

## nonlinearcircuits

### Hypster build & BOM

The Hypster is a hyperchaos module designed by Ian Fritz. The PCB layout is by nonlinearcircuits. In Ian's words - *It's fourth-order hyperchaotic, with voltage control of the main parameters, including exponential control of the cycle rate.* The module ranges from a few kHz down to approx. 5 minutes per cycle so is great for CV and audio duties.

The module works fine if built as per the component labelling. Outputs U and -U do clip briefly at certain pot settings. It is an analogue circuit so just as Nigella Lawson says 'fat = flavour', it can be said clipping = character, in moderation tho. Clipping in digital circuits is simply ugly.

#### **Additional notes:**

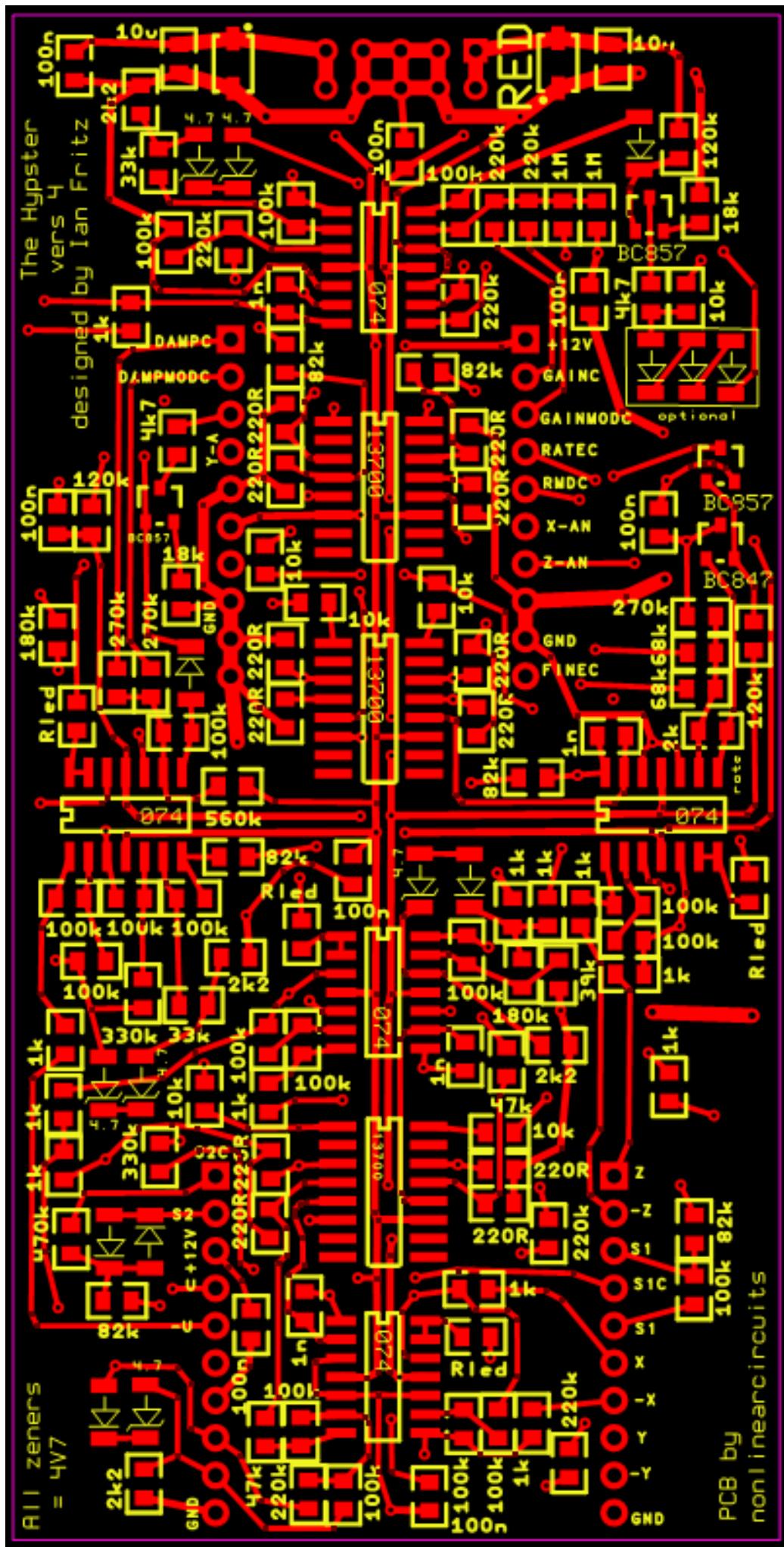
1. The prices for these 10uF 0805 capacitors drops to approx. 10c each when buying more than 10....and you should always get plenty of spares, it is easy to drop and lose smd parts.
2. S1JL Power diodes are for Reverse voltage protection - Mouser Part No: 821-S1JL. Any similar rectifier with at least 1A rating should be okay, such as 1N4001, 1N4002, 1N4004. Get these sizes; SOD-123 or sub-SMA (DO-214 is a bit too big, so avoid)
3. The resistors marked RL are for driving the LEDs. Select a value to suit your LEDs. Generally for RED/GREEN LEDs, I use 470R and for RED/BLUE LEDs I use 4k7. Cheapest source for 2 pin bi-polar LEDs seems to be ebay, search for the term underlined.
4. The resistors and op amps are cheapest from Tayda. Probably get the caps and diodes from Mouser.
5. Join the Nonlinearcircuits Builders Guild on FB

