TS4123 DIY Electronic 4-in-1 Game Soldering Kit

1. Parts list

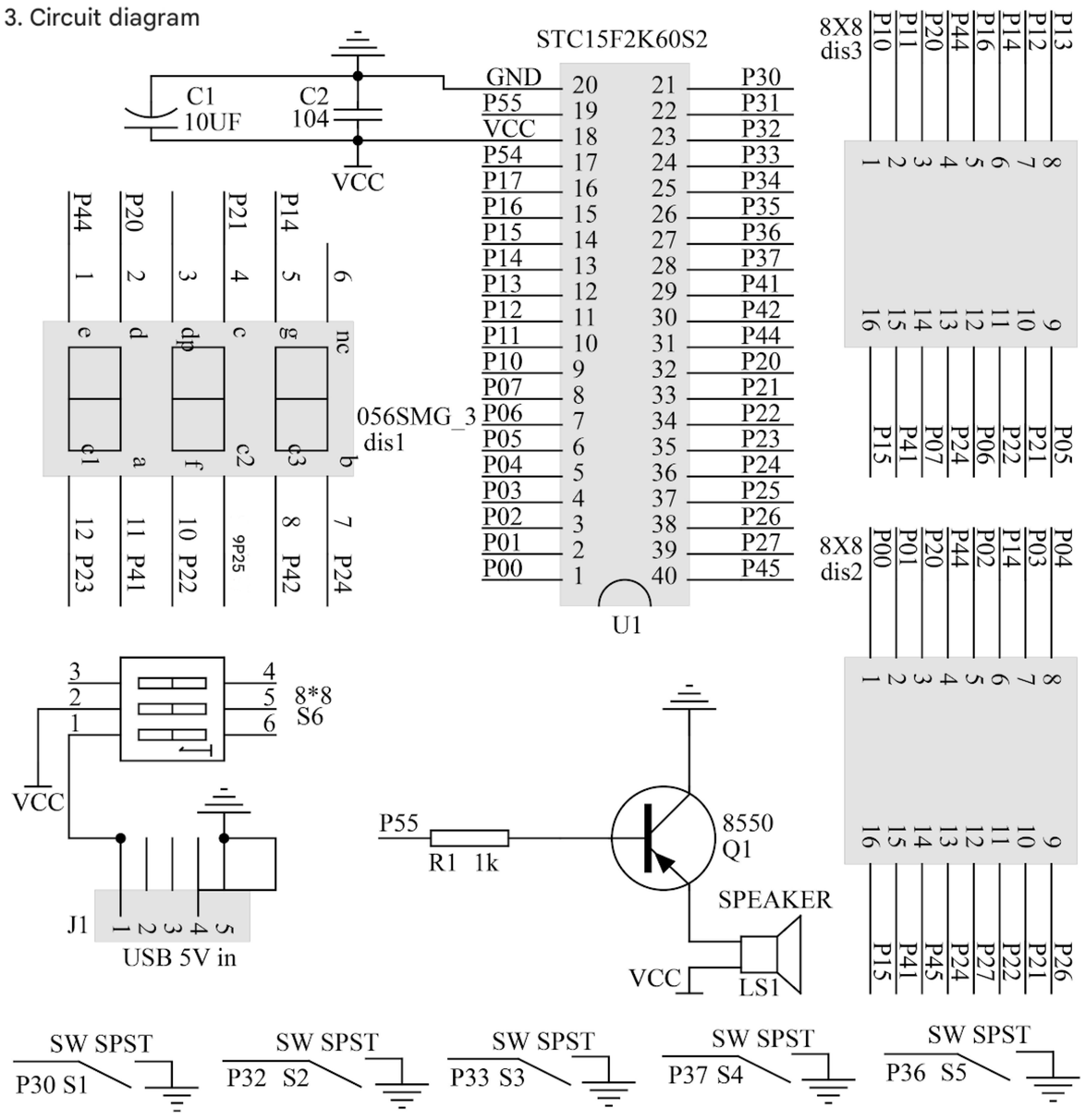
	name	model	label	quantity
1	Five color ring resistor	1K color ring (brown black black brown brown)	R1	1
2	ceramic capacitor	100nF/50V(104)	C2	1
3	electrolytic capacitor	10uF/50V	C1	1
4	IC holder	40P	U1	1
5	dot matrix screen	8*8 Red	dis2、dis3	2
6	number LED	3rd place red common	dis1	1
7	USB socket	5P/F 90 degrees 2 feet	J1	1
8	tactile switch	Square head KFC	S1-S5	5
9	triode	8550	Q1	1
10	buzzer	Passive 5V	SPEAKER	1
11	Self-locking switch	8.5*8.5mm double row self-locking	S6	1
12	Microcontroller	STC15F2K60S2	U1	1
13	keycaps	round keycaps		5
14	USB cable			1
15	circuit board			1
16	Acrylic case			1

2. Product features

This kit is composed of all plug-in components, with a small number of component types. The double-layer printed circuit board pads are tin-plated, and the soldering difficulty is moderate, making it easy for novices to solder.

