

nonlinearcircuits

Let's Bronze Up build & BOM

This module is based on four Signum circuits but converts them to process 4 signals rather than two, extracting positive and negative aspects of the incoming signals and re-attaching them to each other in various ways. The switching is done by the incoming signals, normally switching happens at zero-crossing but I have set these to switch at approx. 0.2V, so the incoming signals should get to or below 0V at times for the module to work. If you want a zero crossing switch, it is a simple mod, just leave off one 100k resistor.

Signum circuits were developed for chaos research and are used as crude and cheap multipliers.

It is similar to Let's Splish in the sense that you patch in 2-4 signals and get multiple complex but related outputs but this is quite glitchy and sharp at times, not nearly as user friendly, hence the name (comes from Aussie prison slang for a popular form of protest).

The inputs are labelled - Head, Shoulders, Knees and Toes. The rest are all outputs, the two centre columns are partial outputs that emit positive or negative aspects of the signals, so turn off at times. The right side column outputs contain the full spectrum and are rarely quiet.

If just using two inputs, patch them into Heads and Knees, as the signals will then switch Shoulders and And Toes as well.



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

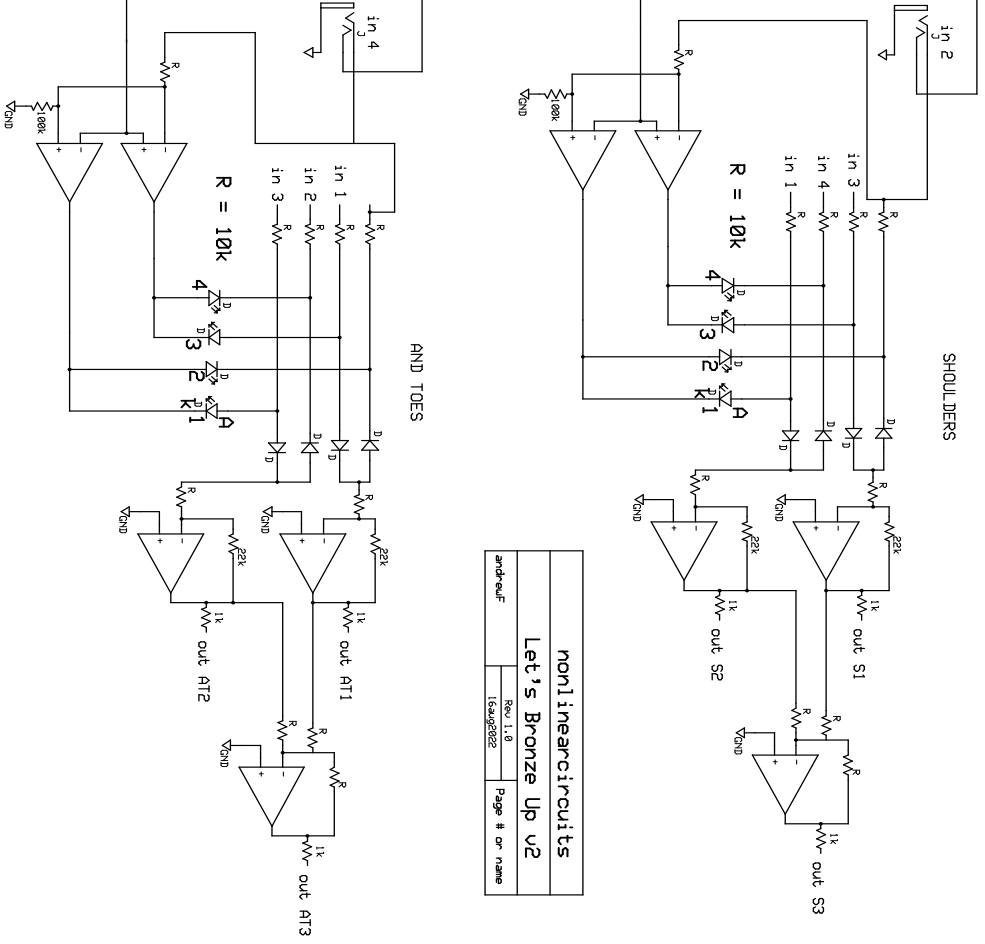
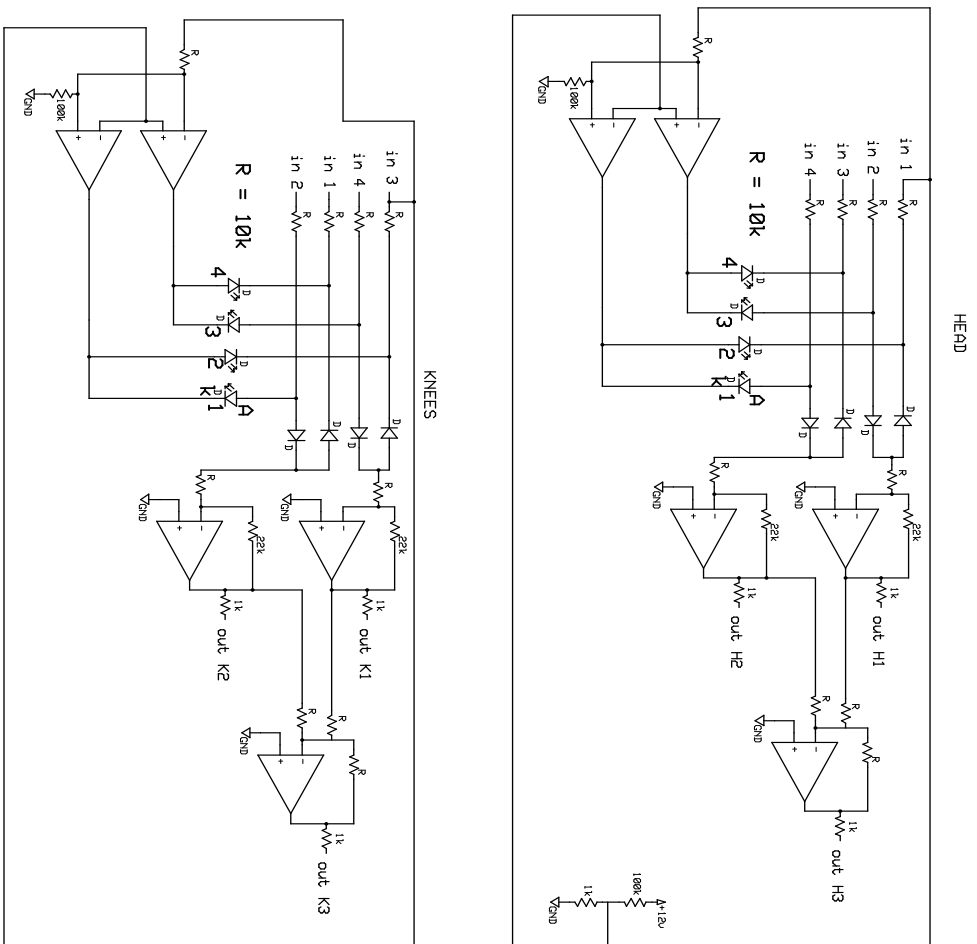
VALUE	QUANTITY	DETAILS
100nF	2	0805 Tayda: A-3511
10uF	2	0805 25V or higher voltage rating Mouser:963-TMK212BBJ106MG-T or similar
1k	13	0805
10k	40	0805
22k	8	0805
100k	5	0805
TL072 or TL082	2	Soic Tayda: A-1139
TL074 or TL084	4	Soic Tayda: A-1140 or A-1137
LL4148	16	sod-80 Tayda: A-1213
3mm LED	16	Not bi-polar. Otherwise, any are fine. Probably each set of four should be the same colour/type, but feel free to experiment.
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	16	Tayda: A-865 or Thonkiconn Jacks (PJ301M-12) from Thonk, Synthcube or Modular Addict
10 pin header	5	get two 40 pin strips and cut off as needed Tayda: A-197
10 Pin 2.54mm Single Row Female Pin Header	5	Tayda: A-1306

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.

