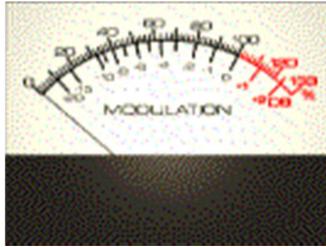


How to build a micro transmitter



Tetsuo Kogawa

Why was this site established?

Because transmission technology is esotericized and I believe that it provides exciting possibilities to art.

- **Diagrams**

- [The simplest FM radio transmitter](#) (for artistic or experimental use) with [FAQ](#) (How to build and tune up)
 - [Components](#) (resistors, capacitors, coil, trimcap, and so on).
 - [Basic tools](#) (soldering iron, tweezers, wire cutter, and epoxy[hard glue]).
 - [How to build?](#)
- [The simplest TV transmitter](#) (for artistic or experimental use) with [a theoretical introduction](#) (why simple and why transmitter?)
- [The simple but practical TV transmitters with sound](#) (you need some technical skills and proper tools)
- The 1-3 watt FM transmitter (You need [a power meter](#) and a frequency counter: otherwise don't try to build this model.)
 - Schematics: (1)[PDF](#) (2)[JPG](#) (3)[Symbolic](#) (4)[VRML](#) (needs [VRML-Player](#))
 - Components: [list pictures and tips](#)
 - [FAQ](#) (How to build and tune up)

- **Tools**

- [Basic](#)
- [Power meter](#)
- [Frequency Counter \(recommended\)](#)

- **How to build**

- [Step by step pictorial manual](#) [Movies\(WMV\)](#) [Movies\(Quicktime\)](#)

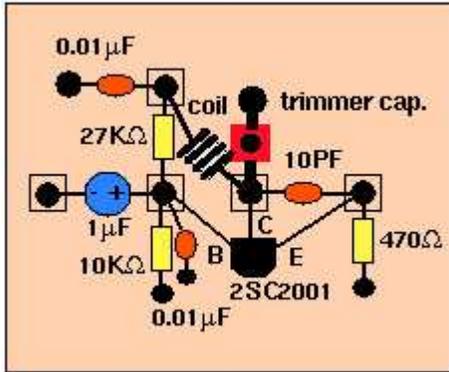
- **Antenna and How to operate**

- How to make a simple, inexpensive and effective Antenna?: (1) [HTML+JPG](#)
(2)[PDF](#)
- [How to stabilize the supplied power?](#)

- **Histories**

- The earlier "private" workshop to build a transmitter, June 3, 1990 [Video](#) [MP4, 41.3MB]
- The first "public" workshop to build a transmitter, April 28, 1991 [Video](#) [RealMedia]
- The first Workshop in the U.S. at Paper Tiger Television, November 4, 1991 [Video](#) [RealMedia]
- Other Transmitter Workshops: see the "Streaming Media Archives" [-->](#)

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In this version, you can change the frequency by the trimercap (variable capacitor). If you can have a variable capacitor, I recommend you to choice this version.

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FAQ

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[problem why need a power meter and a frequency counter](#)

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A: You can get a "condenser microphone unit" in low price. Using this, you can build it very easily. Check [the partial diagram](#) (pdf) and [the complete diagram](#)(pdf) of the simplest transmitter with a microphone in it. When this is acrobatically soldered, [here](#)(jpg) is the example.

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Parts List of the Most Simplest Transmitter

Resistors:



1 10K Ohm 1/4 -1/8 Watt (brown-black-orange)

1 27K 1/4 -1/8 Watt (red-violet-orange)

1 470 - 500 1/4 Watt

Capacitors:



1(2) 10PF Ceramic

2 0.01MF (also indicated as 103) Ceramic

1 1 - 10 MF Electrolytic

Coil:



1 4 turns by 0.8 mm enamel wire



Trimmer capacitor:

1 10 - 20 PF

(there are [various shapes](#) but keep the value-10_20PF)



Copper-clad circuit board:

1 plate of 4 x 5 cm (minimum) and 0.5-1.0 mm(thick) and 4(5) small squares (5 x 5 mm)



Audio cable:

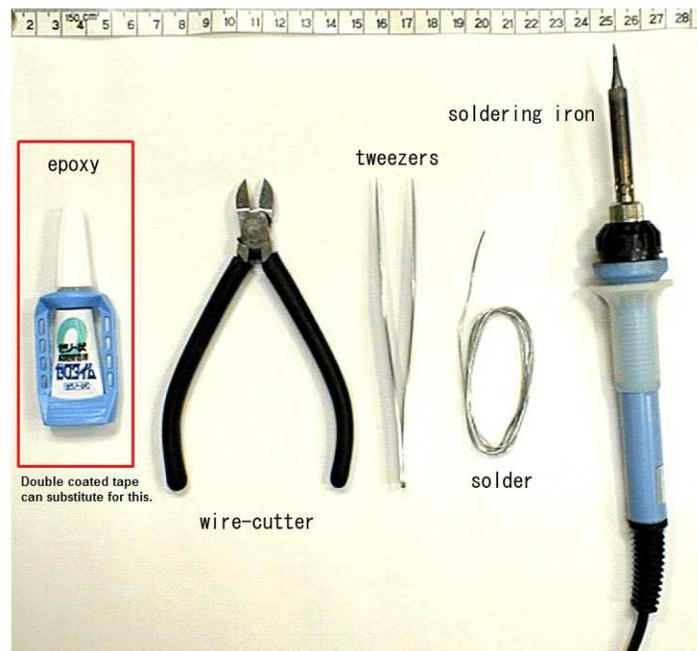
30 - 50 cm length of audio cable with mini-mono (or stereo) 3.5mm plug. When you use mini-stereo cable, you must use the left channel (white) only.

9 volts Battery and the snap connector

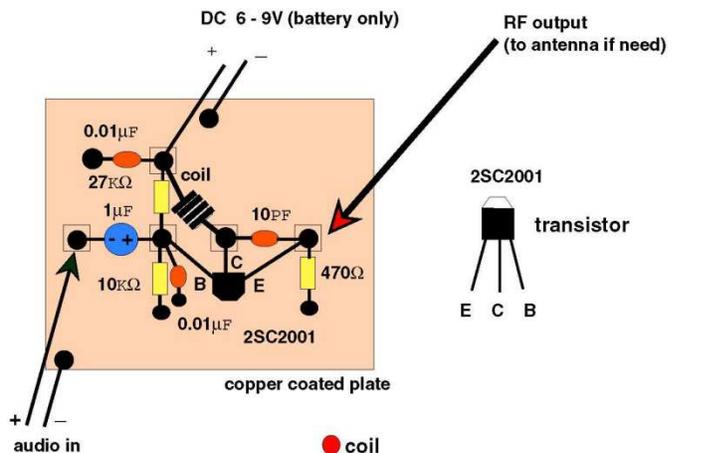


The basic tools for building the simplest transmitter:

- Soldering Iron (20-30W type; don't use a powerful one such as 60W. It will destroy the parts.)
- Solder (Usually this is sold as a roll but you need only 30 cm for one set to build).
- Tweezers: good example unsuitable one
- Small Wire Cutter
- Five-Minute Epoxy (the strongest type for metal and chinaware to glue)(Instead, you can use "Double sticky" or "Double coated tape" too.)



Making the simplest Transmitter



● soldered point:

● : direct to the ground



● : insulated from the ground



● coil

3 - 4 turns by coated 0.8 mm wire



● registers

470 Ω (yellow-violet-brown)

10K Ω (brown-black-orange)

27K Ω (red-violet-orange)

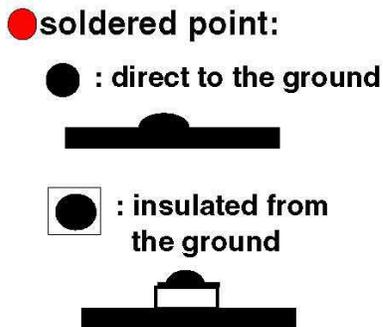
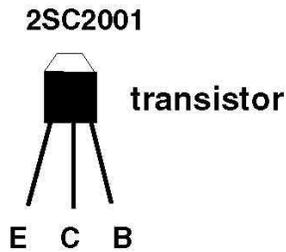
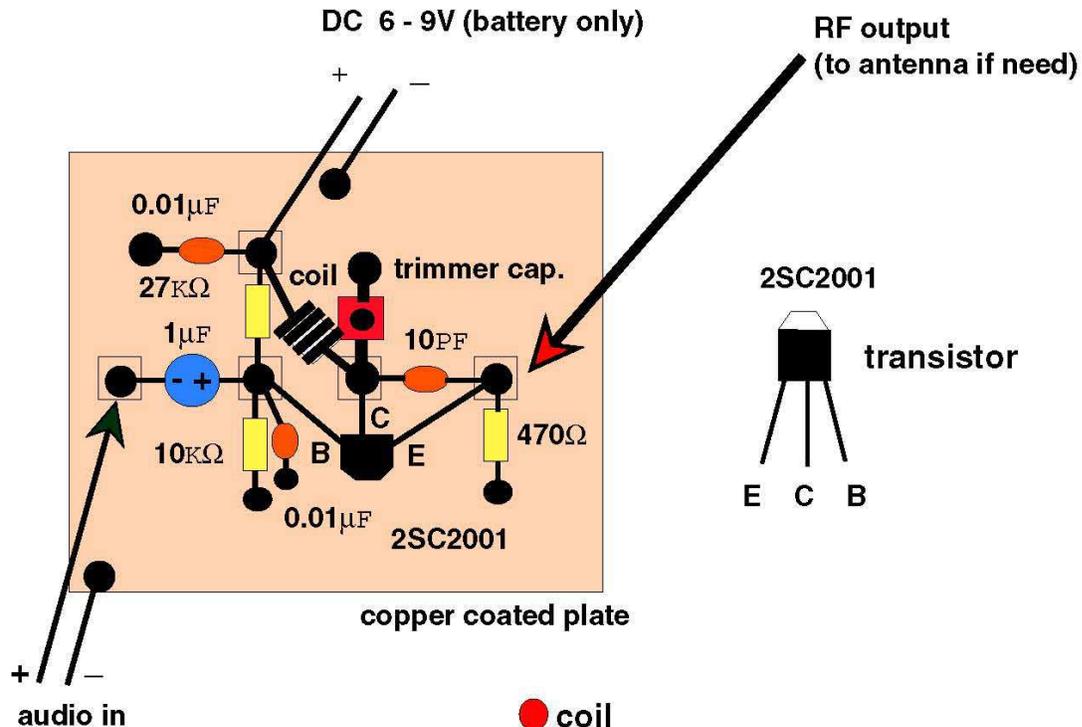
● capacitors