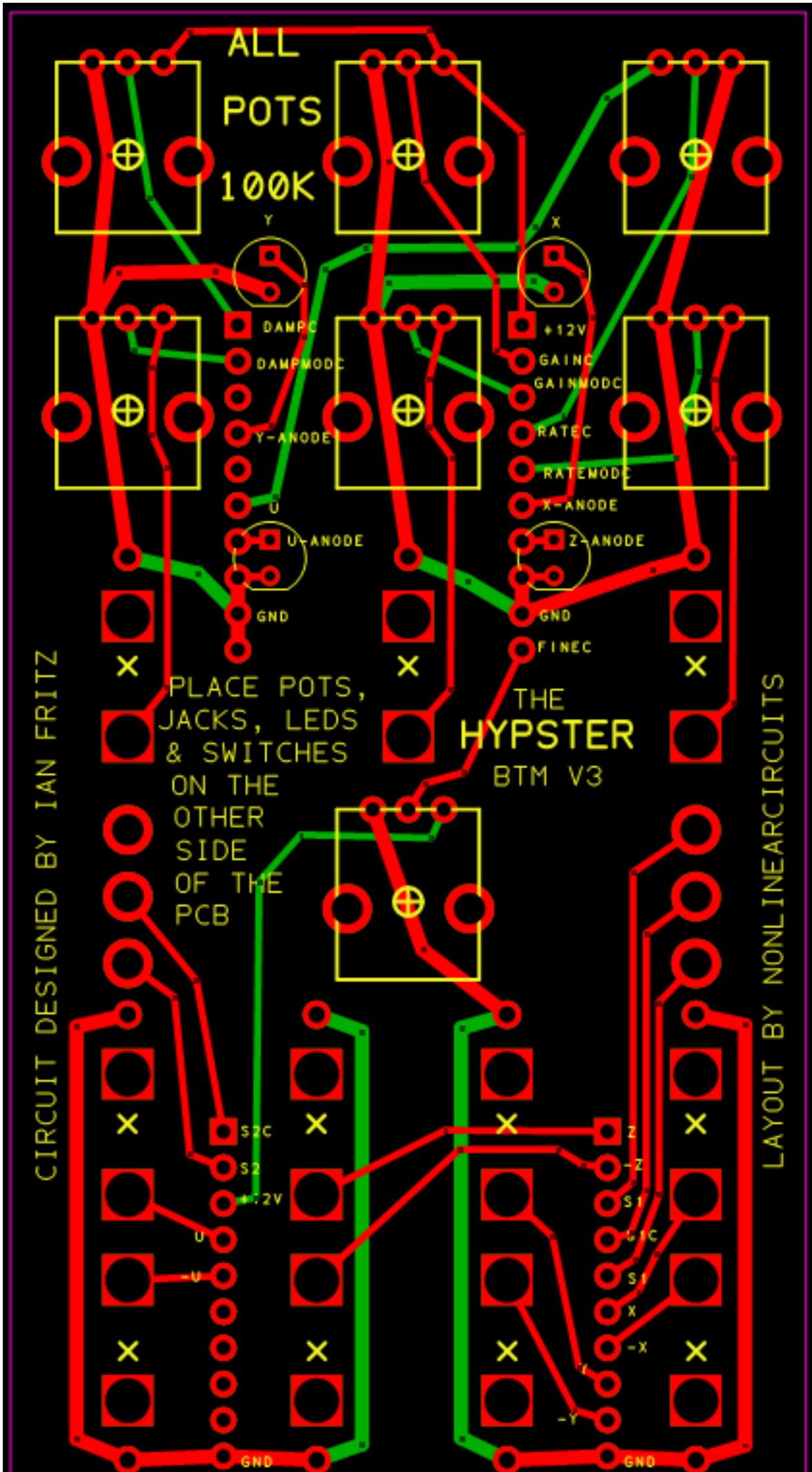
(<https://www.facebook.com/groups/174583056349286/>) and ask questions there if you have any. If you prefer not to FB then email is fine.

