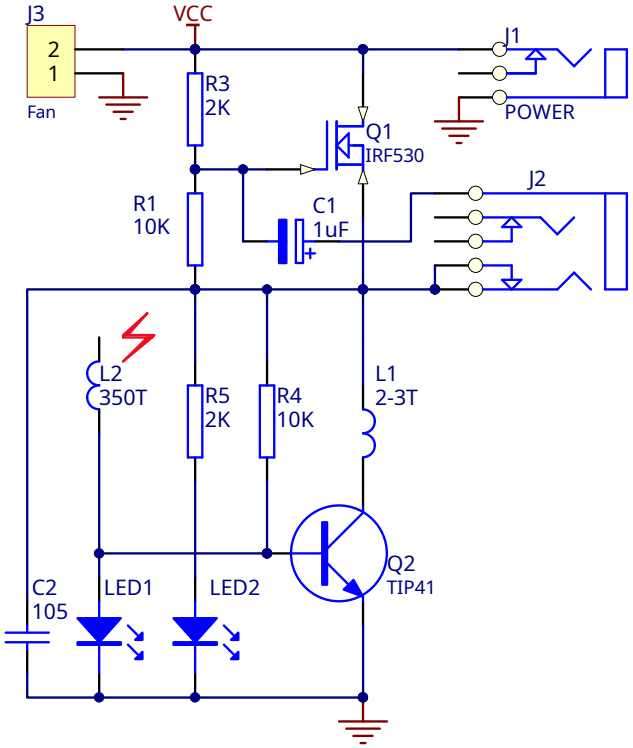
TS2412 Tesla Coil Kit 15W Soldering Kit Instructions

Tesla Coil is a transformer that works on the principle of resonance. It was invented by American Serbian scientist Nikola Tesla in 1891., mainly used to produce ultra-high voltage but low current, high frequency AC power. Tesla coils consist of two groups (sometimes three groups) coupling Tesla coils are difficult to define, and Nikola Tesla experimented with a large number of different coil configurations. Tesla used these coils to conduct innovative experiments such as electrical lighting, Fluorescence spectroscopy , X-rays, high-frequency alternating current phenomena, electrotherapy and wireless power transmission, transmitting and receiving radio signals.

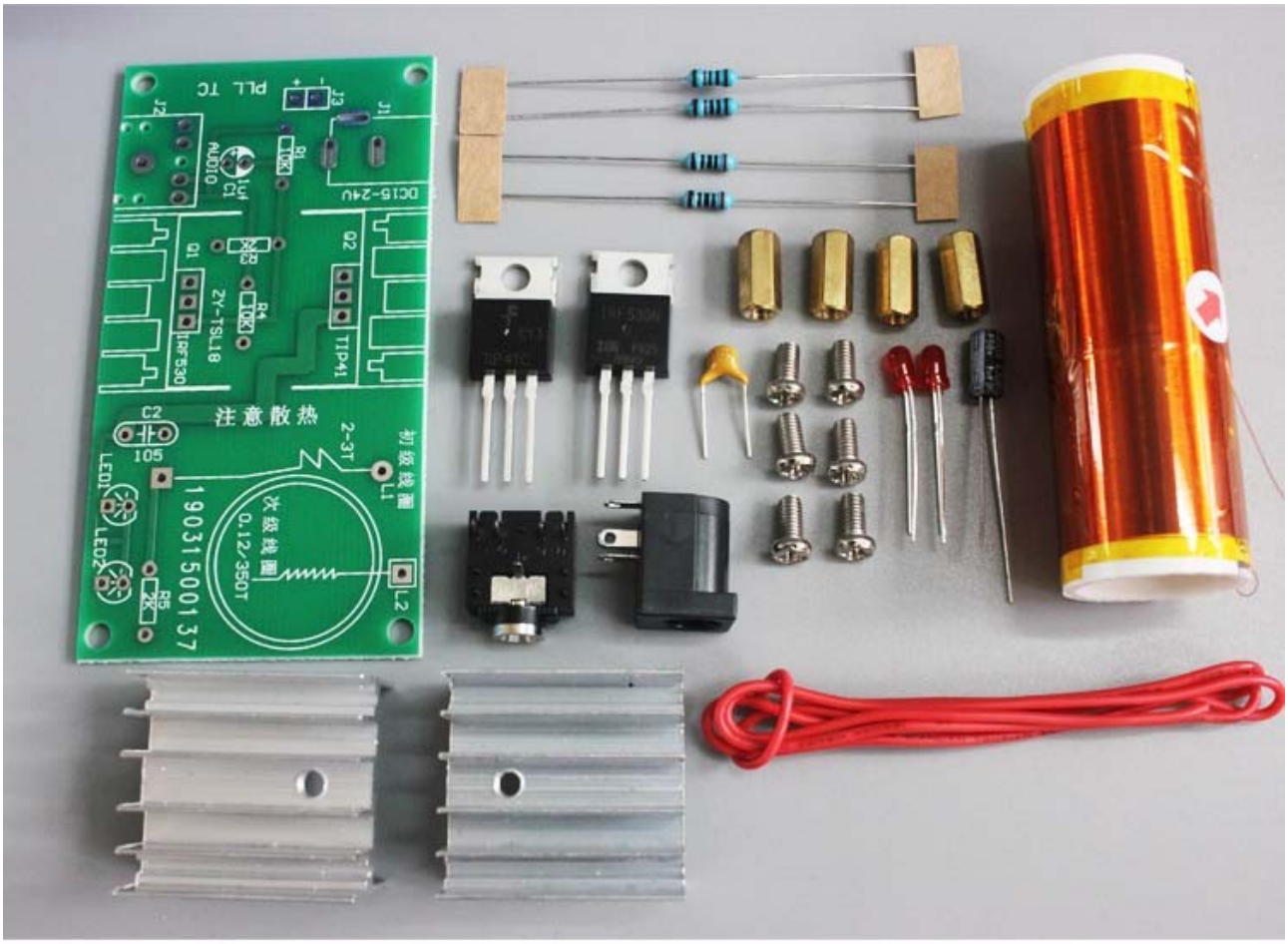
This Tesla coil is classified as a resonant coil with a frequency-locked circuit. By introducing the inductive current in the secondary coil L2 into the primary oscillation circuit, the oscillation frequency of the primary circuit is locked to the resonant frequency of the secondary coil, thereby maintaining resonance. LED2 is the power indicator light, and LED1 is used as a clamping diode. It is normally not illuminated or slightly illuminated. If the transistor Q2 is damaged, LED1 will light up. The audio signal is used to modulate the oscillation frequency. When the audio signal is input, the audio signal voltage changes the primary oscillation frequency, resonates in the secondary coil, and restores the sound. The voltage input can be from 9-30V. The higher the voltage, the longer the arc and the louder the sound. When the voltage is higher than 15V, pay attention to heat dissipation. The audio signal can be connected to mobile phones, MP3s, computers, etc.

