

HellGazer II

Twin circuits to destroy your delicate sensibilities



Important notes

If you're using any of our footswitch daughterboards, DOWNLOAD THE DAUGHTERBOARD DOCUMENT

- Download and read the appropriate build document for the daughterboard as well as this one BEFORE you start.
- DO NOT solder the supplied Current Limiting Resistor (CLR) to the main circuit board even if there is a place for it. This should be soldered to the footswitch daughterboard.

POWER SUPPLY

Unless otherwise stated in this document this circuit is designed to be powered with 9V DC.

COMPONENT SPECS

Unless otherwise stated in this document:

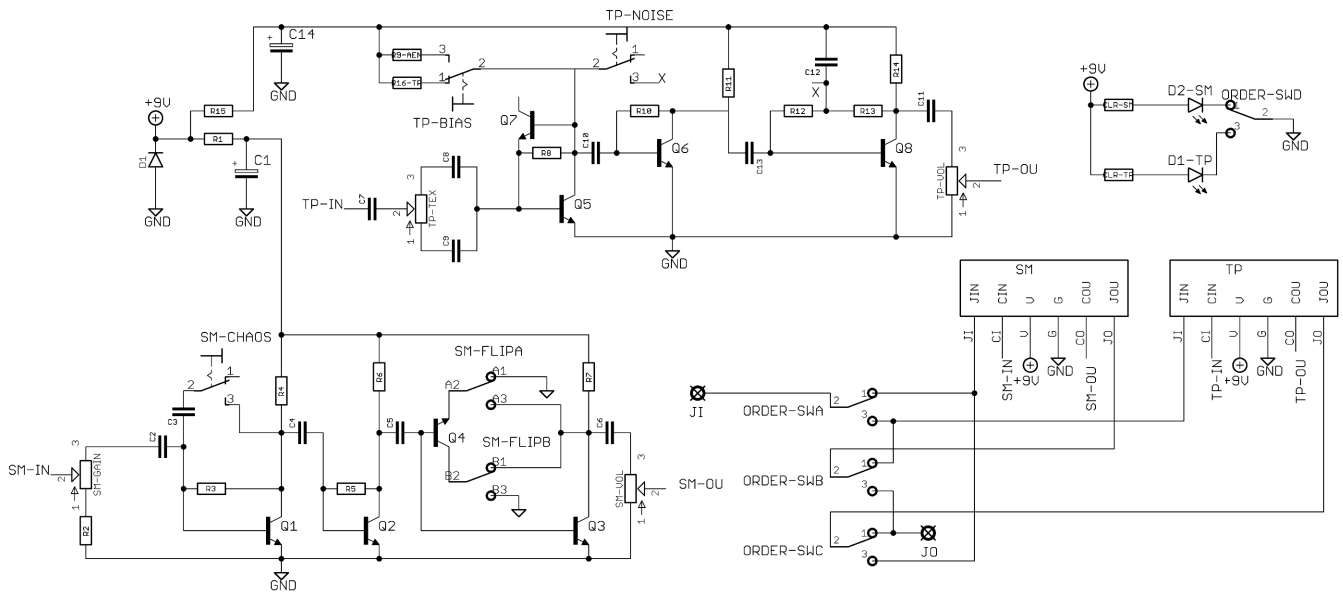
- Resistors should be 0.25W. You can use those with higher ratings but check the physical size of them.
- Electrolytics caps should be at least 25V for 9V circuits, 35V for 18V circuits. Again, check physical size if using higher ratings.

LAYOUT CONVENTIONS

Unless otherwise stated in this document, the following are used:

- **Electrolytic capacitors:**
Long leg (anode) to square pad.
- **Diodes/LEDs:**
Striped leg (cathode) to square pad. Short leg to square pad for LEDs.
- **ICs:**
Square pad indicates pin 1.

