



instructables

DIY 3D Christmas Tree Kit With RGB Flashing LEDs



by ICStation

Introduction

CTR-30 flash Christmas tree kit consists of three circuit board, allows 36 LEDs flash alternately, showing a Christmas tree in the space of three-dimensional profile (the night environment has better viewing).

Advantages:

This circuit is simple and practical, low power consumption. It uses integrated circuits for driving: fewer parts, and the line is simple and easy to understand.



Step 1: Details About This Christmas Kit

Parameter:

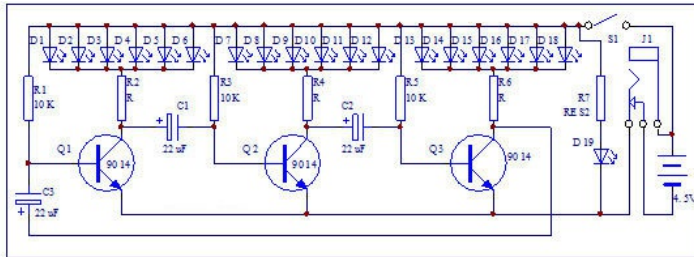
Model: CTR-30C

Work Voltage: DC4.5-5V

Power Type: AA*3 battery or USB Cable

Installation Size: 60mm*136mm*60mm

Connection Diagram:



Step 2: Component Listing

Check this listing and make sure that you get all the components in this package!

NO.	Component Name	PCB Marker	Parameter	QTY
CTR-30A				
1	Metal Film Resistor	R6	330ohm	1
2	Metal Film Resistor	R4	1K	1
3	Metal Film Resistor	R2	2K	1
4	Metal Film Resistor	R1,R3,R5,R7	10K	4
5	Electrolytic Capacitor	C1-C3	47uF 16V	3
6	Red LED	D1-D6,D19	3mm	7
7	Yellow LED	D7-D12	3mm	6
8	Green LED	D13-D18	3mm	6
9	S9014 Transistor	Q1-Q3	TO-92	3
10	PCB	CTR-30A		1

CTR-30B				
11	Metal Film Resistor	R6	330ohm	1
12	Metal Film Resistor	R4	1K	1
13	Metal Film Resistor	R2	2K	1
14	Metal Film Resistor	R1,R3,R5	10K	3
15	Electrolytic Capacitor	C1-C3	47uF 16V	3
16	Green	D1-D6	3mm	6
17	Yellow	D7-D12	3mm	6
18	Red	D13-D18	3mm	6
19	S9014 Transistor	Q1-Q3	TO-92	3
20	PCB	CTR-30B		1

CTR-30C				
21	Self-Locking Switch	S1	5.8mm	1
22	DC Power Socket	J1	3.5mm	1
23	Battery Box		AA*3	1
24	USB to DC 3.5mm Cable		80cm	1
25	Screw		M2*8mm	2
26	Nut		M2	2
27	PCB	CTR-30C		1

NOTE: Users can complete the installation by PCB silk screen and component listing; Battery is not included in this package.

Step 3: Component Description

- 1>. 1pcs 330ohm Metal Film Resistor
- 2>. 1pcs 1K Metal Film Resistor
- 3>. 1pcs 2K Metal Film Resistor
- 4>. 4pcs 10K Metal Film Resistor
- 5>. 3pcs 47uF 16V Electrolytic Capacitor
- 10>. 1pcs PCB CTR-30A
- 11>. 1pcs 330ohm Metal Film Resistor
- 12>. 1pcs 1K Metal Film Resistor
- 13>. 1pcs 2K Metal Film Resistor
- 14>. 3pcs 10K Metal Film Resistor
- 15>. 3pcs 47uF 16V Electrolytic Capacitor
- 16>. 6pcs 3mm Green LED
- 17>. 6pcs 3mm Yellow LED
- 18>. 6pcs 3mm Red LED
- 19>. 3pcs S9014 Transistor
- 6>. 7pcs 3mm Red LED
- 7>. 6pcs 3mm Yellow LED
- 8>. 6pcs 3mm Green LED
- 9>. 3pcs S9014 Transistor
- 20>. 1pcs PCB CTR-30B
- 21>. 1pcs Self-Locking Switch
- 22>. 1pcs 3.5mm DC Power Socket
- 23>. 1pcs AA*3 Battery Box
- 24>. 1pcs USB to DC 3.5mm Cable
- 25>. 2pcs Screw M2*8mm
- 26>. 2pcs Nut M2
- 27>. 1pcs PCB CTR-30C



Step 4: Installation Steps-Install CTR-30A

Step 1: Install 1pcs Metal Film Resistor 330ohm on R6, 1pcs 1K on R4, 1pcs 2K on R2

Step 2: Install 3pcs 10K Metal Film Resistor on R1,R3,R5

Step 3: Install 1pcs 10K Metal Film Resistor on R7

Step 4: Install 6pcs Red LED on D1-D6.

