

RGB LED Flash Circuit Christmas Tree DIY Kit

1.Introduction:

It is a RGB LED Flash Circuit Christmas Tree DIY Kit with RGB LED flashing in various automatic flashing effects.

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

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

2.Feature:

- 1>.RGB LED flashes automatically
- 2>.Innovative Christmas tree shape
- 3>.Perfect simple circuit
- 4>.DIY hand soldering

3.Parameter:

- 1>.Product Name:RGB LED Flash Circuit Christmas Tree DIY Kit
- 2>.Work Voltage:DC 4.5V-5.5V
- 3>.Work Temperature:-20°C~85°C
- 4>.Work Humidity:5%~85%RH
- 5>.Size(Installed):75*75*120mm

4.Component Listing:

NO.	Component Name	PCB Marker	Parameter	QTY
1	IAP15W408AS IC	U1	DIP-28	1
2	IC Socket	U1	DIP-28	1
3	MD8002A Amplifier	U2	SOP-8	1
4	Metal Film Resistors	R1,R2	20Kohm	2
5	Metal Film Resistors		200ohm	12
6	RGB LED		5mm	37
7	Electrolytic capacitor	C1,C2	100uF 25V	2
8	Monolithic capacitor	C4,C7	0.1uF 104	2
9	Monolithic capacitor	C5,C6	330pF 331	2
10	VS1838B Infrared receiver	M2		1
11	Toggle Switch	S1	5Pin	1
12	Micro USB Socket		USB1	1
13	Speaker	LS1	0.5W 8ohm	1
14	Red Wire		5cm	2
15	Remote Controller			1
16	USB Power Wire		100cm	1
17	PCB			15

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

5.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

6.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(3s), otherwise damage 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.

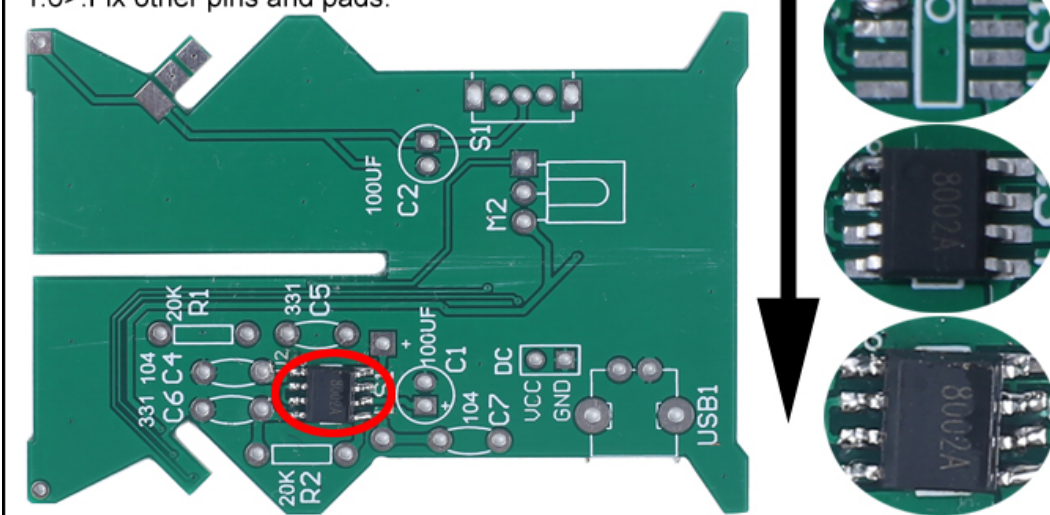
7.Installation Steps(Please be patient install!!!):

