

# SMART DISPLAY MODULE SPECIFICATION

5.0 Inch Smart Display with TOUCH	
<b>Model:</b>	UEDX80480050E-WB-A
<b>Version:</b>	V3.0
<b>Date:</b>	2024-07-16

## Customer Confirmation

Approved by	Notes

## REVISION HISTORY

Revision	Date	Contents of Revision Change	Remark
V1.0	20230830	Preliminary release	
V1.1	20231121	Optimize PCB positioning holes	
V2.0	20240123	Change to English version	
V2.1	20240309	Change header	
V2.2	20240528	Change file names and watermarks	
V2.3	20240613	Updated mechanical drawing	
V2.4	20240716	Update company logo on PCB	
V3.0	20240724	Add schematic	

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# 1. Introduction

## 1.1 Features

### Brief Info:

- 1) Two buttons: a reset button and a boot button.
- 2) Backup IO: download ports and multiple IO leads to use on both sides of the periphery.
- 3) Power: DC 5V, 300mA

### System

- 1) OS: RTOS
- 2) CPU: ESP32-S3 240Mhz
- 3) RAM: 8MB
- 4) Flash: 16MB
- 5) Interface: UART/USB
- 6) Support 2.4GHz Wi-Fi、BLE 5、BLE Mesh

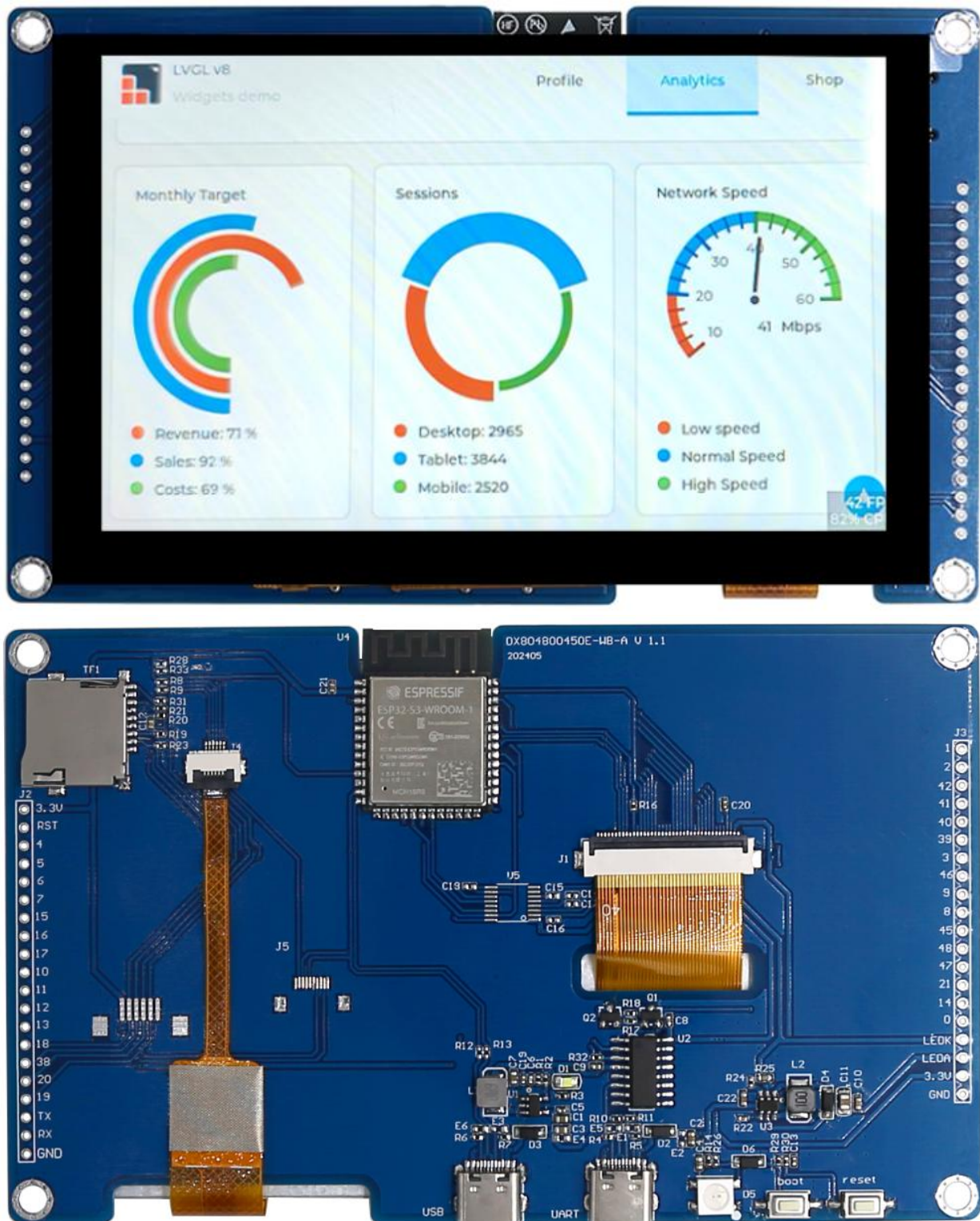
### Display

- 1) Size: 5.0 Inch
- 2) Resolution: 800 \*480
- 3) Mode: IPS
- 4) Brightness: 300 cd/m<sup>2</sup>
- 5) Touch: CTP

### Other

- 1) Operation Temperature: -20~70°C
- 2) Storage Temperature: -30~80°C

## 1.2 Appearance picture



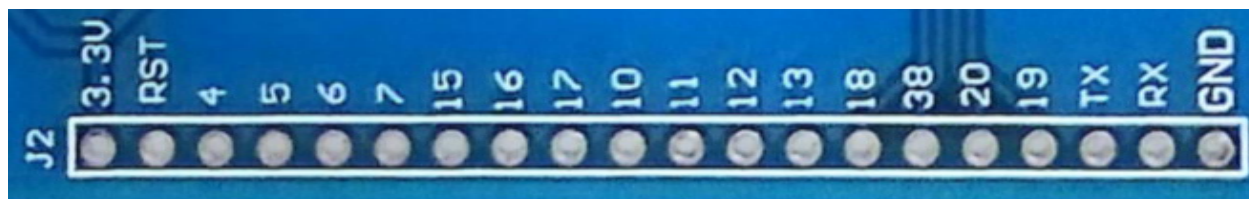
