

ElectroNotes 129 – Through Zero Voltage Controlled Oscillator

See: <http://electronotes.netfirms.com/EN129.pdf> for the original documentation.

This is a Single Sided PCB Layout for the TZVCO.

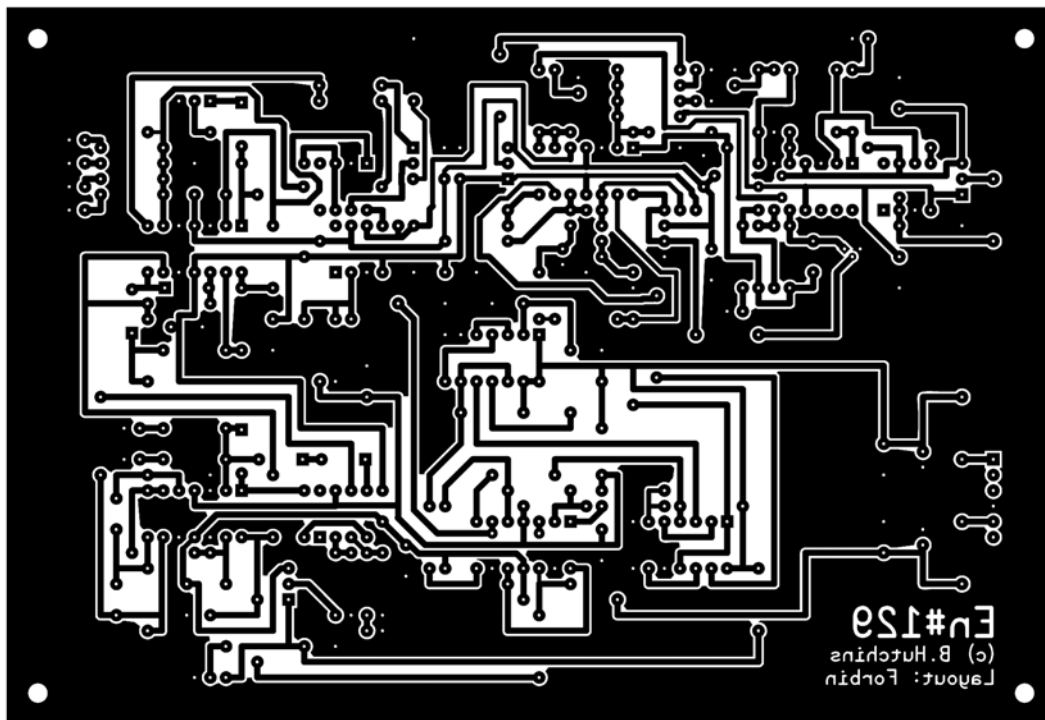


Figure 1 -- Bottom Copper Layer -- Flipped for press-n-peel

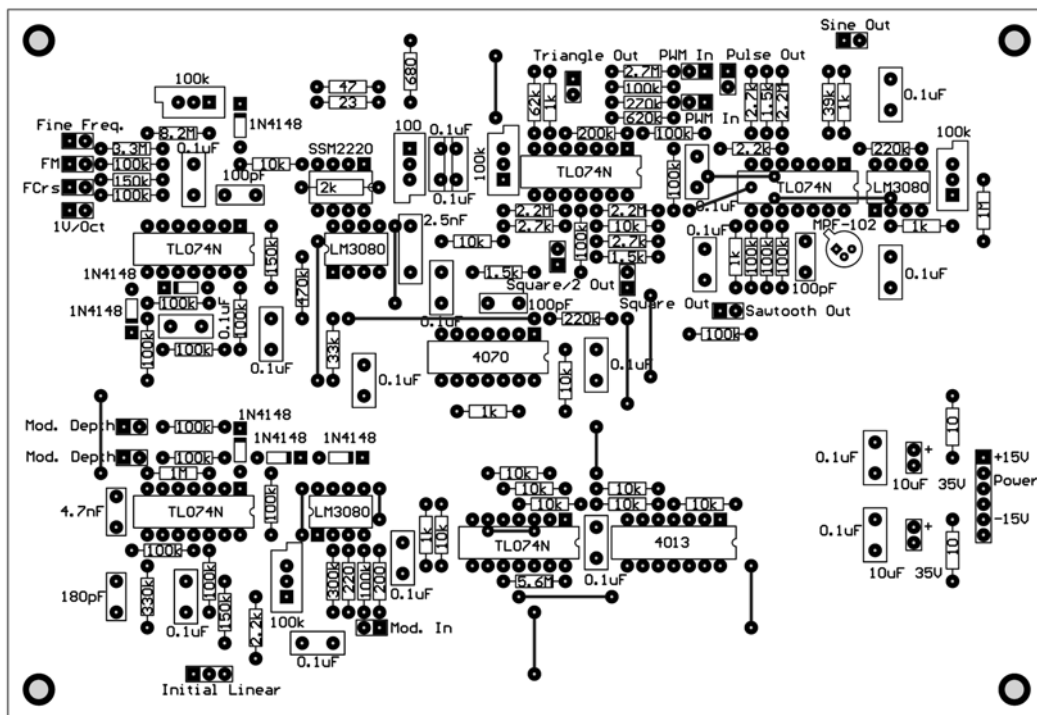


Figure 2 -- Component positioning

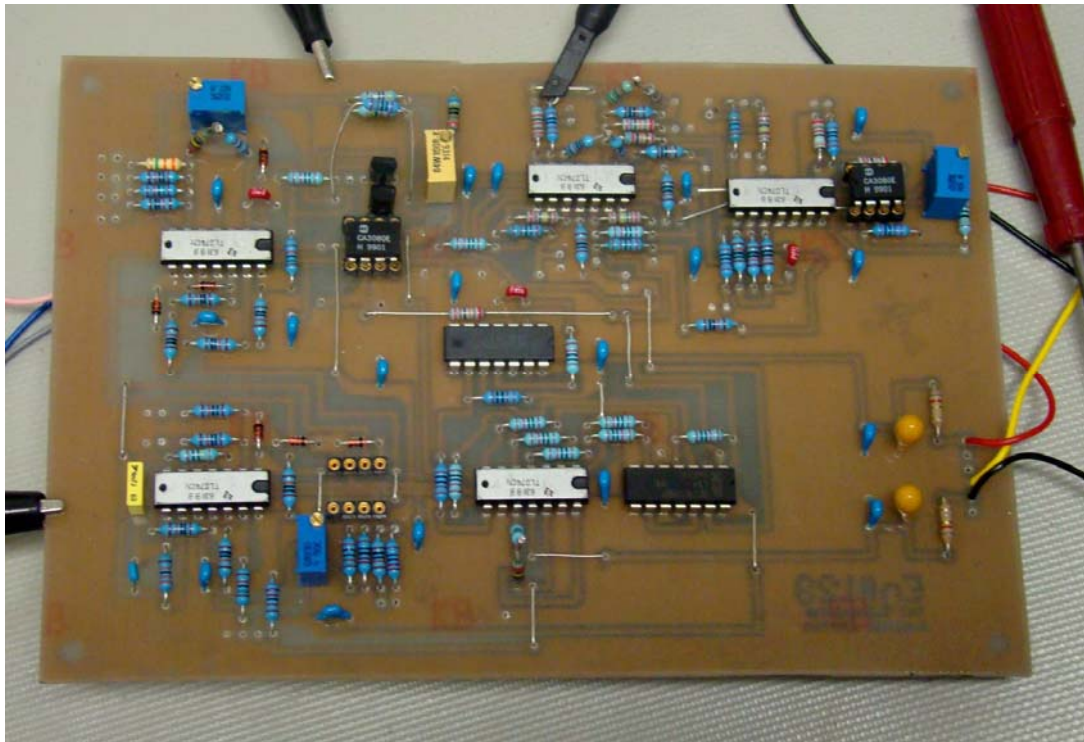


Figure 4 -- Prototype Build

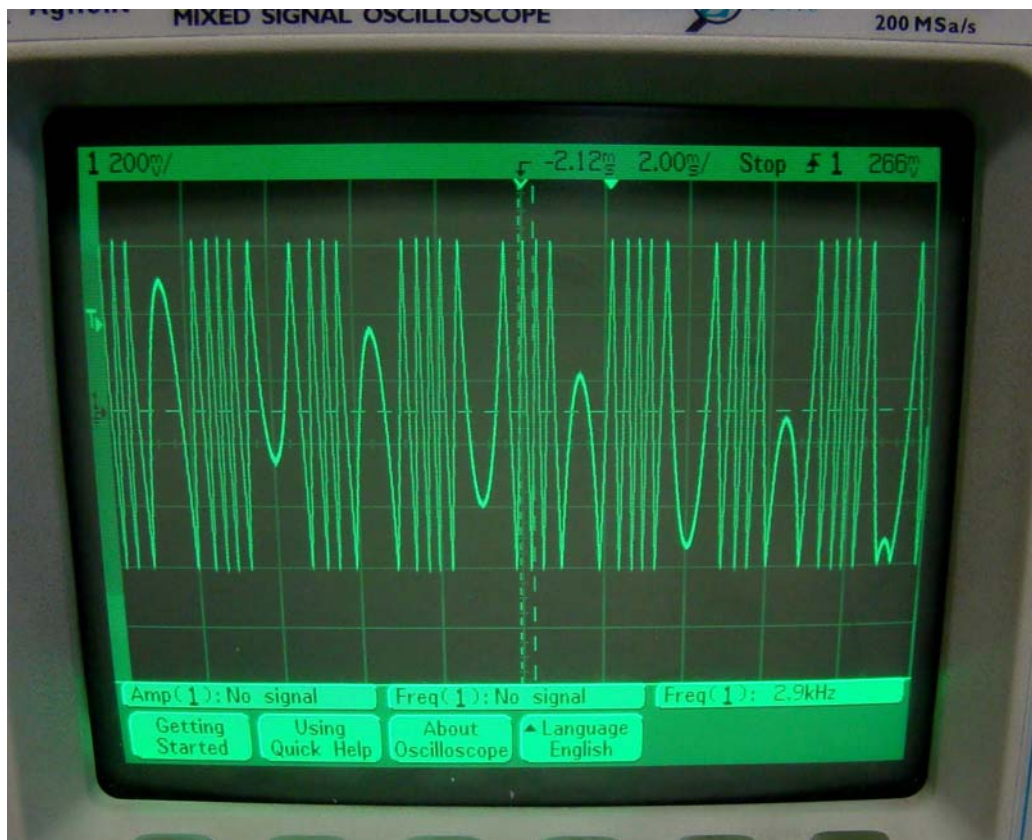


Figure 5 -- Example Phase changing during cycle

Notes:

I have included the series resistor that Ian Fritz discusses to bring the temperature coefficient to more precisely match that of the transistor pair. See: http://home.comcast.net/~ijfritz/sy_cir2.htm

