HU-058 RGB Colorful LED Digital Electronic Clock DIY Kit

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RGB Colorful LED Digital Electronic Clock DIY Kit

I. Function:

1>.Display time: Hour, Minute, Second.

2>.Display date: Year, Month, Day.

3>.Display week.

4>.Display current temperature in Celsius or Fahrenheit .

5>.Adjustable alarm clock music: 4 music.

6>.Voice Hourly Report.

7>.Automatic brightness adjustment.

8>.Set display mode.

9>.Adjustable alarm clock: 3.

10>.Set 12H/24H display mode.

11>.Calibration time display value.

12>.Calibration temperature display value.

II. Feature:

1>.RGB Colorful LED display: Each digital tube can be randomly displayed or assigned a display color. Each parameter can also specify a display color.
2>.Four Display Mode:Time, Time/Temperature, Time/Date/Week, Time/Temperature/Date/Week.
3>.Automatic Brightness Adjustment: Built-in photosensitive sensor which can automatically adjust the brightness of the display screen. Users can also set Low/Middle/High levels of fixed brightness.
4>.Three Alarm Clock: Built-in 3 sets of alarm clocks. Users can ON/OFF Alarm1/Alarm2/Alarm3 according needs. It can be turn on at the same time or only one alarm clock can be turn on.
5>.Four Alarm Ring: Built in 4 different alarm ringtones, users can freely switch.
6>.C/F Temperature: It can display temperature in Celsius Degree or Fahrenheit Degree as your need.
7>.Temperature value can be calibrated.
8>.Display time can be calibrated.
9>.Voice Hourly Report: Buzzer alarm prompt once on hour.
10>.12H/24H Display: It will display AM or PM if select display time in 12H system.
11>.Power-down memory. The time and set parameters will run automatically after installing the built-in battery CR1220 without re-calibrate and setup.
12>.DIY Hand Soldering. It's a DIY kit which comes with various components. User need to install each component by hand. It not only can exercise and improve soldering skills, but also increase the interest in electronic technology. Great for electronics hobbyists, beginners, school and home education.

III.Set Method:

1>.It displays the current time by default in hour-minute. Note: display mode can be modified in the next set methods.

2>.**Switch Display Brightness:** Short press SW2/Down button can modify display Brightness: Automatic brightness adjustment mode, Low brightness mode, Medium brightness mode, High brightness mode.

3>.**Turn OFF Alarm Ring:** Press any one button can turn OFF alarm ring. The alarm clock ring can also automatically stop after 60 seconds.

4>.**Factory Default:** Press SW1/UP and SW2/Down simultaneously to restore factory settings.

5>.**Set Color Display Mode:**

5.1>.Short press SW1/UP button enter into Set Color Display Mode.

5.2>.SW1/UP Button: Save parameter and enter into next function at set mode.

5.3>.SW2/Down Button: Increase the parameter value by +1 for each press at set mode. Hold down to continuously and quickly modify parameter values. Note: It will automatically increase from the minimum value after the parameter value reaches the maximum value.

Set Mode	Display	Setting Steps	Descriptions
Color Display	**dC-3**	1.Press SW2/Down Button can switch display mode **dC-0,dC-1, dC-2, dC-3**. 2.Press SW1/UP button can save and enter into next step.	**dC-0**: 4 digital tubes randomly displays different colors. **dC-1**: 4 digital tubes randomly displays the same colors. **dC-2**: Time/Date/Temperature/Week can each select the a specified display color. **dC-3**: 4 digital tubes can each choose a specified color.
Time Color	**08:00**	1.Press SW2/Down Button can change current display color. 2.Press SW1/UP button can save and enter into next step.	It is available just only for **dC-2** Color Display Mode. Other modes do not have this option.
Date Color	**01-01**	1.Press SW2/Down Button can change current display color. 2.Press SW1/UP button can save and enter into next step.	
Temperature Display Color	**25**°F	1.Press SW2/Down Button can change current display color. 2.Press SW1/UP button can save and enter into next step.	
Week Color	**-1-**	1.Press SW2/Down Button can change current display color. 2.Press SW1/UP button can save and enter into next step.	
Each Bit Color	**1234** **1** Flicker	1.Press SW2/Down can set # 1 digital tube display color. 2.Press SW1/UP button can save and enter into next step.	It is available just only for **dC-3** Color Display Mode. Other modes do not have this option.
	2 Flicker	1.Press SW2/Down can set # 2 digital tube display color. 2.Press SW1/UP button can save and enter into next step.	
	3 Flicker	1.Press SW2/Down can set # 3 digital tube display color. 2.Press SW1/UP button can save and enter into next step.	
	4 Flicker	1.Press SW2/Down can set # 4 digital tube display color. 2.Press SW1/UP button can save and exit set mode.	

6>.**Set Time Mode:**

6.1>.Keep press SW1/UP button more than 2second enter into Set Time Mode.

6.2>.SW1/UP Button: Save parameter and enter into next function at set mode.