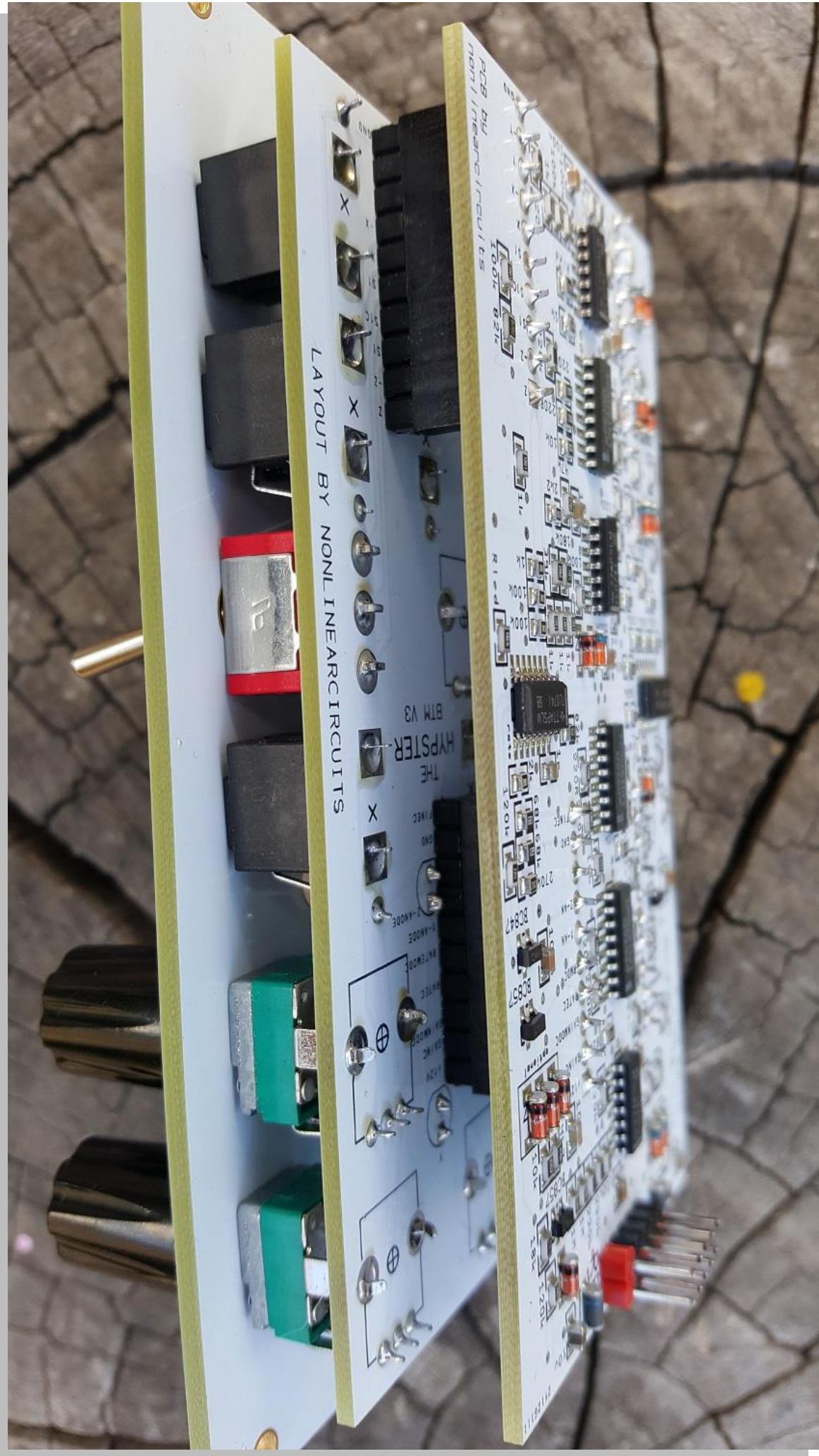
6. Check the build picture in the manual, note the pots, jacks, LEDs and switches go on the BACK of the bottom PCB, which is the side with no printing on it.

