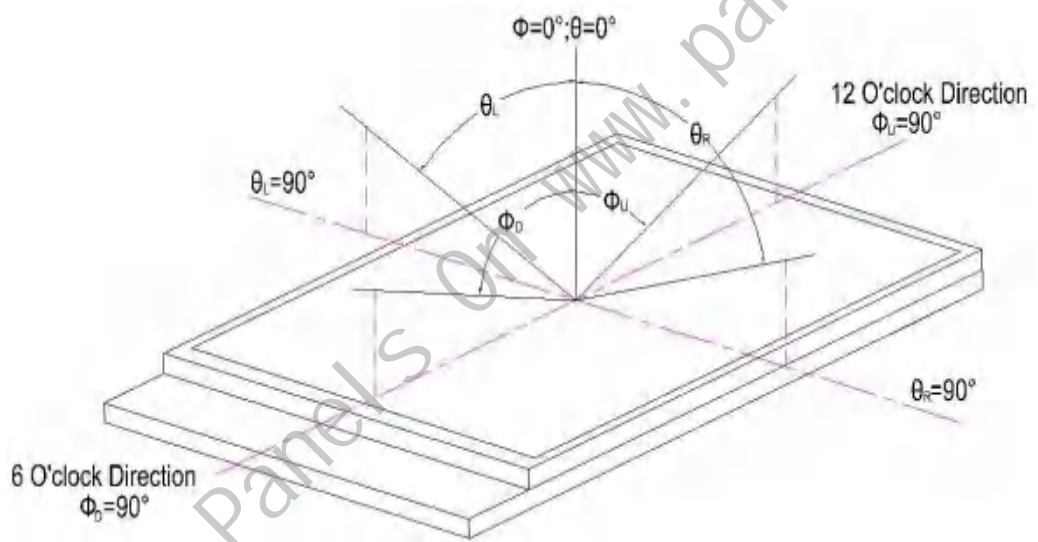
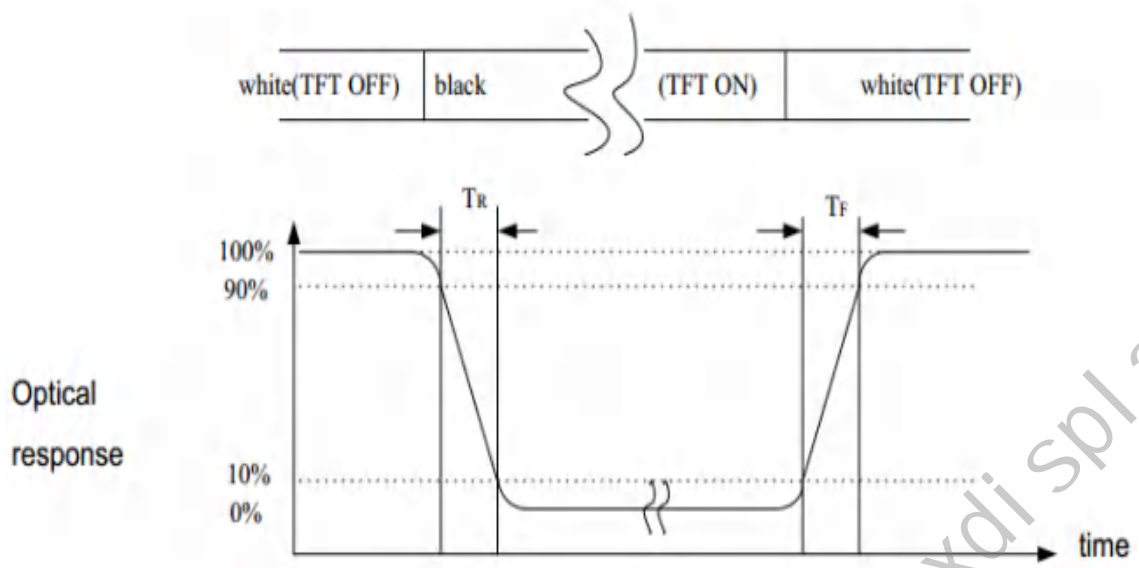


