



Lecture (03.02)

PCB fabrication using photo resistive PCB and toner thermal transfereer



By:

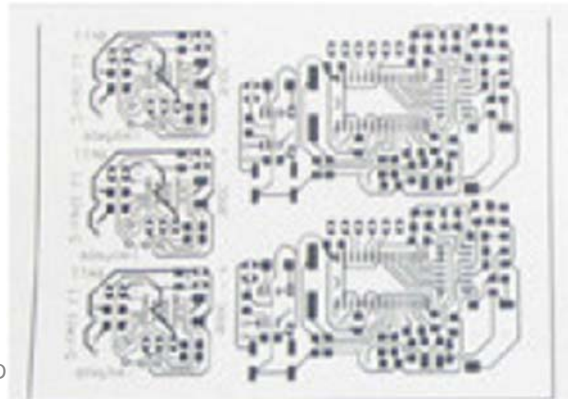
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photo resistive PCB

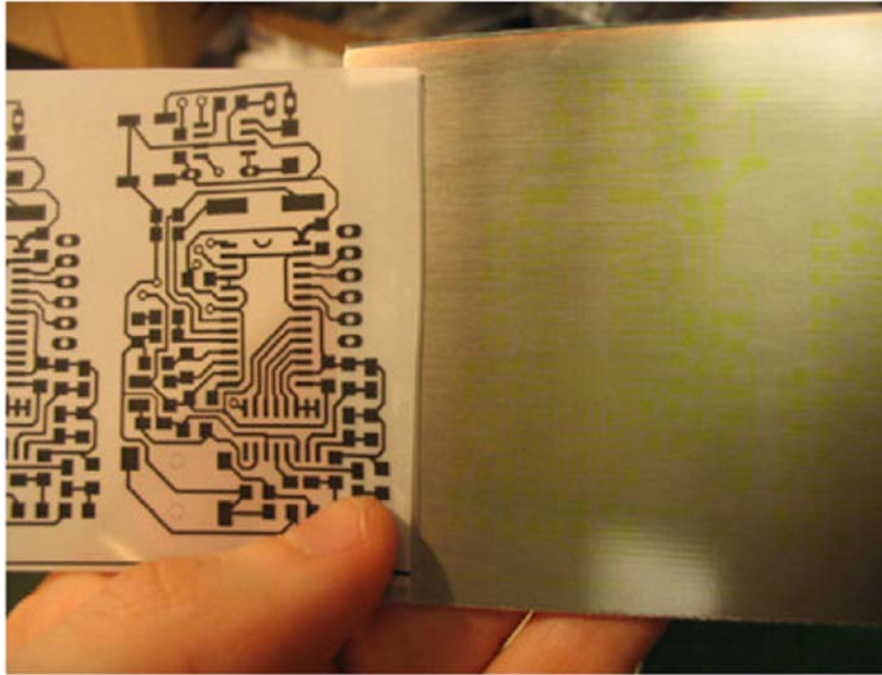
Step 1 : print PCB on translucent paper

- print your design to a high quality (600dpi at least) laser printer, in monochrome mode, onto a white piece of paper. Double check that it is as you want it, in the correct orientation, enough tiling,
- mirrored, dark ink, slightly smaller than the PCB you have, etc. Now print it onto translucent paper,



Step 2: Exposing the Board

- This step transfers your layout design to a positive-resist PCB by exposing UV light to the sensitized PCB with the printout as a mask.
- For this step you will need: a presensitized positive photoresist copper clad board, scissors, tape, a UV bulb and thin plate glass or exposure unit.
- This step takes 5- 10 minutes.
- First cut out the layout leaving a few millimeters of space on the edges.
- If you are going to perform the exposing and etching in the same session, go ahead and turn the etching machine on now, since it takes 10 minutes to warm up.



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Step 03: prepare solution

- Pour one liter (1000 c.c.) of water into a small flat plastic tray.
- Pour whole pack of DP-50 powder (50g) into the water and slightly shake the tray until completely dissolved.