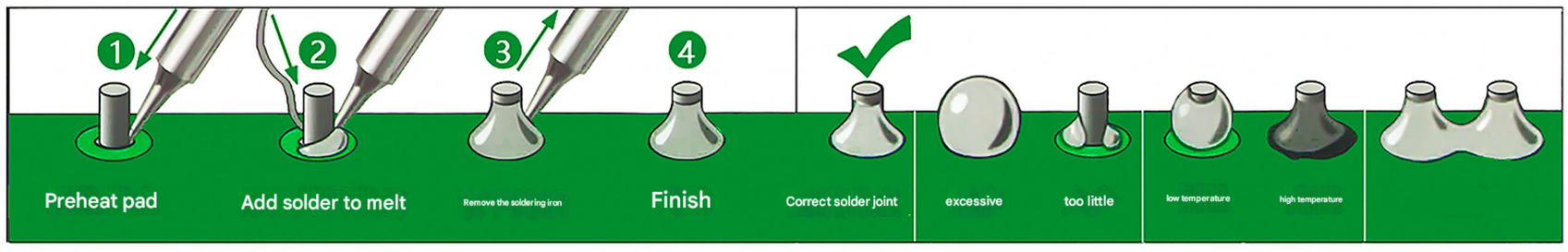
Use the supplied USB cable to connect to the DC 5V power supply to drive the finished product to work normally. The microcontroller in the kit has been programmed with programs, including four interesting mini-games: Tetris, Snake, Racing and helicopter.

3. Circuit diagram



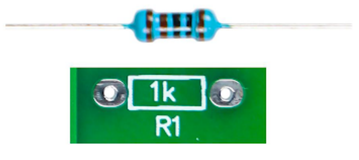
4. Welding and installation

4.1 In-line component welding method

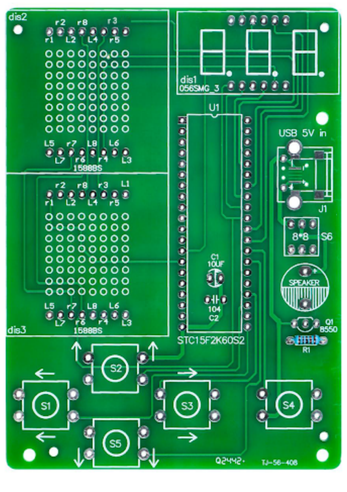


4.2 Circuit board soldering steps

1 Color ring resistance welding

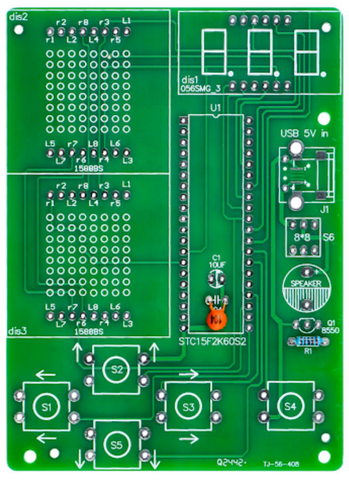


The color ring resistor does not distinguish polarity. The color ring color of the 1K color ring resistor is: brown black black brown brown, and the installation position is R1.

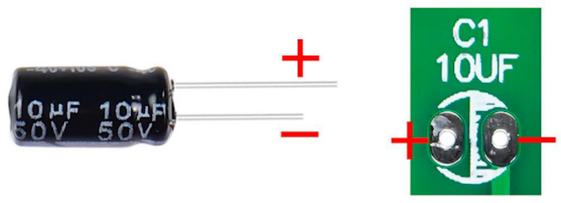


2 Ceramic capacitor welding

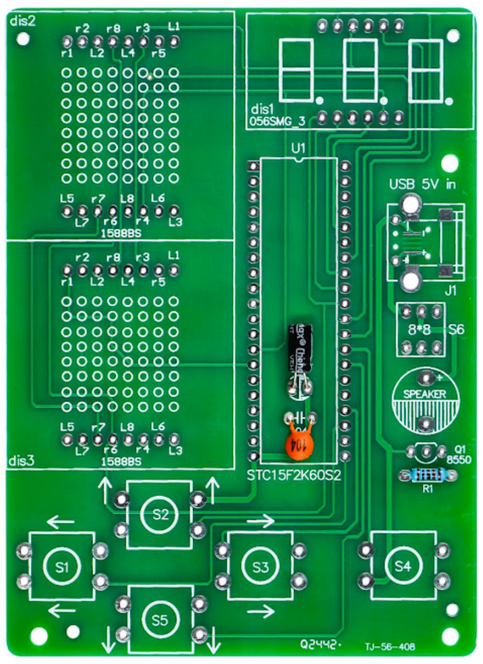
Ceramic capacitors do not distinguish polarity. The 100nF ceramic capacitor is numbered 104 and is installed horizontally at position C2.



