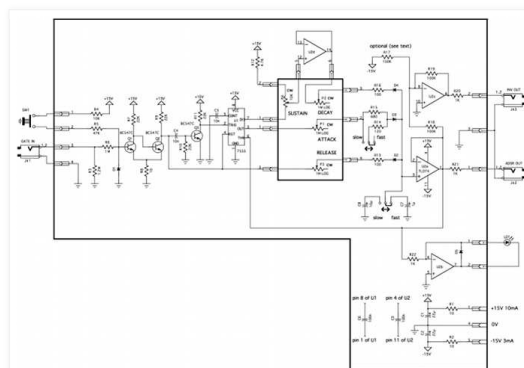


YuSynth ADSR module

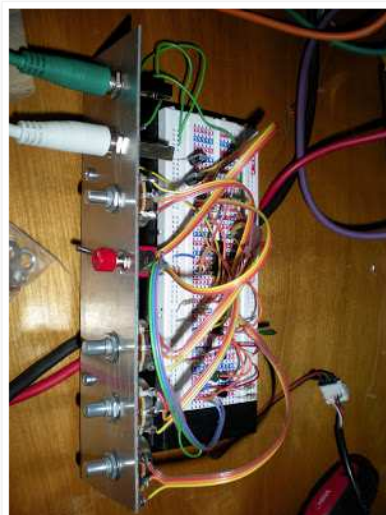
So, A little while back, I built the Ian Fritz dual AD/AR module and it works pretty good but after using it for a few weeks, I decided to upgrade to full ADSR modules. I have an ADSR envelope generator from Synthesizers.com but my goal with this project is to teach myself stuff and eventually replace any ready built modules with ones that I've put together.

I can't link directly to the project page because of how their website is set up, but you can find it on [YuSynth](#) by navigating through a few menus. If you are going to build this module, you will find all the necessary information on that website including PCB's and component layout. Consider this blog post, like a DIY builders epilogue.

I built the improved ADSR module and in fact, I actually built two of them into one double wide module. why not do two individual ADSR modules? well, double wide modules have more space than two single wide modules because they share two edges. They are also more rigid, and since I'm only using simple panels instead of module blanks, that's also a benefit. I also have limit power plugs and this way, they can share a power plug too.



I breadboarded this schematic before I built it and it's a good thing I did. because, or at least with the components I used, the LED didn't seem to work. I tried a few different resistors but it was only after I tried switching the orientation of the Diode and the LED (D5 & LD1) that the led worked. I'm not sure if this was a mistake in the Schematic or just circumstantial, but anyway, its work just fine now, reversed.

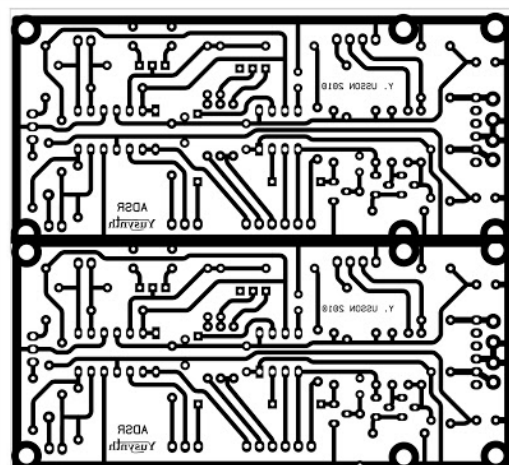


There was one modification I made to the PCB before I etched it. In the instructions, there is an optional 150K resistor which changes how the inverted output works. It essential shifts the inverted output into positive voltage, subtracting from +10v instead of 0V. I decided to put in another junction allowing for a switch, to switch between these two options.

So, here's the PCB I ended up etching. It's a dual and it has the mod for the switch I mentioned above. You will find all the component placement and stuff like that on [yusynth](#), as well as the original single module PCB. My modification is in the

instead of 0V. I decided to put in another junction allowing for a switch, to switch between these two options.

So, here's the PCB I ended up etching. It's a dual and it has the mod for the switch I mentioned above. You will find all the component placement and stuff like that on [yusynth](#), as well as the original single module PCB. My modification is in the bottom left corner of each of the two circuits. the two holes closest to ground in that corner are for the switch.