Tesla coils can light up neon lamps, energy-saving lamps, strobe lamps, cigarettes and ignitions remotely.



Here is the coil assembly tutorial:

The first step is to check the list and the actual components.



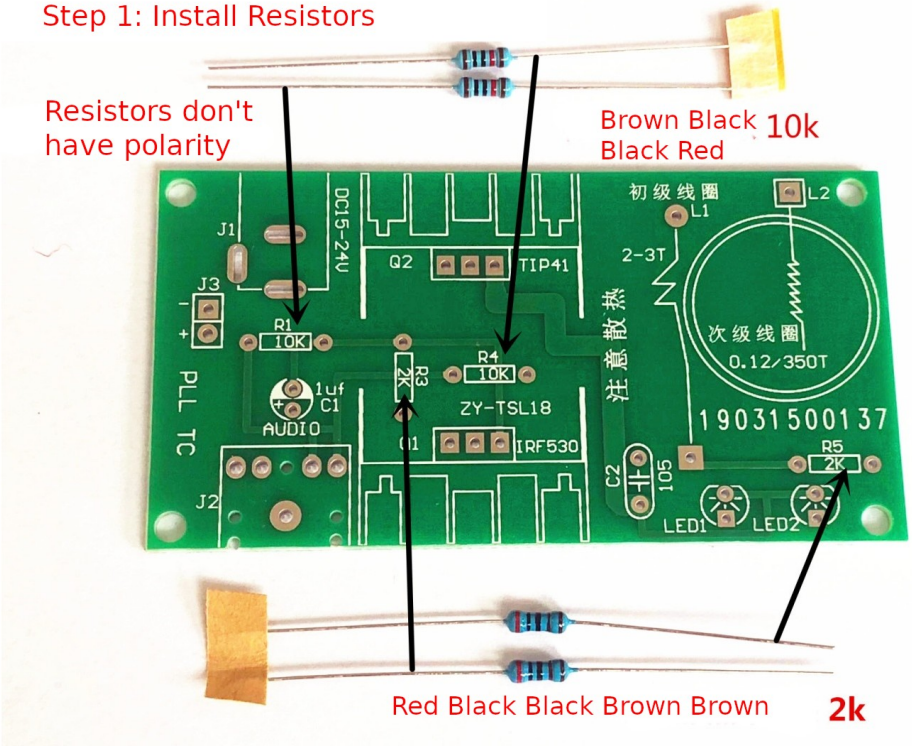
Components List:

