How to make 6 Digit LED Large Screen Two-Color Digital Tube Desktop Clock

Please carefully read the entire production process and then do it will be better !

First pay attention to the problem before soldering:
1. Soldering temperature below 320 ℃, the soldering iron temperature can not be too high, otherwise it may damage the LED
2. When soldering LED, electric soldering iron must be grounded and the best is to wear electrostatic bracelet, if the electric iron is not powered up, the LED will be easily damaged by static electricity caused not bright, soldering speed must fast.

After reading the attention, quickly pick up your electric iron to do it

First of all, we have to solder LED, LED need to distinguish between positive and negative corresponding to the LED circuit board pad, LED side of the green point that is negative, LED negative corresponds to the LED package octagonal pad, all the LED soldering is this way, Do not mistake the wrong direction, as shown below:
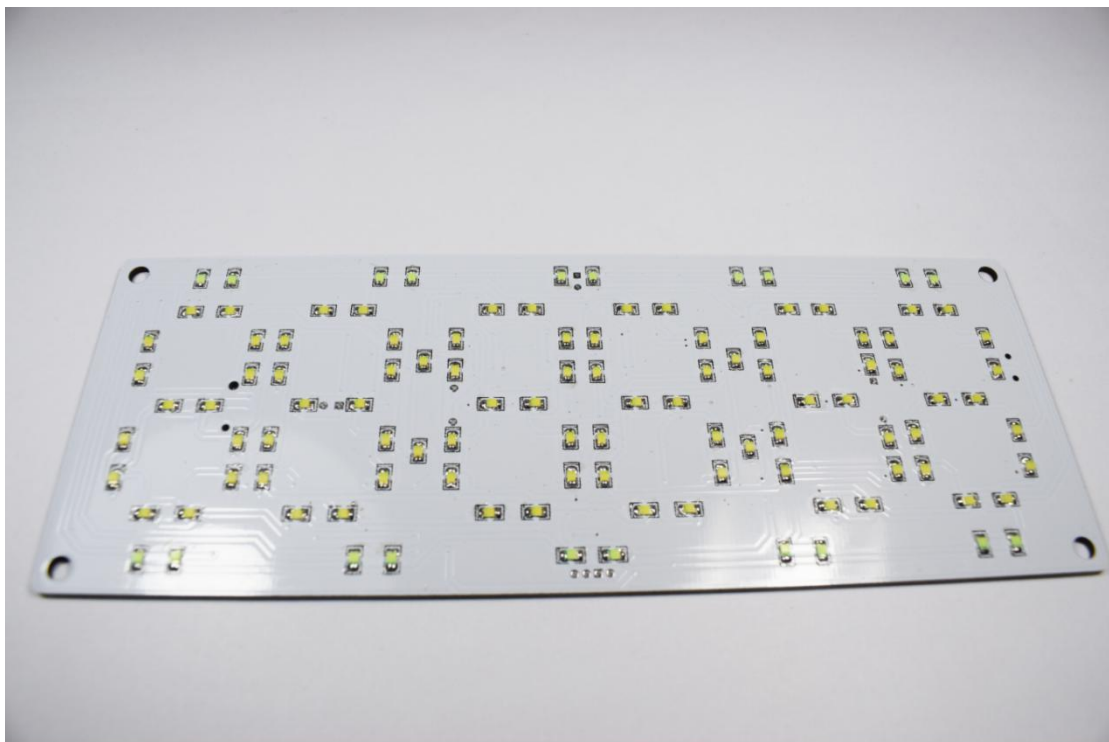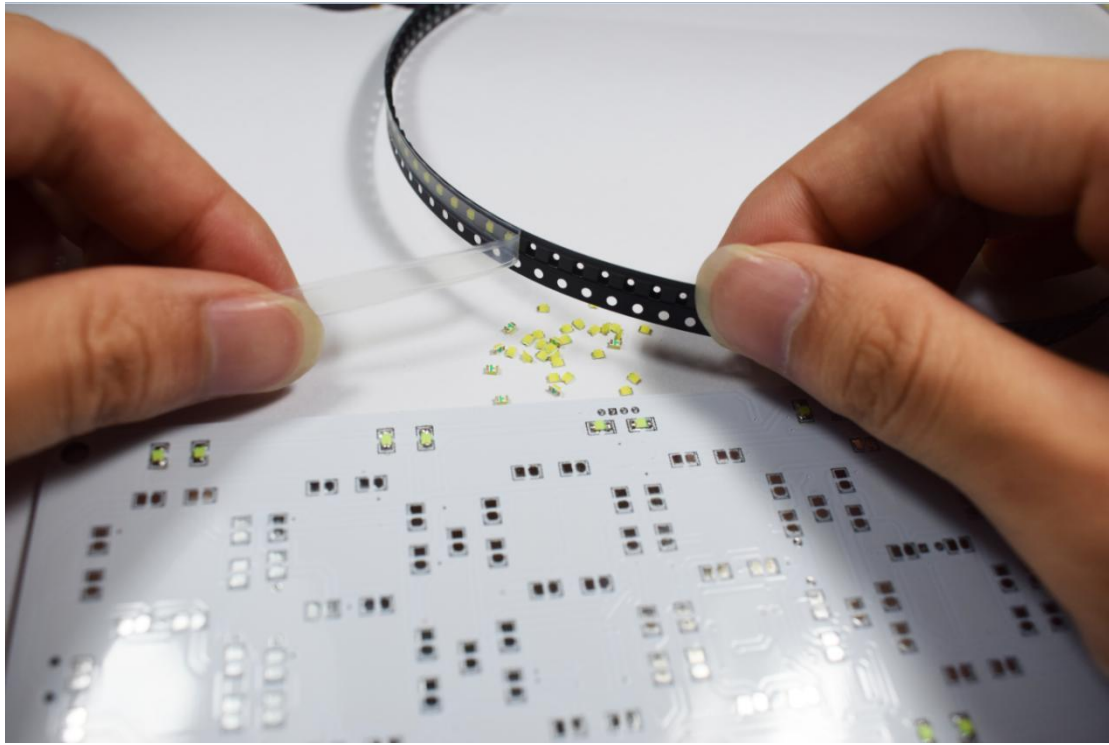

