nonlinearcircuits

INTIMACY build & BOM

This module is based on the Intersound IVP Pre-amp. It is not a clone as the inputs and outputs are changed to suit Eurorack voltages, nevertheless the core sections are all there.

There are really 2 modules; one is the dual band shelving EQ (bass & treble), followed by the 4 band parametric EQ. Then there is the transformer based driver stage with an added VCA on the input to control the drive level and volume. The modules can be used separately or in series. The output of the EQ stage is wired to the switching pin of the DRIVE input jack.

Regarding the DRIVE section, the IVP Service manual describes it as *a unique tube voicing circuit allows creative use of overdrive distortion*. As mentioned, it is a transformer based circuit which has its own unique character and sound rather than sounding like a tube distortion.

Building – Please check PG2 re: typos and pot choices.

There are some unusual capacitor and resistor values in the BOM, although most of them are easily found at Tayda. You can always feel free to solder a capacitor on top of another to add them and get the required value. I found you can be a little bit loose with values and get away with it as the Freq range pots compensate for the differences. For example, you can use 100n and 22n to get 120n, or 1n and 220pF to get 1n2 or 4n7 and 2n2 to replace 6n8. Also notice 4 pots are 1MC – reverse audio, again, Tayda have them.

Use – I quite enjoy using this module to process drum hits. It can turn a snare sound into a bass drum. Of course, feed it whatever you like.

Keep the input level under control, there is a pot. If the clipping lights are on all the time, you are probably just getting a square wave from the output.

Typos on the bottom PCB

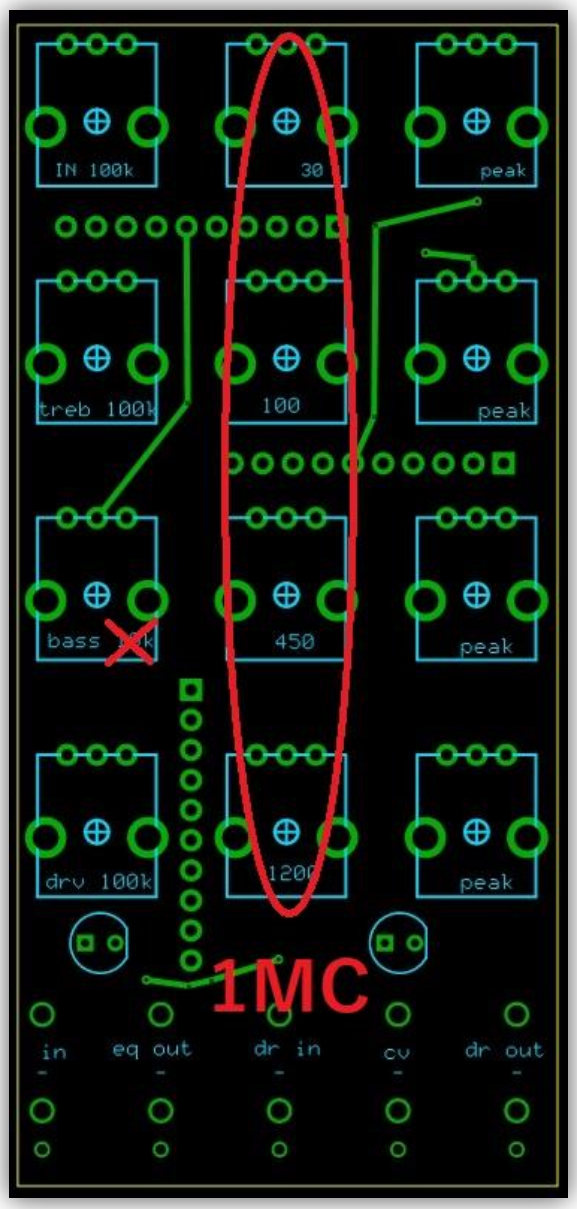
I spent all my time working on the top PCB and completely forgot to update the bottom one for the production run.

On the bottom PCB, **the middle column of pots, labelled – 30, 100, 450 & 1200, should all be 1MC** (1M reverse audio taper). I seemed to have neglected printing this on the PCB.

Additionally, **the other 8 pots should all be 50k - 100k**.