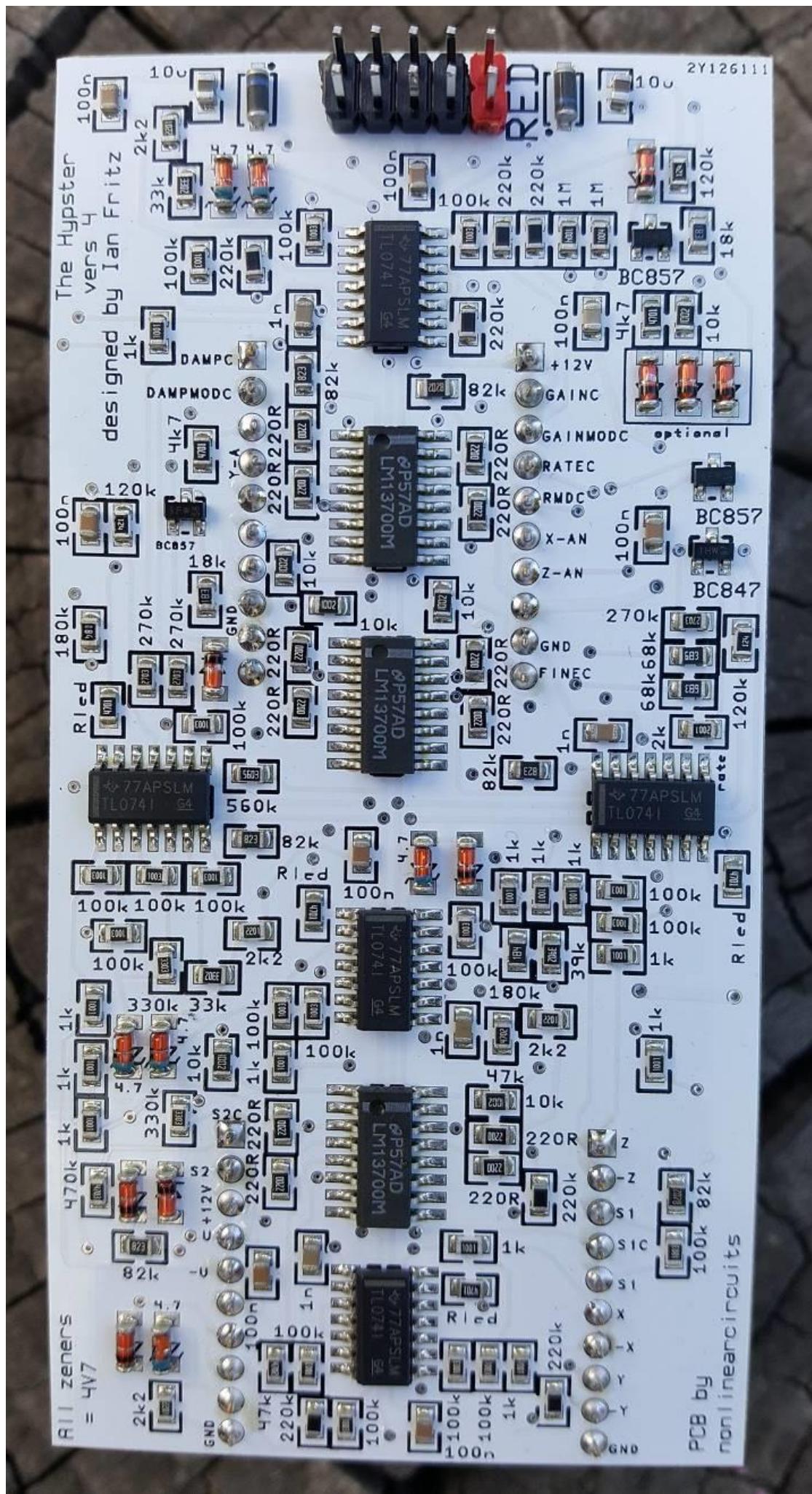
BOM

| VALUE  | QUANTITY | DETAILS  |
|--|----------|--|
| 1nF  | 4        | 0805 good to use C0G/NP0 types   |
| 100nF  | 8        | 0805   |
| 10µF   | 2        | 0805 25V rating or higher Mouser No: 81-GRM21BR61E106KA3L (or similar)   |
| 220R   | 12       | 0805   |
| 1k   | 12       | 0805   |
| 2k   | 1        | 0805   |
| 2k2  | 4        | 0805   |
| 4k7  | 2        | 0805   |
| 10k  | 6        | 0805   |
| 18k  | 2        | 0805   |
| 33k  | 2        | 0805   |
| 39k  | 1        | 0805   |
| 47k  | 2        | 0805   |
| 68k  | 2        | 0805   |
| 82k  | 6        | 0805   |
| 100k   | 18       | 0805   |
| 120k   | 3        | 0805   |
| 180k   | 2        | 0805   |
| 220k   | 7        | 0805   |
| 270k   | 3        | 0805   |
| 330k   | 2        | 0805   |
| 470k   | 1        | 0805   |
| 560k   | 1        | 0805   |
| 1M   | 2        | 0805   |
| RL   | 4        | see notes #3   |
| LL4148 diodes  | 9        | size: SOD-80, mini MELF, LL34, DO-213AA<br>.....they are all same  |
| 4V7 zener diodes   | 6        | size: SOD-80, mini MELF, LL34, DO-213AA<br>.....they are all same. I used this one :<br>Mouser No:78-BZT55C4V7 |