- 1>.Step 1: Install 1pcs SOP-8 MD8002A Amplifier at U2. Tips:
 - 1.1>.Confirm the installation direction: There is a white dot on PCB and there is a mark(dot) on IC. These two marks are corresponding to each other and are used to specify the installation direction.
 - 1.2>.Place tin on one pad.
 - 1.3>.Hold the chip with tweezers and melt the solder just now with a soldering iron at the same time.
 - 1.4>.After aligning each pad and pin, use tweezers to place the IC on PCB.
 - 1.5>.Remove soldering iron and hold IC by tweezers for about 5 second to waiting for fix pin.
 - 1.6>.Fix other pins and pads.
- 2>.Step 2: Install 2pcs 20Kohm Metal Film Resistors at R1,R2.
- 3>.Step 3: Install 1pcs Micro USB Socket at USB1.
- 4>.Step 4: Install 2pcs 0.1uF 104 Monolithic capacitor at C4,C7.
- 5>.Step 5: Install 2pcs 330pF 331 Monolithic capacitor at C5,C6.
- 6>.Step 6: Install 1pcs 5Pin Toggle Switch at S1.
- 7>.Step 7: Install 1pcs VS1838B Infrared receiver at M2. Be careful to bend the pins of the receiver first.**Note: This version does not support remote control, so you can not install VS1838B.**
- 8>.Step 8: Install 2pcs 100uF Electrolytic Capacitor at C1,C2.Pay attention to distinguish between positive and negative.The Longer pin is positive pole and connect to square pad.
- 9>.Step 9: Connect 0.5W 8ohm Speaker to LS1 by 2pcs 5cm Red Wires. The speakers do not need to distinguish between positive and negative poles, and can be connected arbitrarily. **Note: This version does not support music, so you can not install speaker.**
- 10>.Step 10: Install 1pcs DIP-28 IC Socket at U1.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.
- 11>.Step 11: Install 12pcs 200ohm Metal Film Resistors on 12pcs Scalloped PCB. Install a resistor on each PCB.
- 12>.Step 12: 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:
 - 12.1>.According to the length of the LED lead to distinguish. The longer pin is positive(anode) lead. The shorter pin is negative(cathode) lead.
 - 12.2>.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.
 - 12.3>.Identify by edge of plastic case.The negative(cathode) lead of the LED should be the pin nearest the flat on the plastic case.
 - 12.4>.Test by 3V battery or multimeter.The pin is positive(anode) lead which has connect to the positive of 3V if LED can light up after connect 3V power supply.(LED should not be powered directly from the 3V for a short time:less then 0.5second)
 - 12.5>.It is positive(anode) where the white mark " + " pointing to on PCB.
- 13>.Step 13: Bend the metal pins of the LED as shown for easy mounting.
- 14>.Step 14: LED are mounted on the green side of the PCB. Excess pins can be bent for easy to fix LED when mounting.
- 15>.Step 15: Install 36pcs RGB LED on 12pcs PCB board by the same methods.
- 16>.Step 16: Install 1pcs DIP-28 IC IAP15W408AS at U1.There is a gap mark on one end of the IC and there is a gap mark on DIP-28 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.
- 17>.Step 17: Splicing 2pcs main PCB board, pay attention to align the fixing points, and then fix it with solder tin wire.
- 18>.Step 18: Place the speakers as shown.
- 19>.Step 19: Align and fix the small triangle PCB on top.Note:It needs to be connected with the PCB board below by metal wire or tin, otherwise the circuit will not work properly. Then input 5V to test speaker and remote controller.
- 20>.Step 20: Fix the largest sector PCB on the largest PCB as shown. Take care to align the fixed points.
- 21>.Step 21: Install the bottom layer of the sector PCB by the same methods.
- 22>.Step 22: Install the middle layer of the sector PCB by the same methods.
- 23>.Step 23: Install the top layer of the sector PCB by the same methods.
- 24>.Step 24: Install 1pcs RGB LED on the top and pay attention to the positive and negative poles.

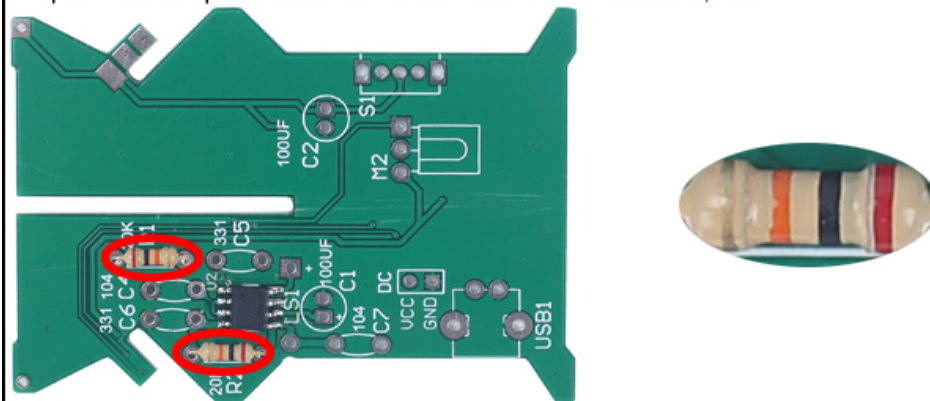
8. Install shown steps:

Step 1: Install 1pcs SOP-8 MD8002A Amplifier at U2. Tips:

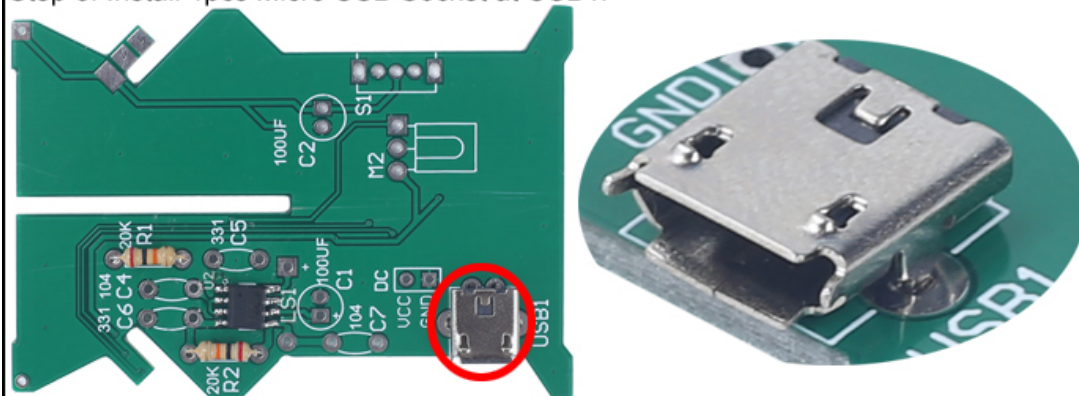
- 1.1>.Confirm the installation direction: There is a white dot on PCB and there is a mark(dot) on IC. These two marks are corresponding to each other and are used to specify the installation direction.
- 1.2>.Place tin on one pad.
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- 1.4>.After aligning each pad and pin, use tweezers to place the IC on PCB.
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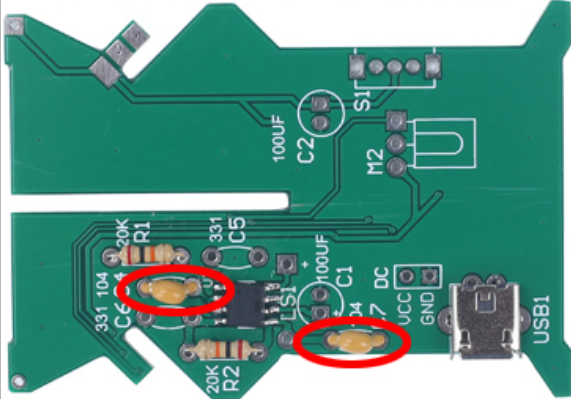
Step 2: Install 2pcs 20Kohm Metal Film Resistors at R1,R2.



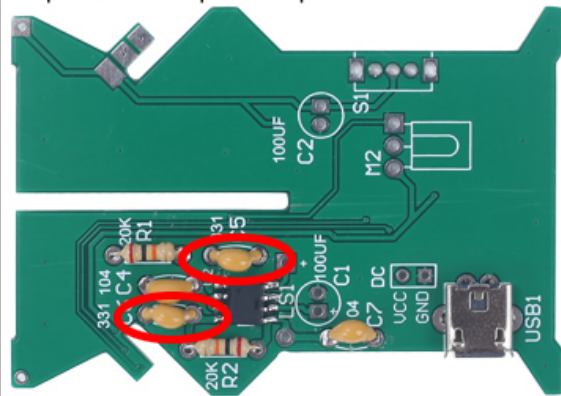
Step 3: Install 1pcs Micro USB Socket at USB1.



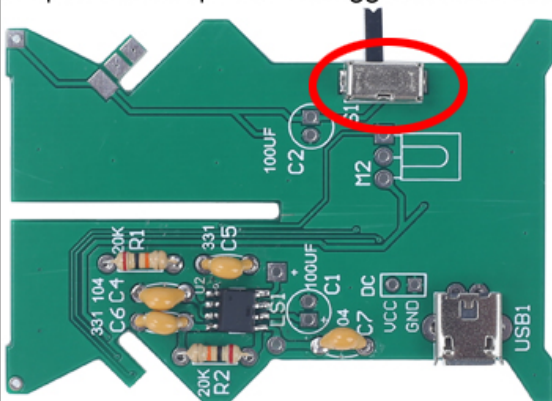
Step 4: Install 2pcs 0.1uF 104 Monolithic capacitor at C4,C7.



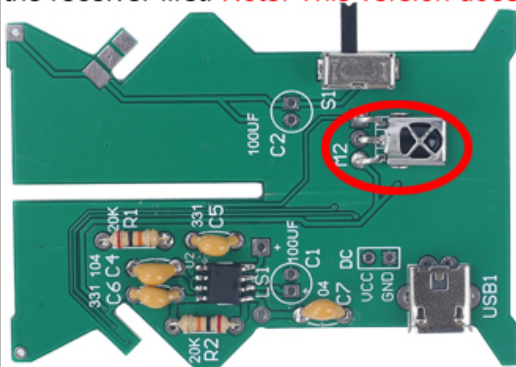
Step 5: Install 2pcs 330pF 331 Monolithic capacitor at C5,C6.



