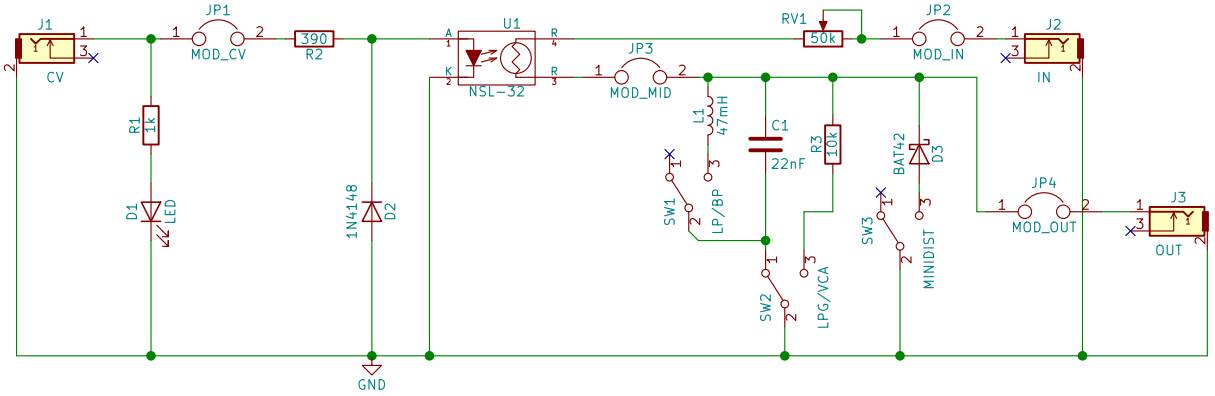
Not a low pass gate per se, but people calls them that. Basically it is a low pass filter of the simplest form - a resistor and a capacitor - where the resistor is light dependent, i.e. its value depends on the light in the LED in the optocoupler. Low CV => high resistance, high CV => low resistance, and this affects the low pass filter response.

I think it is quite useful,at least in a tiny modular like mine, as it for a rather small amount of money gives a little touch of filter as well as VCA-ish features.

Honestly, initial tests suggest that the distortion diode doesn't do much sonically. If you're not happy with it, either skip it altogether for a cheaper
build (then you can skip the switch as well), or replace it with a larger capacitor for more filtering options.

Adding the coil is an attempt to get a band pass filter as well, and it does work, but it cuts a lot of low end - maybe better with a larger coil (for a lower cutoff).
Again, skip this and the accompanying switch if you're on a budget - or throw in yet another capacitor for even more low pass options.

For some reason, the CV range where the filter is active is extremely narrow (approximately from closed to open filter from 1.4 to 2 volts). I don't know why, yet.



NOTE: It is important that the resistor values on the CV side are chosen to match the LED and the LED in the optocoupler.
R2 could actually be lower for the NSL-32 to reach its maximum current of 40 mA at around 12 volts CV. I chose 390 ohm to match other optocouplers available at electrokit.se (to make it easier to experiment with changing optocoupler, and also lowering the load on the CV).
Pick a value for R1 so that it shines as bright as you like - it is a matter of taste, but there is a limit to how low you can go (a too small resistor leads to a too high current that can destroy the LED; the exact limit depends on the LED).
If you change the LED or optocoupler, make sure the resistors match.

Similarly, the components on the audio side are chosen to work OK with the optocoupler I chose (it has 500 ohms as its lowest possible value). For other optocouplers, you'd probably want to change C1, L1, and R3 as well (and probably RV1 too).

MODS:
- The dist connaisseur mod: Put a diode (Schottky or Germanium, since those have lower voltage drop => less loss) directly after the audio in jack, for another type of dist. The diode will clip (half) the waveform.
- The filter mod: Put another capacitor (of significantly higher (or lower) value) instead of the VCA resistor (R3), for different filter response.

Actually, you could replace L1, R3, and D3 with capacitors of different values, if you would like a wider range of low pass filter characteristics.
- The lofi envelope mod: To get a decay thing going, from a gate pulse on CV_IN, add a capacitor where JP1 is. You would probably also want to have a switch there, short circuiting the capacitor to disable it.
  Given the low ipedance in the rest of the circuit, you will need a fairly high value on the capacitor - I tried with 10uF, getting a pretty fast decay - and also possibly bipolar (since you don't know what kind of voltage to expect.
- The spartan mod: If you're into simplicity (or tight budgets), skip everything extra on the audio side, just keep the capacitor (and the optocoupler, obviously).
  Just put jumpers (e.g. cut off resistor legs) across the skipped components (between pin 1-2 on SW1, 1-3 on SW2, the two end points of the pot, and across the diode.

Mini LPG

Sheet: /
File: minilpg.sch

Title: Mini LPG

Size: A4	Date: September 8, 2018	**Rev:** A
KiCad E.D.A. kicad (5.0.0-3-g5ebb6b6)		Id: 1/1