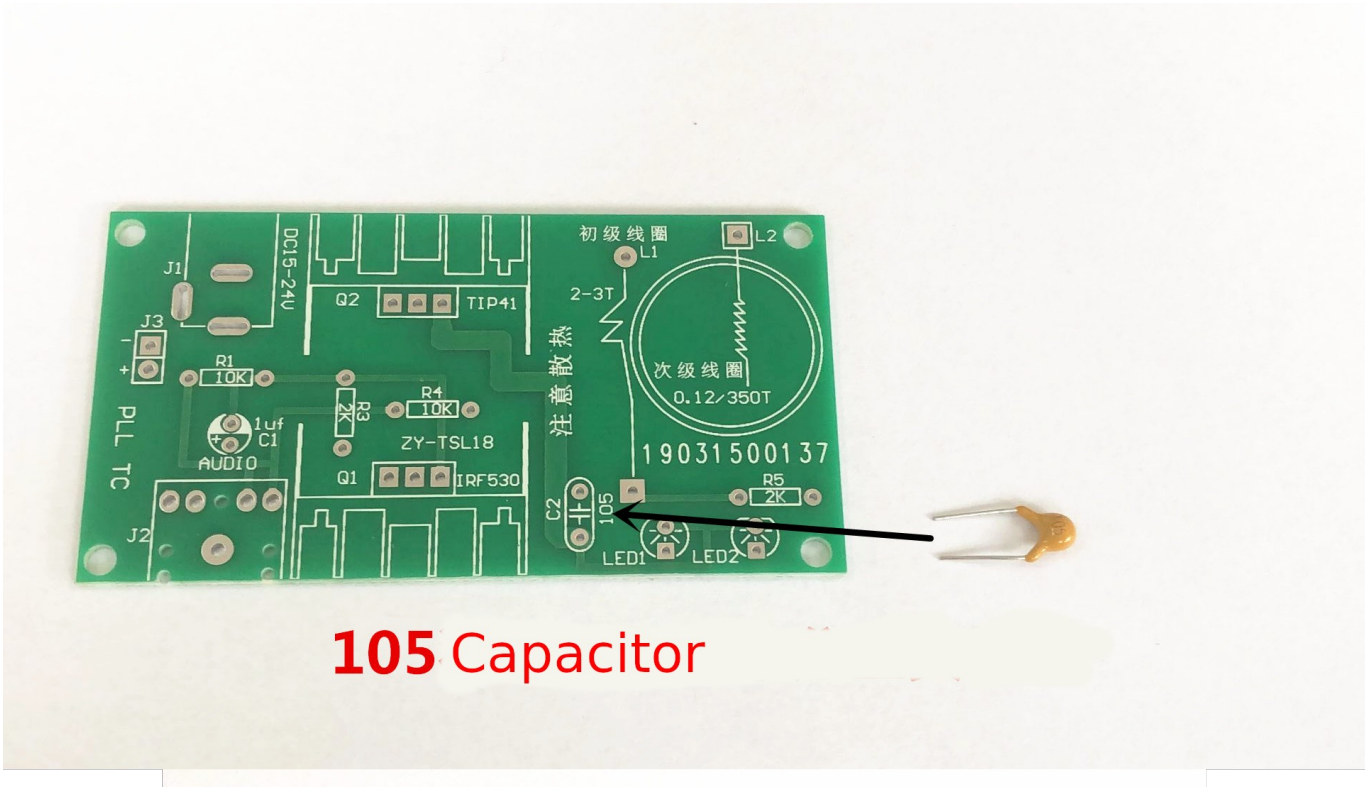
Label	name	Specification	quantity	Standard Number	name	Specification	quantity
R1 R4	Color ring resistor	10K	2	C2	Monolithic capacitor	105	1
R3 R5	Color ring resistor	2K	2	C1	Electrolytic Capacitors	1uF	1
Q2	triode	TIP41	1	Q1	Field Effect Transistor	IRF530	1
LED1 LED2	Light Emitting Diode Tube	3mm 2		L1	Primary coil	2-3T	1
L2	Secondary Coil	350T	1	J1	DC Block	5.0*2.1	1
J2	Audio jack	3F07	1		screw	M3*6	6
	Copper Column	M3*10	4		Heat sink	25*23	2

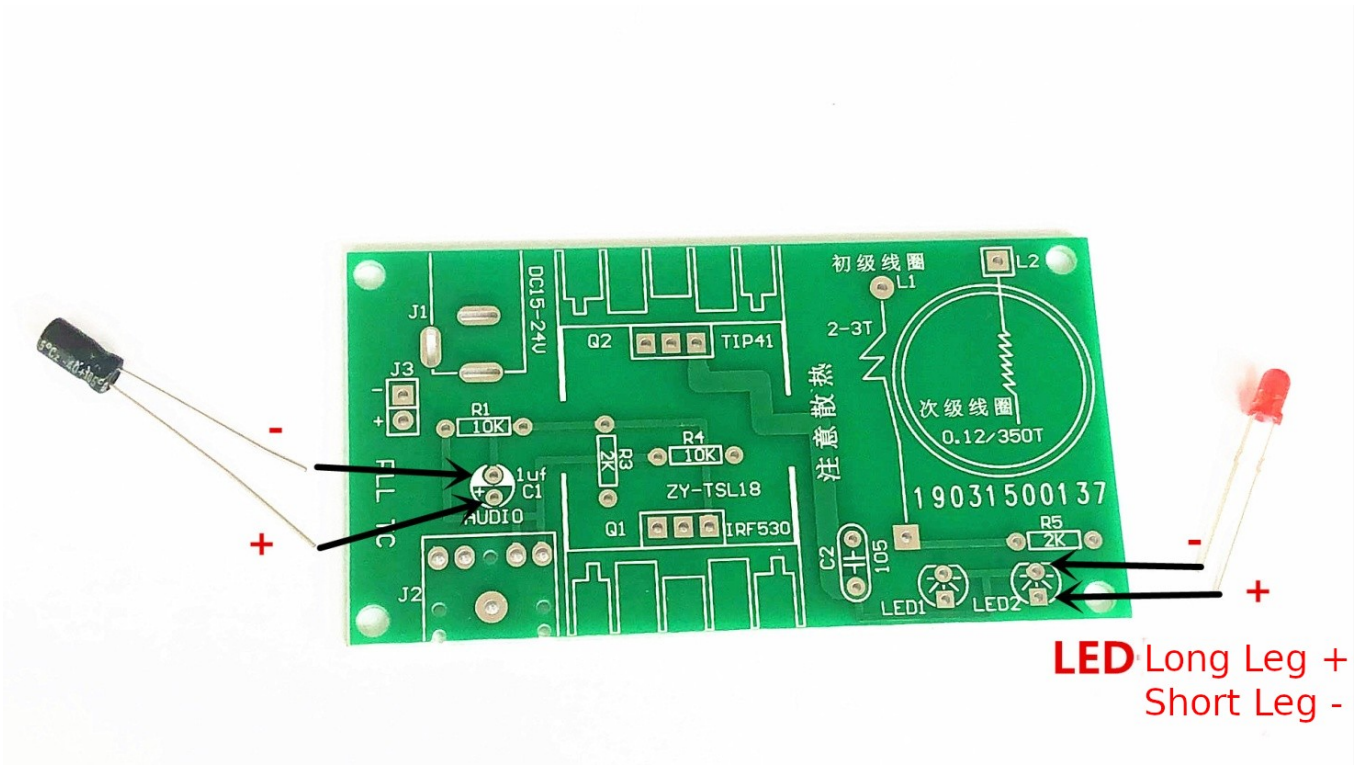
Next, we start the installation:

Install components from small to large, from short to high.