Tips:

A. Note the direction of the LED

B. Control distance between PCB edge and LED head(**Two ways**).

1). User can bend the LED pin at first after

determining the distance and then insert LED to PCB through hole;

2). Insert LED to PCB through hole at first. Then determine the distance. Bend the LED pin at last.

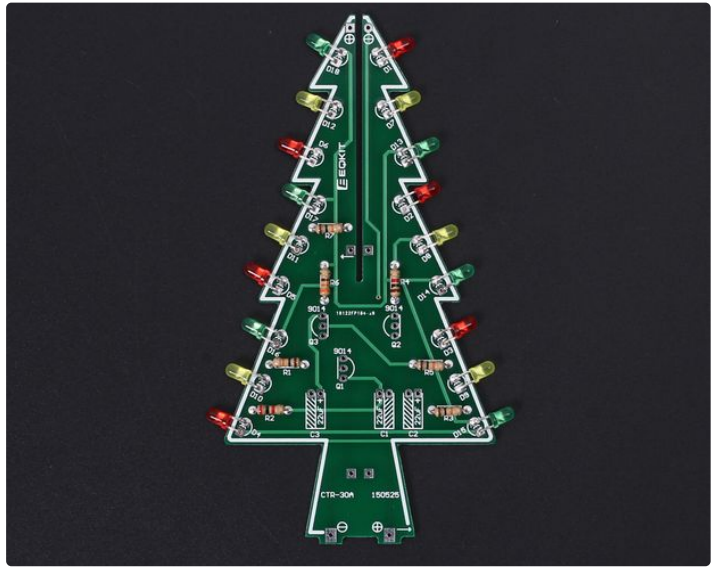
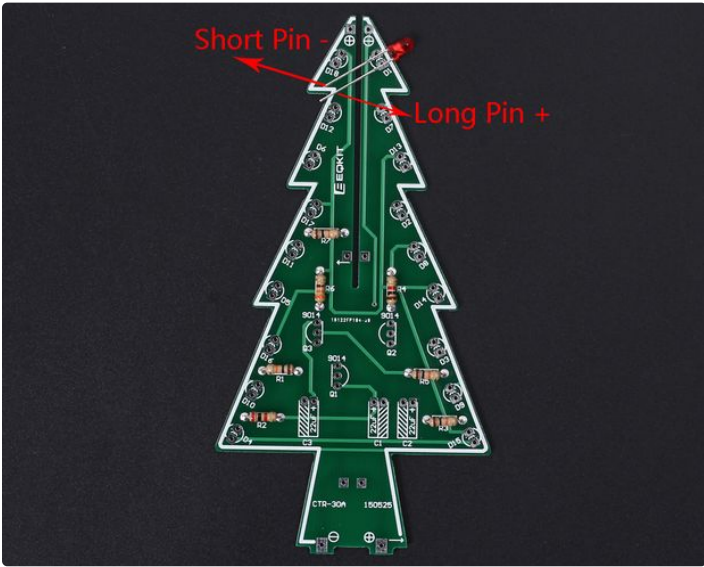
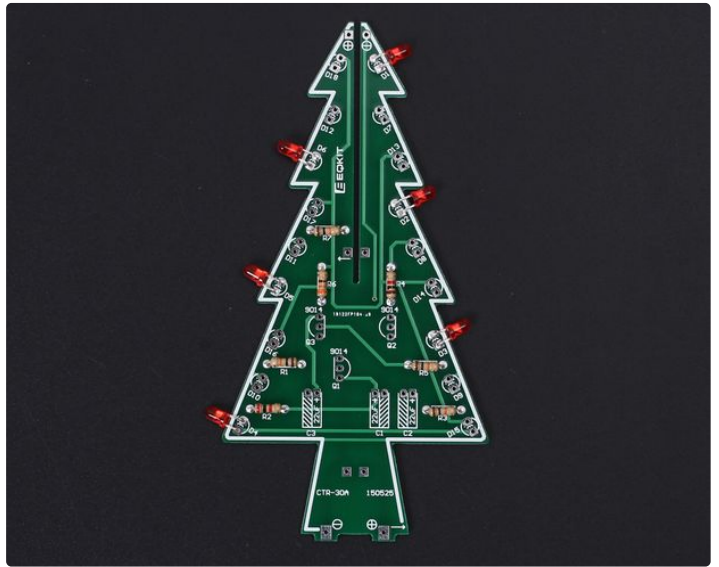
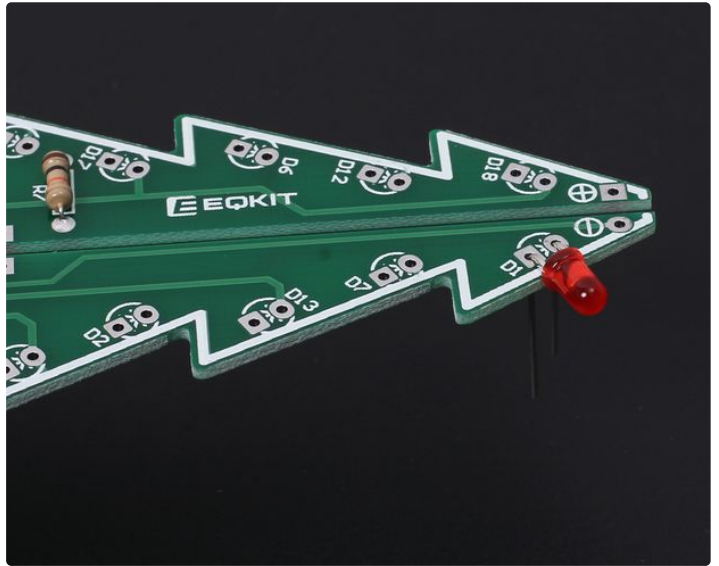
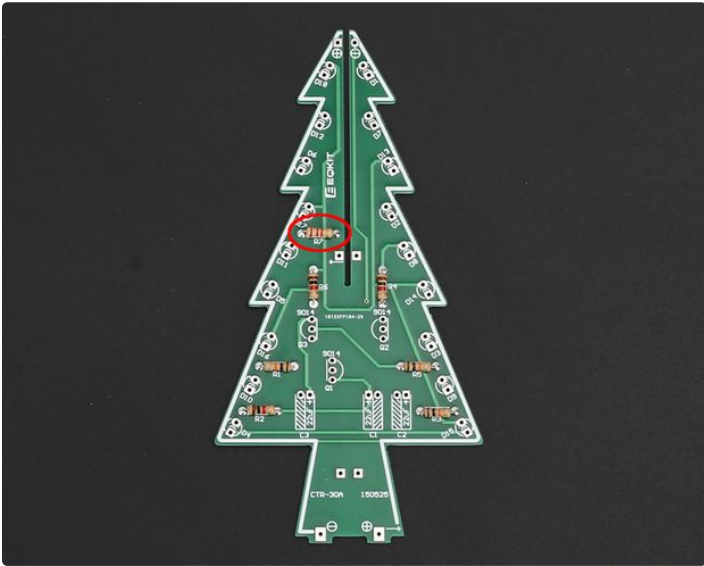
Step 5: Install 6pcs Yellow LED on D7-D12, 6pcs Green LED on D13-D18