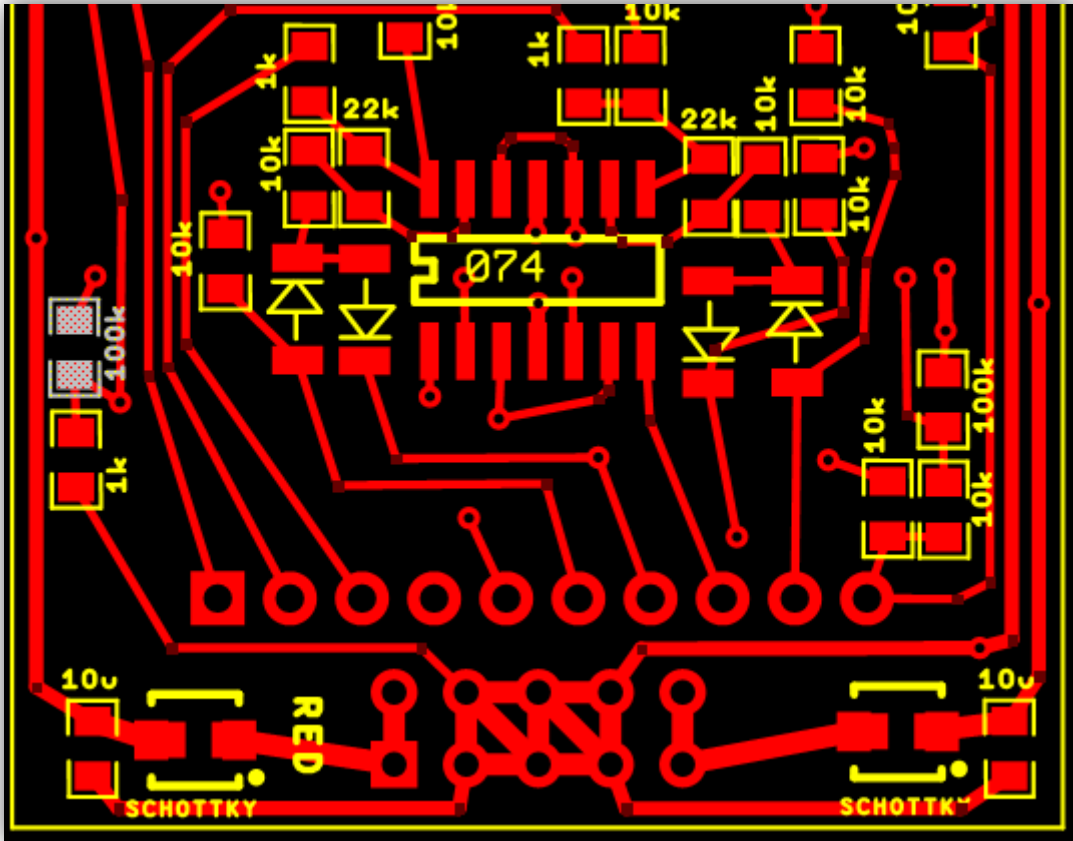
2. The chips, resistors, caps are cheapest from Tayda. Schottky diodes, CMOS & 1uF, 10uF 25V 0805 caps from Mouser/E14/Farnell/etc.

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.



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Let's Bronze Up v2	
author:	Rev 1.0
date:	15aug2025
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For switching at zero-crossing, leave off this 100k resistor:





POTS & LEADS OTHER SIDE

SQUARE HOLE = ANODE/LONG LEAD

LET'S BRONZE UP!