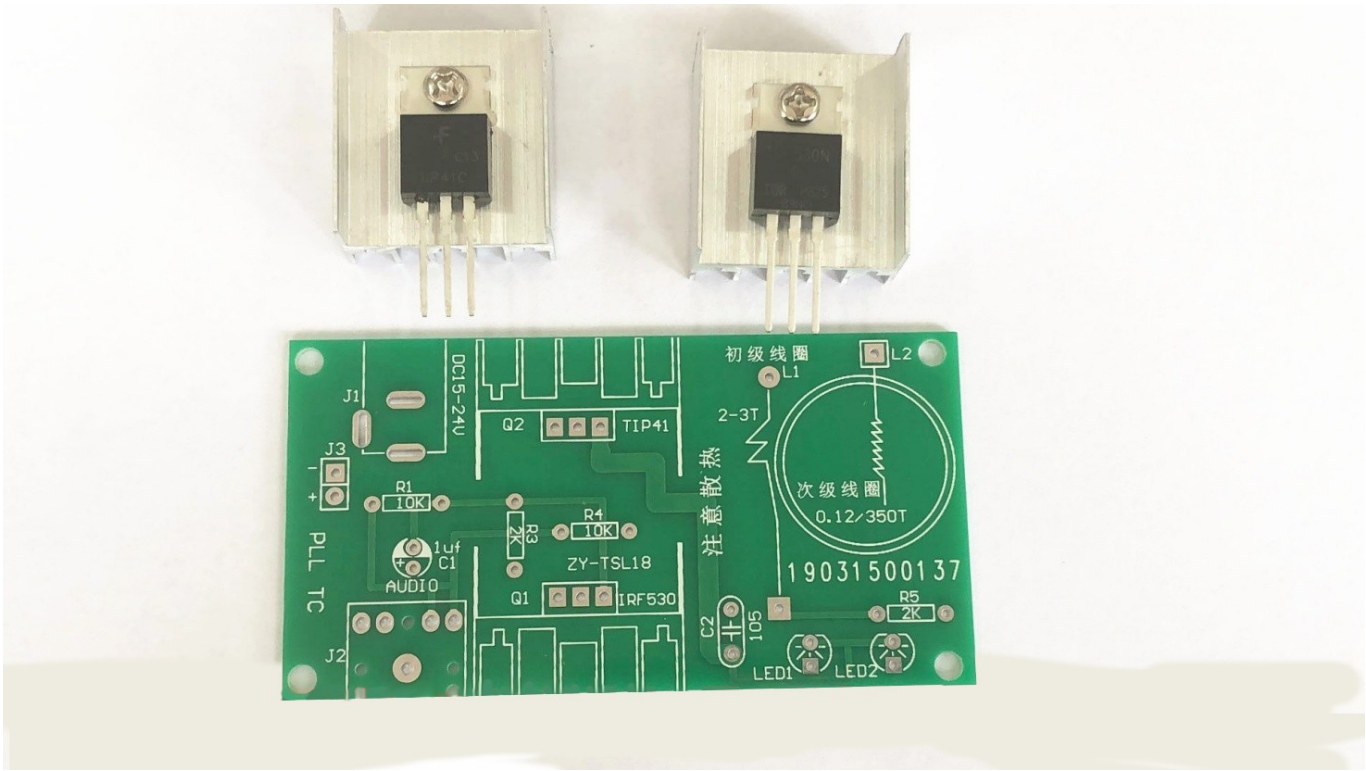
Step 1: Install Resistors

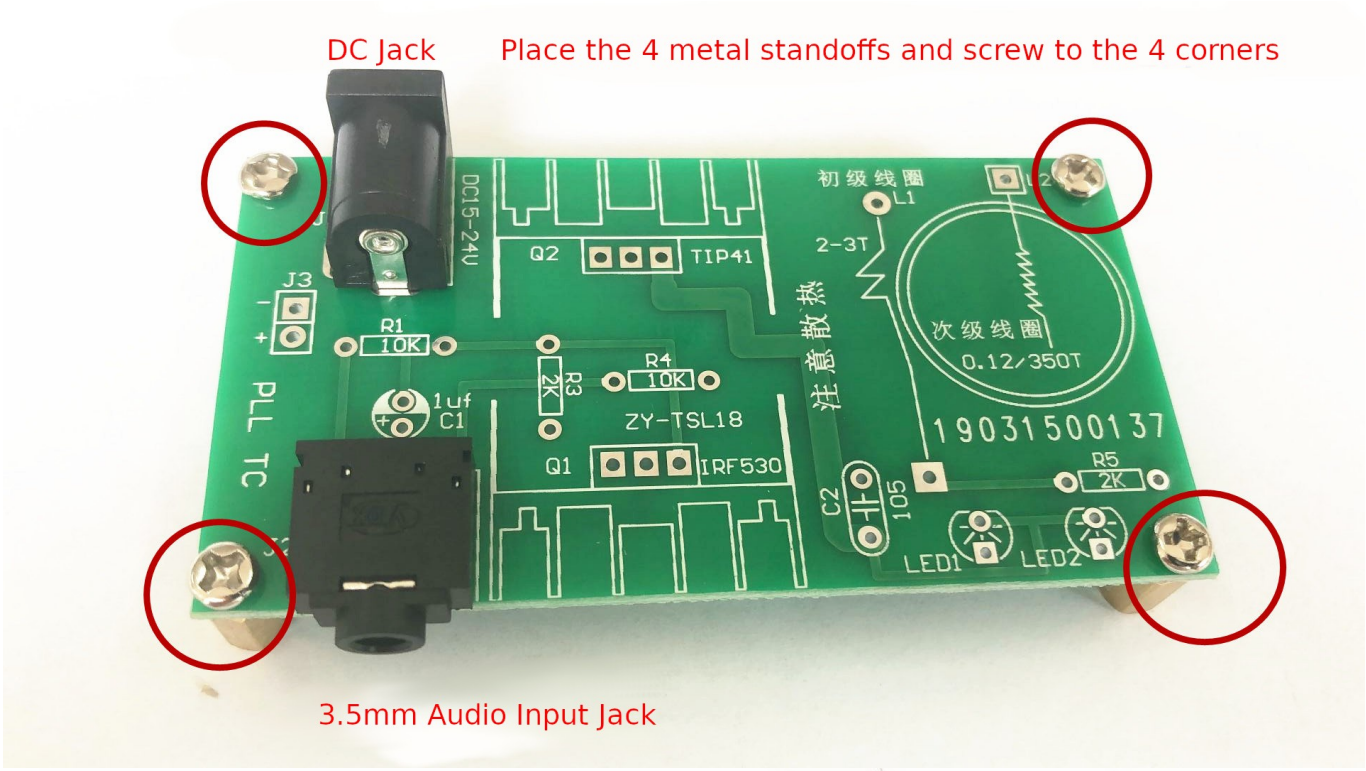


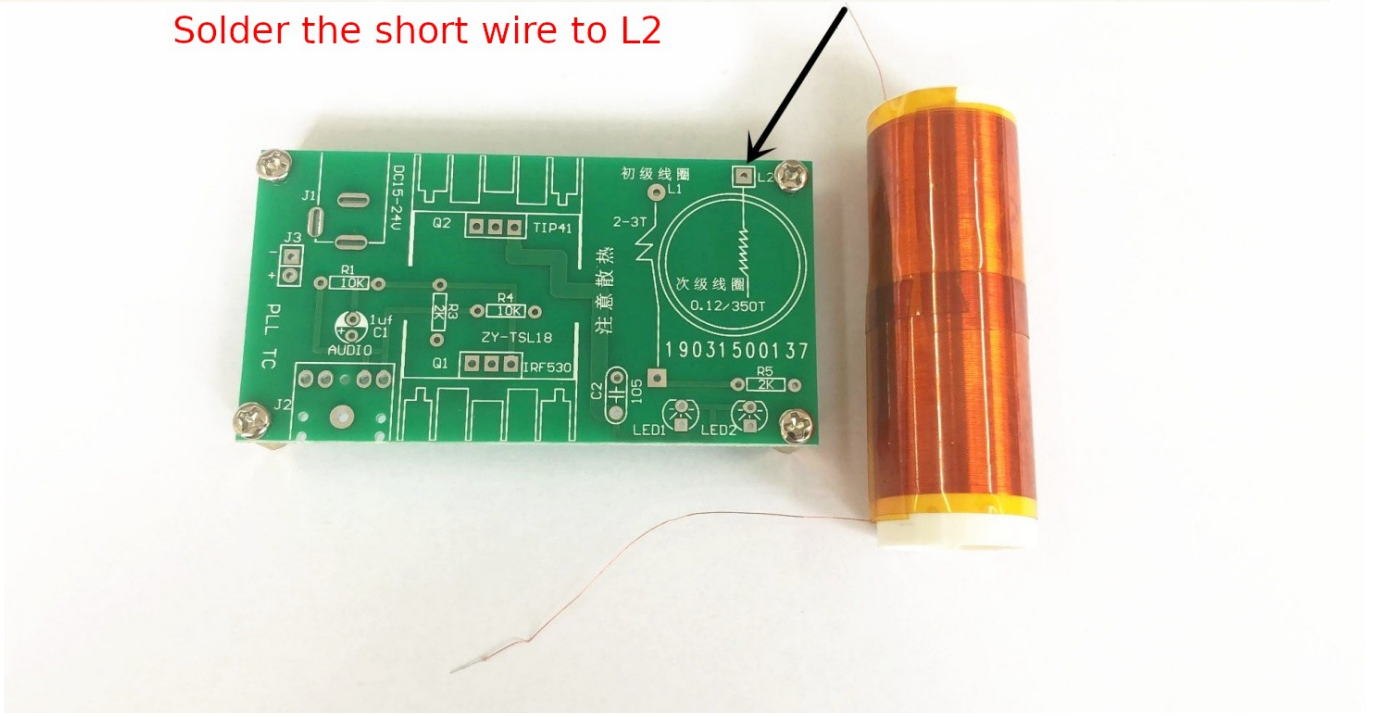