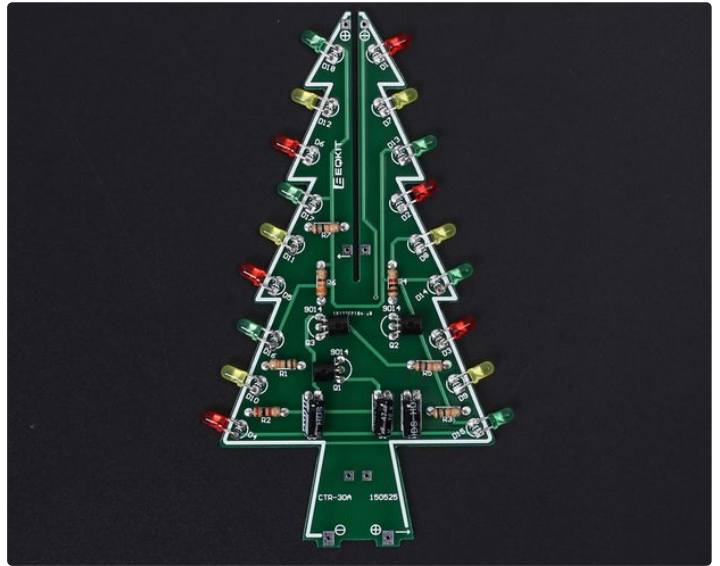
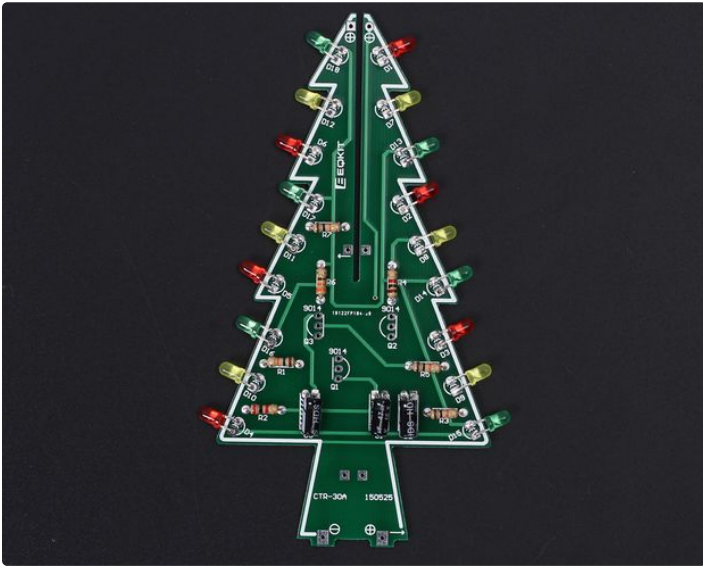
Step 6: Install 3pcs 47uF 16V Electrolytic Capacitor

