

## Auto-Rotate Flash RGB Christmas Tree DIY Kit

### 1.Introduction:

It is a RGB Music Christmas tree kit consists of circuit board and allows 37pcs LED flash with music and showing a Christmas tree in RGB (the night environment has better viewing).

It has a built-in motor so that the Christmas tree can rotate automatically which can achieve better dynamic effects when it is working.

It can be used for Christmas, event celebrations and parties, etc. It can be used to create a festive atmosphere.

### 2.Feature:

- 1>.37pcs highlight LED
- 2>.Perfect simple circuit
- 3>.Simple music effect
- 4>.Automatic rotation
- 5>.RGB LED flashes automatically
- 6>.Adjustable cycle of bottom LED
- 7>.Bottom LED breathing light effect

### 3.Parameter:

- 1>.Product Name:Auto-Rotate Flash RGB Music Christmas Tree DIY Kit
- 2>.Work Voltage:DC 4.0V~5.5V
- 3>.Work Current:500mA
- 4>.Power Type:DC005 5.5\*2.1mm Power Socket
- 5>.Color:RGB LED
- 6>.Work Temperature:-40°C~85°C
- 7>.Work Humidity:5%~85%RH
- 8>.Size(Installed):63\*61\*190mm

### 4.Function:

- 1>.Complete the correct installation according to the installation steps.
- 2>.Input right work voltage from 5.5\*2.1mm power socket.
- 3>.The Christmas tree starts blinking automatically.
- 4>.Start playing simple music automatically.
- 5>.The bottom LED breathing light automatically starts to work.
- 6>.Rotate Potentiometer to adjust work speed for bottom LED.

## 5.Component Listing:

NO.	Component Name	PCB Marker	Parameter	QTY
TOP Tree PCB				
1	Metal Film Resistor	R2,R4,R6,R7	100ohm	4
2	Metal Film Resistor	R1,R3,R5	47Kohm	3
3	Electrolytic Capacitor	C1~C4	22uF 25V	4
4	S9014 Transistor	Q1~Q3	TO-92	3
5	3mm RGB LED	LED1~LDE19	White Case	19
Bottom Tree PCB				
6	Metal Film Resistor	R2,R4,R6	100ohm	3
7	Metal Film Resistor	R1,R3,R5	47Kohm	3
8	Electrolytic Capacitor	C1~C4	22uF 25V	4
9	S9014 Transistor	Q1~Q3	TO-92	3
10	3mm RGB LED	LED1~LDE18	White Case	18
Main PCB				
11	Metal Film Resistor	R6	30Kohm	1
12	Metal Film Resistor	R1,R3,R4	47Kohm	3
13	Metal Film Resistor	R5	100Kohm	1
14	Potentiometer	R7	20Kohm	1
15	S8050 Transistor	Q1,Q2	TO-92	2
16	BJ1522 Music IC	music	TO-92	1
17	Ceramic Capacitor	C1	0.1uF 104	1
18	Electrolytic Capacitor	C2	22uF 25V	1
19	5mm Blue LED	D1~D18	White Case	18
20	IC Socket	U2	DIP-8	1
21	LM358	U2	DIP-8	1
22	Passive Buzzer	BELL	5V	1
23	JS-30 DC Motor	motor	DC3V-9V	1
24	DC005 Power Socket	JK1	5.5*2.1mm	1
25	DC005 USB Cable		100cm	1
26	Metal Spring		11*4*4mm	2
27	Copper Pillar		M3+25mm	4
28	Copper Pillar		M3+10mm	4
29	Screw		M3+10mm	4

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30	Screw		M3+6mm	10
31	Nut		M3	2
32	TOP Tree PCB		134*59*1.6mm	1
33	Bottom Tree PCB		134*59*1.6mm	1
34	TOP Round PCB		48*48*1.6mm	1
35	Bottom Round PCB		48*48*1.6mm	1
36	Main PCB		61*61*1.6mm	1
Note:Users can complete the installation according to the PCB silk screen and component list.				

## 6.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

## 7.Installation Tips:

- 1>.User needs to prepare the welding tool at first.
- 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>.Check that all of the LED can be illuminated.
- 11>.It is strongly recommended to read the installation manual before starting installation!!!
- 12>.Please wear anti-static gloves or anti-static wristbands when installing

electronic components.

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

1>.Step 1: Install 4pcs 100ohm Metal Film Resistor at R2,R4,R6,R7 on TOP Tree PCB.

