nonlinearcircuits

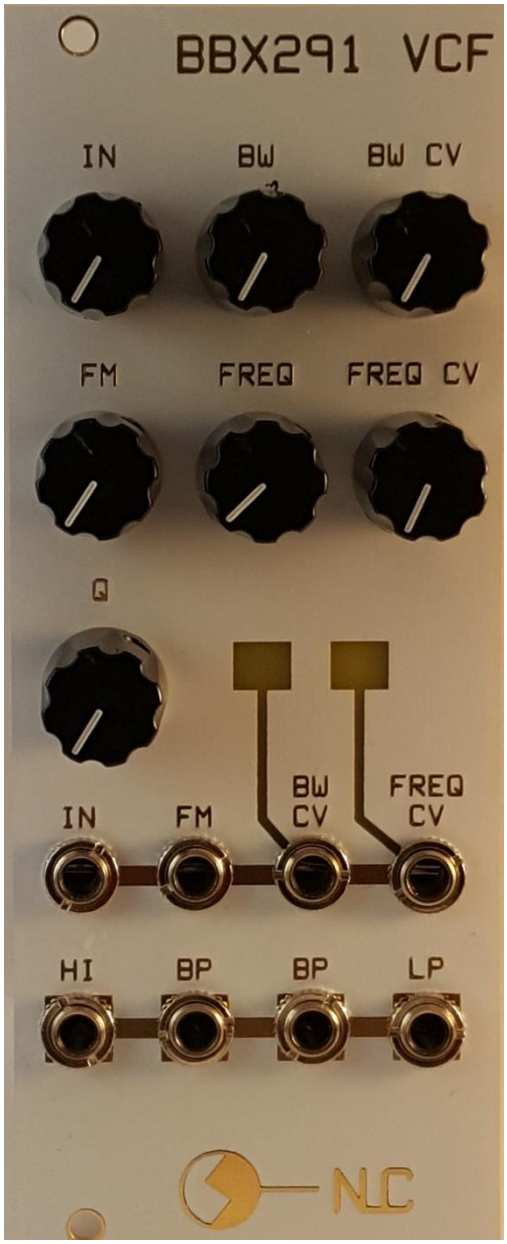
BBX291 vari-BW VCF build & BOM

This is based on the Buchla 291 vari-bandwidth VCF. The CV sub-circuits have been changed a lot from the original version to get a better range. It also has a Q pot, hi-pass & lo-pass outputs. It sounds very nice with a sine or tri FM signal to get trickling sounds.

I found clear lens red LEDs and GL5516 LDRs work well (0.5M-5k),the LEDs look good shining thru the panels as well. Of course feel free to experiment. The original version used VTL2C3 vactrols which have a 10M-1k range. If using any LDR with an off resistance less then 5MΩ means you can leave off the two 10MΩ resistors as they will be superfluous.

Another point, which I failed to indicate on the panel, the two CV pots are sort of attenuverters, so 0 is at mid-point.

The second band pass (= BP) out is inverted from the first, HP = high pass and LP = low pass.



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

VALUE	QUANTITY	DETAILS
47pF	1	0805 Tayda: A-3517
220pF	1	0805 Tayda: A-3504
470pF	1	0805 Tayda: A-3506
1nF (102)	1	0805 Tayda: A-3524
47nF (473)	2	0805 Tayda: A-3510 or get COG/NPO Mouser Part No: 710-885012007065
100nF or 104	4	0805 Tayda: A-3511
10uF	4	0805 25V or higher voltage rating Mouser Part No: 963-TMK212BBJ106MG-T
47Ω = 47R	2	0805
1k	6	0805
2k2	1	0805
3k3	2	0805
4k7	2	0805
6k8	3	0805
10k	4	0805
15k	1	0805
33k	2	0805
39k	2	0805
47k	3	0805
100k	6	0805
470k	2	0805
2M2	1	0805
10M	2	0805
TL072 or TL082	5	Soic Tayda: A-1139
3mm LED	2	For black box, see notes
3mm or 5mm LED	2	For panel
LDR	4	See notes
Eurorack 10 pin power connector	1	Tayda: A-198 cut to size
S1JL, Schottky, power rectifier or 10R, optional - for reverse voltage protection...or not	2	SMD SEE NOTES #1. **dot on PCB indicates CATHODE (stripe on component).** My current fave is BAT54GWX, Mouser: 841-BAT54GWX
3.5MM SOCKET Kobiconn style	8	Tayda: A-865 or Thonkiconn Jacks (PJ301M-12) from Thonk, Synthcube or Modular Addict
10 Pin 2.54mm Single Row Pin Header Strip	7	Tayda: A-197 (cut to size)
10 Pin 2.54mm Single Row Female Pin Header	7	Tayda: A-1306
100k pot	4	Tayda: A-1848
10k pot	3	Tayda: A-1847

