

Cheap and Easy Toner Transfer for PCB Making

by [hilarycheng](#) on April 5, 2007

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intro: Cheap and Easy Toner Transfer for PCB Making

There are lots of people mentioned about using Inkjet Glossy Paper to do Toner Transfer. It can be done. But it is not easy to remove it after ironing. You have to soak the PCB in hot water for more than ten minutes. It is quite time consuming. If you cannot remove the coating completely, it cannot be etched.

I have tried to use Konica Minolta Photo Quality Matte Paper. Then design your own circuit and print it on the Matte Paper. Remember, before printing it, you need to mirror board. Otherwise, the circuit will be inverted.

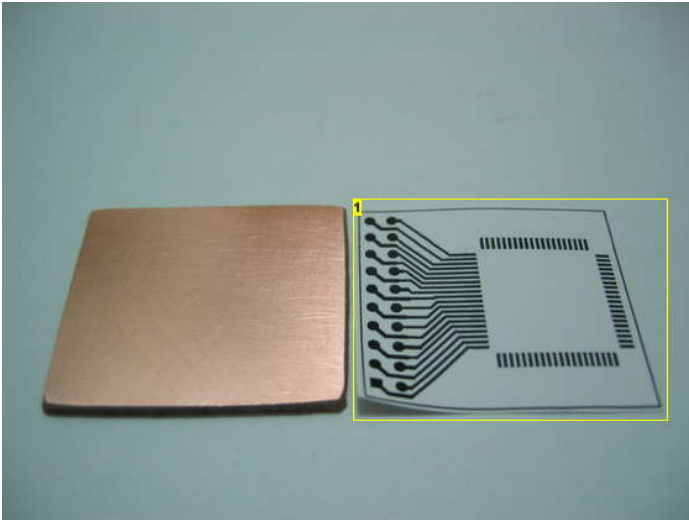


Image Notes

1. Inkjet Matte Paper with Printed Circuit

step 1: Start to Iron It.

Face the Toner Side of Matte Paper towards to the Copper Side. Turn On your Iron. Unlike the Glossy Paper, you have to turn to maximum temperature. You don't need it this time. I turn the iron to medium temperature (because the paper is not very thick.. Heat is easy to Transfer to Copper and Toner). Firstly, Iron the side of PCB. After 30 seconds, you will find the Matte Paper will stick to Copper firmly. It means it is successful. Then Iron the whole PCB. Depends on the Size of PCB, I use around 2 minutes for this Copper Board (Around 3cm x 4cm).

If some area cannot stick, it means your copper board is not clean enough. Remove the Paper and Use Acetone and Sand Paper to Clean it.

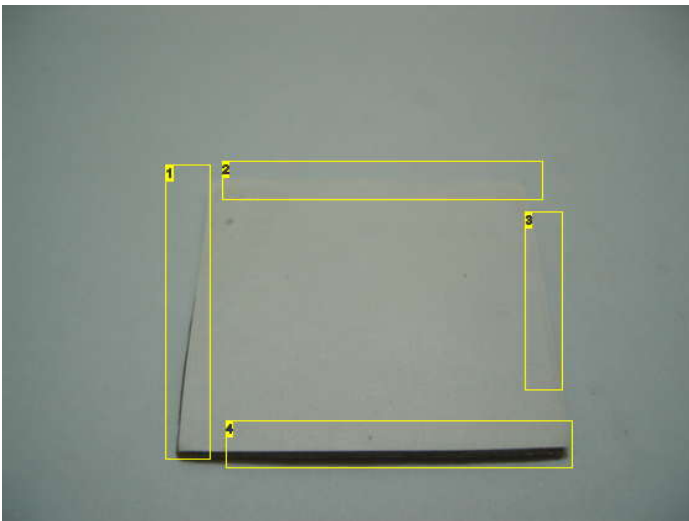


Image Notes

1. Iron!
2. Iron
3. Iron
4. Iron

step 2: Soak It with Cold Water

Just Soak It in the Cold Water. Since Matte Paper are much thinner than Glossy Paper. Paper will become soft very quickly. Use your finger to remove the paper gently. Don't Remove it Too Hard. Otherwise, some toner will be removed too.