6.3>.SW2/Down Button: Increase the parameter value by +1 for each press at set mode. Hold down to continuously and quickly modify parameter values. Note: It will automatically increase from the minimum value after the parameter value reaches the maximum value.

Set Mode	Display	Setting Steps	Descriptions
Year	**2023** **23** Flicker	1.Press SW2/Down Button switch Year value. 2.Press SW1/UP button can save and enter into next step.	Set range is 2000~2099.
Date	**01-02** **01** Flicker	1.Press SW2/Down Button switch Month value. 2.Press SW1/UP button can save and enter into next step.	Week value will be automatically adjusted based on the date.
	02 Flicker	1.Press SW2/Down Button switch Day value. 2.Press SW1/UP button can save and enter into next step.	
Time	**07:59** **07** Flicker	1.Press SW2/Down Button switch Hour value. 2.Press SW1/UP button can save and enter into next step.	Second is automatically set to 0
	59 Flicker	1.Press SW2/Down Button switch Minute value. 2.Press SW1/UP button can save and enter into next step.	
12H/24H	**24H**	1.Press SW2/Down Button switch **12H** or **24H**. 2.Press SW1/UP button can save and enter into next step.	12H: 12 hour display system with AM and PM. 24H: 24 hour display system without AM and PM.
Error Value	**H 00** **00** Flicker	1.Press SW2/Down Button change error value. 2.Press SW1/UP button can save and exit set mode.	1.Its set range is -58s ~ +58s. 2.This error value is for 24 hours a day. 3.It can be set to -1 ~ -58s if clock's time is faster than the actual time. Automatically reduce by 1~58s per day. 4.It can be set to 1~58s if clock's time is slower than the actual time. Automatically increase by 1~58s per day. 5.There is no error compensation value, if set to 00.

7>.Set Alarm Mode:

7.1>.Keep press SW2/Down button more than 2second enter into Set Alarm Mode.

7.2>.SW1/UP Button: Save parameter and enter into next function at set mode.

7.3>.SW2/Down Button: Increase the parameter value by +1 for each press at set mode. Hold down to continuously and quickly modify parameter values. Note: It will automatically increase from the minimum value after the parameter value reaches the maximum value.

Set Mode	Display	Setting Steps	Descriptions
Hourly Report	**07÷21** **07** Flicker	1.Press SW2/Down change starting time of hourly reporting. 2.Press SW1/UP button can save and enter into next step.	1. **xx÷yy** means Hourly Report from **xx** hour to **yy** hour. 2. **07÷21** means Hourly Report from **7** to **21** o'clock. 3. Turn OFF Hourly Report function if **xx** is more than **yy** such as 08÷07.

