Pump controller development board

-- Specification v0.1

Main board model：	STM8 PUMPS MAIN BOAR V1.6 STM8 PUMPS SUB BOAR V1.5
Board card function：	Multi-functional development board for mobile charging equipment
Operation system：	N/A
Safety level：	Public

Compilation：	Troy Wong
Review：	Leo Du
Approval：	Vivian Chen

Release Date：2025/09/05

List

1Introduction

YeaCreate Iot is committed to providing smart home solutions to create a smarter and more convenient life for people. As an innovator in embedded application technology, YeaCreate Iot is constantly driving the innovation of home interconnection and intelligent interconnection solutions.

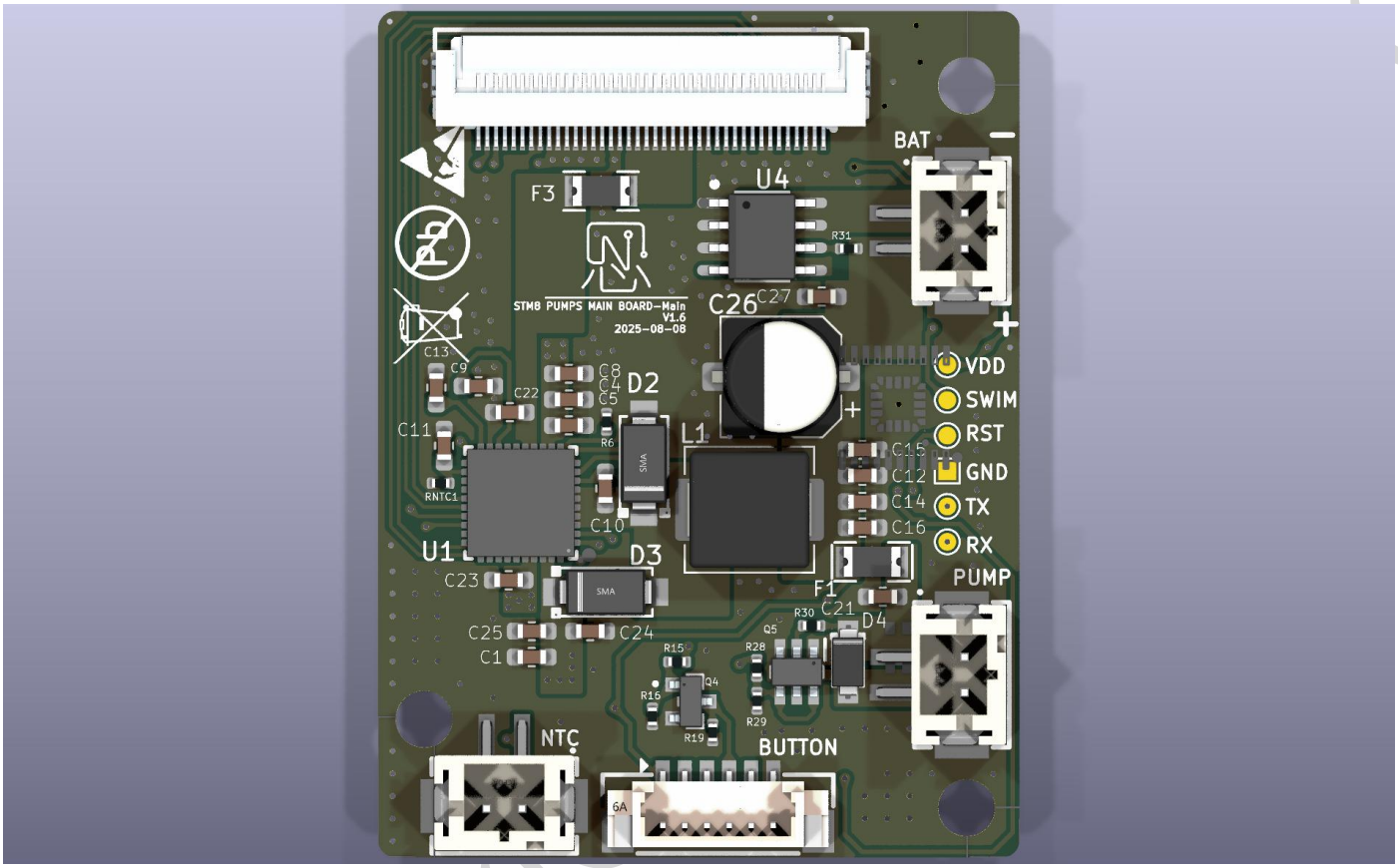
This product is used to illustrate the design goals, functional requirements and application scope of the control mainboard for mobile charging devices.