Additional notes:

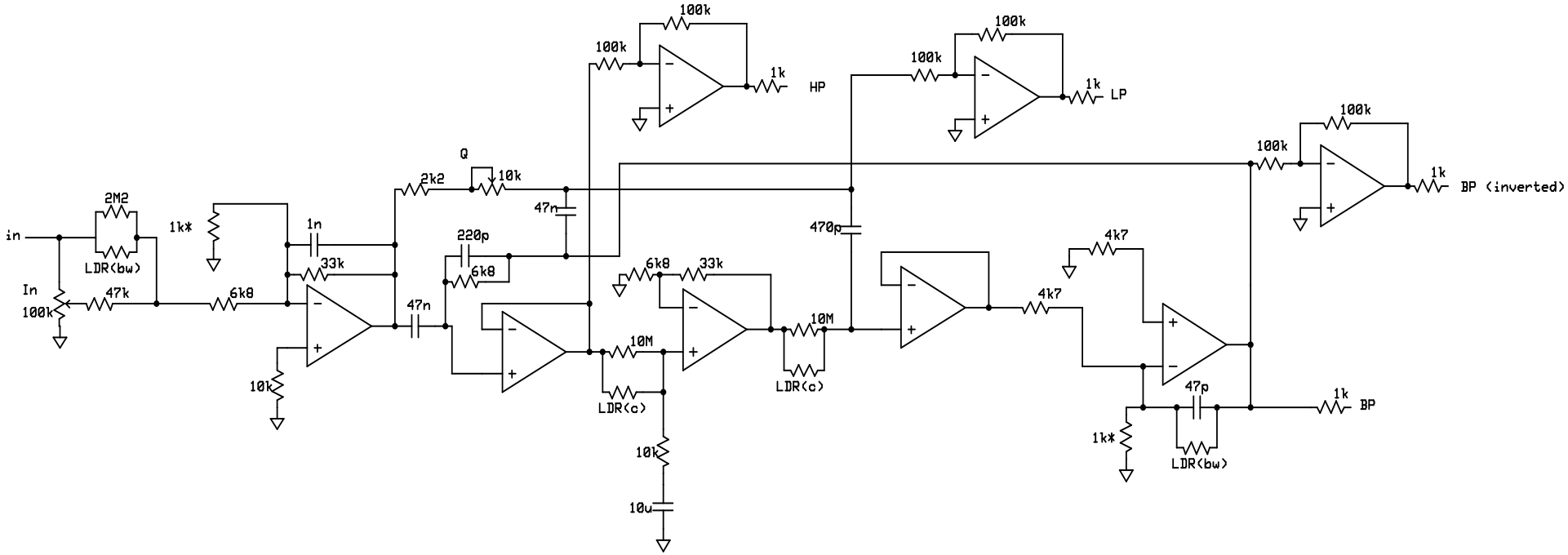
1. , Schottky (best option) **or** standard power rectifier diode 50-600V 1A or more, **or** use a resettable fuse **or** just a 10R. Examples: BAT54GWX, PMEG2005EGWX, AEC-Q101, 20V, SOD-123, PMEG2005EH DIODE, SCHOTTKY, 0.5A, 20V, 1N400x or S1JL or similar.

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

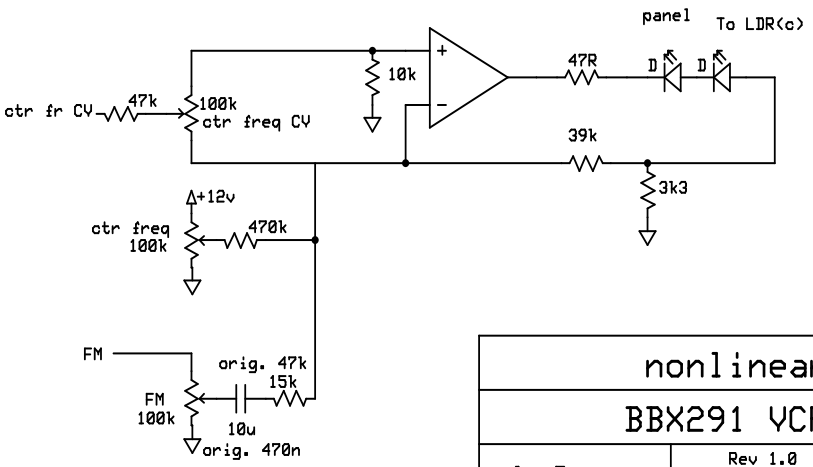
3. Join the Nonlinearcircuits Builders Guild on FB: https://www.facebook.com/groups/174583056349286/ and ask questions there if you have any. If you prefer not to FB then email is fine.