This negative end
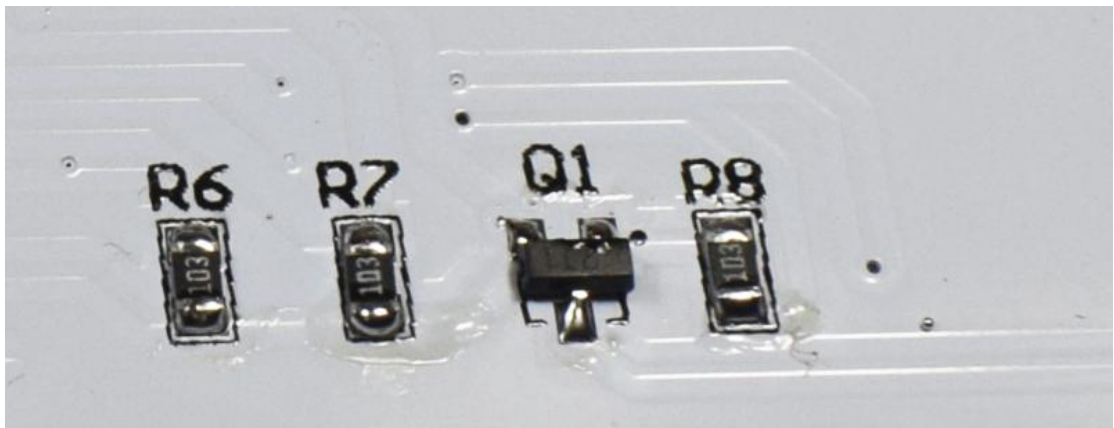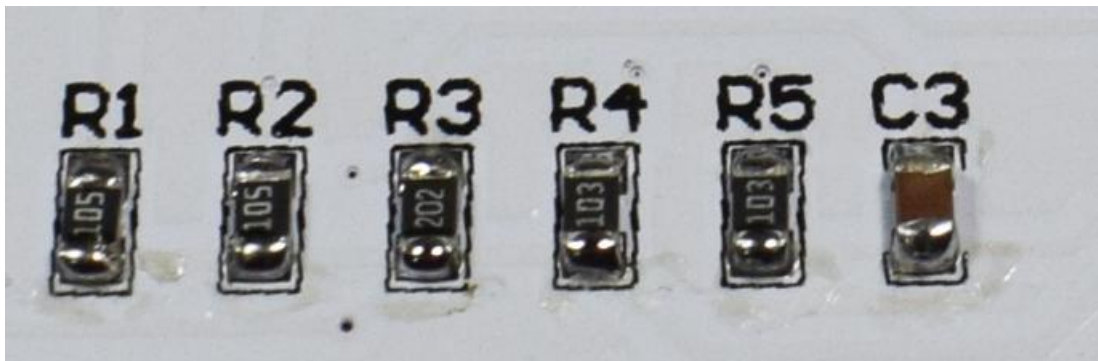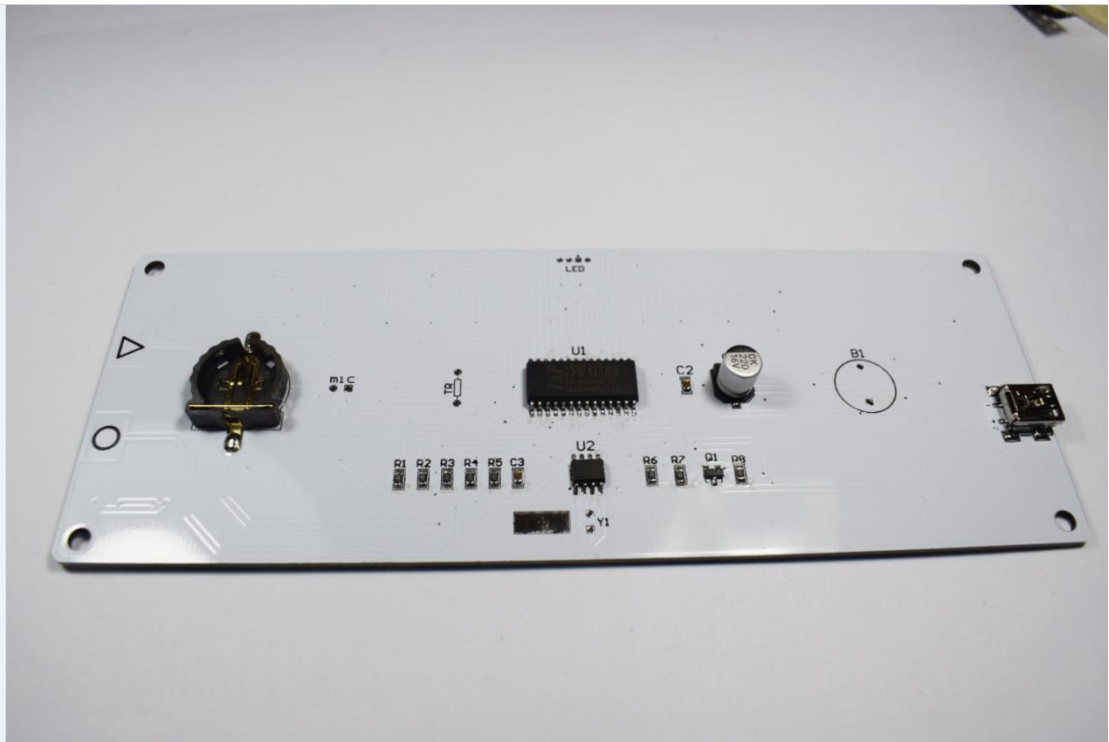corresponds to
an octagonal pad
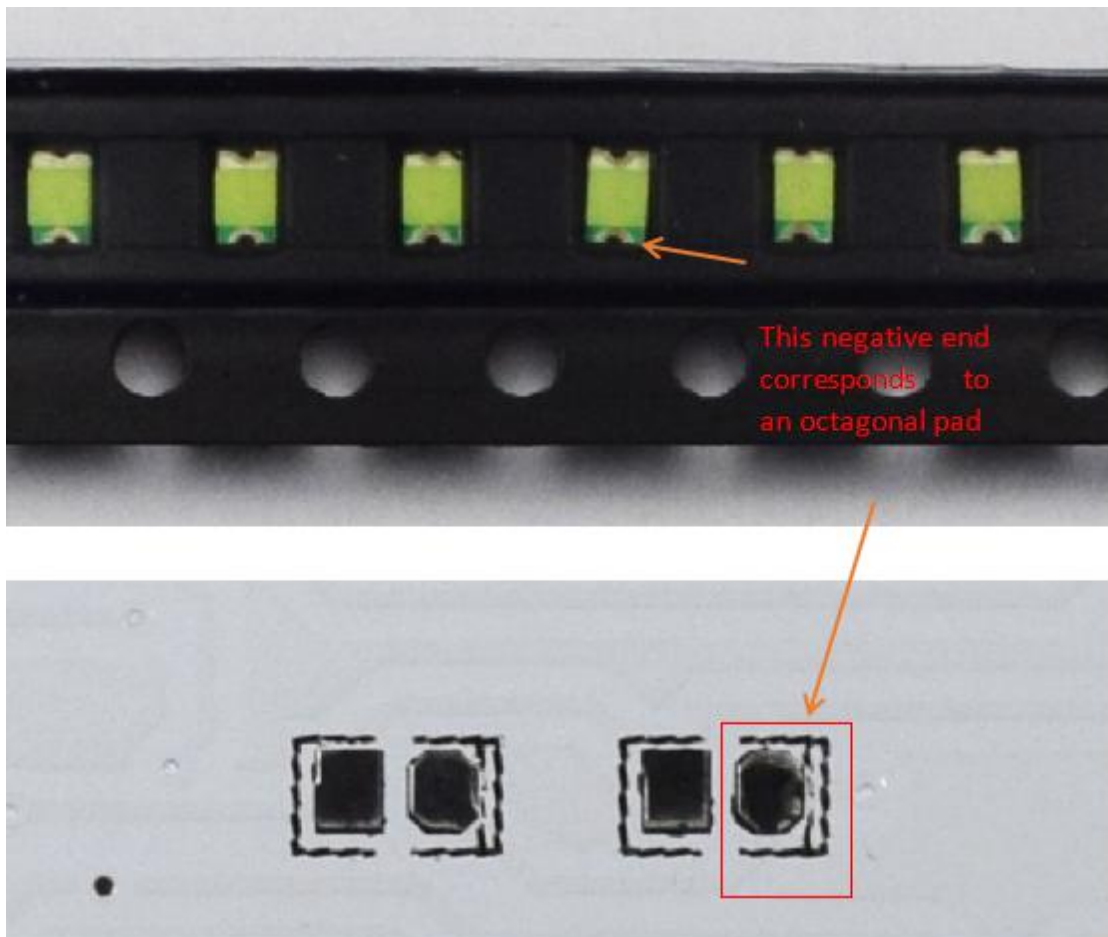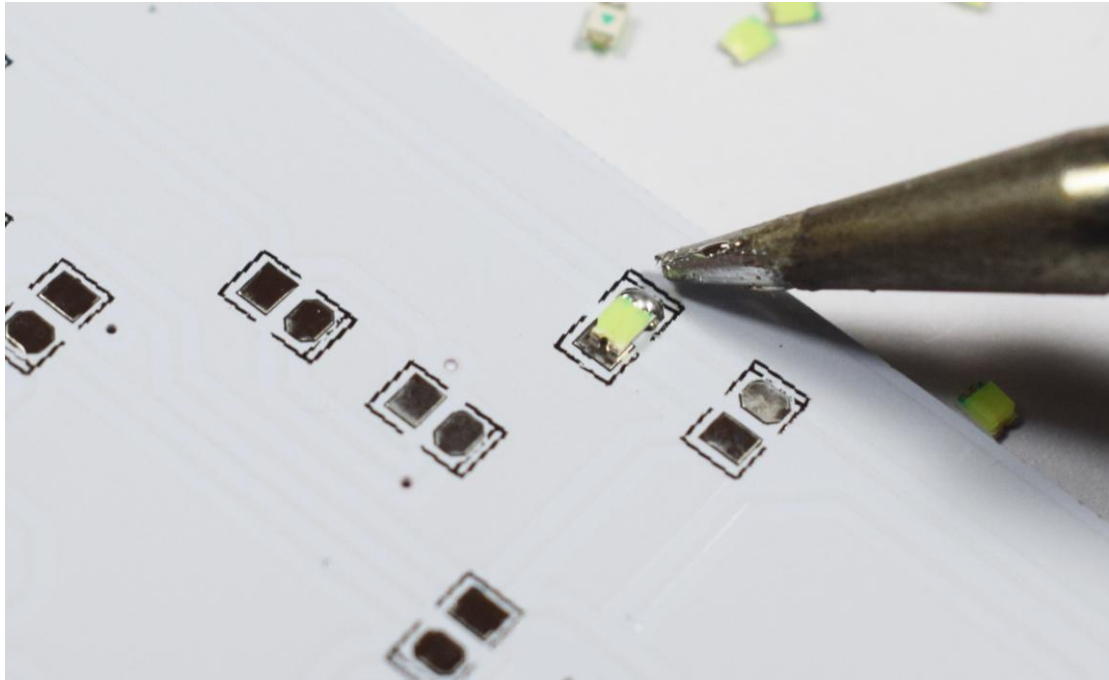