This product adopts a **split structure design**: the control mainboard and the charging interface board are separated. Not only enhances the modularity of the system but also effectively reduces the impact of external environmental factors (such as moisture and splashing water) on the core control circuit.The charging interface board is mainly responsible for external power input and connection, while the control mainboard realizes core logic control, driving and protection functions.Through this design, the system ensures **reliability and water resistance** while also taking into account **maintenance convenience and scalability.The system architecture**, **main functions**, **interface definitions and reliability requirements** of the multi-functional mainboard for mobile charging devices will be elaborated in detail to provide a unified technical basis for subsequent research and development, testing, production and quality assurance.

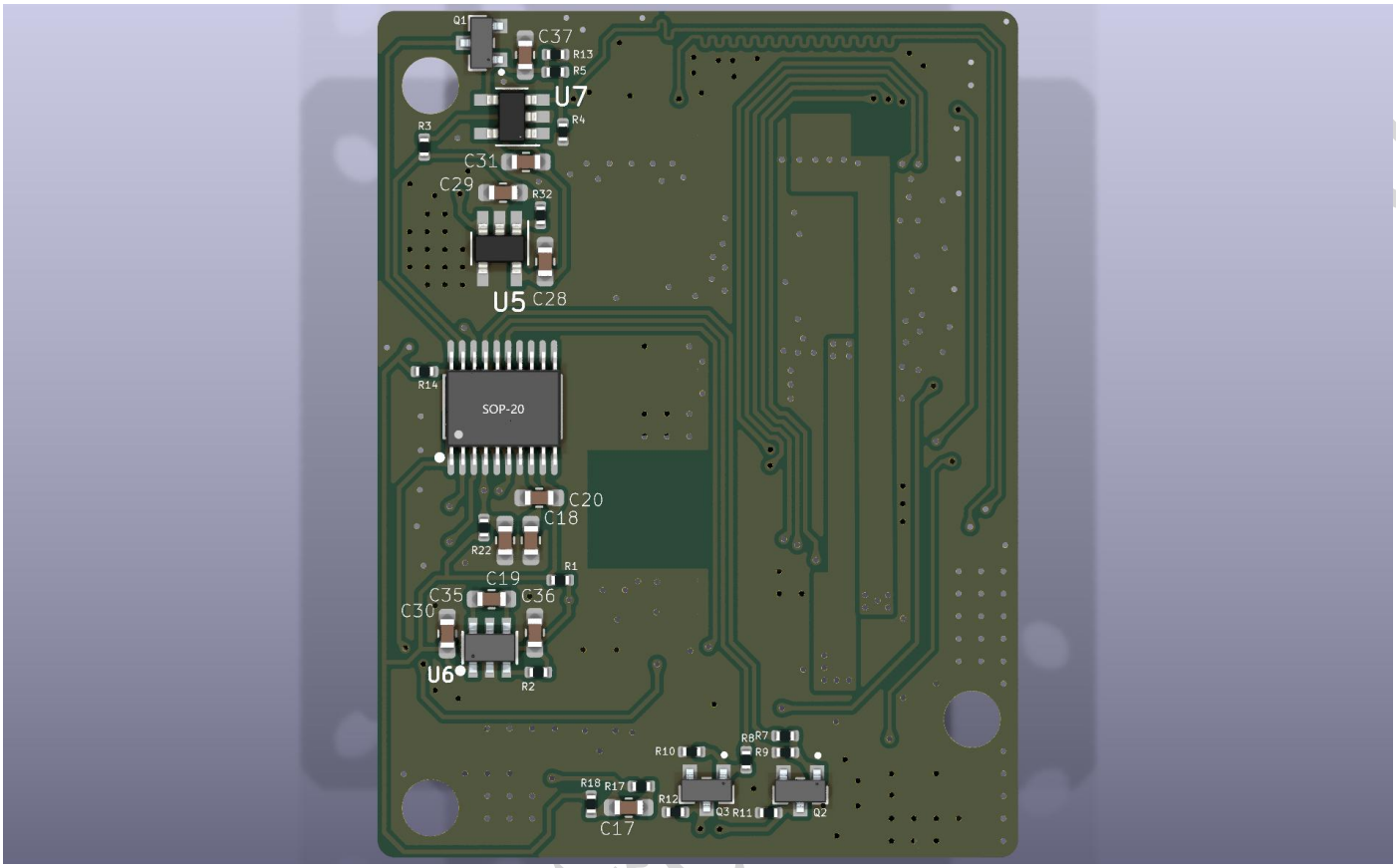
Unless otherwise specified, the standards that the product complies with are described in this document.

