LED Heart-shaped Flashing Lamp DIY Kit

1.Introduction:

It is a Colorful LED Heart-shaped Automatic Flashing Lamp Electronic Soldering DIY Kit. It is powered by 5V DC-005 Power Supply, automatically flashing and change various lighting effects within 80 Red/Green/Yellow/Blue LED. The matched transparent shell can provide better lighting effects, serve as a bracket to support its stability, and also serve as a battery case.

It can not only be used as a DIY electronic welding kit that allows you to better understand the circuit and learn how to soldering, but also as a very suitable experimental workbench tool.

2.Feature:

1>.80 Colorful LED Automatic Flashing
2>.Automatic Switch 41 Flashing Effects
3>.Heart-shaped Appearance Design
4>.129 DIP Solderable Components
5>.DC-005 to USB 5V Power Supply Mode
6>.Multifunctional Transparent Shell
7>.Setting Free Parameters, Simple and Fast
8>.Interesting DIY Manual Soldering

3.Parameter:

1>.Work voltage: DC 4.5V-5.5V
2>.Display Color: Red/Green/Yellow/Blue
3>.Power Type: DC-005 to USB
4>.Work Temperature:-40℃~85℃
5>.Work Humidity:5%~95%RH
6>.Size(Installed):117*100*21mm

4.Use Method:

1>.Turn on the power switch and the LED will automatically enter the working state.

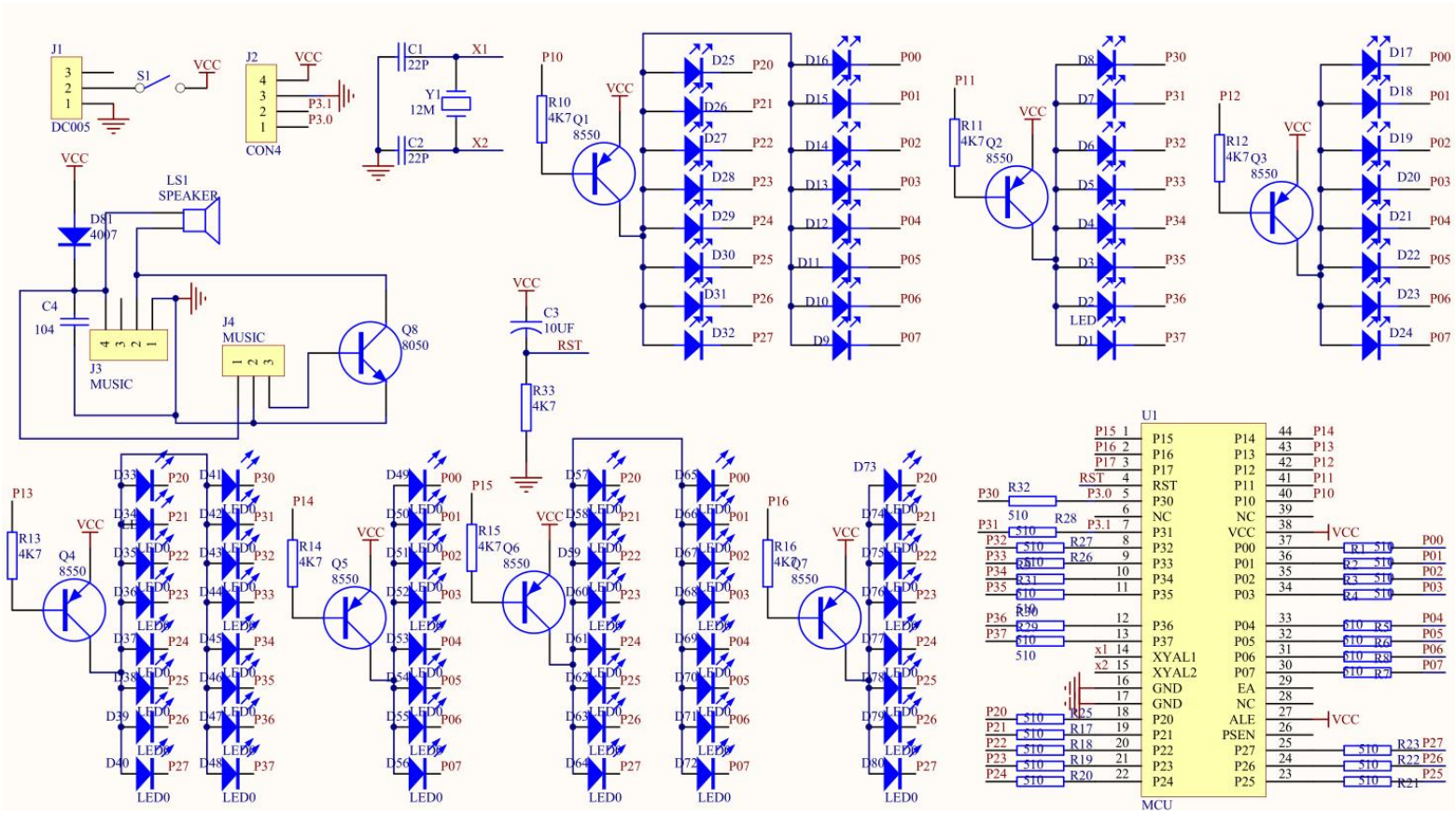
2>.Note: It will continuously loop back to play the same music if a music chip is installed. It cannot pause music or adjust volume. So please consider carefully whether to install a music chip.

5.Component Listing:

NO.	Component Name	PCB Marker	Parameter	QTY
1	Metal Film Resistor	R10-R16,R33	4.7Kohm	8
2	Metal Film Resistor	R1-R9,R17-R23,R25-R32	510ohm	24
3	1N4007 Diode	D81	DO-41	1
4	S8050 Transistor	Q8	TO-92	1
5	S8550 Transistor	Q1-Q7	TO-92	7
6	Music IC	MUSIC	TO-92 or PCB	1
7	Ceramic Capacitor	C4	0.1uF 104	1
8	Passive Buzzer	LS1	5V	1
9	4Pin Male Pin	J2	2.54mm	1
10	Electrolytic Capacitor	C3	10uF	1
11	5mm Red LED	D1-D32		32
12	5mm Green LED	D33-D56		24
13	5mm Yellow LED	D57-D72		16
14	5mm Blue LED	D73-D80		8
15	DC-005 Power Socket	J1		1
16	USB Power Wire			1
17	Self-Locking Switch	S1		1
18	Red Switch Cap	S1		1

19	Acrylic Plate			6
20	M3*8mm Screw			3
21	M3*6mm Screw			3
22	M3 Nut			3
23	M3*10mm Copper Pillar			3
24	PCB Circuit Board		104*87mm	1
Note:Users can complete the installation according to the PCB silk screen and component list.				

6.Schematic Diagram:



7.Application:

1>.Training soldering skills
2>.Student school
3>.DIY production
4>.Project design
5>.Electronic competition
6>.Gift giving
7>.Crafts collection
8>.Home decoration
9>.Souvenir collection
10>.Graduation design
11>.Holiday gifts

8.Installation Tips:

1>.User needs to prepare the welding tool at first.
1.1>.Soldering iron (<50 Watt)
1.2>.Rosin core ("radio") solder
1.3>.Wire cutters

1.4>.Wire strippers

1.5>.Screwdriver

2>.Please be patient until the installation is complete.

3>.The package is DIY kit.It need finish install by user.

4>.The soldering iron can't touch the components for a long time(1.0 second), otherwise it will damage the components.

5>.Pay attention to the positive and negative of the components.

6>.Strictly prohibit short circuit.

7>.User must install the LED according to the specified rules.Otherwise some LED will not light.

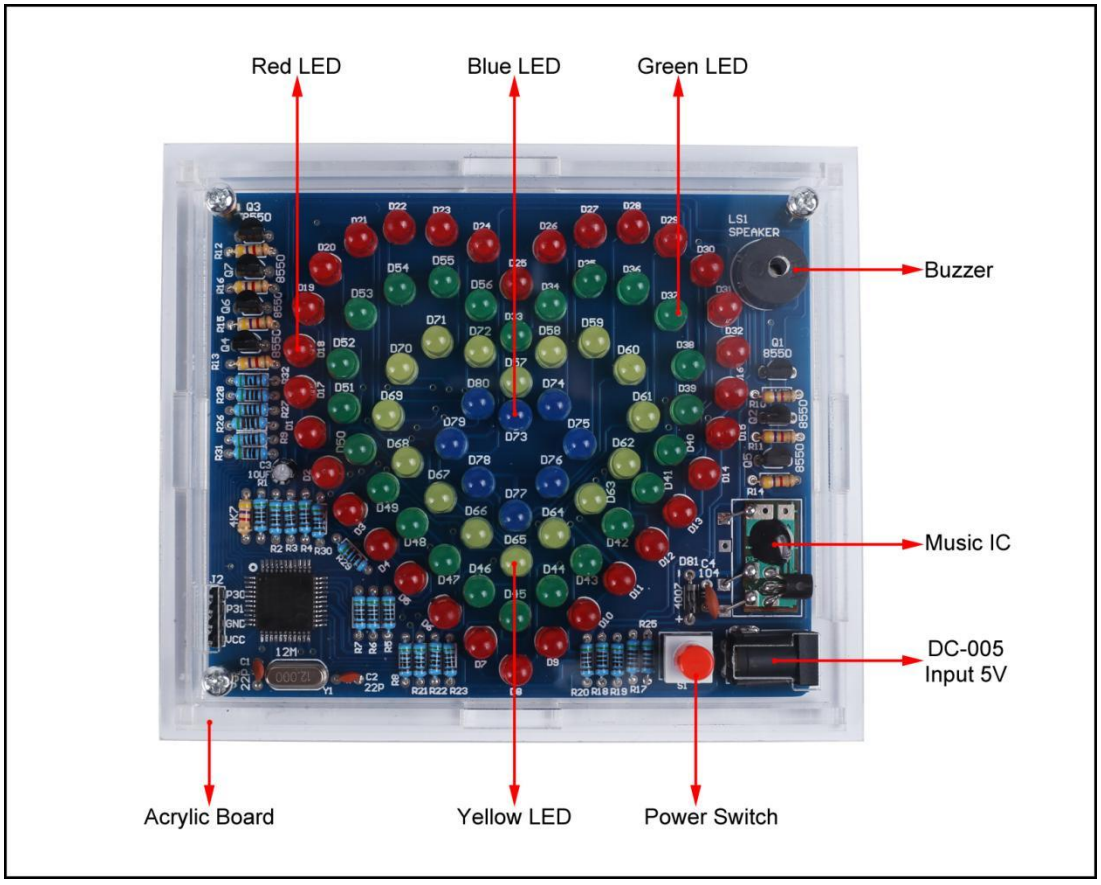
8>.Install complex components preferentially.

