

CAI-266-2 RGB LED Heart-shaped Flashing Lamp DIY Kit

1.Introduction:

CAI-266-2 is a RGB Colorful LED Heart-shaped Automatic Flashing Lamp Electronic Soldering DIY Kit. It is powered by two AAA button batteries, automatically flashing and change various lighting effects within 32 colorful RGB 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>.32 RGB Colorful LED Automatic Flashing
- 2>.Automatic Switch Flashing Effect
- 3>.Heart-shaped Appearance Design
- 4>.AAA*2 Power Supply Mode
- 5>.Multifunctional Transparent Shell
- 6>.Setting Free Parameters, Simple and Fast
- 7>.Interesting DIY Manual Soldering

3.Parameter:

- 1>.Work voltage: DC 3V
- 2>.Display Color: RGB
- 3>.Power Type: AAA*2 Battery(NOT Included)
- 4>.Work Temperature:-40℃~85℃
- 5>.Work Humidity:5%~95%RH
- 6>.Size(Installed):90*76*30mm

4.Use Method:

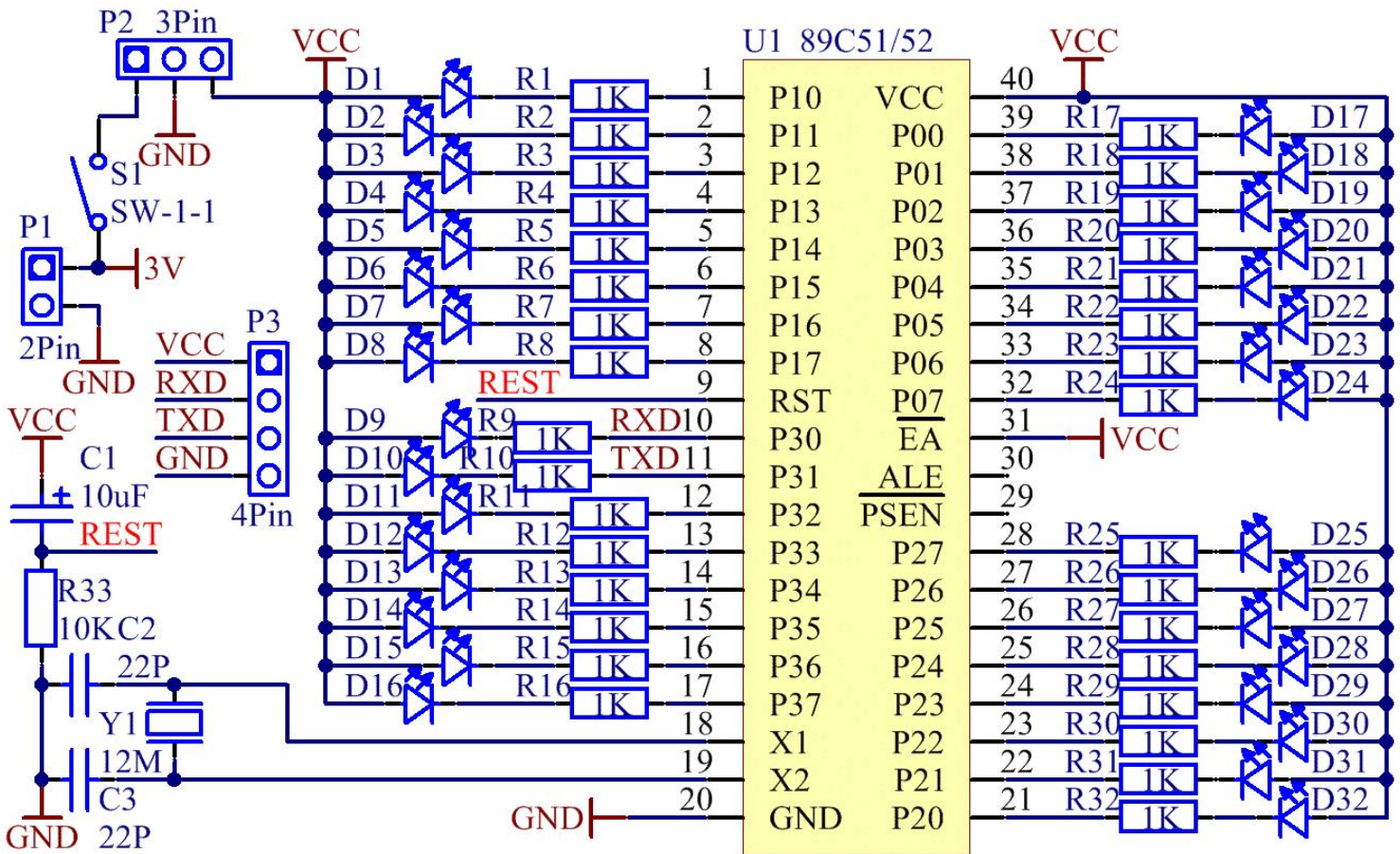
- 1>.Turn on the power switch and the LED will automatically enter the working state.
- 2>.Note: You can use tweezers to switch the status of the power switch.

5.Component Listing:

NO.	Component Name	PCB Marker	Parameter	QTY
1	Metal Film Resistor	R1-R32	1Kohm	32
2	Metal Film Resistor	R33	10Kohm	1
3	Ceramic Capacitor	C2,C3	22pF	2
4	5mm RGB LED	D1-D32	Flashing	32
5	Red Wire	3V+	4cm	1
6	Black Wire	3V-	4cm	1
7	Electrolytic Capacitor	C1	10uF	1
8	3Vto5V Boost Power Supply Module	P2	14*11mm	1
9	STC89C52RC Controller	U1	DIP-40	1
10	IC Socket	U1	DIP-40	1
11	Crystal Oscillator	Y1	12MHz	1
12	SMD Power Switch	S1	6Pin	1
13	Self Tapping Screw		7mm	1
14	Self Tapping Screw		5mm	1
15	Battery Metal Connector			3
16	Foam Spacer		50*23*3mm	1
17	Transparent Top Shell			1
18	Transparent Bottom Shell			1
19	PCB Circuit Board		84*68mm	1

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

6.Schematic Diagram:



7.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

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.