## 2. Product information

### 2.1 Interface Description

Pin NO.	Symbol	Description	Voltage Range	Current Occupancy
1	3.3V	Power 3.3V	3.3V	Power 3.3V
2	RST	High: on, enables the chip Low: off, the chip powers off. Note: Do not leave the EN pin floating	0-3.3V	Note: Do not leave the EN pin floating
3	4	RTC_GPIO4, GPIO4, TOUCH4, ADC1_CH3	0-3.3V	GPIO4
4	5	RTC_GPIO5, GPIO5, TOUCH5, ADC1_CH4	0-3.3V	GPIO5
5	6	RTC_GPIO6, GPIO6, TOUCH6, ADC1_CH5	0-3.3V	GPIO6
6	7	RTC_GPIO7, GPIO7, TOUCH7, ADC1_CH6	0-3.3V	GPIO7
7	15	RTC_GPIO15, GPIO15, U0RTS, ADC2_CH4, XTAL_32K_P	0-3.3V	GPIO15
8	16	RTC_GPIO16, GPIO16, U0CTS, ADC2_CH5, XTAL_32K_N	0-3.3V	GPIO16
9	17	RTC_GPIO17, GPIO17, U1TXD, ADC2_CH6	0-3.3V	GPIO17
10	10	RTC_GPIO10, GPIO10, TOUCH10, ADC1_CH9, FSPICS0, FSPIIO4, SUBSPICS0	0-3.3V	SUBSPICS0
11	11	RTC_GPIO11, GPIO11, TOUCH11, ADC2_CH0, FSPID, FSPIIO5, SUBSPID	0-3.3V	GPIO11
12	12	RTC_GPIO12, GPIO12, TOUCH12, ADC2_CH1, FSPICLK, FSPIIO6, SUBSPICLK	0-3.3V	SUBSPICLK
13	13	RTC_GPIO13, GPIO13, TOUCH13, ADC2_CH2, FSPIQ, FSPIIO7, SUBSPIQ	0-3.3V	GPIO13
14	18	RTC_GPIO18, GPIO18, U1RXD, ADC2_CH7, CLK_OUT3	0-3.3V	GPIO18
15	38	GPIO38, FSPIWP, SUBSPIWP	0-3.3V	GPIO38
16	20	RTC_GPIO20, GPIO20, U1CTS, ADC2_CH9, CLK_OUT1, USB_D+	0-3.3V	USB_D+
17	19	RTC_GPIO19, GPIO19, U1RTS, ADC2_CH8, CLK_OUT2, USB_D-	0-3.3V	USB_D-
18	TX	U0TXD, GPIO43, CLK_OUT1	0-3.3V	U0TXD
19	RX	U0RXD, GPIO44, CLK_OUT2	0-3.3V	U0RXD
20	GND	Grounds	0V	Grounds