9>.Make sure all components are in right direction and right place.

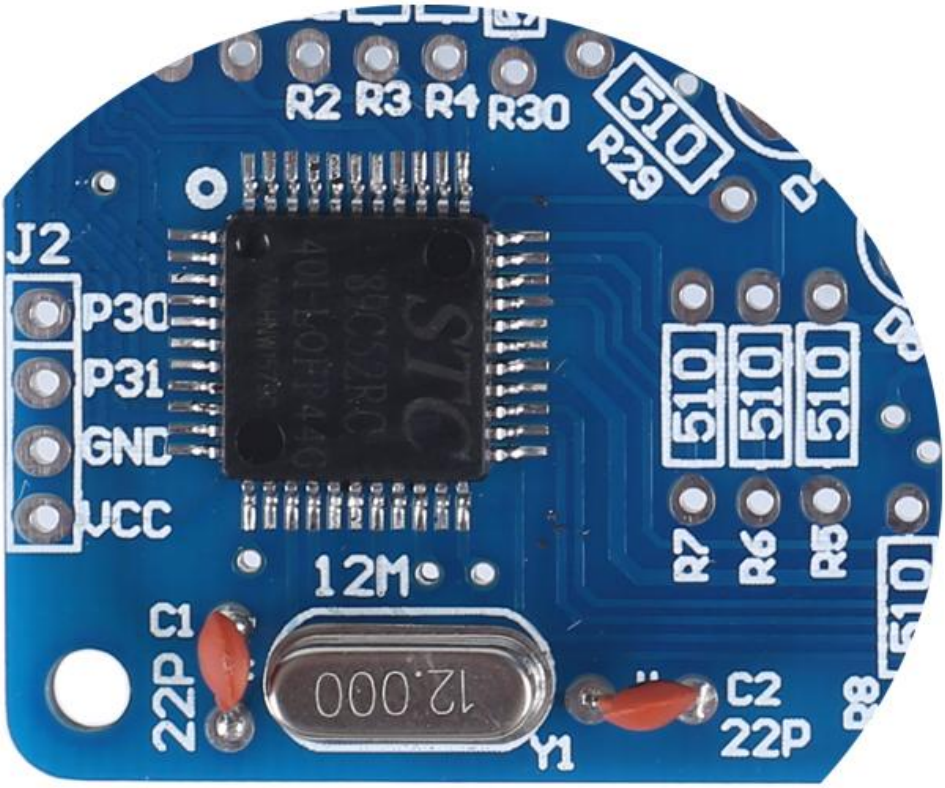
10>.It is strongly recommended to read the installation manual before starting installation!!!

11>.Please wear anti-static gloves or anti-static wristbands when installing electronic components.

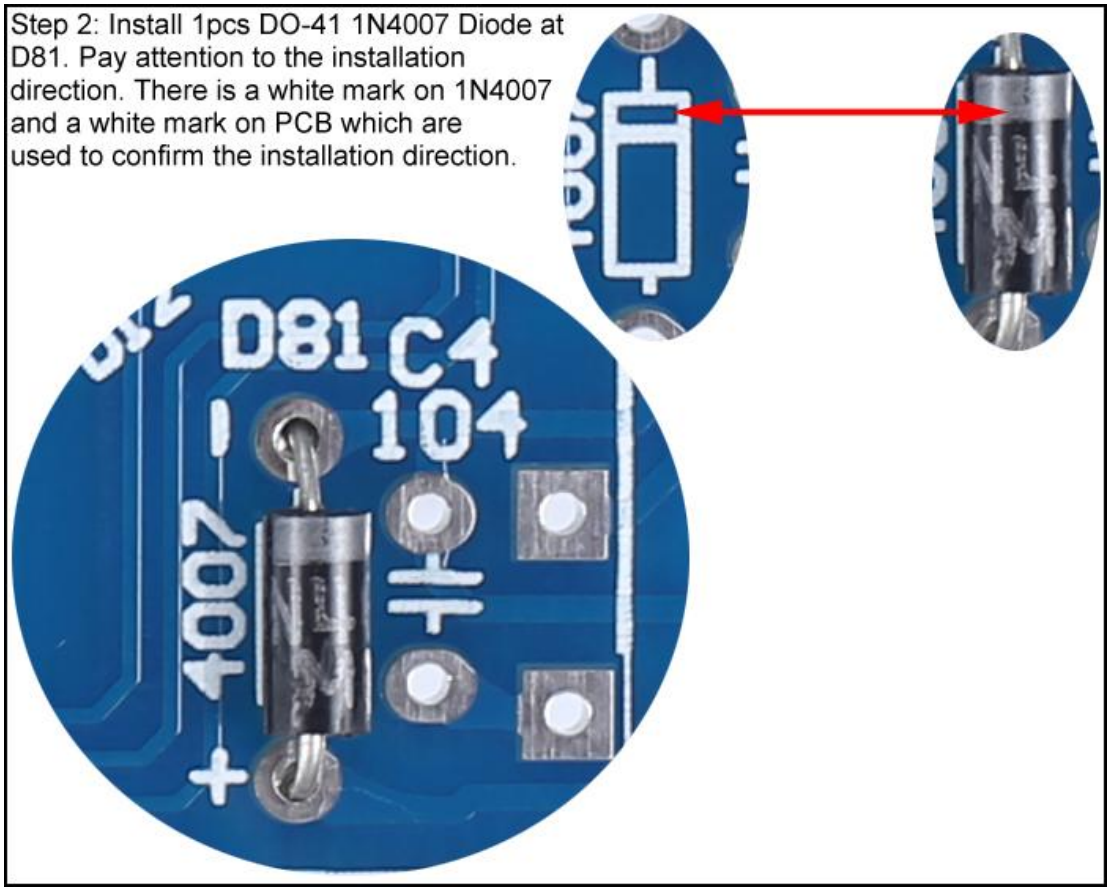
9.Installation Steps(Please be patient install!!!):



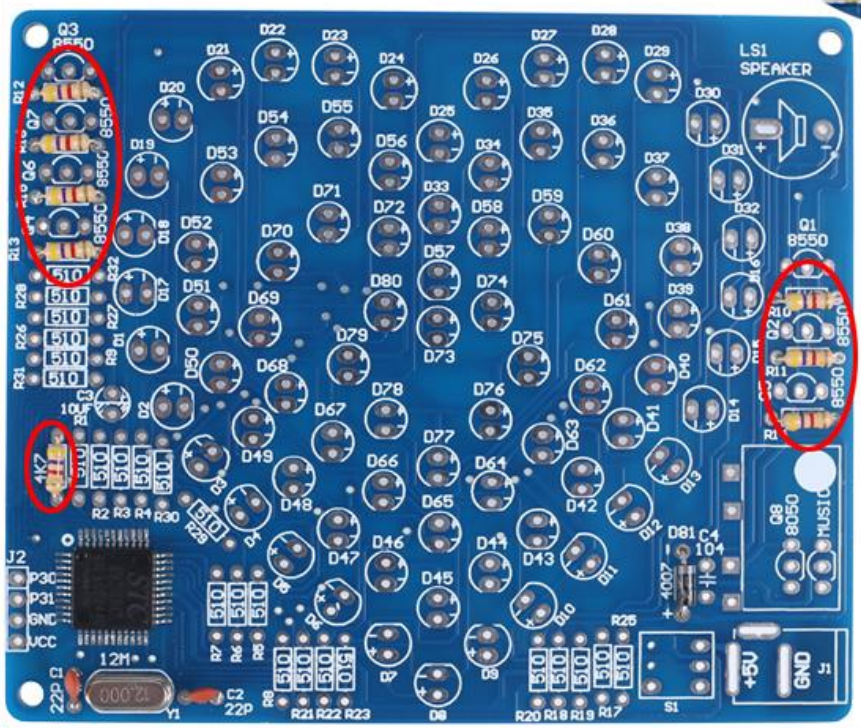
Step 1: We have already installed the control chip LQFP-44 STC89C52RC(with built-in program code), 22pF Ceramic Capacitor and 12MHz Crystal Oscillator in advance.



