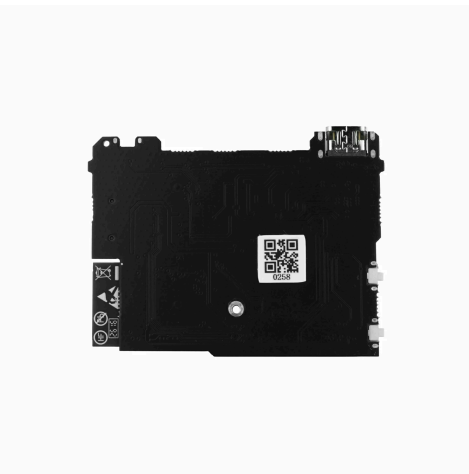


PaperDIY Assembly Kit

SKU:K159





Description

PaperDIY Assembly Kit is a DIY e-paper development board kit that includes a main control board, an e-paper display, and a 140mAh lithium battery, with hardware assembly completed by the user. The main control board uses the ESP32-S3R8 core, featuring a standard 16MB Flash + 8MB PSRAM memory combination and supporting 2.4 GHz Wi-Fi connectivity. The kit is equipped with a 4.7" e-paper display with a resolution of 960×540, supporting 16-level grayscale display. It has an onboard battery connector, a microSD card slot, and a USB Type-C interface. The open structure allows users to design their own peripheral structures, making it suitable for building desktop information displays, electronic labels, maker DIY projects, and embedded hardware development experiments.

Features

- ESP32-S3R8 core:
 - 16MB Flash
 - 8MB PSRAM
 - 2.4 GHz Wi-Fi
- 4.7" e-paper display, 960×540 resolution
- 16-level grayscale display
- Onboard DC 3.7V battery connector, includes a 140mAh lithium battery
- microSD card slot
- Low-power power management design

Includes

- 1 x PaperDIY (e-paper display + main control board + 140mAh battery + acrylic screen pressure plate)

Applications

- Electronic DIY creative projects
- DIY desktop information display
- Custom electronic labels, signage
- Hardware development learning and experiments

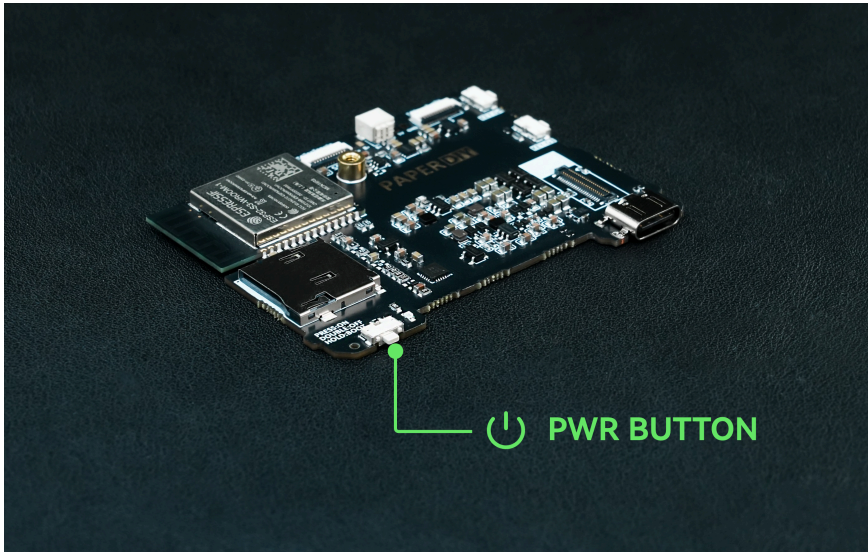
Specifications

Specification	Parameter
SoC	ESP32-S3-WROOM-1-N16R8 @ Xtensa® 32-bit LX7 dual-core processor, 240MHz
Flash	16MB
PSRAM	8MB Octal
Wi-Fi	2.4 GHz Wi-Fi
E-Paper	Model: ED047TC1 540 x 960@4.7" Grayscale: 16 levels
Expansion Storage	microSD
Power Supply	3.7V battery, USB Type-C (DC 5V), 5V pad
Power Management	M5PM1
Button	1x Power Button (ON / OFF / RESET / BOOT) + 2x User Button
Battery	Capacity: 140mAh Connector: SH1.0-2P
Expansion Interface	2x FPC 0.5mm-12P
Operating Temperature	0 ~ 40°C
Operating Power Consumption	4.2V@40.95mA (peak up to 161mA)
Product Size	115.3 x 62.5 x 5.5mm
Product Weight	26.4g
Package Size	137.0 x 78.0 x 19.0mm
Gross Weight	50.0g