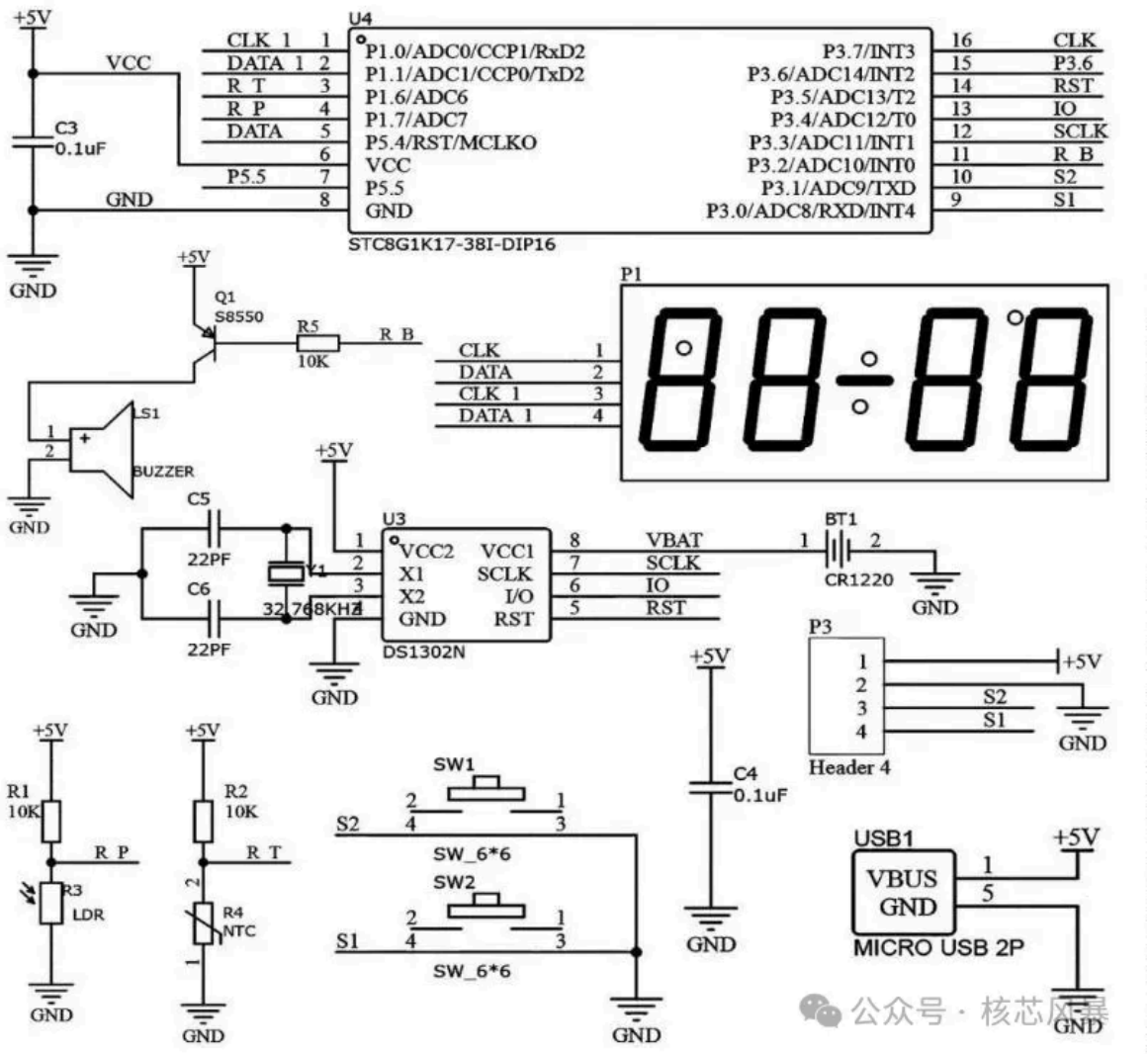
	21 Flicker	1.Press SW2/Down change end time of hourly reporting. 2.Press SW1/UP button can save and enter into next step.	
Alarm 1	**A101 01** Flicker	1.Press SW2/Down switch **A10F, A101, A102, A103.** 2.Press SW1/UP button can save and enter into next step.	**A10F**: Turn OFF Alarm 1. **A101**: Turn ON Alarm 1 for every day. **A102**: Turn ON Alarm 1 from Monday to Friday. **A103**: Turn ON Alarm 1 from Monday to Saturday.
Alarm 1 Time	**08:00 08** Flicker	1.Press SW2/Down Button switch Hour value for Alarm 1. 2.Press SW1/UP button can save and enter into next step.	It is available for **A101, A102, A103**. Not the **A10F** do not have this option.
	00 Flicker	1.Press SW2/Down Button switch Minute value for Alarm 1. 2.Press SW1/UP button can save and enter into next step.	
Alarm 2	**A20F 0F** Flicker	1.Press SW2/Down switch **A20F, A201, A202, A203**. 2.Press SW1/UP button can save and enter into next step.	**A20F**: Turn OFF Alarm 1. **A201**: Turn ON Alarm 1 for every day. **A202**: Turn ON Alarm 1 from Monday to Friday.
Alarm 2 Time	**07:00 07** Flicker	1.Press SW2/Down Button switch Hour value for Alarm 2. 2.Press SW1/UP button can save and enter into next step.	It is available for A201, A202, A203. Not the A20F do not have this option.
	00 Flicker	1.Press SW2/Down Button switch Minute value for Alarm 2. 2.Press SW1/UP button can save and enter into next step.	
Alarm 3	**A30F 0F** Flicker	1.Press SW2/Down switch **A30F, A301, A302, A303.** 2.Press SW1/UP button can save and enter into next step.	**A30F**: Turn OFF Alarm 1. **A301**: Turn ON Alarm 1 for every day. **A302**: Turn ON Alarm 1 from Monday to Friday. **A303**: Turn ON Alarm 1 from Monday to Saturday.
Alarm 3 Time	**13:00 13** Flicker	1.Press SW2/Down Button switch Hour value for Alarm 3. 2.Press SW1/UP button can save and enter into next step.	It is available for **A301, A302, A303**. Not the **A30F** do not have this option.
	00 Flicker	1.Press SW2/Down Button switch Minute value for Alarm 3. 2.Press SW1/UP button can save and enter into next step.	
Alarm Ring	**AU 0 0** Flicker	1.Press SW2/Down switch music **AU 0, AU 1, AU 2, AU 3**.	**AU 0**: Jasmine flower. **AU 1**: A Thousand Year Love. **AU 2**: Ode to Joy. **AU 3**: Happy birthday to you.