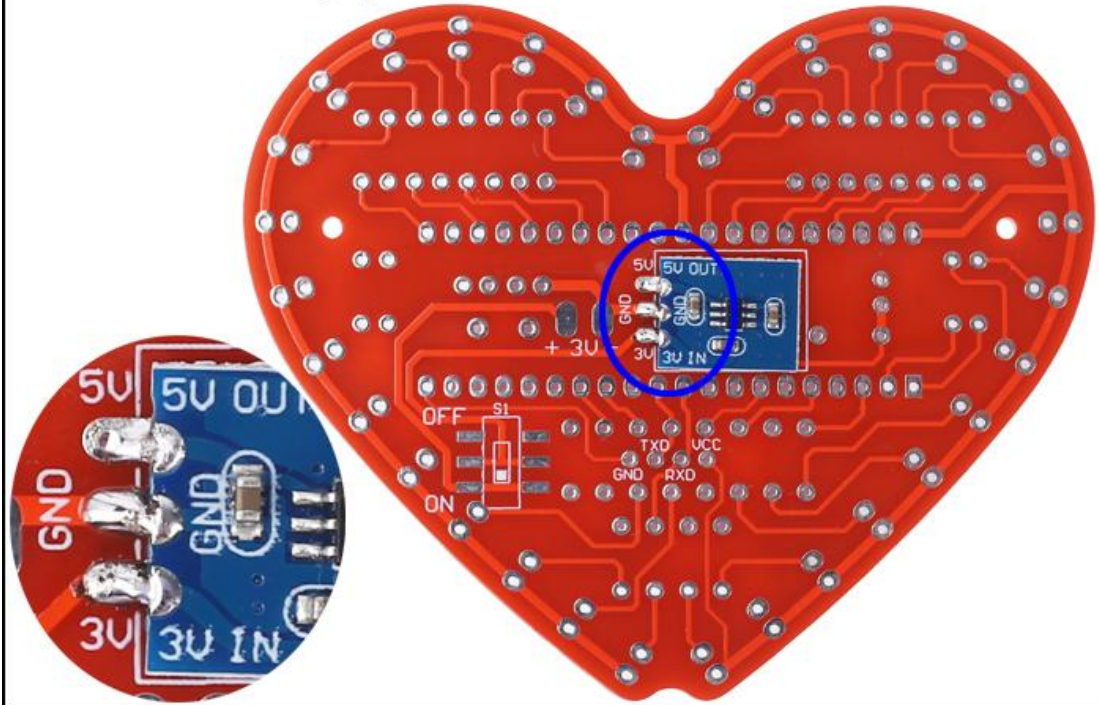
10>.It is strongly recommended to read the installation manual before starting installation!!!

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

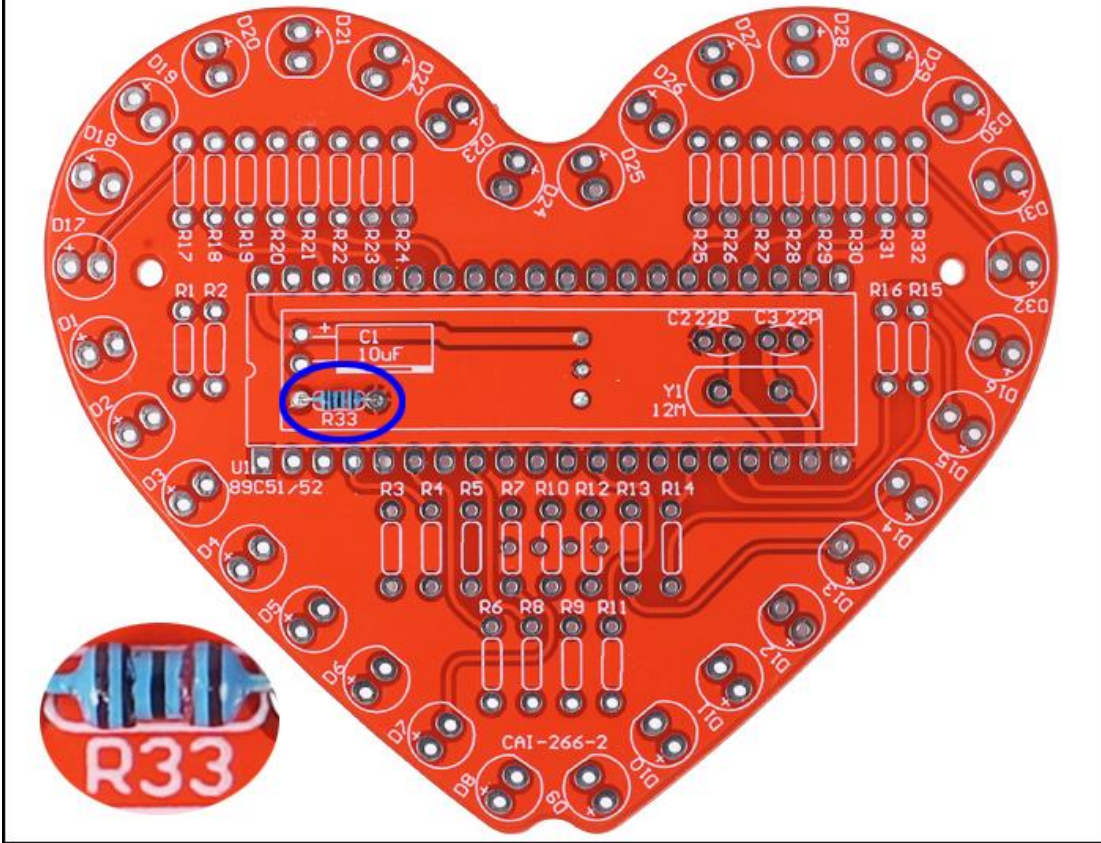
9.Installation Steps(Please be patient install!!!):

Step 1: Install 1pcs 3V to 5V Boost Power Supply Module at J1. Tips:

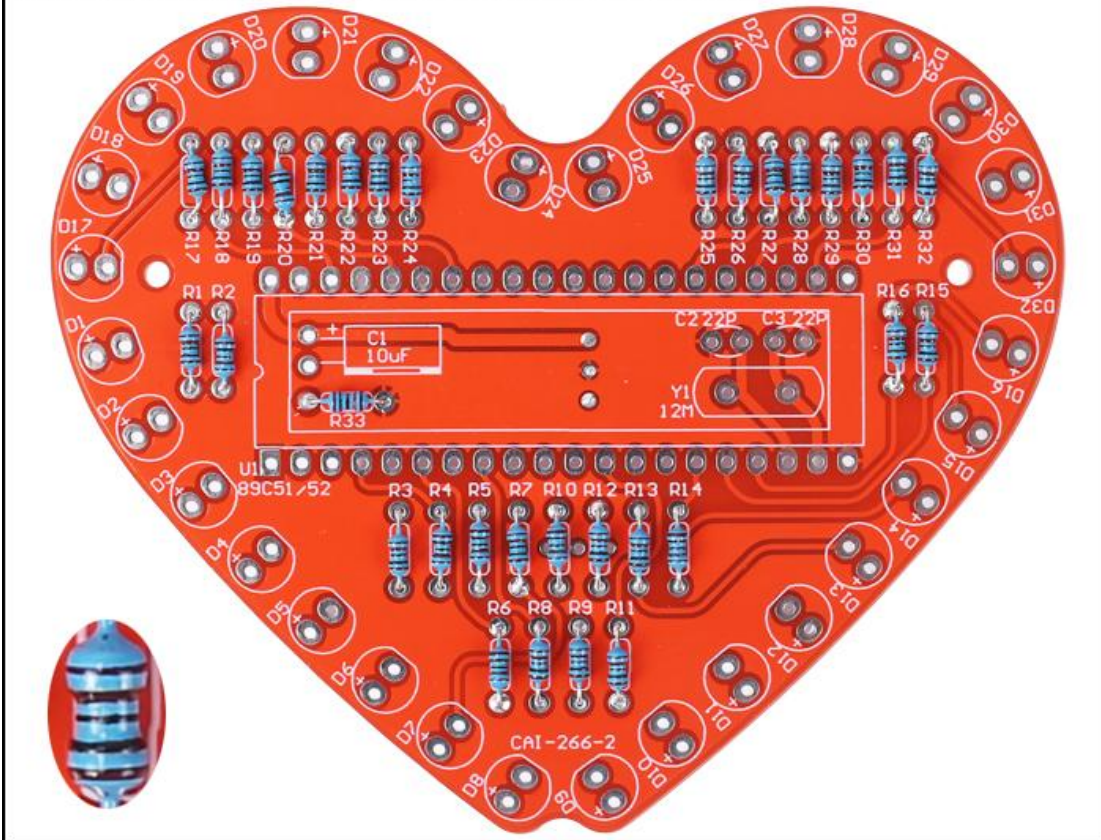
- 1.1>.One pad placement with melted tin.
- 1.2>.Melt this pad with soldering iron, clamp PCB with tweezers and place on pad after align.
- 1.3>.Weld the remaining 2 pads.



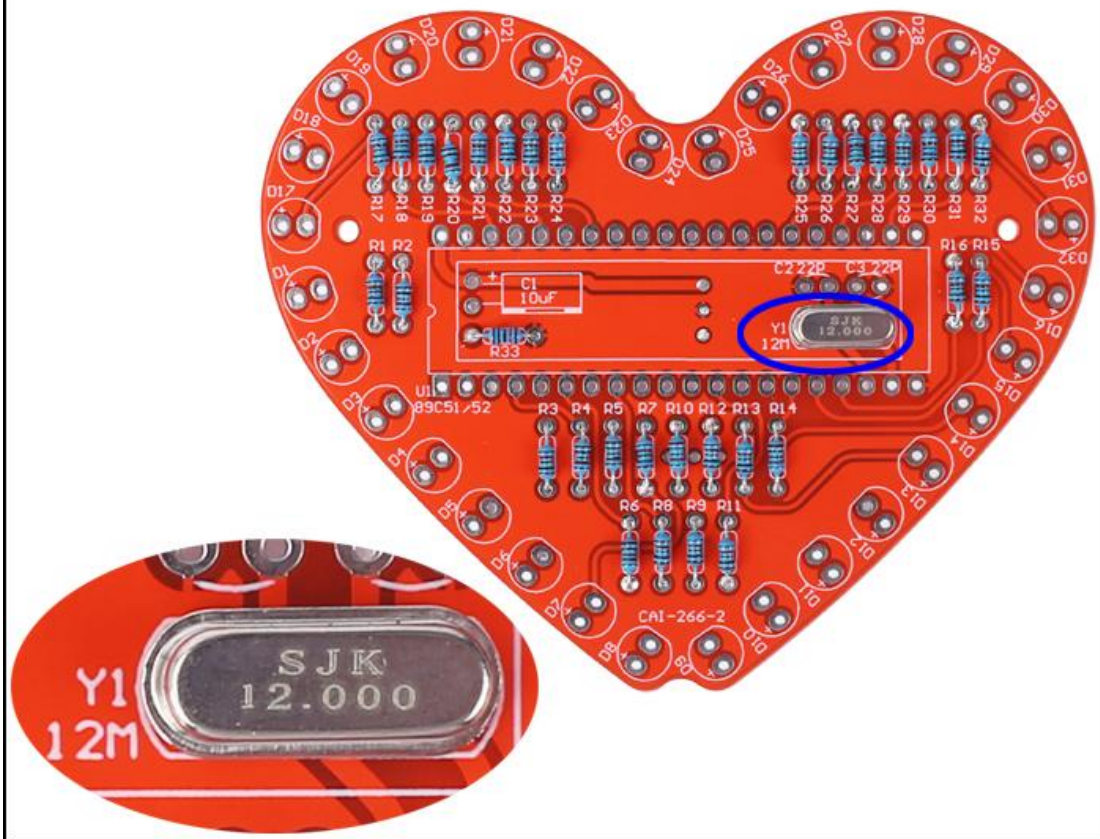
Step 2: Install 1pcs 10Kohm Metal Film Resistor at R33 on PCB another side.



Step 3: Install 32pcs 1Kohm Metal Film Resistor at R1-R32.



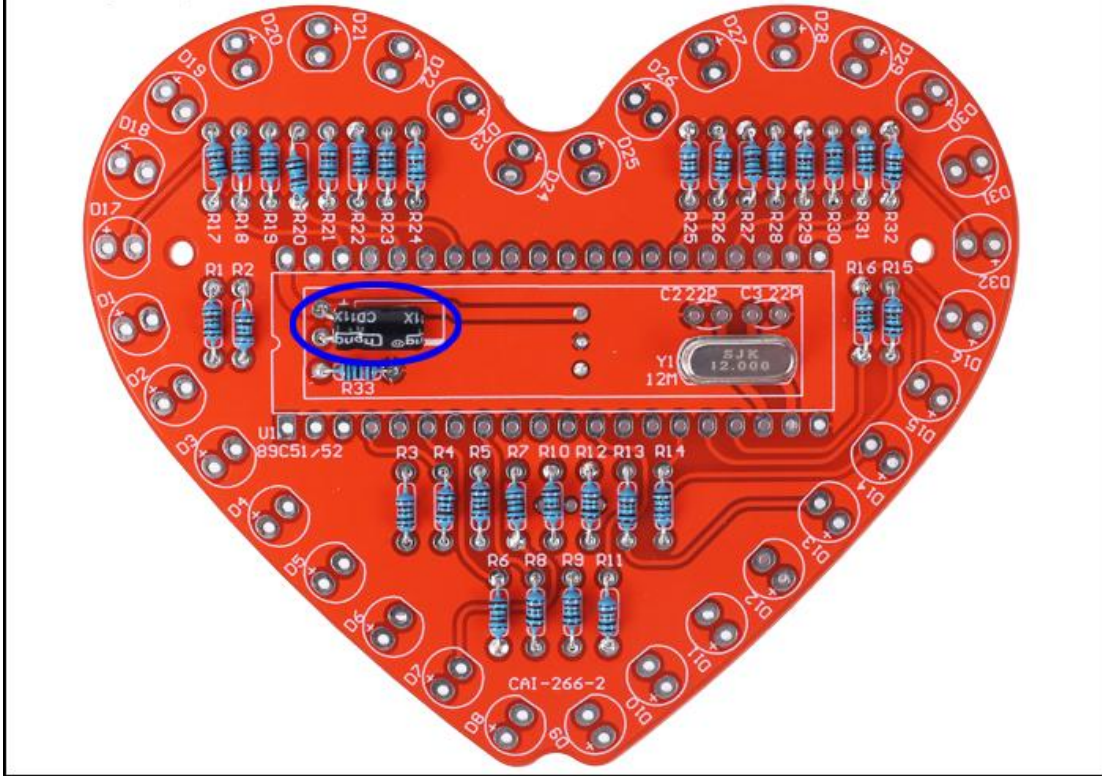
Step 4: Install 1pcs 12MHz Crystal Oscillator at Y1.