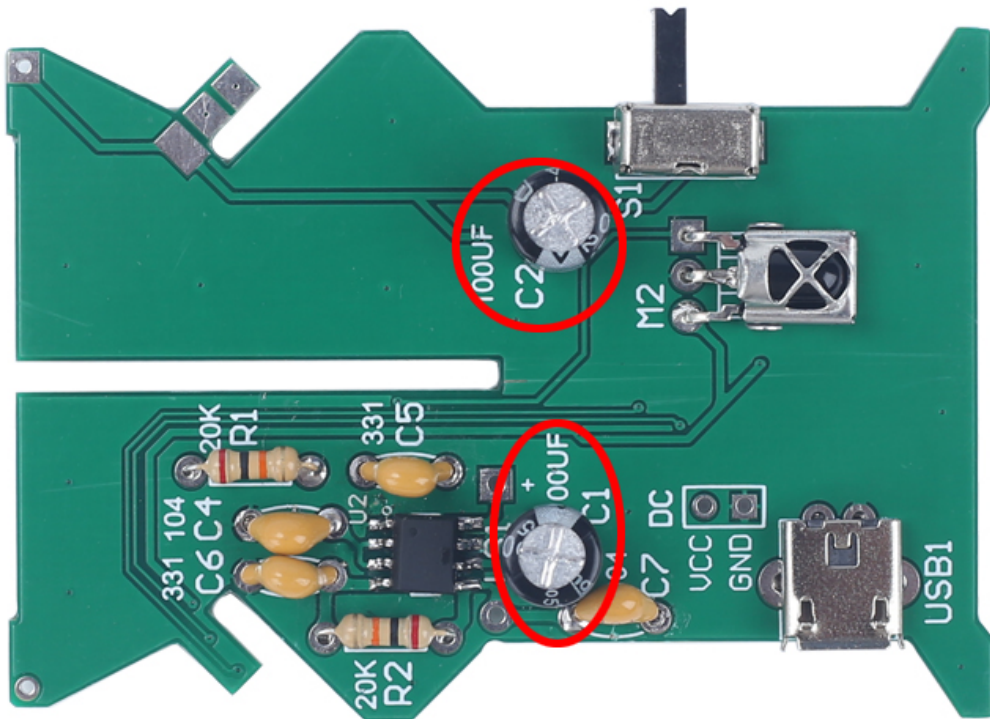
Step 6: Install 1pcs 5Pin Toggle Switch at S1.



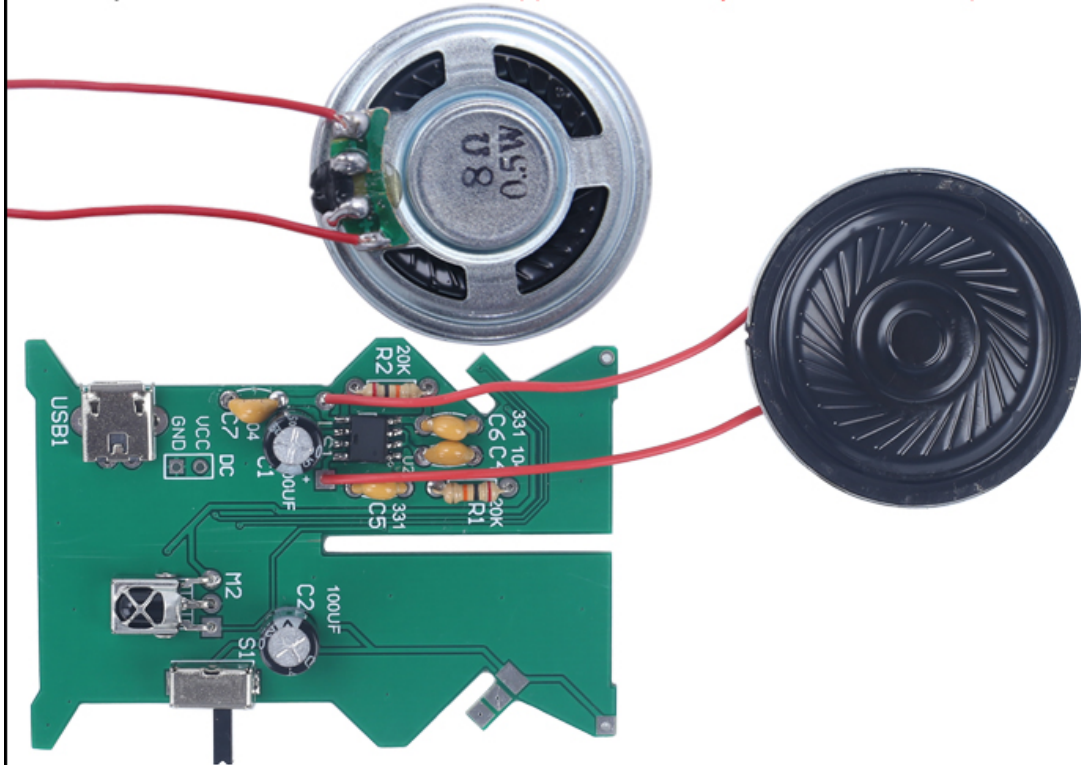
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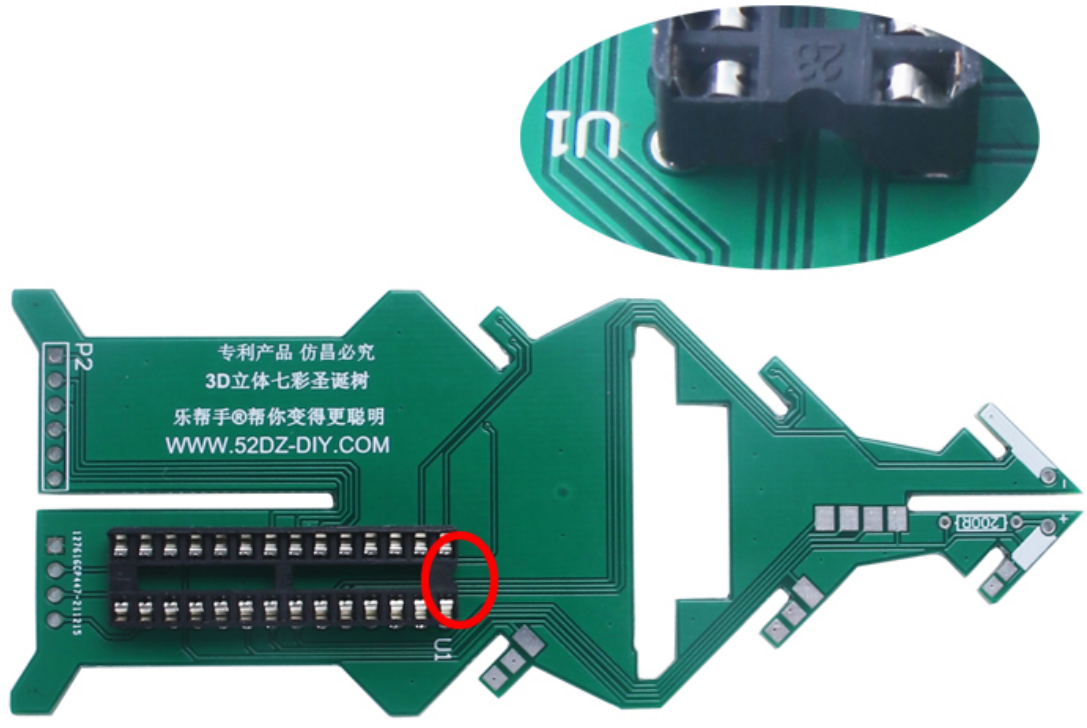
Step 8: Install 2pcs 100uF Electrolytic Capacitor at C1,C2. Pay attention to distinguish between positive and negative. The Longer pin is positive pole and connect to square pad.



