

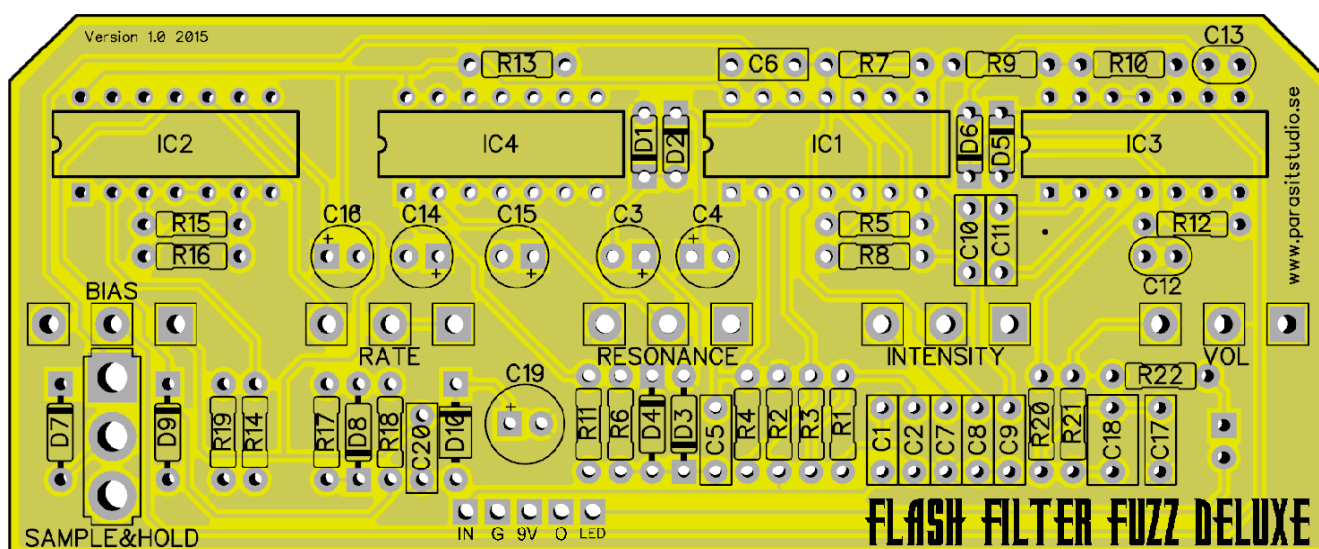
FLASH FILTER FUZZ DELUXE

Build Document last updated dec 2015

for PCB version 1.1

The Flash Filter Fuzz is a CMOS-based squarewave fuzz with a resonant lowpass filter that give it a very mean and brutal sound. It also has Sample and Hold modulation of the cutoff frequency that allows you to dial in rythmic patterns and synthy sounds. It can be made to self-oscillate with the Intensity pot turned all the way up it, turning it into a cool little noisemaker.

This circuit works best with high output pickups. It is a gated circuit by nature of the CMOS logic. If you are using single coils and need more sustain, try a boost or compressor in front. Happy playing!



Controls

- **S&H switch:** This switch turns the Sample and Hold LFO on/off. It has 3 positions:
 - On – gated by the guitar signal (LFO turns off when not playing)
 - On – free running (always on)
 - Off
- **BIAS:** Controls the range and depth of the Sample and Hold
- **RATE:** Controls the rate of the Sample and Hold
- **RESONANCE:** Controls the cutoff frequency of the resonant filter
- **INTENSITY:** Controls the strength of the resonant peak. Turn it all the way up and the pedal will oscillate.
- **VOLUME:** Controls the overall volume

General building tips

- Solder the low profile components first, from short to tall height. Recommended order: resistors, diodes, IC socket, film-caps, electrolytics, pots and switches
- CMOS chips are very sensitive to static charges and can be easily damaged. It's a good idea to wear an anti-static wristband or at least avoid wearing a wool jumper and petting your cat/dog while building...
- Always use sockets for IC chips and transistors to avoid heating them directly. It also makes it much easier to swap them out if needed.
- Pay special attention to the orientation of the diodes and electrolytics.
- The square pad represents pin 1 of each pot.
- This PCB is designed for 16mm Alpha PCB mounted pots. You could also use solder lug type and just tack some "legs" with short pieces of wire to each pot to mimic a PCB mount type. Again, it is a very good idea to drill holes in your enclosure first, and mount the pots with the nuts BEFORE soldering the pots to the PCB. This ensures you won't put a lot of stress on the PCB.
- The switch, pots and LED are meant to be mounted on the backside (solder side) of the PCB and soldered on the front (component side).
- There are a LOT of switches and pots on this PCB. Be sure to place them in the PCB without soldering first, THEN place them in your drilled enclosure. Gently tighten the nuts to the enclosure, then solder LAST. Otherwise, it will be really hard to get this in your enclosure.