2>.Step 2: Install 3pcs 47Kohm Metal Film Resistor at R1,R3,R5 on TOP Tree PCB.

3>.Step 3: Identification LED.The Longer pin is positive pole.

4>.Step 4: Pay attention to the mark of LED silk screen which can distinguish positive and negative poles.The longer pin is inserted into the positive poles pad.

5>.Step 5: Reserve the LED pins about 3mm and then bend LED pins.Then use soldering iron and solder wire to fix the LED.

6>.Step 6: Install 19pcs 3mm RGB LED at LED1~LDE19.Bend the LED at the same time.

7>.Step 7: Install 3pcs TO-92 S9014 Transistor at Q1~Q3.Pay attention to the installation direction. The arc on the PCB corresponds to the arc of the components.

8>.Step 8: Install 4pcs 22uF 25V Electrolytic Capacitor at C1~C4.Pay attention to distinguish between positive and negative.The Longer pin is positive pole.

9>.Step 9: Install 3pcs 100ohm Metal Film Resistor at R2,R4,R6 on Bottom Tree PCB.

10>.Step 10: Install 3pcs 47Kohm Metal Film Resistor at R1,R3,R5 on Bottom Tree PCB.

11>.Step 11: Install 19pcs 3mm RGB LED at LED1~LDE19.Bend the LED at the same time.Pay attention to the installation direction.

12>.Step 12: Install 3pcs TO-92 S9014 Transistor at Q1~Q3.Pay attention to the installation direction. The arc on the PCB corresponds to the arc of the components.

13>.Step 13: Install 4pcs 22uF 25V Electrolytic Capacitor at C1~C4.Pay attention to distinguish between positive and negative.The Longer pin is positive pole.

14>.Step 14: Install 3pcs 47Kohm Metal Film Resistor at R1,R3,R4 on Main PCB.

15>.Step 15: Install 1pcs 30Kohm Metal Film Resistor at R6 on Main PCB.

16>.Step 16: Install 1pcs 100Kohm Metal Film Resistor at R5 on Main PCB.

17>.Step 17: Install 1pcs DIP-8 IC Socket at U2.There is a mark on one end of the IC Socket and there is a mark on PCB 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.

18>.Step 18: Install 1pcs 0.1uF 104 Ceramic Capacitor at C1.

19>.Step 19: Install 2pcs TO-92 S8050 Transistor at Q1,Q2.Pay attention to the installation direction. The arc on the PCB corresponds to the arc of the components.

20>.Step 20: Install 1pcs TO-92 BJ1522 Music IC at music.Pay attention to the installation direction. The arc on the PCB corresponds to the arc of the components.

Note: User does not need to install BJ1522 if does not need music.

21>.Step 21: Install 1pcs 22uF 25V Electrolytic Capacitor at C2.Pay attention to distinguish between positive and negative.The Longer pin is positive pole.

22>.Step 22: Install 1pcs 20Kohm Potentiometer at R7.

23>.Step 23: Install 1pcs Passive Buzzer at BELL. Note: User does not need to install Buzzer if does not need music.

24>.Step 24: Install 1pcs DC005 5.5\*2.1mm Power Socket at JK1.

25>.Step 25: Install 1pcs DIP-8 LM358 at U2.There is a mark on one end of the LM358 and there is a mark on IC Socket where the LM358 can place on.These two marks are corresponding to each other and are used to specify the installation direction of the LM358.

26>.Step 26: Pay attention to the mark of LED silk screen which can distinguish positive and negative poles.The longer pin is inserted into the positive poles pad.

27>.Step 27: Install 18pcs 5mm Blue LED at D1~D18.

28>.Step 28: Install 1pcs DC3V-9V JS-30 DC Motor at motor.It is a DC motor, so there is no need to distinguish between positive and negative.

29>.Step 29: Fixed motor by 2pcs M3+10mm Screw and 2pcs M3 Nut.

30>.Step 30: Fix 2pcs M3+10mm Screw at 3mm holes by solder.(Note:Please do not use nuts to fix!)

31>.Step 31: Install 4pcs M3+25mm Copper Pillar and 4pcs M3+6mm Screw on Main PCB as a stand.

32>.Step 32: Install 2pcs 11\*4\*4mm Metal Spring at 3mm holes.They are used to provide work power for circular rotating PCB.

33>.Step 33: Assemble 2pcs tree PCB. Please follow the picture to combine.