There is a typo for the Bass pot that says ‘10k’, ignore this and install 50k or 100k.

The original design used 50k pots, installing 100k pots does change things somewhat and pushes bass into sub-audio regions and similarly the treble can disintegrate in noise. Feel free to make your own decisions here ☺



BOM – The Tayda & Mouser part numbers are given as examples

VALUE	QUANTITY	DETAILS
22pF	1	0805
47pF	2	0805
470pF	1	0805
820pF	1	0805
1n2 (1.2nF)	1	0805
6n8 (6.8nF)	2	0805
33n	1	0805
47n	1	0805
68n	1	0805
100n	5	0805
120n	1	0805
270n	2	0805
10uF	5	0805 25V or higher voltage rating Mouser:963-TMK212BBJ106MG-T or similar
430R	1	0805
470R	2	0805
820R	1	0805
1k	3	0805
1k1	2	0805
1k6	3	0805
3k3	2	0805
4k7	1	0805
5k6	2	0805
10k	2	0805
12k	2	0805
20k	2	0805
27k	5	0805
33k	1	0805
36k	1	0805
47k	2	0805
100k	6	0805
120k	1	0805
220k	1	0805
430k	1	0805
470k	2	0805
RL	2	Resistor to suit LEDs, try 3k3
TL072 or TL082	5	Soic Tayda: A-1139
LM13700M	1	Soic
LL4148	1	sod-80 Tayda: A-1213
BC857	1	SOT23-3 Tayda: A-1345
BC847	3	SOT23-3 Tayda: A-1339
5V1 zener diode	2	sod-80 Tayda: A-6014 (these are 5V6, near enough)
LEDs	2	nasty bright ones to shine thru the panel.
Eurorack 10 pin power connector	1	Tayda: A-198 cut to size
S1JL, Schottky, power rectifier or 10R	2	SMD SEE NOTES #1. **dot on PCB indicates CATHODE (stripe on component).**
3.5MM SOCKET Kobiconn style	5	Tayda: A-865 or Thonkiconn Jacks (PJ301M-12) from Thonk, Synthcube or Modular Addict
50k or 100k pot	8	Linear Taper Potentiometer Spline Shaft PCB Mount 9mm Tayda: A-4729 You could install Log pots for INPUT and DRIVE, if you happen to have some sitting around.
1MC pot (reverse log/reverse audio)	4	Tayda: A-1697 These are not spline shaft, if you can find them elsewhere with spline/knurled, do it.
10 pin header	3	get a 40 pin strip and cut off as needed Tayda: A-197
10 Pin 2.54mm Single Row Female Pin Header	3	Tayda: A-1306
42TM018-RC	1	10k:10k transformer Mouser: 42TM018-RC Most places like Farnell, RS, X-on or

		Digikey have them. Approx. $5 apiece

Additional notes:

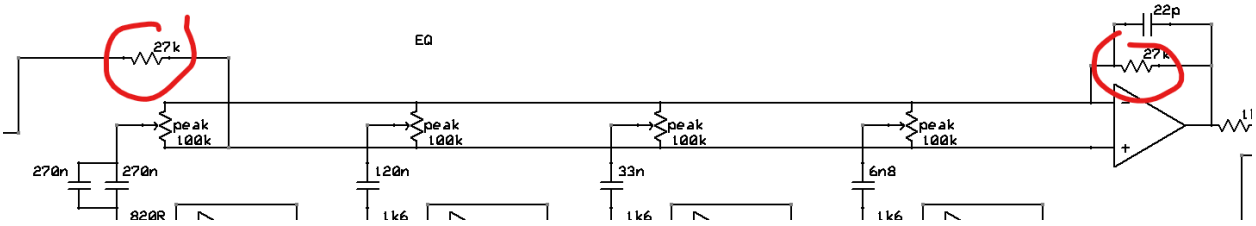
1. , Schottky (best option) **or** standard power rectifier diode 50-600V 1A or more, **or** use a resettable fuse **or** just a 10R. Examples: BAT54GWX, PMEG2005EGWX, AEC-Q101, 20V, SOD-123, PMEG2005EH DIODE, SCHOTTKY, 0.5A, 20V, 1N400x or S1JL or similar.