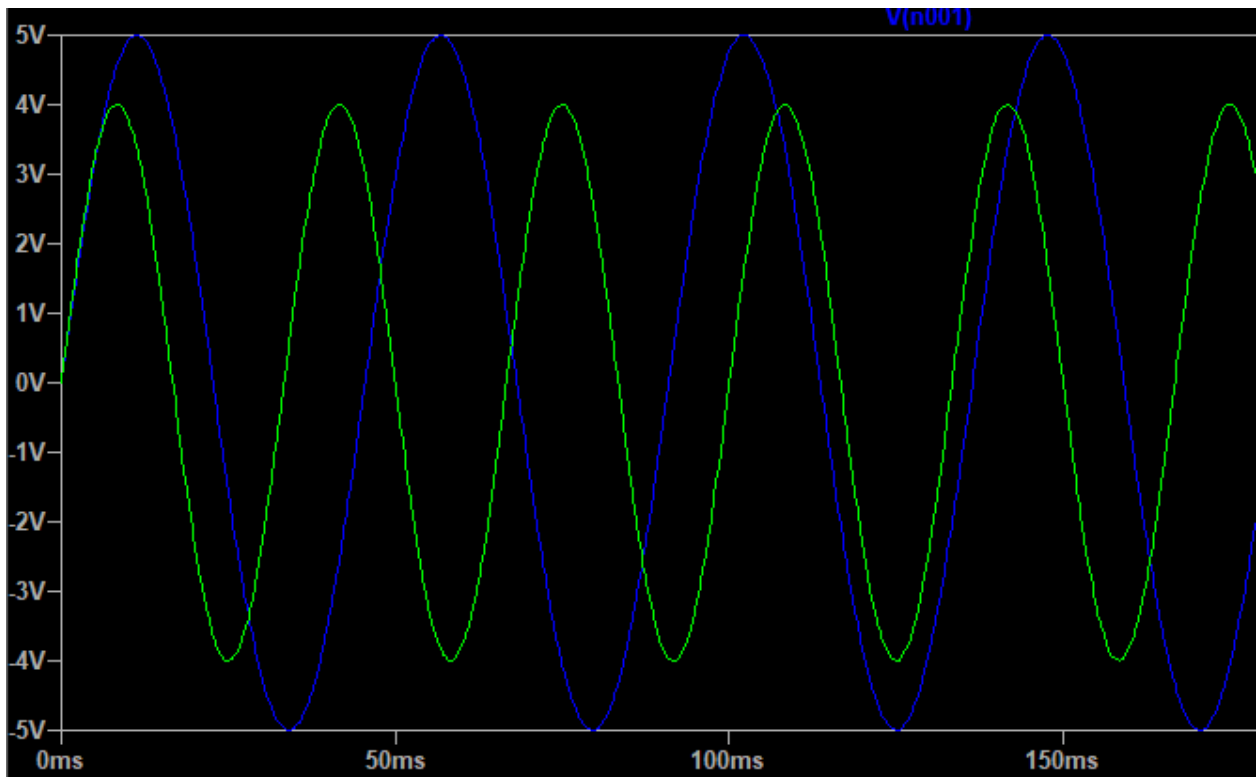
VERS1 BTM

NONLINEAR CIRCUITS

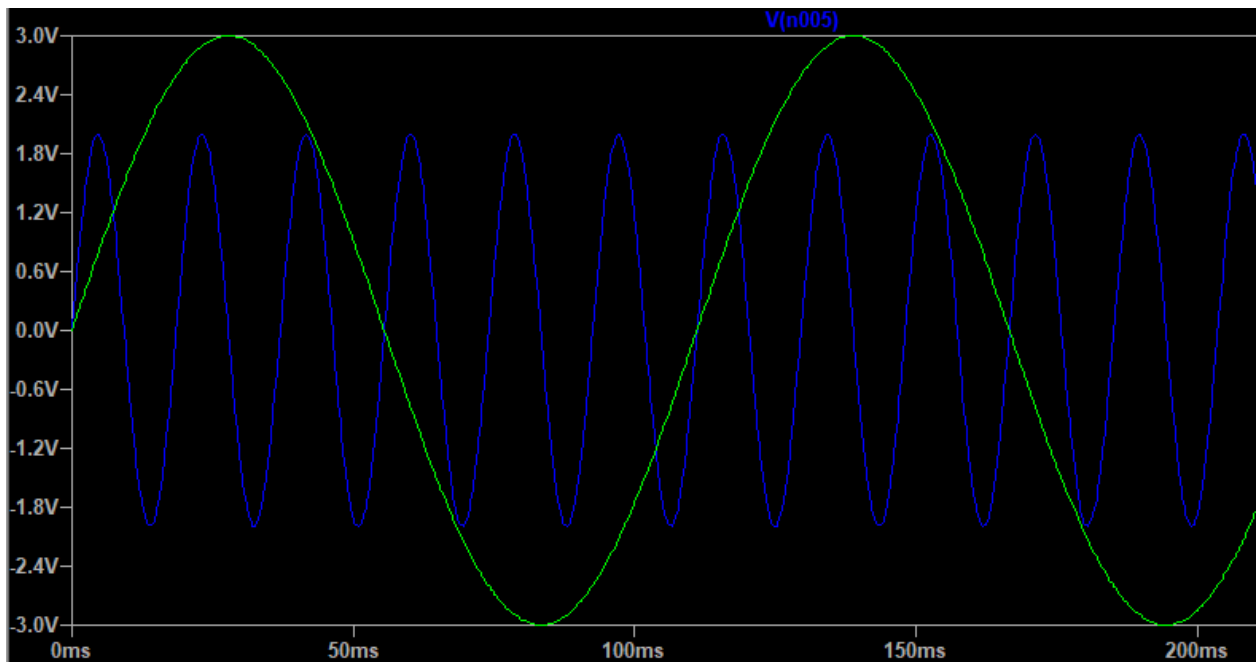
The inputs for each channel are mixed, so each input controls the switching for it's own channel

