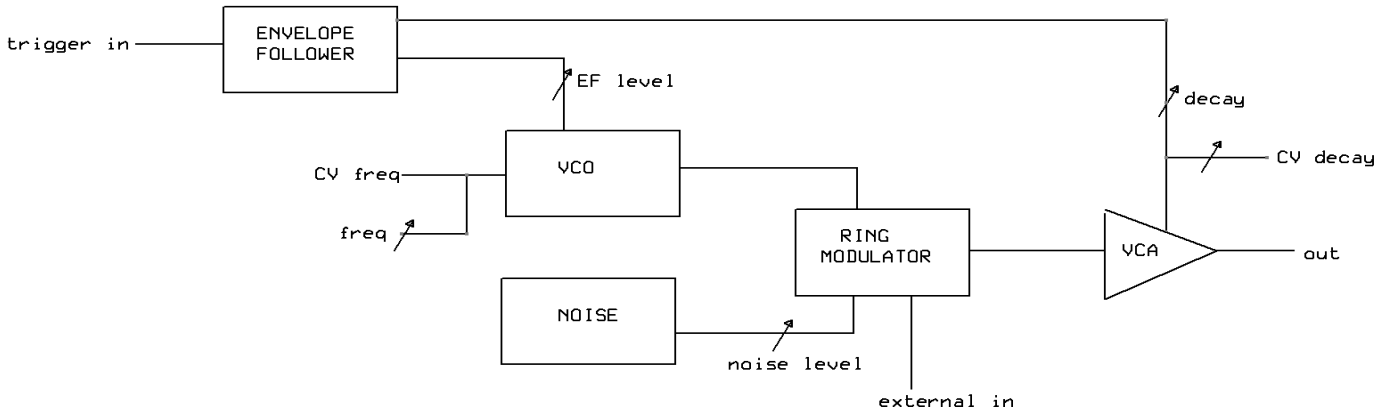
# BaDumTisss

nonlinearcircuits

BadumTisss is a snare/hi-hat module. It has a few nice features to enable the creation of a wide variety of sounds. I would say 'it is **not** a one hit wonder' but that would be a piss weak pun.

Best explained with a block diagram:




The core sound of the circuit comes from the ring mod. Usually it will process the noise source and the VCO, but feel free to plug in the output from another VCO and get some nice sounds. You can use CV to modulate the VCO frequency (NOT 1/oct) and control the decay time. Be sure to check the mods section on page 3 before you start building.

| | | |
|---|---|---|
| 100k pot | 4 | Tayda: A-1848 |
| 1MA pot | 1 | |
| kobiconn style jack | 5 | Tayda: A-865 |
| 100k trimpot | 1 | Tayda: A-2506 |
| TL072 or any dual op amp | 3 | SOIC (8) |
| LM13700 | 1 | SOIC (16) |
| LED | 1 | |
| 1N4148 diode | 2 | thru-hole |
| BC847 | 1 | NPN sot-23 |
| BC857 | 1 | PNP sot-23 |
| 10 pin eurorack power connector | 1 | Tayda: A-198 |
| 10R | 2 | thru-hole |
| 220R | 1 | 0805 |
| 1k (1) | 4 | 0805 |
| 2k2 | 2 | 0805 |
| 5k6 | 1 | 0805 |
| 6k8 | 1 | 0805 |
| 10k | 5 | 0805 |
| 12k | 1 | 0805 |
| 22k | 1 | 0805 |
| 27k | 1 | 0805 |
| 30k | 2 | 0805 |
| 47k | 1 | 0805 |
| 100k (c) | 9 | 0805 |
| 330k | 1 | 0805 |
| 1M | 1 | 0805 |
| 10nF (103) | 2 | 0805 |
| 100nF(104) | 3 | 0805 |
| 1uF (105) | 1 | 0805 |
| 4u7 | 1 | electrolytic, thru-hole, 2mm |
| 10uF | 3 | electrolytic, thru-hole, 2mm |

## Building:

Install the 0805 components 1st. Easiest way is to put a blob of solder on one pad of each pair. Pick up the component with tweezers, put it in position across the pads and then reheat the solder so the component drops onto the pad. Let it cool down the put some solder on the other pad.