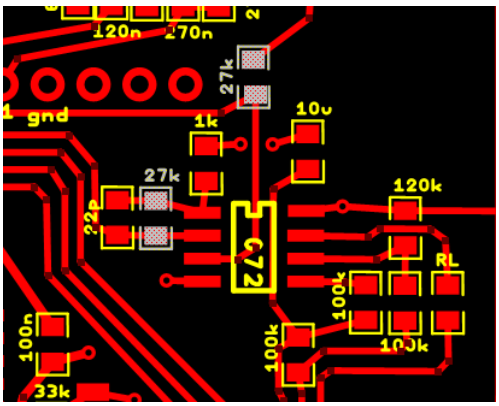
2. The chips, resistors, caps are cheapest from Tayda. Schottky diodes, CMOS & 1uF, 10uF 25V 0805 caps from Mouser/E14/Farnell/etc.

3. Join the Nonlinearcircuits Builders Guild on FB: https://www.facebook.com/groups/174583056349286/ and ask questions there if you have any. If you prefer not to FB then email is fine.

4. **Mods**: there are a few places ripe for experimenting.

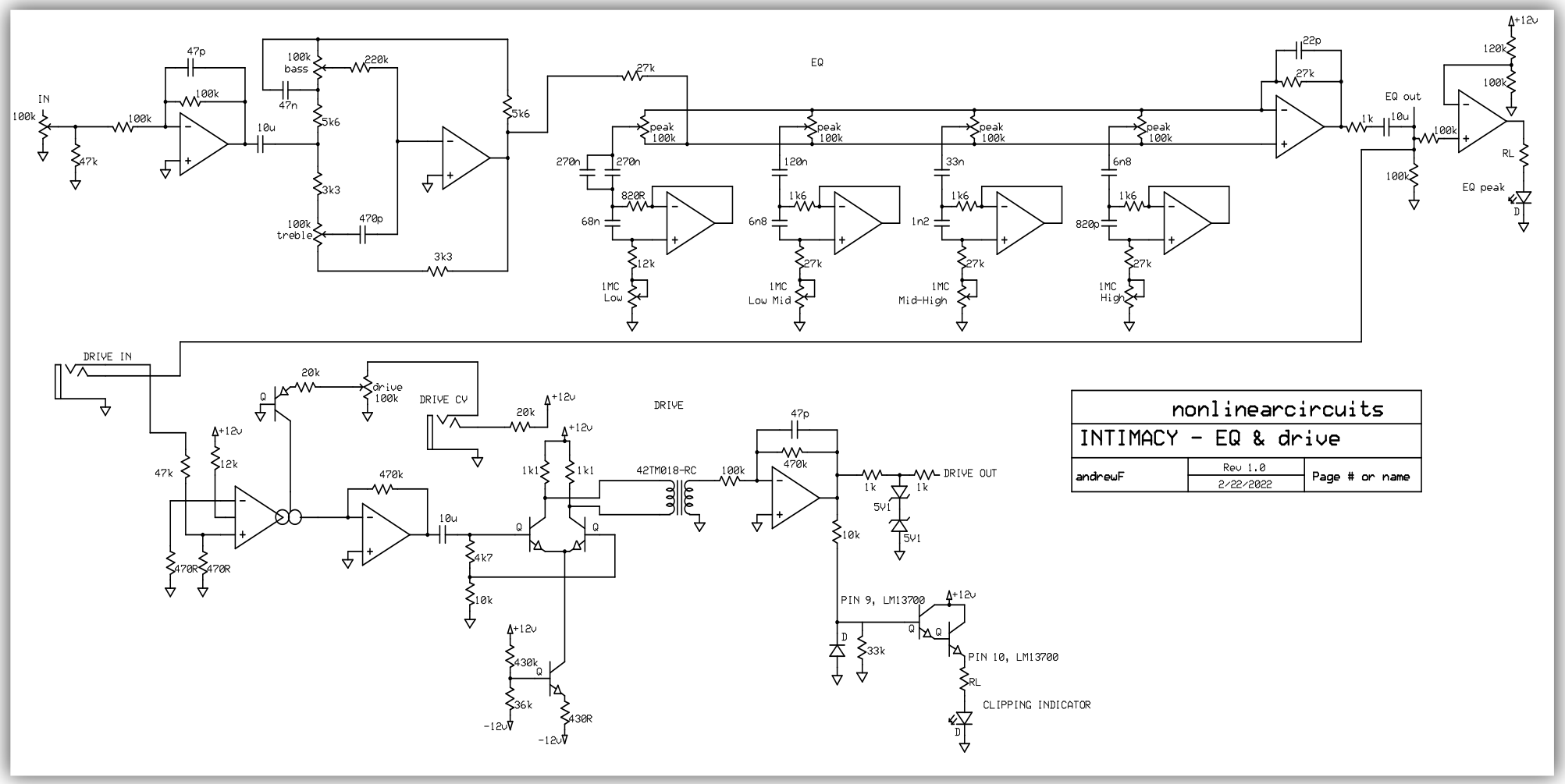
As mentioned the original circuit used 50k pots. You can mod it to keep closer to the original specs using 100k pots or just use 100k pots and accept the extremes of rotation makes things a bit ……well… extreme! If you want to tone it down, replace these 27k resistors with maybe 51k or even 100k:





You could also play around with the DRIVE section, maybe the 1k1 resistors are a good place to start.

The original design used 2MC pots for Freq, which are quite hard to get now. 1MC are fine substitutes although the range is changed but all areas are still covered. Some component values were changed on the LOW circuit to ensure it could still get right down into the mud.



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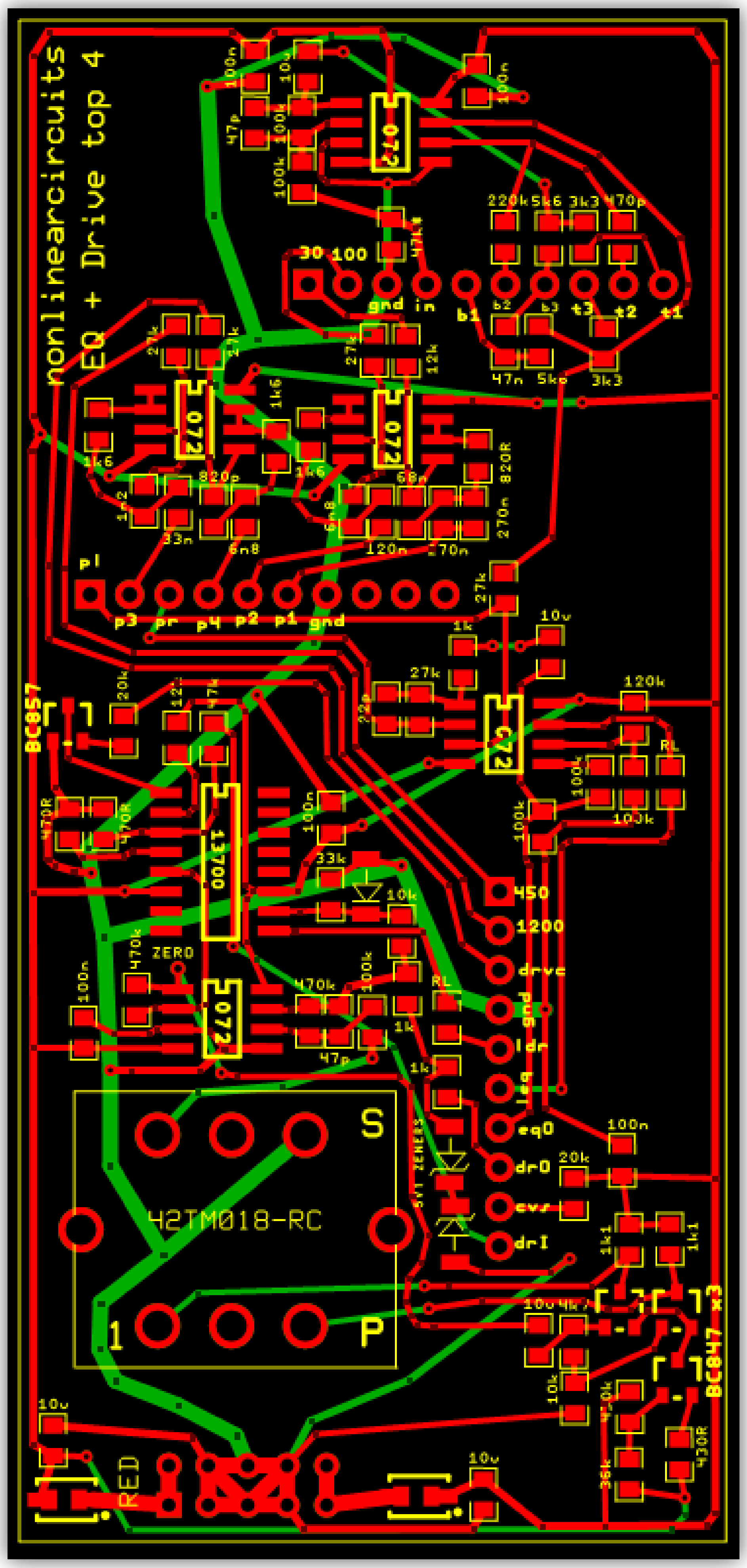
INTIMACY - EQ & drive		
andrewF	Rev 1.0 2/22/2022	Page # or name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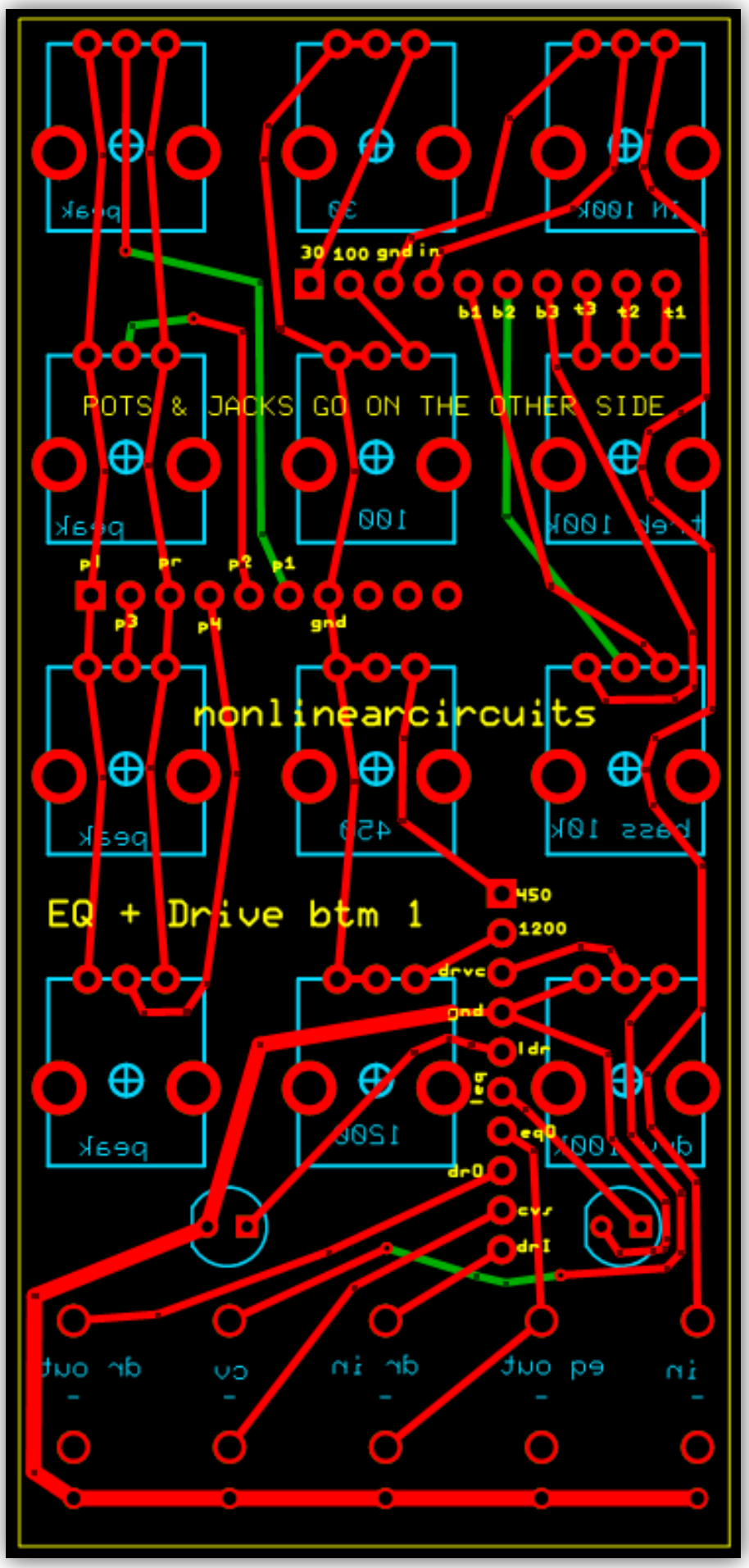
EQ + Drive top 4
42TM018-RC
13700
072
450
1200
drvc
gnd
ZERO
RED
BC857
BC847 x3