10 PF

0.01 μF (103)

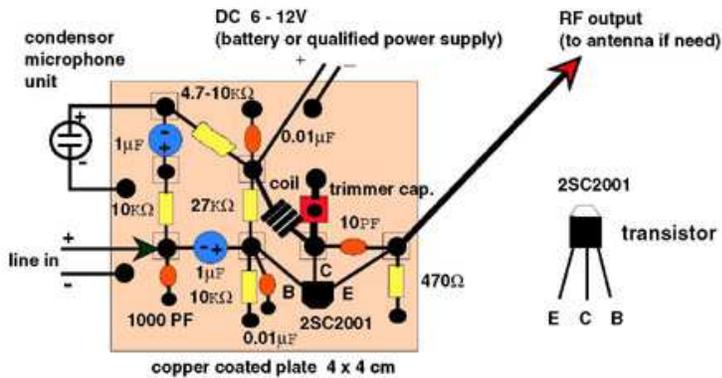
1 μF

Making the simplest Transmitter

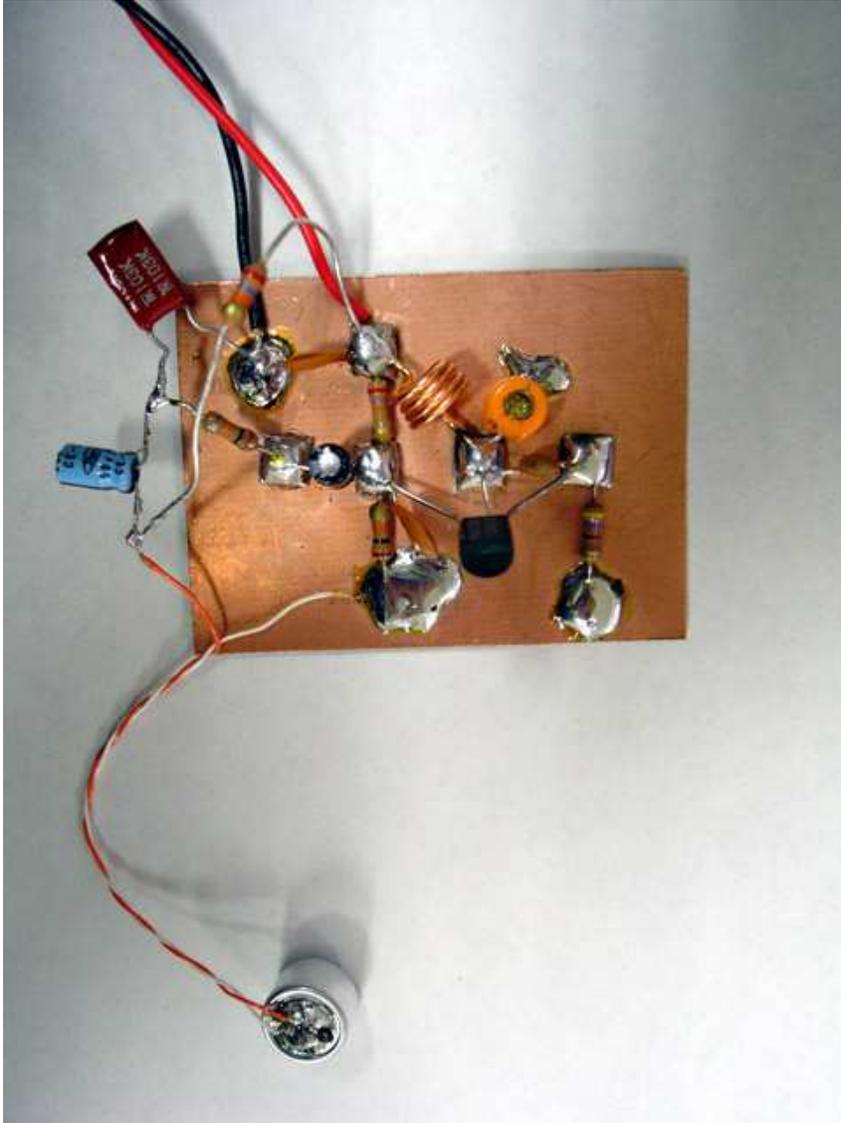


- coil
3 - 4 turns by coated 0.8 mm wire
- 5 - 7mm
- registers
470 Ω (*yellow-violet-brown*)
10K Ω (*brown-black-orange*)
27K Ω (*red-violet-orange*)
- capacitors
10 PF
0.01 μF (*103*)
1 μF
- trimmer capacitor 20PF

Making the simplest Transmitter with a microphone



- soldered point:
 - : direct to the ground
 - : insulated from the ground
- Solder every part at the shortest distance.
- coil
 - 3 - 4 turns by coated 0.8 mm wire
 - 5 - 7mm
- registers
 - 470 Ω (yellow-violet-brown)
 - 10K Ω (brown-black-orange) 2 pieces
 - 27K Ω (red-violet-orange)
- capacitors
 - 10 PF
 - 0.01 μF (103)
 - 1 μF 2 pieces
- trimmer capacitor 20-50PF
- condensator microphone unit
- 4.7-10KΩ



How to build and solder?

The pictures are not of the most simplest transmitter but how-to is the same.

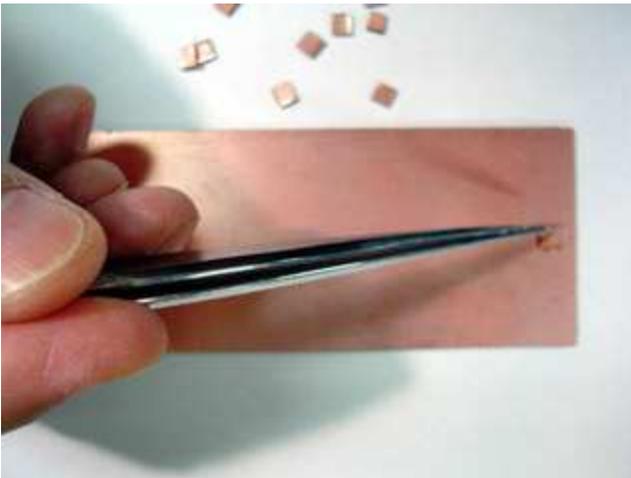


Make 5 x 5 mm squares.

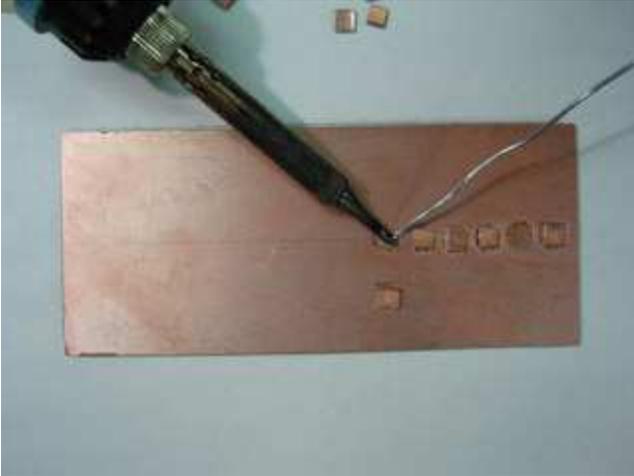
This size is not random nor appearance of good shape but is designed by the theory of "micro strip line" circuit.



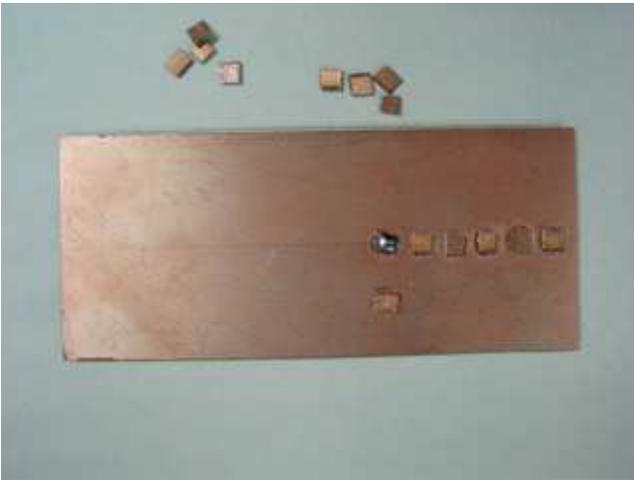
Drop a glue gel. The glue must be strong enough for fastening the squares on the board.