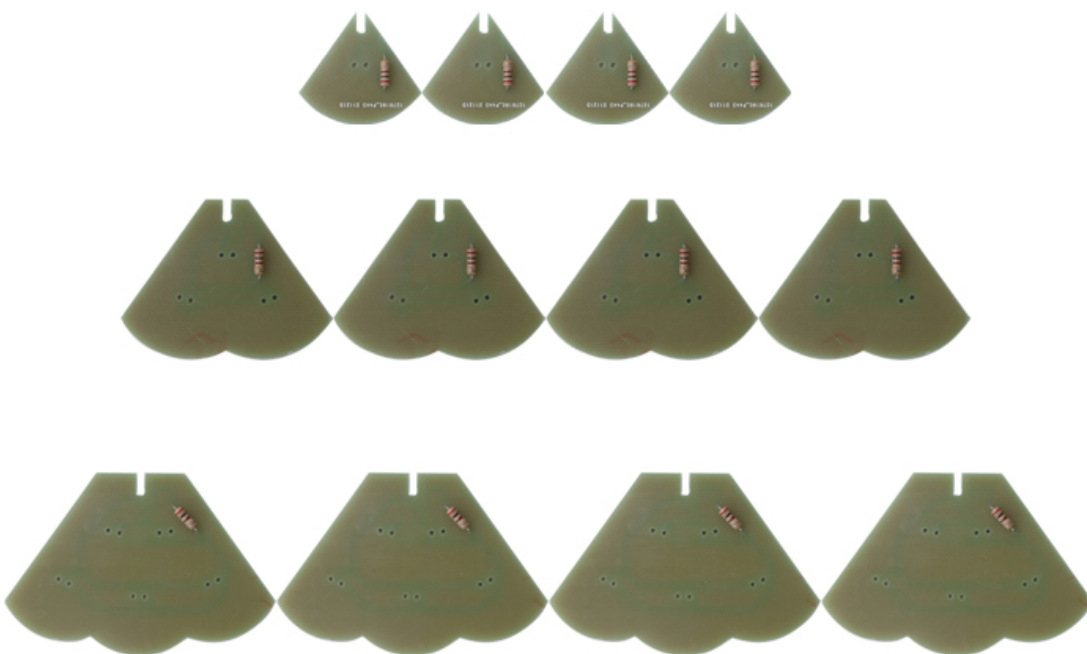
Step 9: Connect 0.5W 8ohm Speaker to LS1 by 2pcs 5cm Red Wires. The speakers do not need to distinguish between positive and negative poles, and can be connected arbitrarily. **Note: This version does not support music, so you can not install speaker.**



Step 10: Install 1pcs DIP-28 IC Socket at U1. 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 11: Install 12pcs 200ohm Metal Film Resistors on 12pcs Scalloped PCB. Install a resistor on each PCB.