I have included a LOT of decoupling capacitors. This is probably more of a digital thing but it can't really hurt. I am sure that you can leave more off if you see fit.

I have stuck as closely as possible to the original. I was vaguely tempted to change the OTA's to 13700's but since that won't work for OTA2 because of the unique way the power lines are used I left them all alone. I did use the other side of the 4013 to provide a square wave an octave lower basically for free. I also used quad op-amps throughout for layout and cost considerations. It doesn't seem to have been an issue anywhere.

I don't really have any intention of doing a run of the boards as really if you going to get them made then I would have gone double sided. This is really for people that want to make their own boards. If you want to buy a PCB I would suggest going for the Teezer from:

http://www.bridechamber.com/bridechamber.com/Teezer_PCB.html

This worked well for me but I may well have overlooked documenting bits or made some assumptions that I have forgot to tell you about. If you have any suggestions or find any problems please PM me at electro-music. <http://electro-music.com/forum/profile.php?mode=viewprofile&u=17249>

Do make sure that you carefully read the original document. Bernie does explain very clearly and carefully with a lot of detail how the entire circuit works. It is a very clever bit of design and I am just helping to build upon it by providing an easier way for people to build it and have fun!

Please be careful building this and if the drill breaks off and pokes you eye out or you try plugging it straight into the mains you only have yourself to blame...