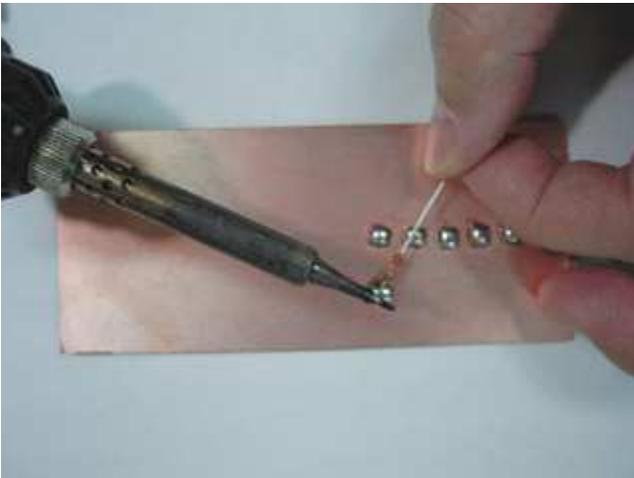
Paste a square on the copper-plated board one by one.



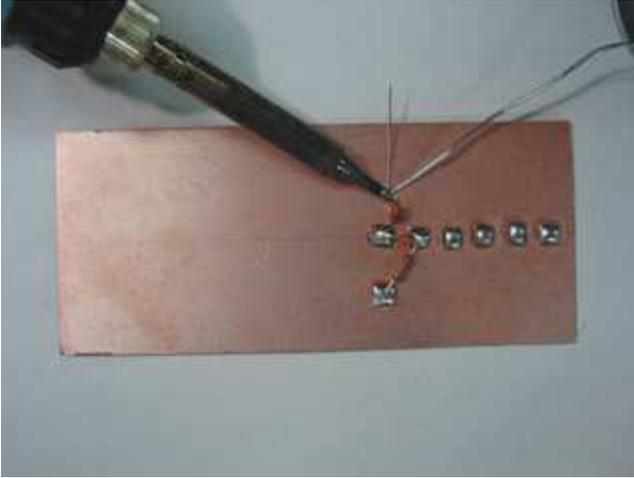
Solder on the surface of the square.



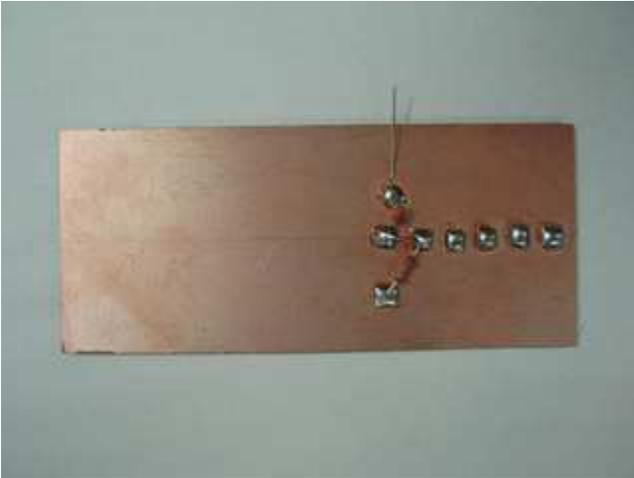
Fill the surface by solder.