34>.Step 34: Adjust height and position cooperate with Main PCB and make sure they fit properly.Then Fix 3pcs by 16 pads.

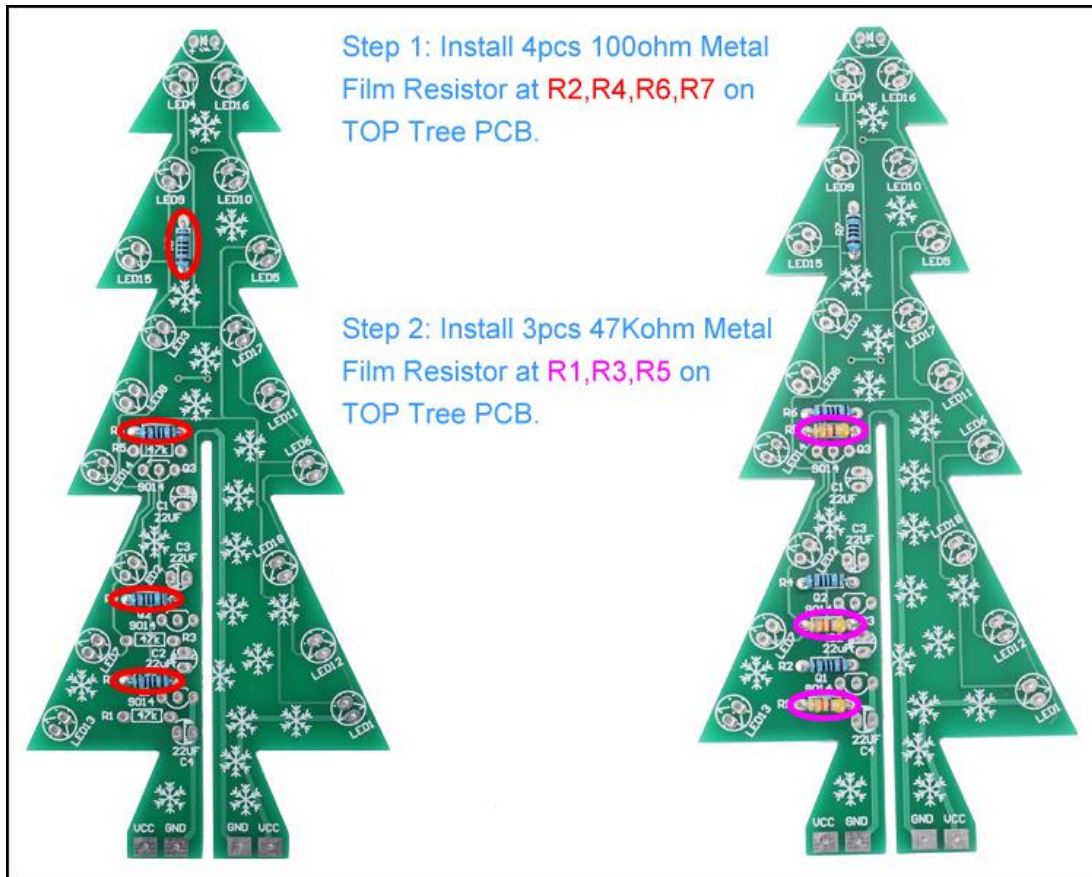
35>.Step 35: Install 4pcs M3+10mm Copper Pillar and 4pcs M3+6mm Screw on Bottom Round PCB which has two ring. The ring and Copper Pillar are also used as circuits.

36>.Step 36: Fixed Bottom Round PCB on motor shaft by 1pcs M3+6mm Screw.

37>.Step 37: Fixed TOP Round PCB with tree on Bottom Round PCB by 4pcs M3+6mm Screw.Pay attention to the correspondence between VCC and GND on two round PCB.

38>.Step 38: Connect to power supply and enjoy the effect.