Step 7: Install 3pcs TO-92 S9014 Transistor

Tips: It is better to bend S9014's pin so that 2pcs PCB CTR-30A and CTR-30B can better splicing. OK, CTR-30A has been installed completed.







Step 5: Installation Steps-Install CTR-30B

Step 8: Install 1pcs Metal Film Resistor 330ohm on R6, 1pcs 1K on R4, 1pcs 2K on R2

Step 9: Install 3pcs 10K Metal Film Resistor on R1,R3,R5

Step 10: Install 6pcs Green LED on D1-D6.

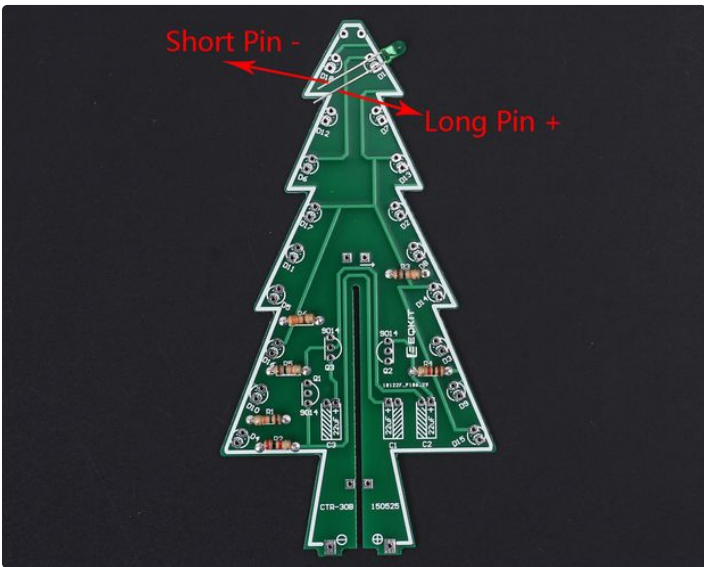
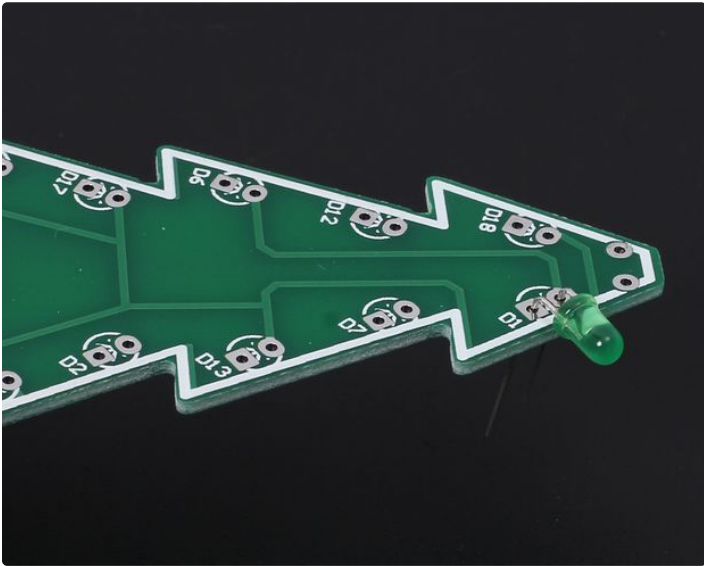
Step 11: Install 6pcs Red LED on D7-D12, 6pcs Yellow LED on D13-D18