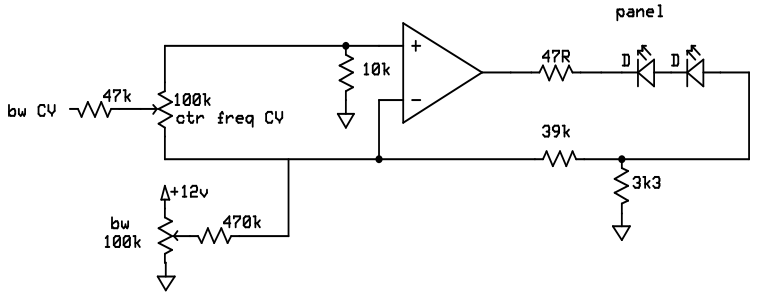
4. Use 3mm LEDs for the black box. I prefer red with a clear lens, these look good for the panel LEDs too. The panel LEDs can be 3mm or 5mm and whatever colour you like, tho ones with higher V-on (blue for example) may give a bit of a dead zone on the pots, not a big deal.

5. The intro on Pg.1 discusses suitable LDRs to use. It is not really that important but ones that get down to 1k or less are prob best. Get the ones at Tayda or cheaper - buy a bag of 100 GL5516 on ebay for $4 or so.



LEDs should probably be red, green or yellow