An example for HEAD channel:

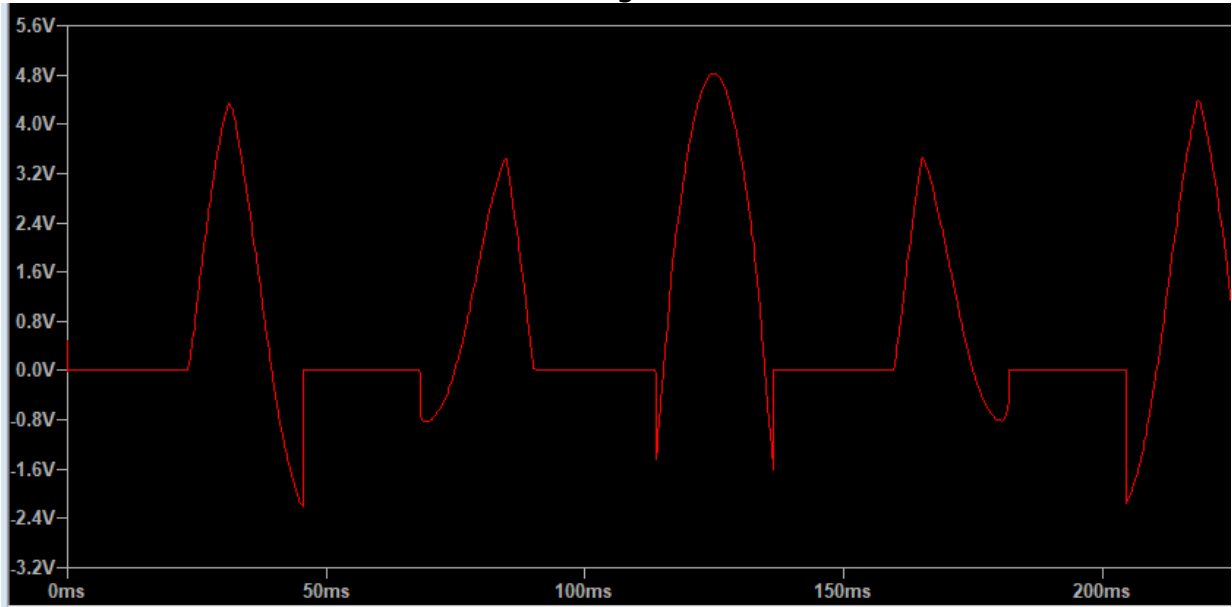
Feeding a 5vp-p 22Hz sine to Head (so the controlling signal) and a 4vp-p 30Hz sine to Shoulders