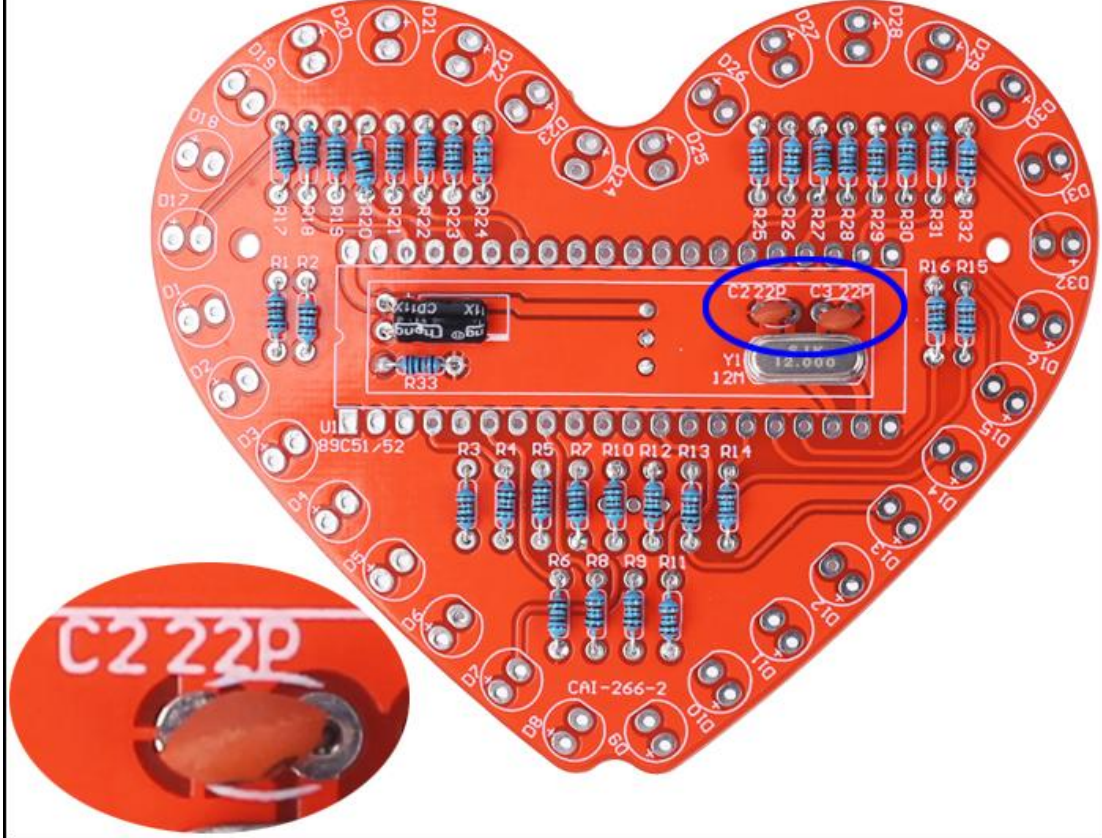
Step 5: Bend the pins of 10uF electrolytic capacitor about 2mm.



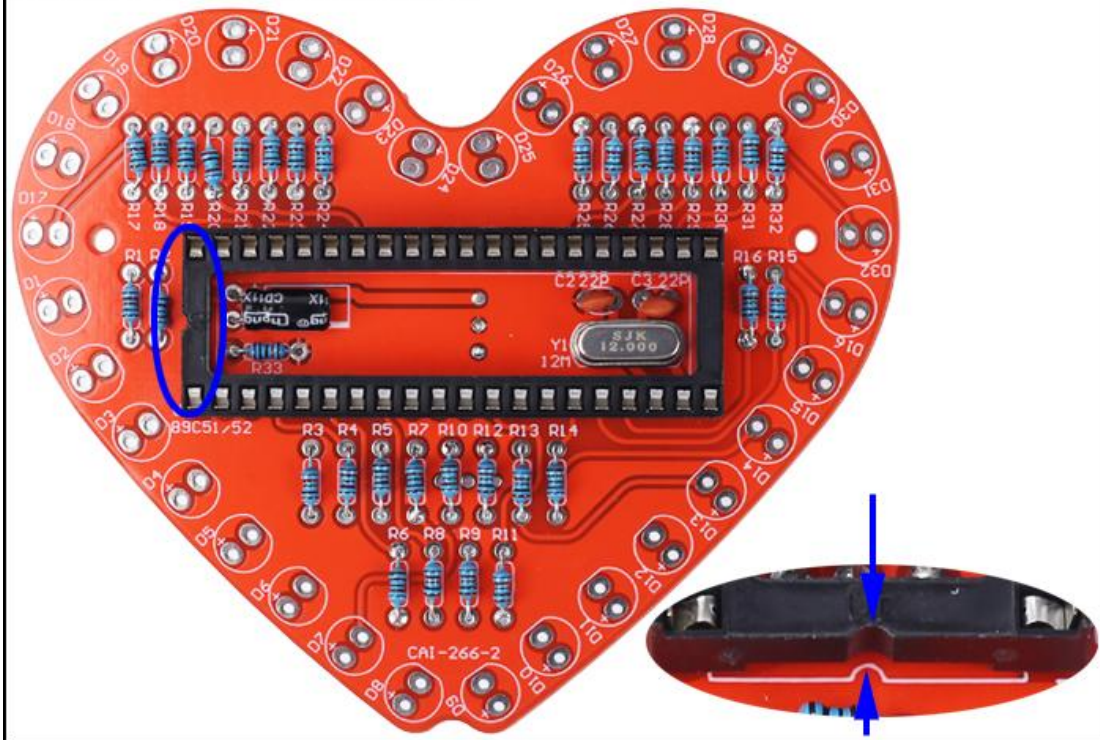
Step 6: Install this Electrolytic Capacitor at C7. The Longer pin is positive pole connect to ' + ' pad. Note: The capacitor needs to be placed horizontally. Otherwise, the following components cannot be installed.