This clock is two-color, first of all we solder the upper and lower rows of LED, this is the same color of the LED, pay attention not to make a mistake:
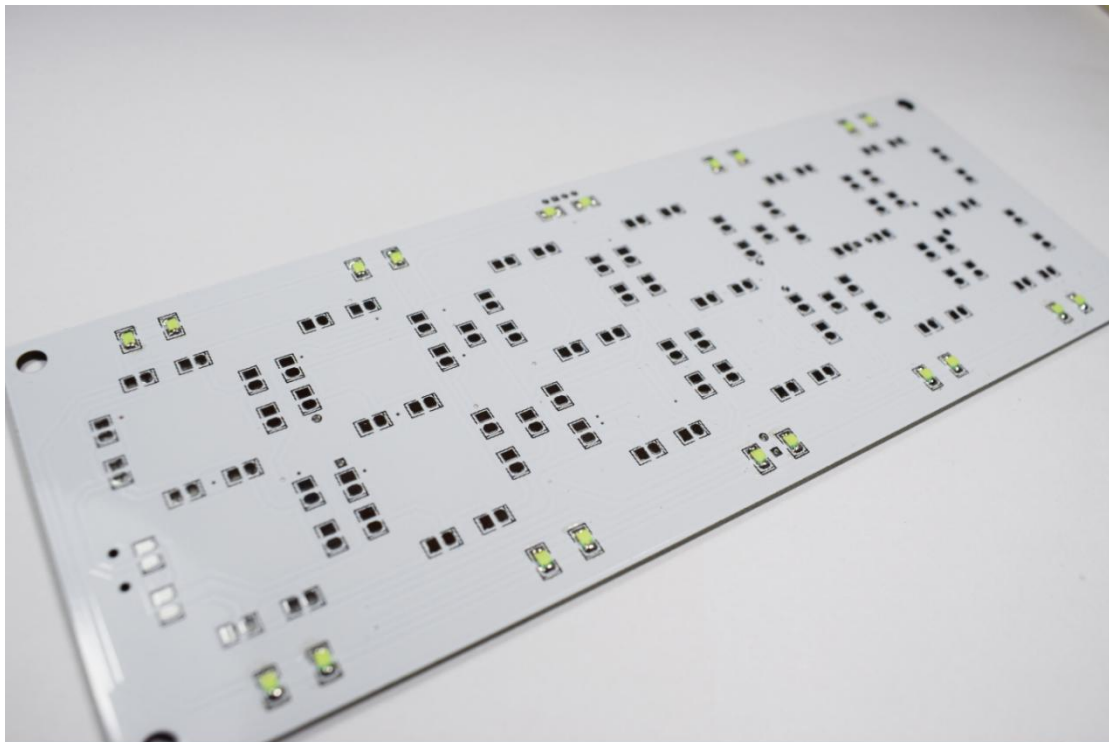