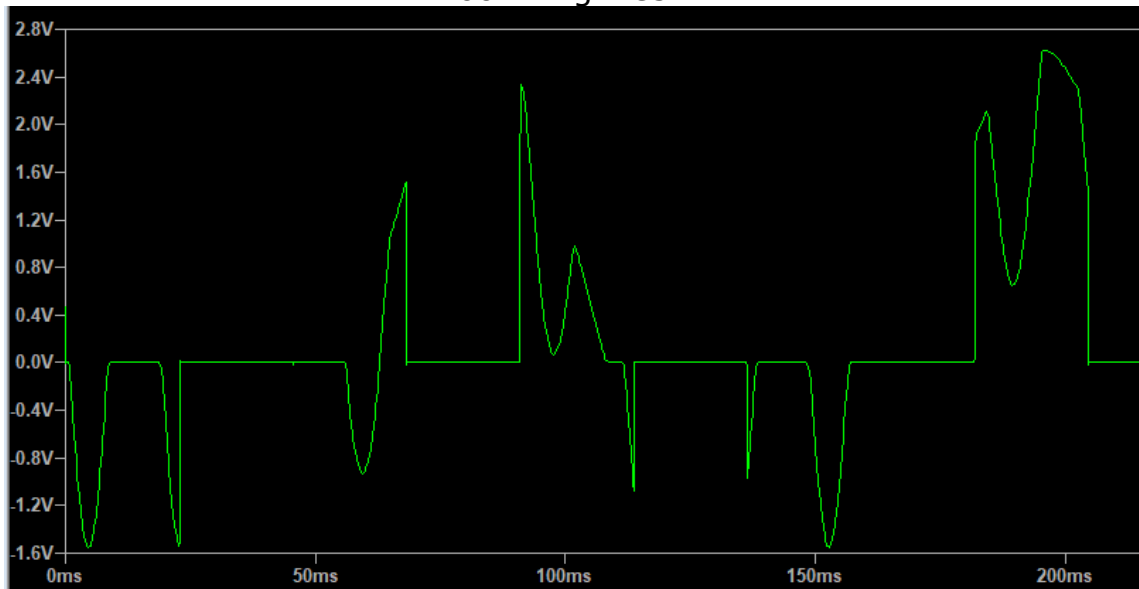
And a 3vp-p 9Hz sine to Knees with a 2vp-p 54Hz sine to And Toes:



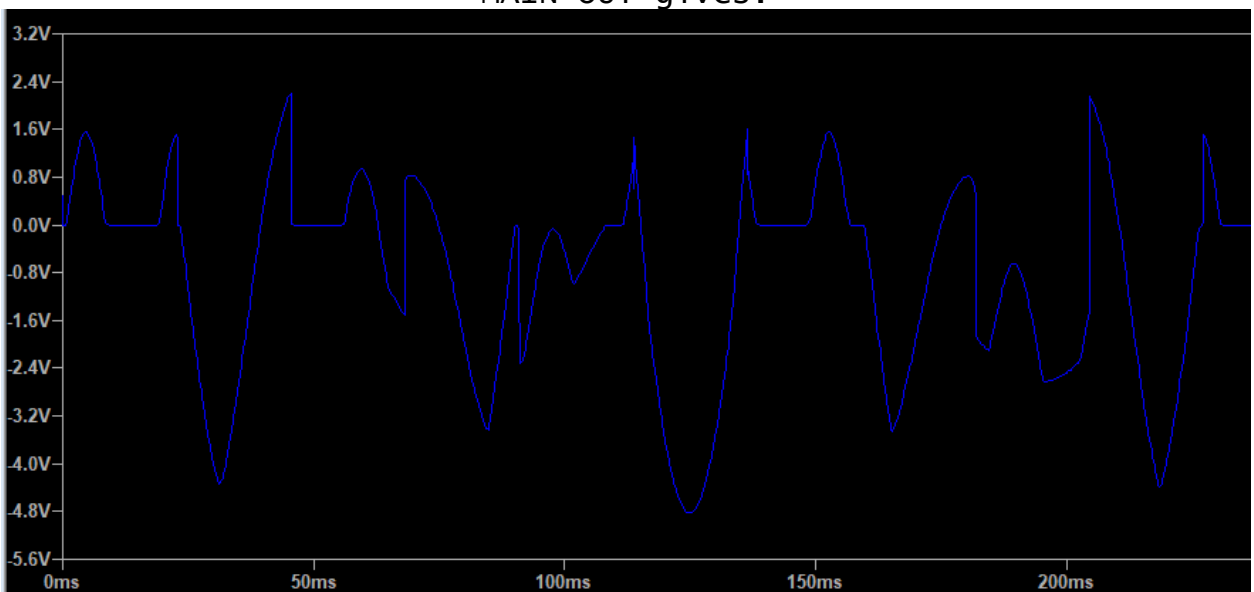
OUT 1 gives:



OUT 2 gives:



MAIN OUT gives:



This image shows the 5Vp-p signal(blue) controlling the switching (red) and how it affects the output (green).