Learn

Power Button Operation

- Single click: Power on / Reset
- Double click: Power off
- Long press: Enter download mode

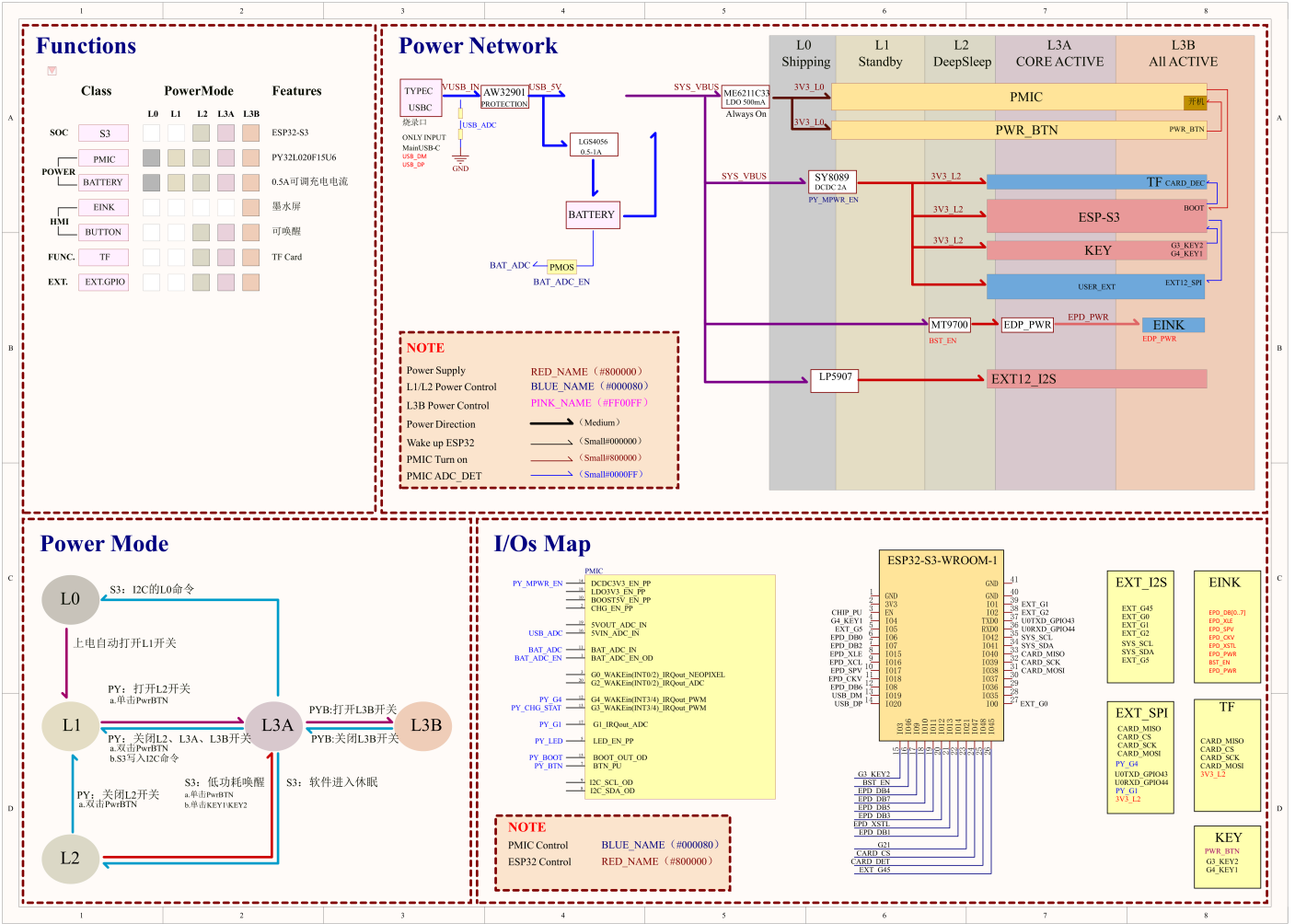