Schematic + BOM



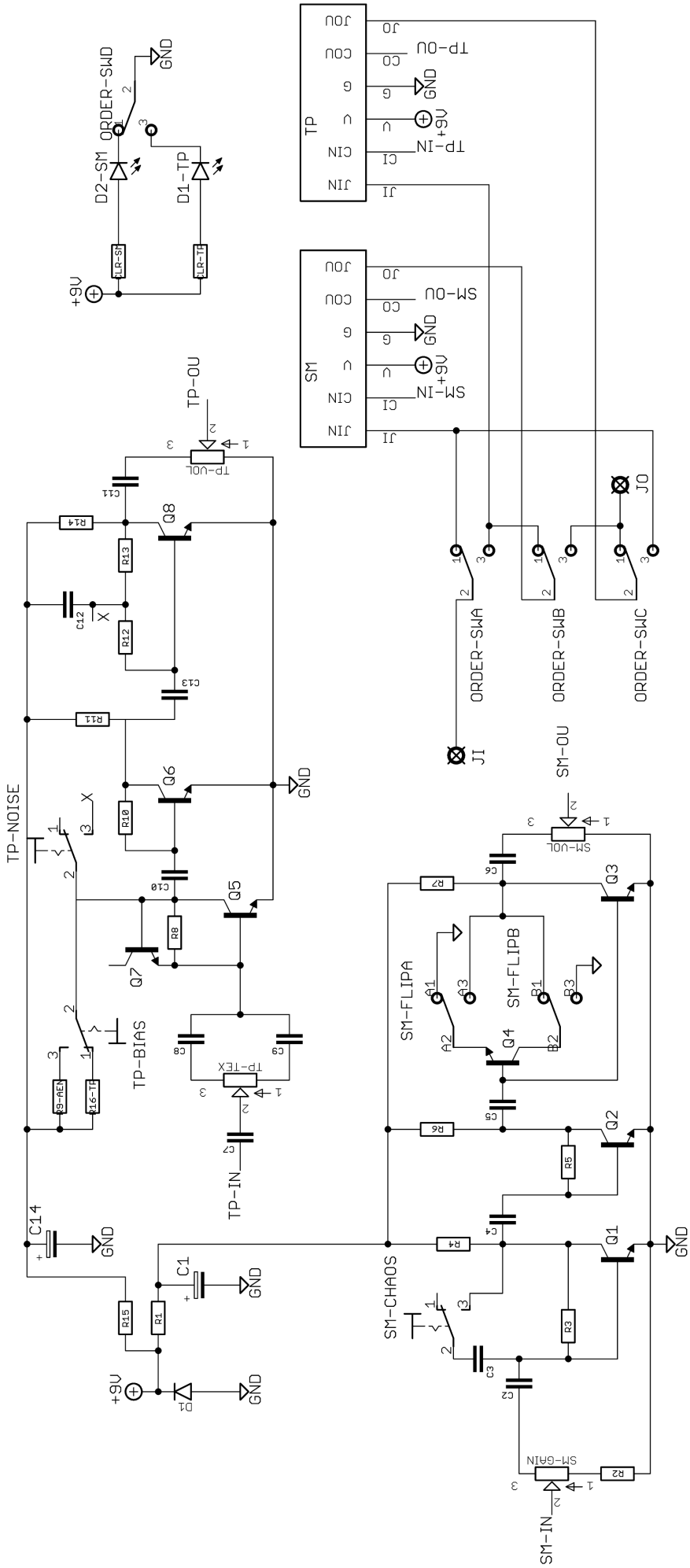
| | | | | | |
|--------|----------|-----|----------|----------|-----------|
| R1 | 82R | C1 | 47u elec | D1 | 1N4001 |
| R2 | 1K | C2 | 100n | Q1-3 | MPSA18 |
| R3 | 2M2 | C3 | 100n | Q4 | 2N2907 |
| R4 | 10K | C4 | 100n | Q5-6 | MPSA18 |
| R5 | 3M3 | C5 | 100n | Q7-8 | 2N2222 |
| R6 | 10K | C6 | 100n | | |
| R7 | 10K | C7 | 100n | SM-GAIN | 100KA** |
| R8 | 2M2 | C8 | 22n | SM-VOL | 100KA |
| R9 | 10K | C9 | 1n | TP-TX | 500KA*** |
| R10 | 2M2 | C10 | 100n | TP-VOL | 100KA |
| R11 | 10K | C11 | 22n | | |
| R12 | 100K | C12 | 1n | SWITCHES | ALL ON-ON |
| R13 | 100K | C13 | 100n | | |
| R14 | 100K | C14 | 47u elec | | |
| R15 | 82R | | | | |
| R16 | 47-100K* | | | | |
| CLR-SM | 2K2** | | | | |
| CLR-TP | 2K2** | | | | |

