

## **HE003 Flashing LED Spinning Dancer DIY Kit**

### **I. Introduction:**

HE003 is a Flashing LED Spinning Dancer DIY Kit. It adopts a PCB three-dimensional structure design combined with motor rotation and LED light flashing circuit. Built-in 3 music at automatic looping playing mode if turn ON music play switch. Also can adjusting the rotational speed.

It is a very interesting DIY electronic product which enables users to understand the circuit more clearly and learn soldering skills.

### **II. Function:**

- 1>.12 Color LED Flashing Automatically
- 2>.3 Music Automatic Playing
- 3>.Adjustable Rotational Speed
- 4>.Adjustable ON/OFF Rotational
- 5>.Adjustable ON/OFF Music
- 6>.DIY Hand Soldering

### **III. Parameter:**

- 1>.Work Voltage:DC 4.5V-5V
- 2>.Power Type: DC-005
- 3>.LED Color: RGB
- 4>.Work Temperature:-40°C~85°C
- 5>.Work Humidity:5%~95%RH
- 6>.Size(Installed):75\*75\*155mm

### **IV. Use Methods:**

- 1>.Connect USB Power Wire to provide working power.
- 2>.Switch Toggle Switch SW1 to turn ON/OFF music playing function.
- 3>.Switch Toggle Switch SW2 to turn ON/OFF rotation function.
- 4>.Rotate the potentiometer to change the rotation speed.

### **V. Application:**

- 1>.Training welding 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

## VI. Component Listing:

NO.	Component Name	PCB Marker	Parameter	QTY
1	KT148A Music IC	U1	SOP-8	1
2	8ohm 1W Speaker	BEEP+, BEEP-	D23mm	1
3	JS-30 DC Motor	motor+, motor-	6V100RPM	1
4	RV0931 B102K Potentiometer	R1	1K	1
5	SS-12F44G5 Toggle Switch 1P2T	SW1,SW2	5Pin	2
6	Ceramic Capacitor	C2,C3	0.1UF 104	2
7	Electronic Capacitor	C1	22uF 16V	1
8	Electronic Capacitor	C4,C5,C6	47uF 16V	3
9	Metal Film Resistor	R2,R3,R5,R7	1K	4
10	Metal Film Resistor	R4,R6,R8	33K	3
11	3mm Red LED	LED1,LED4	2Pin	2
12	3mm Blue LED	LED2,LED5	2Pin	2
13	3mm Yellow LED	LED3,LED6	2Pin	2
14	5mm RGB LED	LED7-LED18	2Pin	12
15	S8050 Transistor	Q1-Q3	TO-92	3
16	DC-005 Power Socket	DC_5V	5.5*2.1mm	1
17	USB to DC005 Power Wire	DC_5V	100cm	1
18	M3 Nut	/	/	4
19	M3*5mm Screw	/	/	13
20	M3*10mm Screw	/	/	4
21	M3*12mm Copper Pillar	/	/	4
22	M3*30mm Copper Pillar	/	/	4
23	Metal Spring	/	0.4*4*10mm	2
24	PCB HE003-A Circuit Board	/	75*75*1.6mm	1
25	PCB HE003-B Circuit Board		55*55*1.6mm	1
26	PCB HE003-C Circuit Board		55*55*1.6mm	1
27	PCB HE003-D Circuit Board		100*69*1.6mm	1

Note:Users can complete the installation according to the PCB silk screen and component list.

## VII. Note:

1>.It uses springs to connect different PCB internally to provide power, so the springs produce noise when rotating, which cannot be avoided.

## VIII. 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.

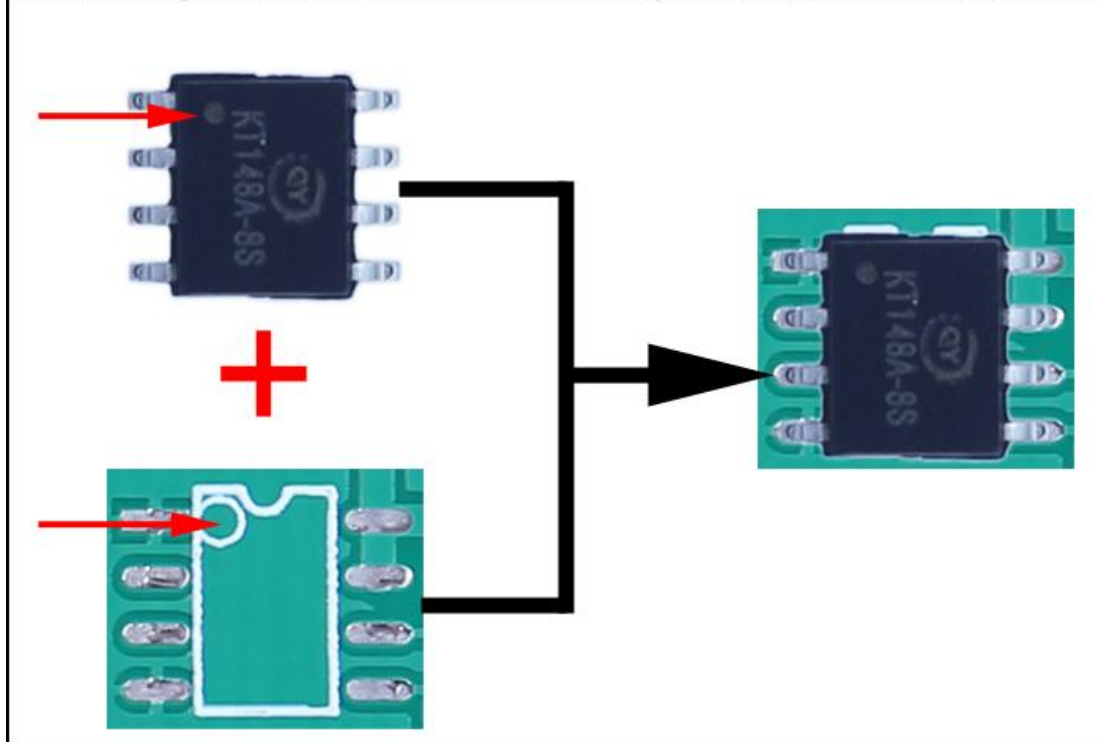
3>.The package is DIY kit.It need finish install by user.

4>.The soldering iron can't touch components for a long time(1.0s), otherwise it will be damaged.

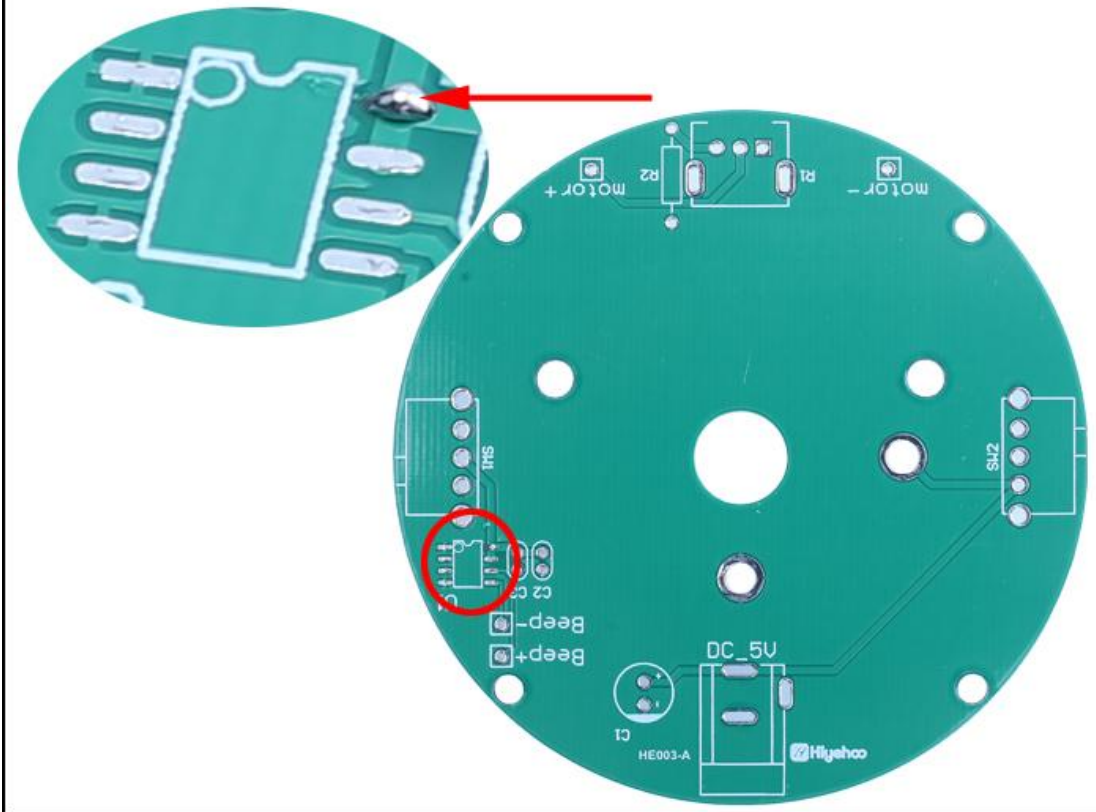
- 5>.Pay attention to the positive and negative of the components.
- 6>.Strictly prohibit short circuit.
- 7>.User must install the LED according to the specified rules.Otherwise some LED will not light.
- 8>.Install complex components preferentially.
- 9>.Make sure all components are in right direction 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.

## IX. Installation Steps(Please be patient install!!!):

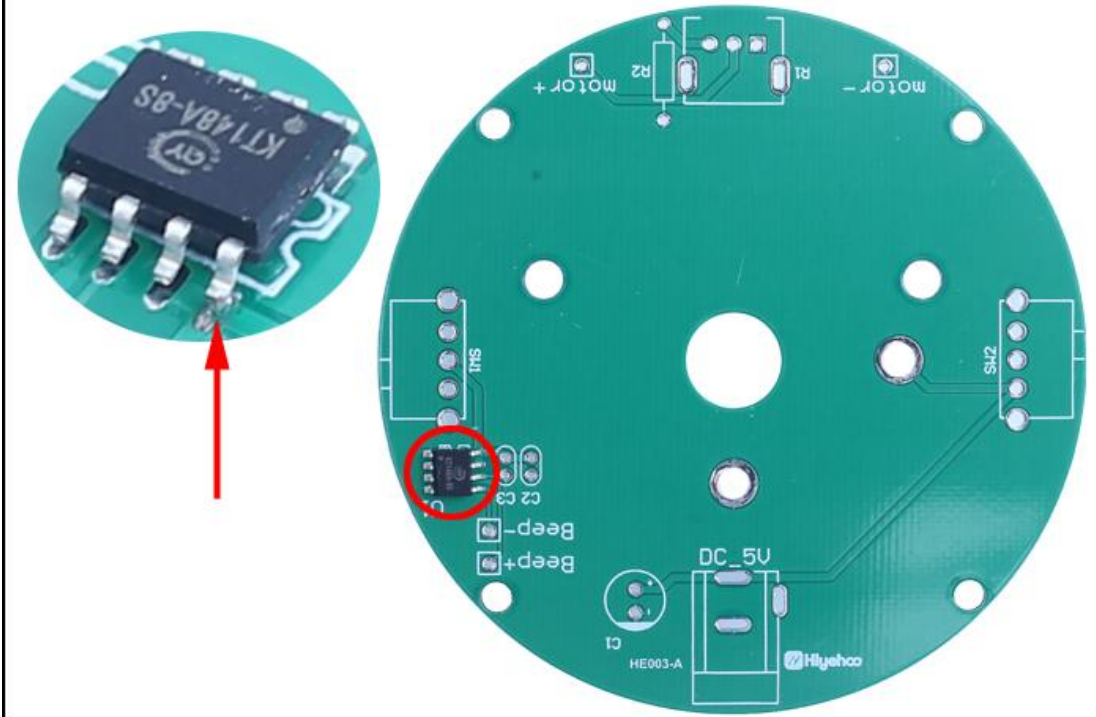
Step 1: Install 1pcs SMD components SOP-8 KT148A Music IC at U1. Verify & confirm the installation direction of KT148A. There is a dot mark on one end of the IC and there is a gap mark on PCB silk screen where the IC can place on. These two marks are corresponding to each other and are used to specify the installation direction of the IC.



