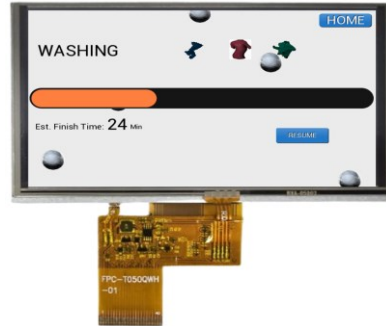


DP-0501-11A Datasheet



1 Introduction

The DP-0501-11A is a 5-inch TFT-LCD module with a resolution of 800 × 480 pixels. It integrates a TFT-LCD panel, driver ICs (ILI6122 and ILI5960), flexible printed circuit (FPC), backlight unit, and a resistive touch panel (RTP).

Designed to deliver 16.7 million colors through an RGB interface, the DP-0501-11A offers high-quality visual performance and reliable operation.

1.1 Features

- 5.0" TFT-LCD with 800 × 480 resolution and resistive touch panel (RTP)
- Supports 16.7M colors for vivid and accurate display output
- RGB interface for reliable signal transmission
- Compliant with RoHS environmental requirements

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2 Part Numbers/Ordering Information

Part No.	Description
DP-0501-11A	TFT Display 5 inch (800*480 resolution) with Resistive Touch Panel

Table 1 - Part Number/Ordering Information

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3 General Specifications

Item	Specification	Unit
LCD Type	TFT	-
LCD Size	5	inch
Number of Pixels	800(H) x 480(V)	pixels
Viewing Direction	12	o'clock
Gray Scale Inversion Direction	6	o'clock
Interface	24-bit RGB	
Display Colors	16.7M Colors (RGB 8 bit)	colors
Module Size	120.70(H) x 75.80(V) x 4.30(D)	mm
Active Area	108.00(H) x 64.80(V)	mm
Display Driver IC	ILI6122 & ILI5960	-
Touch Panel	Resistive Touch Panel	-
Operation Temperature	-20~+70°C	°C
Storage Temperature	-30~+80°C	°C

Table 2 - General Specifications

Note: Complies with environmental protection requirements and is RoHS compliant.

4 Hardware Description

The DP-0501-11A features a 5-inch TFT-LCD with an 800 × 480 resolution, integrated with a resistive touch panel.

4.1 TFT-LCD Interface Pin Assignment

The interface connector pin configuration is described below.

Pin no	Symbol	Type	Description
1	VLED-	P	LED backlight (Cathode)
2	VLED+	P	LED backlight (Anode)
3	GND	P	Ground
4	VCC	P	Power Supply
5	R0	I	Red Data Input
6	R1	I	Red Data Input
7	R2	I	Red Data Input
8	R3	I	Red Data Input
9	R4	I	Red Data Input
10	R5	I	Red Data Input
11	R6	I	Red Data Input
12	R7	I	Red Data Input
13	G0	I	Green Data Input
14	G1	I	Green Data Input
15	G2	I	Green Data Input
16	G3	I	Green Data Input
17	G4	I	Green Data Input
18	G5	I	Green Data Input
19	G6	I	Green Data Input
20	G7	I	Green Data Input
21	B0	I	Blue Data Input
22	B1	I	Blue Data Input
23	B2	I	Blue Data Input
24	B3	I	Blue Data Input
25	B4	I	Blue Data Input
26	B5	I	Blue Data Input
27	B6	I	Blue Data Input
28	B7	I	Blue Data Input
29	GND	P	Ground
30	PCLK	I	Data Clock
31	DISP	I	Normal Display and Standby Mode select pin
32	HSYNC	I	Line Sync Signal
33	VSYNC	I	Frame Sync Signal
34	DE	I	Data Enable Pin
35	NC	-	No Connection

36	GND	P	Ground
37	XR	O	Touch Panel Control Pin
38	YD	O	Touch Panel Control Pin
39	XL	O	Touch Panel Control Pin
40	YU	O	Touch Panel Control Pin

Table 3 - TFT-LCD Interface Pin Definition

5 Specifications

5.1 Absolute Maximum Ratings

5.1.1 Electrical Absolute Maximum Ratings

Condition: $V_{SS}=0V$, $T_a=25^{\circ}C$

Item	Symbol	MIN.	MAX.	Unit	Note
Power Supply Voltage	VCC	-0.3	3.6	V	Note 1, 2

Table 4 - Electrical Absolute Maximum Ratings

Note:

1. Permanent damage to the LCD module may occur if operated beyond the specified limits. Operation beyond the specified electrical characteristics may lead to malfunction or reduced reliability.
2. VCC must always be greater than Vss.