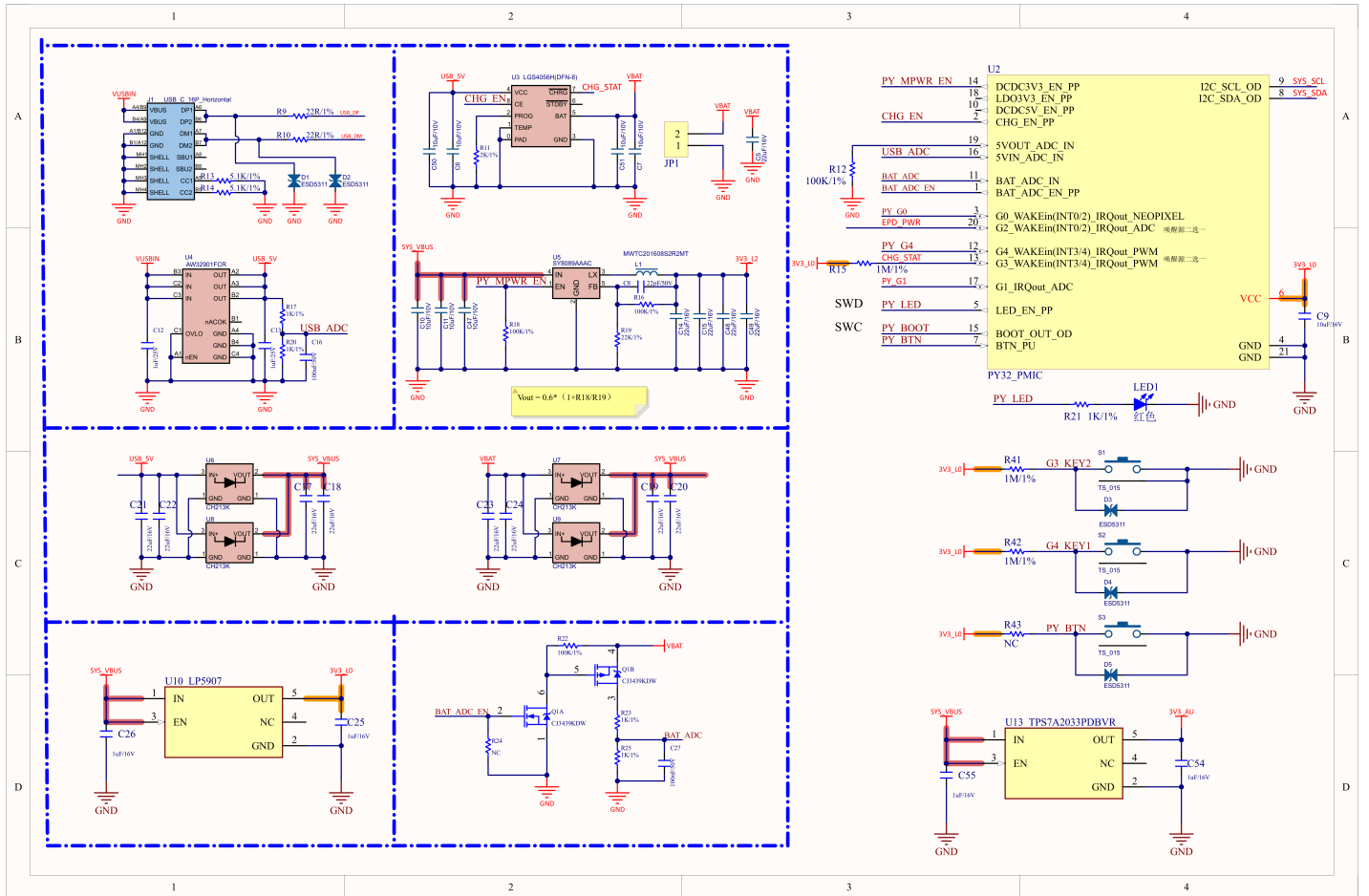
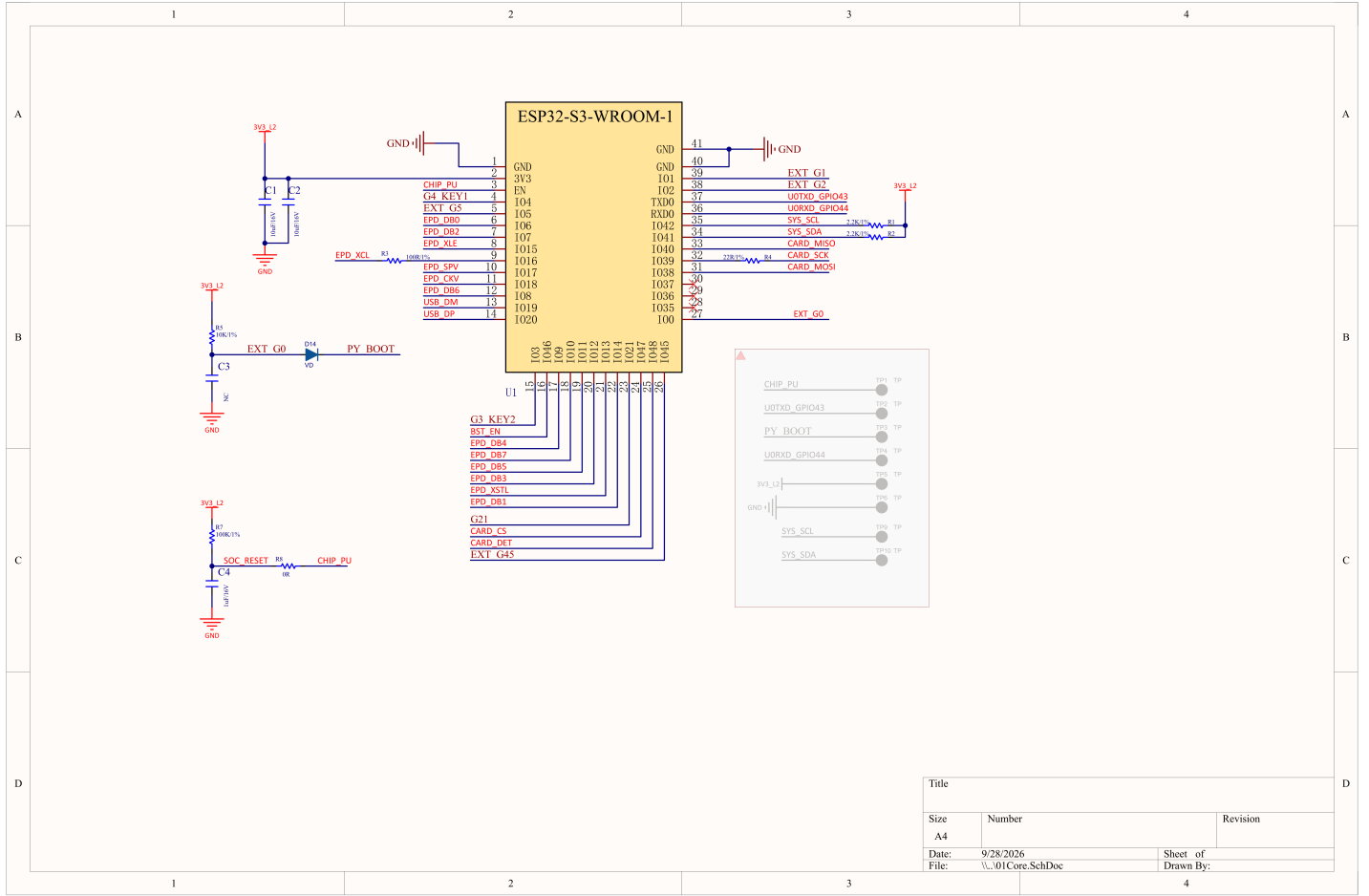
Download Mode