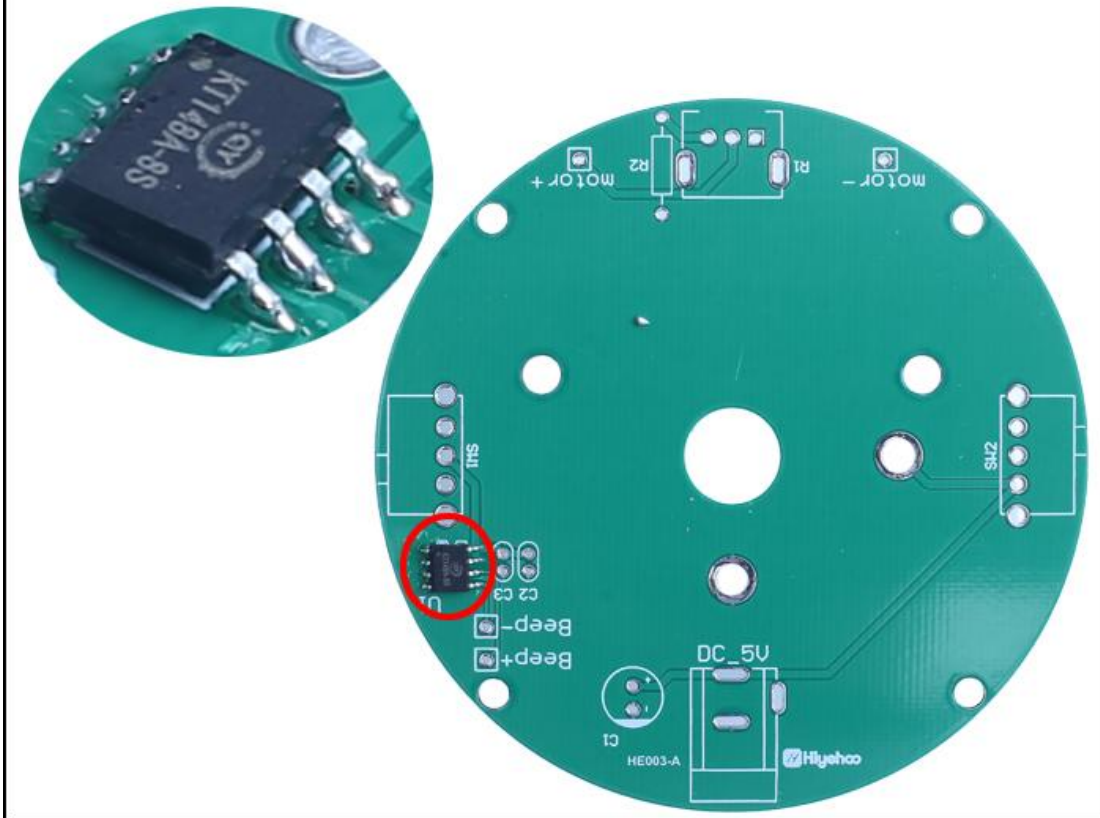
Step 2: Randomly choose a pad on the PCB, and then melt the solder on this pad.



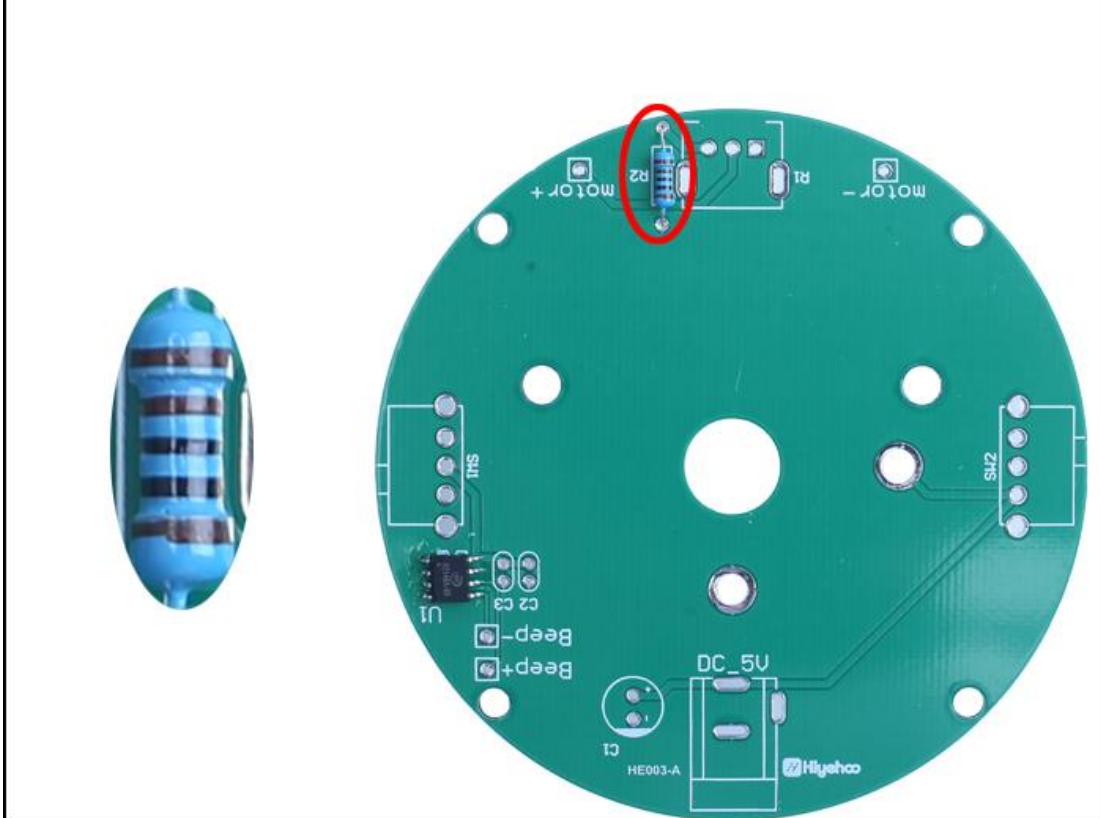
Step 3: Fix KT148A: Use a soldering iron to melt tin on the pad just now and hold KT148A with tweezers in the other hand to place/press on U1 to prevent movement. Take care to match and align each pads. Then remove soldering iron. Then remove tweezers after solder tin cooling and solidification.



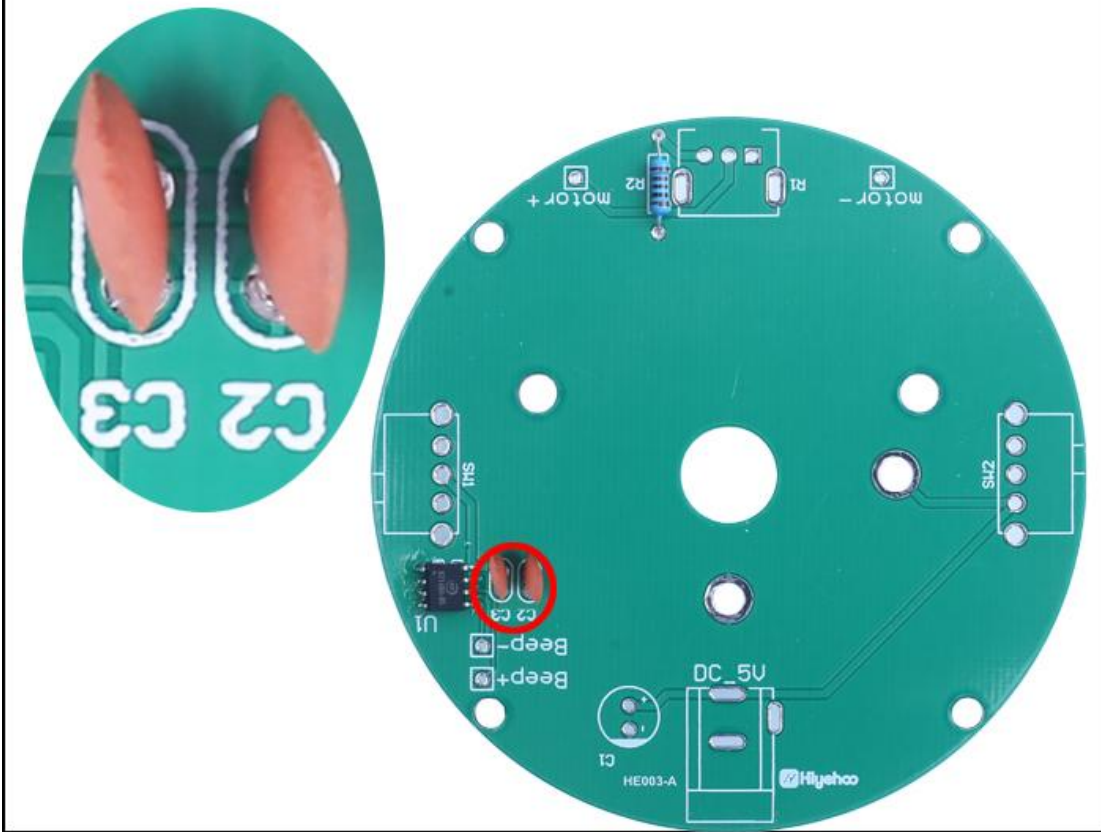
Step 4: Connect others pads on KT148A by tin and soldering iron.