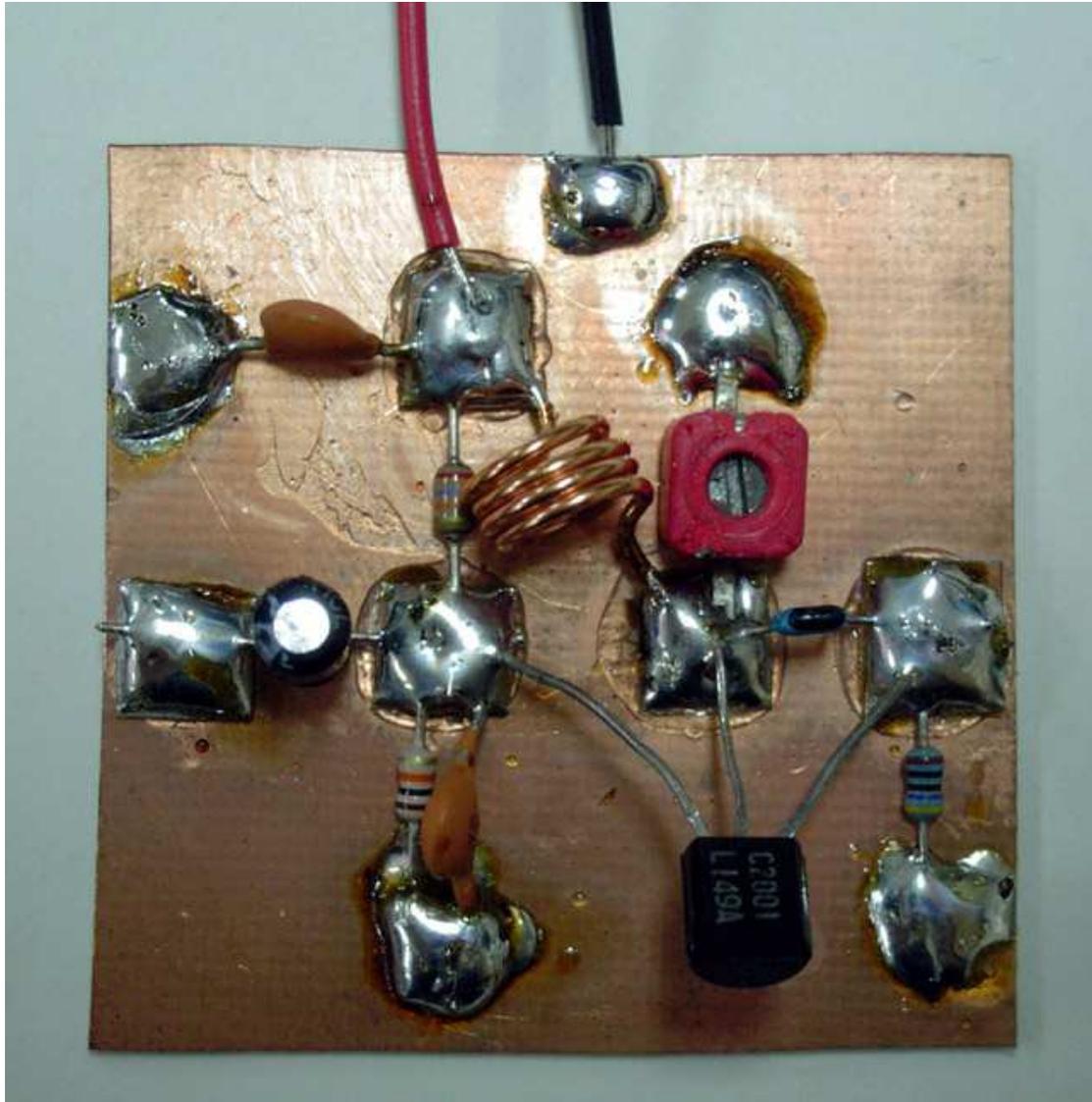
Start to solder each components one by one.