## 9.Install shown steps:







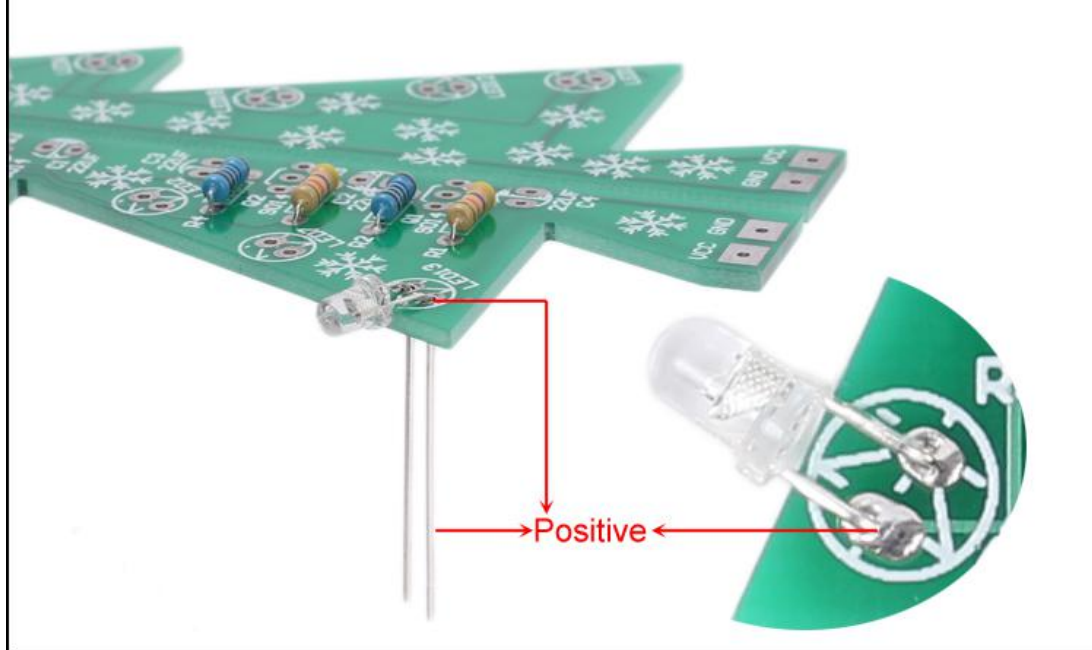
Step 4: Pay attention to the mark of LED silk screen which can distinguish positive and negative poles. The longer pin is inserted into the positive poles pad.







Step 5: Reserve the LED pins about 3mm and then bend LED pins. Then use soldering iron and solder wire to fix the LED.





Step 6: Install 19pcs 3mm RGB LED at **LED1~LDE19**. Bend the LED at the same time.

Step 7: Install 3pcs TO-92 **S9014** Transistor at Q1~Q3. Pay attention to the installation direction. The arc on the PCB corresponds to the arc of the components.