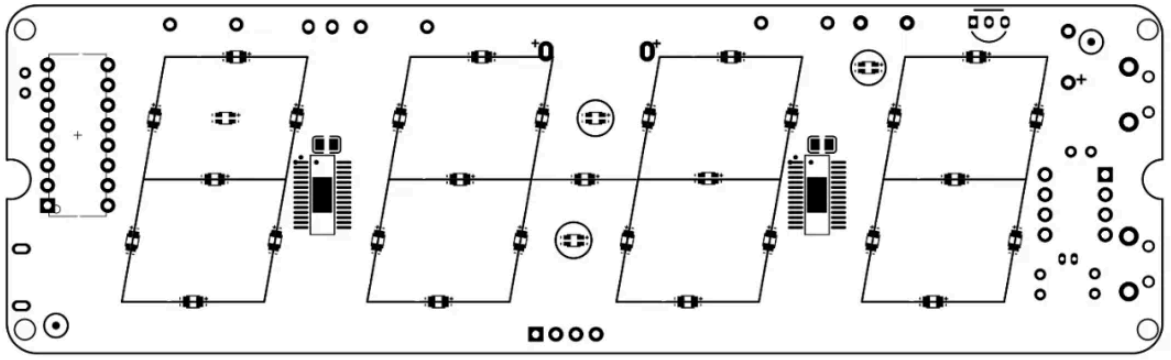
		2.Press SW1/UP button can save and enter into next step.	
Temperature Unit	℃	1.Press SW2/Down Button switch ℃ or ℉. 2.Press SW1/UP button can save and enter into next step.	
Temperature Calibration	Current Value	1.Press SW2/Down Button to modify the displayed value. 2.Press SW1/UP button can save and enter into next step.	1.System will automatically calculate the error value after change display value to the actual temperature value.
Display Mode	**dP 0 0** Flicker	1.Press SW2/Down to switch **dP 0, dP 1, dP 2, dP 3**. 2.Press SW1/UP button can save and exit set mode.	**dP 0**: Only display Time. **dP 1**: Display Time/Temperature in turns. **dP 2**: Display Time/Date/Week. **dP 3**: Display Time/Temperature/Date/Week.

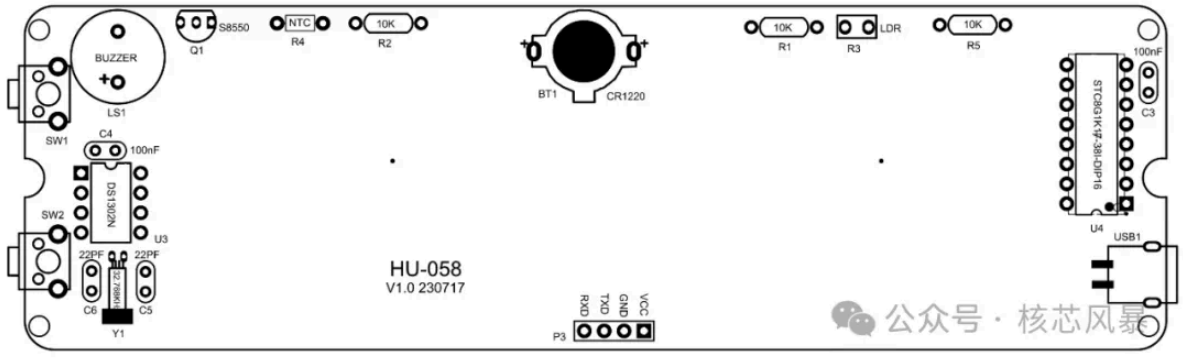
IV.Component listing:

N0.	Component Name	PCB Marker	Parameter	QTY
1	Metal Film Resistor	R5-R8	330ohm	4
2	Metal Film Resistor	R2-R3	1Kohm	2
3	Metal Film Resistor	R4	10Kohm	1
4	Metal Film Resistor	R1	15Kohm	1
5	Ceramic Capacitor	C1,C2	0.1uF 104	2
6	Electrolytic Capacitor	C3,C4	10uF 25V	2
7	Black Button	S1	6*6*10mm	1
8	Self-locking switch	S2	5.8*5.8mm	1
9	S8550 Transistor	Q1,Q2	TO-92	2
10	78L05 Voltage Regulator	U3	TO-92	1
11	White LED	D1-D18	5mm	18
12	White LED	U2	VS1738	1
13	CD4017	U1	DIP-16	1
14	DC Socket	J1	5.5mm	1
15	9V Battery Socket	DC 9V		1
16	Nylon Column		M3*10mm	4
17	Nylon Column		M3*20mm	4
18	Screw		M3*25mm	4
19	Box		65*65*35mm	1
20	PCB		74*74*1.6mm	1