And then we solder those 8-word LED, which is soldering another color of the LED, remember not to make mistakes in color, all soldering as shown below:

After all the LED are finished, we are now to solder the reverse side components.

We first solder the chip device, U1 and U2 IC should pay attention to the direction, do not solder them reverse, CR1220 battery holder should pay attention to the direction too.

R1-R2: 1M (105)   R3: 2K (202)   R4-R8: 10K (103)   C1: 220uF   C2-C3: 100nF (104)

Below we solder the mini USB socket, mini USB socket in the middle of the five feet we only need to solder the left and the right of them, the middle of the three pins can be cut, as shown below:
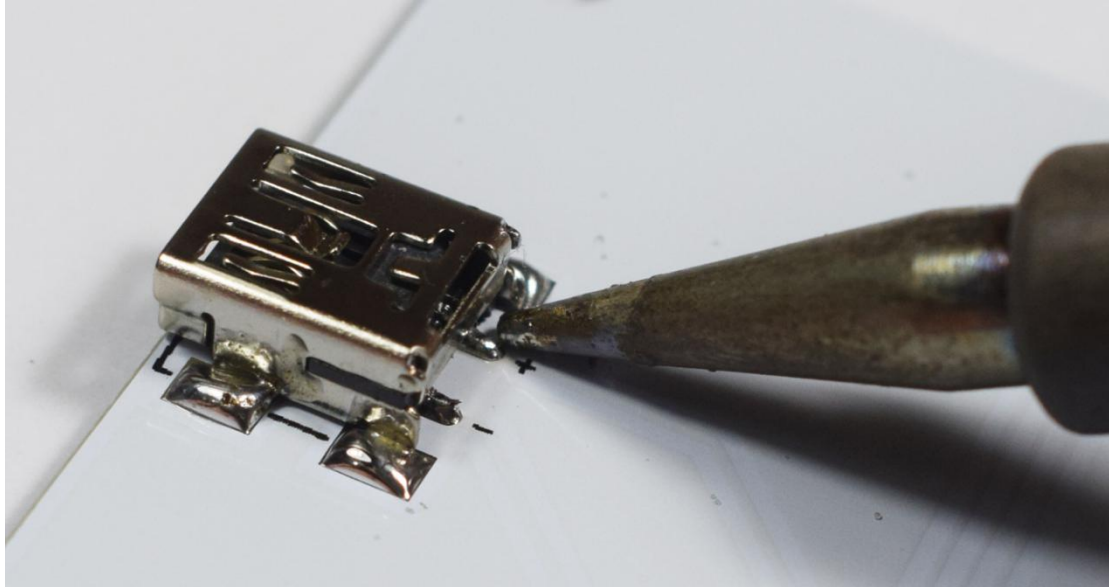