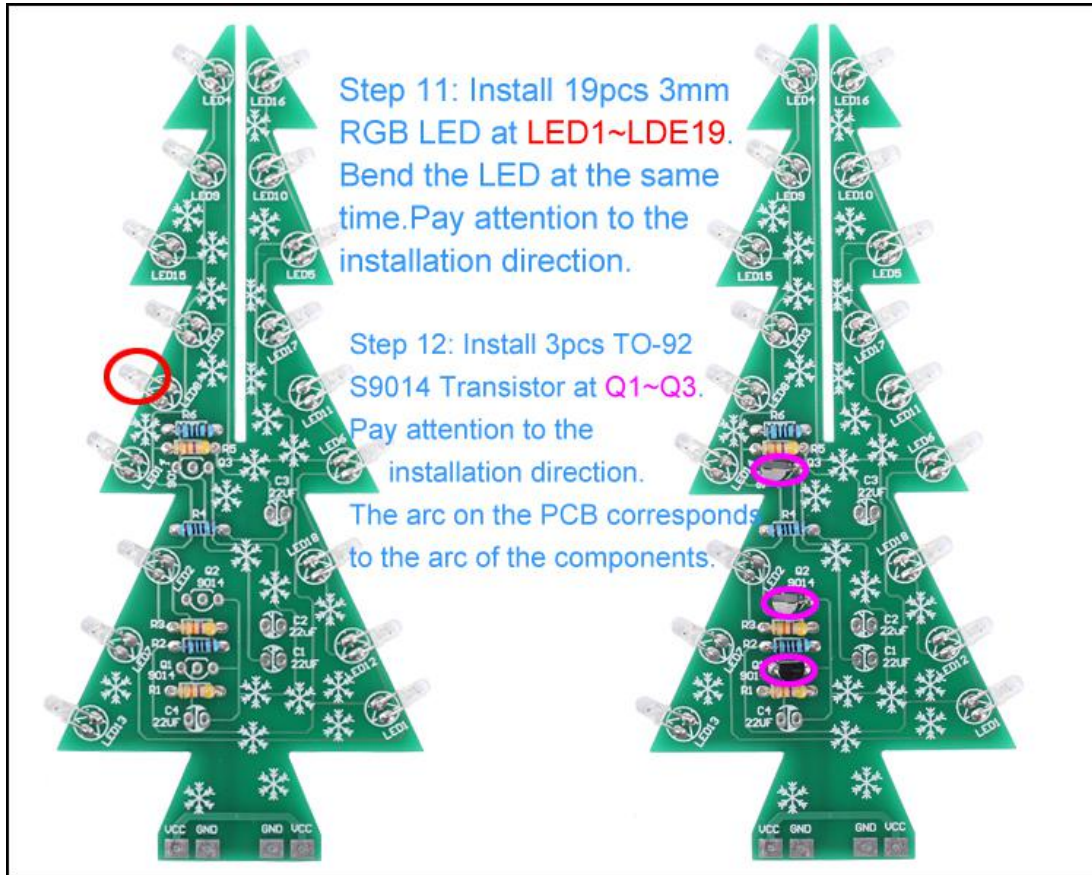


Step 8: Install 4pcs 22uF 25V Electrolytic Capacitor at C1~C4. Pay attention to distinguish between positive and negative. The Longer pin is positive pole.

Positive

Negative Mark

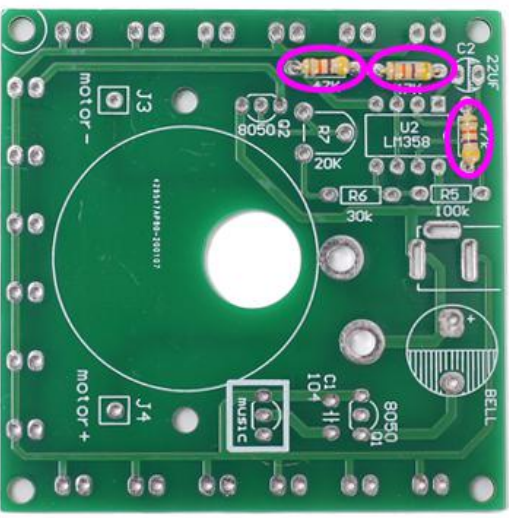



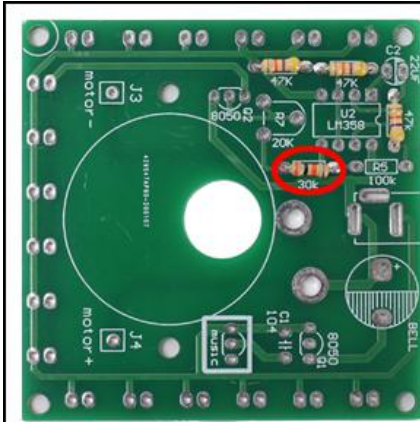




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Step 14: Install 3pcs 47Kohm Metal Film Resistor at R1,R3,R4 on Main PCB.





Step 15: Install 1pcs 30Kohm Metal Film Resistor at R6 on Main PCB.



Step 16: Install 1pcs 100Kohm Metal Film Resistor at R5 on Main PCB.



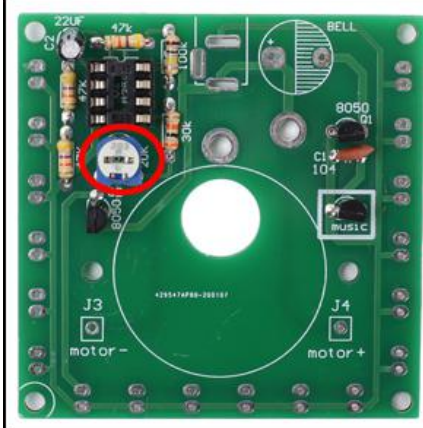
	<p>Step 17: Install 1pcs DIP-8 IC Socket at U2. There is a mark on one end of the IC Socket and there is a mark on PCB where the IC Socket can place on. These two marks are corresponding to each other and are used to specify the installation direction of the IC Socket.</p>
	<p>Step 18: Install 1pcs 0.1uF 104 Ceramic Capacitor at C1.</p>



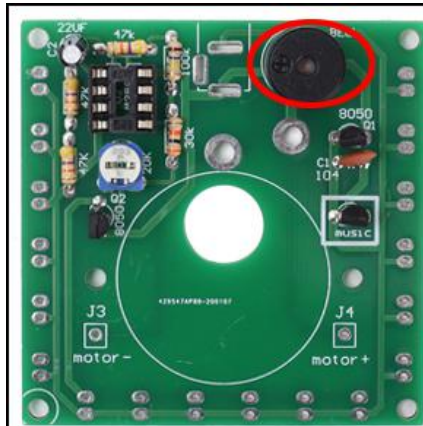




Step 21: Install 1pcs 22uF 25V Electrolytic Capacitor at C2. Pay attention to distinguish between positive and negative. The Longer pin is positive pole.