30 100 gnd in
b1 b2 b3 t3 t2 t1
POTS & JACKS GO ON THE OTHER SIDE
p1 pr p2 p1
p3 p4 gnd
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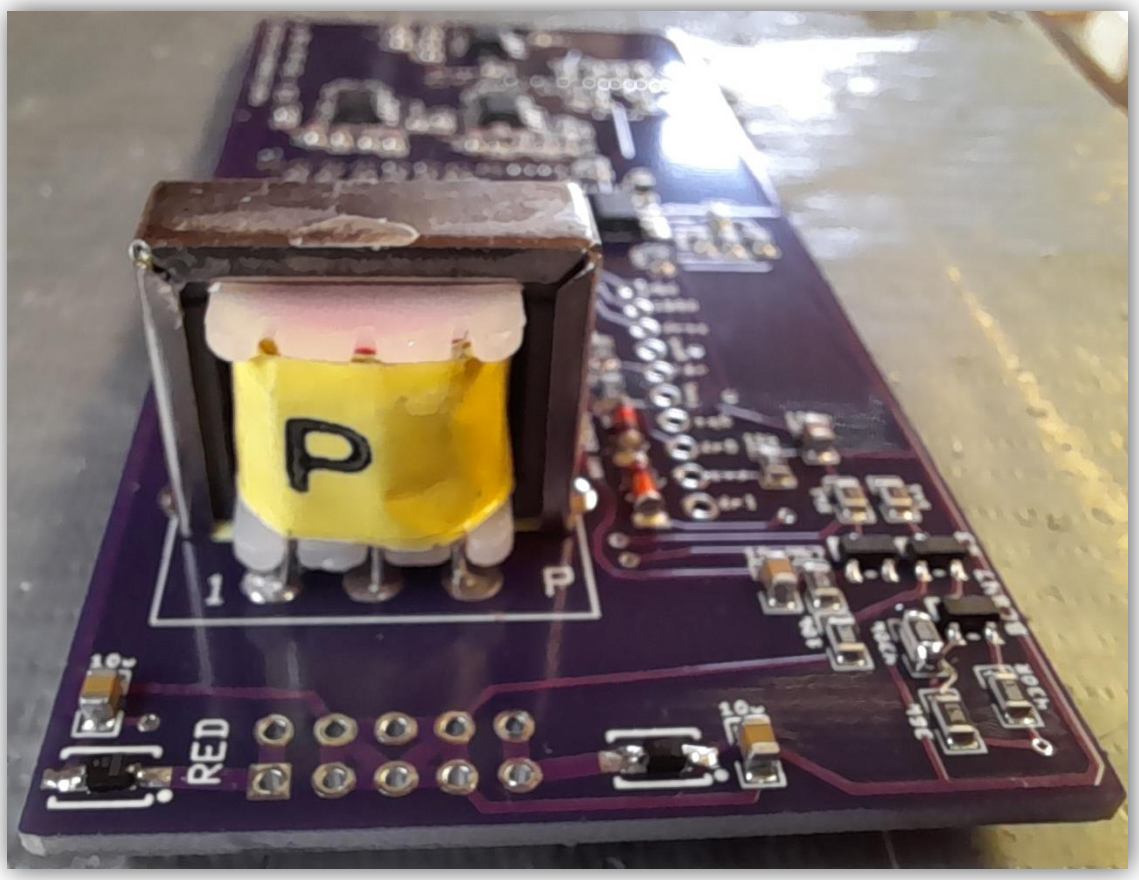