Step 12: Install 3pcs 47uF 16V Electrolytic Capacitor

Step 13: Install 3pcs TO-92 S9014 Transistor

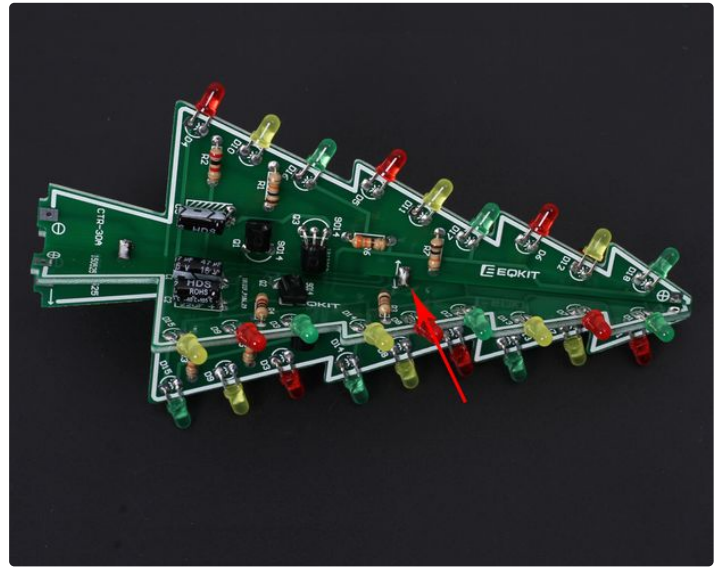
Step 14: Connect 5V to CTR-30A and CTR-30B.
Preliminary welding success if LEDs are blinking automatically





Step 6: Installation Steps-Stitching CTR-30A and CTR-30B

Step 15: Align the two positioning heads on CTR-30A and CTR-30B and then fixed with tin.