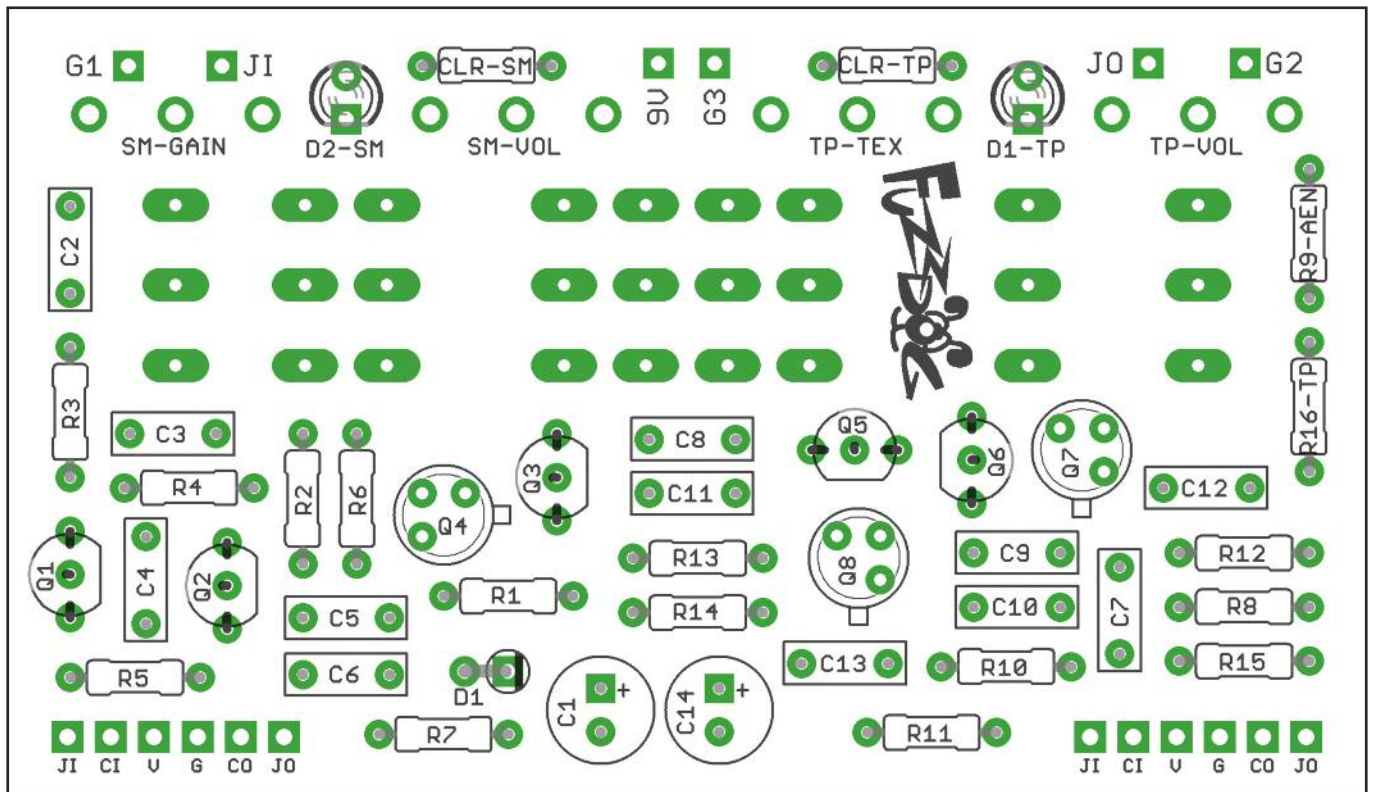
*Only include R16 if you're including the gain switch in the TP circuit. It gets a bit whacky if you go up to 100K, 47K is not so mad.

**These resistors are only required if you're including the order switcher and channel indicator LEDs (D1 and D2). If not using the order switcher leave them out.

***Linear taper on original. Log is better, honestly.

There are notes later about jumpers for unused toggle switches.





PCB layout ©2021 Pedal Parts Ltd.