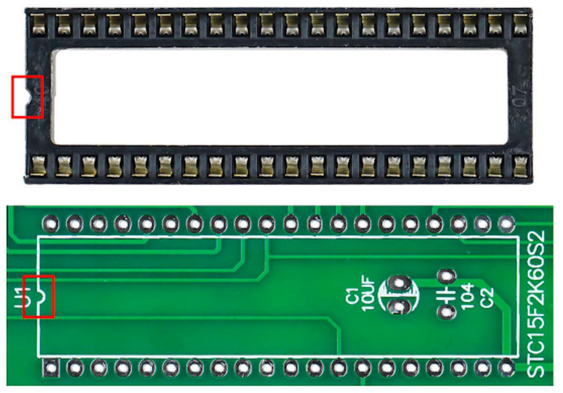
3 Electrolytic capacitor welding



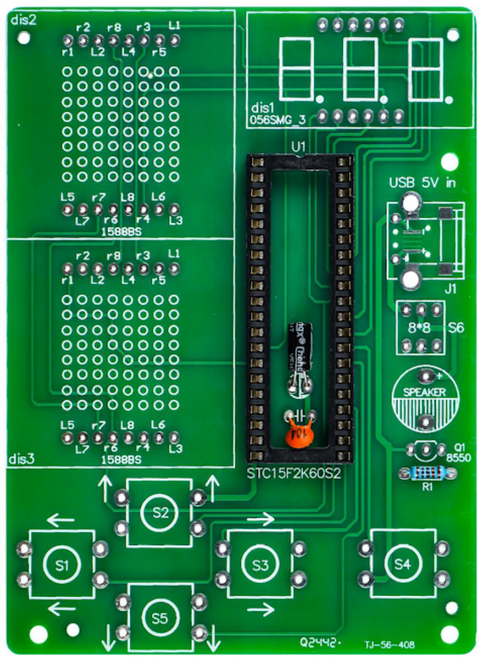
The short pin of the electrolytic capacitor is the negative electrode, and the negative electrode side is printed with white paint. The silk screen also has white paint printed on the negative electrode side. The polarity must be matched during installation. The 10uF electrolytic capacitor is installed horizontally at position C1.



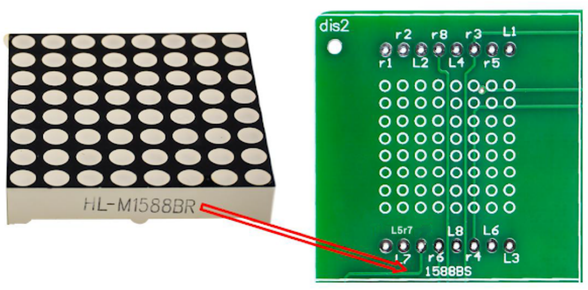
4 IC holder welding



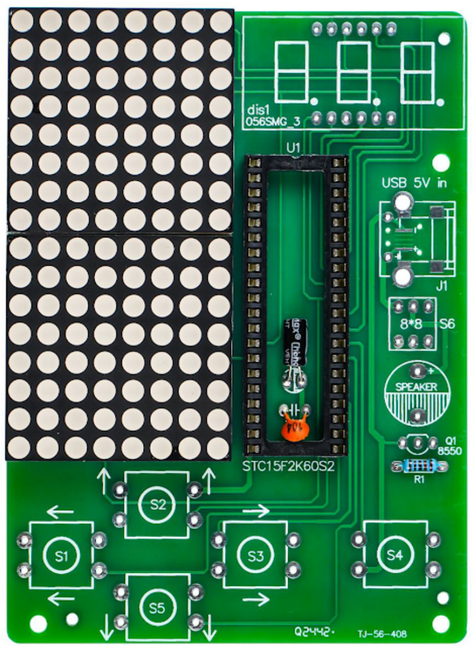
There is a notch on one side of the IC holder, and its silk screen also has a notch, corresponding to the U1 position.



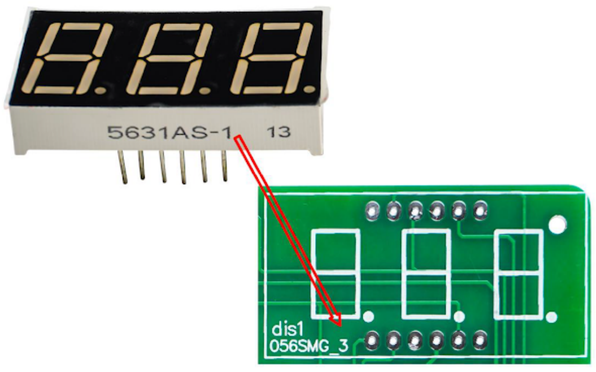
5 Dot matrix screen welding



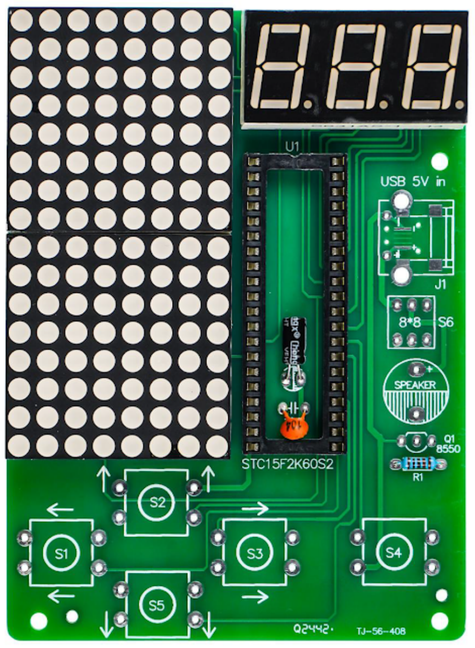
The model number is marked on one side of the 1588 dot matrix screen, and the model number is also marked on the bottom. According to the model mark on the silk screen, install the dot matrix screen to the dis2 and dis3 positions respectively.