Step 7: Install 2pcs 22pF Ceramic Capacitor at C2,C3.



Step 8: Install 1pcs DIP-40 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 9: 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:

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

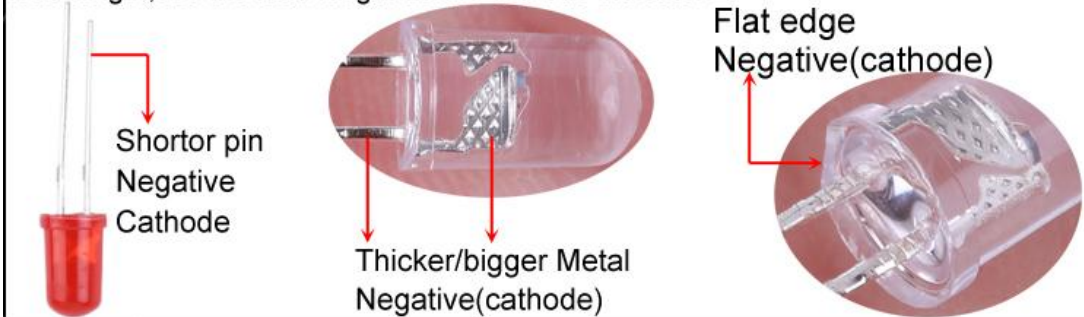
9.2>.Identify the negative(cathode) of the LED is to look into the plastic case where one can see that the negative(cathode) is much thicker/bigger inside the plastic case than the anode lead.

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

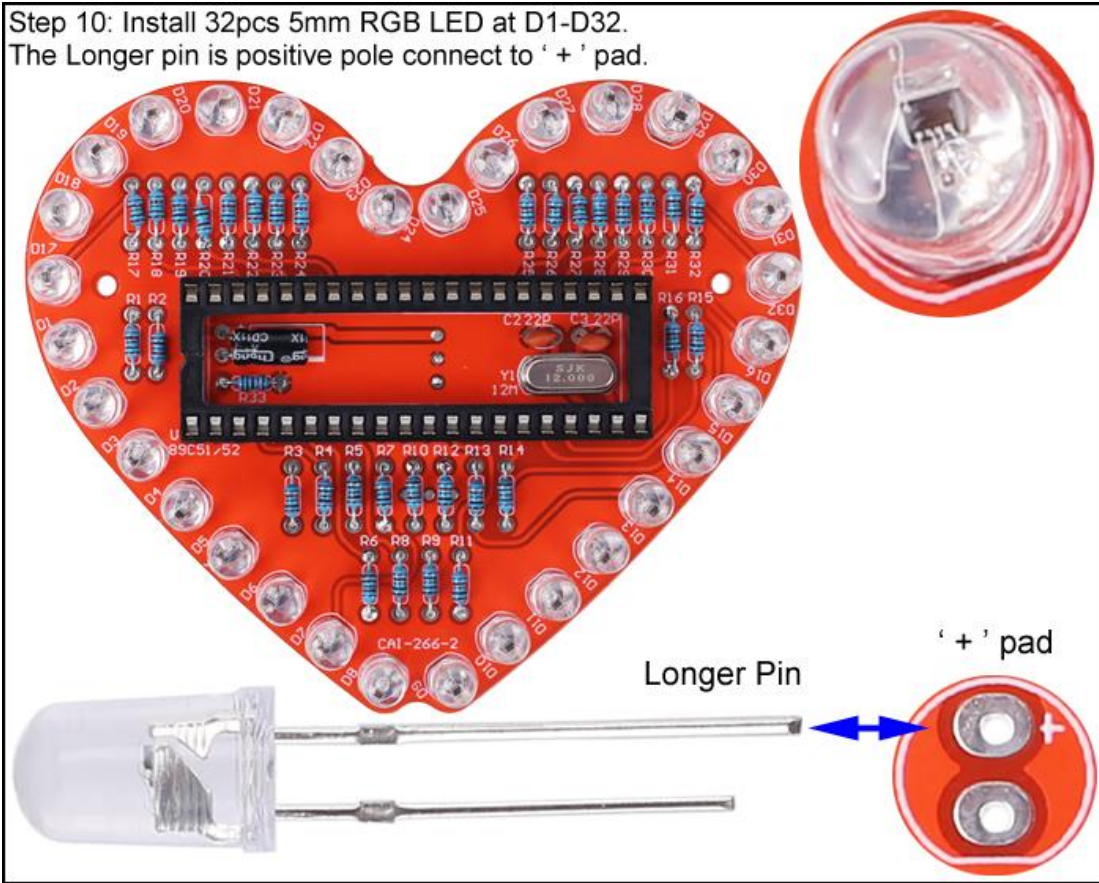
9.4>.Test by 3V battery or multimeter. The pin is positive(anode) lead which has connect to positive of 3V if LED can light up after connect 3V power supply.