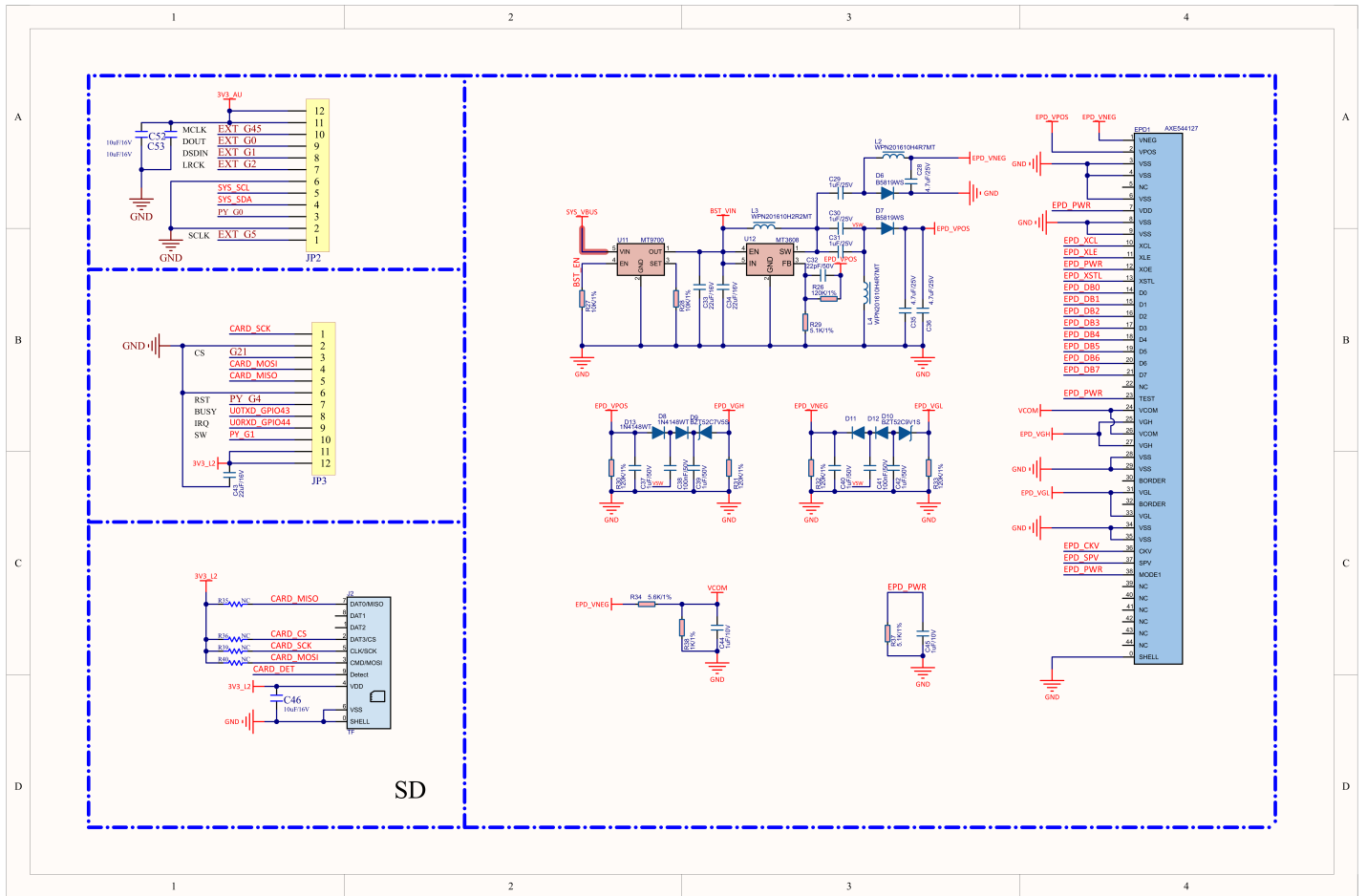
To flash firmware, connect the device to a computer via a USB Type-C data cable, long press the power button (about 2 seconds) until the red LED blinks, then release the button, indicating the device has entered download mode and is ready for flashing.