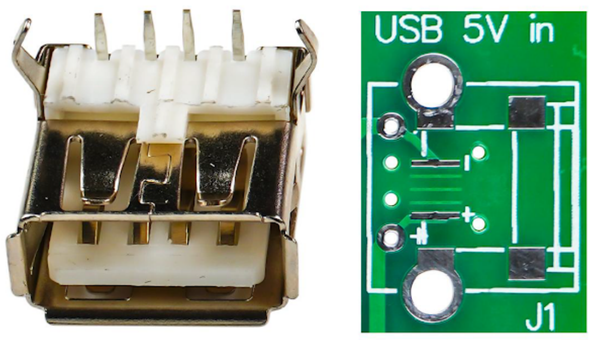
6 Digital tube welding



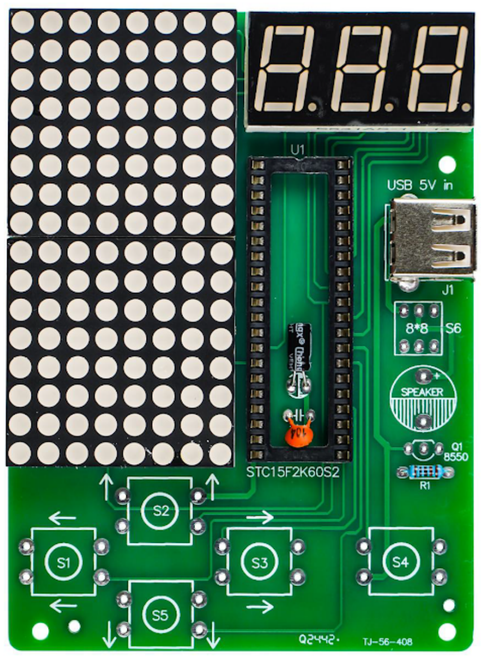
The model number is marked on one side of the digital tube, and the model number is also marked on the bottom. According to the model mark on the silk screen, install the digital tube to the dis1 position.



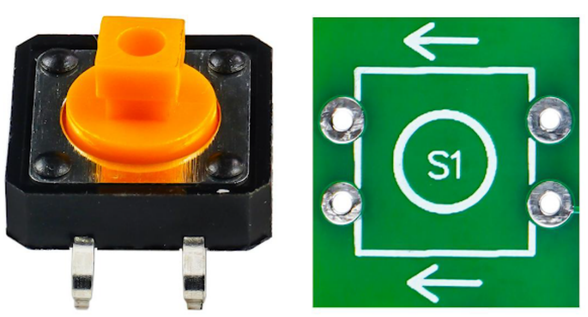
7 USB socket soldering



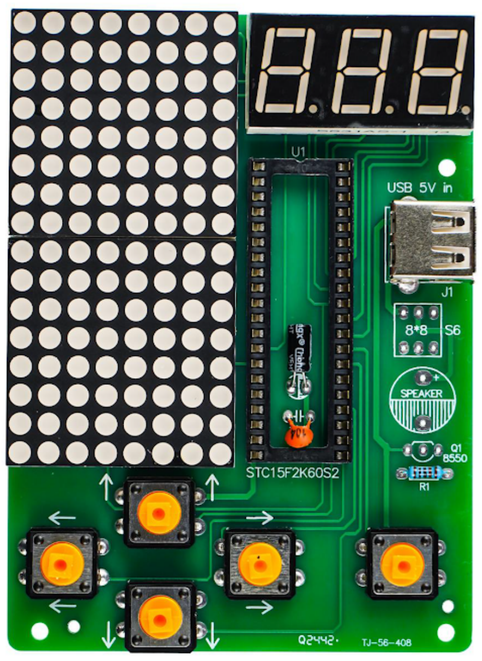
Install the USB socket to the J1 position with the socket facing outward. When soldering, you need to preheat the pins of the shell and use more solder to solder it firmly.



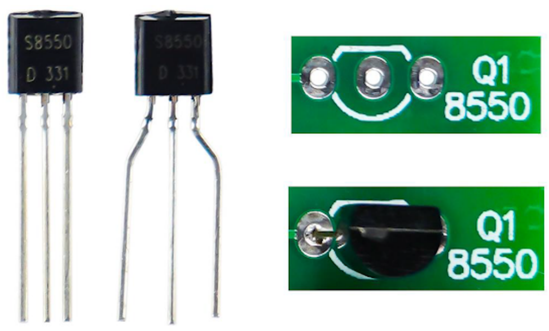
8 Tactile switch welding



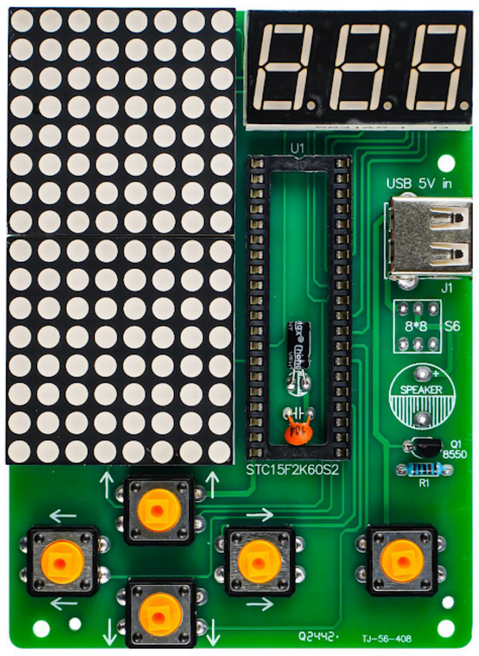
The tactile switch does not distinguish polarity and is installed in the S1-S5 position.