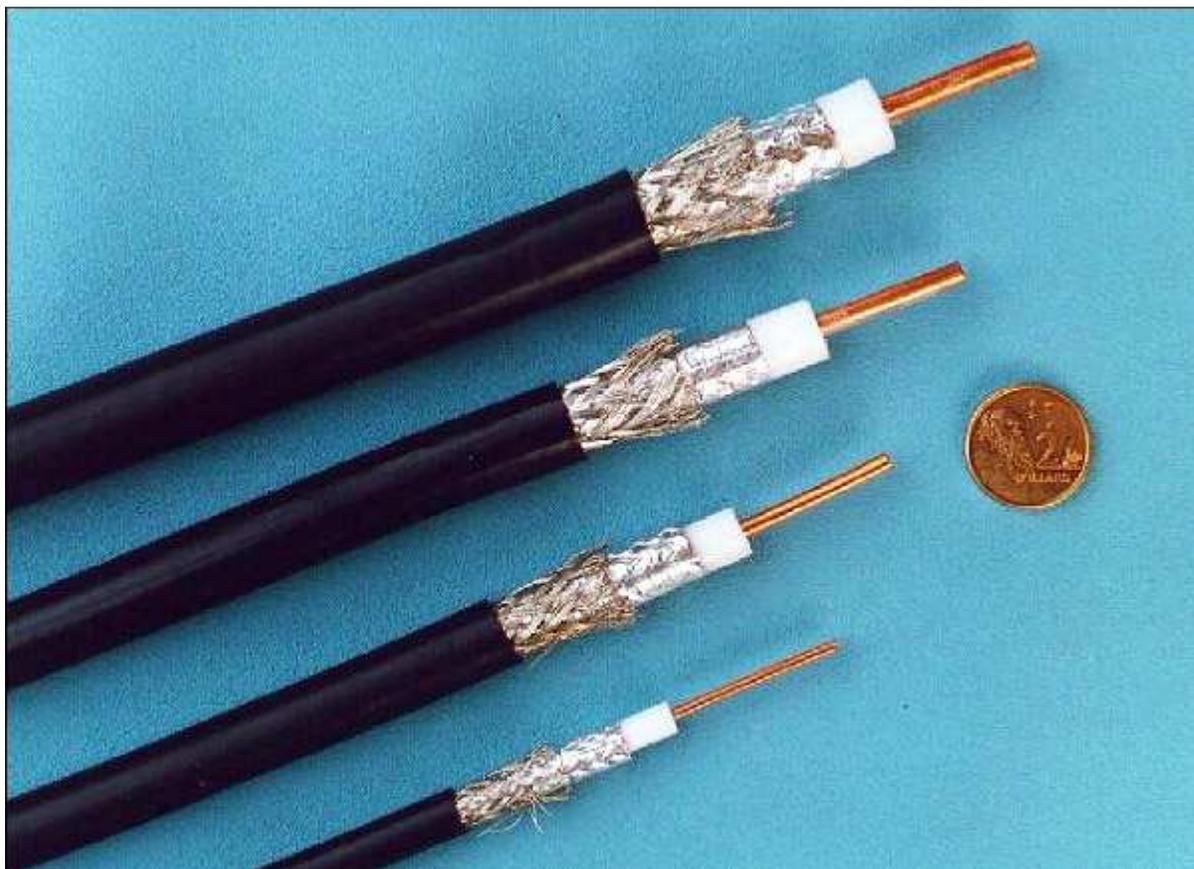
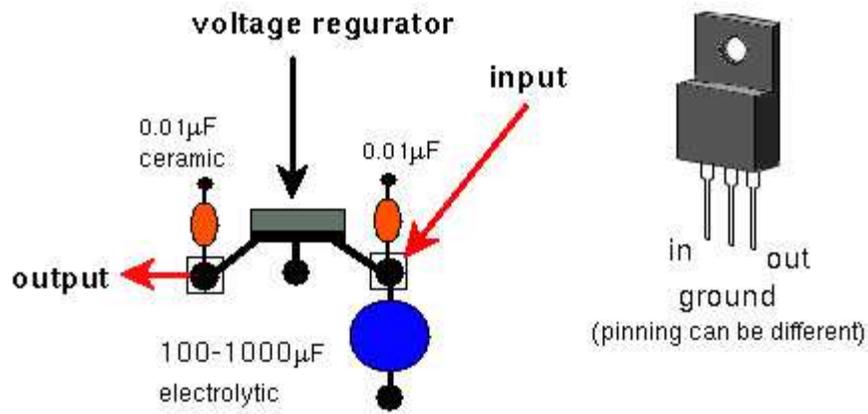