The power and signal pads on the PCB conform to the FuzzDog Direct Connection format, so can be paired with the appropriate daughterboard for quick and easy offboard wiring. Check the separate daughterboard document for details. We supply daughterboards with LED above the footswitch with this kit.

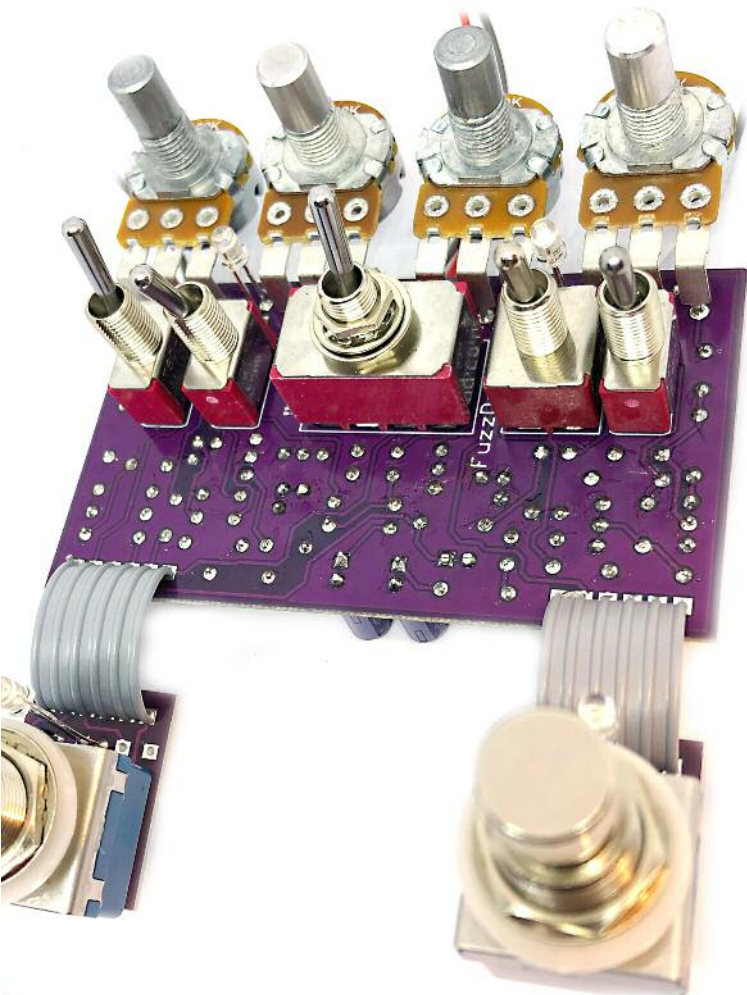
Be very careful when soldering the diode, transistors and LEDs. They're very sensitive to heat. You should use some kind of heat sink (crocodile clip or reverse action tweezers) on each leg as you solder them. Keep exposure to heat to a minimum (under 2 seconds). The same goes for the IC if you aren't using a socket.

Snap the small metal tag off the pots so they can be mounted flush in the box.

You should solder all other board-mounted components before you solder the pots. Once they're in place you'll have no access to much of the board. Make sure your pots all line up nicely. Same goes for the toggle switches. It's best to use the enclosure as a guide when placing the pots and switches to ensure they all sit correctly.