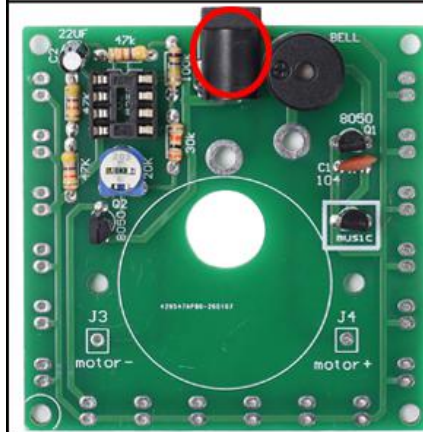


Step 22: Install 1pcs 20Kohm Potentiometer at R7.



Step 23: Install 1pcs Passive Buzzer at BELL.


**Note:** User does not need to install Buzzer if does not need music.



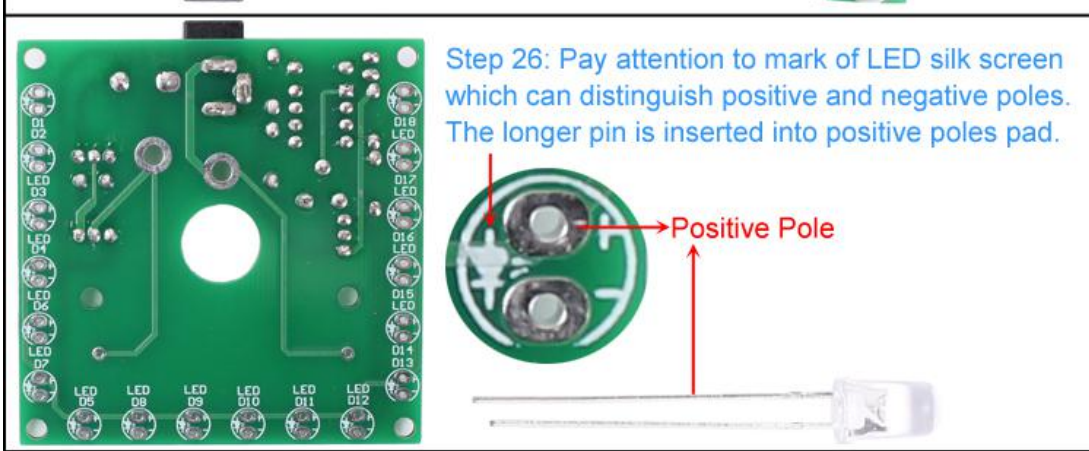
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**Step 26:** Pay attention to mark of LED silk screen which can distinguish positive and negative poles. The longer pin is inserted into positive poles pad.





**Step 27: Install 18pcs 5mm Blue LED at D1~D18.**





Negative Pole

**Step 28: Install 1pcs DC3V-9V JS-30 DC Motor at motor. It is a DC motor, so there is no need to distinguish between positive and negative.**



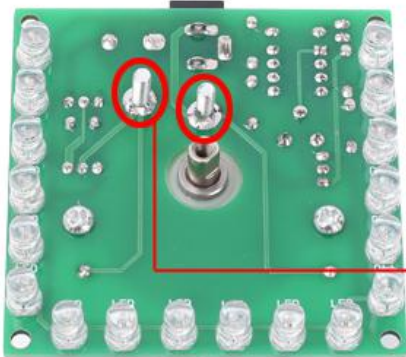




**Step 29: Fixed motor by 2pcs M3+10mm Screw and 2pcs M3 Nut.**



**Step 30: Fix 2pcs M3+10mm Screw at 3mm holes by solder.(Note:Please do not use nuts to fix!)**





Step 31: Install 4pcs M3+25mm Copper Pillar and 4pcs M3+6mm Screw on Main PCB as a stand.



Step 32: Install 2pcs 11\*4\*4mm Metal Spring at 3mm holes. They are used to provide work power for circular rotating PCB.









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Step 36: Fixed Bottom Round PCB on motor shaft by 1pcs M3+6mm Screw.