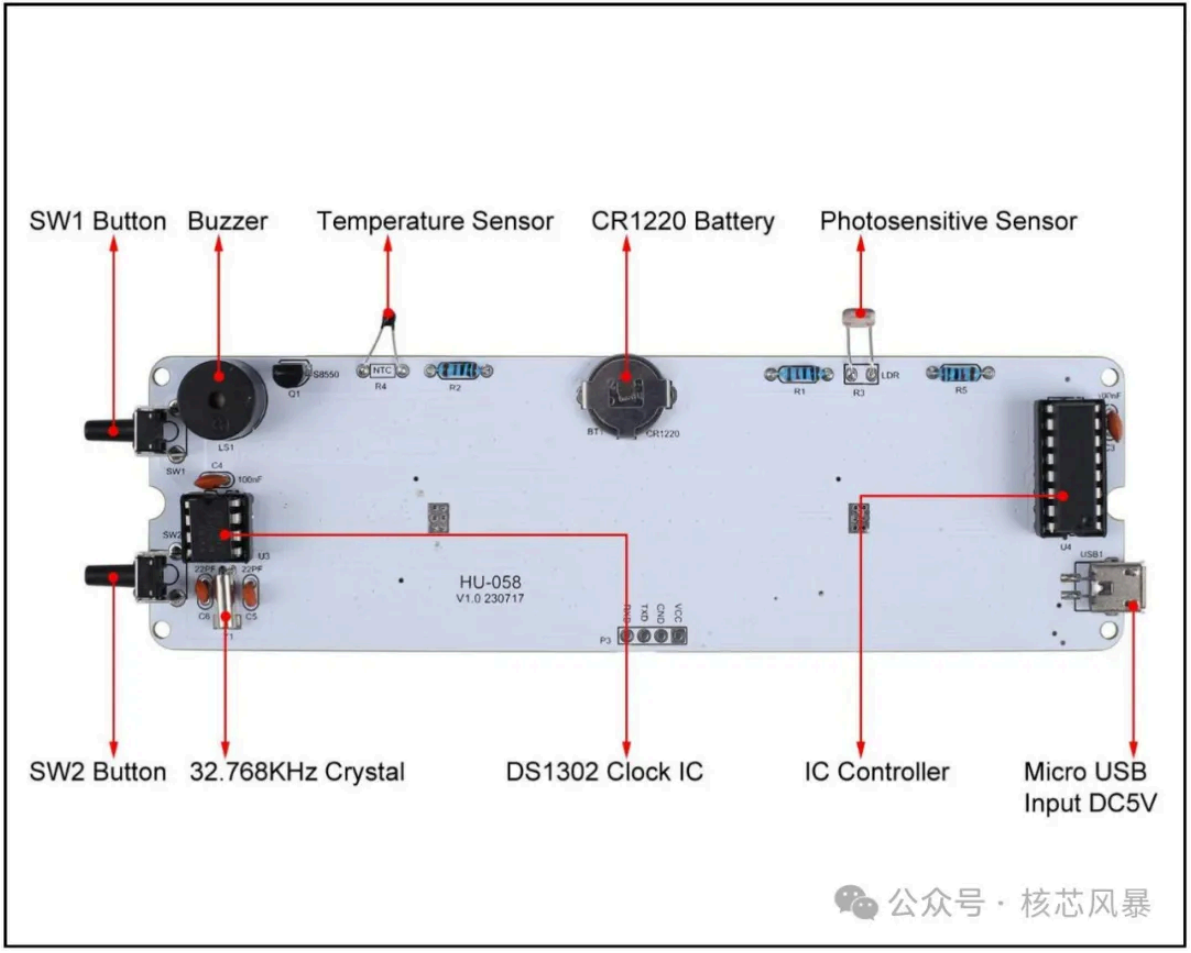
V.Schematic Diagram&Component distribution diagram







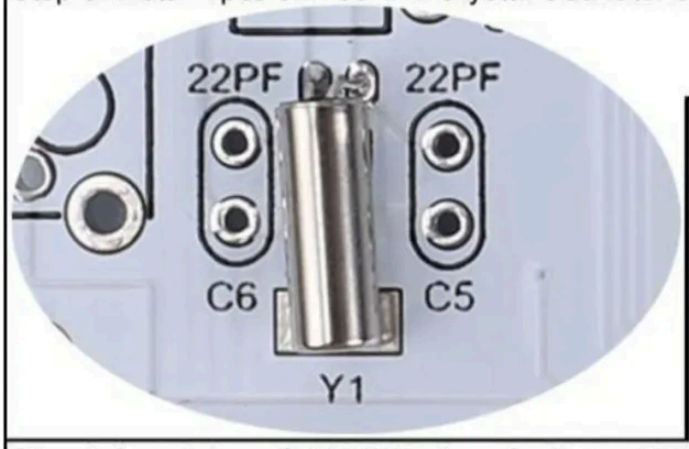
VI.Install shown steps:

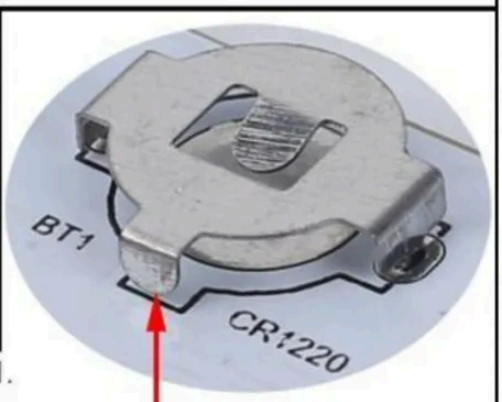


Step 1: Install 3pcs 10Kohm Metal Film Resistor at R1,R2,R5.