FIG. 1 Optical Characteristic Measurement Equipment and Method



Main Measuring point

Fig. 2 Measuring Points



10. Input/Out Terminals PIN DESCRIPTION

10.1 display module interface

PIN NO.	DIFINATION	Description
1	VCC	Power supply for analog circuit(Type Value 3.3V)
2	VCC	Power supply for analog circuit(Type Value 3.3V)
3	VCC	Power supply for analog circuit(Type Value 3.3V)
4	NC	No connect
5	RESET	This signal will reset the device(Signal is active low.)
6	NC	No connect
7	GND	Ground.
8	D0N	DSI-D0- differential data signals
9	D0P	DSI-D0+ differential data signals
10	GND	Ground.
11	D1N	DSI-D1- differential data signals
12	D1P	DSI-D1+ differential data signals
13	GND	Ground.
14	CLKN	DSI-CLK- differential clock signals
15	CLKP	DSI-CLK+ differential clock signals
16	GND	Ground.
17	NC	No connect
18	NC	No connect
19	GND	Ground.
20	NC	No connect
21	NC	No connect
22	GND	Ground.
23-24	GND	Ground.
25	BLEN	PWM Signal for Backlight
26-29	BL-VIN	Power supply for Backlight(TBD)
30-31	GND	Ground.
32	USB+5V	Power supply for capacitive touch panel
33-34	NC	No connect
35	I2C_SDA	Serial input/output data in I2C-Bus interface
36	I2C_SCL	Serial input /output clock in I2C-Bus interface
37	USB_D-	USB Data Minus for capacitive touch panel
38	USB_D+	USB Data Positive for capacitive touch panel
39	NC	No connect
40	GND	Ground.

Note:To avoid USB I/F damaged,please select only one connection method(mini USB or 40PIN Connector pin 32&37&38),while using the module

10.2 Slider Switch for Backlight

PIN	Description	Remark
1-2	PWM Dimmer	Default
2-3	Backlight Turn On	-

10.3 Capacitive touch panel

Connector:mini USB

PIN No.	Standard value	Description
1	USB+5V	Power supply for capacitive touch panel
2	USB_D-	USB Data Minus for capacitive touch panel
3	USB_D+	USB Data Positive for capacitive touch panel
4	USB_ID	Host mode:connect to GND, Device mode:keep floating(default)
5	GND	Ground

11. RELIABILITY

The LCD module shall be designed to meet a minimum working life value of 50000 hours with normal. (25°C in the room without sunlight)

11.1 TESTS

No.	Item	Condition	Criterion
1	High Temperature Operating	70°C±2°C 120Hrs	<ul style="list-style-type: none"> ◦ No defect of operational function in room temperature are allowable; ◦ IDD of LCM in pre-and post-test should follow specification
2	Low Temperature Operating	-20°C±2°C 120Hrs	
3	High Temperature/ Humidity Operating	60°C±2°C ,90%RH ,120 Hrs	
4	High Temperature Non-Operating	80°C±2°C 240Hrs	
5	Low Temperature Non-Operating	-30°C±2°C 240Hrs	
6	Temperature Cycling Non-Operating	-30°C±2°C(30Min)↔ 80°C±2°C(30Min) 10 CYCLES	

7	Vibration Test	Frequency:10HZ-55HZ-10HZ Amplitude:1.5mm,X、 Y、 Z direction for total 3hours.(Packing condition)
8	Dropping Test	Drop to the ground from 1m height, one time, every side of carton. (Packing condition)
9	ESD Test	Voltage: ±4KV R:330Ω C:150pF Air discharge,10time

Notes: 1.The test samples should be applied to only one test item;

2. Sample size for each test item is 5-10 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;

4. Failure judgment criterion: Basic specification, Electrical characteristic, Mechanical characteristic, Optical characteristic;

5. Judgments should be mode after exposure in room temperature for two hours.

12. HANDLING PRECAUTIONS

(1) Safety

The liquid crystal in the LCD is poisonous. Do not put it in your mouth. If the liquid crystal touches your skin or clothes, wash it off immediately using soap and water.

(2) Limited Warranty

Unless agreed between JCHY and the customer, JCHY will replace or repair any of its LCD modules which are found to be functionally defective when inspected in accordance with JCHY acceptance standards(copies available upon request) for a period of one year from date of production. Cosmetic/visual defects must be returned to JCHY within 90 days of shipment. Confirmation of such date shall be based on date code on product. The warranty liability of JCHY to repair and /or replace on the terms set forth above. JCHY will not be responsible for any subsequent or consequential events.

(3) Handling

- A. The LCD and touch panel is made of plate glass. Do not subject the panel to mechanical shock or to excessive force on its surface.
- B. Do not handle the product by holding the flexible pattern portion in order to assure the reliability
- C. Transparency is an important factor for the touch panel. Please wear clear finger sacks, gloves and mask to protect the touch panel from finger print or stain and also hold the portion outside the view area when handling the touch panel.
- D. Provide a space so that the panel does not come into contact with other components.
- E. To protect the product from external force, put a covering lens (acrylic board or similar board) and keep an appropriate gap between them.