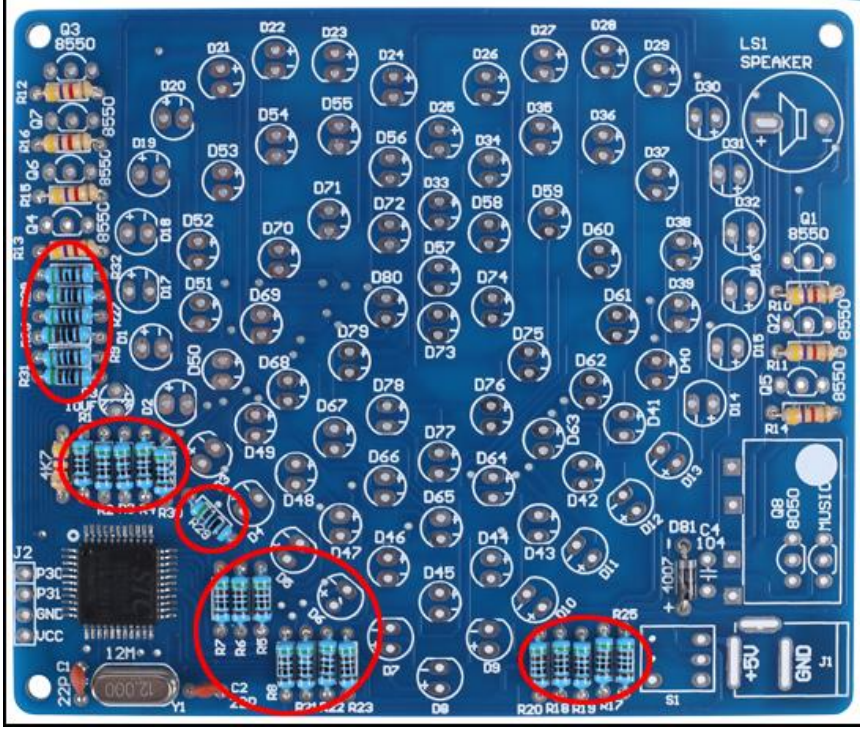
Step 2: Install 1pcs DO-41 1N4007 Diode at D81. Pay attention to the installation direction. There is a white mark on 1N4007 and a white mark on PCB which are used to confirm the installation direction.



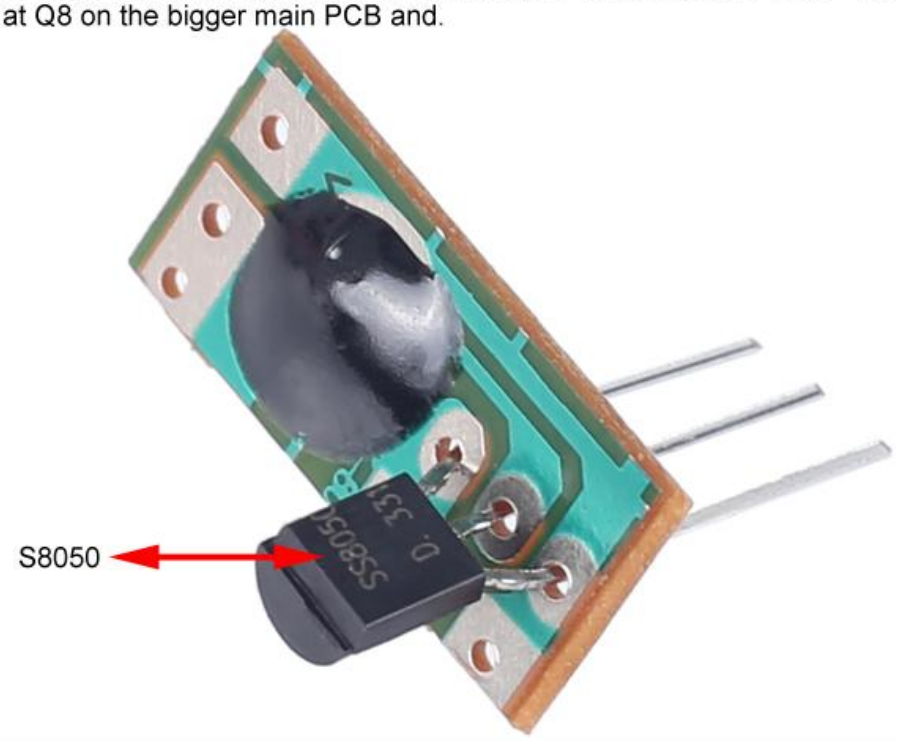
Step 3: Install 8pcs 4.7Kohm Metal Film Resistor at R10-R16,R33.



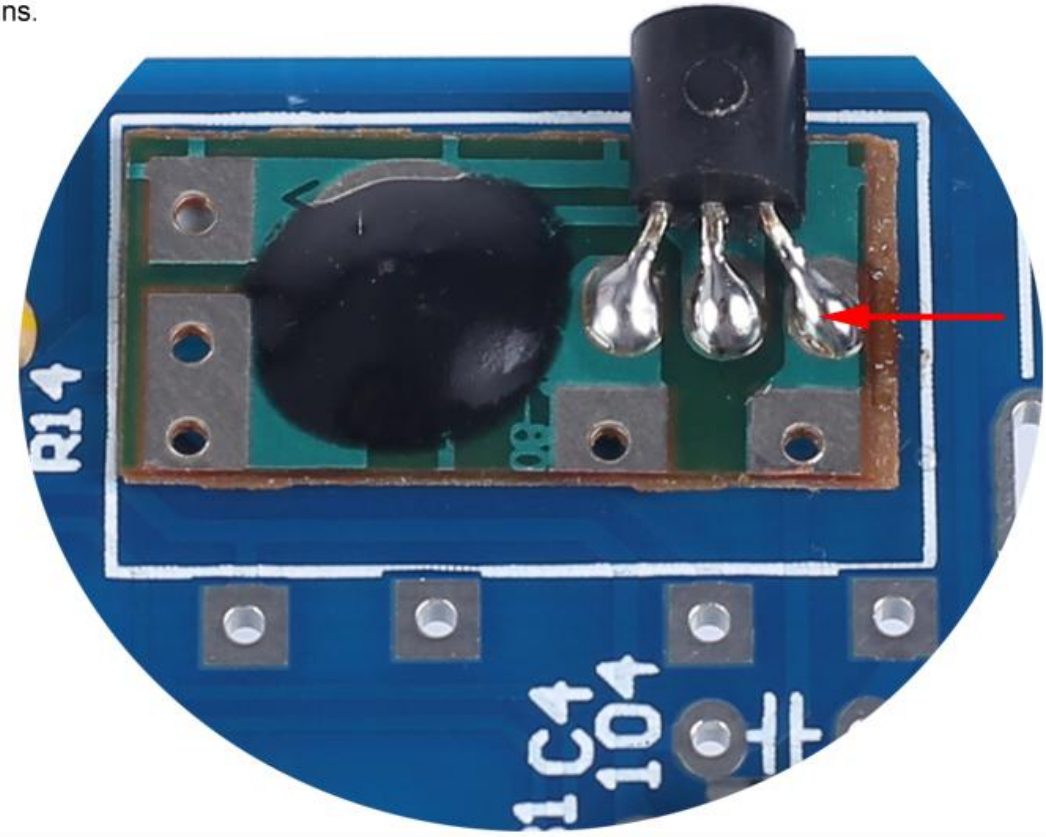
Step 4: Install 24pcs 510ohm Metal Film Resistor at R1-R9,R17-R23,R25-R32.



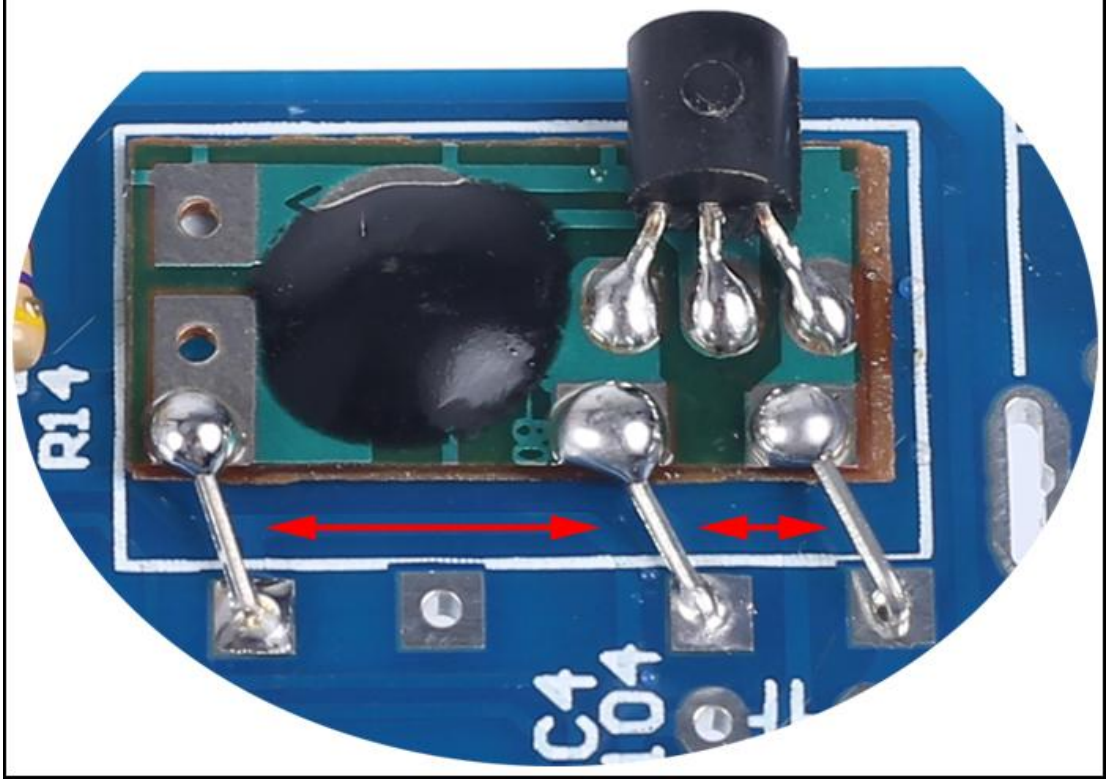
Step 5: Note: Music IC have two versions : PCB version and TO-92 version.
Method 1 for PCB version: Pass 1pcs TO-92 S8050 Transistor through Music IC as shown. Attention direction.
Method 2 for TO-92 version: Just install TO-92 Music IC at MUSIC and TO-92 S8050 Transistor at Q8 on the bigger main PCB and.