2Appearance and size

2.1 The front view of the controller board is as follows:



2.2 The reverse side view of the controller board is as follows：



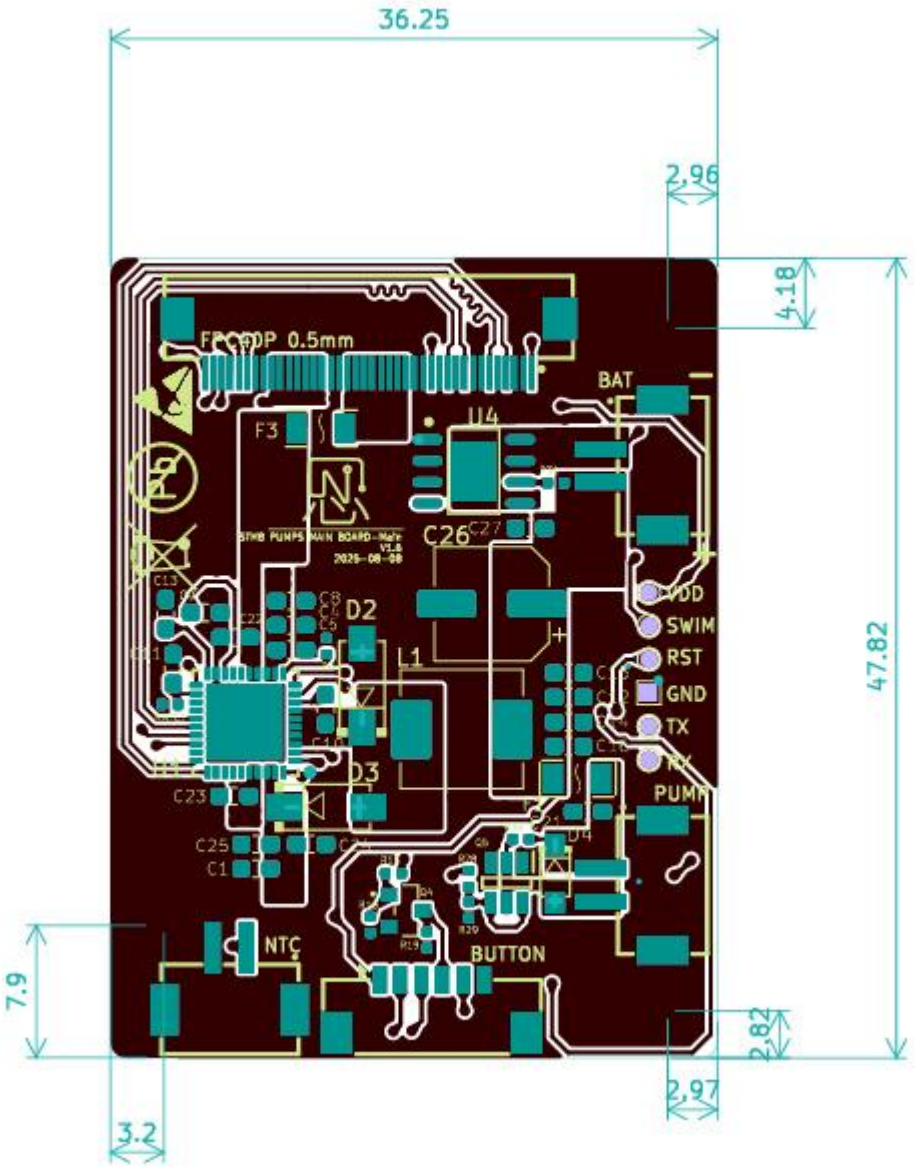
2.3 Controller board size

Length：36.25mm

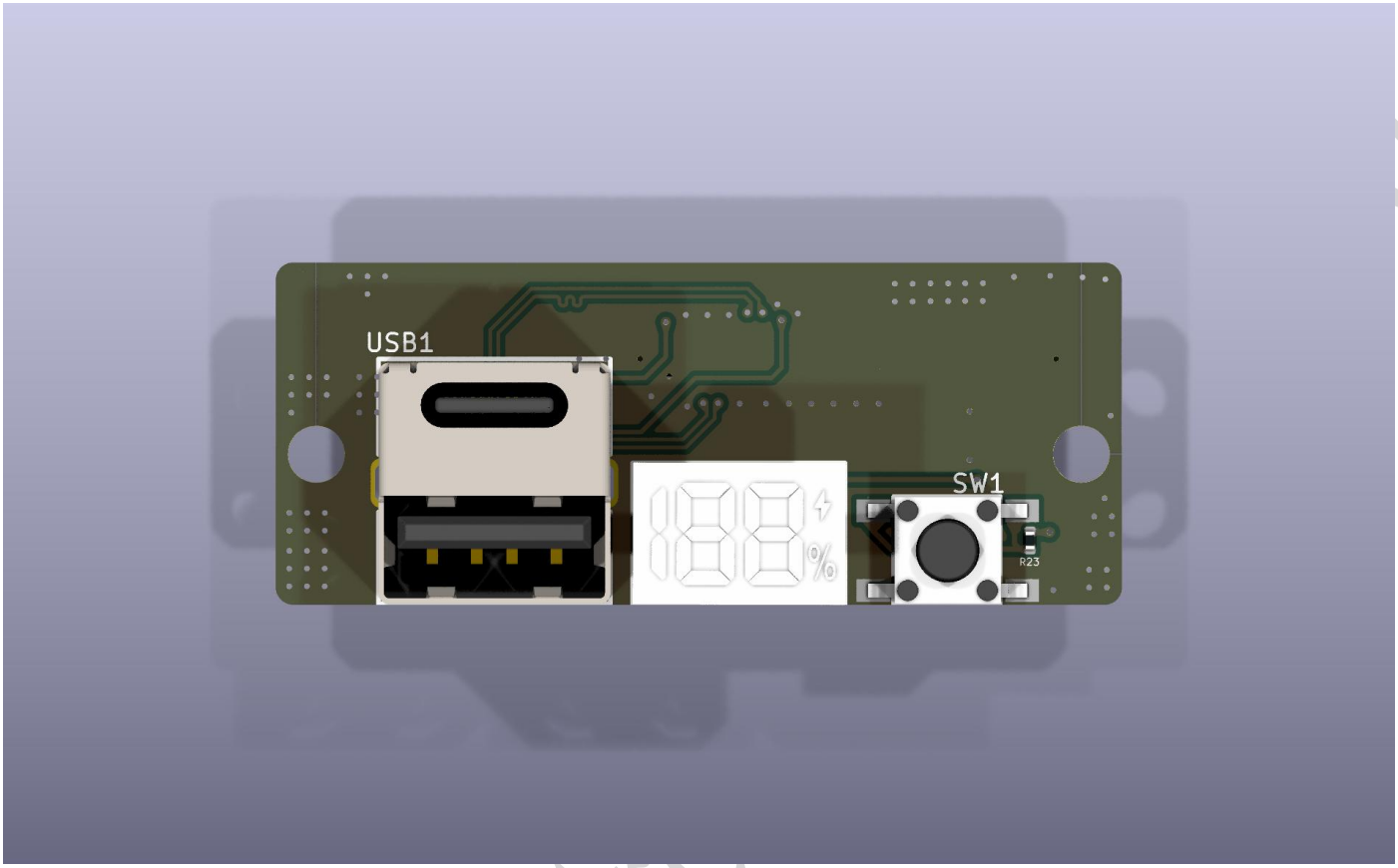
Width：47.82mm

Installation hole spacing：

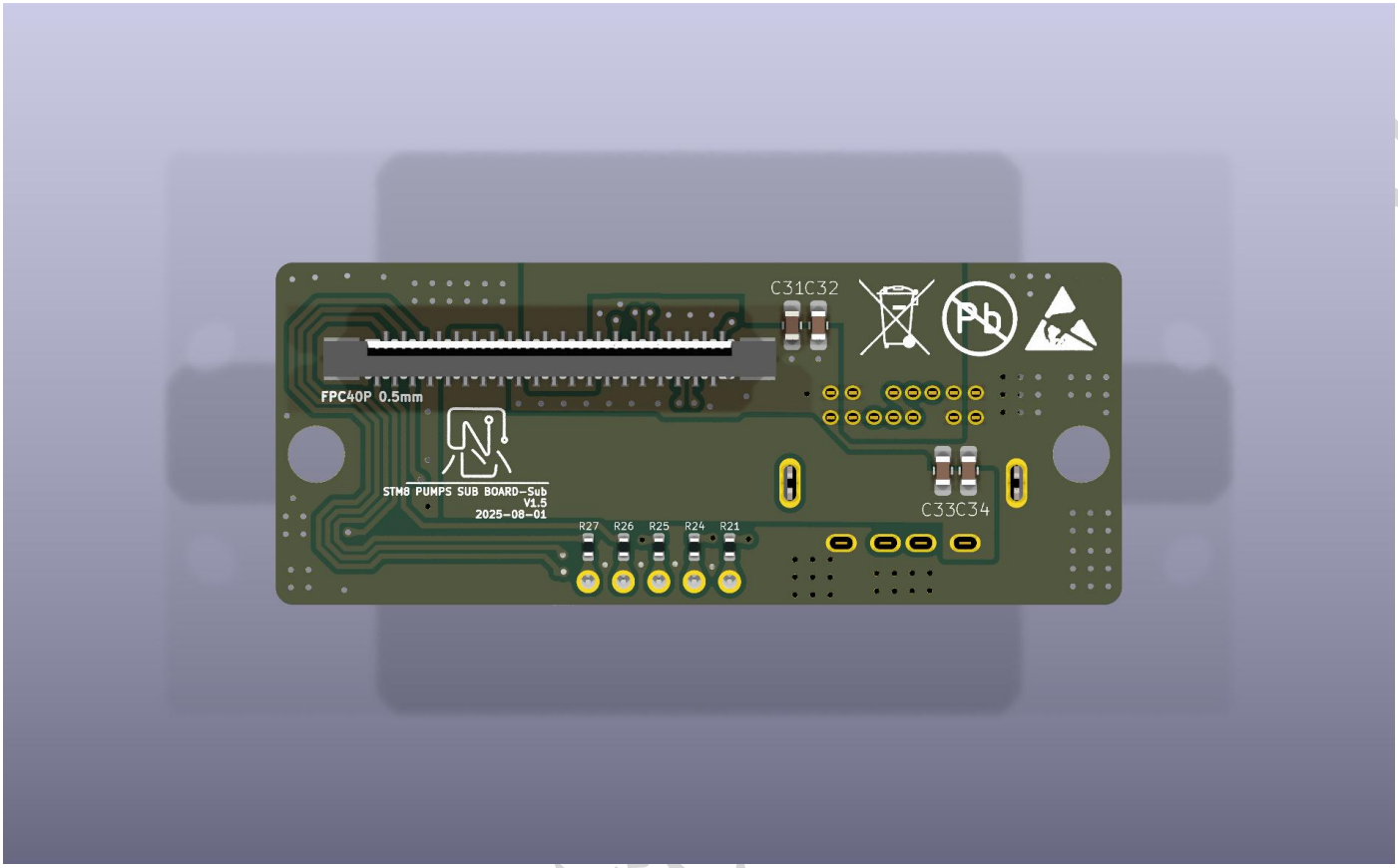
The hole in the upper right corner (next to BAT)	The hole at the lower left corner (next to NTC)	The hole at the lower right corner (beside the PUMP)
Distance from the right edge：2.96 mm	Distance from the left edge：3.2 mm	Distance from the right edge：2.97 mm
Upper edge of distance：4.18 mm	Distance from the lower edge：7.9 mm	Distance from the lower edge：2.82 mm


36.25
2.96
4.18
47.82
7.9
3.2
2.82
2.97
FPC 0.5mm
BAT
F3
U4
C26
C27
D2
L1
D3
D4
C23
C25
C1
NTC
BUTTON
PUMP
VDD
SWIM
RST
GND
TX
RX