Step 04 : Development

- Place the exposed presensitized PCB in the solution and slightly shake the tray until the tracks area clear and there is no more blue, smoke like resist coming off the exposed area on the board.
- Rinse the board under running water to remove developer and to stop the developing process.
- The correct ratio between developer and water is important but not critical, a maximum tolerance of -10%to +30%is allowed.
- A normal developing time is from 30 seconds to 2 minutes.
- If the developing time is less than 30 seconds, the unexposed parts of the board will be easily damaged due to too concentrated solution.

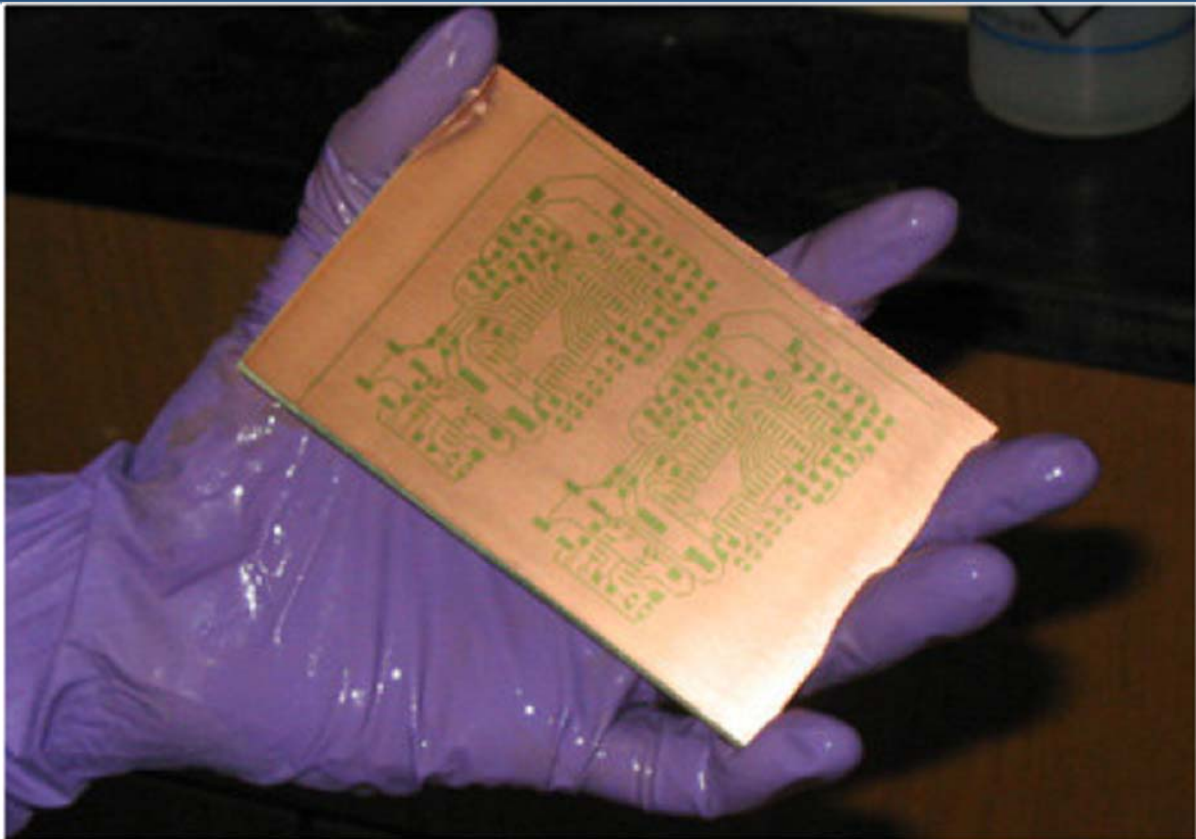
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- The developing process should take place at room temperature.
 - Higher temperature will shorten the developing time.
 - The usable time of solution is one day after use.
 - The developing ability of each pack of DP-50 is about 20 PCB's (10X 15 cm).