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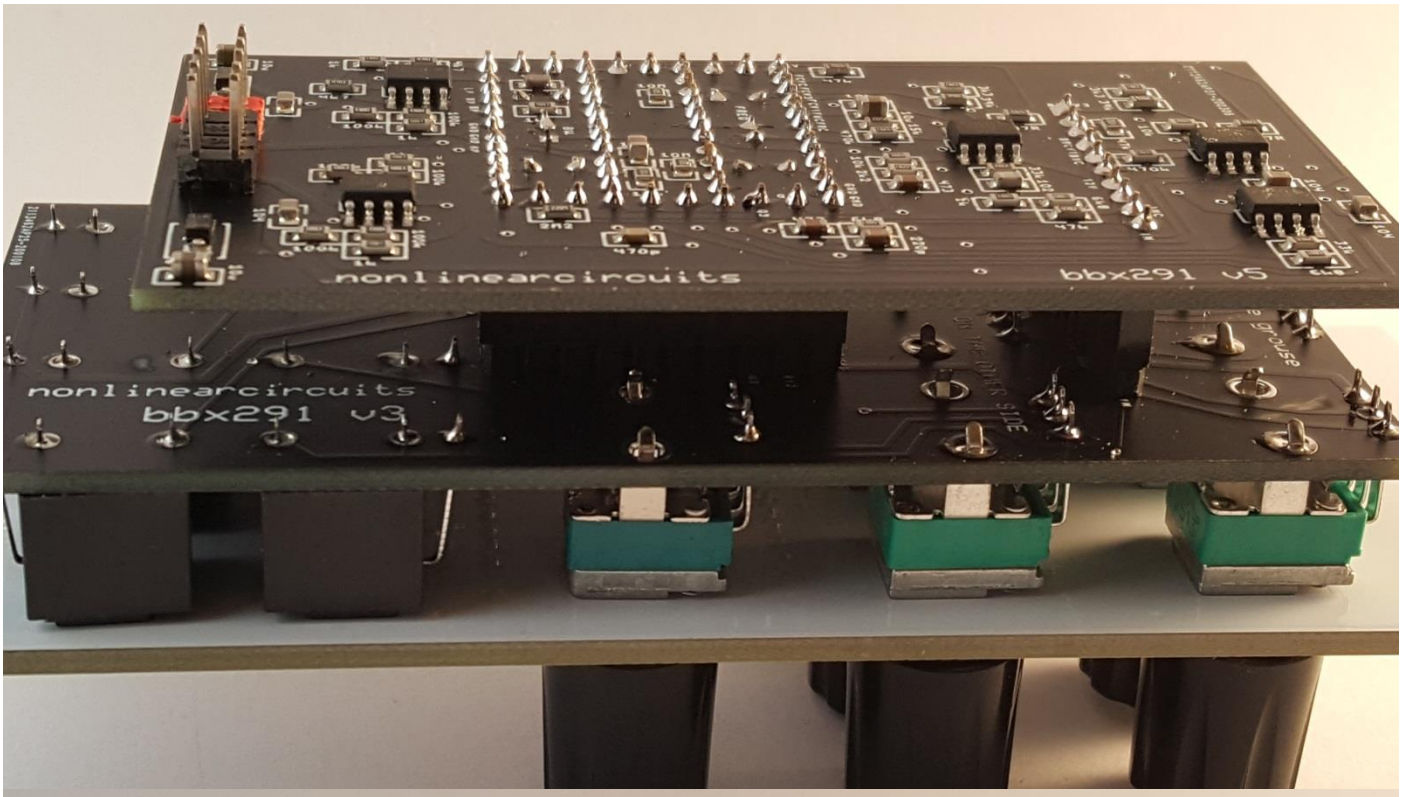
andrewF	Rev 1.0 10/9/2019	Page # or name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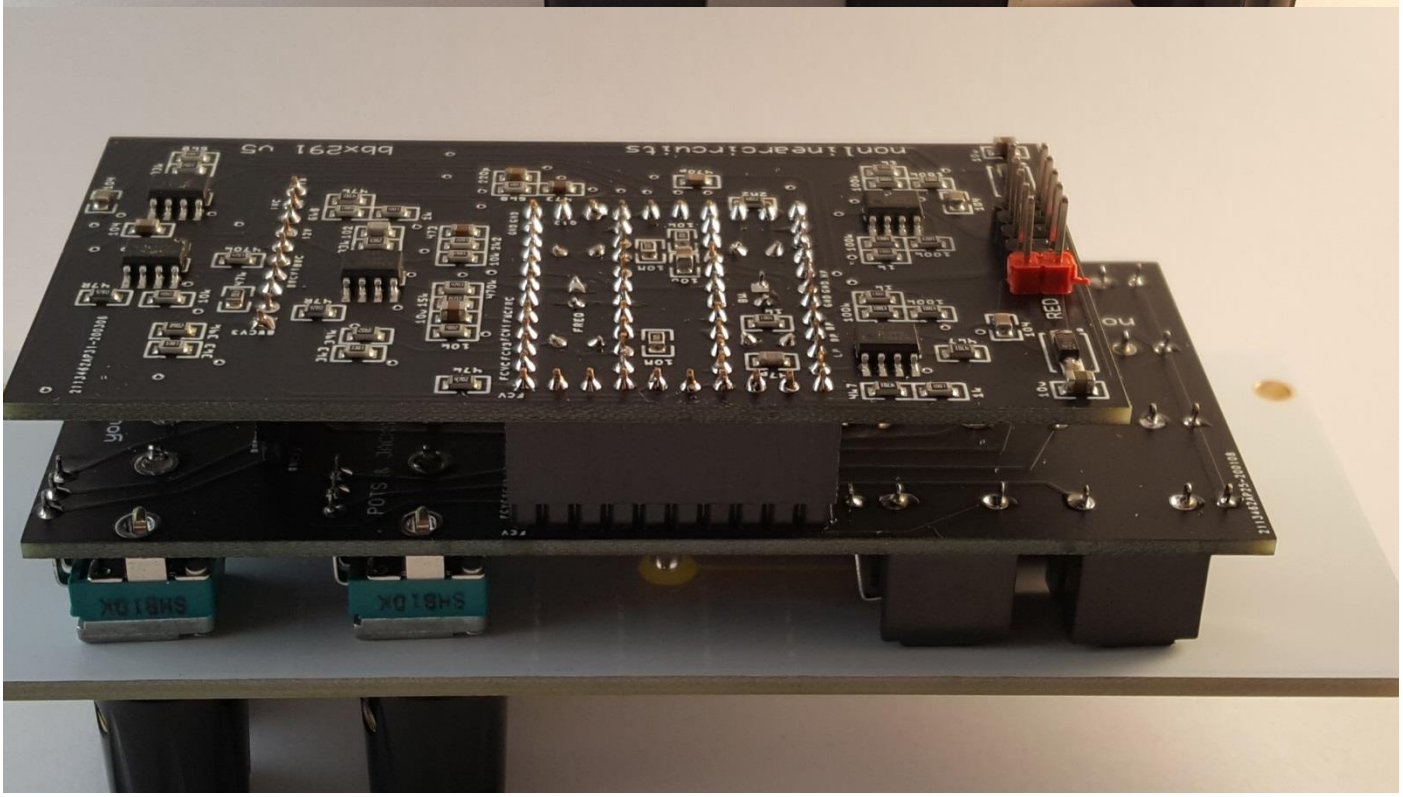
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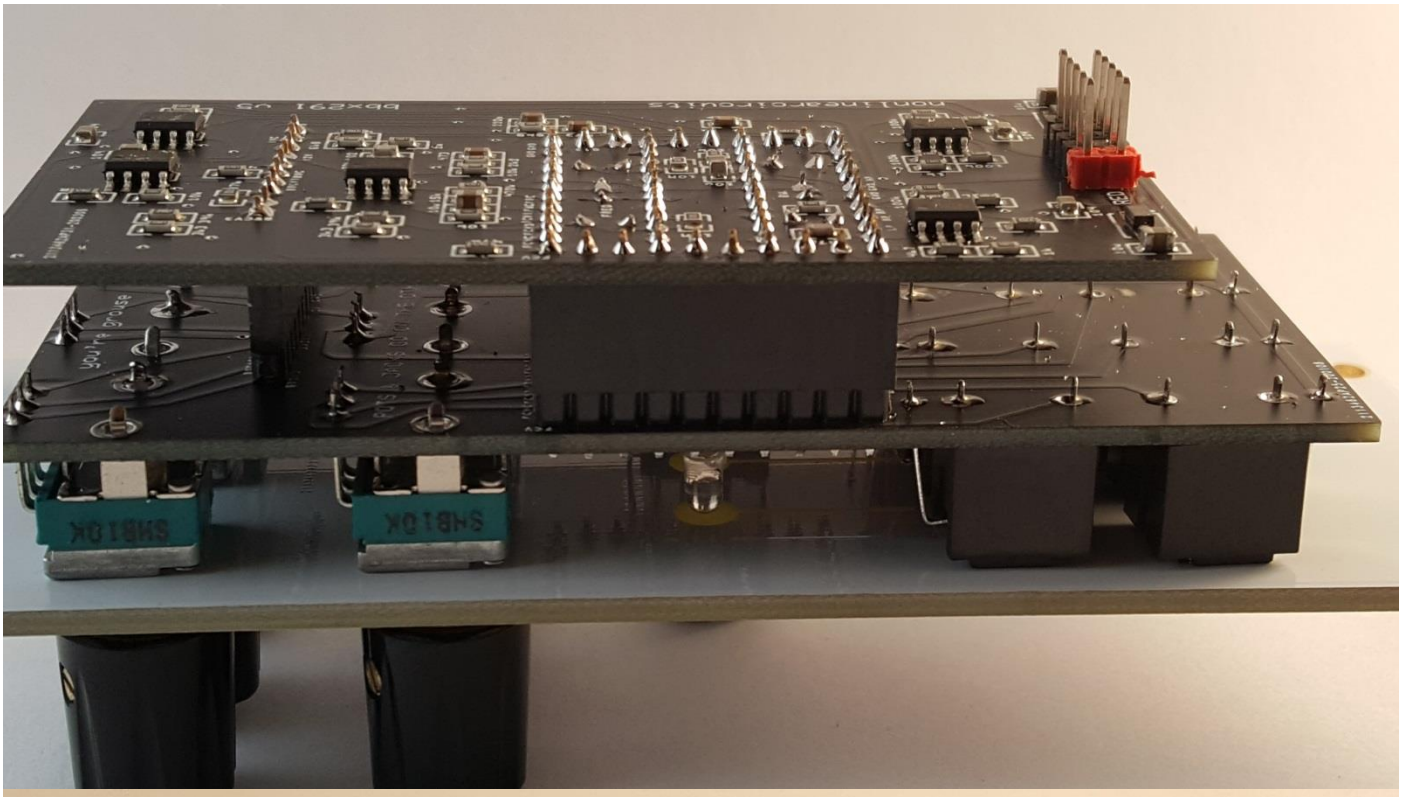