Solder on the ground.

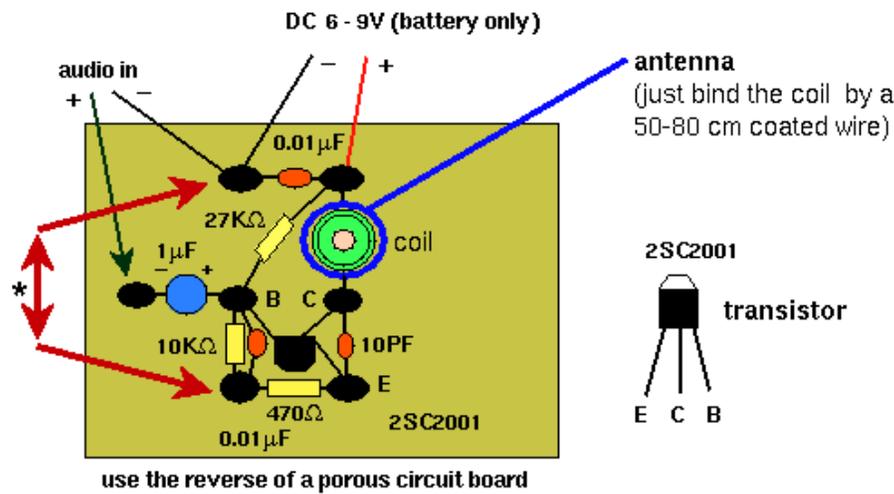


Every lead





Making the simplest Transmitter



solder directly to the reverse



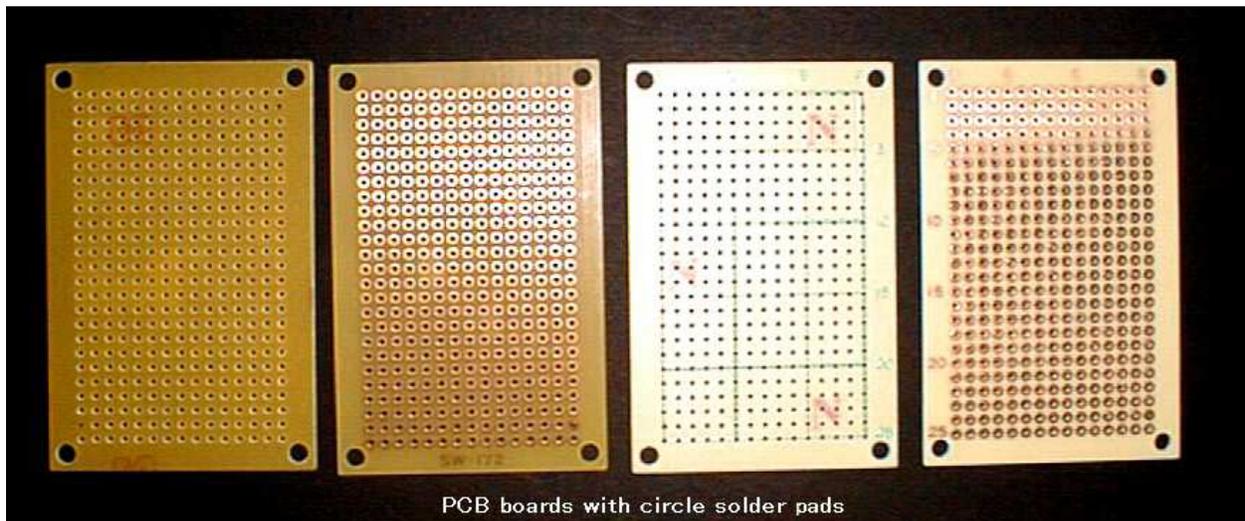
* Short-circuited at the back using a cable