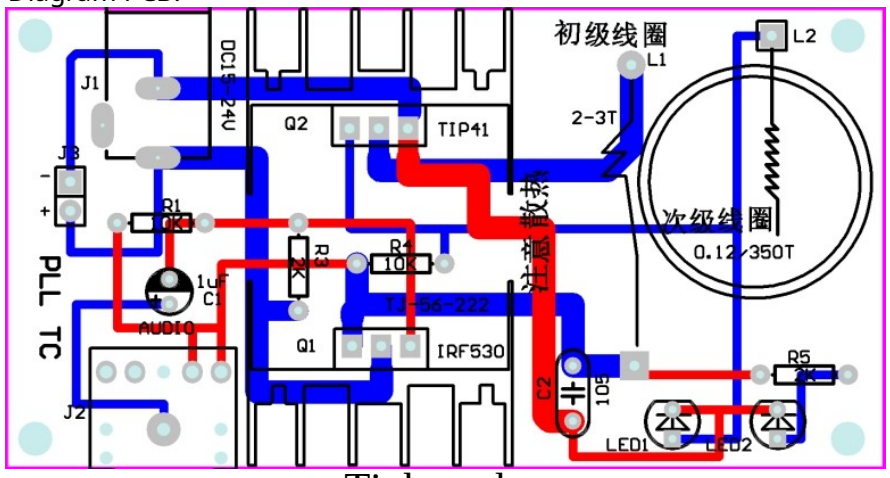
Screw the heatsinks onto the transistors, install according to the corresponding markings on the circuit board

