

nonlinearcircuits

VCAs build & BOM

This 8HP module contains 3 VCAs and a fuzz/distortion. The VCAs are similar to the ones used in the NLC Cluster; simple OTA based but work very well. The offset pot becomes an attenuator if something is patched into CV1 input, otherwise best to keep it at 0 if you do not want offset.

The fuzz/distortion is part of the bottom VCA and is a typical diode based affair, on the PCB the space for these are thru-hole so you can install Si or Ge diodes or LEDs. Turn the Fuzz pot to 0 if you just want a VCA.

BOM – The Tayda part numbers are given as examples, feel free to buy from your favorite retailer if you prefer.

VALUE	QUANTITY	DETAILS
1nF	1	0805
10nF	1	0805
47nF	1	0805
100nF or 104	3	0805
1uF	1	0805
10uF	2	0805 25v or higher voltage rating
470R	6	0805
1k	6	0805
10k	3	0805 see notes #4
12k	3	0805
30k	6	0805 ignore the "*" on some of them
47k	3	0805
100k	2	0805
330k	3	0805
1M	1	0805
LM13700M	2	Soic Mouser Part No: 926-LM13700MX/NOPB
TL072 or TL082	2	Soic Tayda: A-1139
BC857	3	Tayda: A-1339 see notes #5
diodes	2	Thru-hole see notes #4
100k (B) pot	6	Tayda: A-1848
Eurorack 10 pin power connector	1	Tayda: A-198 cut to size
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	12	Tayda: A-2563 or Thonkiconn Jacks (PJ301M-12) from Thonk, Synthcube or Modular Addict

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.

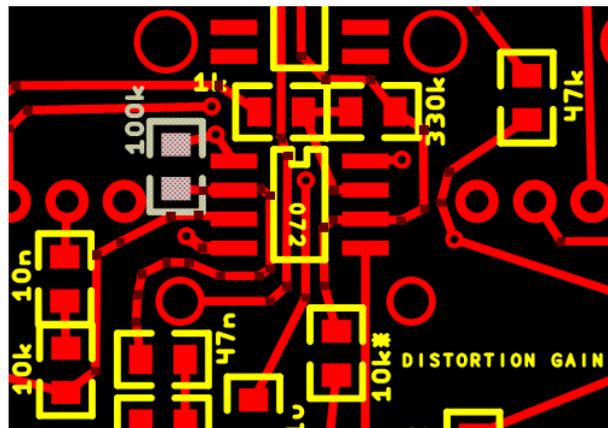
2. Most of the chips, resistors, caps are cheapest from Tayda. 10uF 25V 0805 caps from Mouser/E14/Farnell/etc. There are variations of the Mouser ICs, get what you like and is in stock, so long as it is soic and suits 15-18V power supply.

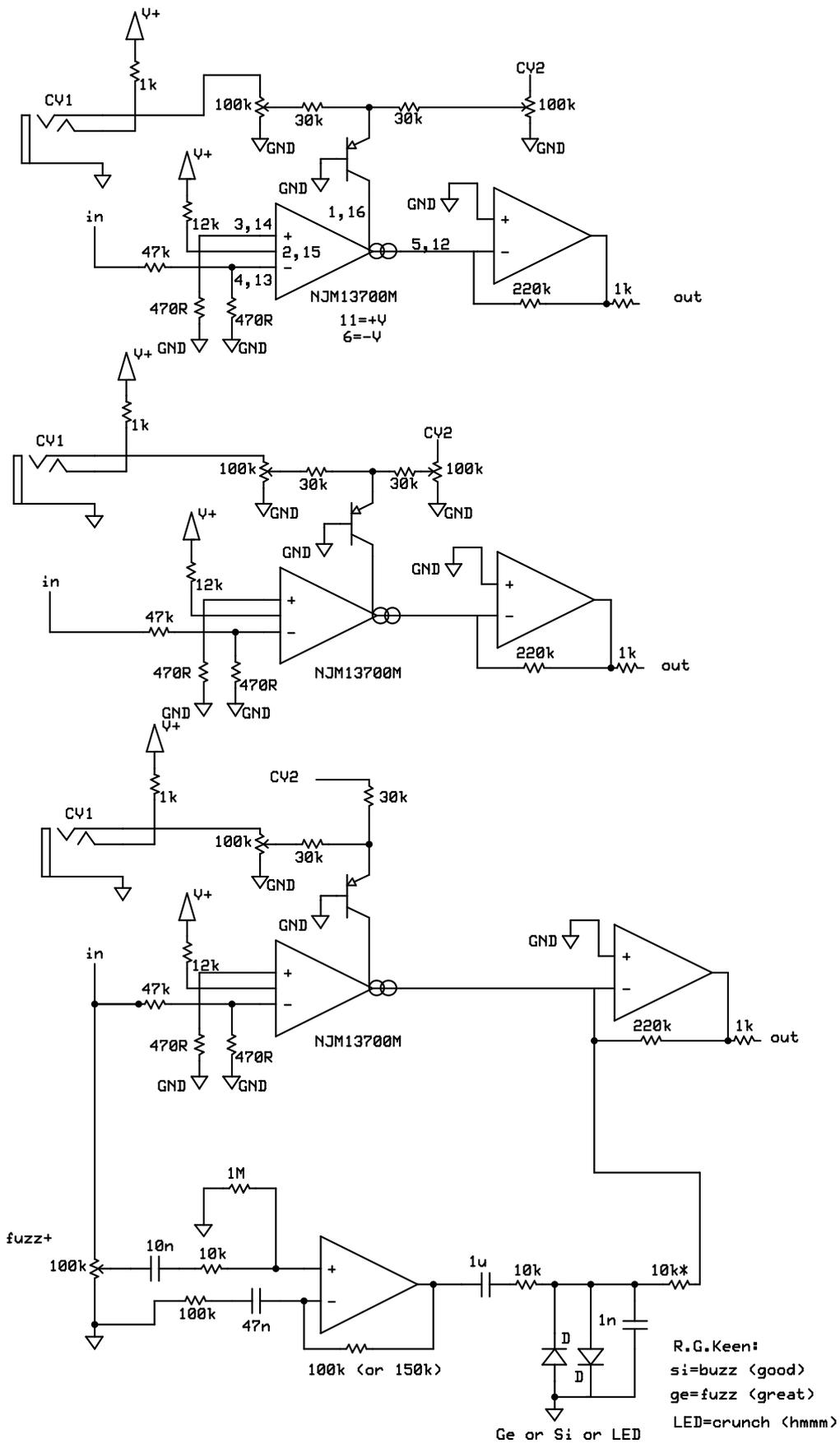
3. Join the Nonlinearcircuits Builders Guild on FB: <https://www.facebook.com/groups/174583056349286/> and ask questions there if you have any. If you prefer not to FB then email is fine.

4. The thru-hole diodes are for the fuzz section and determine the sound you will get. According to R.G. Keen; Ge gives fuzz (Tayda: A-1716), Si gives buzz (Tayda: A-157) and LEDs give crunch. If you use Ge or Si, you can leave the 10k* resistor at 10k. If you use LEDs, the gain will be too hot so change the 10k* to something in the range of 33k-51k. For me, Ge diodes sounded the best, Si diodes were good too and LEDs were not so great.

5. The BC857 are incorrectly marked BC557 on the PCB. BC557 are the thru-hole version which you do not want.

6. The 100k highlighted in the image below sets the gain of the incoming signal for the fuzz section. It is fine at 100k tho feel free to make this section a bit hotter by replacing it with 150k.





nonlinearcircuits		
8HP VCAs		
andrewF	Rev 1.1 8 aug 2019	Page # or name