Step 7: Installation Steps-Install CTR-30C

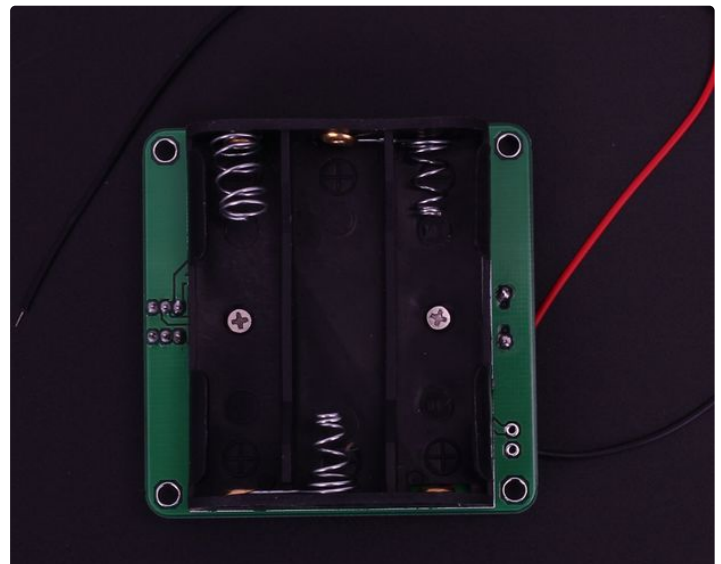
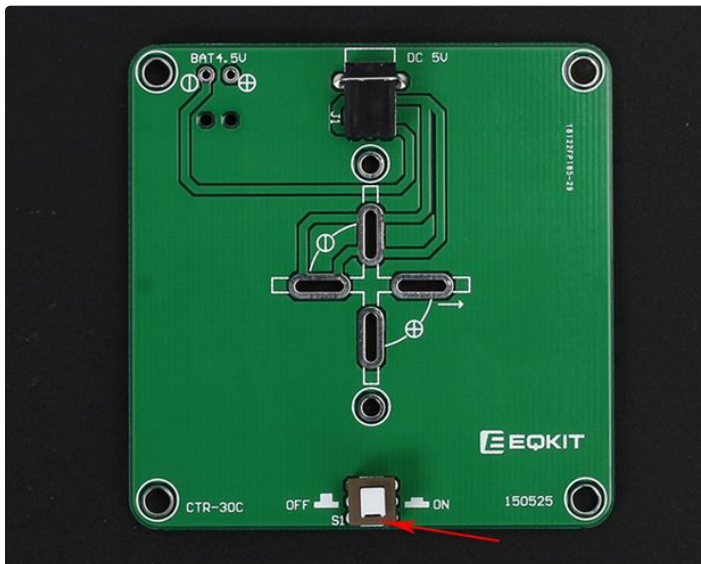
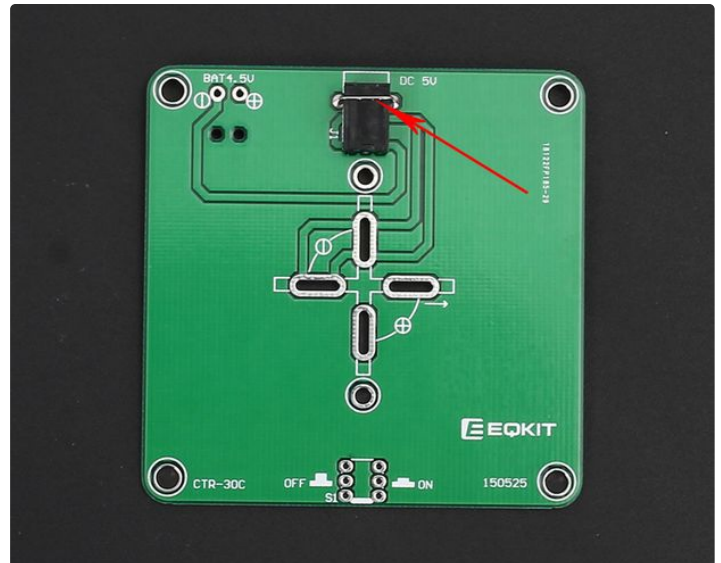
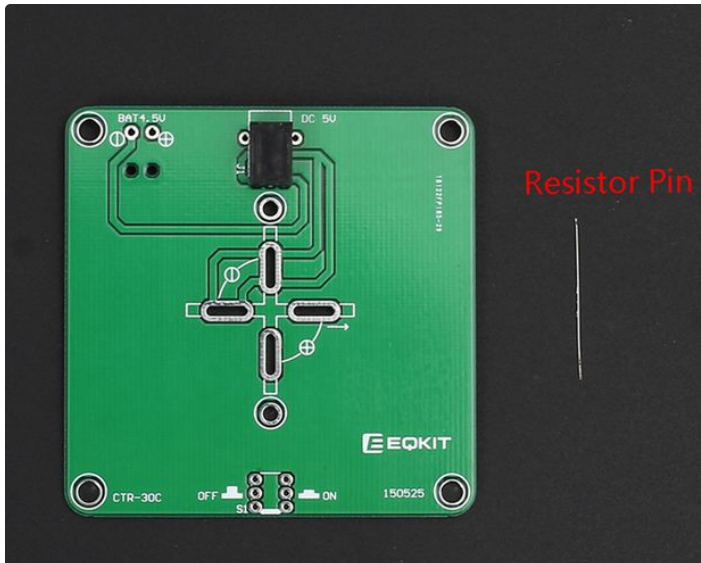
Step 16: Install Power Socket. Use a superfluous pin to fix the power supply socket. This pin can come from a resistor.

Step 17: Install 1 pcs Self-Locking Switch. Note the direction of the switch. The concave side is close to the PCB edge.

Step 18: Install battery box and fix by screw/nut. Tips: First peel the insulation of the wire, and then welding fixed, and then cut off the excess wire

Step 19: Fix CTR-30A and CTR-30B on CTR-30C. Align the two positioning heads and then fix with tin.

Step 20: Install the top LED. Note the positive and negative of the LED. At this point, the installation is complete!!





Step 8: Effect Demonstration

When you finish all the steps, you get a beautiful 3D Christmas Tree Kit with RGB flashing leds.

That would be a good choice for your Christmas projects 2017, and enjoy this easy soldering with your

kids. Video will be added soon. How do you like this Christmas Kit? Share your ideas and similar projects with us ^^





That's so adorable! My nephew is starting to get interested in electronics projects, I wonder if he'd like to try this. :)