The following picture shows the pins with 20 pind spacing between 2.54mm



Pin NO.	Symbol	Description	Voltage Range	Current Occupancy
1	1	RTC_GPIO1, GPIO1, TOUCH1, ADC1_CH0	0-3.3V	GPIO1
2	2	RTC_GPIO2, GPIO2, TOUCH2, ADC1_CH1	0-3.3V	GPIO2
3	42	MTMS, GPIO42	0-3.3V	GPIO42
4	41	MTDI, GPIO41, CLK_OUT1	0-3.3V	GPIO41
5	40	MTDO, GPIO40, CLK_OUT2	0-3.3V	GPIO40
6	39	MTCK, GPIO39, CLK_OUT3, SUBSPICS1	0-3.3V	GPIO39
7	3	RTC_GPIO3, GPIO3, TOUCH3, ADC1_CH2	0-3.3V	GPIO3
8	46	GPIO46	0-3.3V	GPIO46
9	9	RTC_GPIO9, GPIO9, TOUCH9, ADC1_CH8, FSPIHD, SUBSPIHD	0-3.3V	GPIO9
10	8	RTC_GPIO8, GPIO8, TOUCH8, ADC1_CH7, SUBSPICS1	0-3.3V	GPIO8
11	45	GPIO45	0-3.3V	GPIO45
12	48	SPICLK_N_DIFF,GPIO48, SUBSPICLK_N_DIFF	0-3.3V	GPIO48
13	47	SPICLK_P_DIFF,GPIO47, SUBSPICLK_P_DIFF	0-3.3V	GPIO47
14	21	RTC_GPIO21, GPIO21	0-3.3V	GPIO21
15	14	RTC_GPIO14, GPIO14, TOUCH14, ADC2_CH3, FSPIWP, FSPIDQS, SUBSPIWP	0-3.3V	GPIO14
16	0	RTC_GPIO0, GPIO0	0-3.3V	GPIO0
17	LEDK	BL-	TDB	BL-
18	LEDA	BL+	TDB	BL+
19	3.3V	Power 3.3V	3.3V	Power 3.3V
20	GND	Grounds	0V	Grounds

The picture below shows a 1\*21 needle row with a spacing of 2.54mm



The following picture shows the boot button on the left and the reset button on the right.



The following figure is the schematic diagram of USB. USB is used for power and download.



## 2.2 Display Information

Item	Parameter	Description
Color	65K colors	R5G6B5 16bits
AA	108.00(W)*64.8(H)	5.0 inch
Resolution	800*480	Rectangle
Backlight	LED	30000Hour Min
Brightness	380 cd/m <sup>2</sup>	

## 2.3 Voltage & Current

Item	Conditions	Min	Typ	Max	Unit
Power Voltage	DC	4.0	5.0	5.5	V
Operation Current	VCC= +5V, Maximum backlight current		300		mA
	VCC= +5V, backlight off	-	150	-	mA