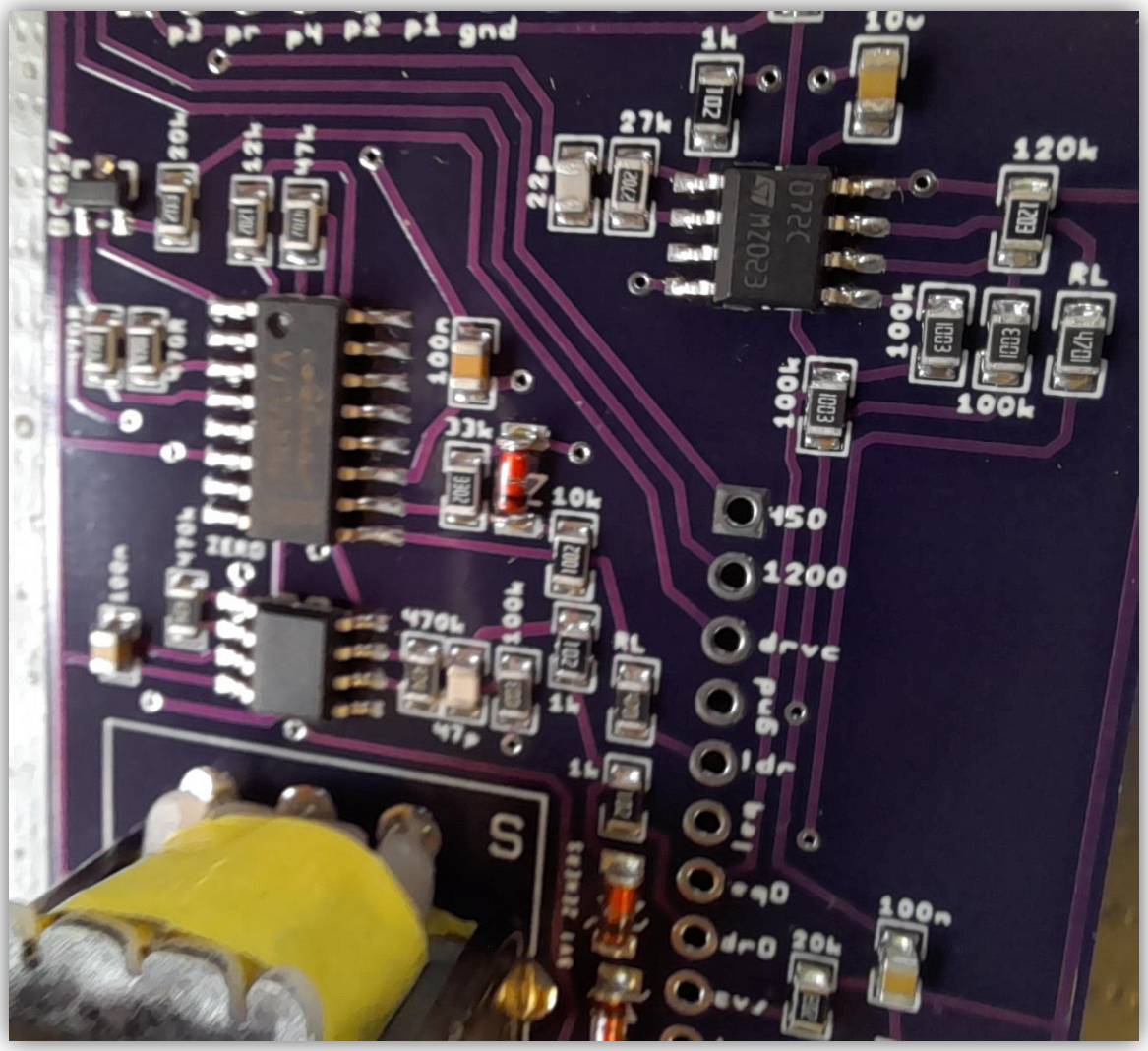
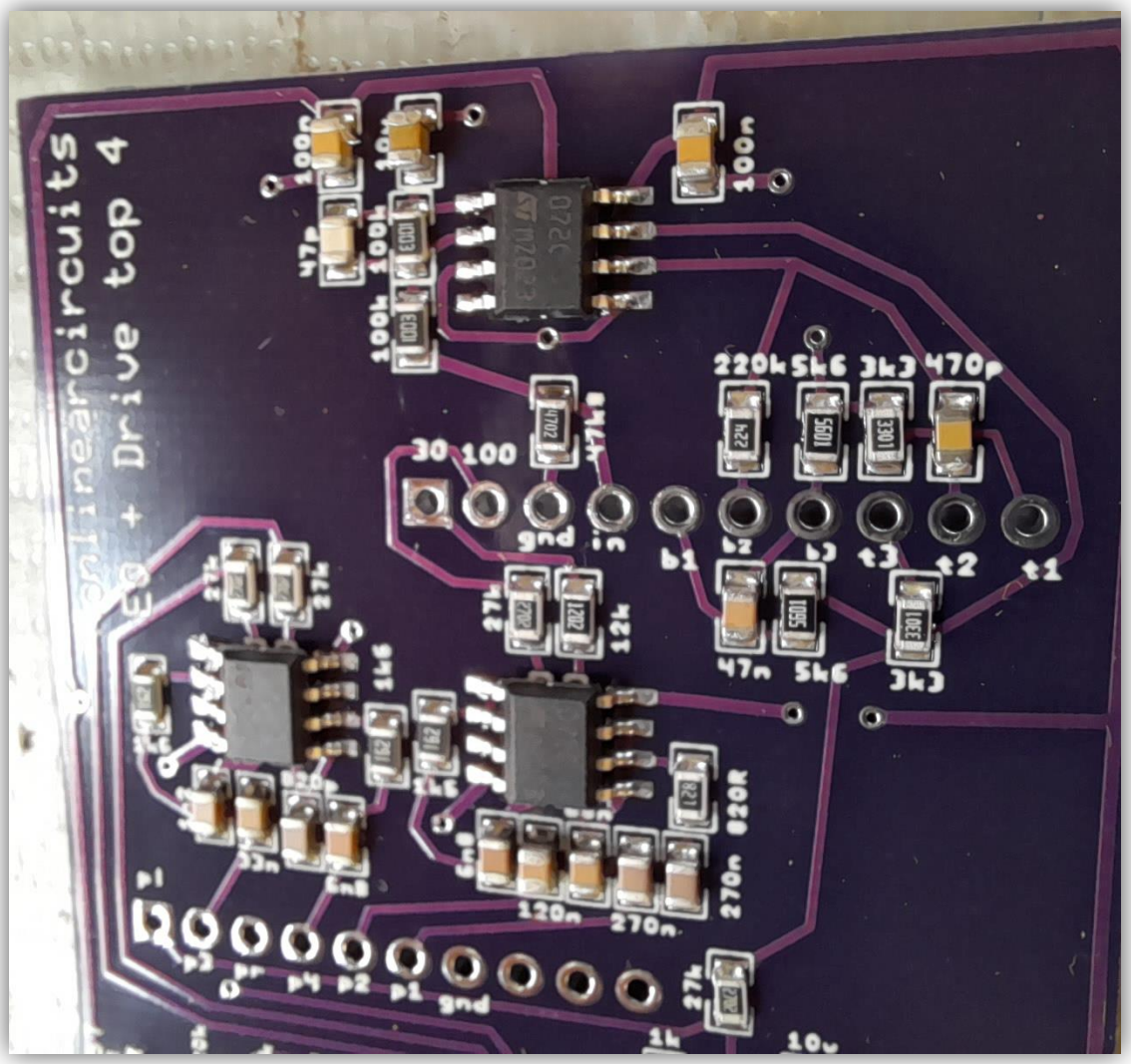
EQ + Drive btm 1
450
1200
drve
gnd
ldr
eq0
dr0
cvs
drI


P
1
P
RED


p3 pr p4 p2 p1 gnd
1k
10v
27k
22p
120k
RL
100k
150
1200
drvc
gnd
idr
100n
33k
10k
470k
47p
20k



You might notice some piggy-backing capacitors!