Flash Filter Fuzz Bill Of Materials (BOM)

| Capacitors | | Resistors | | IC's | |
|-------------------|--------|------------------|-------|-----------------------|----------------|
| C1 | 100nF | R1 | 1M | IC1 | CD4069 |
| C2 | 2.2nF | R2 | 1M | IC2 | CD4069 |
| C3 | 2.2uF | R3 | 47K | IC3 | CD40106 |
| C4 | 1uF | R4 | 1M | IC4 | CD4066 |
| C5 | 100nF | R5 | 100K | | |
| C6 | 100nF | R6 | 220K | | |
| C7 | 6.8nF | R7 | 100K | | |
| C8 | 4.7nF | R8 | 100K | | |
| C9 | 47nF | R9 | 1M | | |
| C10 | 100nF | R10 | 10K | | |
| C11 | 10nF | R11 | 100R | | |
| C12 | 100pF | R12 | 150K | | |
| C13 | 100pF | R13 | 47K | | |
| C14 | 4.7uF | R14 | 470K | | |
| C15 | 2.2uF | R15 | 1M | | |
| C16 | 10uF | R16 | 22K | | |
| C17 | 10nF | R17 | 2.2K | | |
| C18 | 1uF | R18 | 33K | | |
| C19 | 100uF | R19 | 1M | | |
| C20 | 100nF | R20 | 10K | | |
| | | R21 | 100K | | |
| | | R22 | 4.7K* | | |
| Diodes | | | | Potentiometers | |
| D1 | 1N4148 | | | Intensity | B50K |
| D2 | 1N4148 | | | Resonance | B5K |
| D3 | 1N4148 | | | Rate | B50K |
| D4 | 1N34A | | | Bias | B200K |
| D5 | 1N4148 | | | Volume | B50K |
| D6 | 1N4148 | | | | |
| D7 | 1N4148 | | | | |
| D8 | 1N4148 | | | | |
| D9 | 1N4148 | | | | |
| D10 | 1N5817 | | | Switches | |
| | | | | S&H | SPDT on/off/on |

Notes regarding the BOM

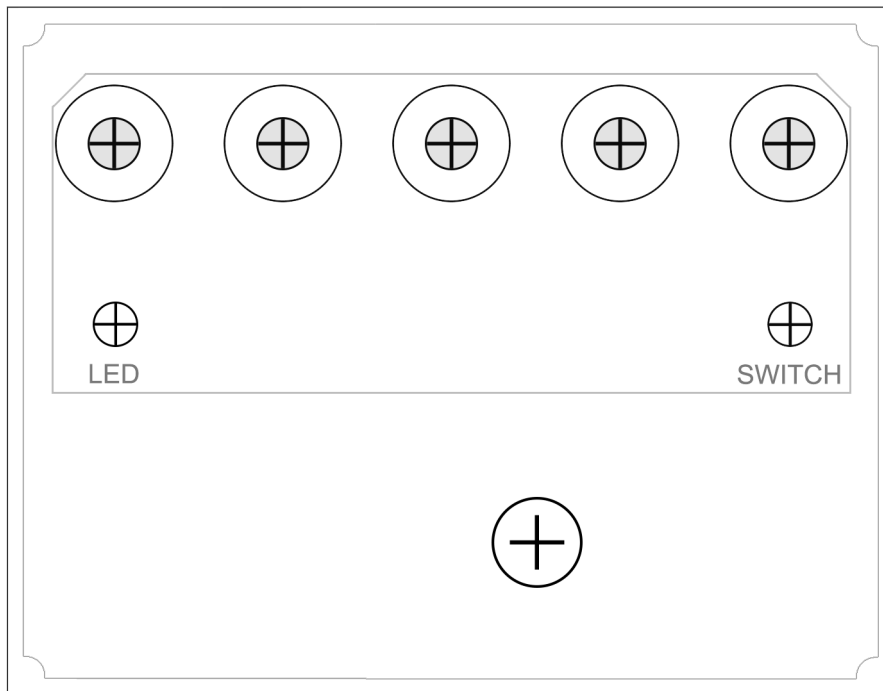
- Not included in the BOM: LED for bypass indication. The board mounted LED is for bypass (no LFO rate indicator LED connection is available for this circuit).
- * This is a current limiting resistor for the bypass LED. Adjust this value to suit the type of LED you are using. 4.7K is usually a good value for diffused LEDs, but if you are using a clear superbright LED you might want to have a higher value resistor, around 8K to 22K.
- Important note about the Bias pot: B200K doesn't come in angled PCB mount type, so you can exchange it for a B250K but the result will suffer. IMO it's worth wiring up a regular B200K solder lug type pot here instead.
- Other things not included in the BOM but good to have: enclosure, input and output jacks, DC jacks, stomp switch and knobs.
- The "LED" hole (next to the output connection hole) should be connected to the ground for LED bypass on your stomp switch.