Schematics

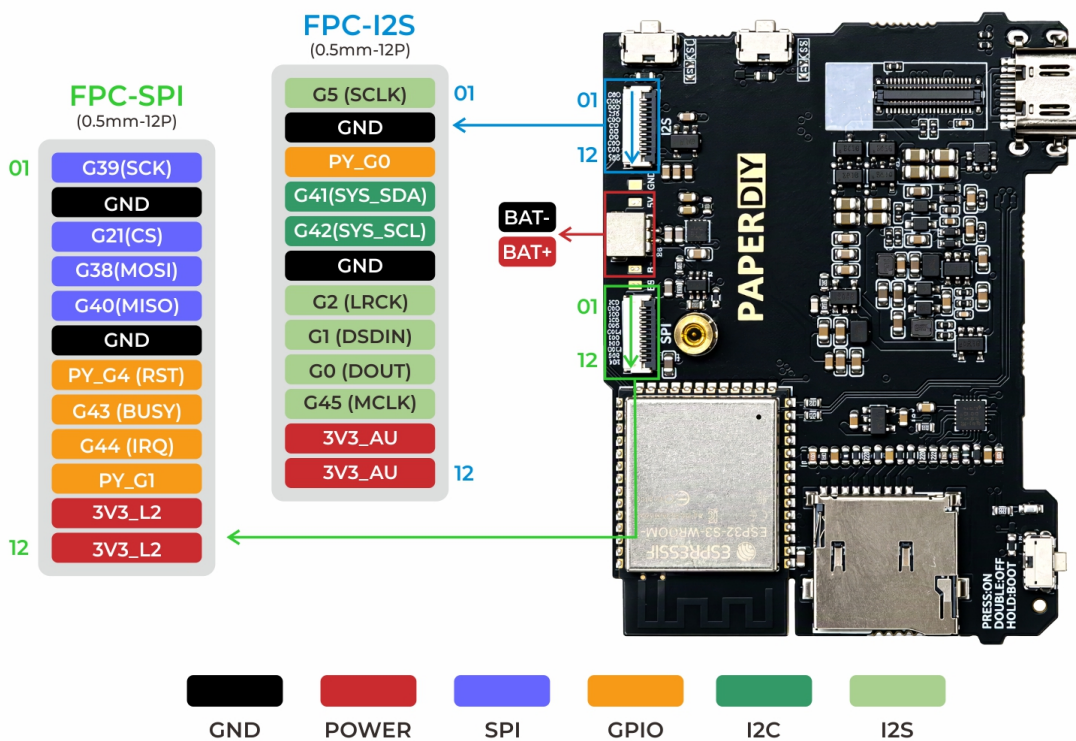
• [PaperDIY Schematics PDF](#)



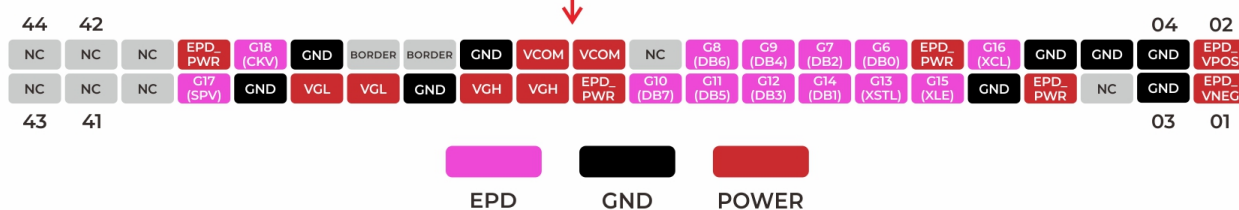
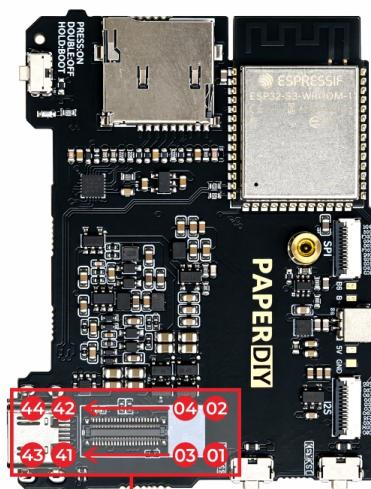