RED
SH810K
SH810K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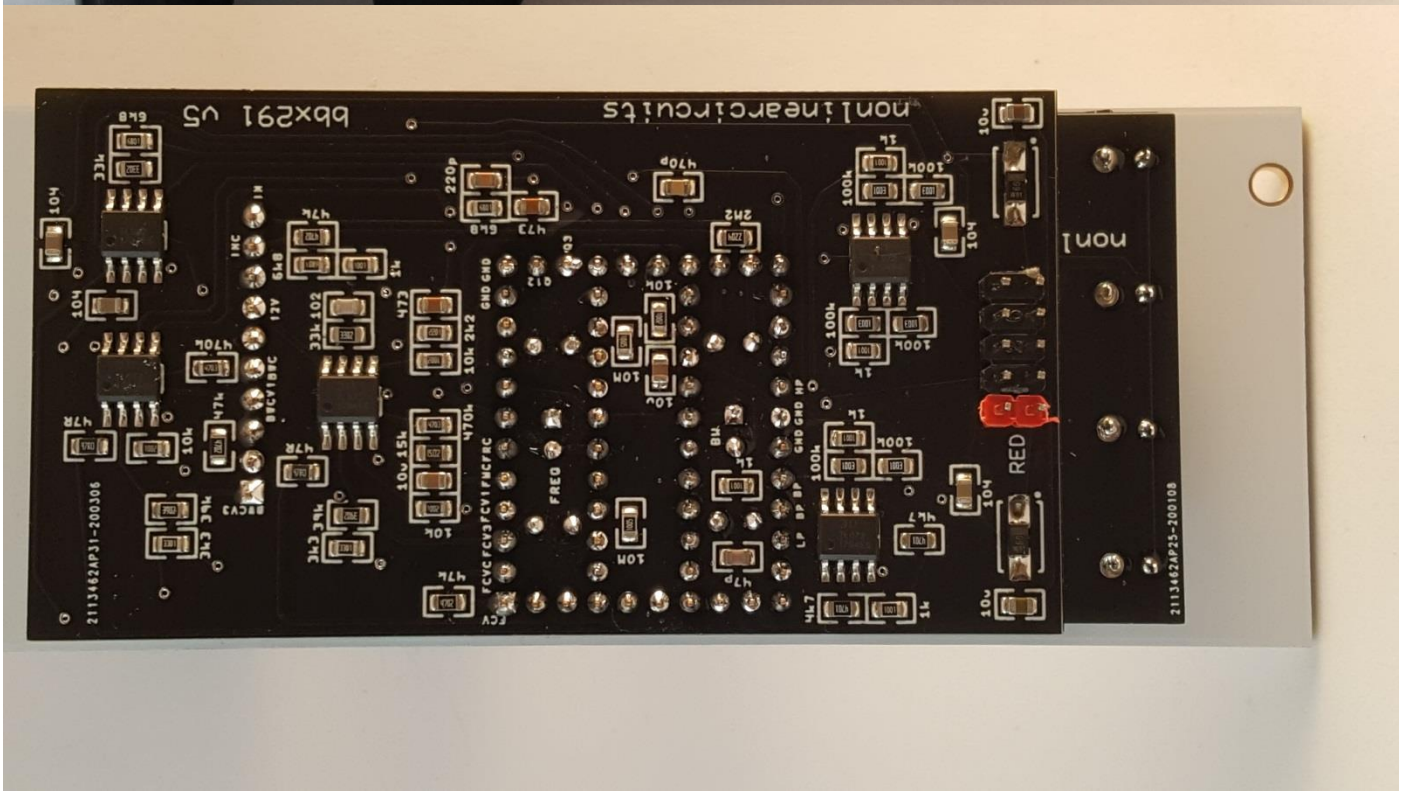
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RED
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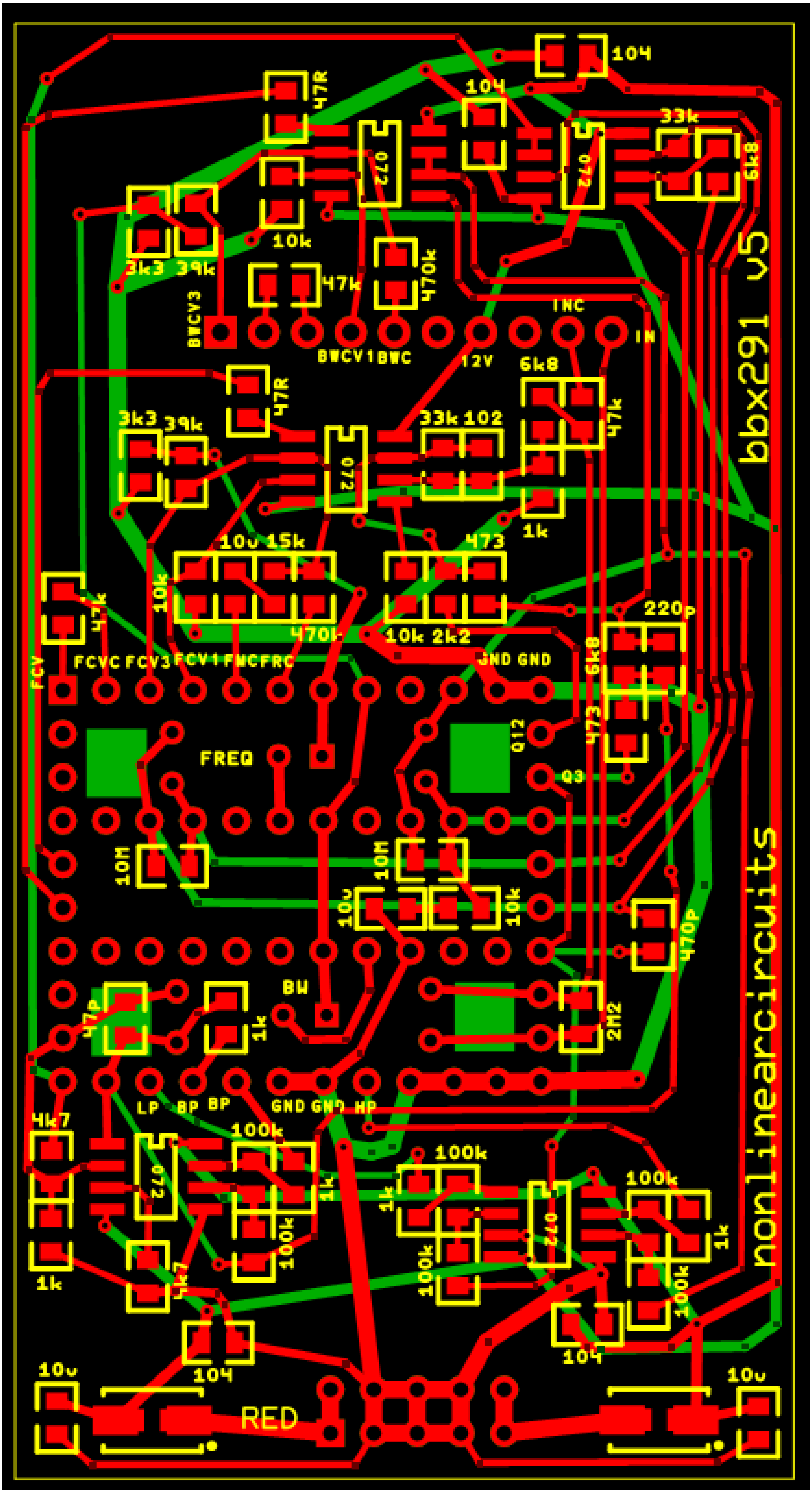