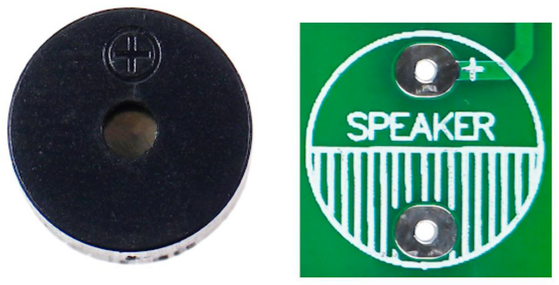
9 Transistor welding



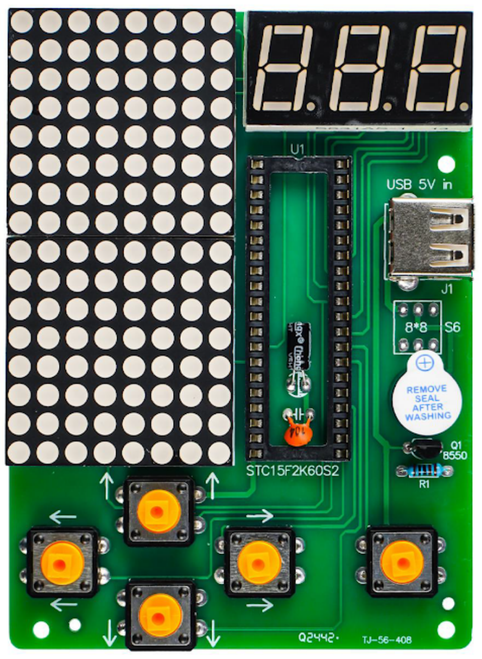
The cross-section of the 8550 transistor is horseshoe-shaped. In order to avoid tin connection, its pins need to be separated first, and then installed to the Q1 position according to the direction of the silk screen shape.



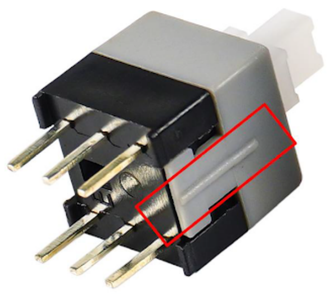
10 buzzer welding

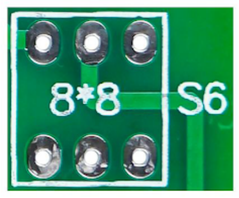


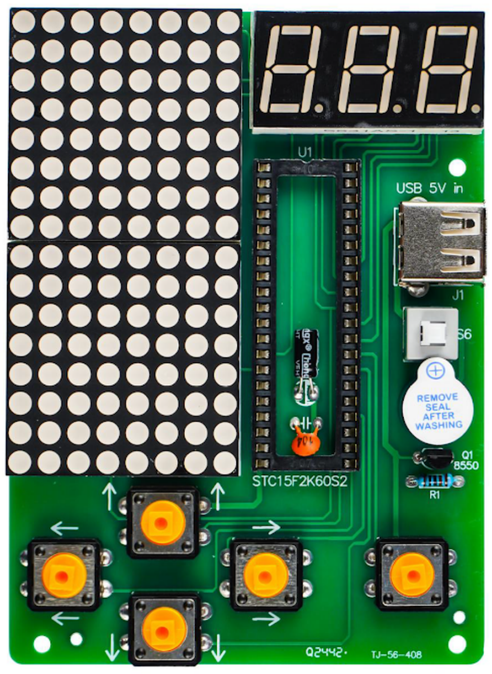
The passive buzzer does not distinguish between positive and negative poles, install it in the SPEAKER position.