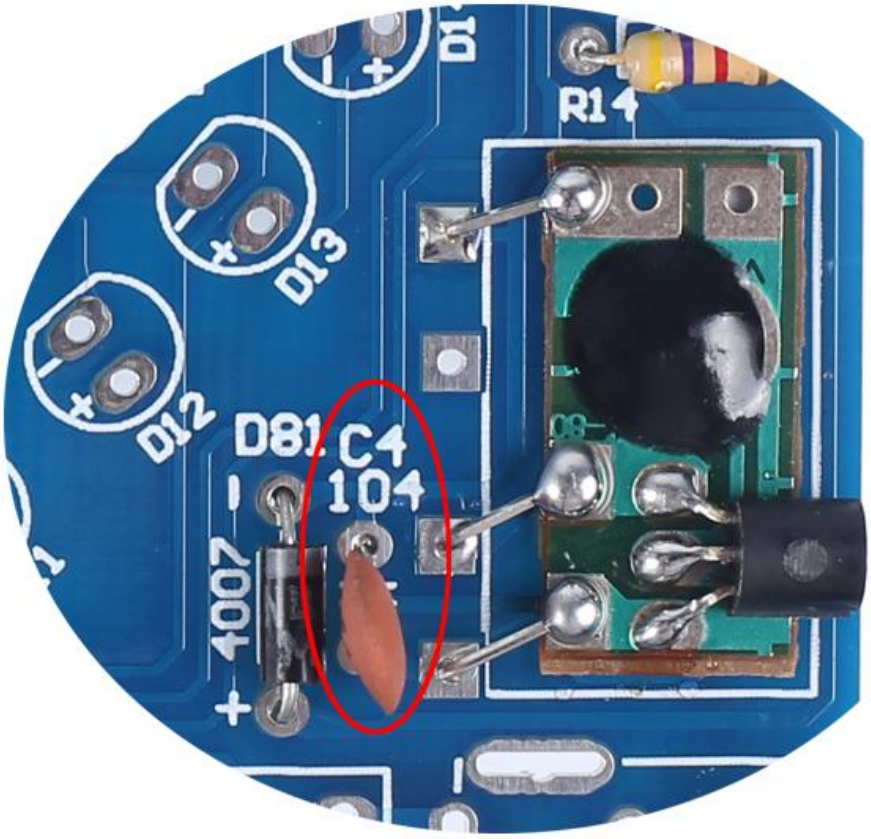
Step 6: For Method 1 PCB version: Fix music IC on the bigger main PCB by S8050's pins.



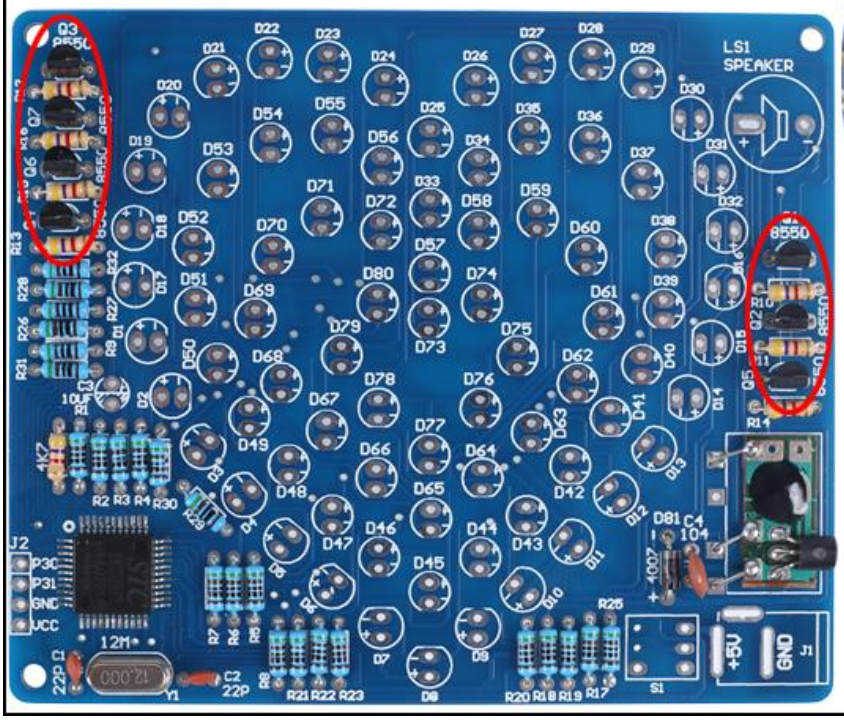
Step 7: For Method 1 PCB version: Connect 3 pads from music IC to the on the bigger main PCB by metal pins that cut from resistors at step3.



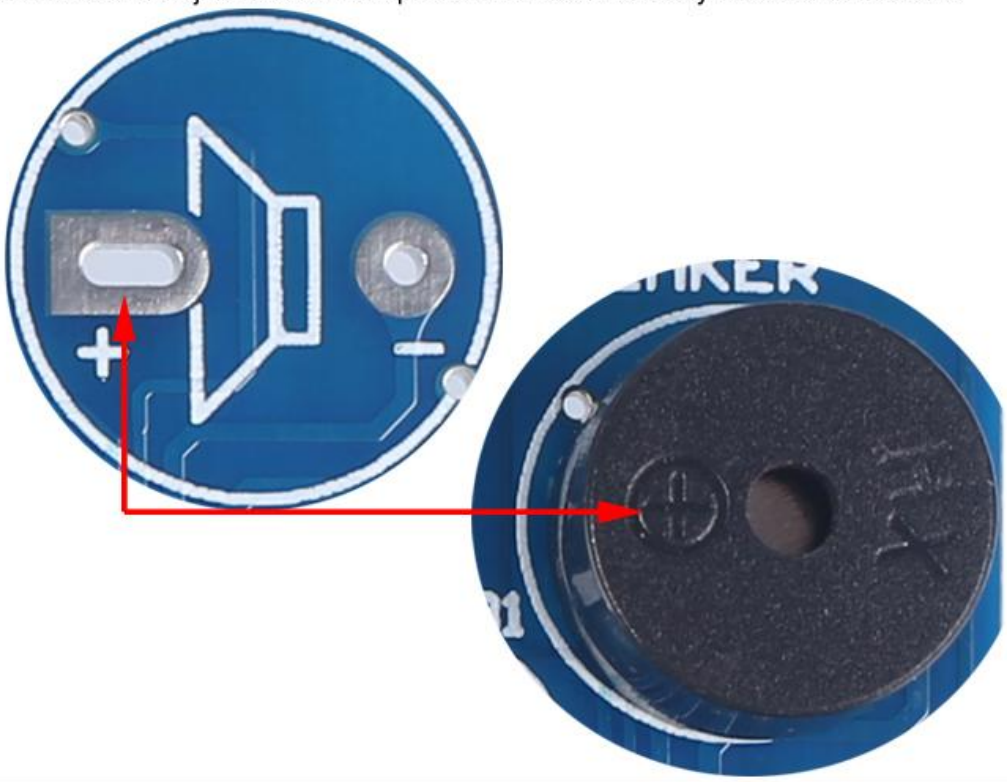
Step 8: Install 1pcs 0.1uF 104 Ceramic Capacitor at C4.



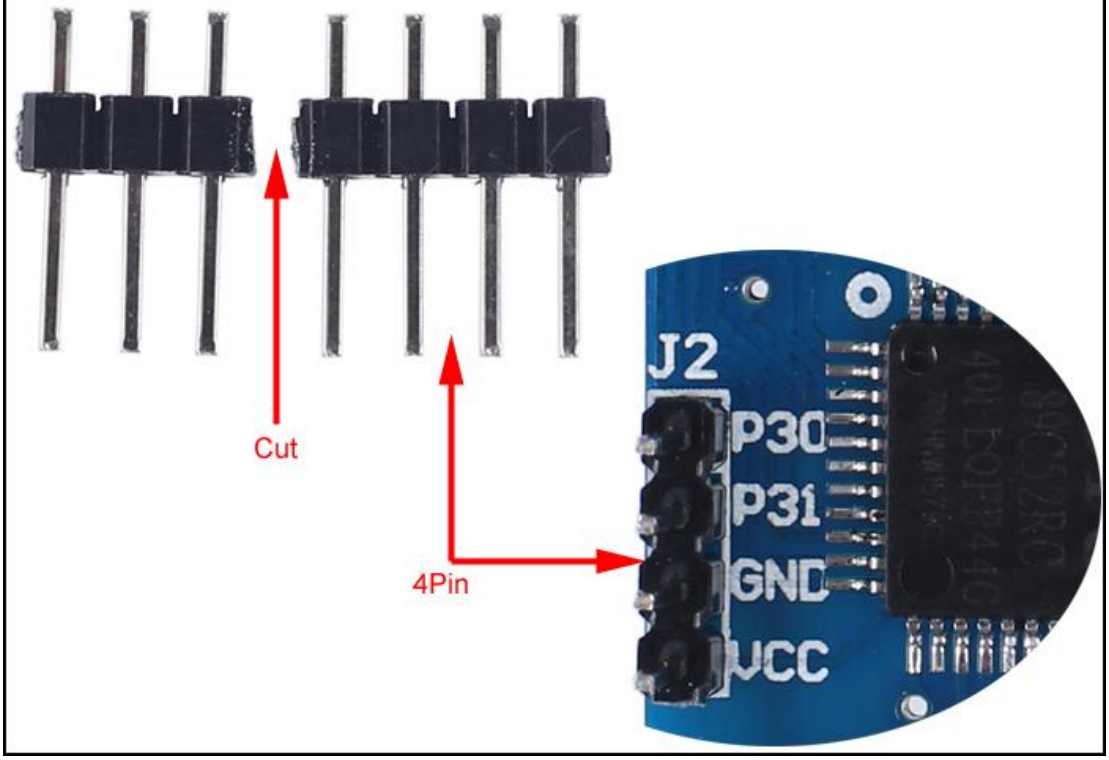
Step 9: Install 1pcs TO-92 S8550 Transistor at Q1-Q7. Pay attention to the installation direction. The arc on the PCB corresponds to the arc of the components.



