

NONLINEARCIRCUITS

timbre generator

Build guide & BOM vers.1 (24/4/2015)

This module is based on the Buchla Timbre Generator. It is not an exact clone as input and output buffers have been added, plus a simple tri-to-sine sub-circuit is tacked on to one of the inputs. Also the PCB specifies commonly available PNP and FET transistors rather than the somewhat rare devices used in the original design.

There are no errors on the PCB, but there is one resistor marked '100k*'. This sets the amplitude of the output signal, if you install 100k here, your output signal will be around 4V p-p. To increase the amplitude install a larger value resistor, my module has 120k, which gives approx. 5V p-p. On the BOM, I will include an extra 120k and one less 100k.

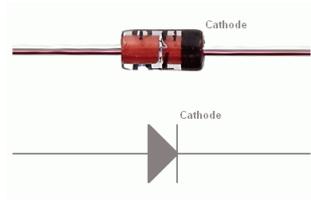
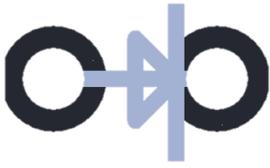
BOM

| Component (quantity) | notes | Component (quantity) | notes |
|----------------------|--------------------------|----------------------|--------------------------|
| 100k pot (2) | | 10k (2) | |
| jacks (5) | Kobiconn style | 18k (1) | |
| TL074 (2) | | 22k (1) | |
| TL072 (1) | | 30k (1) | |
| BC557 (1) | | 33k (3) | |
| J112 or J108 (1) | marked 'gsd' on PCB | 39k (1) | |
| 1N4148 (4) | any general diode ok | 47k (1) | |
| 10 pin connector (1) | Eurorack power connector | 49k9 (3) | I used 51k |
| 100k trimpot (1) | | 68k (2) | |
| 100 μ F (1) | 2.5mm spacing | 75k (1) | |
| 15 μ F (1) | 2.5mm spacing | 91k (1) | |
| 10 μ F (2) | 2mm spacing | 100k (3) | 100k* replaced with 120k |
| 100nF (3) | 2.5mm spacing | 120k (2) | |
| 10nF (1) | 4.5mm spacing | 130k (1) | |
| 47pF (1) | 2.5mm spacing | 150k (6) | |
| 10R (2) | | 240k (1) | |
| 1k (4) | | 470k (1) | |
| 2k2 (1) | | 680k (1) | |
| 3k3 (1) | | 1M5 (1) | |
| 4k7 (1) | | 14 pin IC socket (2) | |
| 6k8 (1) | | 8 pin IC socket (1) | |

Notes:

Electros should be at least 25V rating, 35V or 50V is best.

Make sure diodes are installed in the correct direction:



These pots from Tayda are good, part number A-1848:



These jacks from Tayda are ok, part number A-865, get better ones from Thonk if you like:



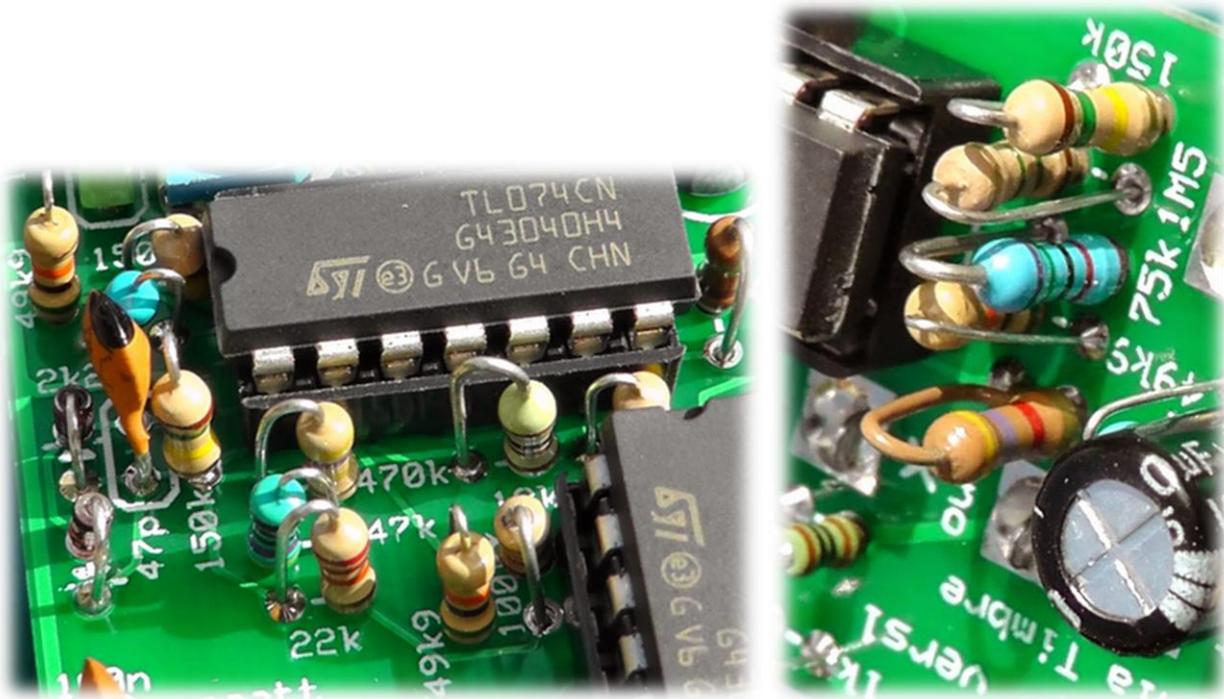
This trimpot from Tayda is ok, though it should read '104', part number A-2506



Building

No real tricks, with the upright resistors sitting next to each other, it is good to place them facing in different directions so there is less chance of their leads contacting if pushed together. See the build photos on

<http://nonlinearcircuits.blogspot.com.au/2015/04/timbre-generator.html>



1. install IC sockets and 10 pin connector
2. install diodes
3. install resistors
4. install regular capacitors
5. install electro capacitors
6. install transistors
7. attach jacks to the panel
8. attach pots to the PCB, do not solder them yet
9. mate the PCB to the panel, ensure everything lines up nicely
10. solder on the pots and jacks
11. solder some leads to the ground tabs of the jacks, you may need to remove the PCB from the panel to do this.
12. tighten up the nuts, check for shorts
13. voila!

Setup

Run a sine or tri signal into the input, listen to the output or better watch on a scope. Turn the pots down to zero. Adjust the trimpot so the signal is not being affected, ie – still a sine wave. You want it tuned so nothing happens when the panel pot is at zero but the signal starts folding as soon as you move it off zero. This is quite easy to set-up, near enough is good enough, the worst that can happen is a bit of dead pot space.