11 Self-locking switch welding

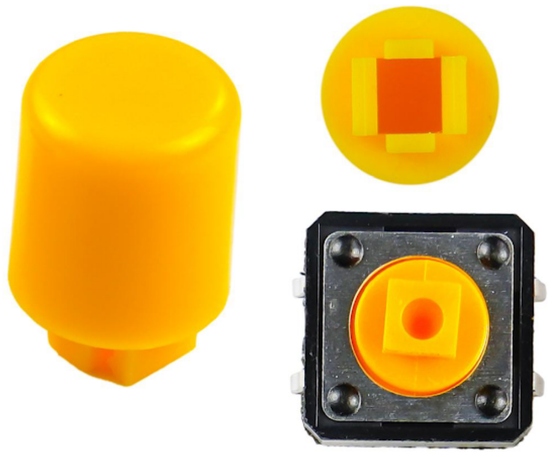


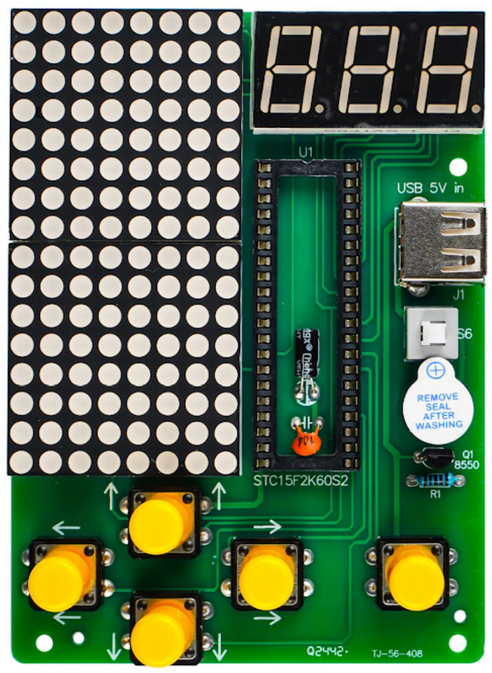




The self-locking switch is installed in the S6 position with the strip-shaped raised side facing outward.

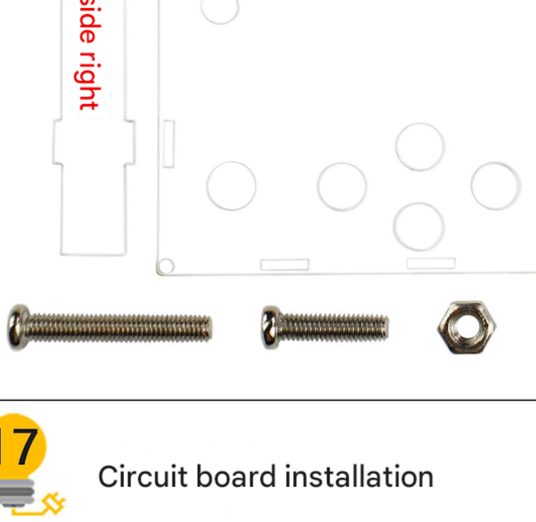
12 Button cap installation





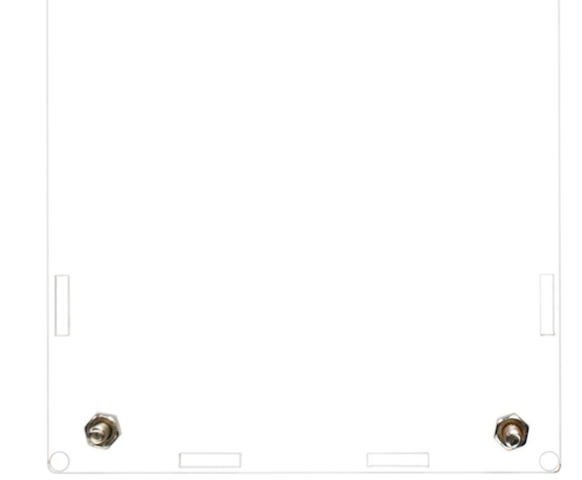
Install the button caps onto the 5 tact switches respectively.

13 MCU installation



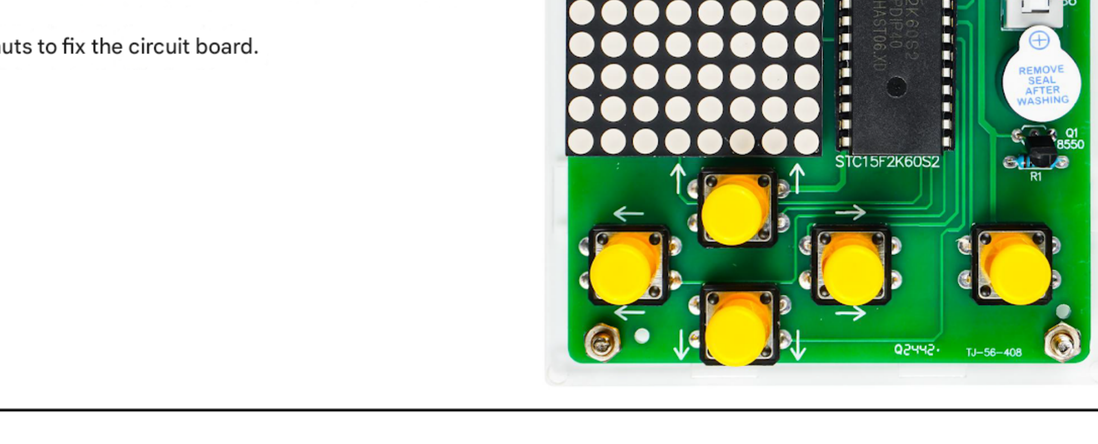
There is a gap on one side of the microcontroller, and the IC holder also has a gap for corresponding installation.

14 Power on test

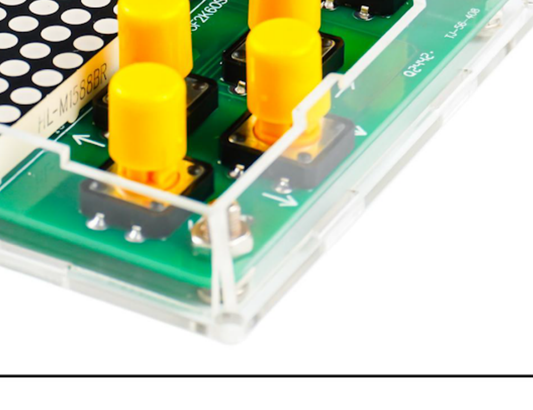


Use the matching USB cable to connect the computer USB port or mobile phone charging head to power the circuit, and then press the self-locking switch to test whether the circuit can work normally.