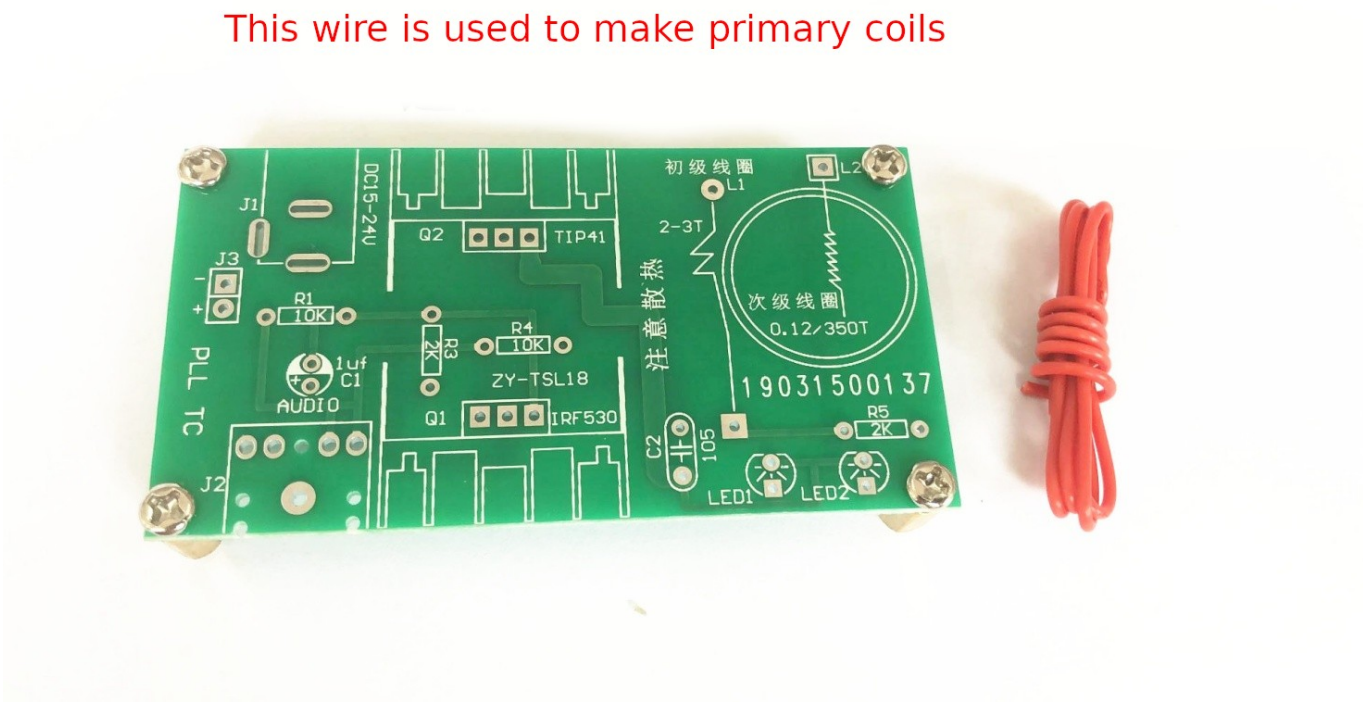




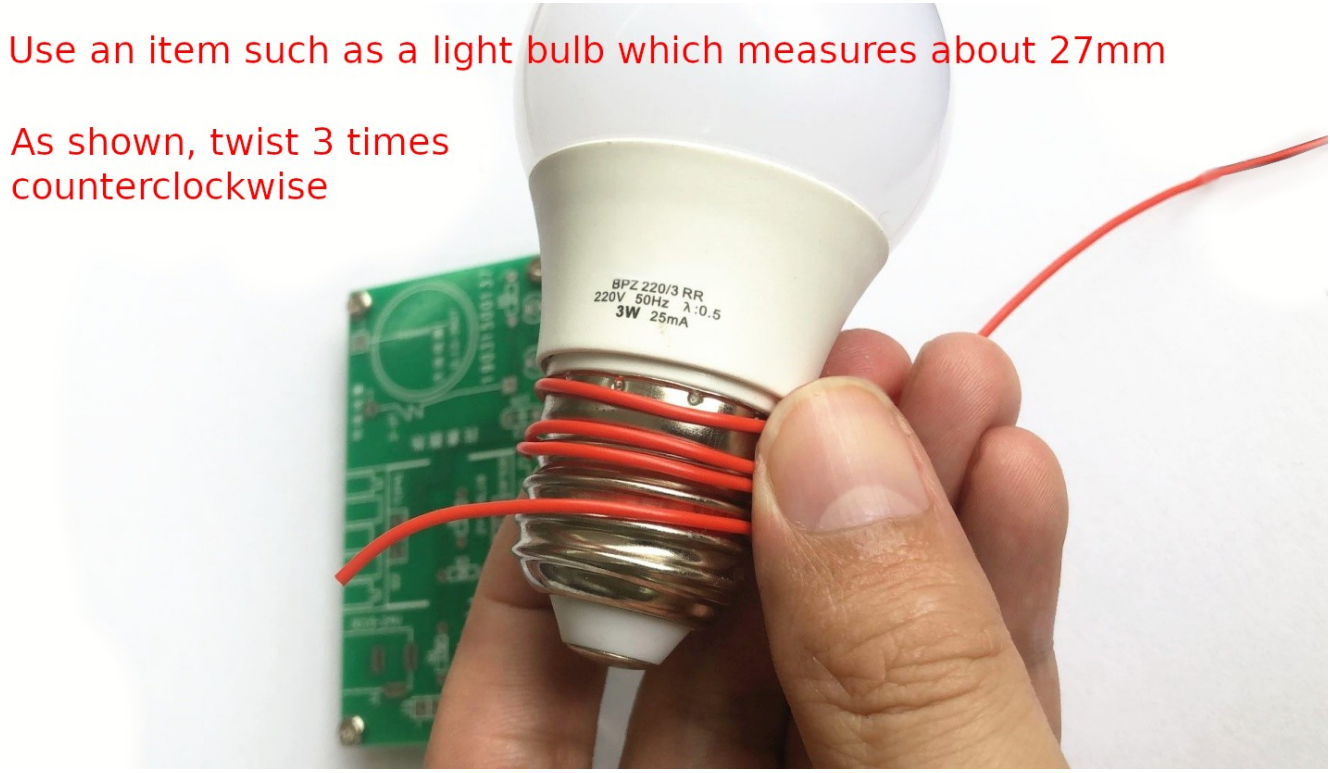