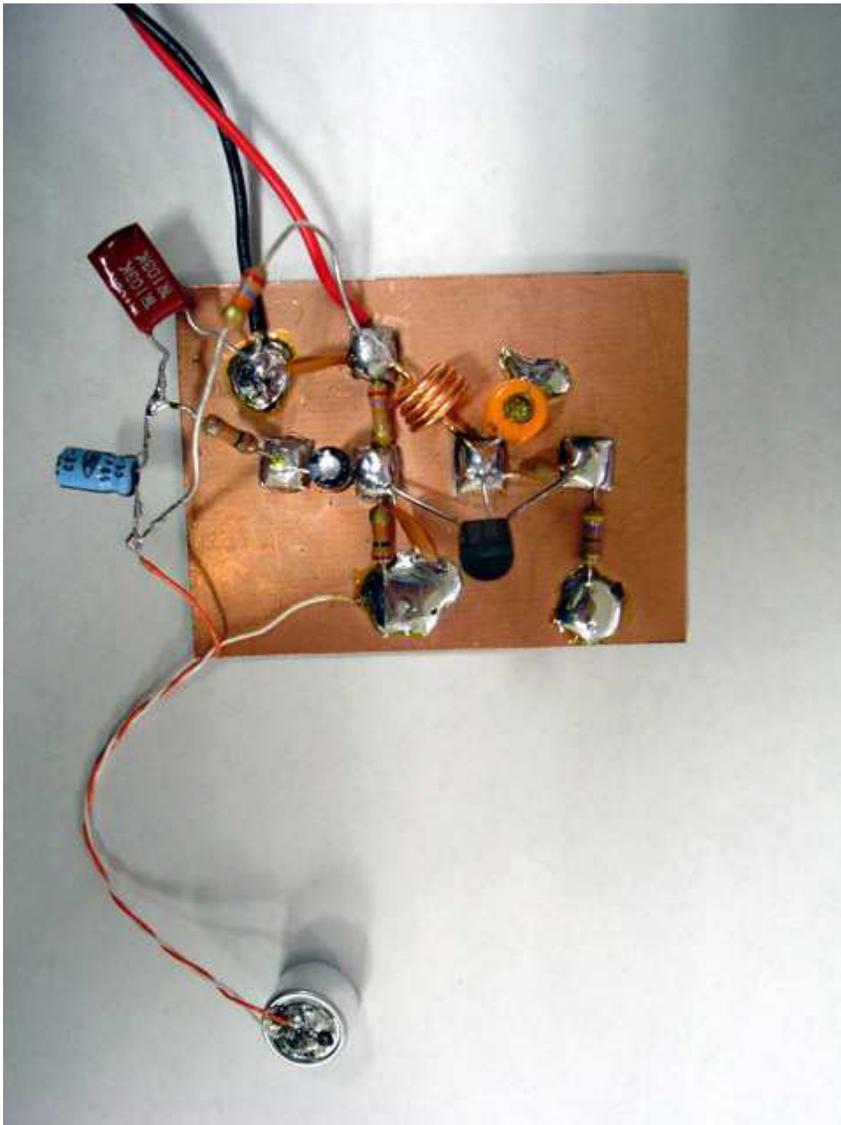
◆ coil
· 8.5 - 12 turns

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◆ capacitors
· 10 PF
· 0.01 MF (103)
· 1 MF

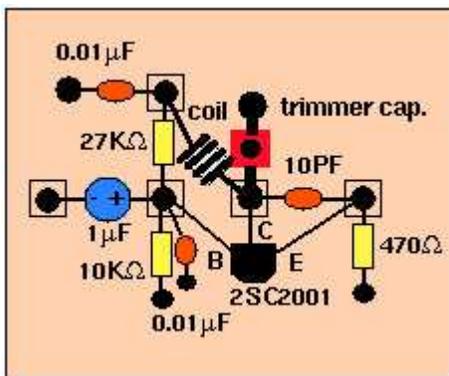
2002-03-26 by TK







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