15 Remove the protective film of the case

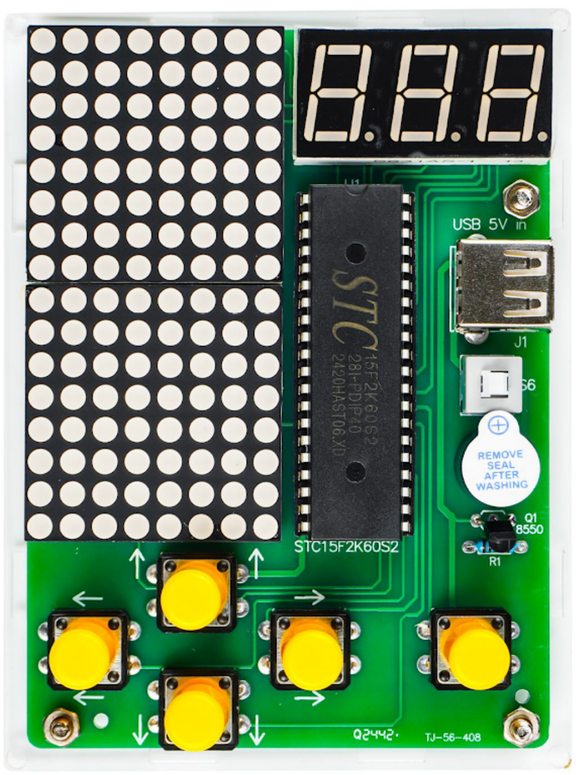


16 Back screw installation



17 Circuit board installation

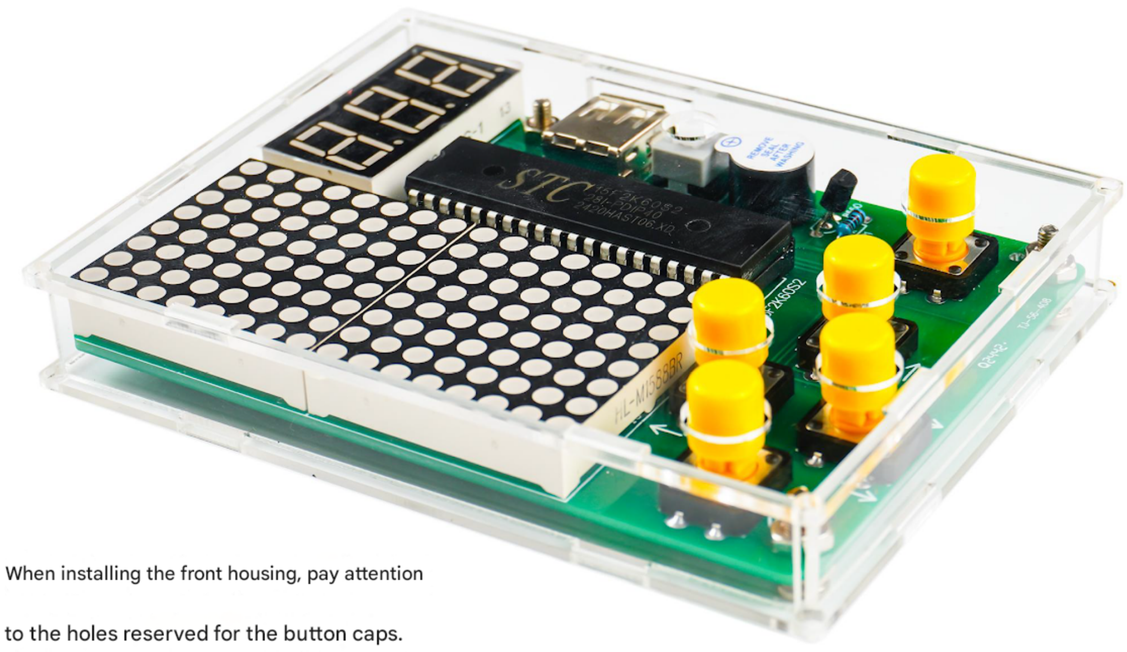
There are 3 holes for fixing on the outside of the circuit board. Align the holes of the circuit board with the screws on the acrylic shell on the back to install, and then use nuts to fix the circuit board.



18 Side housing installation

When installing the side shell, pay attention to the holes reserved for the USB socket.