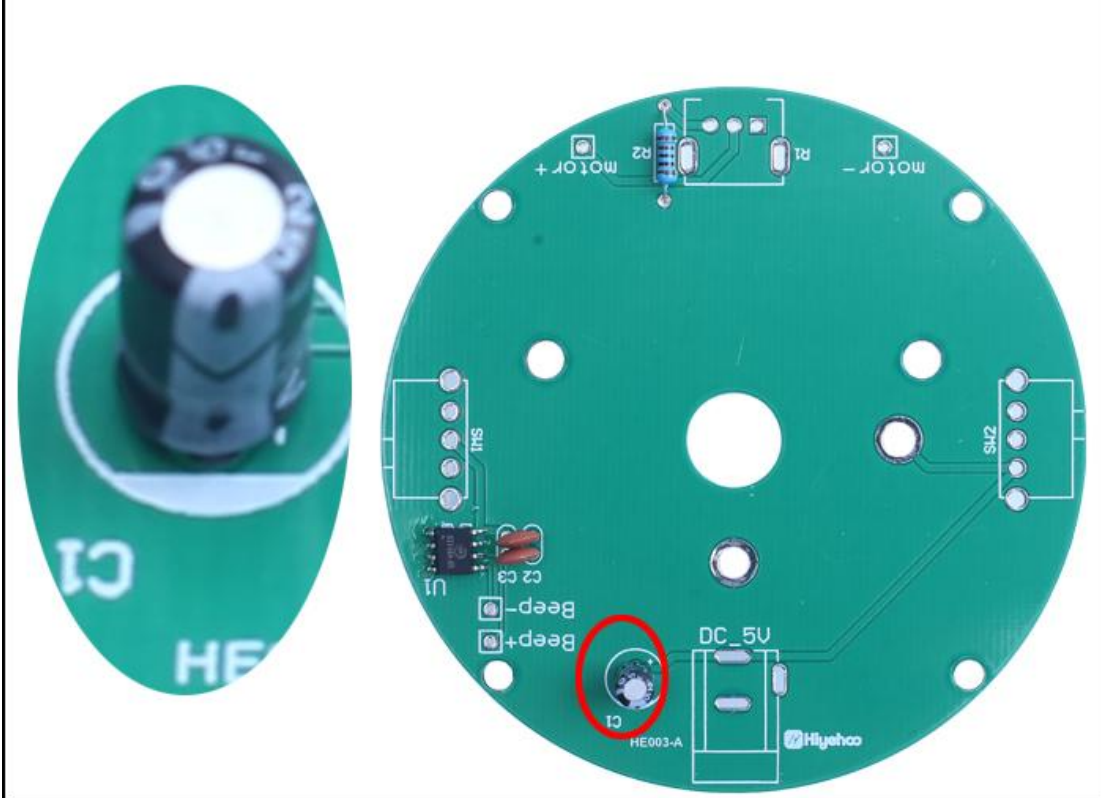
Step 5: Install 1pcs 1Kohm Metal Film Resistor at R2.



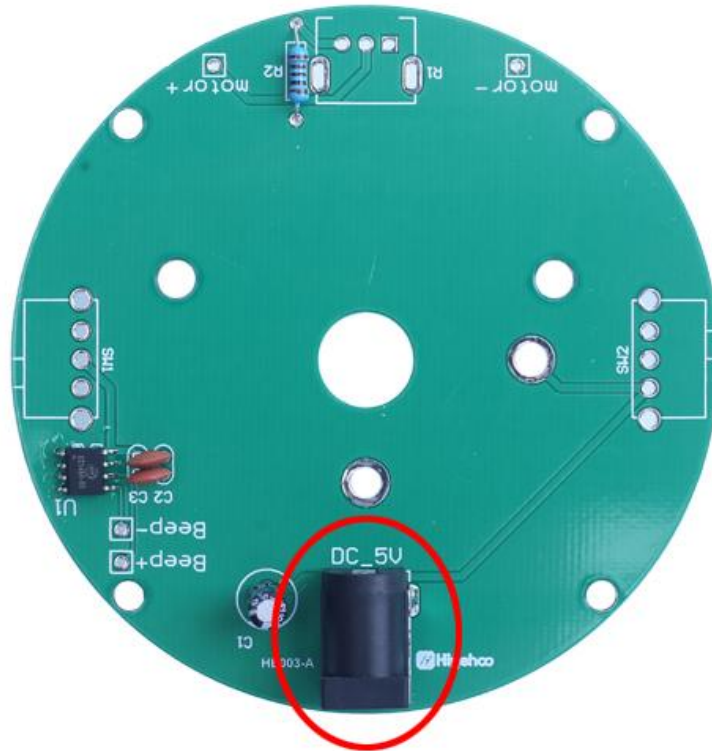
Step 6: Install 2pcs 0.1UF 104 Ceramic Capacitor at C2,C3.



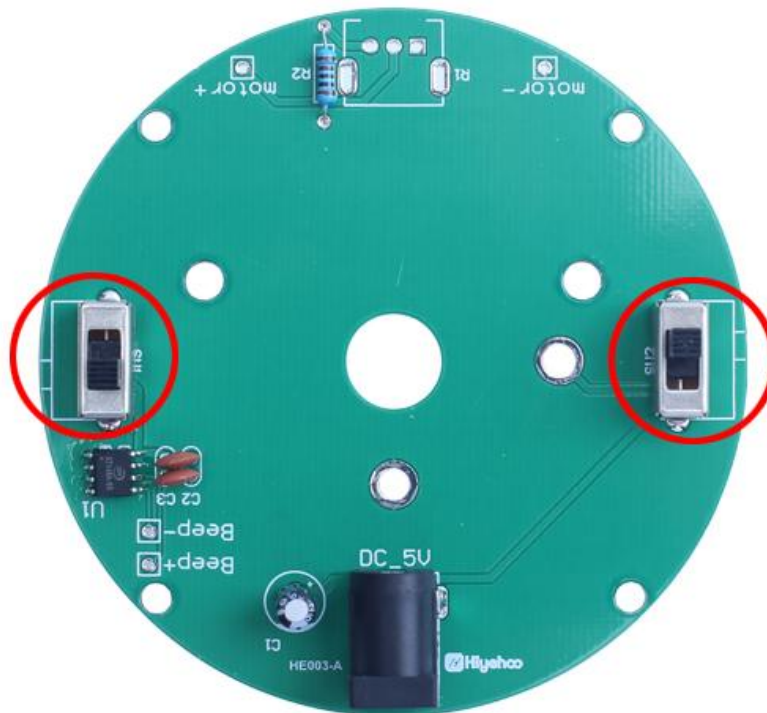
Step 7: Install 1pcs 22uF 16V Electronic Capacitor at C1. The longer pin is positive pole and connect to ' + ' pad.



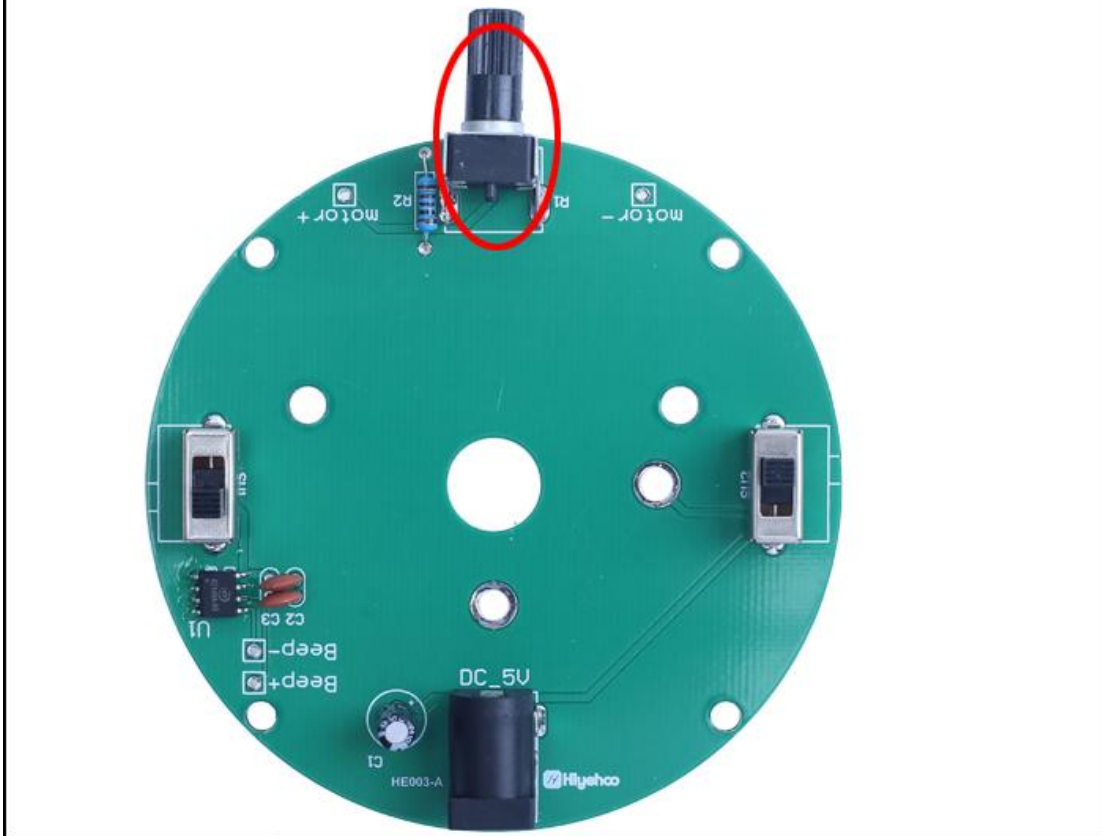
Step 8: Install 1pcs DC-005 Power Socket at DC\_5V.



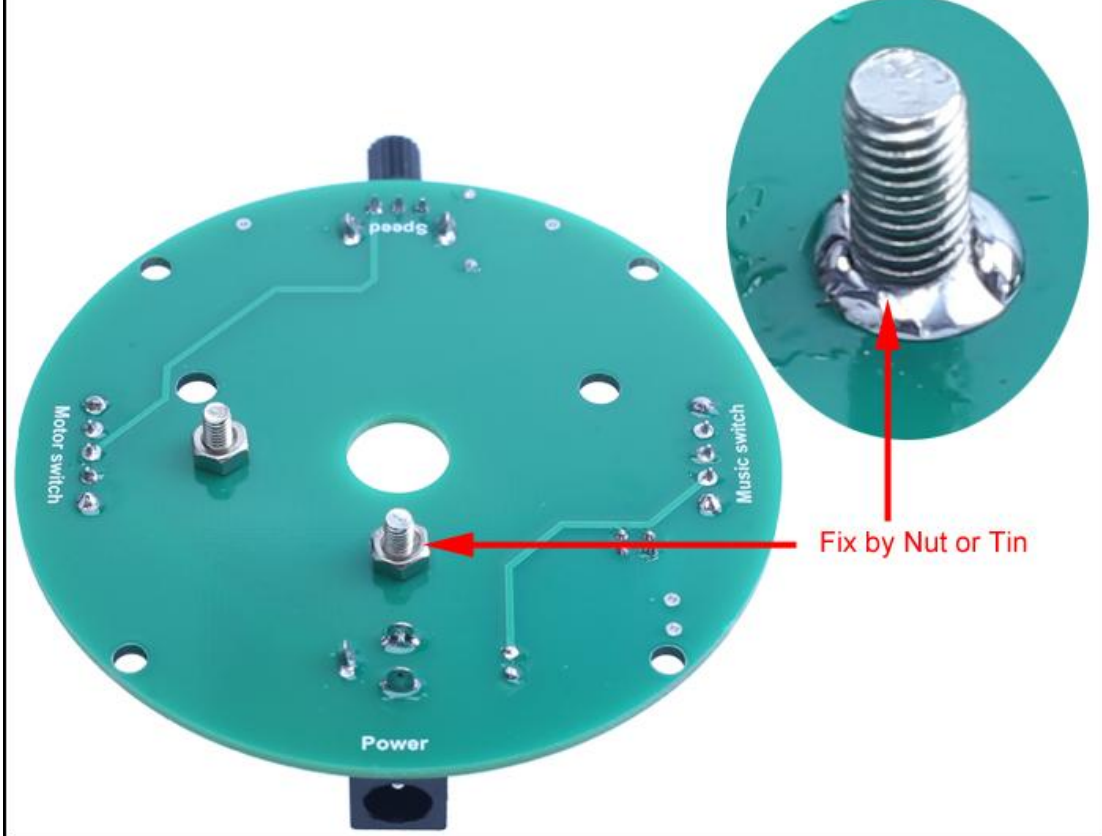
Step 9: Install 1pcs SS-12F44G5 Toggle Switch 1P2T at SW1,SW2.