Step 12: 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:

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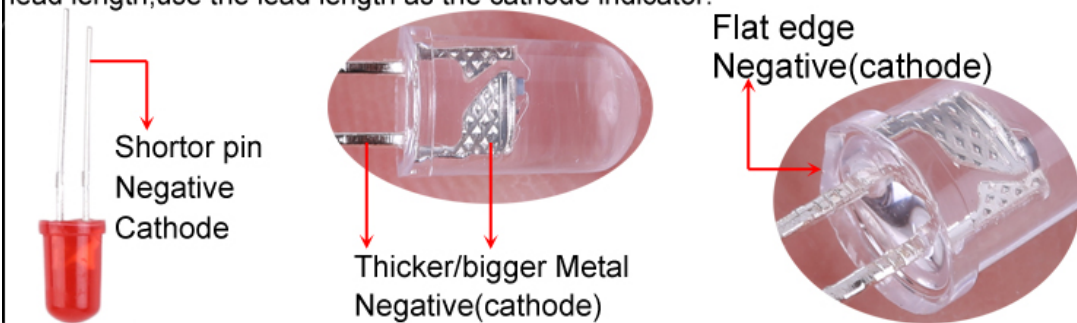
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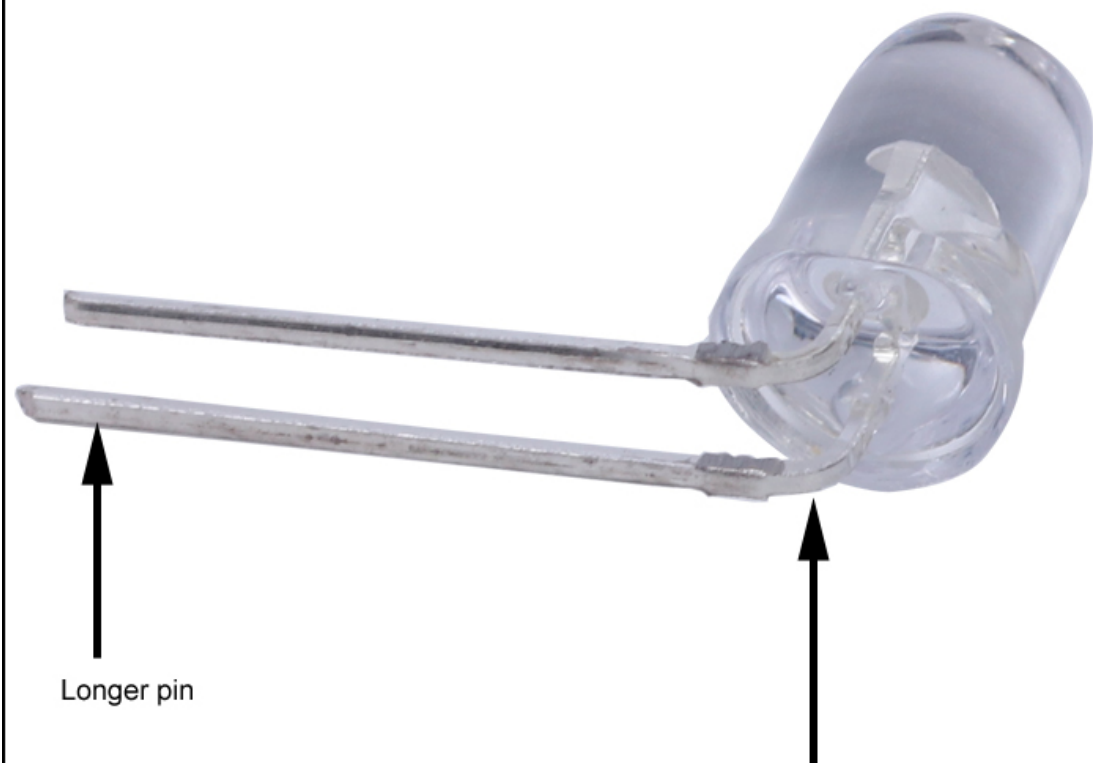
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(LED can not be powered directly from 3V for a short time:less then 0.5second)