Once the 0805 parts are installed and then start on the thru-hole components. Make sure the chip, LED and diodes are installed in the correct direction.

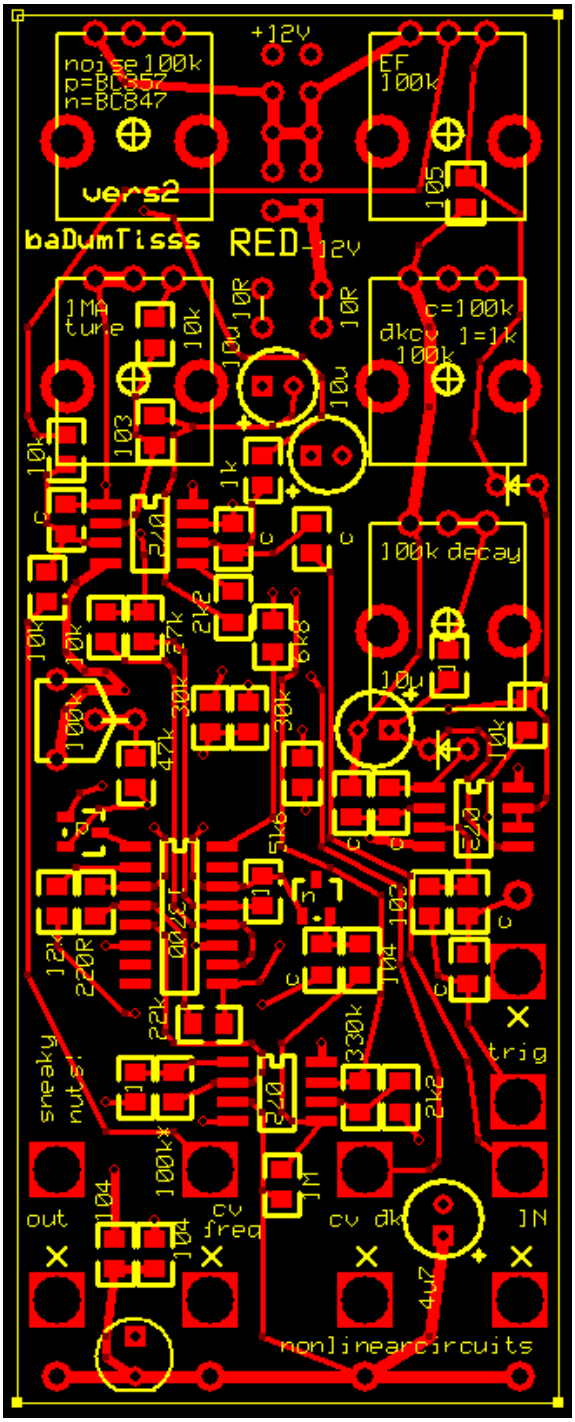
The resistor marked 100* can be changed to suit the voltage you are getting from your noise circuit. It is a transistor based circuit and there can be some variety in the signal amplitude you get from it. Most likely you will get a good solid noise signal and there is nothing to change, if it is too quiet, install maybe 150k or 220k and see how you go.

Generally the output of this module is pretty hot, so you should find 100k is plenty.

If using the NLC panel; for some reason I left off the hole for the LED. The components and pads for driving the LED are on the PCB, so feel free to drill a hole, or leave it off or scrape away some of the soldermask on the **back** of the PCB panel (a bit below and between the out and CV freq jacks). Use a suerbright LED, mount it so it is against the area you scraped and you will find it makes the panel glow quite nicely.