Step 2: Install 1pcs Micro USB Socket at USB1.

Step 3: Install 1pcs 32.768KHz Crystal Oscillator at Y1 on horizontal placement.





Step 4: Install 1pcs CR1220 Battery Socket at BT1.
Pay attention to the installation direction.

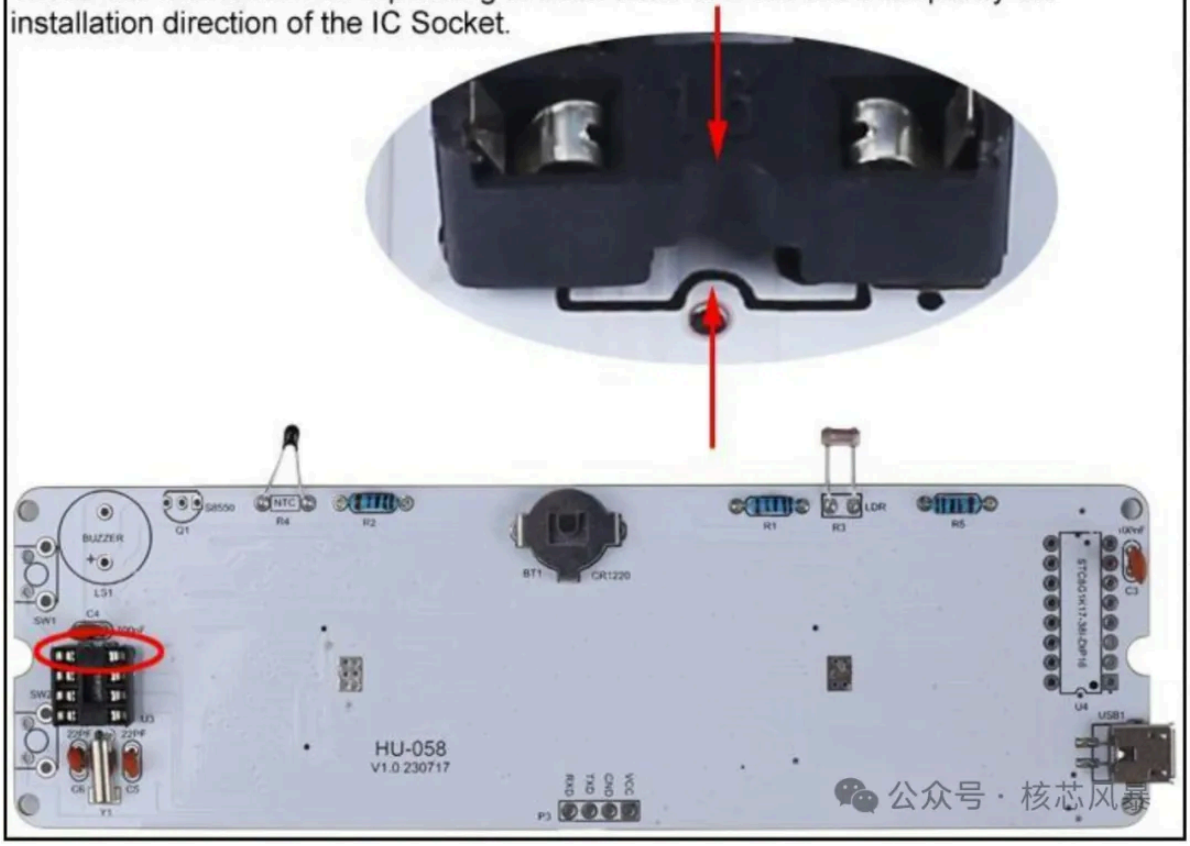
Step 5: Install 2pcs 100nF 104 Ceramic Capacitor at C3,C4.

Step 6: Install 2pcs 22pF Ceramic Capacitor at C5,C6.