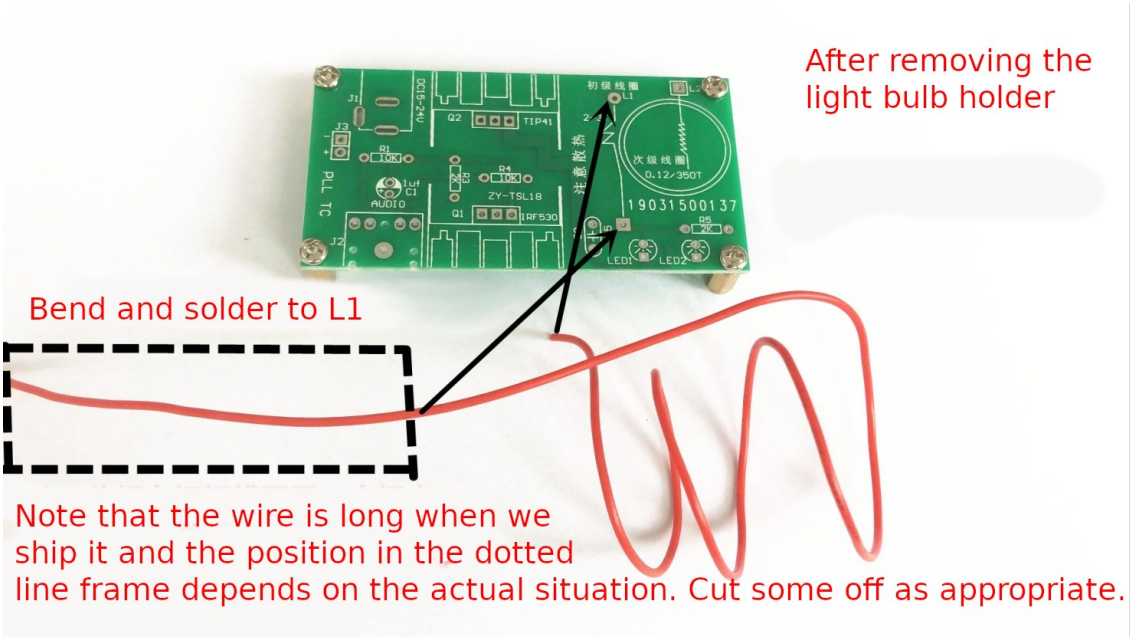
Installation Diagram PCB:

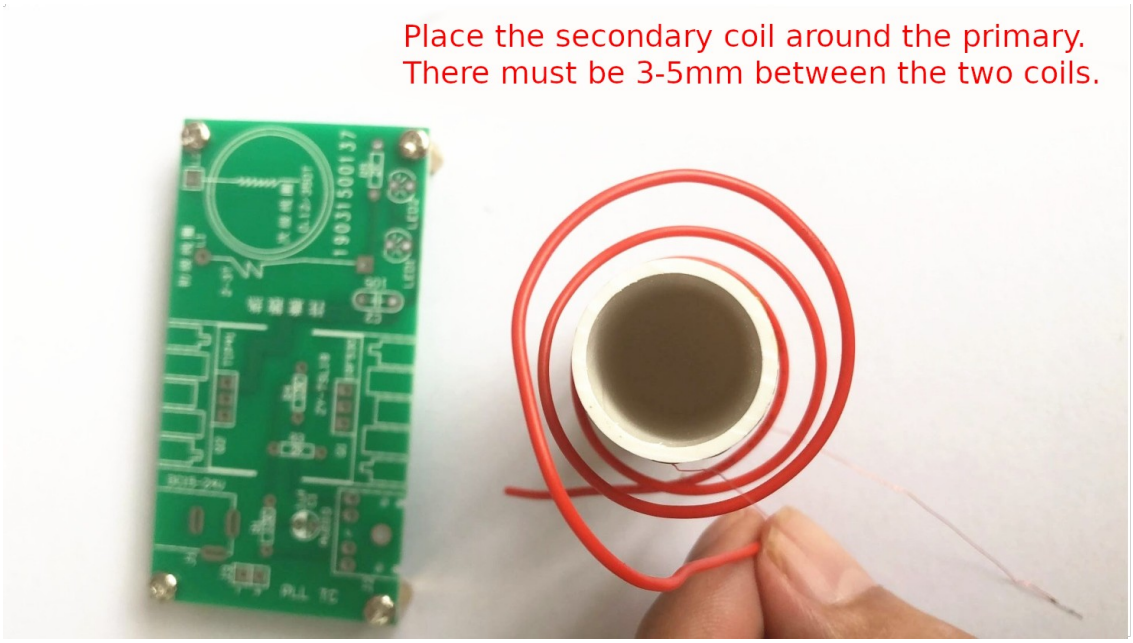




Note: When making the primary coil, first find a cylindrical object with a diameter of about 27mm The most suitable material is a light bulb or similarly sized item. We first wrap the wire around it to make a preliminary shape, and then put on the secondary coil and make adjustments.



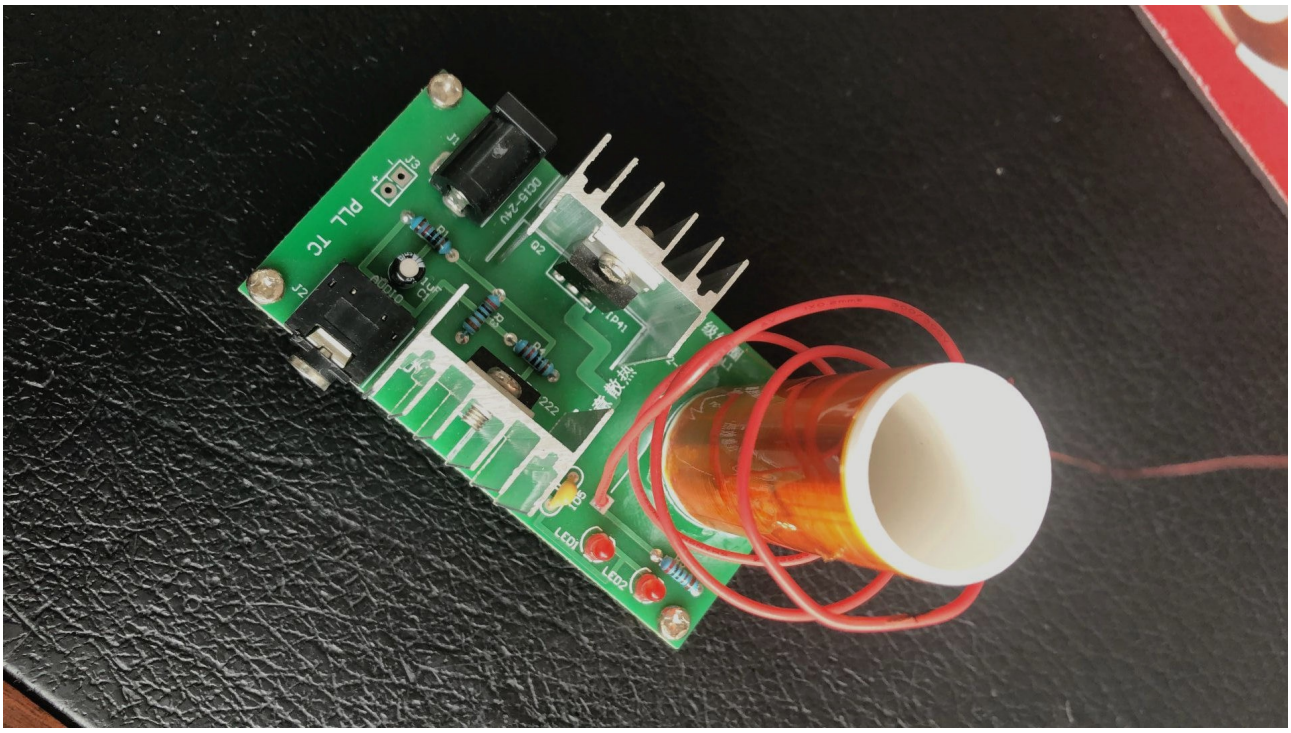




Installation Diagram

J3 is the heat sink fan interface. If high voltage power supply is used, a fan must be installed or a larger heat sink must be used. The primary coil is a thick single-core copper wire. It is connected to point B after being wrapped around the secondary coil 2-3 times counterclockwise from point A. There should be a gap of about 5MM between the primary coil and the secondary coil. If the gap is too small, it is easy to spark.

Use hot melt glue or something similar to fix the secondary coil to the corresponding position on the PCB, and then solder the bottom wire end of the secondary coil to L2. The wire end is used to scrape off the insulating paint on the surface to expose the metal copper.


PLL TC
LED1
LED2