## SETUP

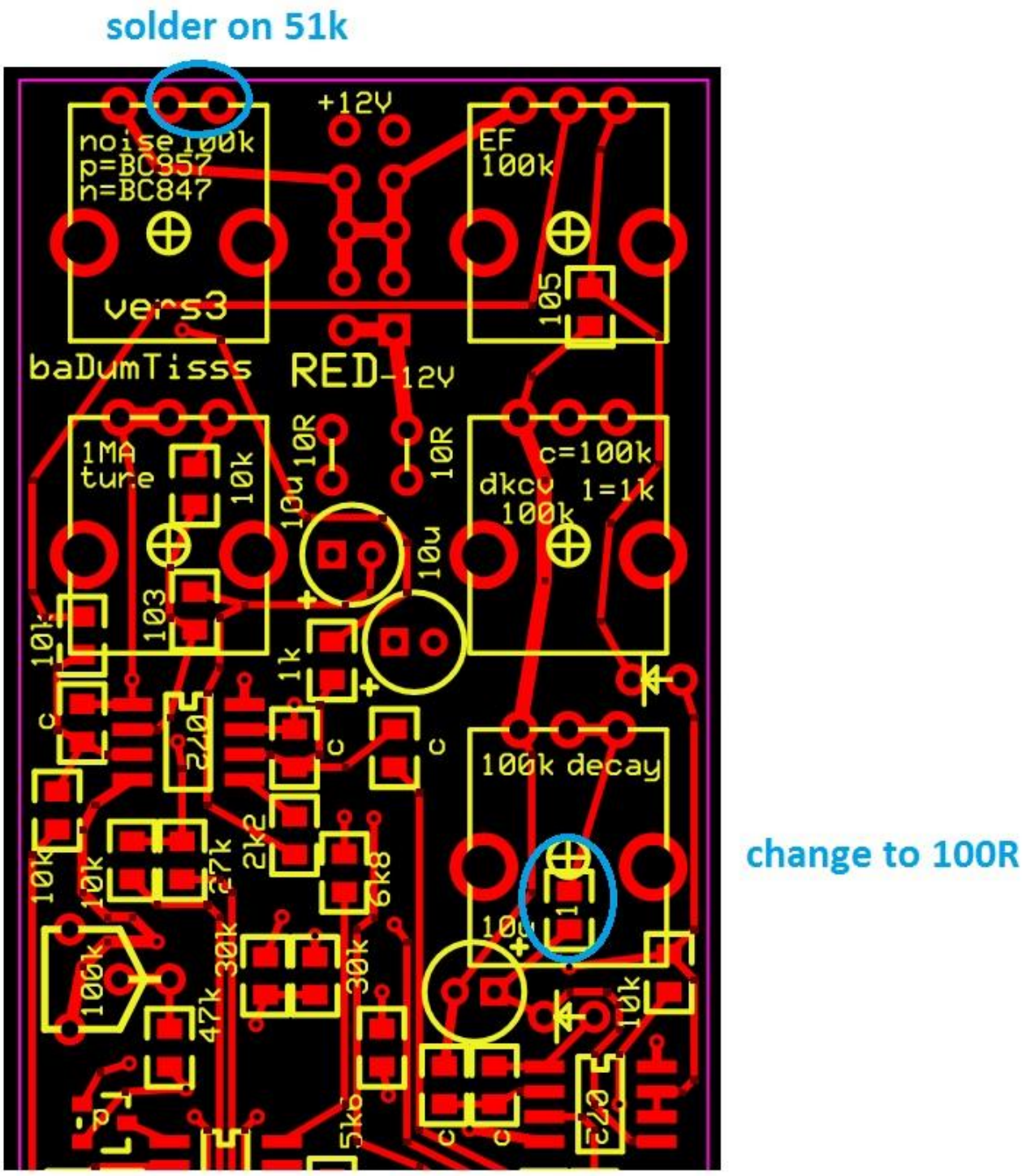
With nothing connected to the trigger input, tune the trimpot to the point where you can no longer hear anything from the output. Done!