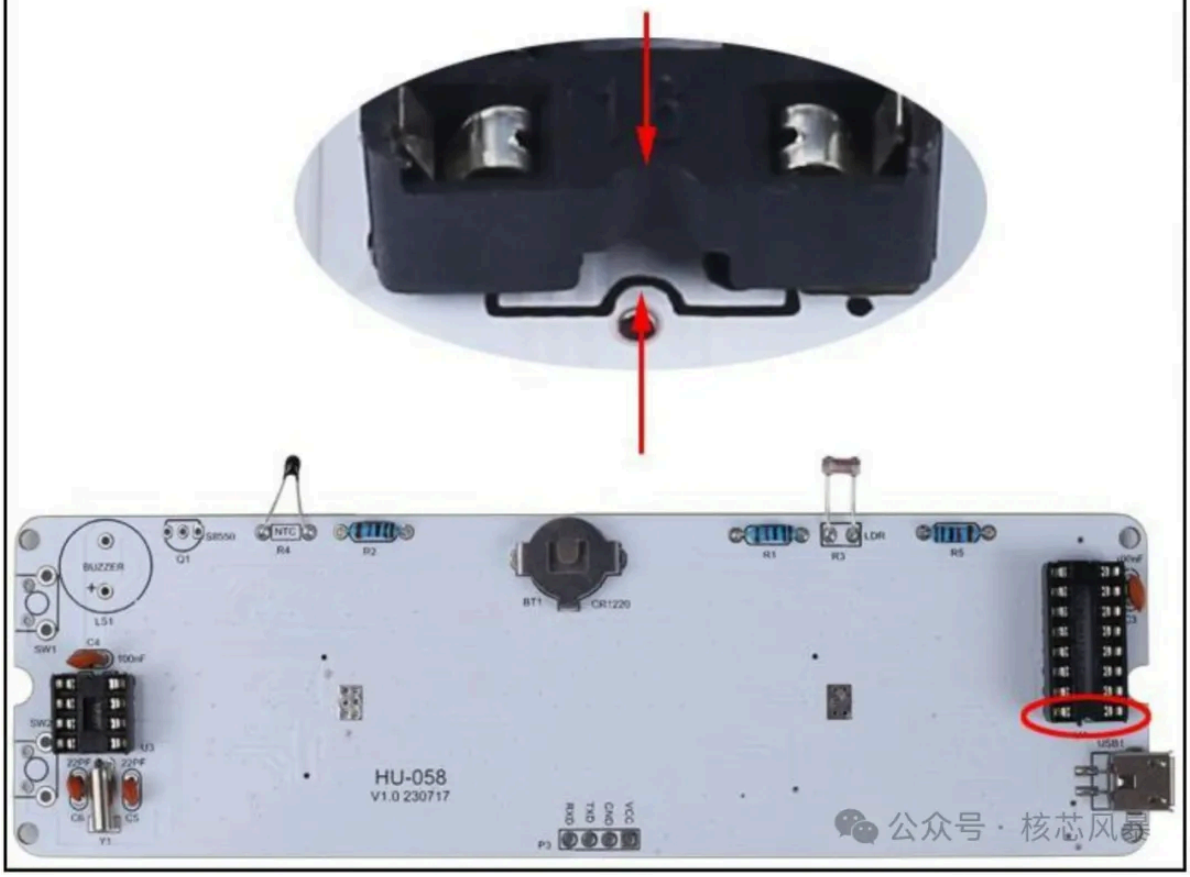
Step 7: Install 1pcs GL5539 Photoresistor at R3. Maintain 8mm between sensor probe and PCB edge.

Step 8: Install 1pcs Thermistor at R4. Maintain 8mm between sensor probe and PCB edge.

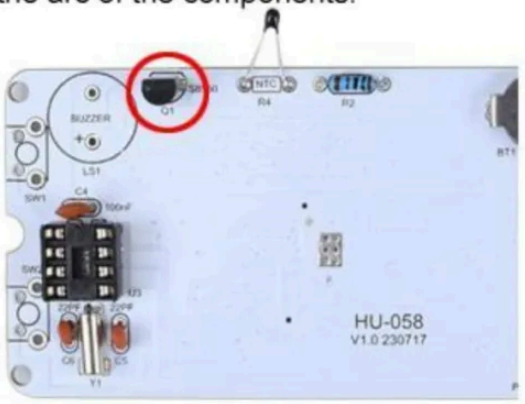
Step 9: Install 1pcs DIP-8 IC Socket at U3.There is a gap mark on one end of the IC Socket and there is a gap mark on PCB silk screen where the IC Socket can place on. These two marks are corresponding to each other and are used to specify the installation direction of the IC Socket.



Step 10: Install 1pcs DIP-16 IC Socket at U4 by the same methods.