Here we solder buzzer, the back of the buzzer has a +, + corresponding to the square pad, after soldering buzzer must cut the pin, make the solder joint as much as possible with the circuit board, otherwise solder point too high to install acrylic board
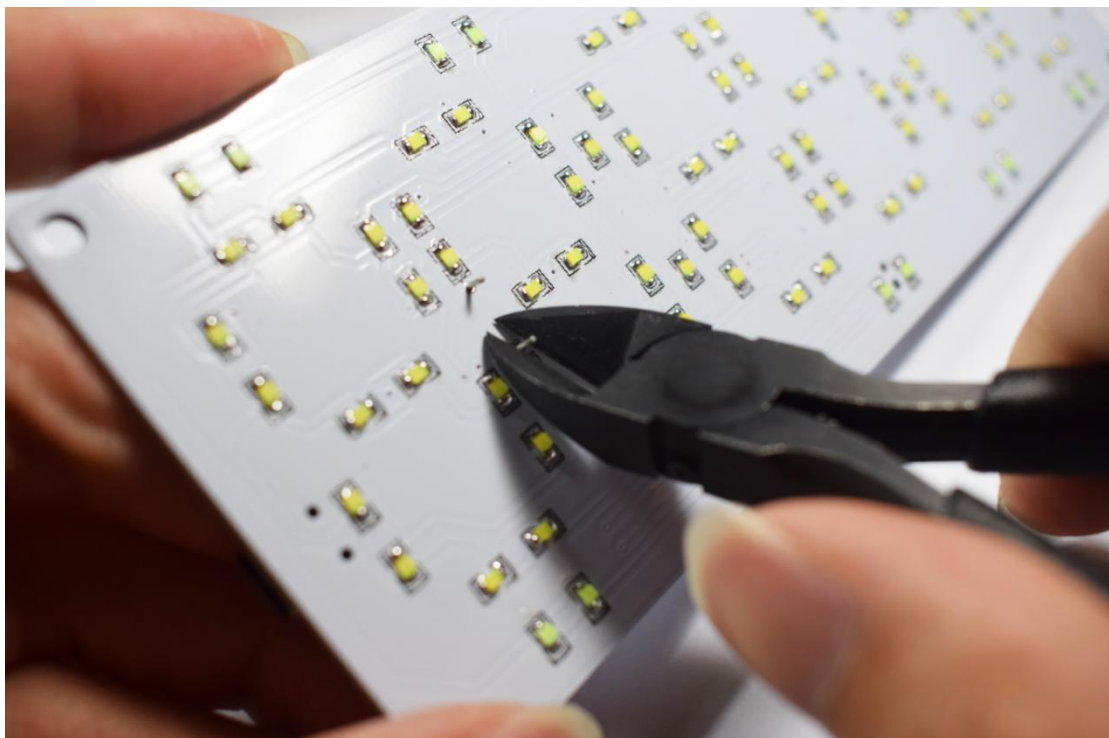
We then solder the microphone, soldering microphone should pay attention not to make mistakes in the direction of the microphone, behind the three lines attached closed a pin corresponding to the circle of the pad, soldering should also try to trim the pin:
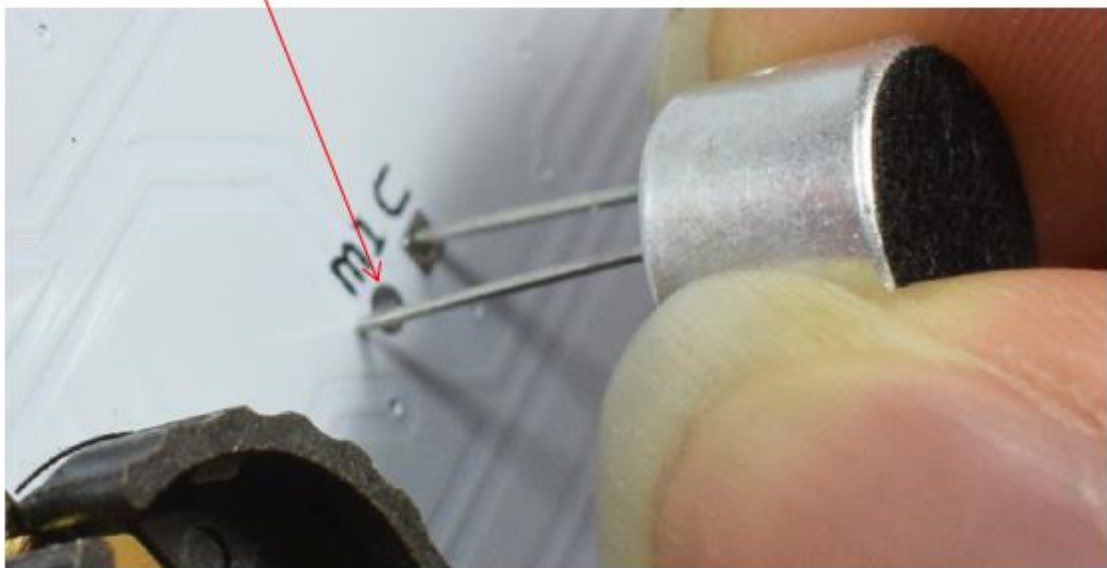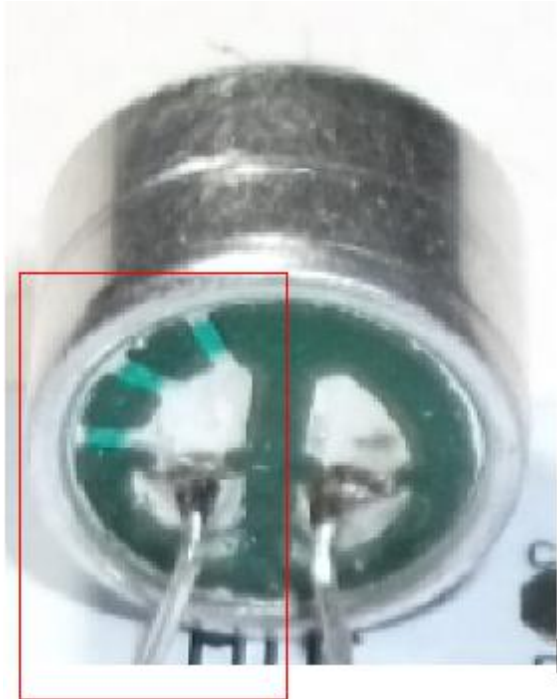
And then soldering the thermistor, the thermistor is recommended to keep the pin not to cut the pin so that after soldering the pin can be pinned away from the IC to prevent the IC from interfering with its temperature detection, as shown below