BE SUPER CAREFUL ETCHING THIS PCB! because the 3 traces that go under the CMOS 555 chip are extremely close together, I had to scratch away a little between the traces and put it back in the acid to make sure they weren't connected, this is where having an LED pen light can come in handy, making sure traces are not connected.

when transferring I always double check all the traces to make sure they are nice and solid, I fix whatever looks weak with a sharpie. They make etch resistant markers, but this seems to work fine. I also like to fill in big open spots, so there is less to etch.



Laying my stuff out on the panel to make sure it will all fit nice.



When my spots are all chosen, I tap them with a nail and a hammer so they don't get erased. then I circle them with a marker and label them. Makes drilling the holes to the correct sizes harder to screw up.



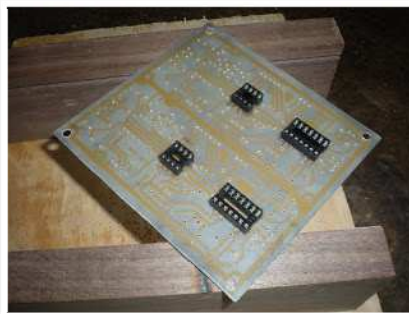
Then I choose the placement of the PCB and put those holes in.



Then I choose the placement of the PCB and put those holes in.



now for the build.



I know other people use jumpers and connectors and crap, but I just solder my wires directly on, I ain't got money or time for all those jumpers. Something I've learned to do though, is prepare all my wires before I start soldering. By that, I mean, cutting them to the correct length, stripping them, and tinning them if need be.





by the end of a bigger build like this, my patience gets worn down as well as my soldering iron. I pretty much went start to finish on this project but it's more likely a two day project. I find it helpful to change tips often too. I use a file to make them nice and pointy again, or I just put a new one in.

When I finally finished this project at 11pm last night, the left ADSR worked great and the right one didn't! OH NO!!!! I went back over everything, checking all my pot and switch connections. It still wasn't working. Then I went over the PCB with an LED again to make sure nothing was making accidental contact. I found a hair thin piece of solder connecting to pads, I scratched it away and it worked great! BE CAREFUL and dont panic.

THINGS TO KNOW FOR THIS PROJECT! definitely use a CMOS555 chip and not a tradition 555. I used Tantalum capacitors for C7 and C8 like the instructions said but I tested it with Electrolytic caps when I had it breadboarded up and it seemed to work fine. DOUBLE CHECK ALL YOUR TRACES, especially under the 555.

a little demo.

Posted by [Charlie](#) at [10:05 AM](#)

4 comments:



h as May 17, 2013 at 5:24 AM

hey im really interested in building the yu synth adsr module, but I'm not really sure how much its gonna cost me, it would be great if you could tell me how much these modules cost you to build so i can work out an estimate, thanks very much!

[Reply](#)

[Replies](#)



Charlie May 17, 2013 at 6:24 AM

It's tough to say how much each module cost for you to build. It really depends on what parts you already have. for me, each module gets cheaper because I've started to amass a bunch of electronics parts. The upfront cost can be a lot because you usually have to buy parts in quantities that are far greater than what is needed. when all is said and done, I wouldn't be surprised if you spent close to \$100 if you had no parts to begin with. but I can say, that in this module in particular, if you just added up the cost of each part without consideration of the quantities needed to make an orded, it's probably closer to \$20 in parts, and that's only cuz it's got 8 potentiometers.....helpful?

[Reply](#)



Neale Whyatt September 15, 2016 at 4:10 AM

Hi Charlie, thanks for the tip about the LED - I had exactly the same issue. Strange that Yves hasn't corrected that on the YuSynth site. Did your module work flawlessly? Mine works, but appears to have a residual long tail on the output starting at around 0.1V regardless of the ADSR settings. That doesn't seem right and is especially noticeable driving, say, a VCO.

[Reply](#)



Neale Whyatt September 15, 2016 at 6:14 AM

To answer my own question, this appears to be a known issue (due to non-ideal diode characteristics) and accepted because it doesn't matter too much when used with a VCA or VCF. An interesting ideal ASDR is described at <http://kassu2000.blogspot.co.uk/2015/05/precision-adsr.html>