Recommended power supply: 5V 1A DC



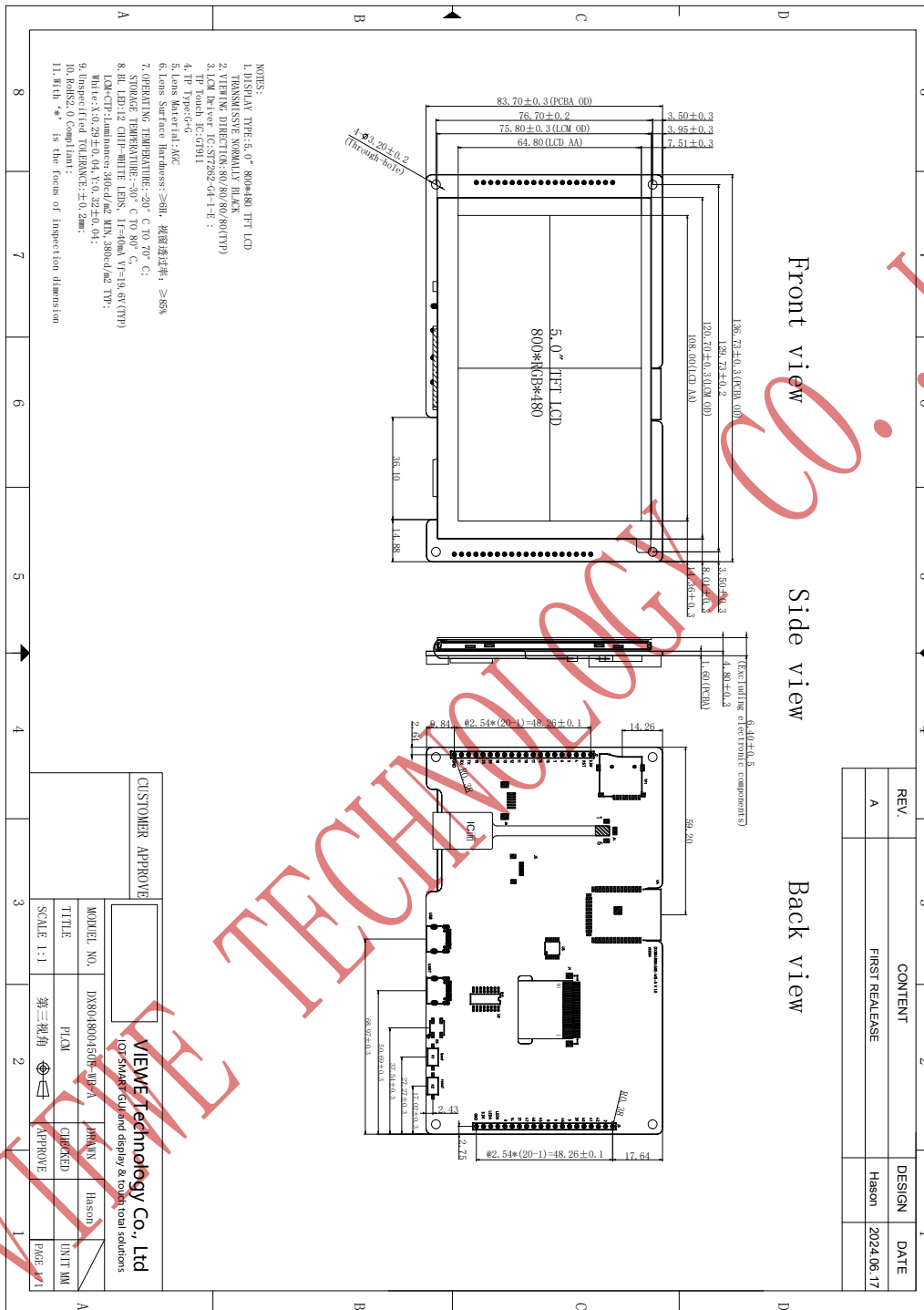
## 2.4 Reliability Test

Item	Conditions	Min	Typ	Max	Unit
Working Temperature	60%RH at 5V voltage	-20	25	70	C
Storage Temperature	---	-30	25	85	C
Working Humidity	25°C	10%	60%	90%	RH
ESD	---	Contact: ±4KV Air: ±8KV			KV

## 2.5 Related software

Software name	Version	Software associated configuration
Arduino IDE	2.0.17	<ol style="list-style-type: none"> <li>1. Board: ESP32S3 Dev Module</li> <li>2. CPU Frequency: 240MHz (WiFi)</li> <li>3. Flash Mode: QIO 80MHz</li> <li>4. Flash Size: 16MB (128Mb)</li> <li>5. Partition Scheme: Default 4MB with spiffs (1.2MB APP/1.5MB SPIFFS)</li> <li>6. PSRAM: OPI PSRAM</li> <li>7. Programmer: Esptool</li> </ol>

### 3. MECHANICAL DRAWING



## 4. Schematic