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

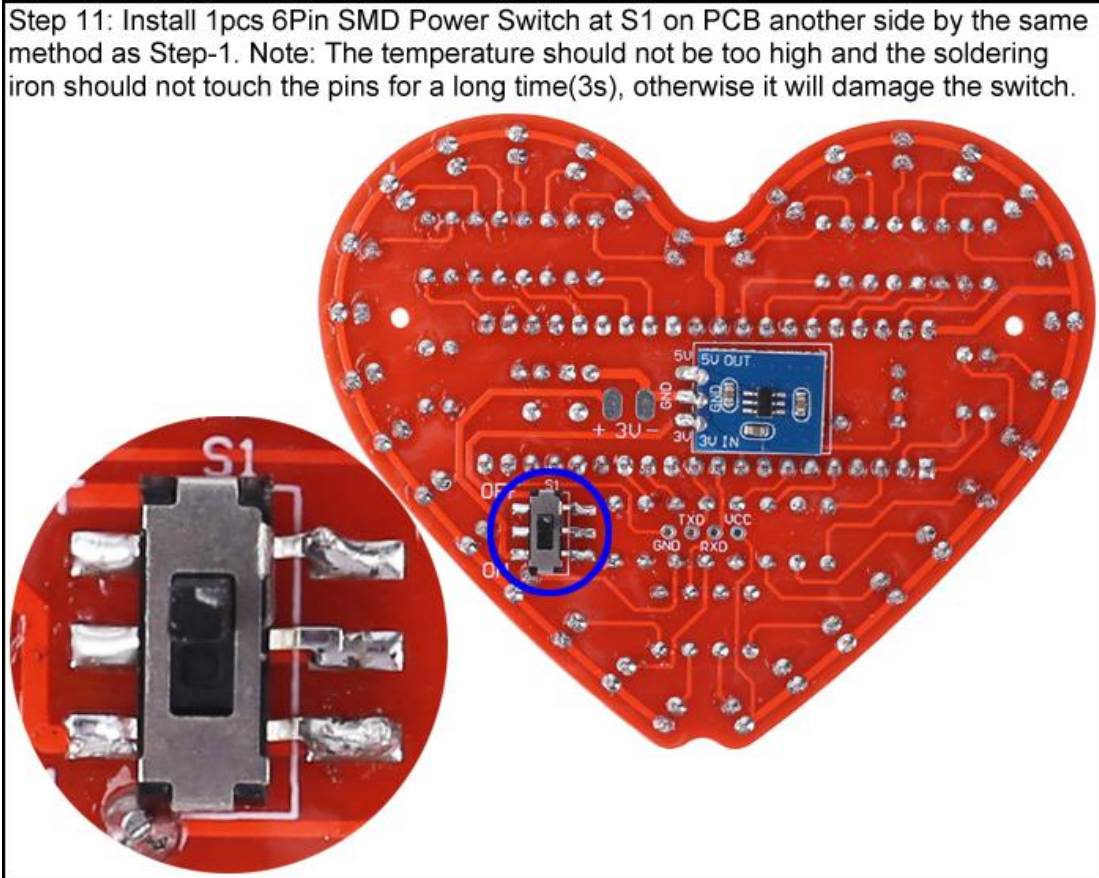
9.5>.Note:If the flat on package disagrees with other indicators(short lead,large cathode lead end), then other indicators take priority. I.e. if the flat disagrees with the lead length,use the lead length as the cathode indicator.



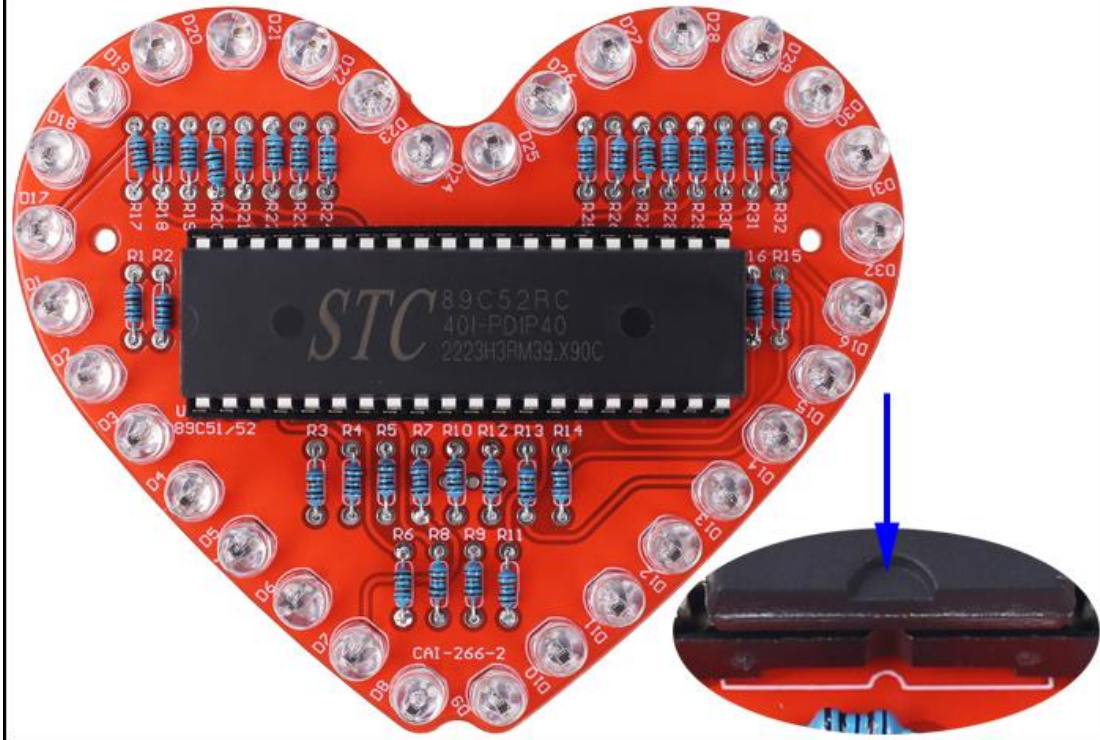
Step 10: Install 32pcs 5mm RGB LED at D1-D32.
The Longer pin is positive pole connect to '+' pad.



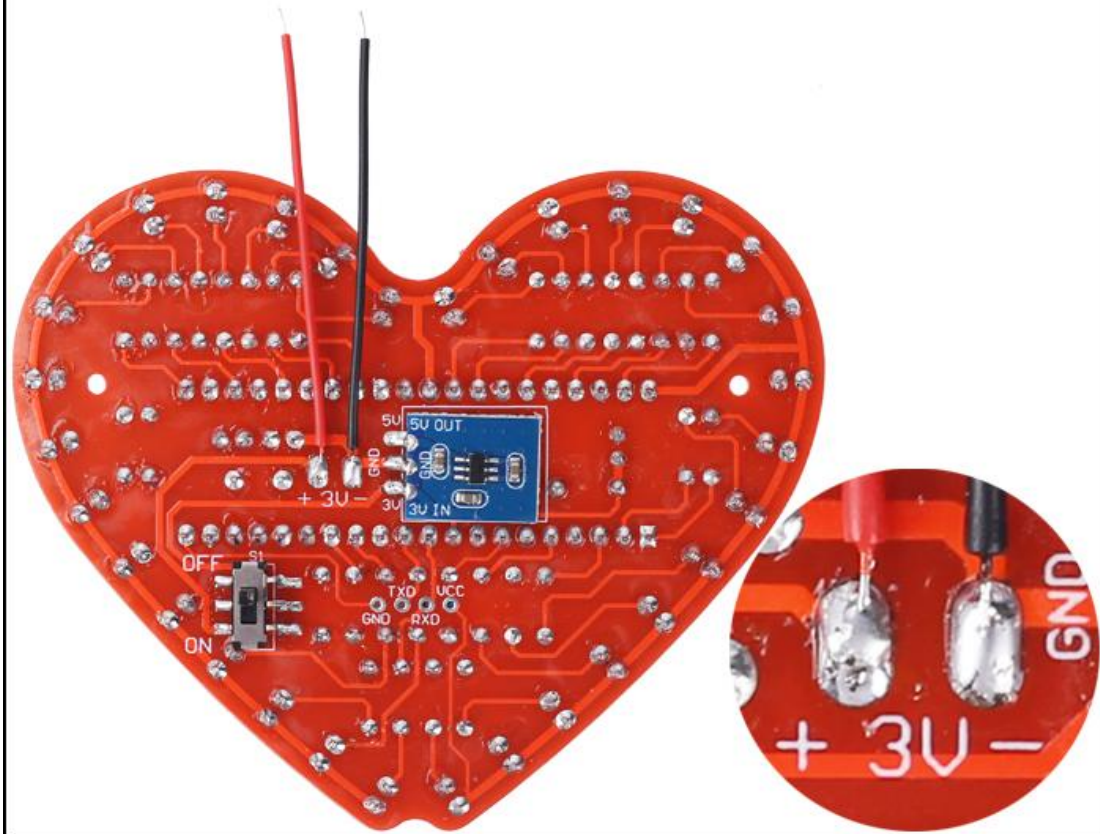
Step 11: Install 1pcs 6Pin SMD Power Switch at S1 on PCB another side by the same method as Step-1. Note: The temperature should not be too high and the soldering iron should not touch the pins for a long time(3s), otherwise it will damage the switch.