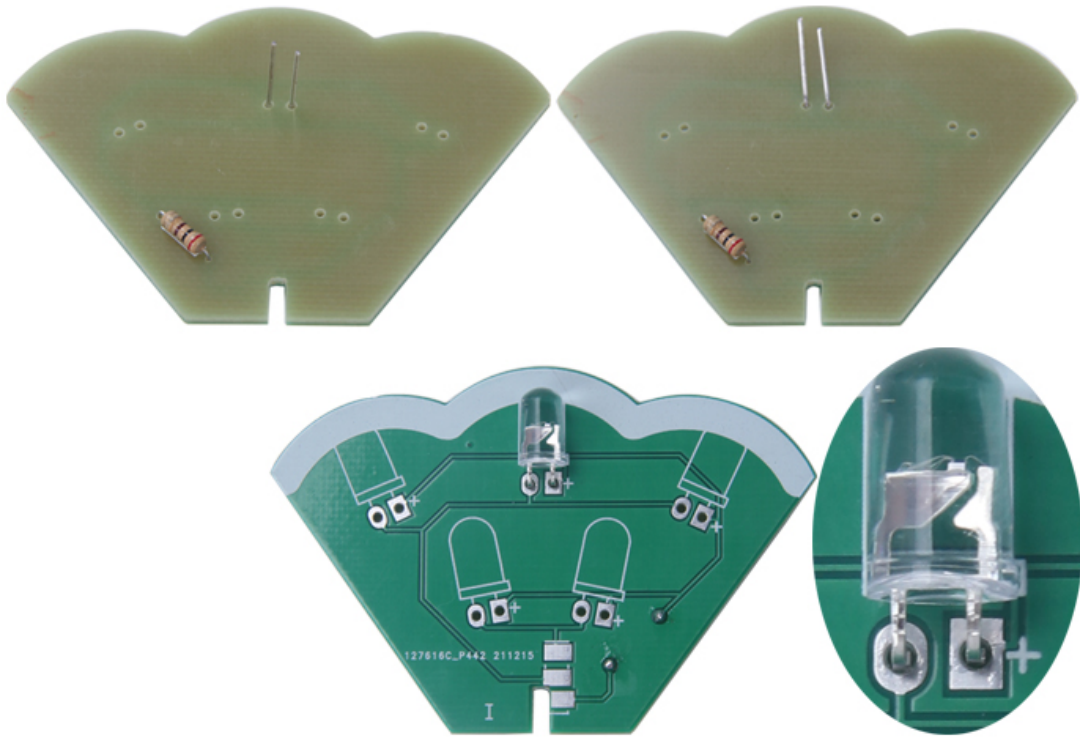
12.5>.Note:If the flat on package disagrees with other indicators(short lead,large cathode lead end), then other indicators take priority. I.e. if the flat disagrees with the lead length,use the lead length as the cathode indicator.



Step 13: Bend the metal pins of the LED as shown for easy mounting.



