

nonlinearcircuits

CMOSC build & BOM

This module is an updated version of the 4U CMOSC (CMOS drone Oscillator). It consists of 6 oscillators; each can be switched between two frequencies set by a single pot. When the pot is in the mid-point the two frequencies are about the same. Turn the pot to min or max to switch between higher and lower frequencies, or lower and higher. Each oscillator controls the switching of its subsequent neighbour (1-2, 2-3, 3-4, 4-5, 5-6, 6-1) via the switching pins of the input jacks. Patching in a signal will break this cacophony and allow you to have some control over proceedings.

There is a summed out of all 6 oscillators; pads are there for 5V1 zeners to keep the output of the summed stage to Eurorack ...ahem... 'standards', tho you can leave them off if you like. The individual outputs generally swing between +/-5V (so 10Vp-p). The summed out is very noisy and raw.

There is a sync/hold input which affects all oscillators. A gate signal will halt all signals until it drops. An audio rate signal forces the oscillators to try and keep up with it.

Despite the normalised connections and the simplicity of the circuit, I usually like to use individual oscillators, rather than everything modulating everything, to create techno like bouncing patterns that are perfectly synced with percussion. I loved using the 4U version of this module, probably because it was so simple to use and get good sounds out of it.



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

VALUE	QUANTITY	DETAILS
C1-C6	1	0805 100nF-470nF, see notes
100n	3	0805
10uF	8	0805 25V or higher voltage rating Mouser:963-TMK212BBJ106MG-T or similar
1k	14	0805
10k	14	0805
100k	10	0805
220k	6	0805
TL074 or TL084	2	Soic Tayda: A-1140 or A-1137
CD4053	2	soic Mouser Part No: 595-CD4053BM96 or 771-HEF4053BTD-T
CD40106	1	soic Mouser: 595-CD40106BM96 or 771-HEF40106BTD-T
LL4148	7	sod-80 Tayda: A-1213
BC847	6	SOT23-3 Tayda: A-1339
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	14	Tayda: A-865 or Thonkiconn Jacks (PJ301M-12) from Thonk, Synthcube or Modular Addict
5V1 Zener	2	SOD80 optional, see notes
10 pin header	4	get two 40 pin strips and cut off as needed Tayda: A-197
10 Pin 2.54mm Single Row Female Pin Header	4	Tayda: A-1306
100k pot	6	Tayda: A-5623 or A-4729. Tight spacing so use knurled shaft to suit smaller knobs. Can use 50k to 1M pots really but range will be changed. If using 1M, maybe C1-6 need to be 10nF or 100nF, range will be ridiculous.

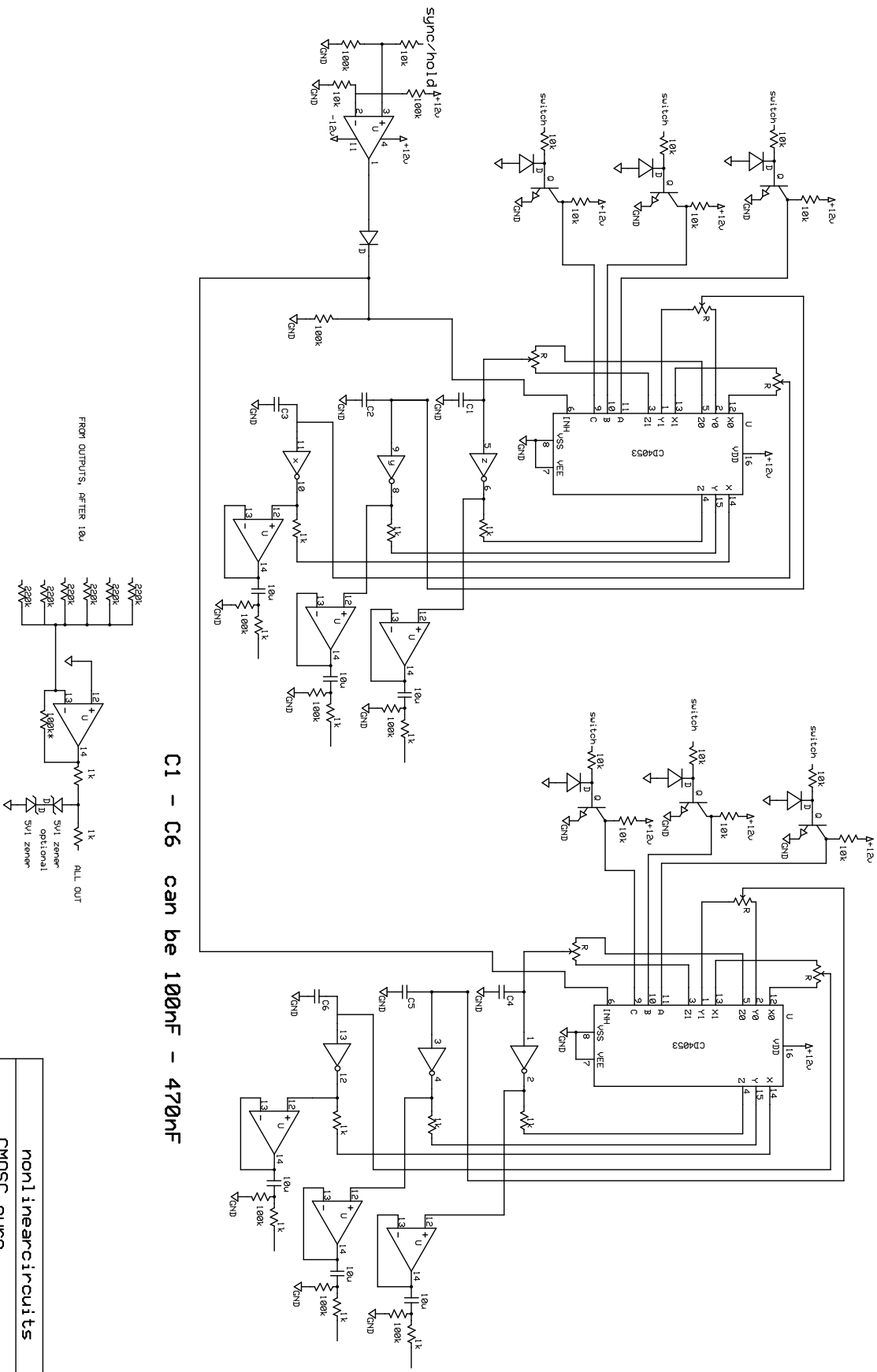
Additional notes:

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. C1-C6 set the frequency range for each oscillator. 470nF gets down to approx. 15Hz, so is probably the highest value you want to use (assuming you want to keep things in the audio range). Feel free to mix values or keep them all the same.

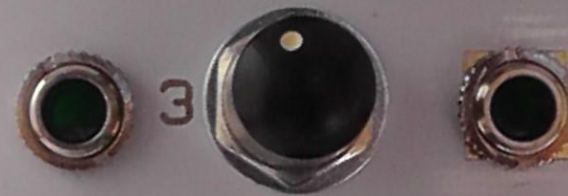
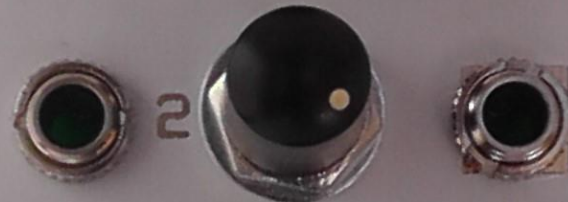


C1 - C6 can be 100nF - 470nF

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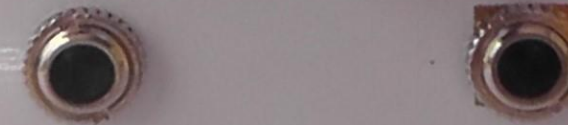


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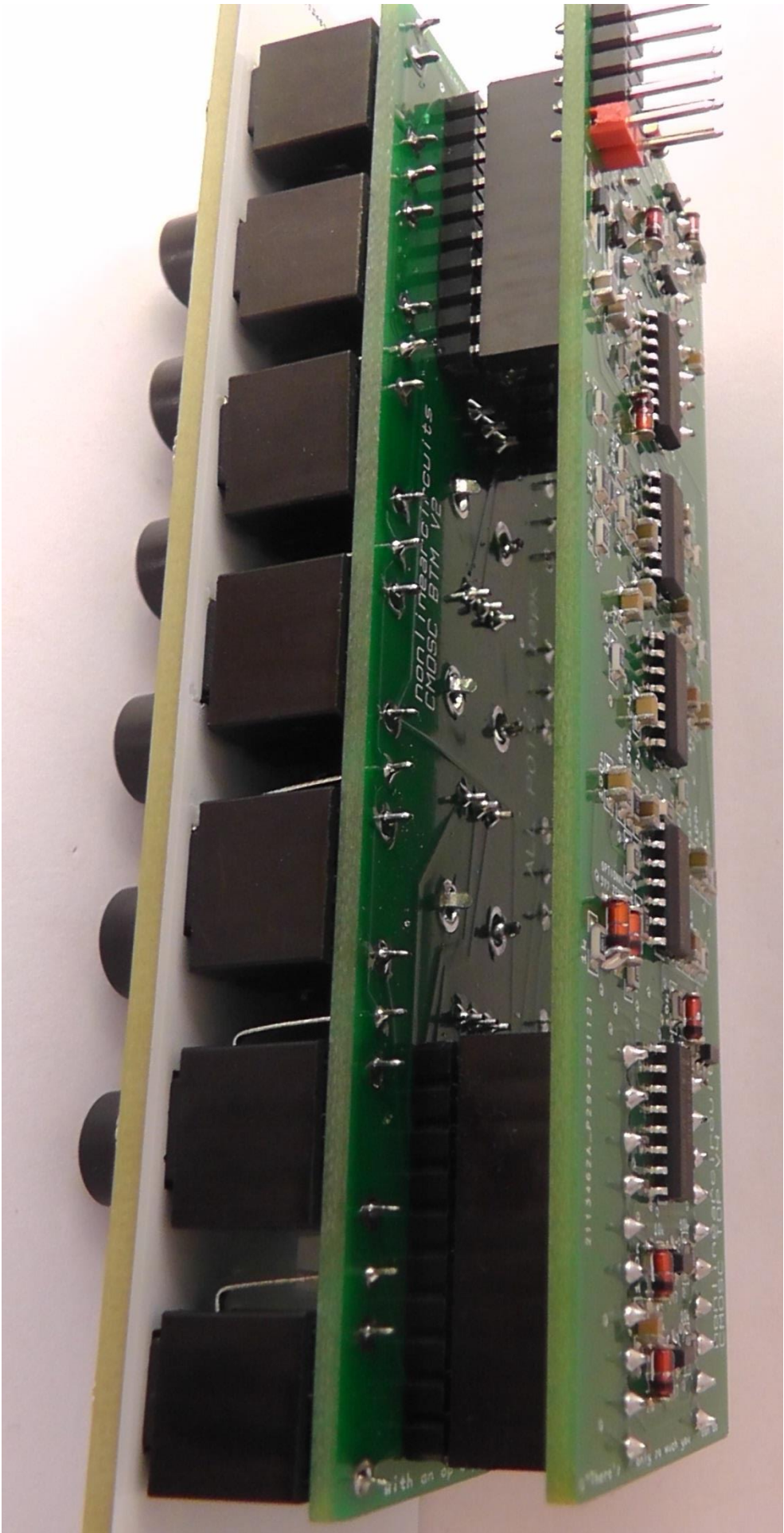