Step 10: Install 1pcs Passive Buzzer at LS1. Marked silk screen connect to ' + ' pad.
Note: It will continuously loop back to play the same music if it is installed. It cannot pause music or adjust volume. So please consider carefully whether to install it.



Step 11: Install 4Pin Male Pin at J1. Note: It is used to update program code for STC89C52RC for professional programmers.You don't need to install it if you no need reprogram.It may be necessary to cut off excess pins.



Step 12: Install 1pcs 10uF Electrolytic Capacitor at C3. The Longer pin is positive pole and connect to ' + ' pad.

Step 13: Identify the positive(anode) and negative(cathode) lead of LED.The leads of the LED must be installed correctly, otherwise the LED cannot be turned on.Here are four methods as following:

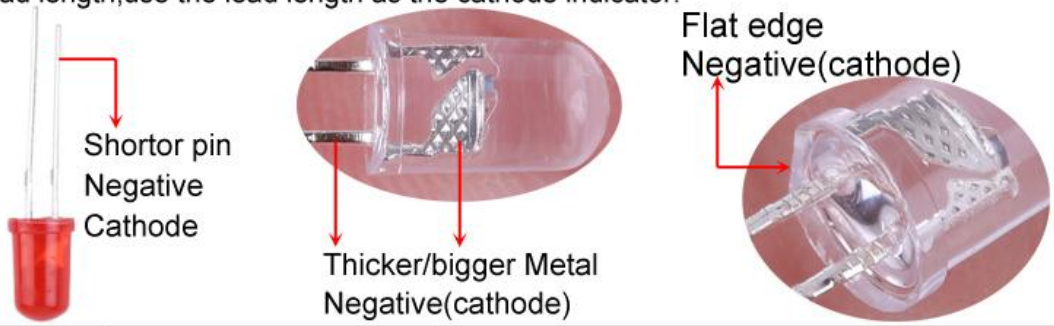
131>.According to the length of the LED lead to distinguish. The longer pin is positive(anode) lead. The shorter pin is negative(cathode) lead.

13.2>.Identify the negative(cathode) of the LED is to look into the plastic case where one can see that the negative(cathode) is much thicker/bigger inside the plastic case than the anode lead.

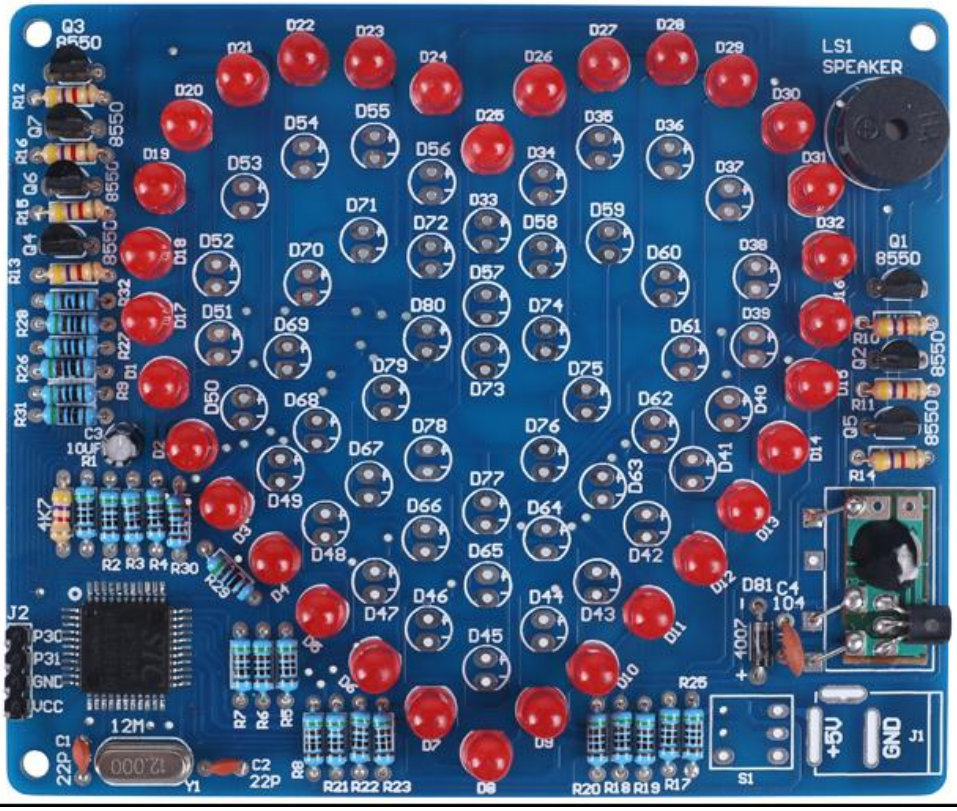
13.3>.Identify by edge of plastic case.The negative(cathode) lead of the LED should be the pin nearest the flat on the plastic case.

13.4>.Test by 3V battery or multimeter.The pin is positive(anode) lead which has connect to positive of 3V if LED can light up after connect 3V power supply.
(LED can not be powered directly from 3V for a short time:less then 0.5second)

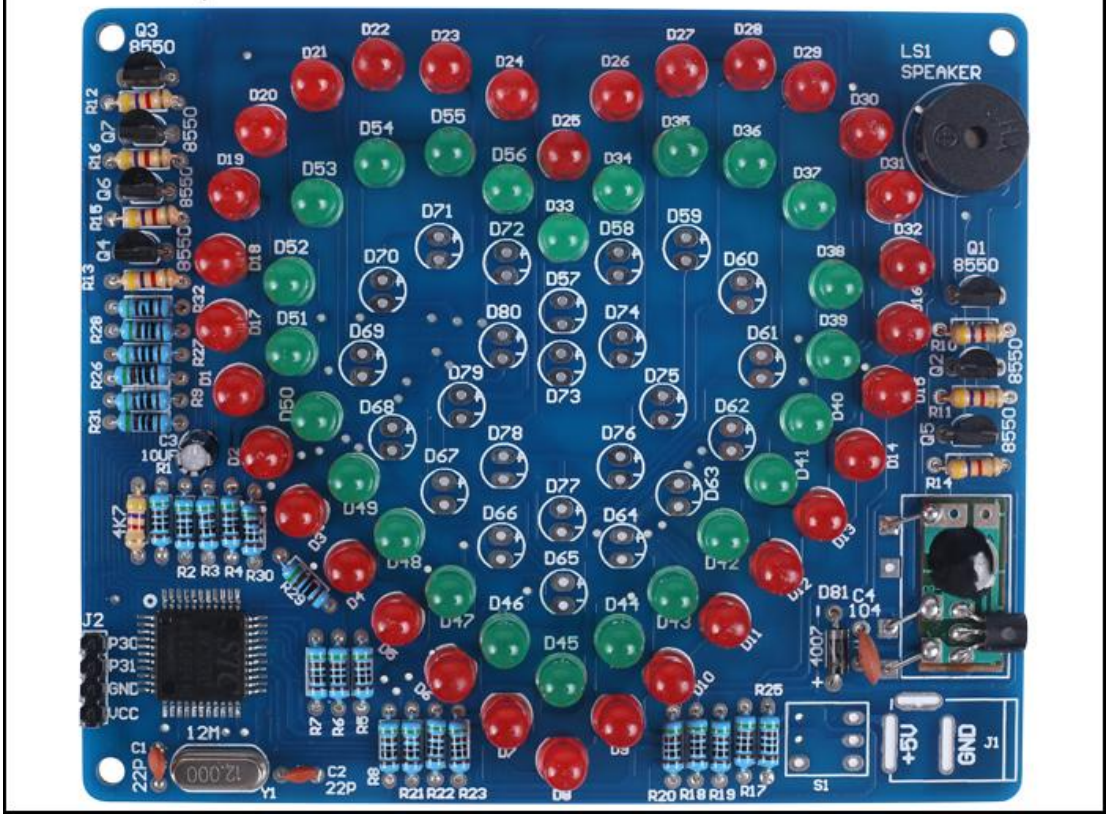
13.5>.Note:If the flat on package disagrees with other indicators(short lead,large cathode lead end), then other indicators take priority. I.e. if the flat disagrees with the lead length,use the lead length as the cathode indicator.



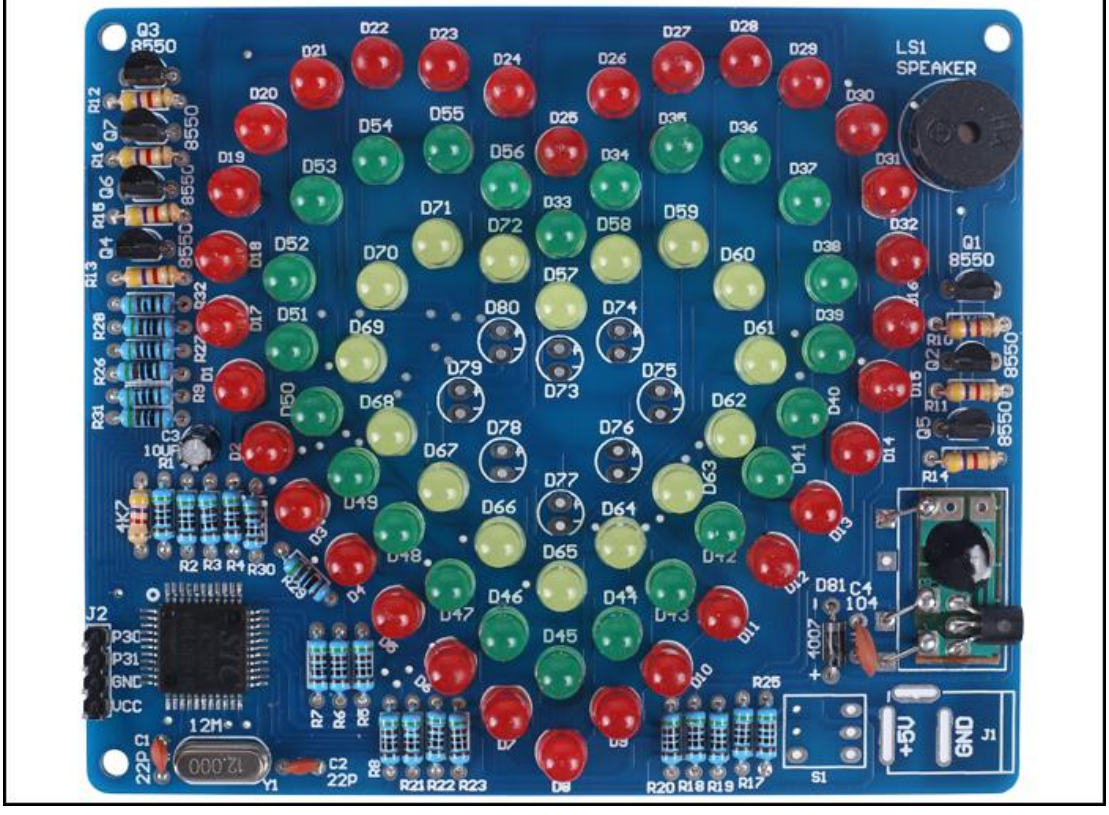
Step 14: Install 32pcs 5mm Red LED at D1-D32. The Longer pin is positive pole connect to ' + ' pad.



