

nonlinearcircuits

Moldy Rapture VCO build & BOM

This is a solid VCO using the SSI2131 chip. It is very stable and will track nicely over 10 octaves. It has the stock outputs; saw, triangle and pulse, along with a pan-pulse waveform.

A couple of build notes: don't get TL431 from Tayda, it will work for 2.5V (the required voltage reference) but is not adjustable to get 10V. Get them from Mouser. I am planning to offer SSI2131 chips, so maybe will add TL431 to the store as well.

Install just one 78L05 thru-hole regulator or 78L05M SMD regulator, **but not both**.

Also, one 79L05 thru-hole or one 79L05M SMD regulator, **but not both**. You can leave off the 79L05 and add a link if you want, the -12V supply will work fine, but if you want good stability, use a regulator.

Moldy Rapture was the working title of Jack Smith's 1963 epic, Flaming Creatures. A wonderful film.

For tuning, please refer to the SSI2131 datasheet, available from Sound Semiconductor. There is also a tuning calculator for this chip that makes tuning very simple. It is available on <https://infinitemachinery.com/> or search 'ssi2131 tuner calculator'



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

VALUE	QUANTITY	DETAILS
20pF	1	0805
3n9	1	0805 C0G or NP0 – get a good one
10n	2	0805
100n	14	0805
1u	1	0805
10uF	3	0805 25V or higher voltage rating Mouser: 963-TMK212BBJ106MG-T or similar
270R	1	0805
470R	1	0805
1k	5	0805
2k2	2	0805
3k3	1	0805
10k	13	0805
22k	1	0805
27k	4	0805
30k	1	0805
39k	2	0805
49k9	1	0805
51k	1	0805
62k	3	0805
100k	9	0805
267k	1	0805
470k	2	0805
499k	2	0805
TL072 or TL082	3	soic Tayda: A-1139
TL074 or TL084	1	soic Tayda: A-1140 or A-1137
TL431	2	sot23-3 see notes
78L05M or 78L05	1	Tayda: A-176 or A-629
79L05M or 79L05	1	Tayda: A-4676
LL4148 diode	1	sod-80 Tayda: A-1213
SSI2131	1	
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 Kobiconn style	10	Tayda: A-2563 or Thonkiconn Jacks (PJ301M-12) from Thonk, Synthcube or Modular Addict
100k pot	5	Tayda: A-5623 or A-4729 or similar
10k pot	4	Tayda: A-5622 or A-4728. can use 100k if you want.
5k trimpot	3	Tayda: A-597
10 Pin 2.54mm Single Row Female Pin Header	3	Tayda: A-1306
40 Pin 2.54mm Single Row Pin Header Strip	1	Tayda: A-6771 or similar. Snap into four 10 pin sections.

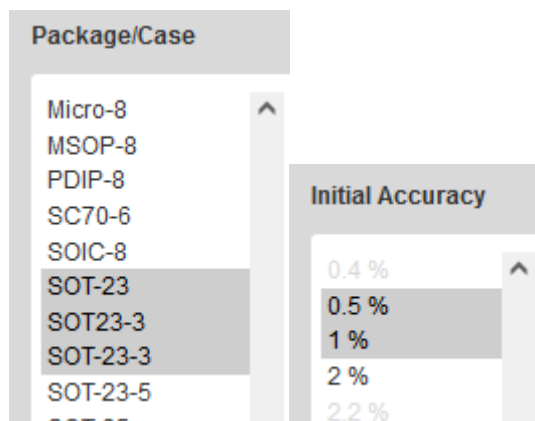
Additional notes:

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. As mentioned, do not buy TL431 from Tayda, either Mouser, or I will aim to have some in stock. If from Mouser, there are plenty to choose from. Search TL431, then select 'voltage references'. Next refine, so select:



Tick the 'in stock' box and click on the blue 'Apply Filters' button. Then click the Pricing arrow to get the cheapest at the top, expect 20c or so each. Some that will be fine

Mouser Part No: 771-TL431ACDBZR215 or 595-TL431LIAIDBZR