2.4 The front view of the charging pad is as follows:



2.5 The reverse side picture of the charging pad is as follows:



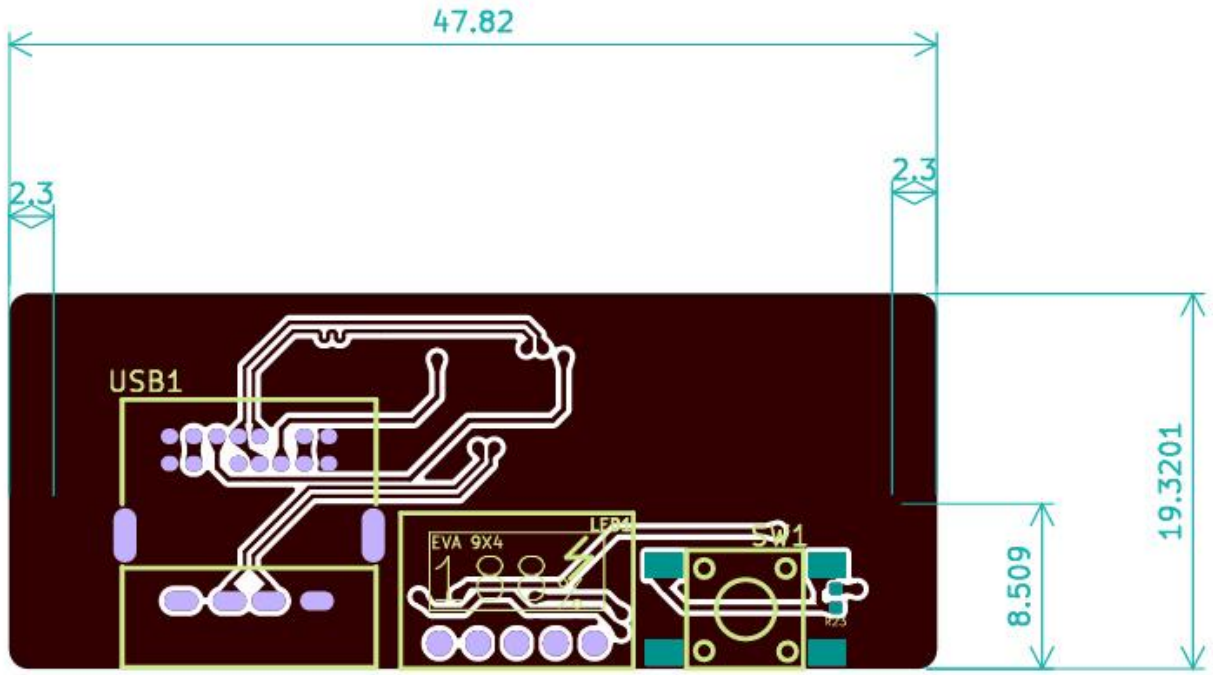
2.6 Charging pad size

Length：47.8200mm

Width：19.3201mm

Installation hole spacing：

Left middle corner hole (beside FPC)	）Right middle corner hole (right side of FPC)
Distance from the left edge：2.3 mm	Distance from the right edge：2.3 mm
Distance from the lower edge：8.509 mm	Distance from the lower edge：8.509 mm