PinMap



**PAPER
DIY**



M5PM1	DCDC3V3_EN_PP	CHG_EN_PP	BAT_ADC_EN_PP
3V3_L2	PY_MPWR_EN		
Charge		CHG_EN	
Battery			BAT_ADC_EN

M5PM1	5VIN_ADC_IN	BAT_ADC_IN
Voltage Monitoring	USB_ADC	BAT_ADC

M5PM1	PYG0	PYG1	PYG2	PYG3	PYG4
FPC - I2S	PY_G0				
FPC - SPI		PY_G1			PY_G4
E-Paper			EPD_PWR		
Charge				CHG_STAT	

- PYG0(PY_G0): FPC - I2S interface expansion signal
- PYG1(PY_G1): FPC - SPI interface switch signal
- PYG2(EPD_PWR): Power enable for the e-paper display and its driver circuit
- PYG3(CHG_STAT): Charging status
- PYG4(PY_G4): FPC - SPI interface reset signal

FPC - I2S

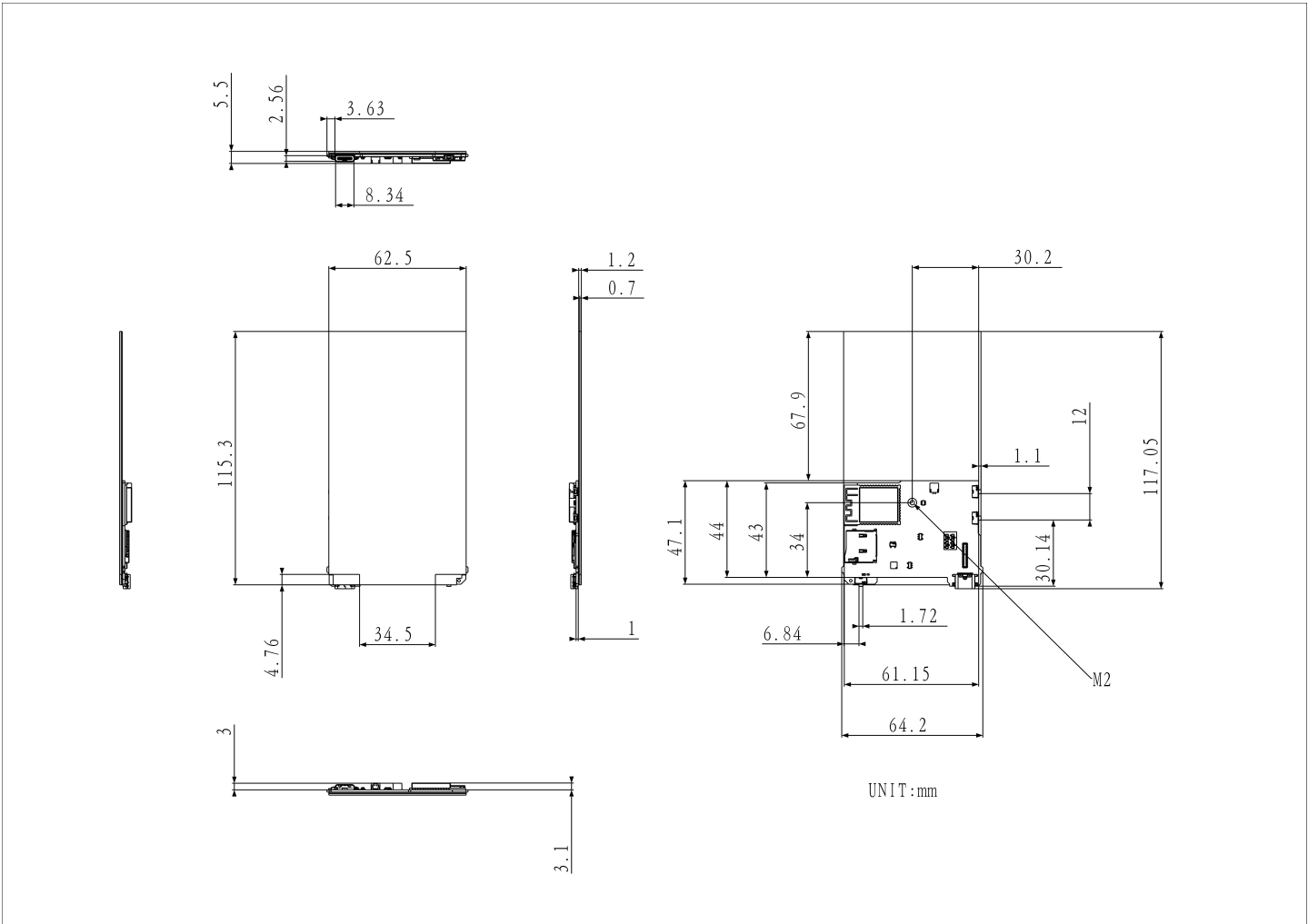
FPC 0.5mm-12P	PaperDIY
Pin1	G5 (SCLK)
Pin2	GND
Pin3	PY_G0
Pin4	G41 (SYS_SDA)
Pin5	G42 (SYS_SCL)
Pin6	GND
Pin7	G2 (LRCK)
Pin8	G1 (DSDIN)
Pin9	G0 (DOUT)
Pin10	G45 (MCLK)
Pin11	3V3_AU
Pin12	3V3_AU