5.1.2 Environmental Absolute Maximum Ratings

Item	Storage		Operating		Note
	MIN.	MAX.	MIN.	MAX.	
Ambient Temperature	-30°C	80°C	-20°C	70°C	Note 1, 2
Humidity	-	-	-	-	Note 3

Table 5 - Environmental Absolute Maximum Ratings

Note:

1. Response time decreases at low operating temperatures.
2. Background color may vary slightly with ambient temperature; this phenomenon is reversible.
3. $T_a \leq 40^{\circ}C$: 85%RH MAX
 $T_a \geq 40^{\circ}C$: Absolute humidity must not exceed the equivalent of 85% RH at 40°C.

5.2 Electrical Specifications

5.2.1 Electrical Characteristics

Condition: $V_{SS}=0V$, $T_a=25^{\circ}C$

Item	Symbol	Min.	Typ.	Max.	Unit	Note
Power Supply	VCC	3.0	3.3	3.6	V	
Input Voltage	'H'	V_{IH}	$0.7 \cdot V_{CC}$	V_{CC}	V	$V_{CC}=3.3V$
	'L'	V_{IL}	0	$0.3 \cdot V_{CC}$	V	$V_{CC}=3.3V$
Current Consumption	I_{CC1}	-	20	30	mA	Normal mode, Note 1
	I_{CC2}	-	0.05	0.1	mA	Sleep mode, Note 1

Table 6 - Electrical Characteristics

Note:

1. Tested in 1x1 chessboard pattern.

5.2.2 LED Backlight Specification

The backlight consists of 18 white LEDs arranged in a 6 × 3 matrix, providing uniform illumination across the display.

Condition: $V_{SS}=0V$, $T_a=25^{\circ}C$

Item	Symbol	Min.	Typ.	Max.	Unit	Condition
Supply Voltage	V_f	-	18	-	V	$I_f=20 \times 3mA$
Forward Current	I_f	-	60	-	mA	

Table 7 - LED Backlight Specification

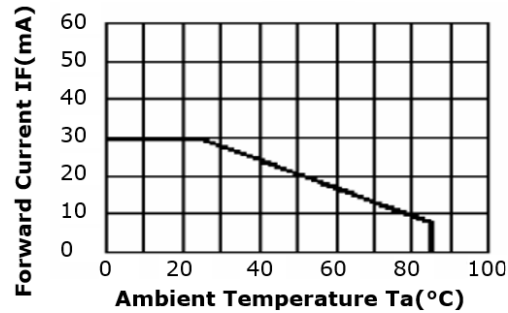


Figure 1 - Forward Current vs Ambient Temperature

Note: The forward current shown in Figure 1 is specified per LED string.