Please check the every trace. Find out any broke trace. If find, use Acetone to clean it and do it again.

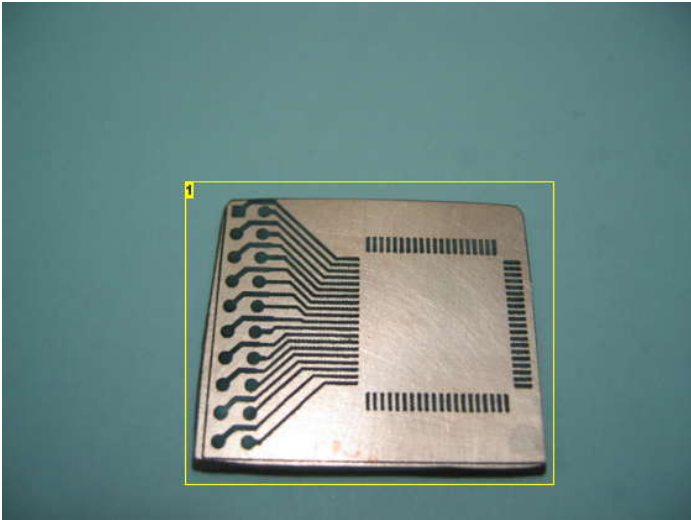
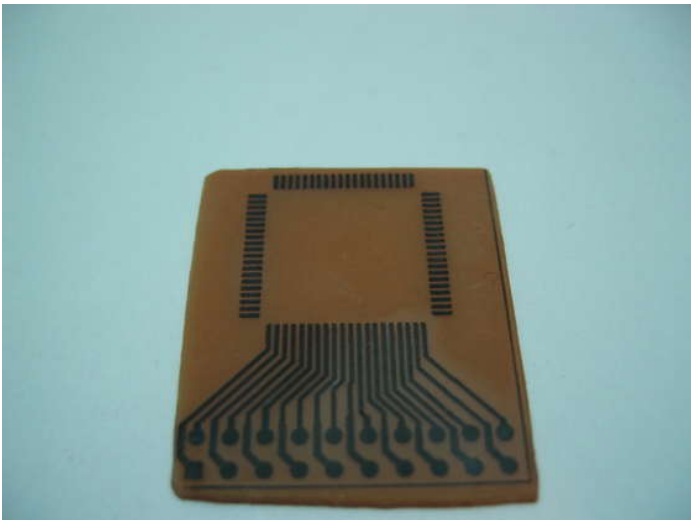


Image Notes

1. Remove Paper Gently

step 3: Etch It !

Use any kind of etchant to etch your copper board. I use Ferric Chloride. Put Ferric Chloride into Water and wait until it dissolve. Put the Copper Board into it and Wait Until All Uncover Copper Disappear.



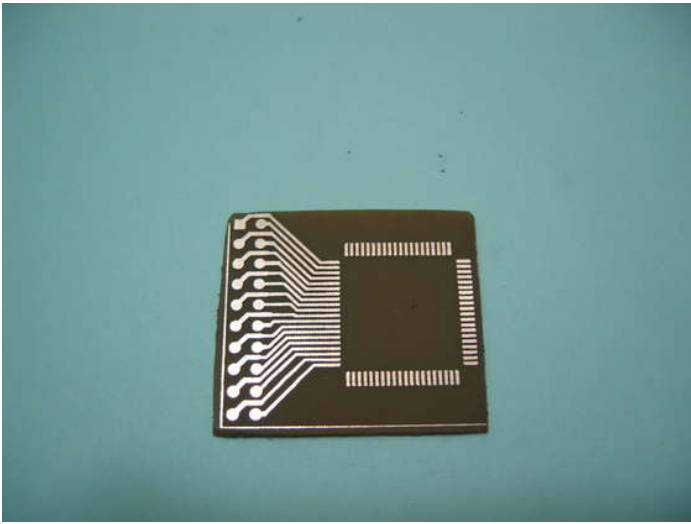
step 4: Clean and Then Finish!