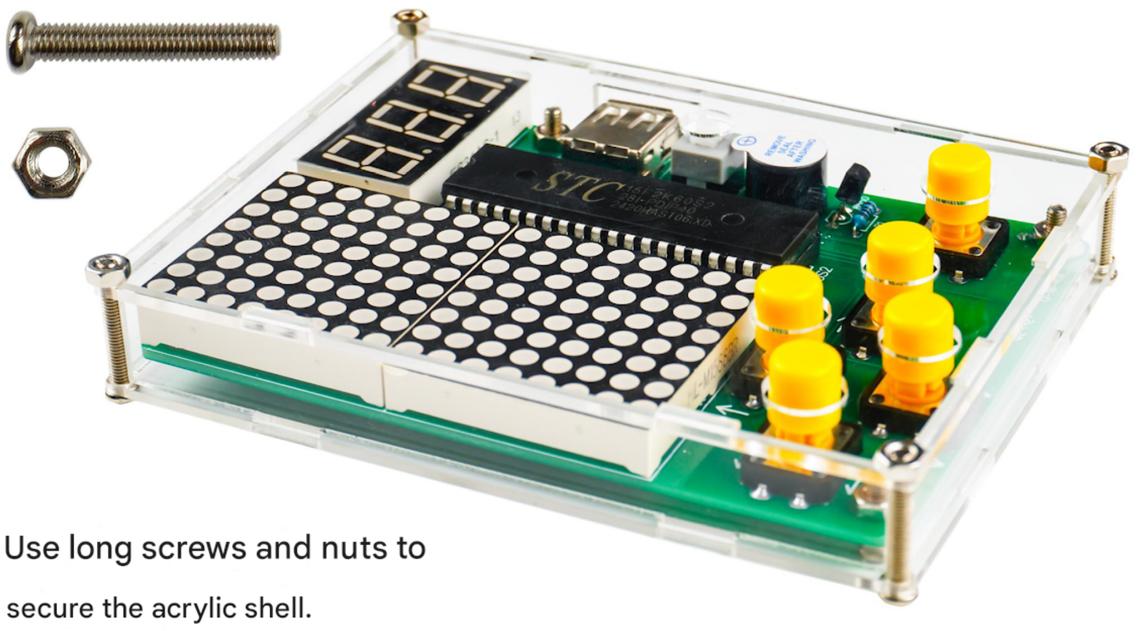
19 Front housing installation



When installing the front housing, pay attention

to the holes reserved for the button caps.

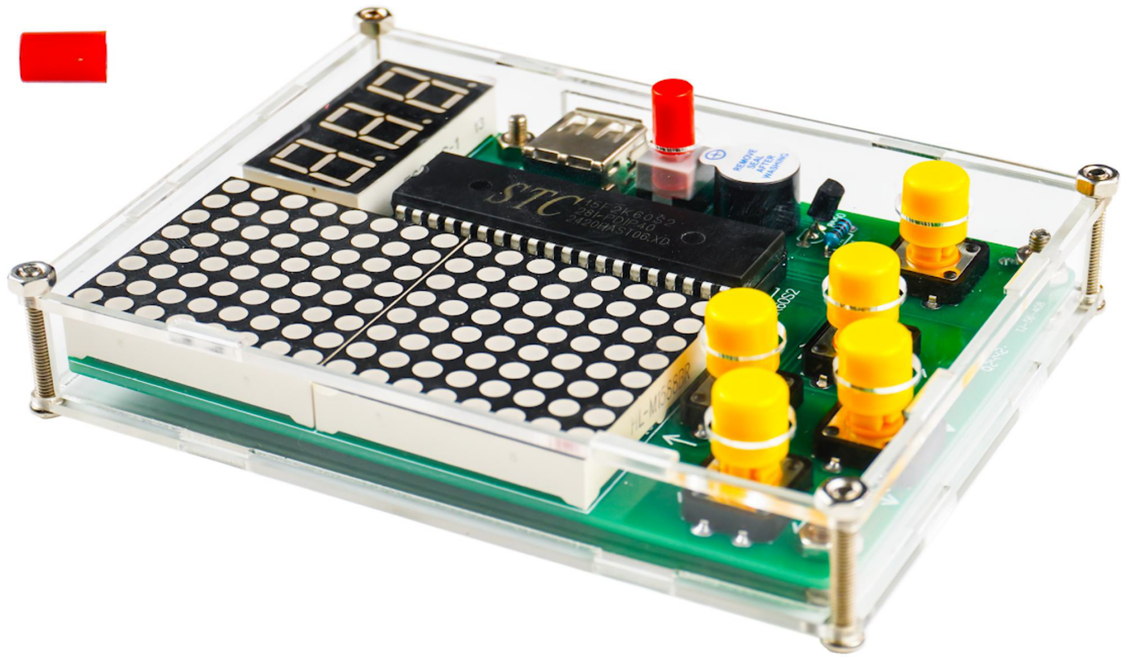
20 Fix screw installation



Use long screws and nuts to

secure the acrylic shell.

21 Instructions for use



Install the red power button cap on the self-locking switch to complete the final assembly of the game console. After turning on the power, press the red button to turn on the game console.

After the game console is turned on, the dot matrix screen displays the number 1, which means that the game console has entered the function selection interface. On this interface, press the left and right direction keys to switch numbers. Different numbers represent different functions: number 1 is Tetris, number 2 is Snake, number 3 is racing, number 4 is helicopter , number 5 adjusts the screen brightness, number 6 turns on and off the sound, and press the S5 confirmation key to enter the function.

In the Tetris game, the left and right keys move the blocks, the down key accelerates the falling of the blocks, and the confirm key rotates the blocks.

In the Snake game, the up, down, left and right keys control the movement direction of the snake.

In racing games, the left and right keys move the car left and right, and the confirm key accelerates.

In the helicopter game, the left and right keys move the airplane left and right, and the confirm key means launching bullet.