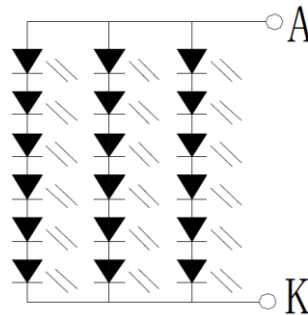


Figure 2 - Backlight LED Circuit

5.3 Timing Chart

5.3.1 Horizontal Input Timing

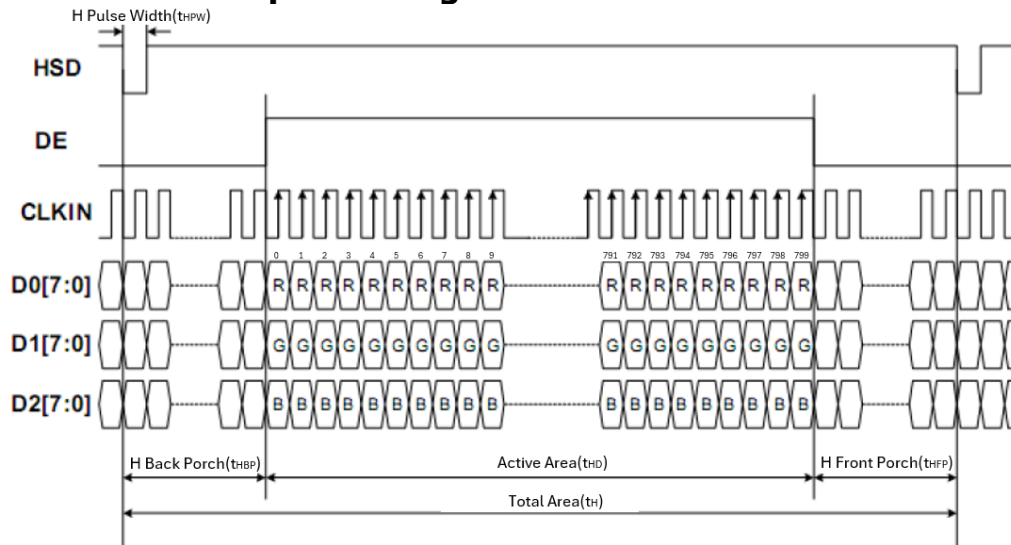


Figure 3 - Horizontal Input Timing

Parameter	Symbol	Min.	Typ.	Max.	Unit
Horizontal Display Area	t_{HD}	-	800	-	CLKIN
CLKIN Frequency	F_{CLK}	-	33.3	50	MHz
1 Horizontal Line Period	t_H	862	1056	1200	CLKIN
HSD Pulse Width	t_{HPW}	1	-	40	CLKIN
HSD Back Porch	SYNC t_{HBP}	46	46	46	CLKIN
HSD Front Porch	SYNC t_{HFP}	16	210	354	CLKIN

Table 8 - Horizontal Input Timing

5.3.2 Vertical Input Timing

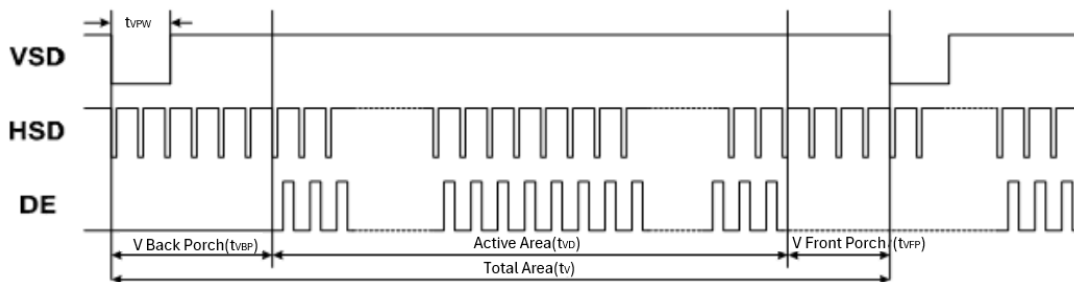


Figure 4 - Vertical Input Timing

Parameter	Symbol	Min.	Typ.	Max.	Unit
Vertical Display Area	t_{VD}	-	480	-	HSD
VSD Period time	t_V	510	525	650	HSD
VSD Pulse Width	t_{VPW}	1	-	20	HSD
VSD Back Porch	t_{VBP}	23	23	23	HSD
VSD Front Porch	t_{VFP}	7	22	147	HSD

Table 9 - Vertical Input Timing

5.4 Optical Specifications

All optical specifications are measured under typical condition (Note 1, 2)

Item	Symbol	Condition	Min.	Typ.	Max.	Unit	Note
Brightness	Bp	$\theta=0^\circ$ $\Phi=0^\circ$	-	400	-	Cd/m ²	Note 1
Uniformity	ΔBp		75	-	-	%	Note 1 Note 2
Viewing Angle	3:00	$Cr \geq 10$	-	60	-	Deg	Note 3
	6:00		-	45	-		
	9:00		-	60	-		
	12:00		-	60	-		
Contrast Ratio	Cr	$\theta=0^\circ$ $\Phi=0^\circ$	300	500	-	-	Note 4
Response Time	T _r		-	10	-	ms	Note 5
	T _f		-	10	-	ms	
Color of CIE Coordinate	W	x	$\theta=0^\circ$ $\Phi=0^\circ$	0.28		-	Note 1 Note 6
		y		0.33		-	
	R	X		0.51		-	
		y		0.34		-	
	G	x		0.31		-	
		y		0.56		-	
	B	x		0.15		-	
		y		0.14		-	
NTSC Ratio	S		50	60	-	%	

Table 10 - Optical Specifications

Remark: *Parameters may vary slightly depending on temperature, driving voltage, and material.*

Note:

1. Data are measured after the LEDs are turned on for 5 minutes with the LCM displaying full white. Brightness is the average value of 9 measured points. Measurement equipment: PR-705 (Φ8mm)

Measuring Conditions:

- Environment: Dark room
- Temperature: Ta=25°C
- Operating voltage adjusted for optimum contrast at the center of the display
- Values measured at the center point of the LCD panel after more than 5 minutes of backlight operation

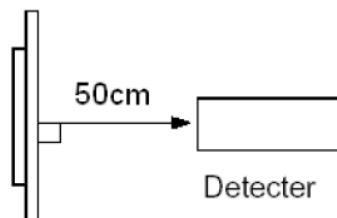


Figure 5 - Measurement Setup

2. The luminance uniformity is calculated using the following formula:

$$\Delta Bp = \frac{Bp \text{ (Min.)}}{Bp \text{ (Max.)}} \times 100\%$$

Bp (Max.) = Maximum brightness in 9 measured spots

Bp (Min.) = Minimum brightness in 9 measured spots

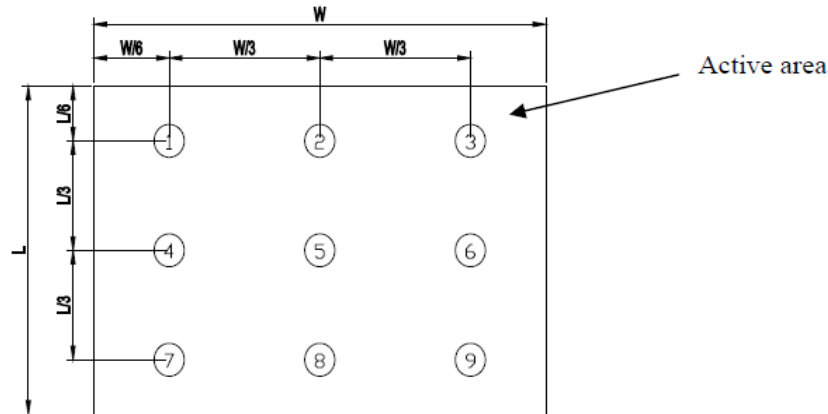


Figure 6 - Measurement Point

3. Definition of viewing angle: Refer to the figure below, indicated by θ and Φ .

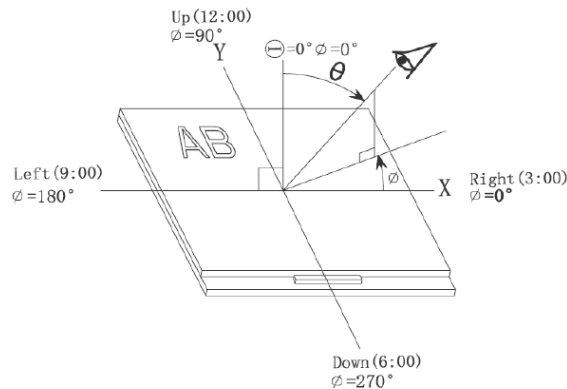


Figure 7 - Viewing Angle

4. Definition of Contrast ratio. (Test equipment: DMS501)

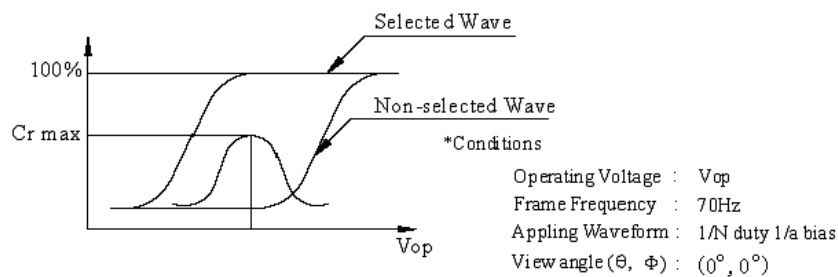


Figure 8 - Contrast Ratio

$$\text{Contrast ratio, Cr} = \frac{\text{Brightness of selected dots}}{\text{Brightness of non-selected dots}}$$

5. Definition of response time. (Test equipment: DMS501)

The output signals of the photo detector are measured when the input signal changes from "black" to "white" (falling time) and from "white" to "black" (rising time). Response time is defined as the time interval between 10% and 90% of the signal amplitude. Refer to the figure below for illustration.