FPC - SPI

FPC 0.5mm-12P	PaperDIY
Pin1	G39 (SCK)
Pin2	GND
Pin3	G21 (CS)
Pin4	G38 (MOSI)
Pin5	G40 (MISO)
Pin6	GND
Pin7	PY_G4 (RST)
Pin8	G43 (BUSY)
Pin9	G44 (IRQ)
Pin10	PY_G1 (SW)
Pin11	3V3_L2
Pin12	3V3_L2

Model Size

- [PaperDIY Assembly Kit Model Size PDF](#)



Structure

- [PaperDIY Complete Kit Structure Files](#)

Datasheets

- [ESP32-S3-WROOM-1-N16R8](#)
- [EPD_ED047TC1](#)

Softwares

Arduino

- [PaperDIY Arduino Quick Start](#)
- [PaperDIY M5PM1 Power Management](#)
- [M5PM1 Arduino Library](#)
- [PaperDIY Arduino M5Unified Driver Library](#)
- [PaperDIY Arduino M5GFX Driver Library](#)

ESP-IDF

- [PaperDIY Factory Firmware Source Code](#)

Other

- [PaperDIY Factory Firmware WebBurner](#)

Video

Product Comparison

Product Compare		
	PaperDIY Complete Kit	PaperDIY Assembly Kit
Assembly Type	Hardware assembly completed at the factory, with pre-installed 3D printed enclosure	User assembles by themselves, open structure
3D Printed Enclosure	Standard PLA 3D printed enclosure, enclosure model is open-source, supports reprinting and custom modification	✗ (Open structure, supports user-designed peripheral structures)
Package Contents	E-paper display + main control board + 140mAh battery + acrylic screen pressure plate (pre-installed 3D printed enclosure)	E-paper display + main control board + 140mAh battery + acrylic screen pressure plate
Main Control / Memory	ESP32-S3R8, 16MB Flash + 8MB PSRAM	ESP32-S3R8, 16MB Flash + 8MB PSRAM
E-Paper	4.7" ED047TC1, 540 x 960, 16-level grayscale	4.7" ED047TC1, 540 x 960, 16-level grayscale
Battery	140mAh	140mAh