Wiring

For more info on how to wire up the stomp switch, jacks ect, please visit the Parasit Studio website and download the PDF called "offboard wiring". You can find it here:

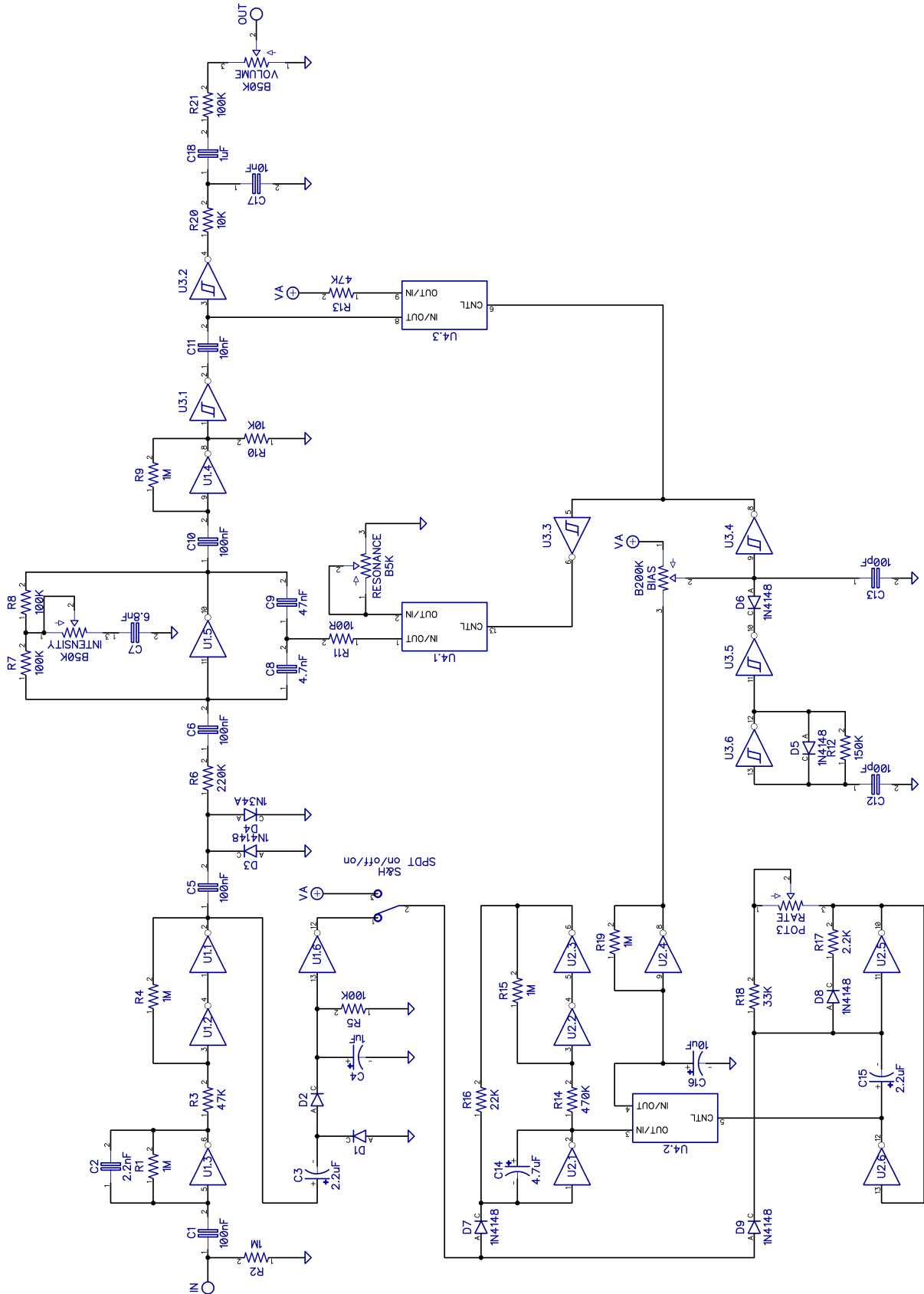
<http://www.parasitstudio.se/build-docs.html>

Drilling template (1590BB)



- Use at your own risk! This template is approximate.
- Make sure your printer isn't doing any scaling / is set to 100% print size.
- Drill DC jack and input/output jacks to your own preference.
- **Measure and confirm before drilling!**
- Read the build tips section highlighted in red before soldering pots and switches to the PCB

Schematic



Note that power/ground connections, polarity protection and DC filtering is not shown

Troubleshooting

There's always a chance of running into trouble. To minimize error, follow the BOM and general building tips carefully. Take your time and don't rush. Take a break now and then. Use good solder, and it helps to have a decent soldering station instead of a cheap iron.

If you are still having trouble, please visit the madbean forum Parasit Studio subforum section and ask for help there.

<http://www.madbeanpedals.com/forum/index.php?board=84.0>

If you have bought the Musikding kit and have received a faulty or missing component, please contact musikding directly.

<https://www.musikding.de/kontakt.php?lang=eng>

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