Step 12: Install 1pcs DIP-40 IC STC89C52RC at U1. There is a gap mark on one end of the IC and there is a gap mark on DIP-40 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.



Step 13: Fix red wire at '+' pad and black wire at '-' pad.



Step 14: Press down the protrusions on both ends of the largest battery metal sheet.



Step 15: Insert this metal sheet to Transparent Bottom Shell.



Step 16: Bend down the metal pin in the middle to stabilize it.



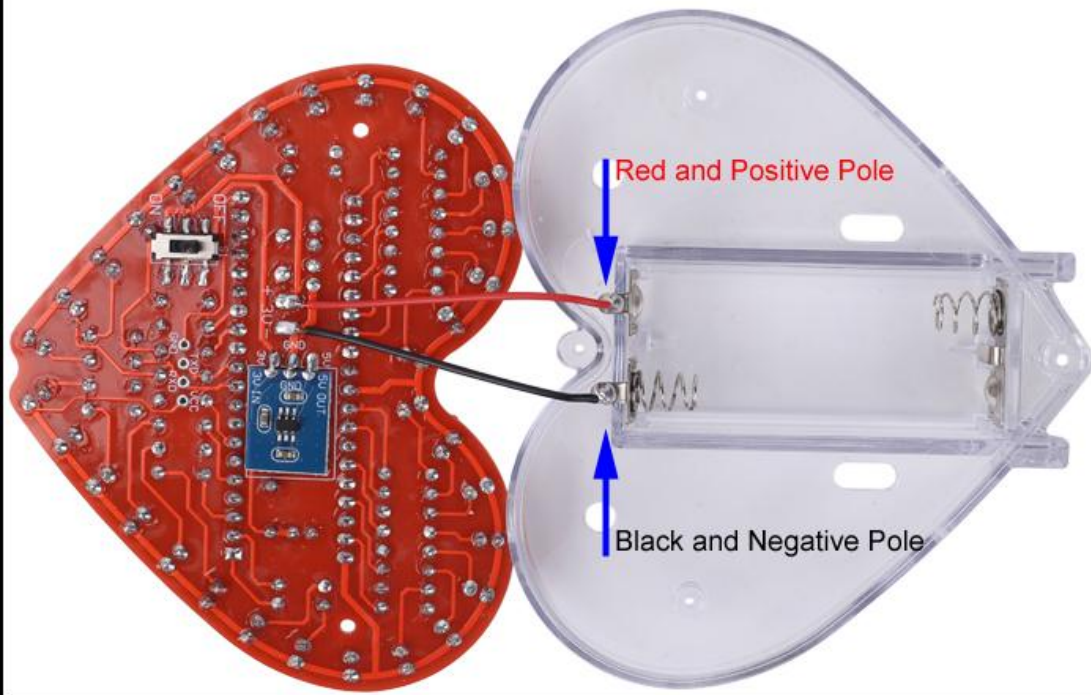
Step 17: Place another two smaller battery metal sheet Transparent Bottom Shell. Pay attention to the placement position and direction.



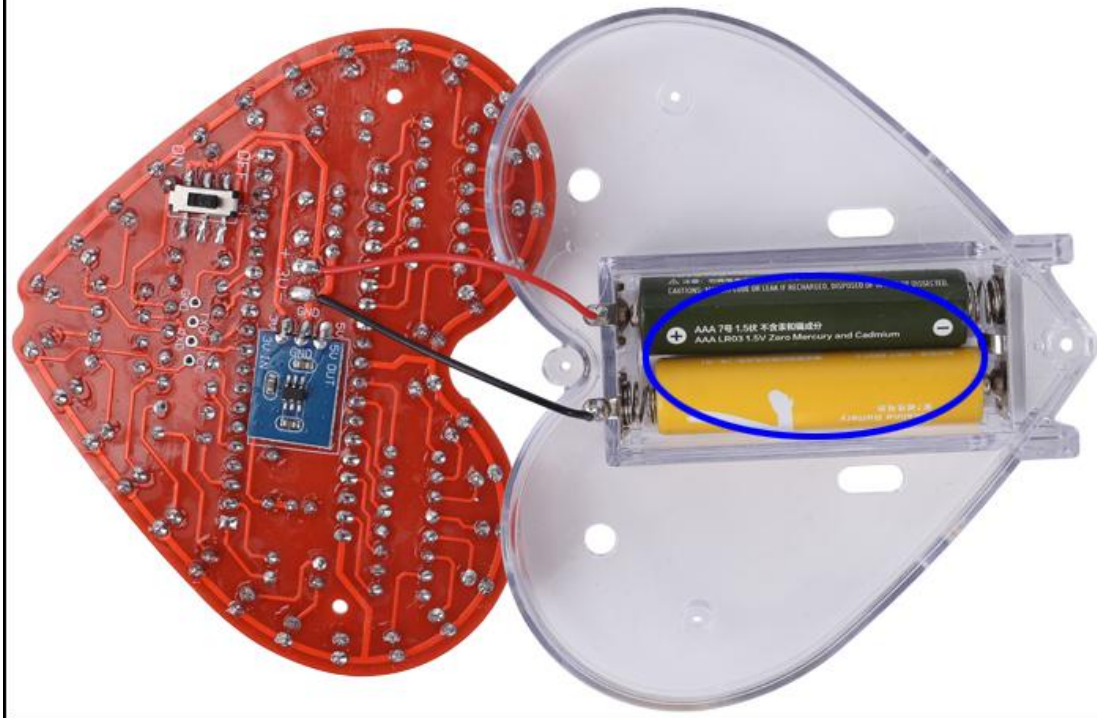
Step 18: Bend the metal pin outward to stabilize them.



