

## nonlinearcircuits

### Sandy Freckle build & BOM

In Australia, there is an entrepreneur called Dick Smith who ran a chain of electronic hobby stores in the 70s and 80s (now he makes breakfast cereal). They used to publish circuit books every year (and sell kits for them), I no longer have the issue but remember the finer points of a circuit for a burp/fart generator.

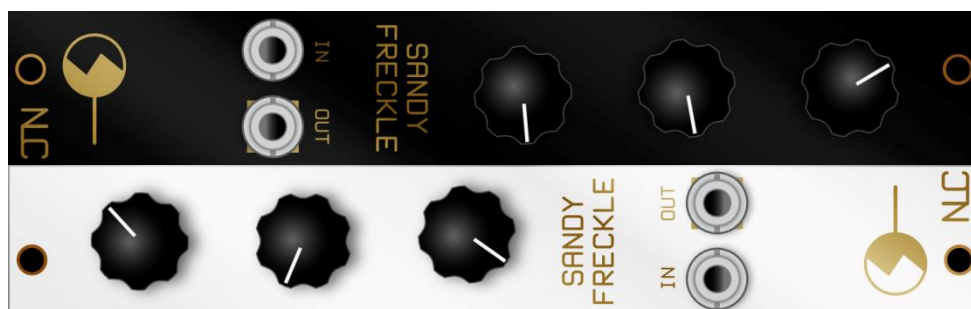


It was simply 3 transistor based multivibrators running at different frequencies. The trick was that they were loosely connected by low valued resistors causing them to influence each other. This would result in unpredictable sounds that rarely repeated.

This version has pots to adjust the frequencies of each section and an input for turning the sound on and off rather than a switch. It can be fed gates or envelopes, which give a more gradual onset and tail as the sound starts and drops off.

It is also interesting to feed it audio rate signals and it becomes a wave-shaper/distortion module.

Sandy Freckle was a wonderful villain played by actor Rock Hampton in the Kath & Kim series. He was sleazy and annoying but irresistible and funny at the same time, much like this module.



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

**Get spares – you might drop something or my counting might be a bit off!**

VALUE	QUANTITY	DETAILS
C1 100n-220n	2	0805 see notes #4
C2 10u	4	0805 see notes #4
C3 1u	2	0805 see notes #4
100n	1	0805
10u	2	0805 25V or higher voltage rating
47R	2	0805 can use 22R or 33R too
100R	1	0805
1k	2	0805
2k2	6	0805
RL	1	0805 select to suit LED (2k2 will do)
10k	1	0805
22k	3	0805
100k	4	0805
150k	3	0805
220k	1	0805
LED	1	3mm very bright to shine thru the panel
TL072 or TL082	1	Soic Tayda: A-1139
BC847	6	Tayda A-1339
LL4148	1	sod-80 Tayda: A-1213
Eurorack 10 pin power connector	1	Tayda: A-198 cut to size
S1JL, Schottky, power rectifier	2	SMD SEE NOTES #1. dot on PCB indicates CATHODE (stripe on component).
3.5MM mono SOCKET	2	Tayda: A-2563
1M pot	3	Tayda: A-1882 or A-6835 or A-1672 (doesn't matter linear or log)

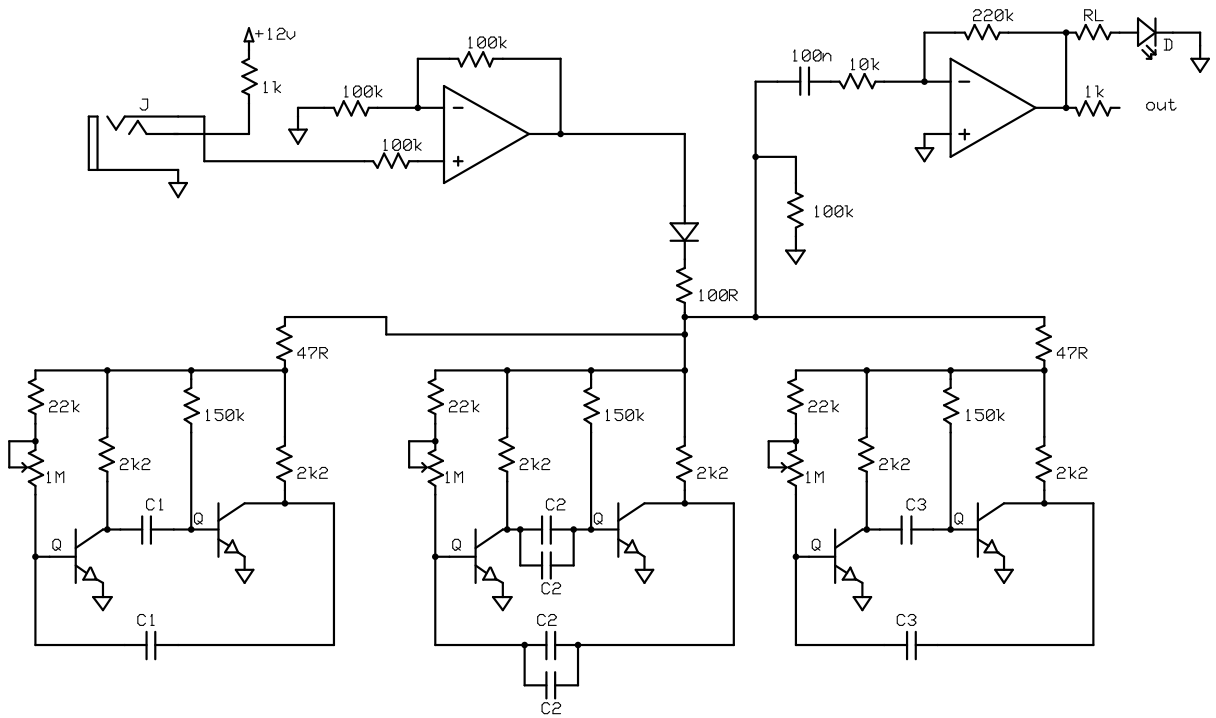
### Additional notes:

**1.**, Schottky (best option) or standard power rectifier diode 50-600V 1A or more, or use a resettable fuse or just a 10R (worst option). Examples: BAT54GWX, PMEG2005EGWX, AEC-Q101, 20V, SOD-123, PMEG2005EH DIODE, SCHOTTKY, 0.5A, 20V, 1N400x or S1JL or similar. More examples (Mouser numbers) - 621-B1100-F, 511-STPST1H100AF, 511-STPST1H100ZF, 511-STPST1H100AFY, 771-PMEG10010ELR-QX

**2.** The chips, resistors, caps are cheapest from Tayda. Synthcube is also a good source of many parts. 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.** The suggested values for C1, C2 and C3 are entirely optional, tho it is good to install the four 10u caps (C2) to help keep things unpredictable.



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SANDY FRECKLE		
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