Step 10: Install 1pcs 1K RV0931 B102K Potentiometer at R1.

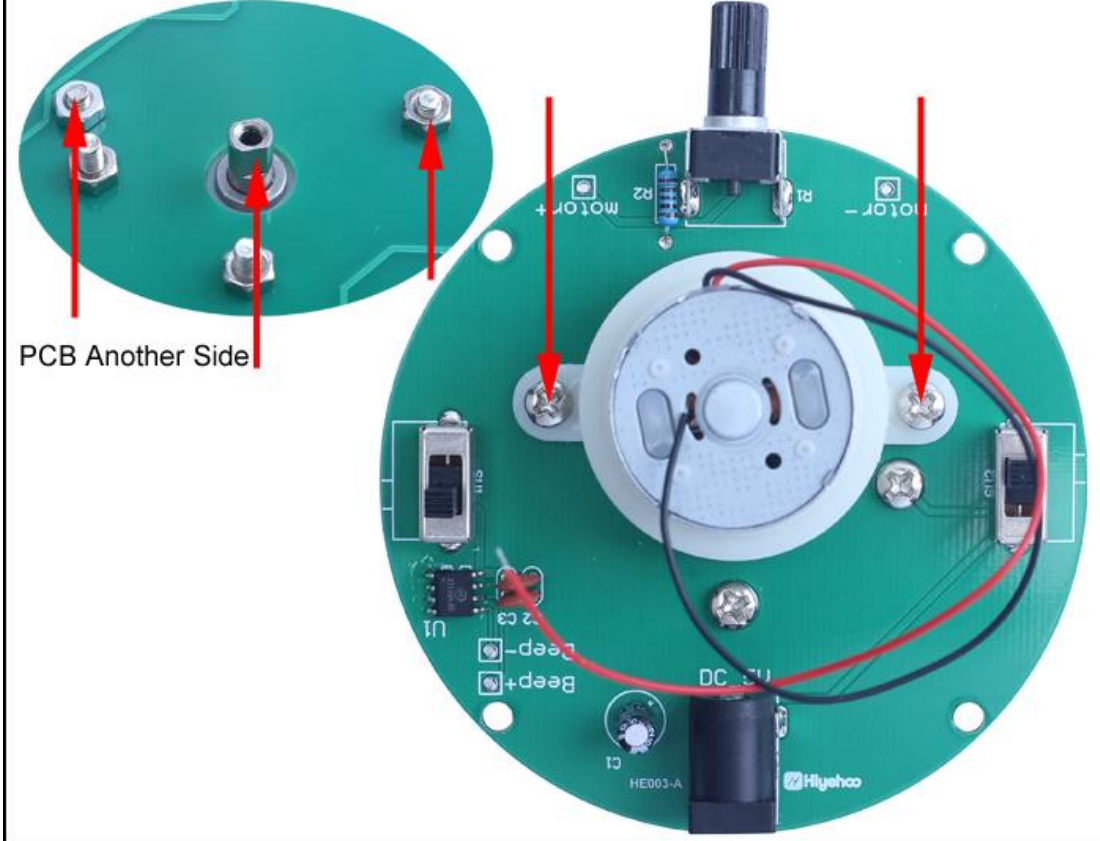


Step 11: Fix 2pcs M3\*10mm Screw with 2pcs Nut or tin as showing.

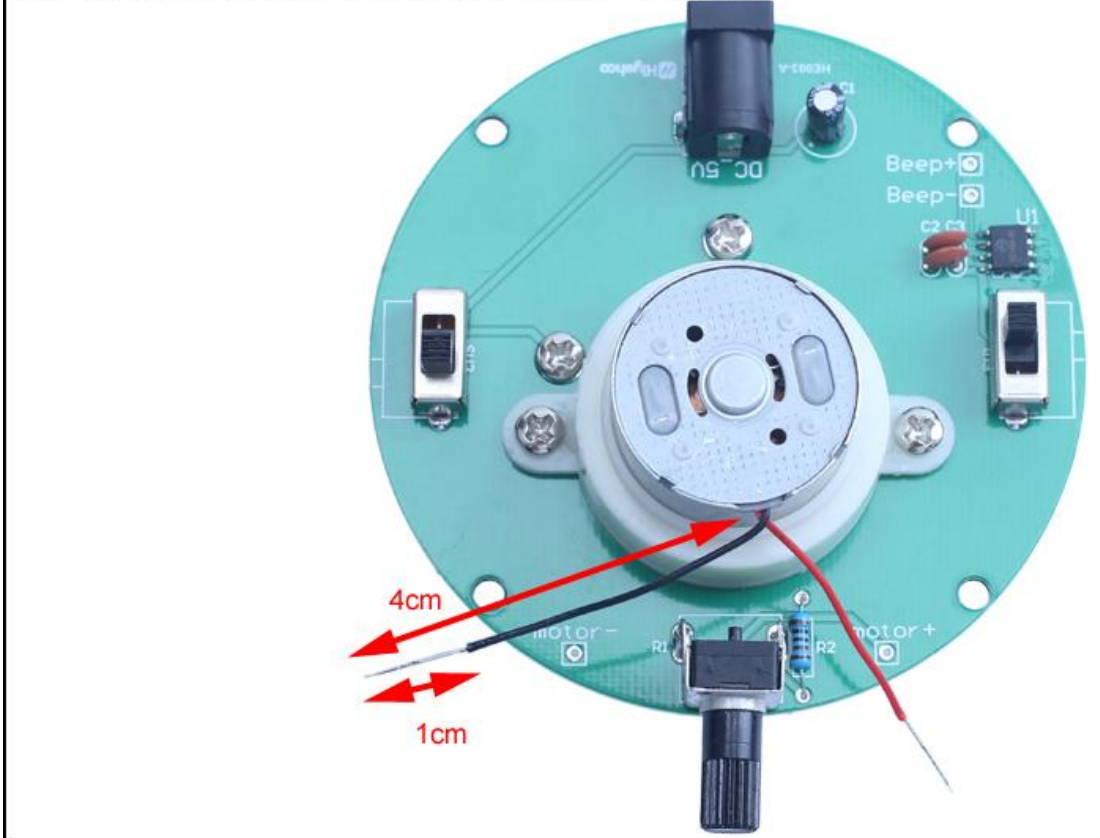




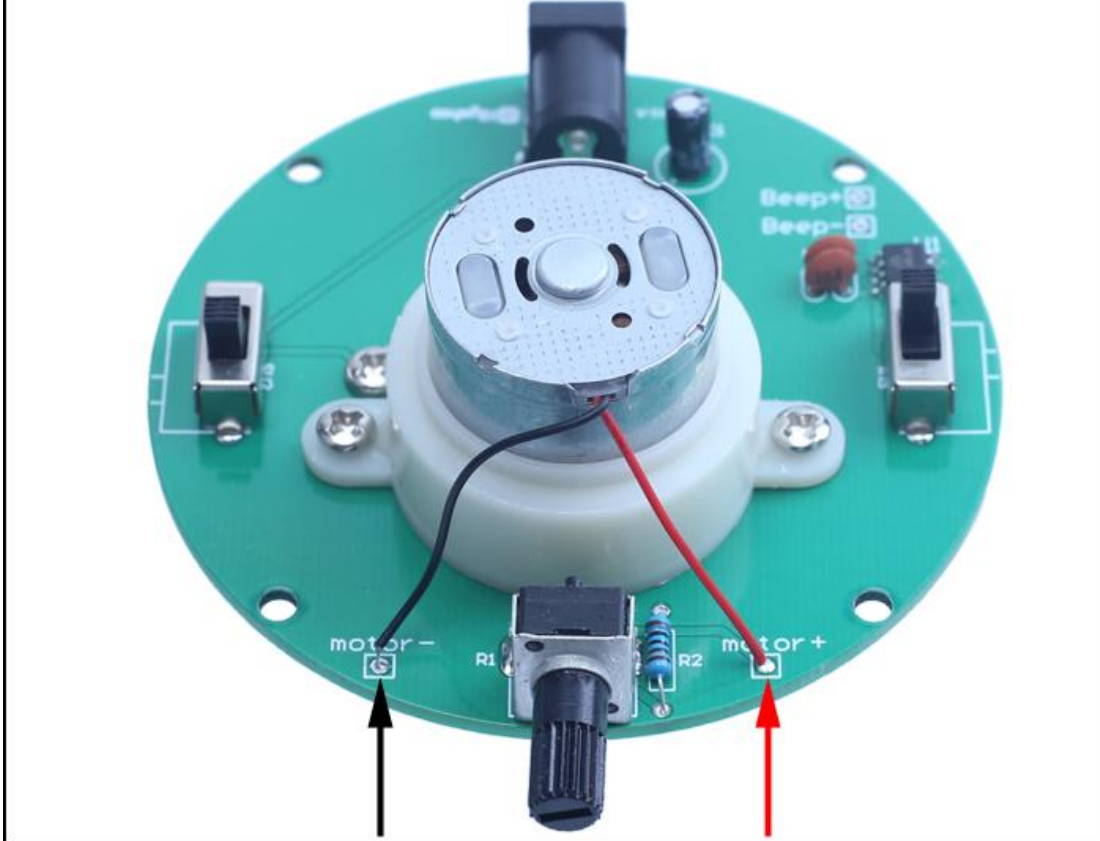
Step 12: Fix 1pcs JS-30 DC Motor by 2pcs M3\*10mm Screw and Nut.



Step 13: Cut and reserve 4cm wire from JS-30 DC Motor.



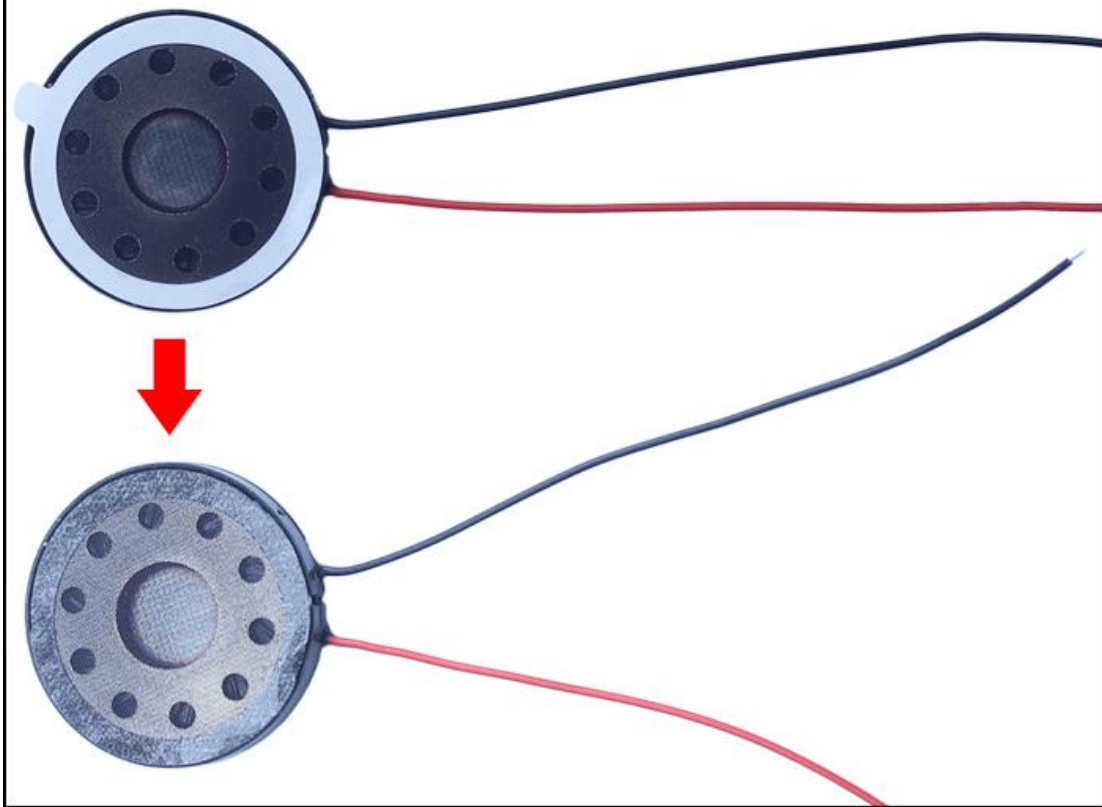
Step 14: Red wire connect to ' motor + ' pad and black wire connect to ' motor - ' pad.