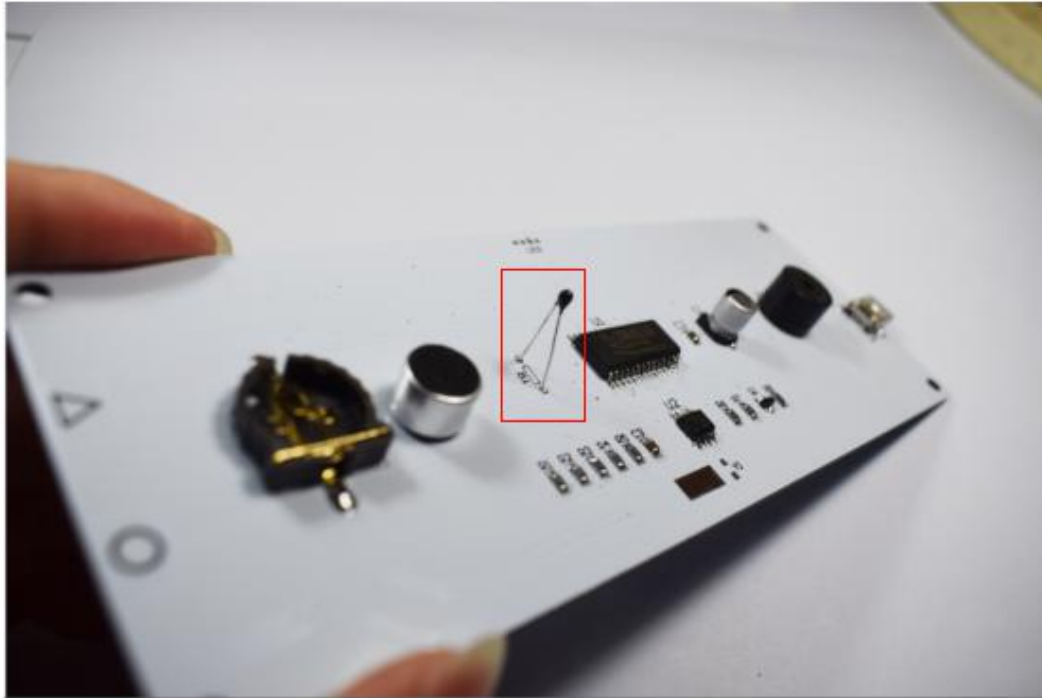
Below we solder crystal, two pins of the crystal better to break it to sleep on the board, the crystal of the shell also need to add solder to solder it on the plate above the pad, as shown below
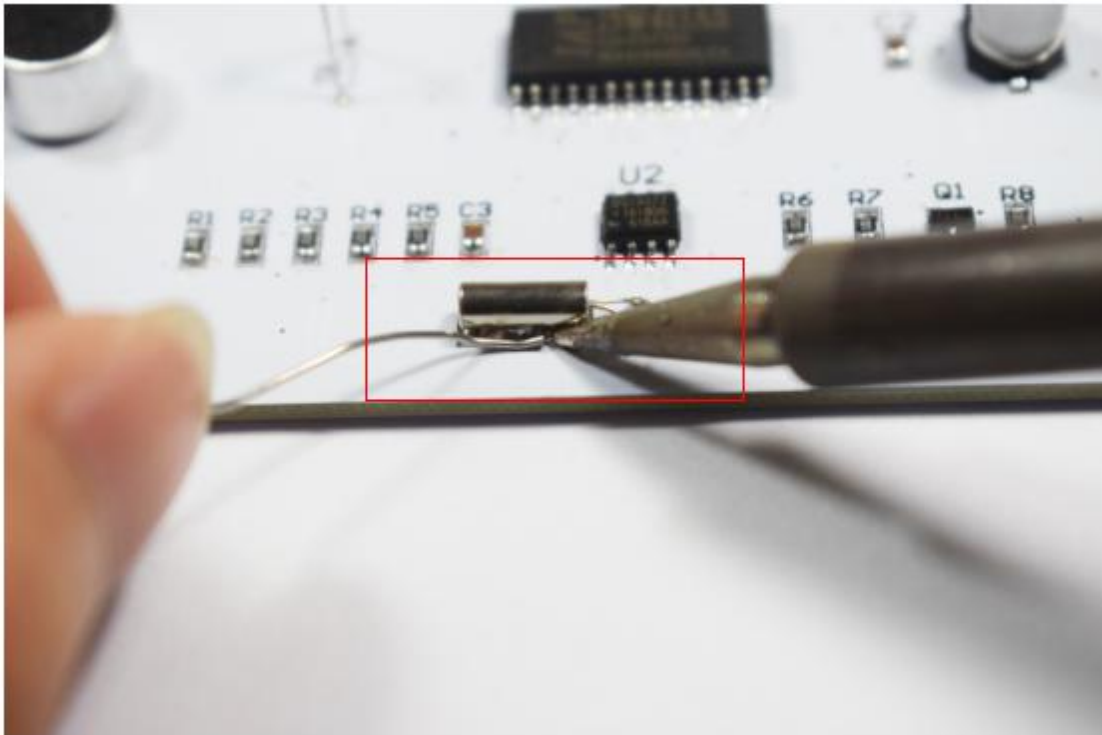
Finally, Soldering 5mm straight LED, LED longest feet corresponding to the pad above the black spot, LED longest foot is negative, After soldering the LED, make it sleep on the circuit board, as shown below
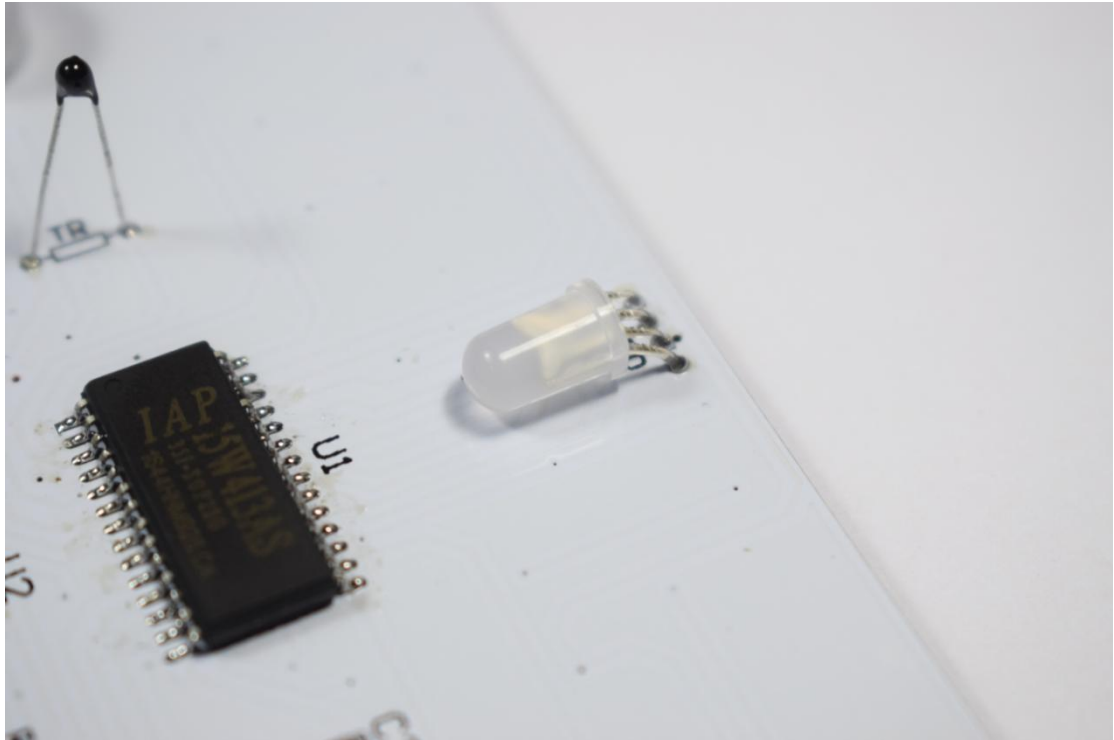
Tear the black acrylic protective film, come up with a white sticker, the stickers were posted on the black acrylic, stickers first paste the two corners paste, and then slowly tiled up to the other side, try to paste it flat