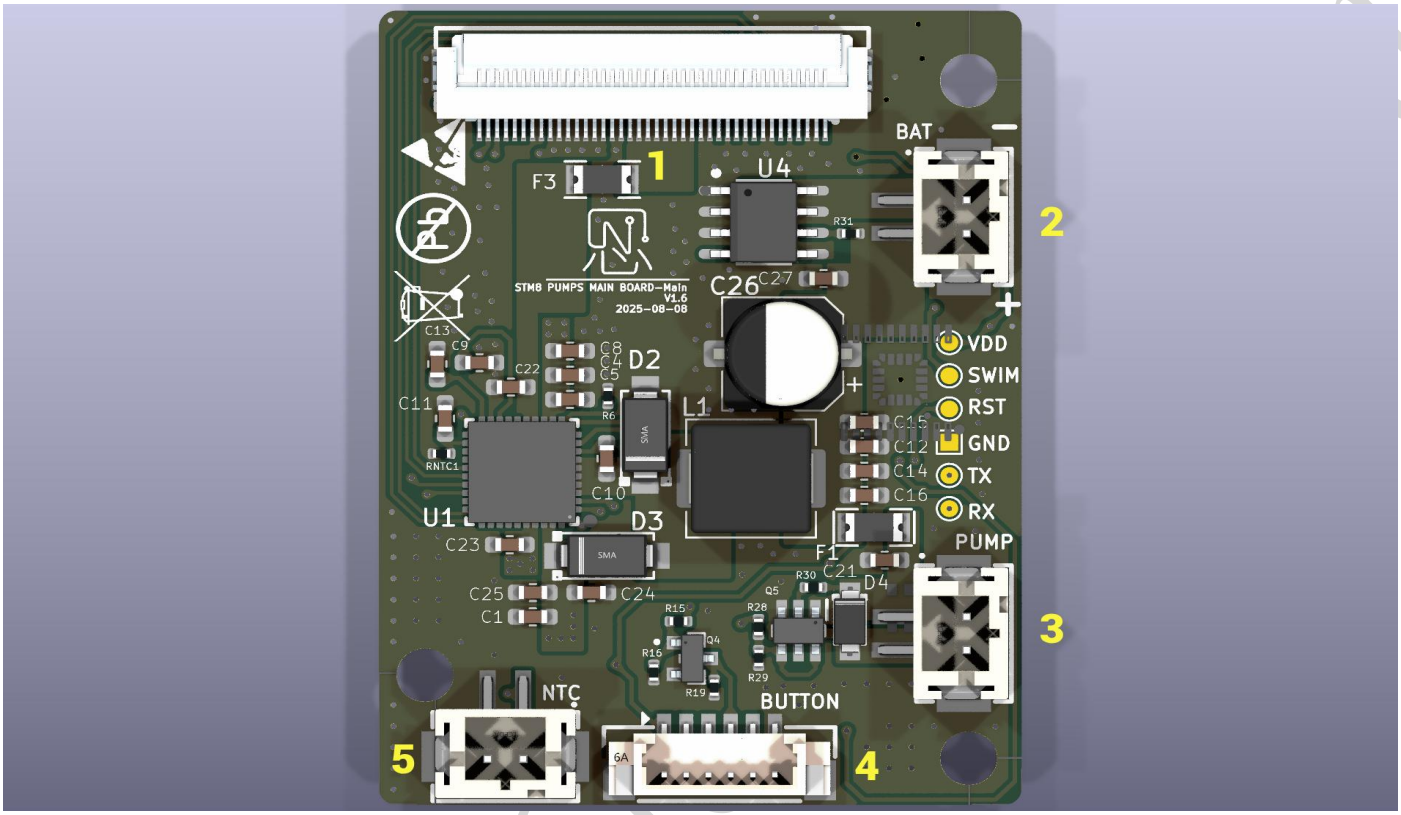


3 Application Guidance

This chapter mainly introduces the usage methods of development boards, mainly including:

- Functions of the development board
- Configuration of the development board
- Power supply for the development board

3.1 Functions of the development board



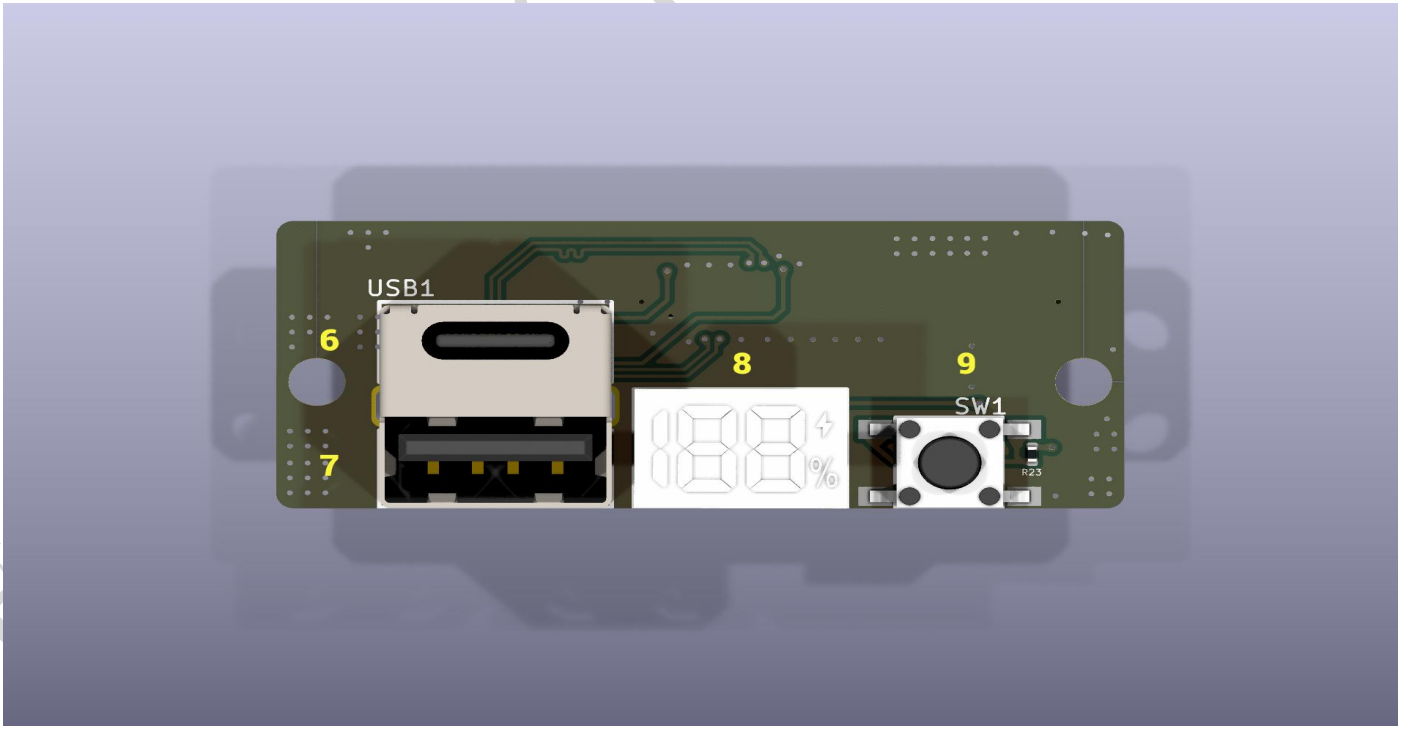


Table3.1 Function list

Number	Description
1	FPC connector interface
2	Battery interface
3	Pump control interface
4	LED dual-color button interface
5	NTC interface
6	Type-C charging interface
7	Type-A charging interface
8	Digital tube display
9	Digital tube control keys
Explanation： STM8 flash port：VDD、SWIM、RST、GND STM8DEBUG port/Serial port：GND、TX、RX	