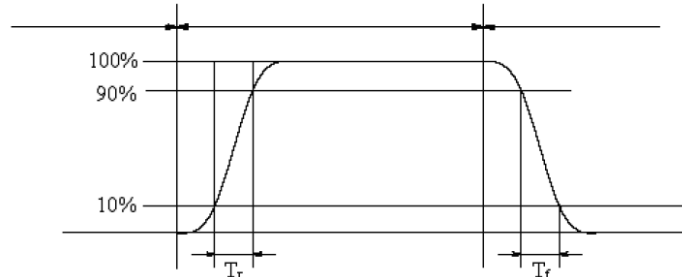


Figure 9 - Definition of Response Time

6. Definition of color in terms of CIE coordinates and NTSC ratio.

Color gamut:
$$S = \frac{\text{Area of RGB triangle}}{\text{Area of NTSC triangle}} \times 100\%$$

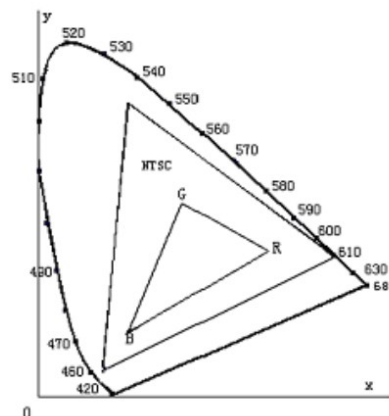


Figure 10 - 1931 CIE Chromaticity Diagram

7. Definition of cross talk.

Cross talk ratio(%) =
$$\frac{|\text{Pattern A Brightness} - \text{Pattern B Brightness}|}{\text{Pattern A Brightness}} \times 100\%$$

Electric volume value = 3F+ / -3Hex

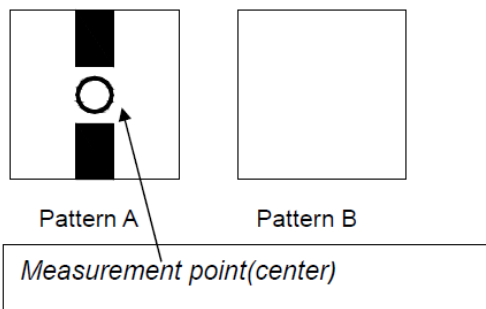


Figure 11 - Definition of Cross Talk

6 Reliability Test Items

Test Item	Test Conditions	Criterion
High Temperature Storage	Temperature: +80°C±2°C Duration: 96hrs Restoration: 2hrs at 25°C Power Status: OFF	1.No cosmetic or electrical defects shall be observed after testing. 2.Total current consumption shall not exceed twice the initial value.
Low Temperature Storage	Temperature: -30°C±2°C Duration: 96hrs Restoration: 2hrs at 25°C Power Status: OFF	
High Temperature Operation	Temperature: +70°C±2°C Duration: 96hrs Restoration: 2hrs at 25°C Power Status: ON	
Low Temperature Operation	Temperature: -20°C±2°C Duration: 96hrs Restoration: 4hrs at 25°C Power Status: ON	
High Temperature and Humidity Operation	Temperature: +60°C±2°C Humidity:90% RH Duration: 96hrs Power Status: ON	
Temperature Cycle	Range: -30°C ~ +80°C Cycle: 5 cycle Dwell: 30 min at each extreme Transfer Time: ≤5 min Restoration: 2hrs at 25°C Power Status: OFF	Cosmetic and electrical defects are not permitted.
Vibration Test	Frequency: 10Hz ~ 150Hz Acceleration: 100m/s ² Duration: 120min	
Shock Test	Waveform: Half-sine wave Acceleration:300m/s ² Duration:11ms	

Table 11 - Reliability Test Items

Note: Operation : Supply 3.3 V to the logic system.