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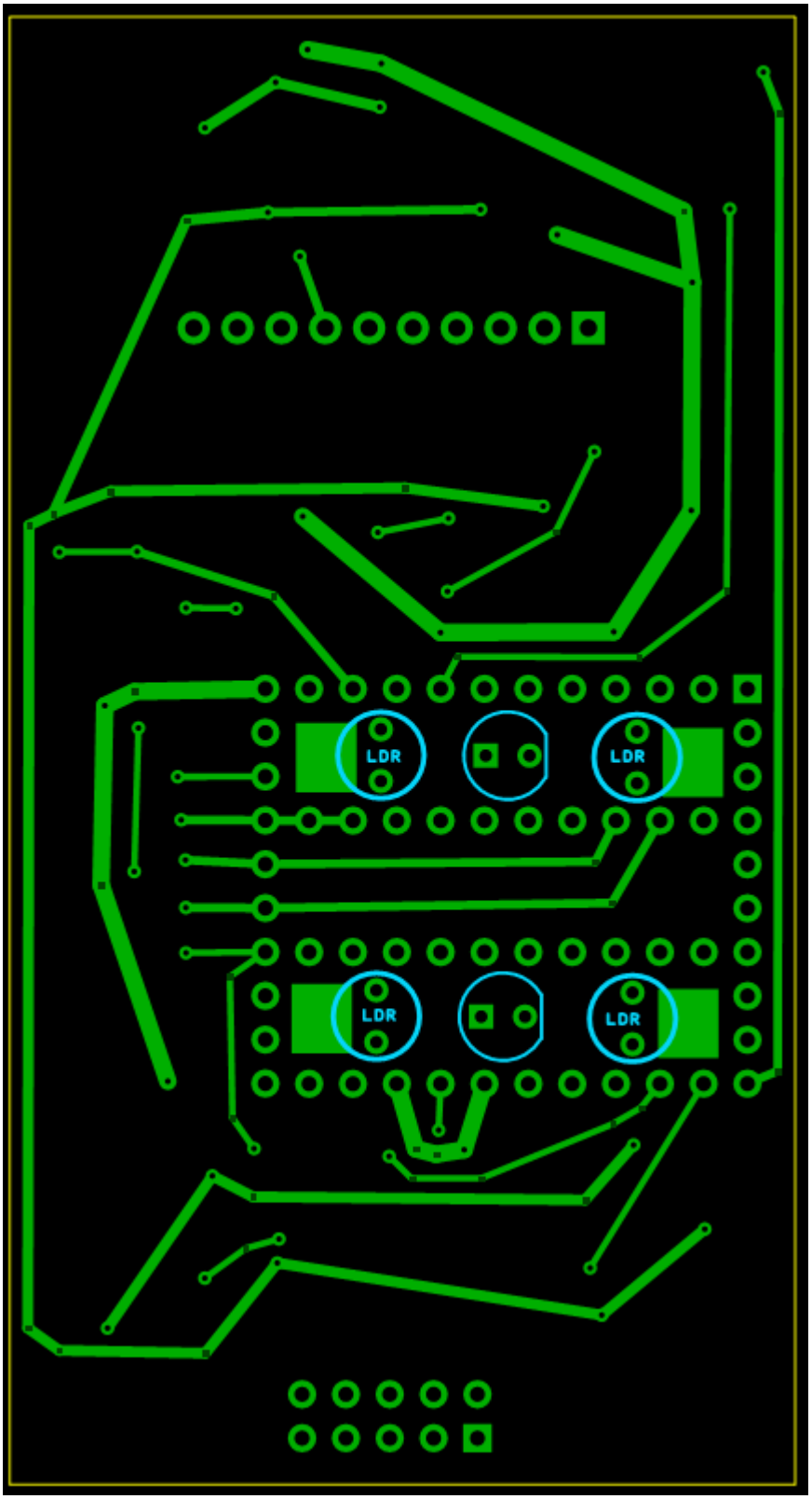
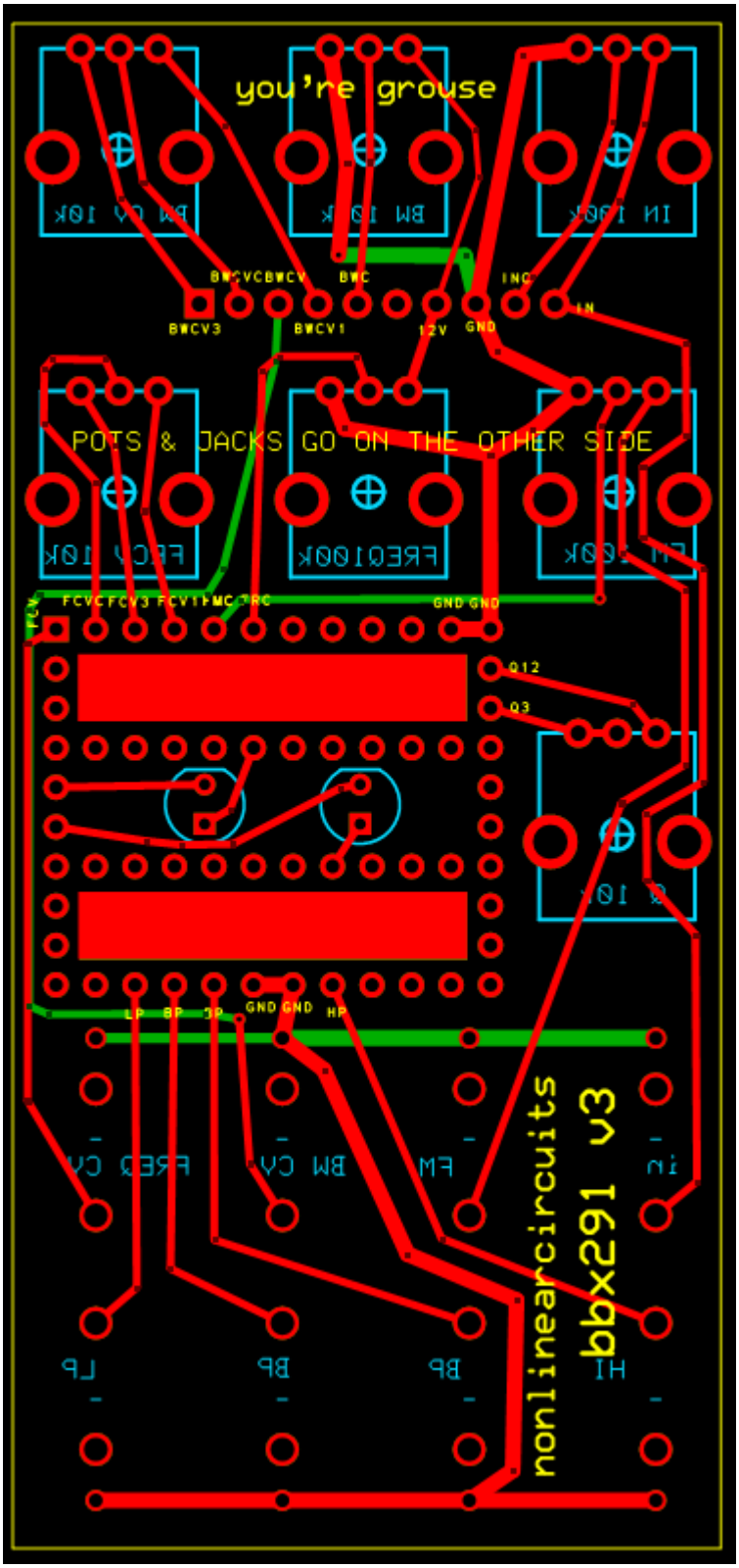
FREQ
BW
RED
IN
INC
12V
BWCV3
BWCV1 BWC
FCV
FCVC FCV3 FCV1 FMC FRC
GND GND
Q12
Q3
LP BP BP
GND GND HP


LDR
LDR
LDR
LDR


you're grouse
POTS & JACKS GO ON THE OTHER SIDE
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