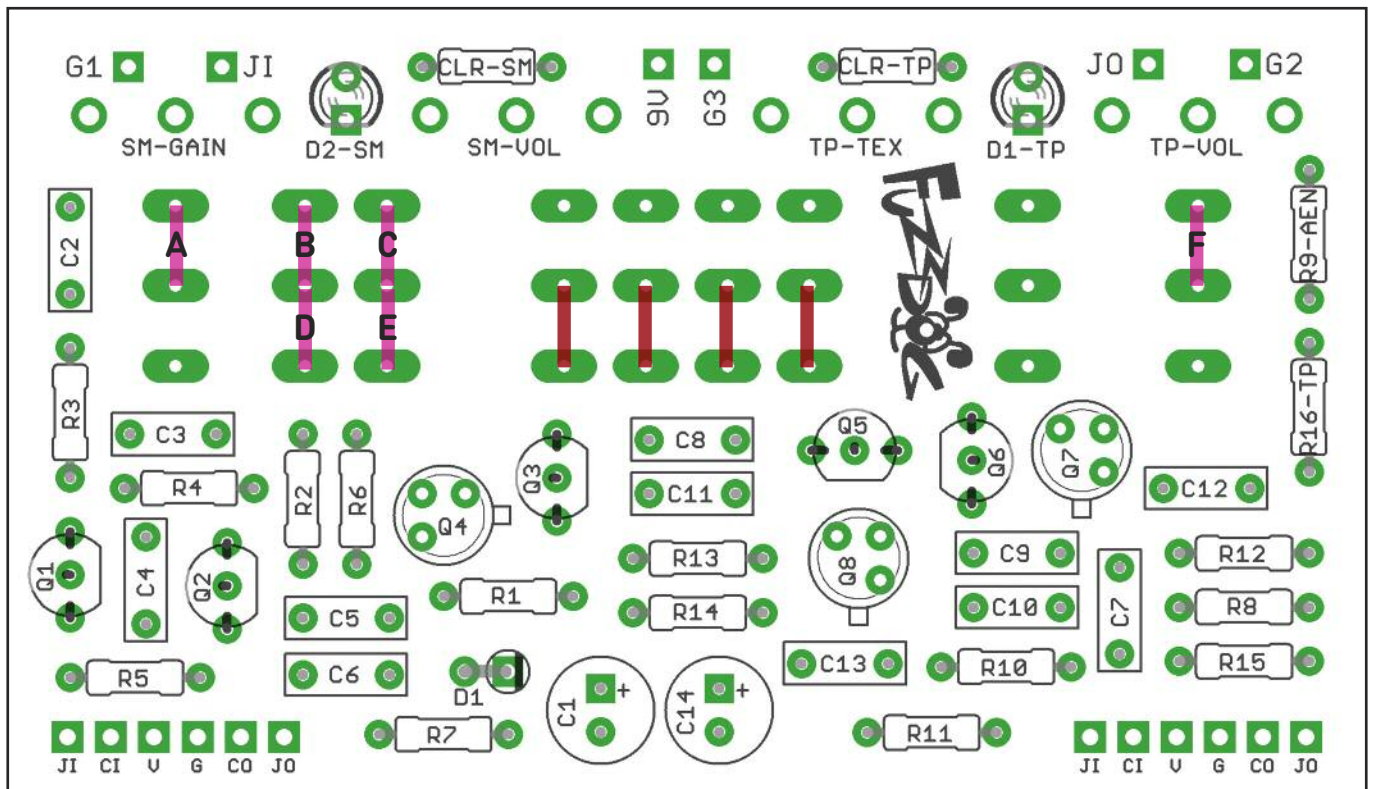
Order Switch

If you're including the order switcher then it's going to be fiddly get everything lined up to mount in the enclosure. You'll have to place with the pots with the pins only just going through the PCB so they sit somewhere near the height of the larger toggle with its nut. We'll supply extra washers to sit on the pots on the inside of the enclosure to make it work. You'll have to adjust the inner nuts of the smaller toggles to line up with the 4PDT.



Toggle Switches

If you aren't using some of the toggle switches you need to place jumpers instead.



ORDER SWITCHER

Place jumpers from the centre pads to the lower pads as shown in red above. This will give you the standard format of right hand fuzz circuit (Soda) into left hand drive circuit (Ripper). If you're really strange you can reverse that order by connecting the centre pads to the upper pads instead. Don't!

SODA CHAOS

Remove the chaos option by jumpering pads above marked A.