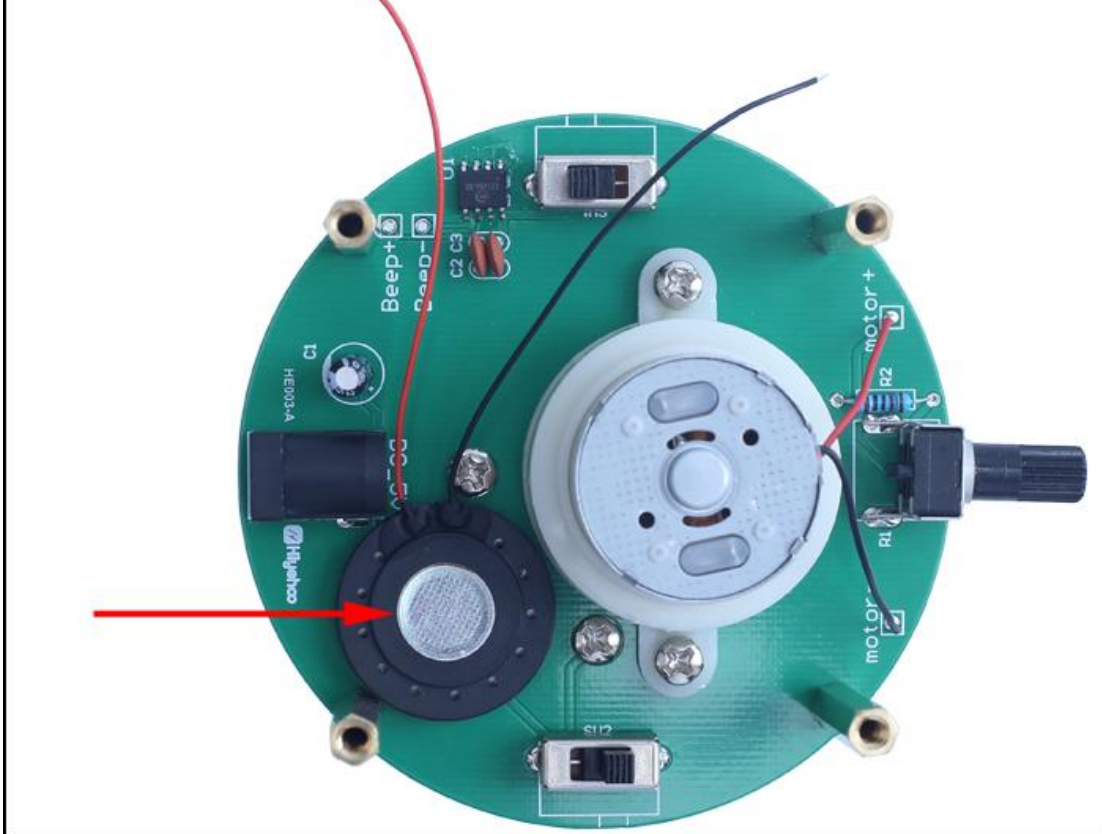
Step 15: Fix 4pcs M3\*30mm Copper Pillar by 4pcs M3\*5mm Screw.



Step 16: Tear off the protective film on the surface from speaker.



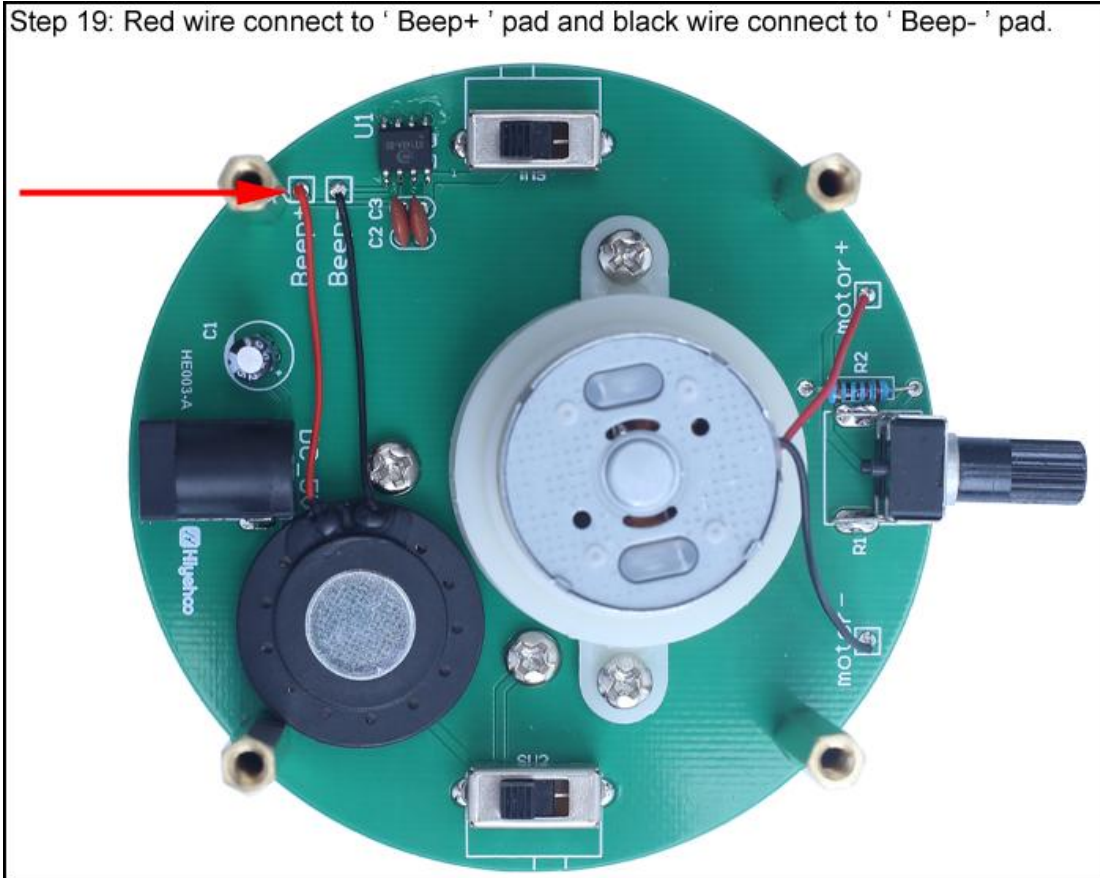
Step 17: Stick the speaker at the position shown in the picture.



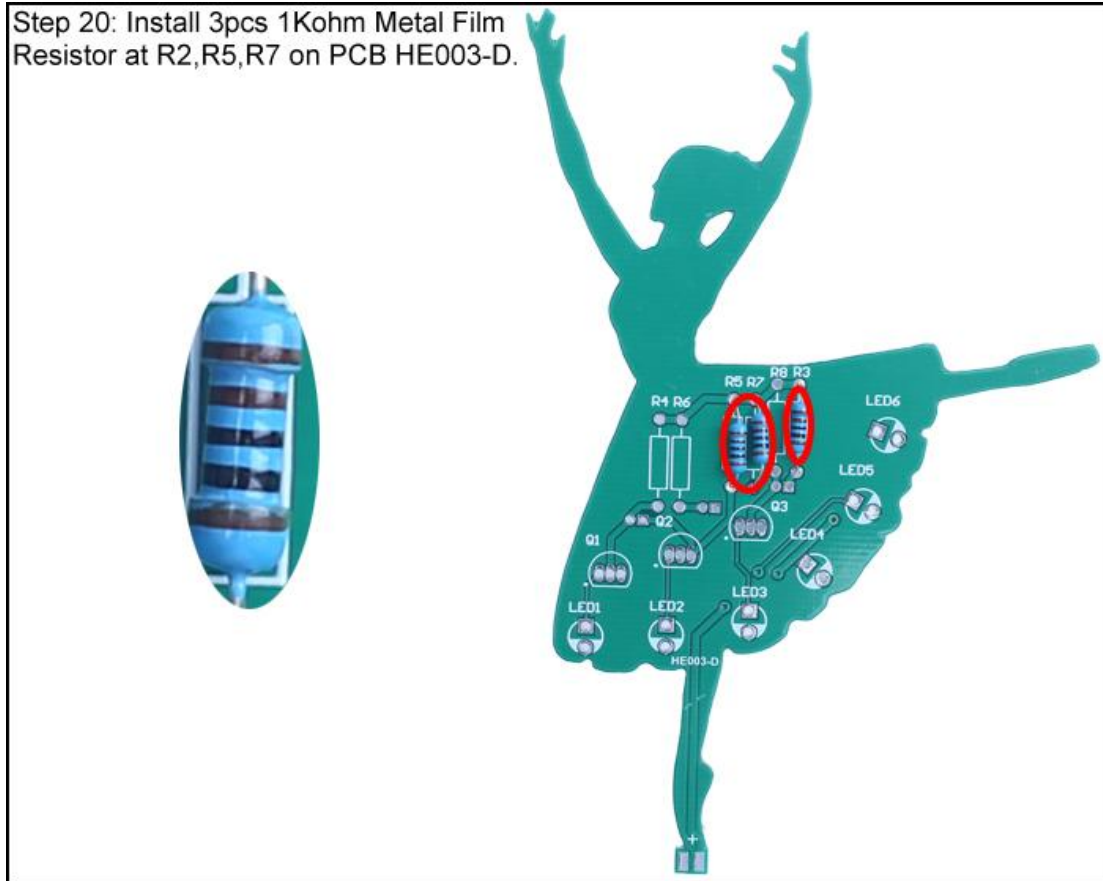
Step 18: Cut and reserve 4cm wire from speaker.