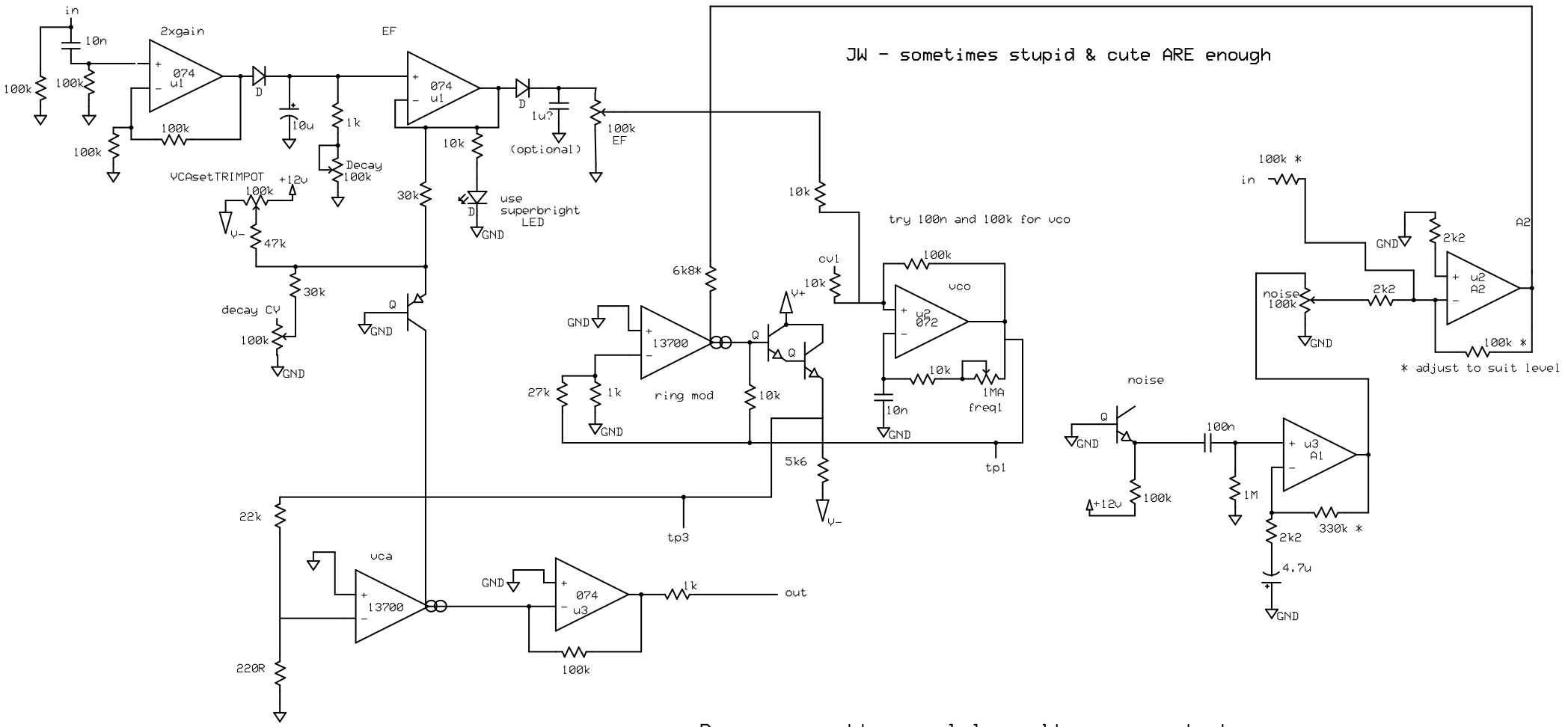


MODS

Adding the 51k across the 2 pins indicated, gives a log curve on the Noise pot, so it is easier to dial in the noise level.

Changing the 1k to 100Ω allows for shorter, snappier hits.






Power connections and decoupling caps not shown

| | | |
|---|---|---|
| nlc | | |
| ba dum tsss | | |
| AF | Rev 1.2<br>14/4/2016 | |