Finally, we need to remove the Toner. Use the Acetone (Nail Polish Remover) to clean it.

This PCB in the Photo are LQFP -80 14mmx14mm. The Trace is around 14mil. It is quite clean and no broken trace is found.

Originally, this method are tried by Karo-sama. He has made a video for demonstration.

For more details , you can find it in my wiki.










Related Instructables




Comments


[34 comments](#) [Add Comment](#)


-
-  **worldgnat** says: Jul 14, 2008. 8:25 PM [REPLY](#)
Just a suggestion: if you find a broken trace you can fix it with a Sharpie marker (or so I hear).
-
-  **n0ukf** says: Nov 7, 2008. 9:34 AM [REPLY](#)
Sharpies work well for repairing traces, also for hand-drawing circuit traces directly on the board for etching.
-
-  **bombmaker2** says: Jan 3, 2009. 1:59 PM [REPLY](#)
I usually draw mine for a simple circuit
-
-  **bombmaker2** says: Jan 4, 2009. 6:47 PM [REPLY](#)
or I use PCB123 to design it
-
-  **conrad2468** says: Mar 10, 2009. 9:23 PM [REPLY](#)
Id thank you but i have a mac.....):
-
-  **bombmaker2** says: Mar 11, 2009. 3:52 PM [REPLY](#)
ok
-


 **MeisterMarkus** says: Oct 16, 2008. 5:19 AM [REPLY](#)
I had very good results using a steam-iron; the steam presses the toner onto the copper and the paper gets off real easy; no need to soak/peel/rub the paper

 **bombmaker2** says: Jan 4, 2009. 5:43 PM [REPLY](#)
I'm doing that right now but the iron leaked and tore the paper a bit it seems to have worked


 **bombmaker2** says: Jan 4, 2009. 6:47 PM [REPLY](#)
wrong tried it three more times and it still sucks


 **YummyPancakes** says: Mar 23, 2008. 11:20 AM [REPLY](#)
Me and dad did it with a laser printer, and it didn't work so well. I didn't know that it worked better with Inkjet. We could have saved \$49!

 **n0ukf** says: Nov 7, 2008. 9:37 AM [REPLY](#)
Try printing on the same paper a second time, doubling the toner thickness.


 **magician13134** says: Apr 5, 2008. 7:26 PM [REPLY](#)
It doesn't. You can't use an inkjet, he's recommending inkjet paper, but it's the toner you're after, exclusively from lasers.


 **bombmaker2** says: Jan 4, 2009. 5:42 PM [REPLY](#)
Just go to Staples or Office Depot and ask for about 5 copies


 **thatonekid** says: Jul 29, 2008. 11:20 AM [REPLY](#)
if you do not have an old printer that uses toner, can an inkjet printer be used?
does the paper have to be glossy or will regular printer paper work?


 **Junkyard John** says: Aug 8, 2008. 7:15 PM [REPLY](#)
Laser printers print with plastic toner. I don't want to get into the nitty gritty details because I'm not knowledgeable enough, but an inkjet will not work. The ink from an inkjet soaks into the paper, and does not bond to itself. Toner, on the other hand, is plastic-based, so a little heat will remove it from the paper substrate it was printed on.


I had the same problem, and had to go to Staples and have them do the copies for me. It really wasn't that bad.

 **Dandymon** says: Jun 29, 2008. 1:28 PM [REPLY](#)
Use Magazine paper! I have spent a lot of money trying numerous photo and inkjet papers with little success, the toner won't stick to them. Any periodical or woman's magazine with the glossy-ish squeaky paper works a treat! It doesn't matter that the pages have pictures and text on them, they don't get transferred, just the toner does. The thicker pages work better through the printer, but don't savage your printer with glossy card. It really does work - try it, I know you've got a copy of TV weekly or Marie Claire sitting there doing nothing! If not, go swipe one from the doctor's surgery, they've got loads ;o)


 **dsandds2003** says: Jun 3, 2008. 7:48 AM [REPLY](#)
I have always used 000 steel wool to clean the toner off the board. Doesn't damage anything. also helps the solder stick better also.