| BC847  | 1        | NPN, sot-23 Tayda - A-1339   |
| BC857  | 3        | PNP, sot-23 Tayda - A-1345   |
| TL074 or TL084   | 5        | SOIC Tayda: A-1137 or A-1140   |
| LM13700  | 3        | SOIC   |
| 5mm 2 pin bi-polar LED   | 4        | see notes #3   |
| Eurorack 10 pin power connector                                      | 1        | Tayda: A-198   |
| 1N400x or S1JL or similar, optional - for reverse voltage protection | 2        | SMD, standard power diode 200-600V 1A, dot on PCB indicates CATHODE (stripe on component)<br>SEE NOTES #2      |
| 3.5MM SOCKET Kobiconn style  | 11       | Tayda: A-865 or preferably get Thonkiconn Jacks (PJ301M-12) from Thonk or Modular Addict                       |
| 100kB pots   | 7        | Tayda: A-1848  |
| SPDT toggle switch   | 2        | on-on, Tayda: A-4567   |
| 10 Pin 2.54mm Single Row Female Pin Header                           | 4        | Tayda: A-1306  |
| 40 Pin 2.54mm Single Row Pin Header Strip                            | 1+       | Tayda: A-197, cut into lengths of 10, get some spares in case you stuff it up or drop some.                    |