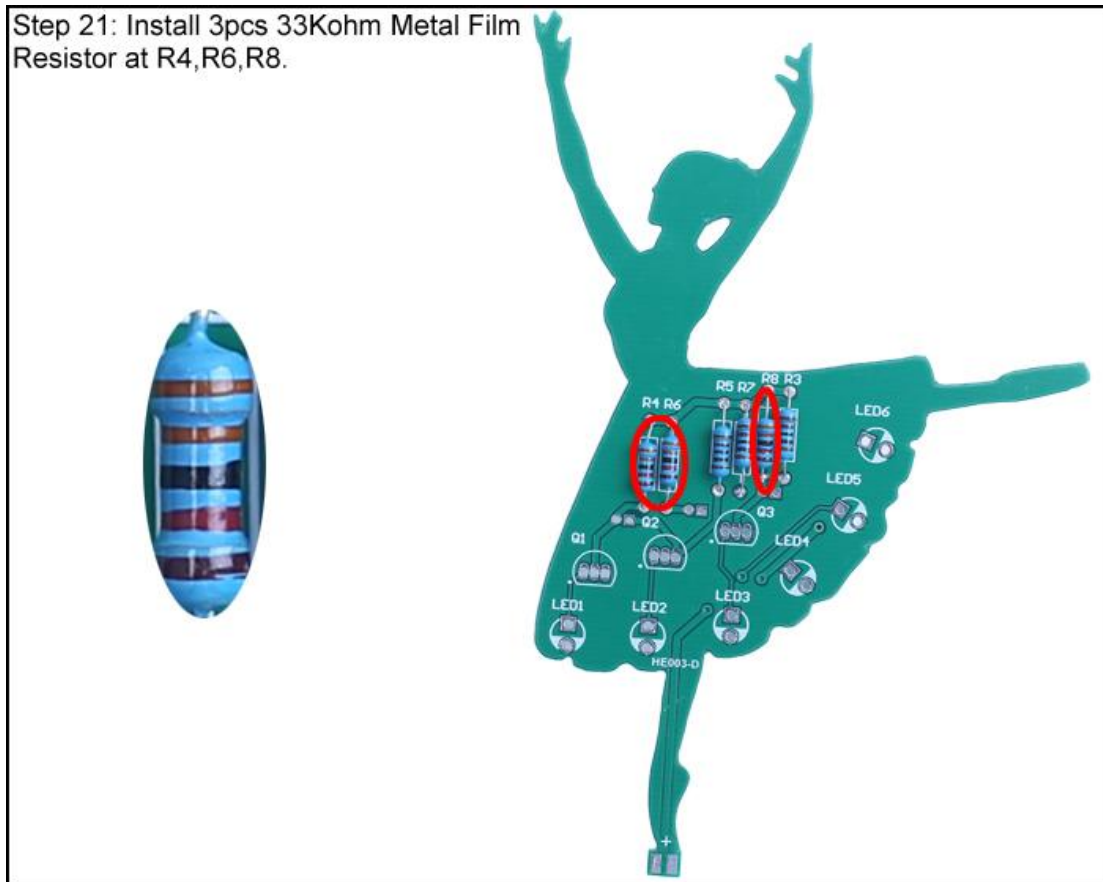
Step 19: Red wire connect to 'Beep+' pad and black wire connect to 'Beep-' pad.



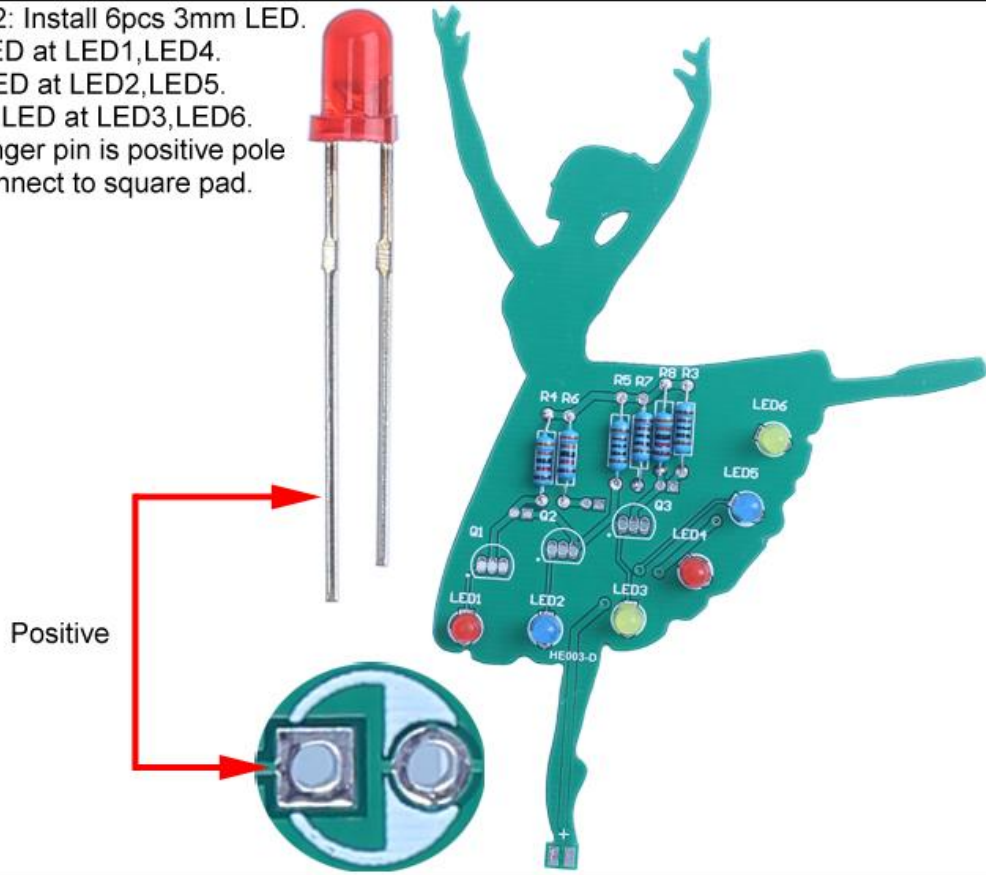
Step 20: Install 3pcs 1Kohm Metal Film Resistor at R2,R5,R7 on PCB HE003-D.



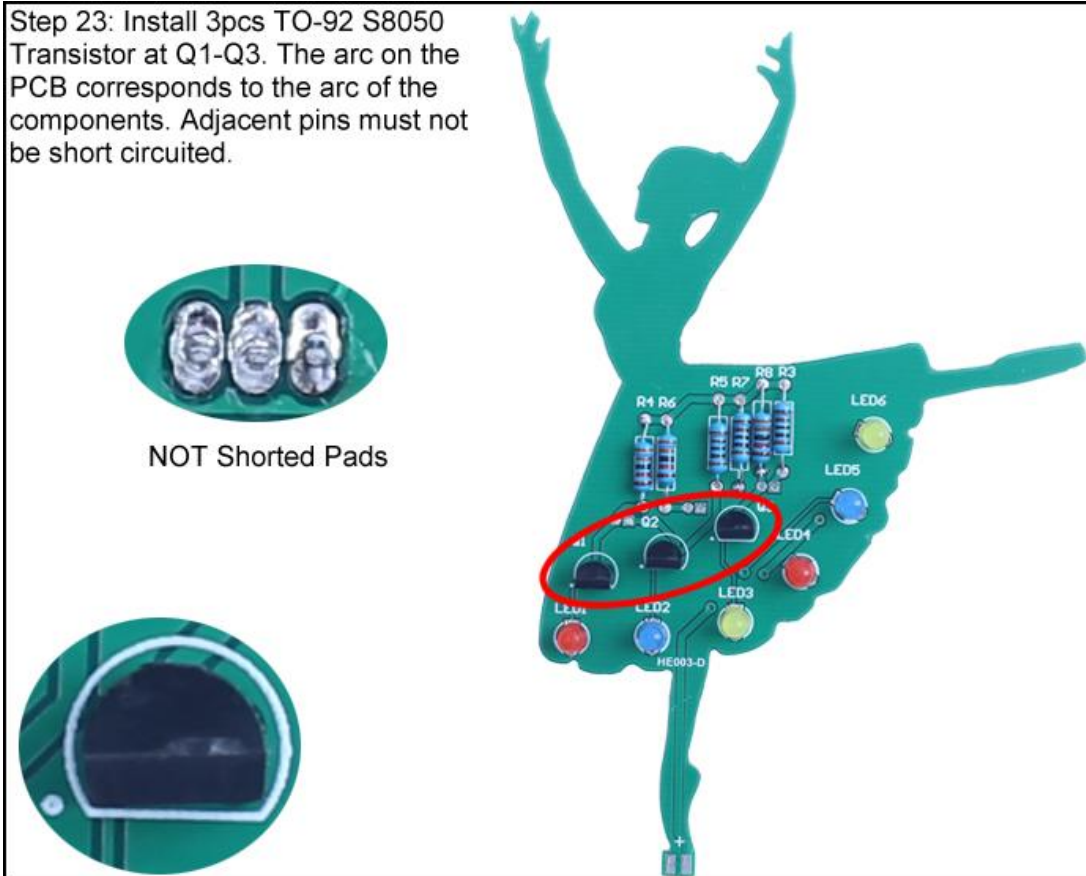
Step 21: Install 3pcs 33Kohm Metal Film Resistor at R4,R6,R8.



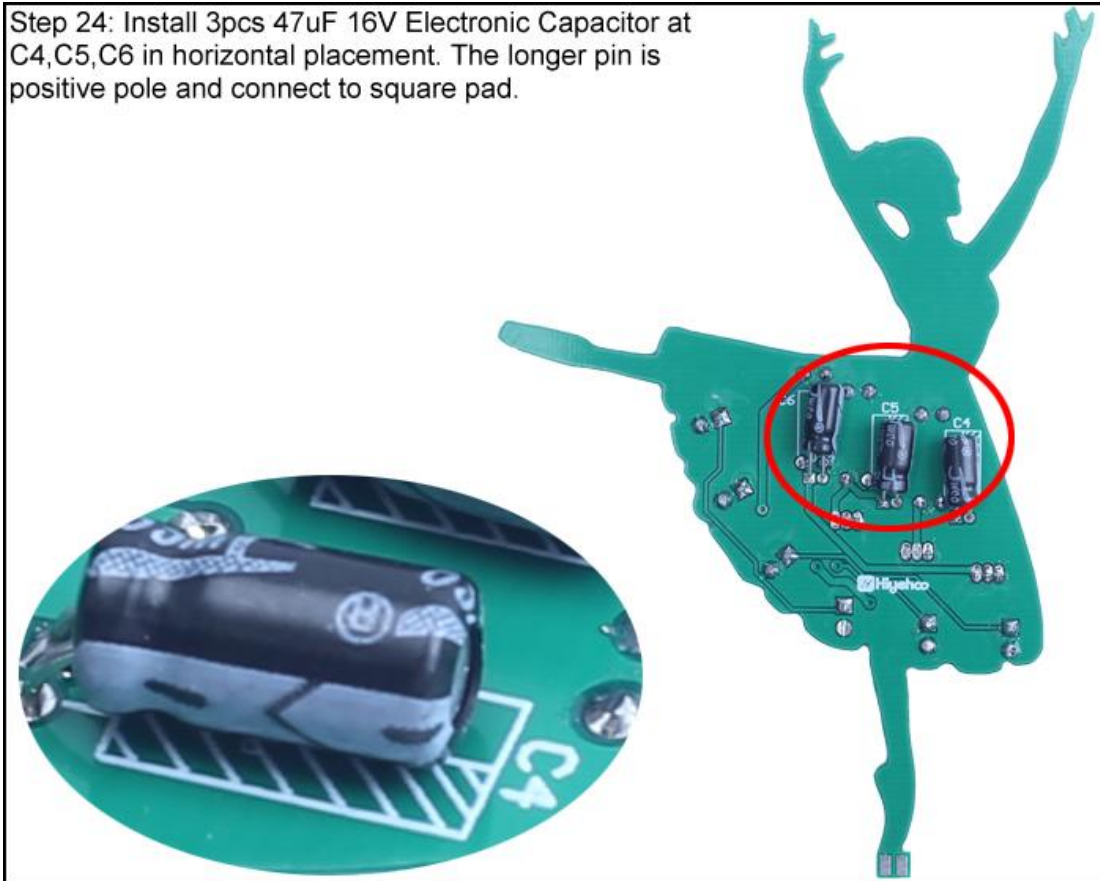
Step 22: Install 6pcs 3mm LED.  
 Red LED at LED1,LED4.  
 Blue LED at LED2,LED5.  
 Yellow LED at LED3,LED6.  
 The longer pin is positive pole  
 and connect to square pad.