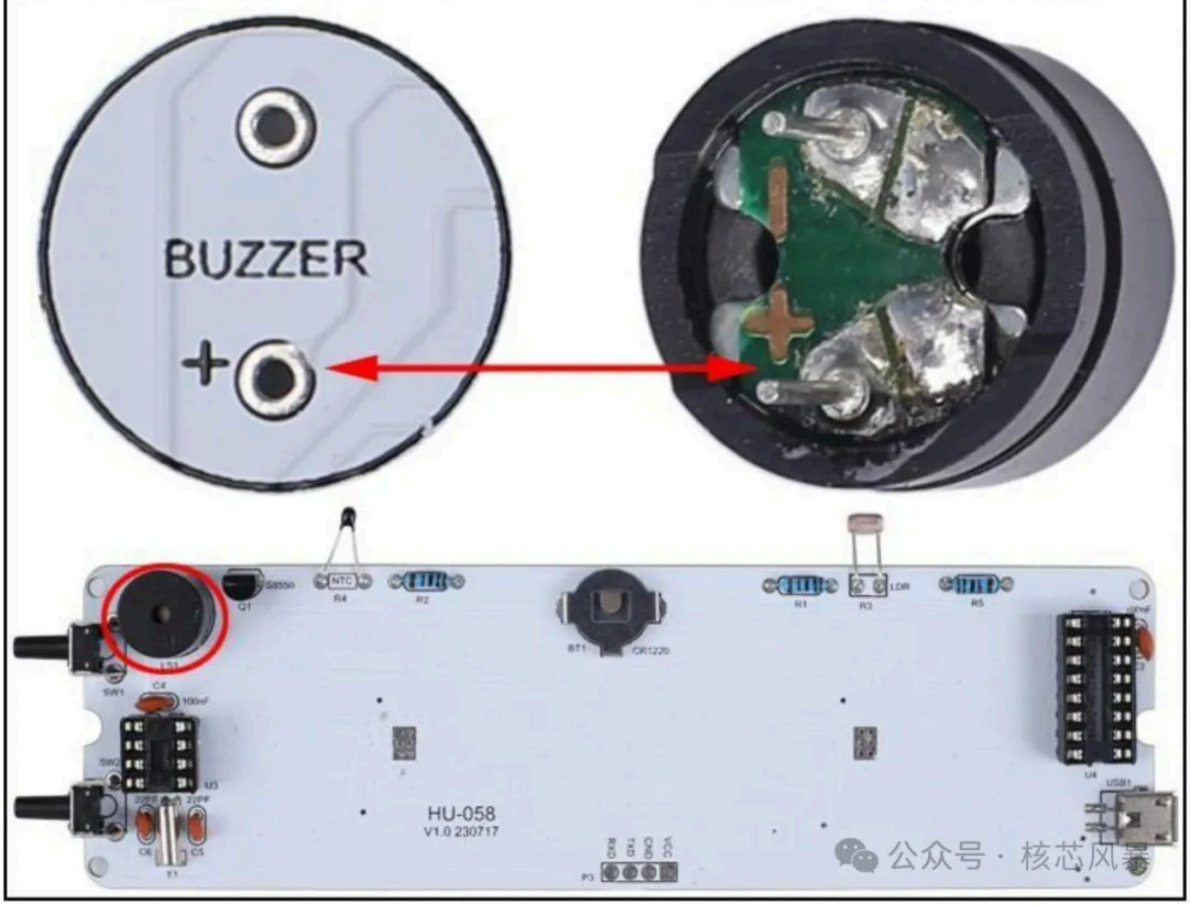


Step 11: Install 1pcs TO-92 S8550 Transistor at Q1. The arc on the PCB corresponds to the arc of the components.



Step 12: Install 2pcs Black Button at SW1,SW2.

Step 13: Install 1pcs Passive Buzzer at LS1. The ' + ' pin connect to the ' + ' pad.



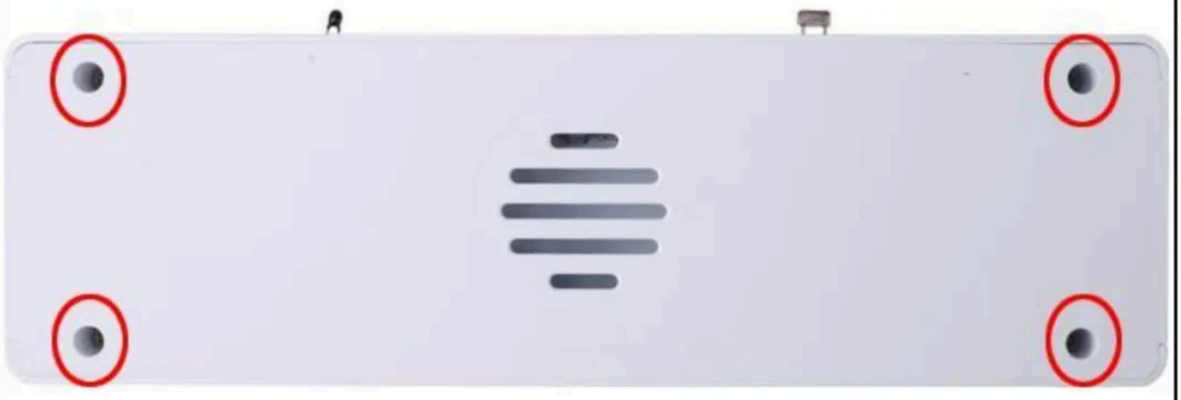
Step 14: Install 1pcs DIP-8 IC DS1302 Clock at U3. There is a gap mark on one end of the IC and there is a gap mark on DIP-8 IC Socket where the IC can place on. These two marks are corresponding to each other and are used to specify the installation direction of the IC.

Step 15: Install 1pcs DIP-16 STC8G1K17-38I Controller at U4 by the same methods.

Step 16: Install 1pcs CR1220 battery as shown. Note: The positive electrode of the battery contacts the metal spring of the battery holder.

Step 17: Place PCB on Clock Case. Pay attention to the installation positions of the two sensors and two buttons.

Step 18: Fix Clock Case by 4pcs Screw.



#时钟 14 #套装 12 #diy 53

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