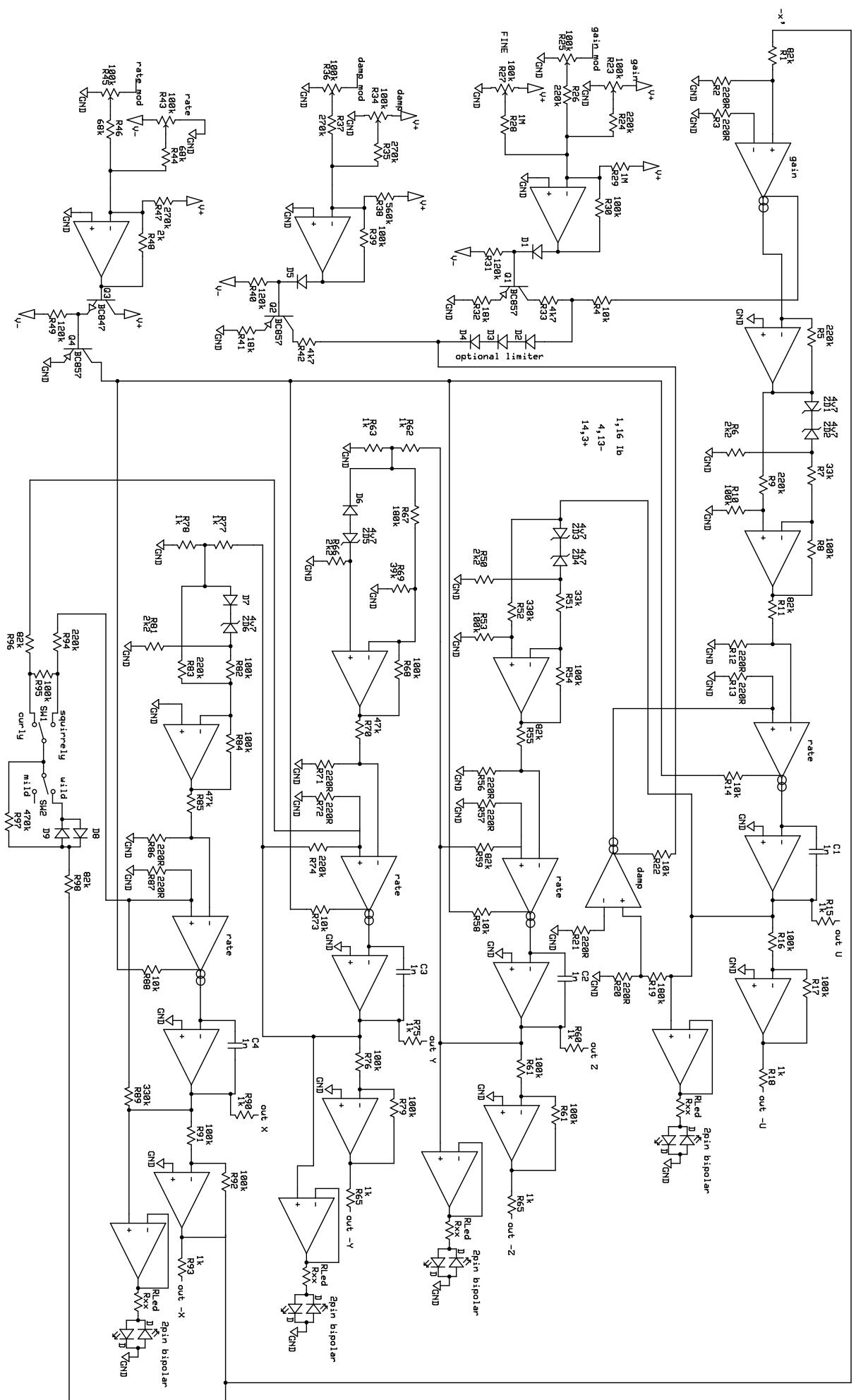






CIRCUIT DESIGNED BY IAN FRITZ





nonlinear circuits

The Hipster v1

# nonlinearcircuits

## The Hypster v1