After the pasted, using a tweezers to make a hole for the four holes:
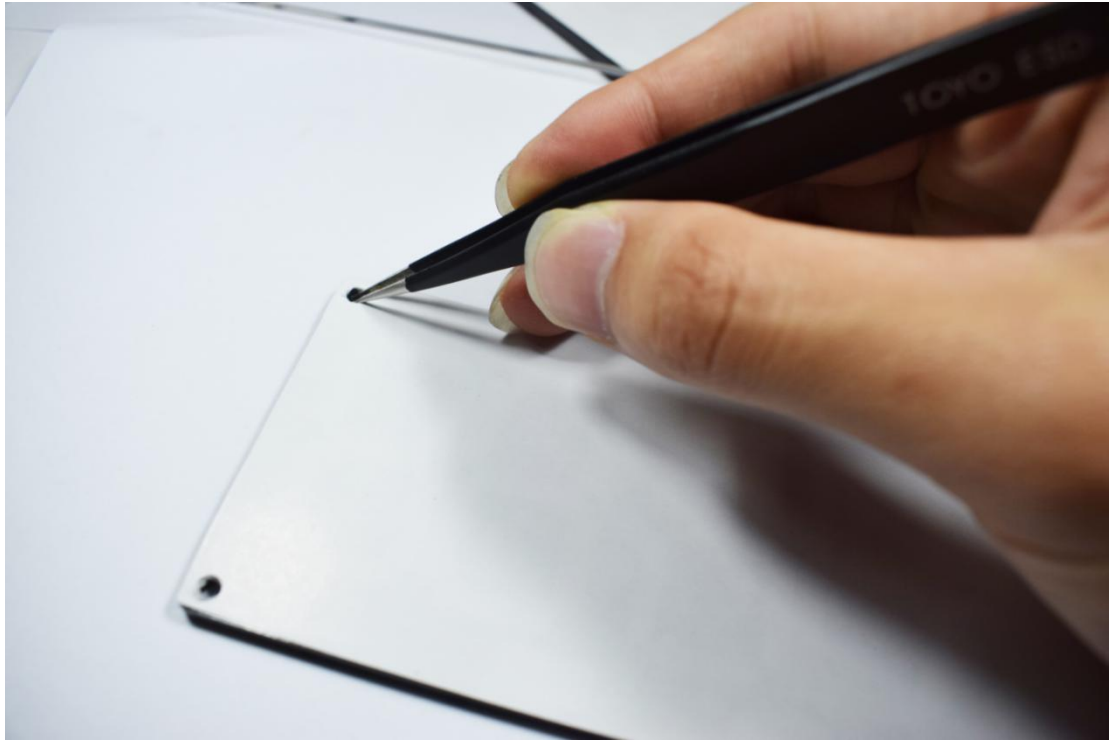
Tear the transparent acrylic protective film, placed in front of the circuit board in the following order to install the acrylic shell:
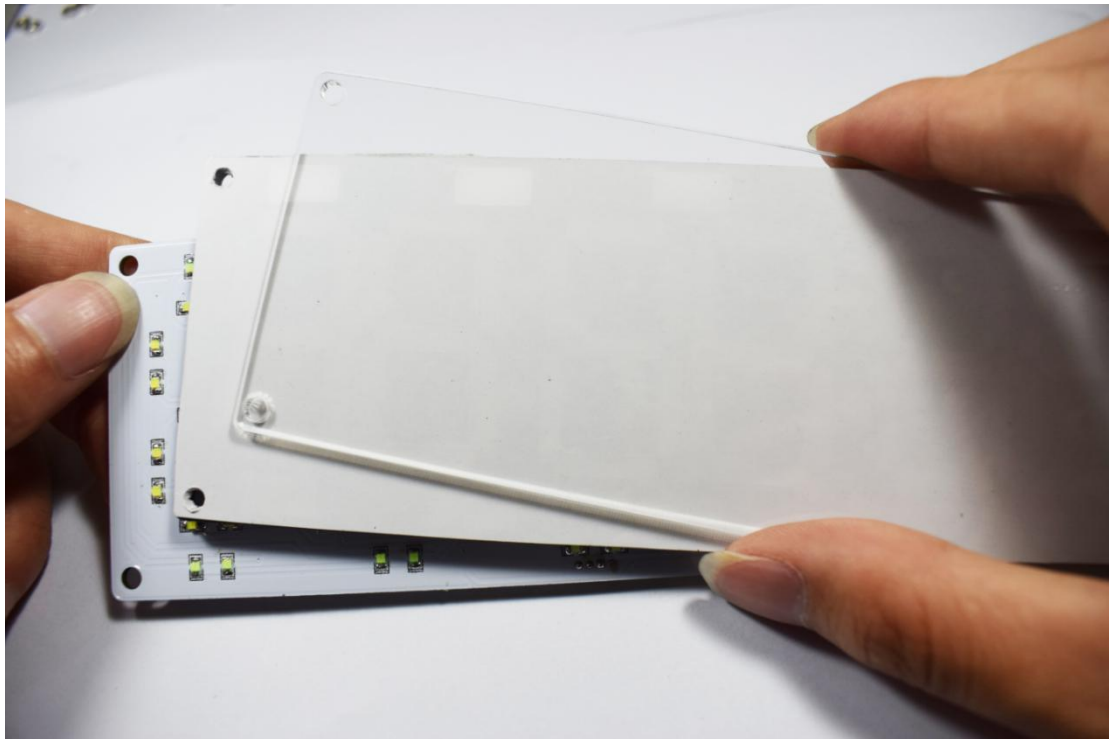
The back of the circuit board and the screw nut is installed as shown below
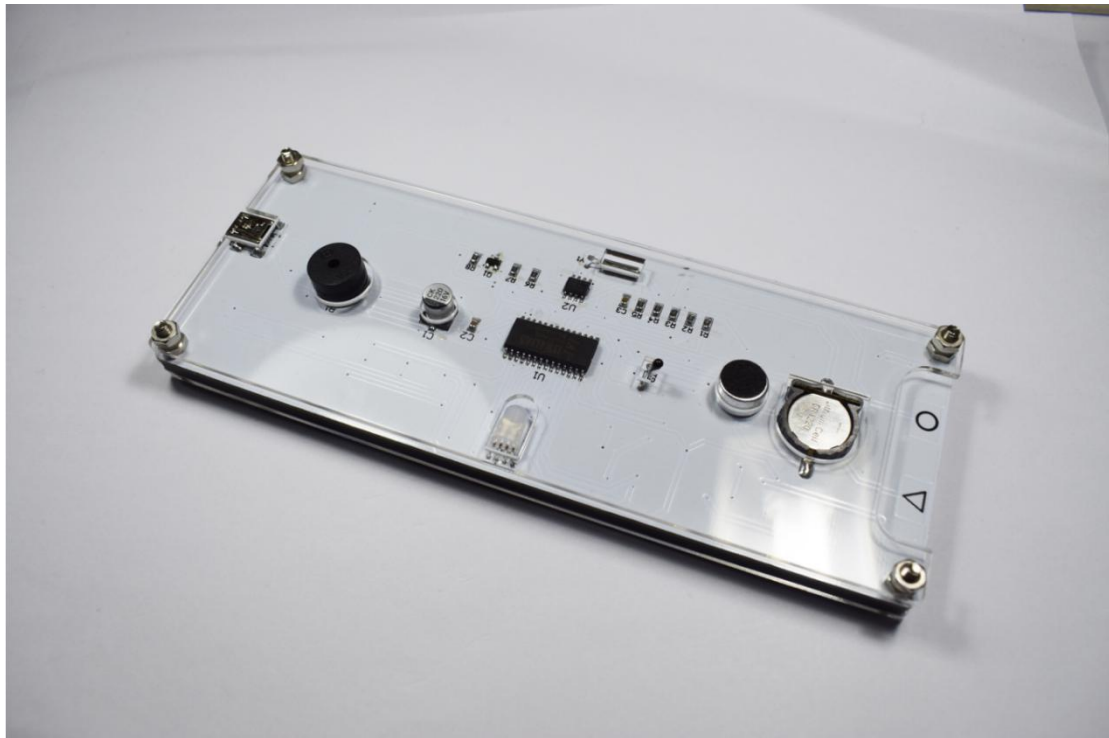
And then you can power it, it is recommended to use a good quality 5V USB power supply,the first to install CR1220 button batteries before power up,if you do not install the button battery to power it, then the buzzer will make a noise.