- F. Transparent electrodes may be disconnected if the panel is used under environmental conditions where dew condensation occurs.
- G. Property of semiconductor devices may be affected when they are exposed to light, possibly resulting in IC malfunctions.
- H. To prevent such IC malfunctions, your design and mounting layout shall be done in the way that the IC is not exposed to light in actual use.

(4) Static Electricity

- A. Ground soldering iron tips, tools and testers when they are in operation.
- B. Ground your body when handling the products.
- C. Power on the LCD module before applying the voltage to the input terminals.
- D. Do not apply voltage which exceeds the absolute maximum rating.
- E. Store the products in an anti-electrostatic bag or container.

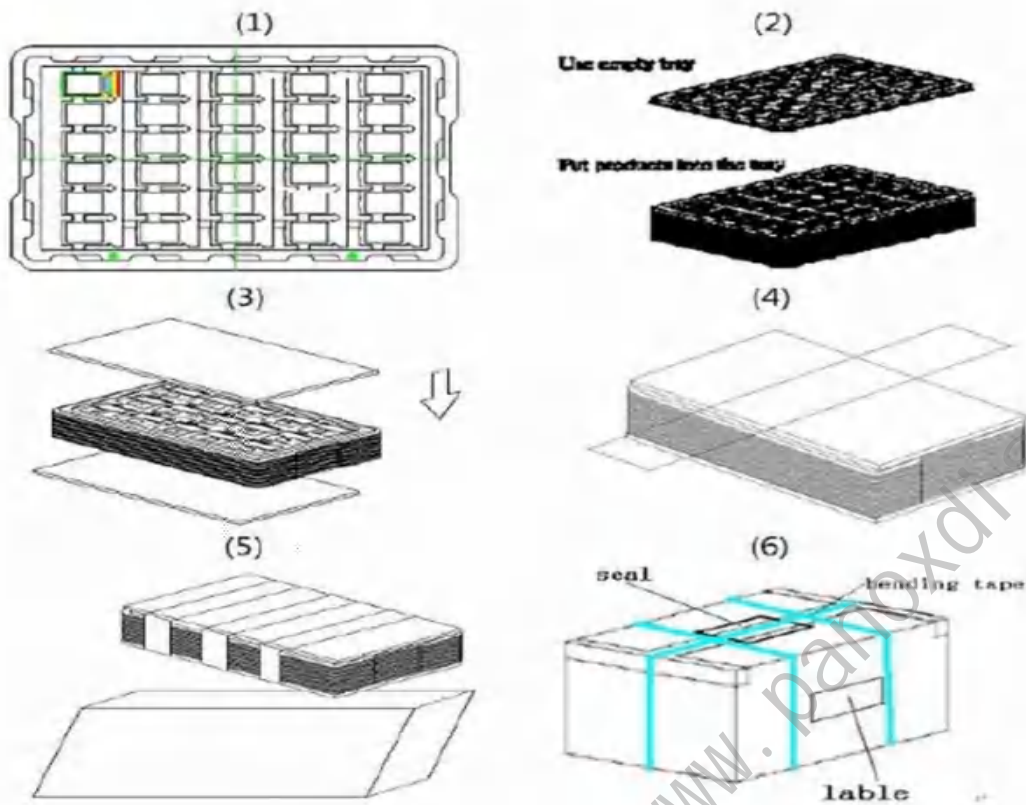
(5) Storage

- A. Store the products in a dark place at $+25^{\circ}\text{C}\pm 10^{\circ}\text{C}$ with low humidity (40% RH to 60% RH). Don't expose to sunlight or fluorescent light.
- B. Storage in a clean environment, free from dust, active gas, and solvent.

(6) Cleaning

- A. Do not wipe the touch panel with dry cloth, as it may cause scratch.
- B. Wipe off the stain on the product by using soft cloth moistened with ethanol. Do not allow ethanol to get in between the upper film and the bottom glass. It may cause peeling issue or defective operation. Do not use any organic solvent or detergent other than ethanol.

13. PACKAGE METHOD



1. Put module into tray cavity.
2. Tray stacking.
3. Put 1 foam under the tray stack and 1 foam above.
4. Fix the cardboard to the tray stack with adhesive tape.
5. Put the tray stack into carton.
6. Carton sealing with adhesive tape.

13.2 Storage Method

1. Store in an ambient temperature of $23^{\circ}\text{C}\pm 5^{\circ}\text{C}$, and in a relative humidity of $55\%\pm 15\%$. Don't exceed 12 months and expose to sunlight or fluorescent light.
2. Store in a clean environment, free from dust, active gas, and solvent.
3. Store in antistatic container.