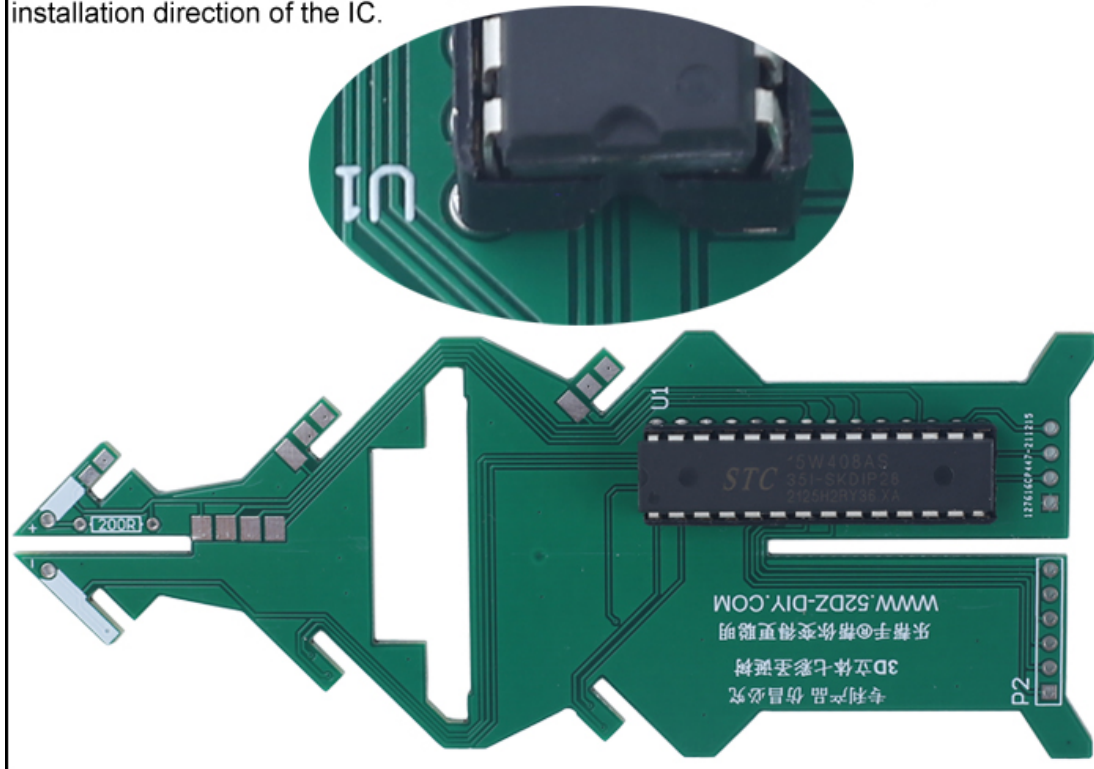
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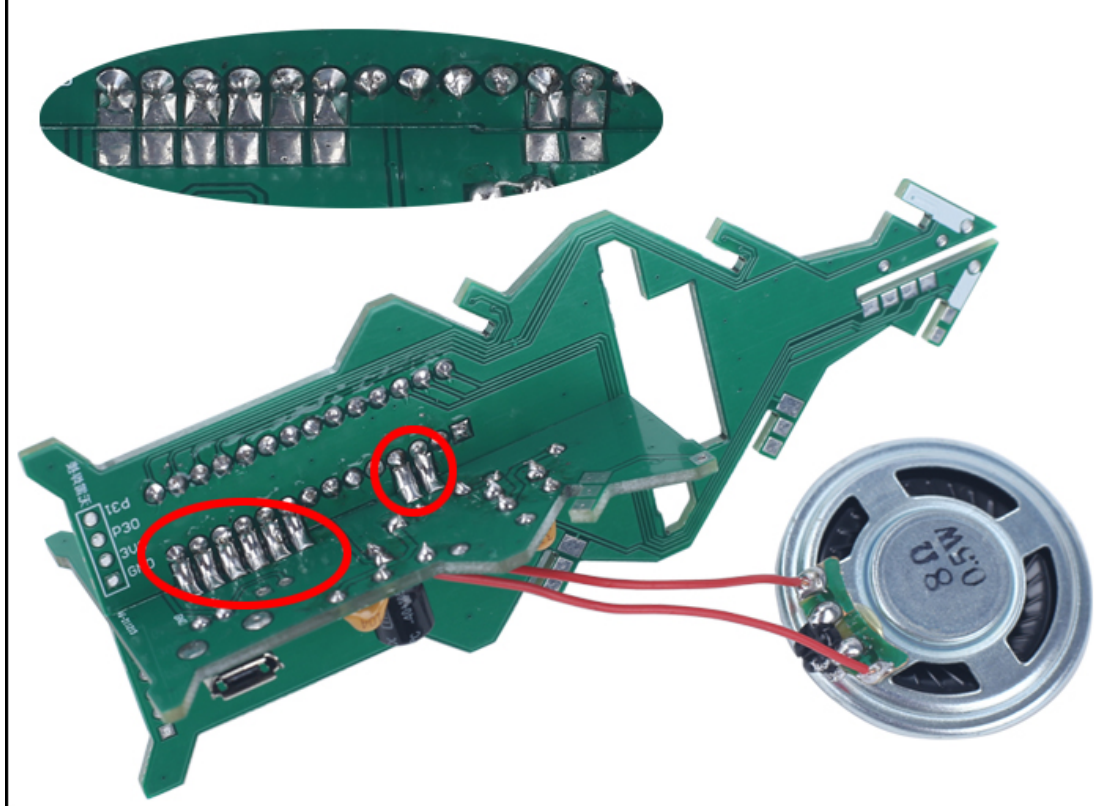
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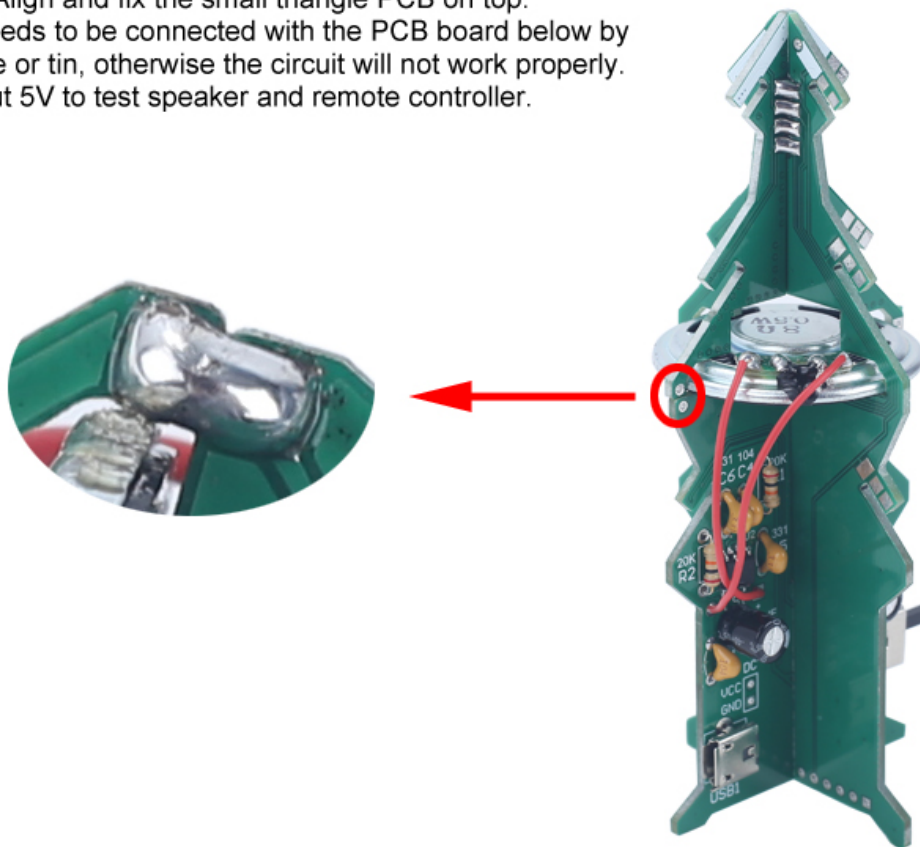
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