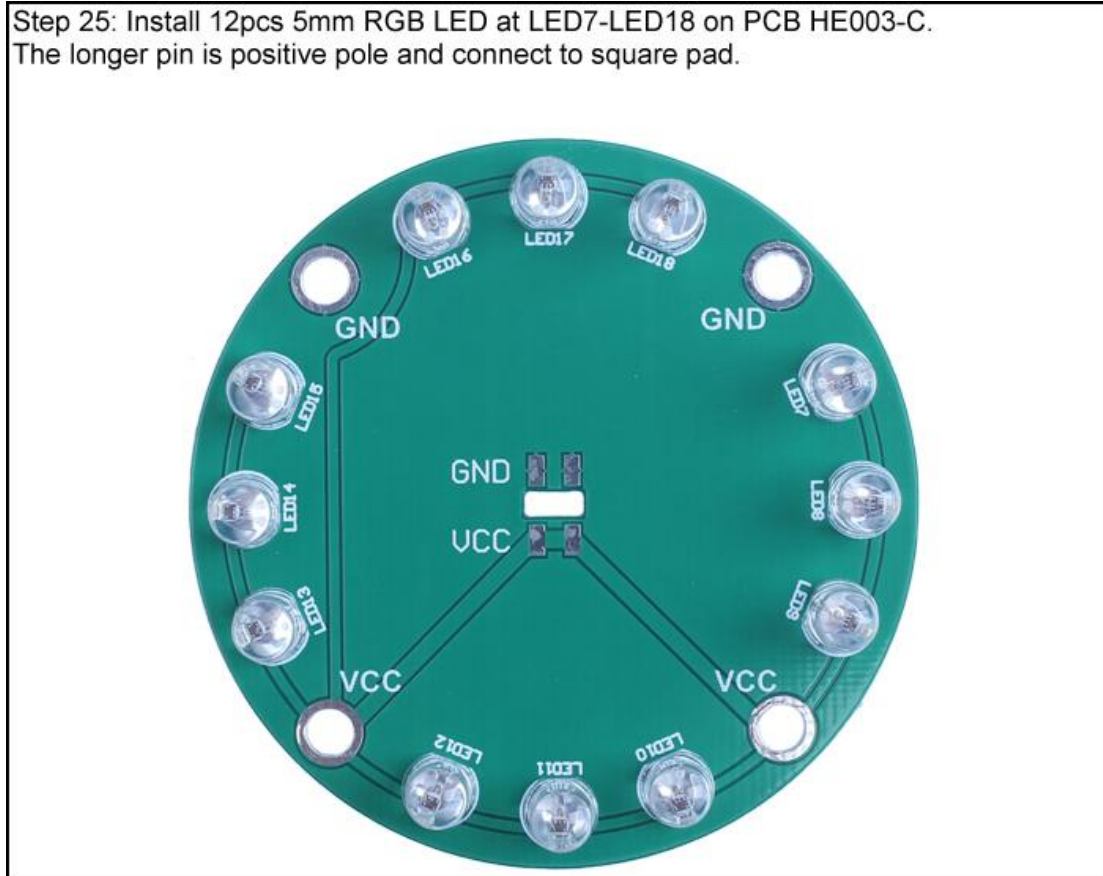
Step 23: Install 3pcs TO-92 S8050  
 Transistor at Q1-Q3. The arc on the  
 PCB corresponds to the arc of the  
 components. Adjacent pins must not  
 be short circuited.



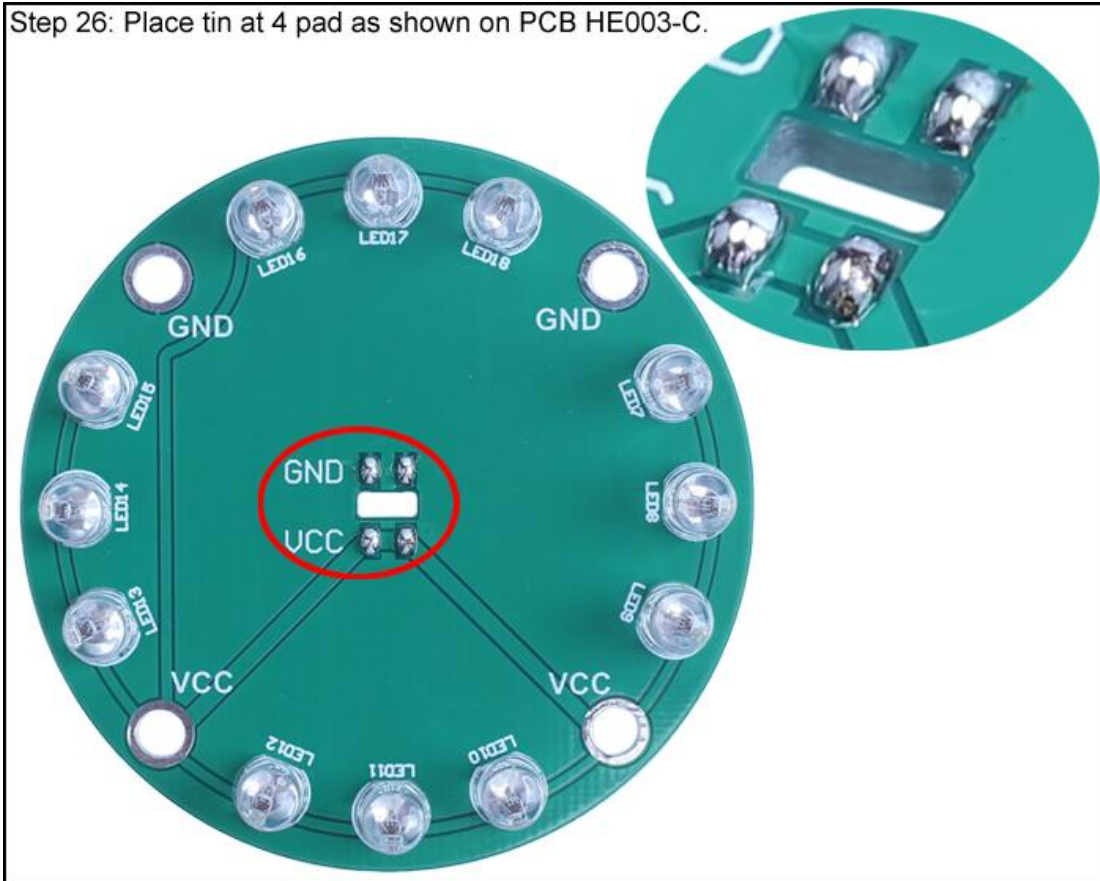
Step 24: Install 3pcs 47uF 16V Electronic Capacitor at C4,C5,C6 in horizontal placement. The longer pin is positive pole and connect to square pad.



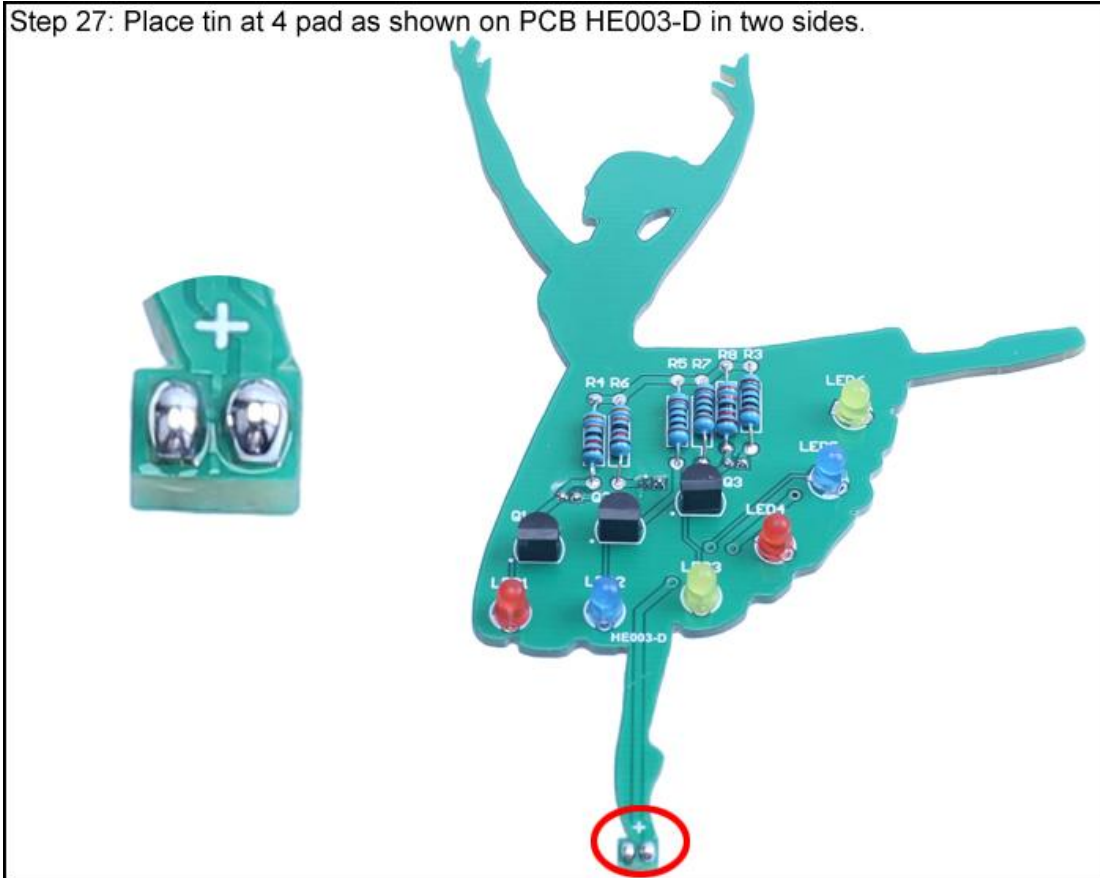
Step 25: Install 12pcs 5mm RGB LED at LED7-LED18 on PCB HE003-C. The longer pin is positive pole and connect to square pad.



Step 26: Place tin at 4 pad as shown on PCB HE003-C.