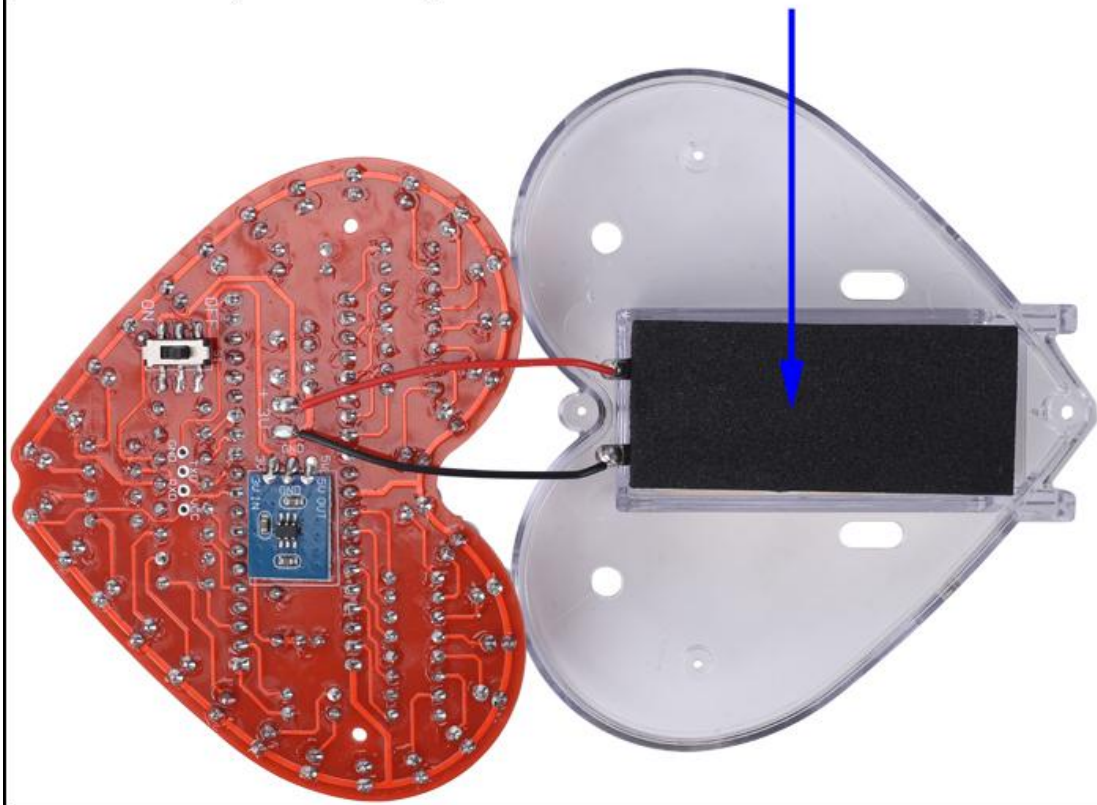
Step 19: Connect red wire to the smaller metal sheet without spring. Connect black wire to the smaller metal sheet with spring.



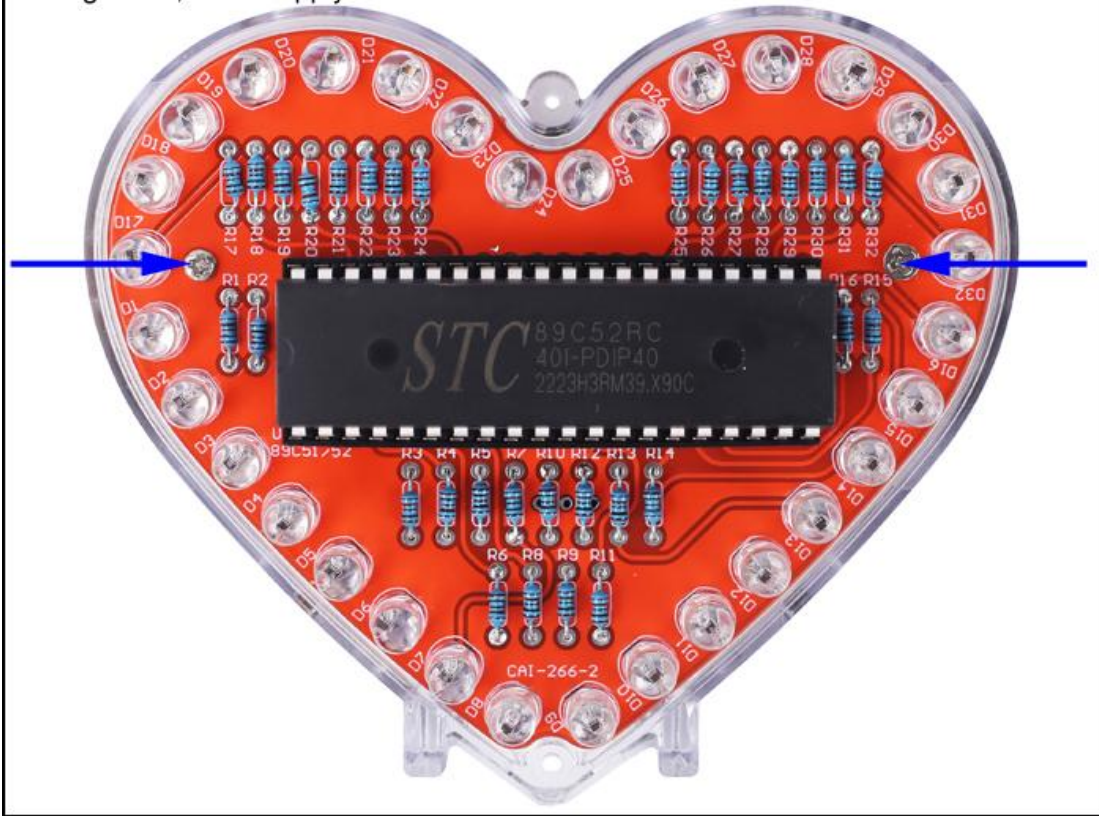
Step 20: Install 2pcs AAA batteries as shown.(The battery is not included in the listing)
Note: Battery negative pole connect to metal spring.



Step 21: Place Foam Spacer on batteries. It is used to isolate the battery and PCB to prevent the battery from loosening.



Step 22: Fix PCB on Transparent Bottom Shell by 2pcs 5mm Self Tapping Screw. Just tighten it, do not apply too much force.



Step 23: Fix another Transparent TOP Shell by 2pcs 7mm Self Tapping Screw. Just tighten it, do not apply too much force.