SYNC/HOLD

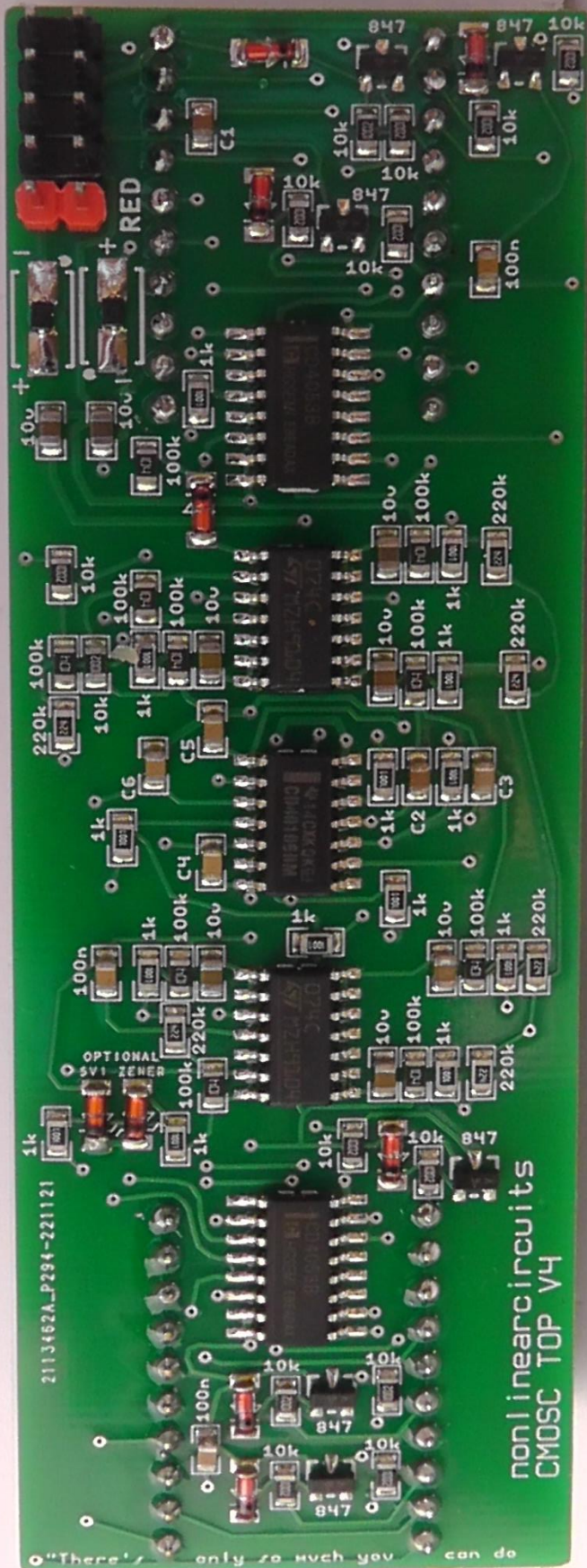
ALL OUT



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CMOSC TOP V4

"There's only so much you can do"