3.2Development board configuration

Table 3.2 Development board configuration

Project	Model	Remarks
Main control	IP5356＋STM8	Supports fast charging function and ultra-low power consumption operation
Battery	18650 3.7V 6000mAh	

3.3 Power supply for the development board

The development board can be powered by a battery, as shown in the following figure。

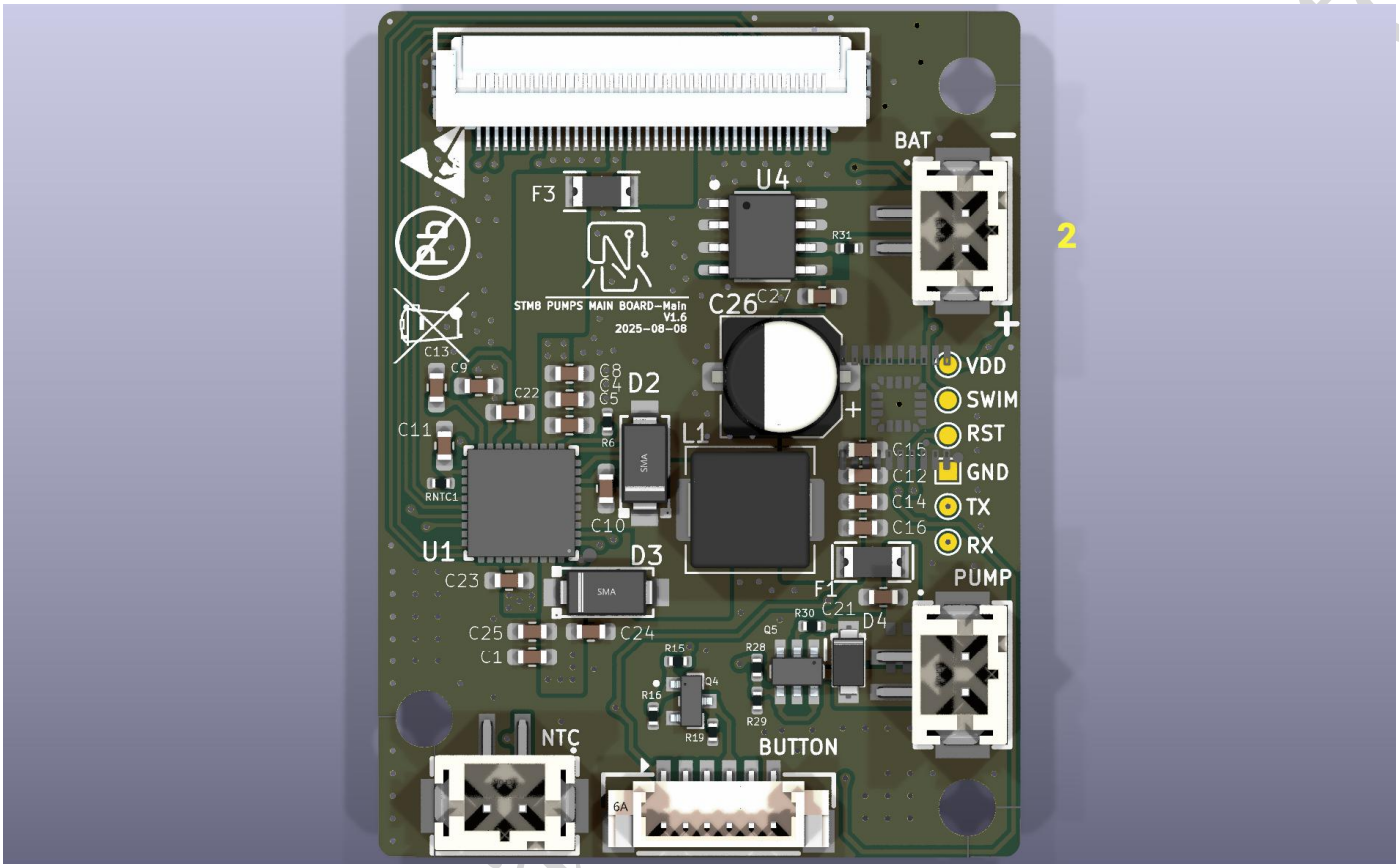


Table 3.3 The development board is battery-powered

Project	Battery capacity	Remark
Battery-powered	6000mAh	