Function：
Touch both keys at the same time to enter or exit the menu functions list.
Short touch the Next key(Triangle shape) to select the different functions,the functions menu has TIME(Time setup),DATE(Date setup),ALARM(Alarm setup),SHOW(Set shows time mode),DISP(Set

transition animation),Sound(Turn on voice control),FMT(Set 24/12H format),MOVE(Set led rectangular move mode),Brig(Brightness of tubes),B-LED(Backlight of the RGB led),and then touch the Confirm key(Round shape) to enter in parameters mode.

Parameters:

1、Alarm setup:ON-turn on the time alarm;OFF-turn off the time alarm;

2、Shows time mode: AA:BB:CC-shows hour,minute and second ； AA:BB-shows hour and minute(the separator points will flash per second);

3、Set display animation effect: 0-time only；1-spin mode；2-up and down mode；3-one by one mode；4-from left to right mode；5-flash mode；6-change directly;

4、Sounds control switch: ON-turn on the sounds control ；OFF-turn off the sounds control;

5、Time format: 24H-24h time format；12H-12h time format;

6、Set rectangular move: 0-all off；1-drag out mode；2-single mode；3-double mode；4-up and down mode；5-all on;

7、Brightness of tubes: level:1-5;A-automatic brightness(7:00-19:00： maximum brightness；19:00-7:00：level 2 brightness);

8、Backlight: 0-backlight off；1-fast change；2-slow change；3-slowest change;

After welding, if found to have the following failure, according to the following method for debugging inspection

1, LED display abnormal: in a 8-word units, one by one to replace the led and power to see if the show is normal, to exclude which led abnormal

2, touch button can not use: Check if R1, R2 resistor is 1M (105), and if at both ends of the solder joint is weak. In addition, check whether the chip MCU soldering have short circuit situation

3, the time display abnormal: check DS1307 whether there is a pin poor soldering and   check the microcontroller and 10K resistor too.

4, did not show anything: check if the middle of the miniUSB socket left and right is poor soldering, and if the capacitor is short-circuit situation.

In general, if there are abnormalities, all are basically to check whether the device has poor soldering, whether the wrong positive and negative, whether there are short-circuit these cases, need to carefully investigate.