The inspection criteria after reliability testing are as follows:

Item	Inspection
Contrast	CR > 50%
I _{DD}	I _{DD} < 200%
Brightness	Brightness > 60%
Color Tone	Color Tone ±0.05

7 Dimension

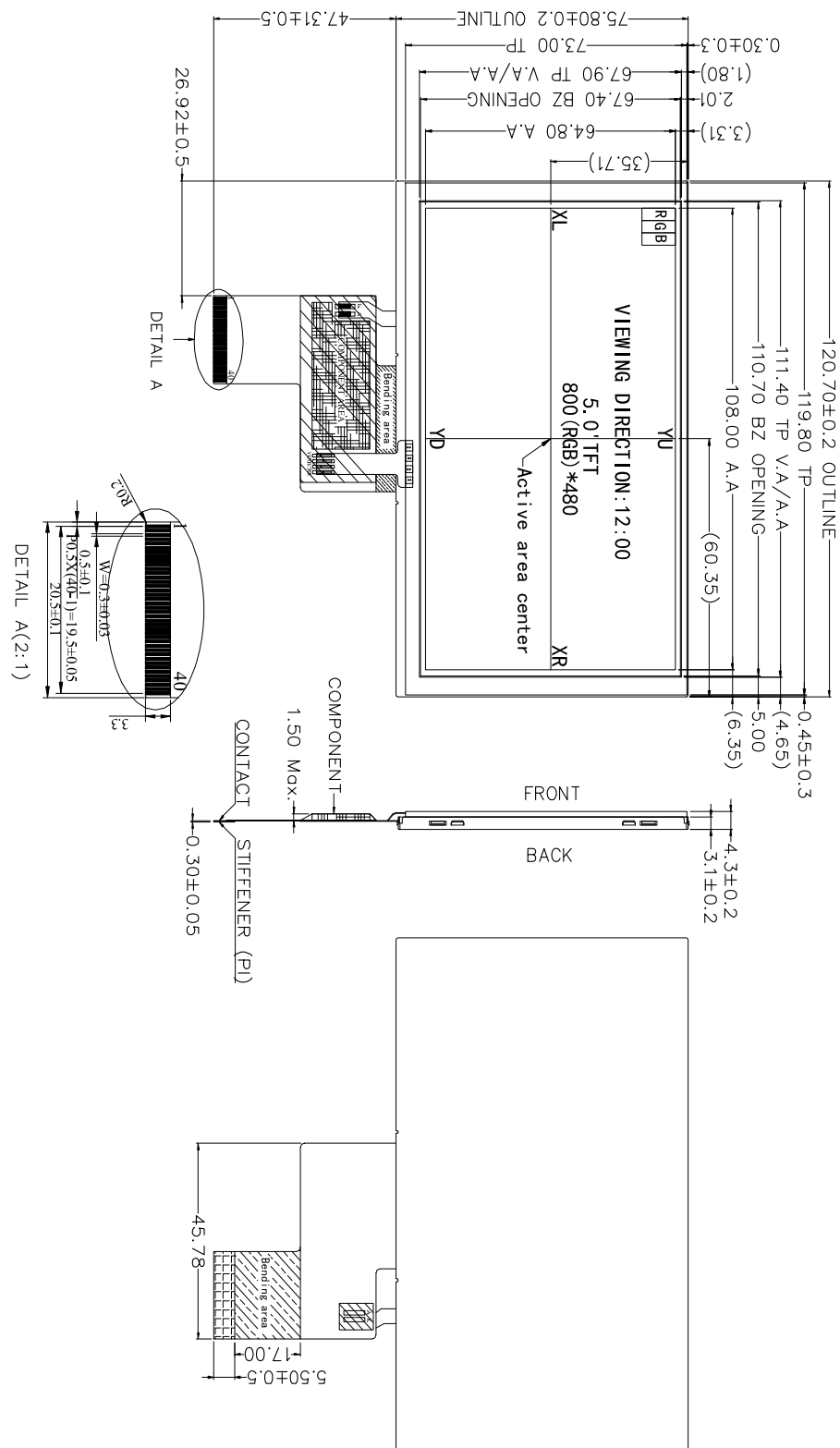


Figure 12 - LCM Dimension

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- The device has malfunctioned due to improper use, mishandling, or usage beyond its intended design.
- The device has been disassembled, repaired, or modified by unauthorized personnel.
- Any other conditions that do not comply with our warranty policy. For details, please [contact our sales team](#).

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Appendix A – References

Document References

NA

Acronyms and Abbreviations

Terms	Description
FPC	Flexible Printed Circuit
IC	Integrated Circuit
I2C	Inter-Integrated Circuit
LCD	Liquid Crystal Display
LCM	Liquid Crystal Module
LED	Light Emitting Diode
LED A	Light Emitting Diode Anode
LED K	Light Emitting Diode Cathode
RTP	Resistive Touch Panel
TFT	Thin Film Transistor

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Appendix C – Revision History

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Revision	Changes	Date
Version 1.0	Initial Release	07-11-2025