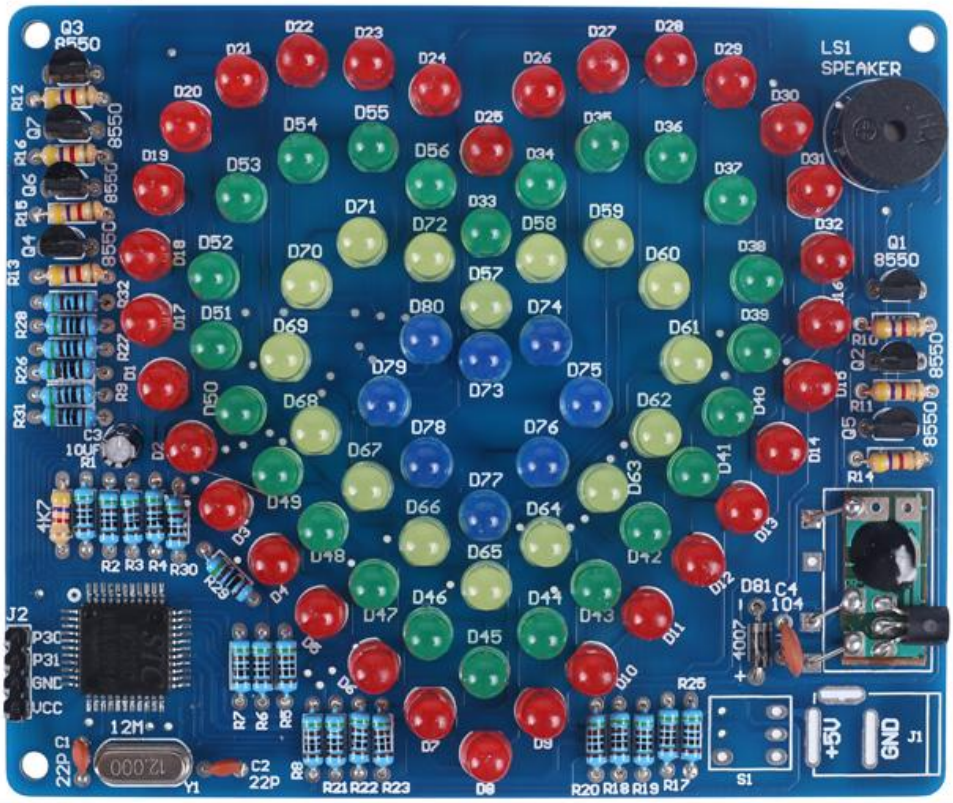
Step 15: Install 24pcs 5mm Green LED at D33-D56. The Longer pin is positive pole connect to ' + ' pad.



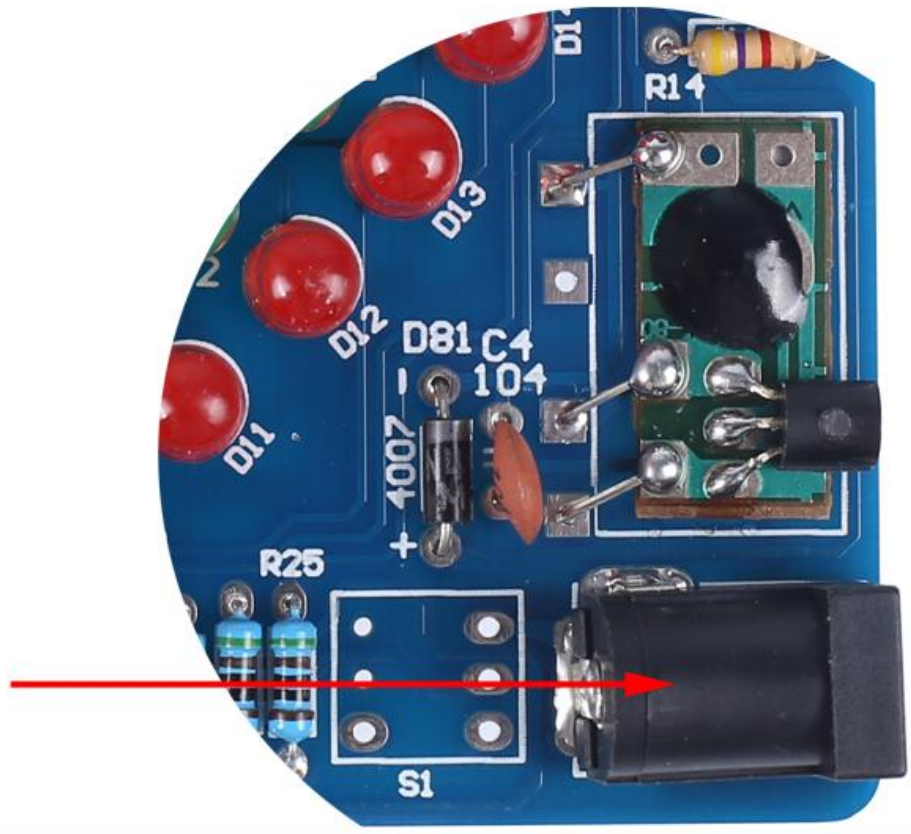
Step 16: Install 16pcs 5mm Yellow LED at D57-D72. The Longer pin is positive pole connect to ' + ' pad.



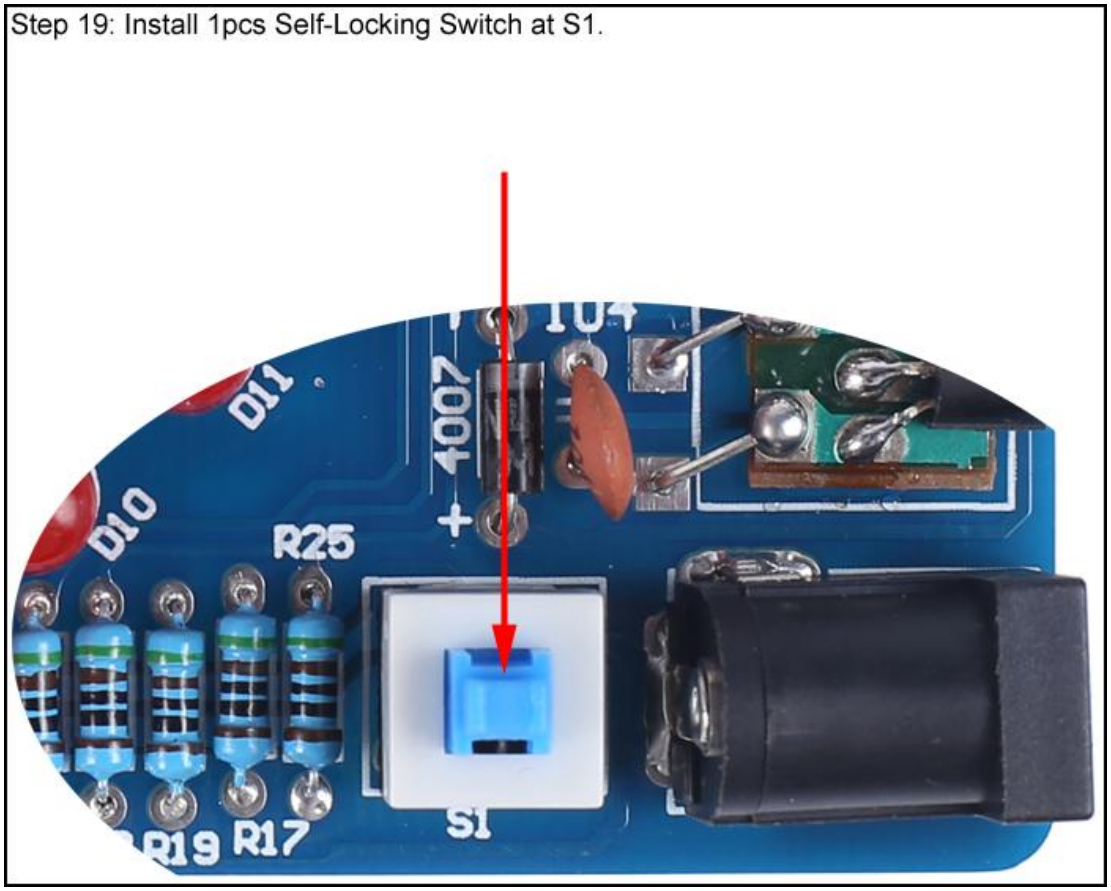
Step 17: Install 8pcs 5mm Blue LED at D73-D80. The Longer pin is positive pole connect to ' + ' pad.