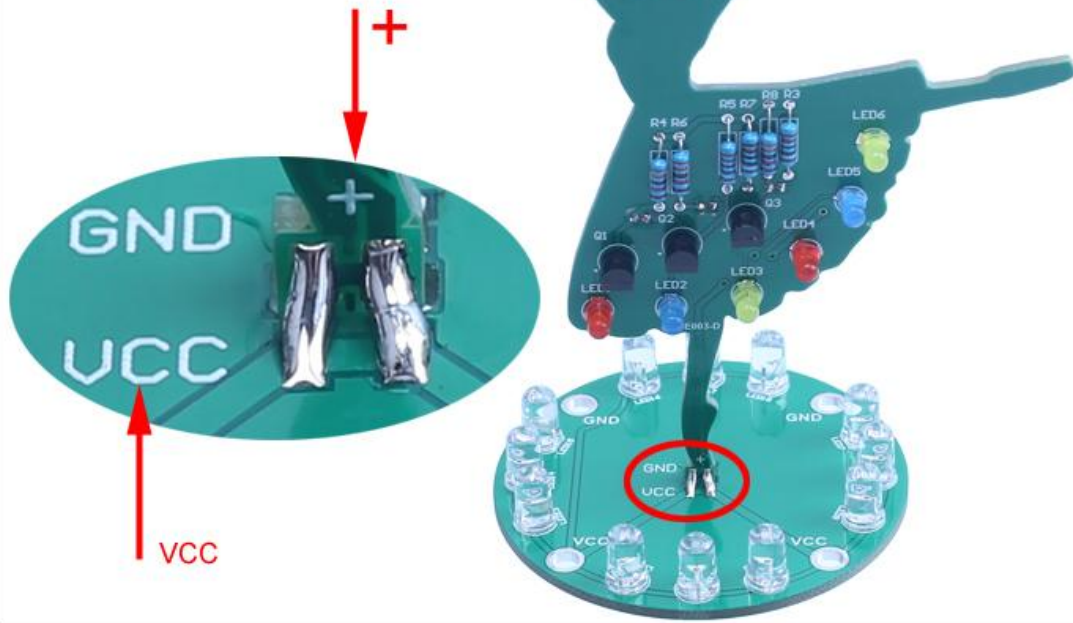


Step 27: Place tin at 4 pad as shown on PCB HE003-D in two sides.

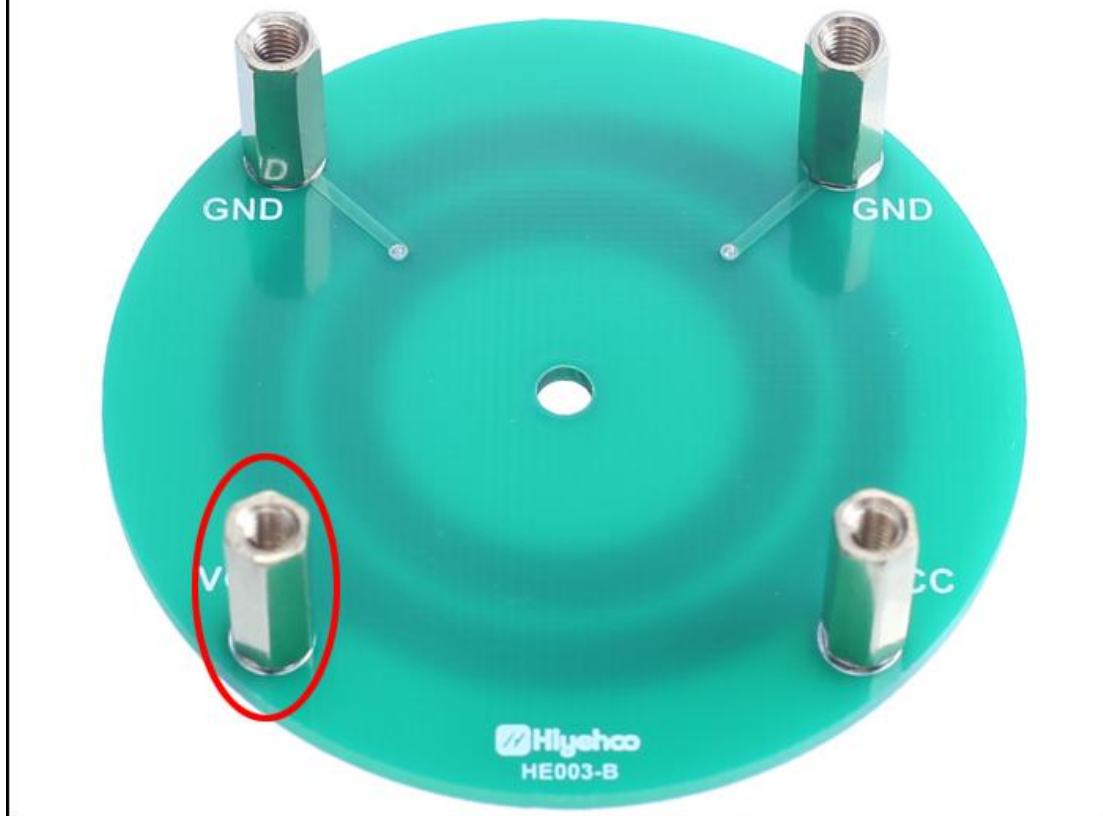




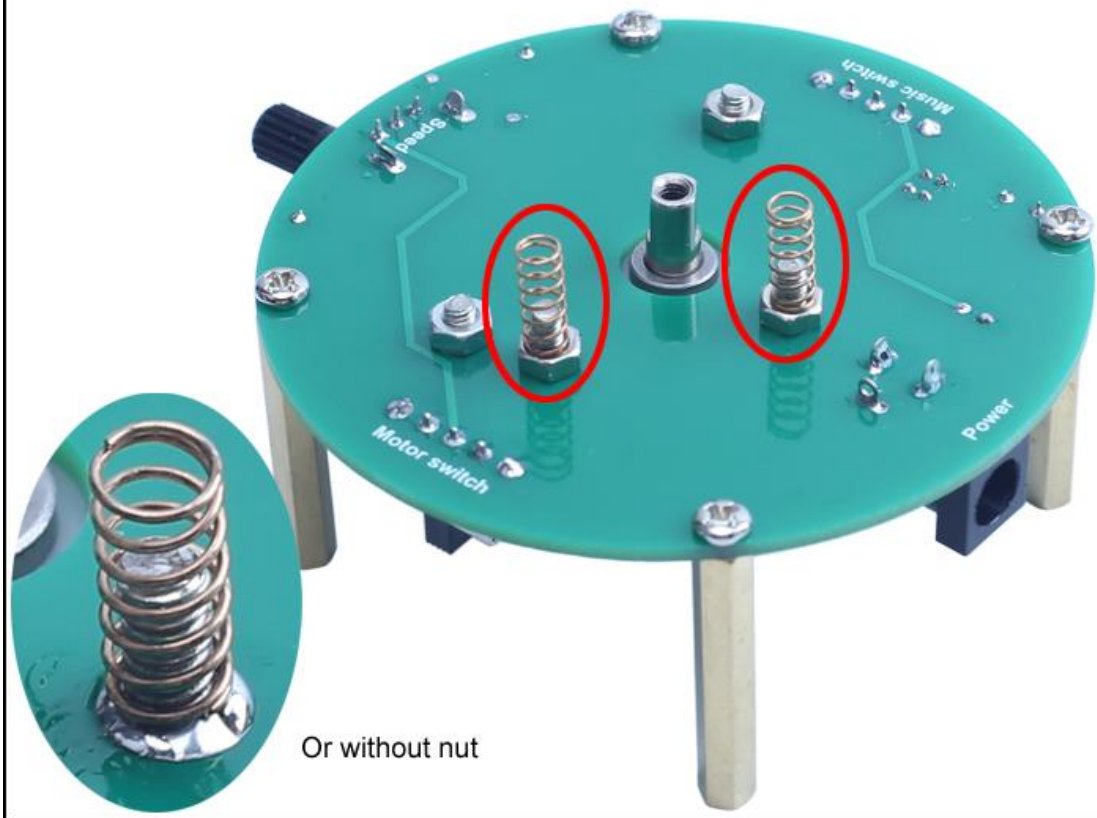
Step 28: Connect PCB HE003-C and PCB HE003-D by pad and tin.  
Note: '+' pad connect to VCC pads.  
Ensure that the two PCB are perpendicular to each other.



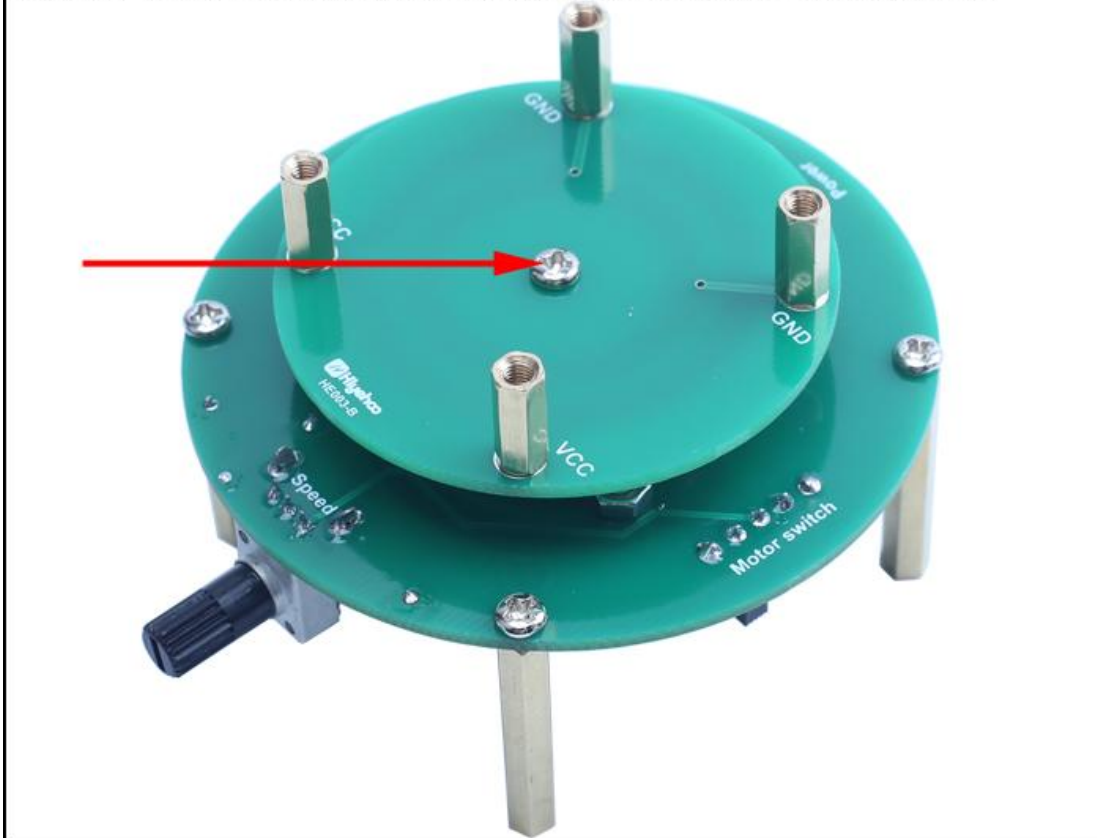
Step 29: Fix 4pcs M3\*12mm Copper Pillar on PCB HE003-B by 4pcs M3\*5mm Screw.



Step 30: Place 2pcs 0.4\*4\*10mm Metal Spring on PCB HE003-A as shown.



Step 31: Fix PCB HE003-B on DC Motor at PCB HE003-A by M3\*5mm Screw.



Step 32: Fix PCB HE003-C on PCB HE003-B by 4pcs M3\*5mm Screw.