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Step 05: Preparing the Etching Solution

- With plastic container: one pack, and add water to 750 c.c. (requiring 650 c.c. of water to this effect)
- One pack of etching solution is good for etching 10-20 pcs of 10x 15 single sided sensitizing board.
- Solution gone for etching processing will turn blue.

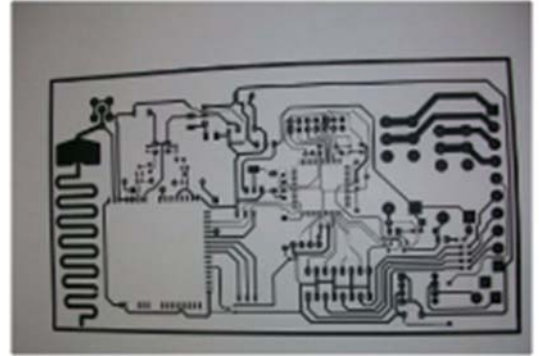
Step 06 : Etching

- Place the fully developed sensitizing board into the Etching Tank till it is completely etched, remove and wash clean with clear water (the whole processing entirely open to visual observation)
- A higher etching temp. Will bring about a faster etching process, but in no case should the etching temp.
- As a rule it will take approx. 6 mins to etch through using newly unpacked solution, with the temp. Of 50°C, where the etching is still incomplete beyond 45 mins, it is necessary to replace a new pack.

toner thermal transferee

Step 1:

- Print your design in a normal white paper



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Step 02:

- Cut a piece of photo glossy paper and fix it over the original print in the white paper using adhesive tape

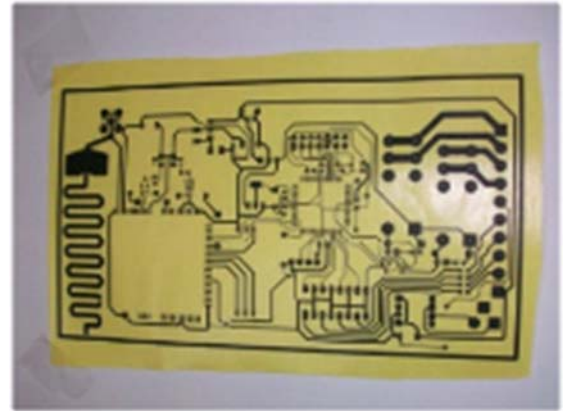


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Step 03

- Print again your design (on the shiny side) (mirrored)



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Step 04

- Get a new PCB, make it clean and bright like gold (Wash the PCB before start)



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Step 05

- Put the PCB paper on the cleaned board , face to face
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Step 06:

- Put a hot iron on it (use scale 5 on irons of a range from 0~6) for about one minute and then start to move gently the iron for a bout 2 minutes



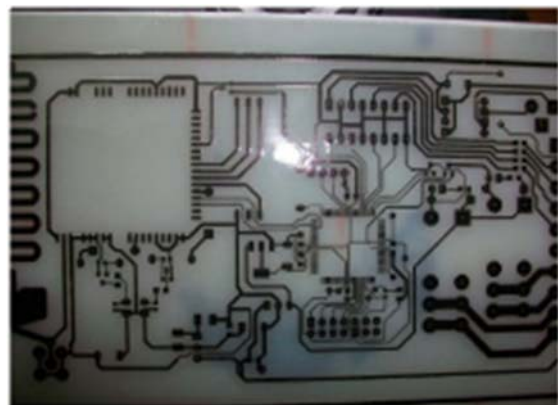
Step 06

- Now it's the time to remove the RAM PCB paper, gently and slowly



Step 07

- Etching, use an advanced etching solution or ready made etching acid





Thanks,..
See you next week (ISA),...

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