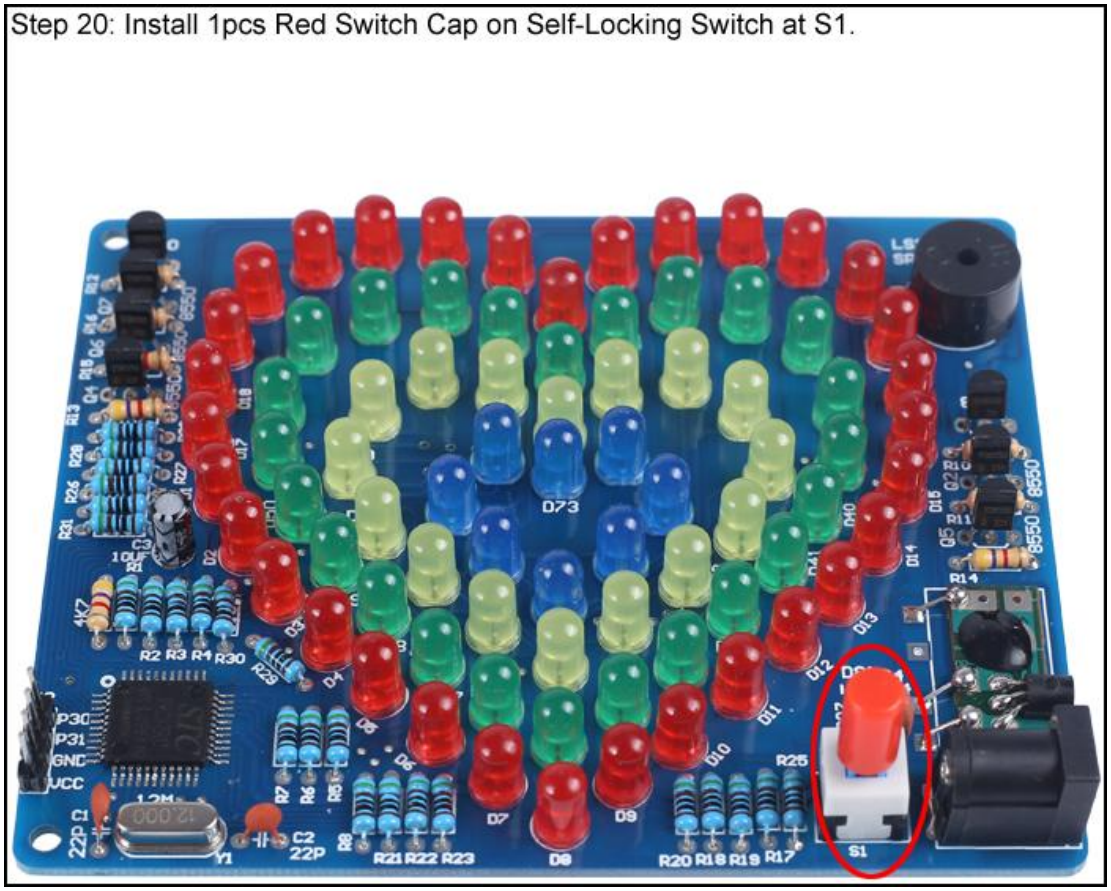
Step 18: Install 1pcs DC-005 Power Socket at J1.



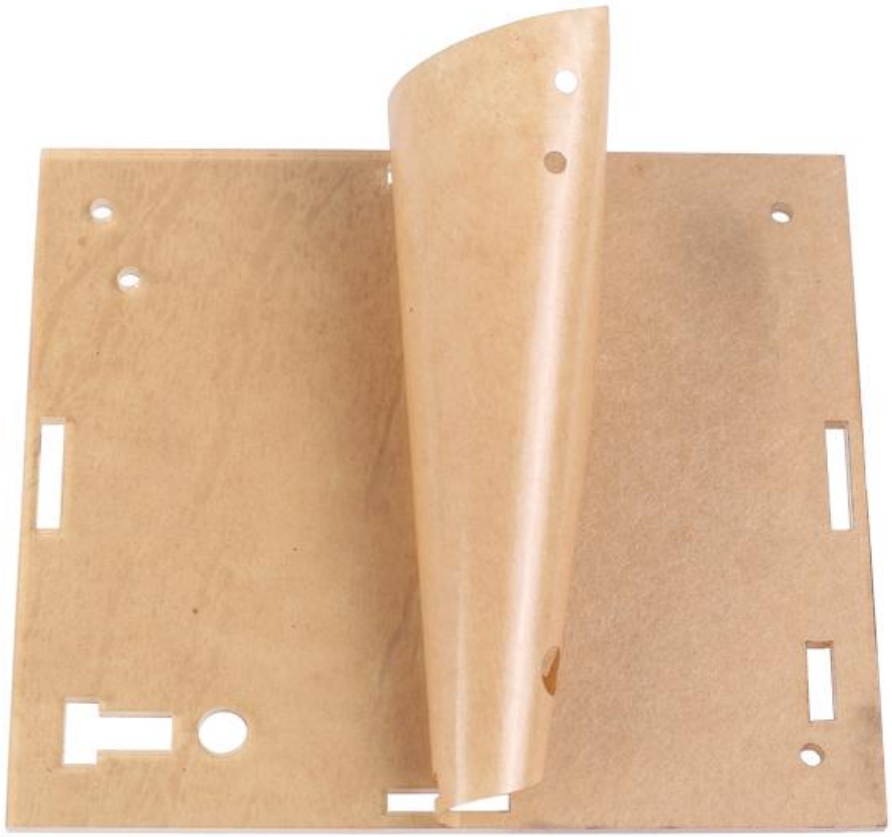
Step 19: Install 1pcs Self-Locking Switch at S1.



Step 20: Install 1pcs Red Switch Cap on Self-Locking Switch at S1.

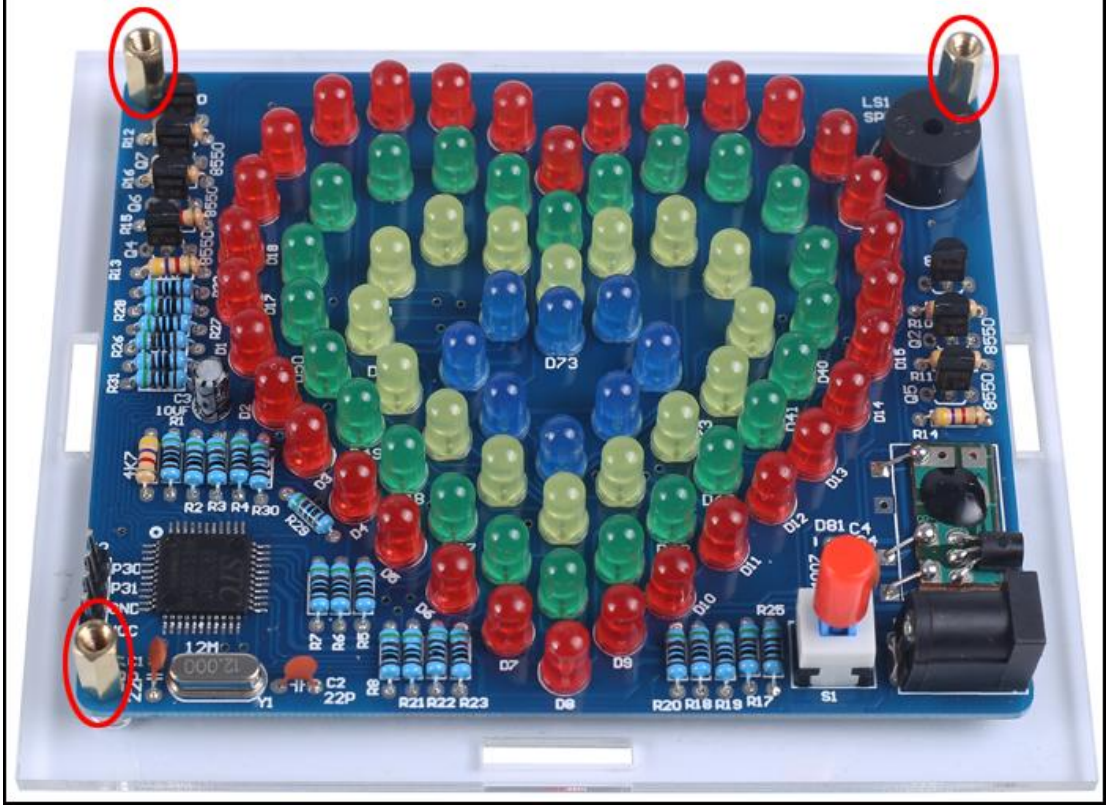


Step 21: Tear off the protective film on the surface of the acrylic shell.