 **dephr** says: Apr 23, 2008. 2:36 AM [REPLY](#)
if you like ultra-super-cheap methods, instead of using Acetone to remove the toner try getting some plain paper and ironing it back off!
you can eventually melt it all off onto different spots on the paper, it just takes a bit of time.
very handy if you don't have any acetone ;)


 **CoolKoon** says: Jan 3, 2008. 5:02 PM [REPLY](#)
If there are some small errors in the transfer, you can fix it with an alcohol-based marker. It worked for me.


 **amplificar** says: Dec 9, 2007. 6:29 AM [REPLY](#)
I found a miraculous fix for bad transfers, that have gaps:
Wiggle a desoldered/clean, low power (approx. 15W) soldering iron across a gap to fill it. The iron melts the toner and spreads it where the tip touches.

*Works best where toner rubbed off - not as effective where no toner met the surface to begin with.

 **cencia76** says: Jul 3, 2007. 8:19 PM [REPLY](#)
Hi,
do you mind if I ask you where I can purchase a decent PCB board for the above application? You have mentioned a FR4 Silver Coating PCB. Is this a good choice? If so, where do you think I can look for it?
Any suggestion will be appreciate it.
Massimo.

 **winchester883** says: Aug 29, 2007. 10:44 PM [REPLY](#)
When I did some art stuff with etched pcb's I bought from this brand. Their site has all the stuff you should need. It should be under "copper clad boards" in their search by product name menu. Then you should find a online distributor and order to your hearts content.
<http://www.mgchemicals.com/index.html>
this is the actual company that i ordered from
<http://www.alliedelec.com/Default.asp>


 **hilarycheng** says: Jul 3, 2007. 10:29 PM [REPLY](#)
I have brought it at Hong Kong from some sort of electronic parts shop. I donno any internet shop have selling it.

 **grg12** says: Jun 11, 2007. 4:54 PM [REPLY](#)
Im using something called "chalk paper" (looks like Glossy but without any plastic) and washing powder solution to remove paper after irioning - after 5 minute bath it releases without any scraping. Works with magazine paper too


 **kiwisoft** says: Apr 6, 2007. 1:46 PM [REPLY](#)
baking paper works fine i think


 **hilarycheng** says: Apr 6, 2007. 6:42 PM [REPLY](#)
have u tried it ? :P

 **kiwisoft** says: Apr 19, 2007. 7:52 AM [REPLY](#)
not on PCBs but on a t-shirt - see here: <http://www.instructables.com/id/ERRONEEF06ECIL2/>

 **Lapin1** says: Apr 5, 2007. 6:29 AM [REPLY](#)
I've got good results with magazine paper ... which is free - for me at least.
Your instructable is nice anyway.
<http://www.instructables.com/id/EN4JHYI8R7EYF71YHZ> was more complete though.

 **hilarycheng** says: Apr 5, 2007. 9:46 AM [REPLY](#)
What Magazine Paper ? Have Photo ? :o

 **Lapin1** says: Apr 6, 2007. 1:33 AM [REPLY](#)
Glossy magazine paper. Some papers contain plastic and peel off requires a quite long soaking phase.

 **ongissim** says: Apr 5, 2007. 3:57 PM [REPLY](#)
This is just like karosium's.

 **hilarycheng** says: Apr 5, 2007. 6:11 PM [REPLY](#)
Yes, surely, I have been mentioned in the instructables. :-)

 **rich200313** says: Apr 5, 2007. 4:54 AM [REPLY](#)
Would this also work with glossy paper or just matte?



hilarycheng says:

Surely Glossy will work..... For me, Those Glossy Paper is not easy to handle. Matte Is better.

Apr 5, 2007. 9:47 AM **REPLY**