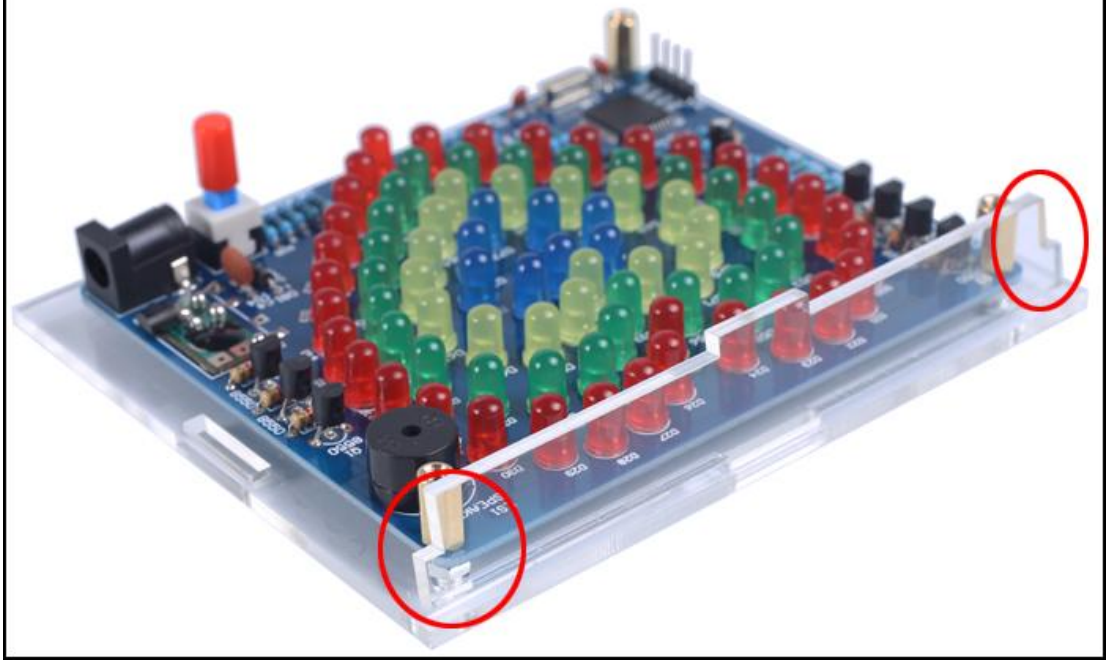


Step 22: Fix 3pcs M3*8mm Screw on the bottom acrylic board by 3pcs M3 Nut.

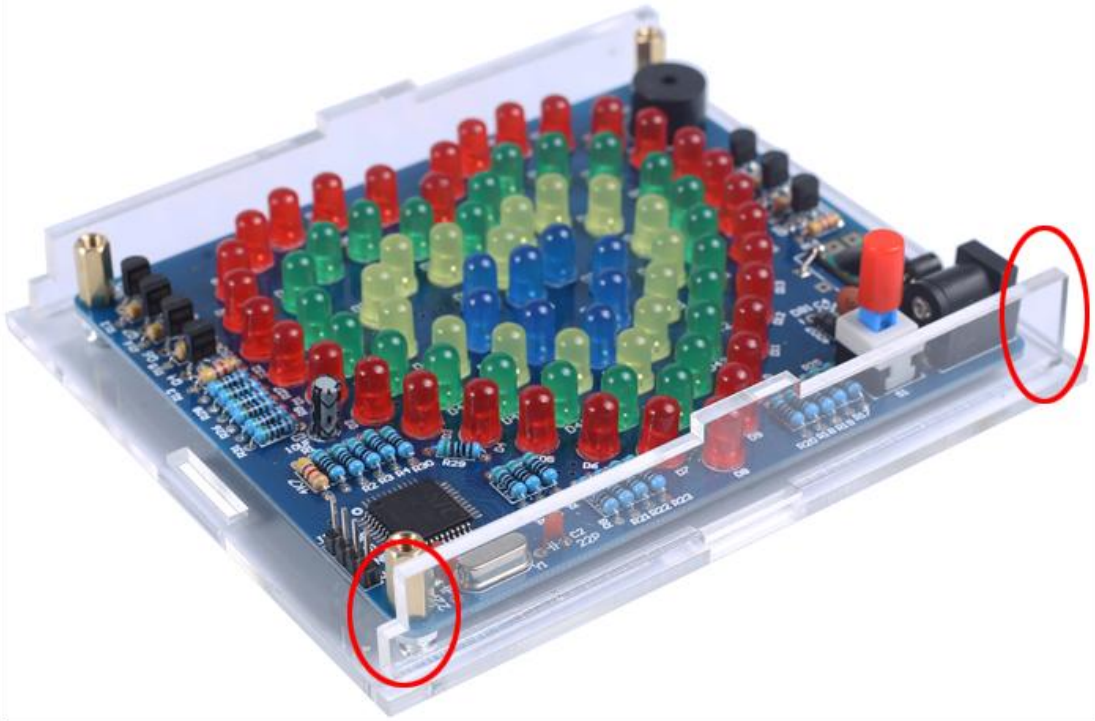
Step 23: Fix PCB on the bottom acrylic board by 3pcs M3*10mm Copper Pillar.



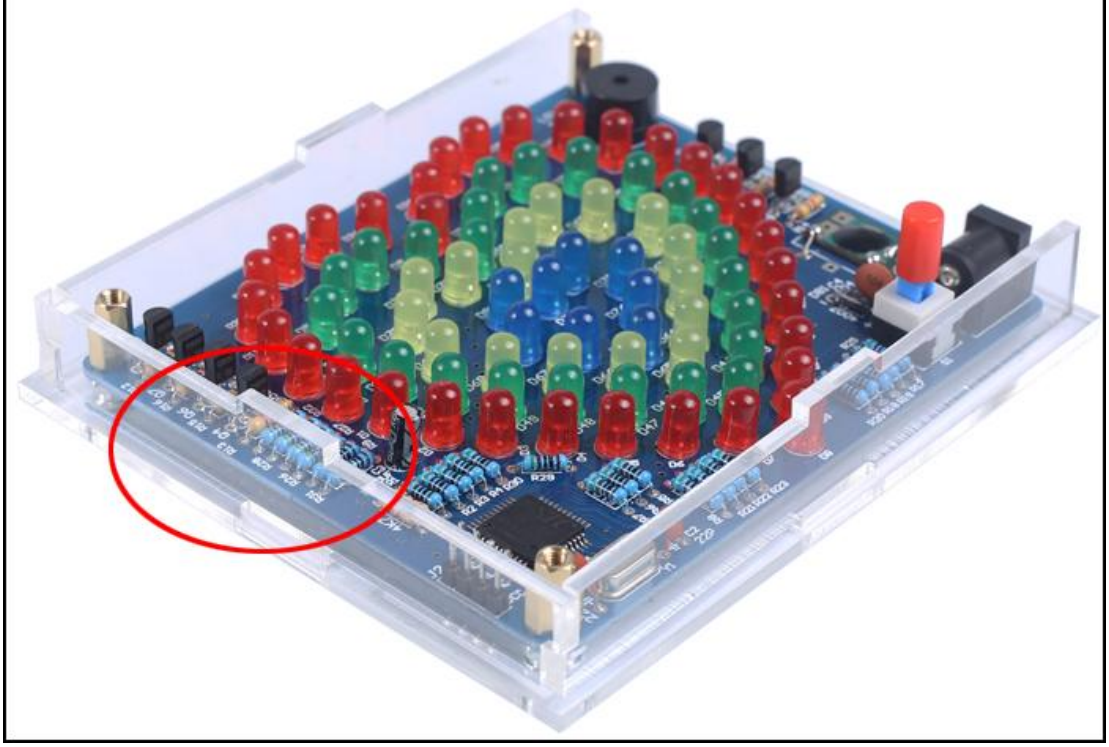
Step 24: Pace one side acrylic board on the bottom acrylic board as showing.
Pay attention to distinguishing different points and directions.



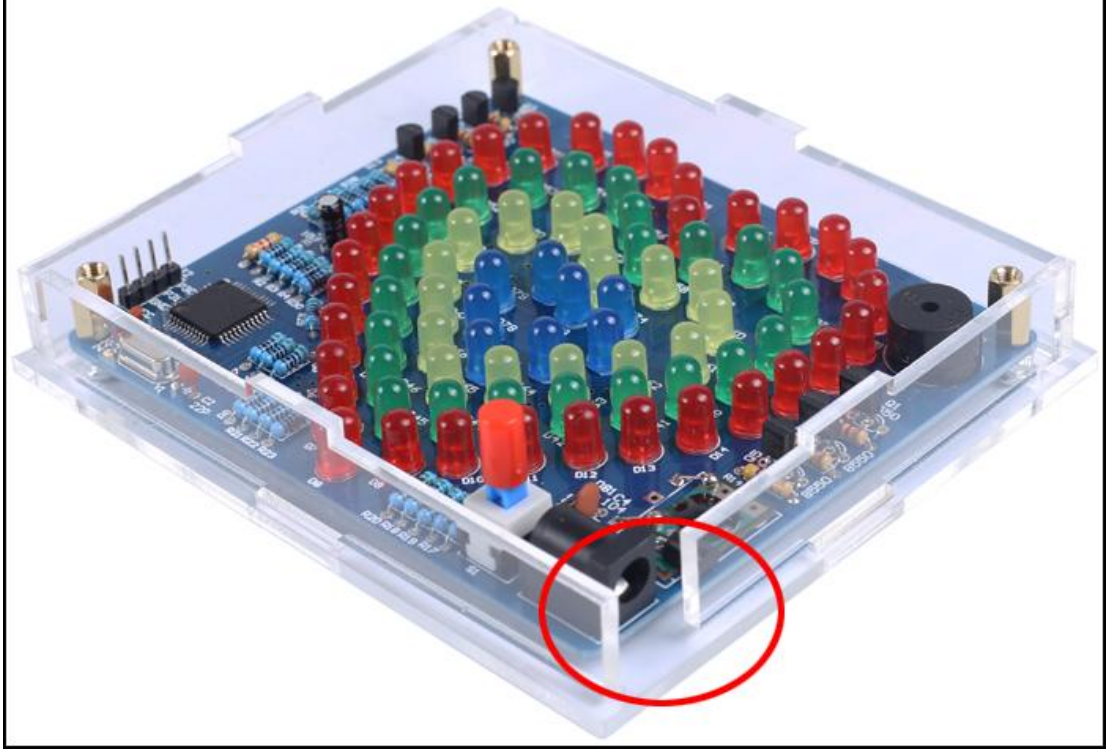
Step 25: Place another side acrylic board as showing. Pay attention to distinguishing different points and directions.



Step 26: Place another side acrylic board as showing.



Step 27: Place the last side acrylic board as showing.



Step 28: Fix the top acrylic board by 3pcs M3*6mm Screw.