SODA OCTAVE

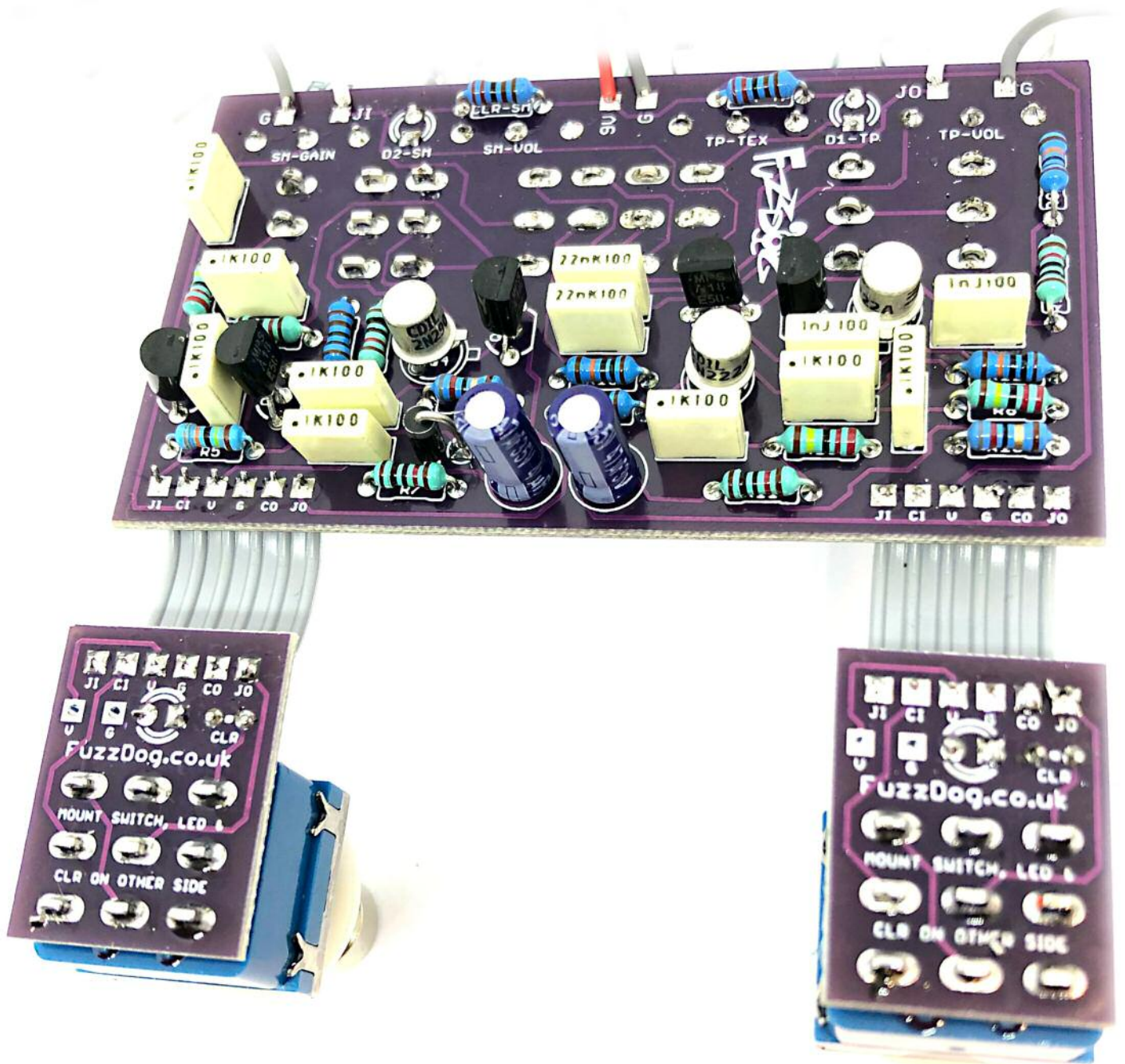
To keep it standard (no octave), jumpers B and C. To have permanent octave-up, jumper D and E.

RIPPER GAIN

To keep it standard use 10K in R9, leave out R16, jumper F above.

RIPPER NOISE

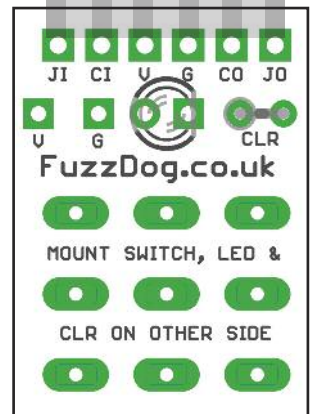
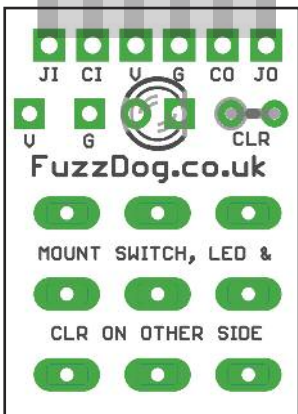
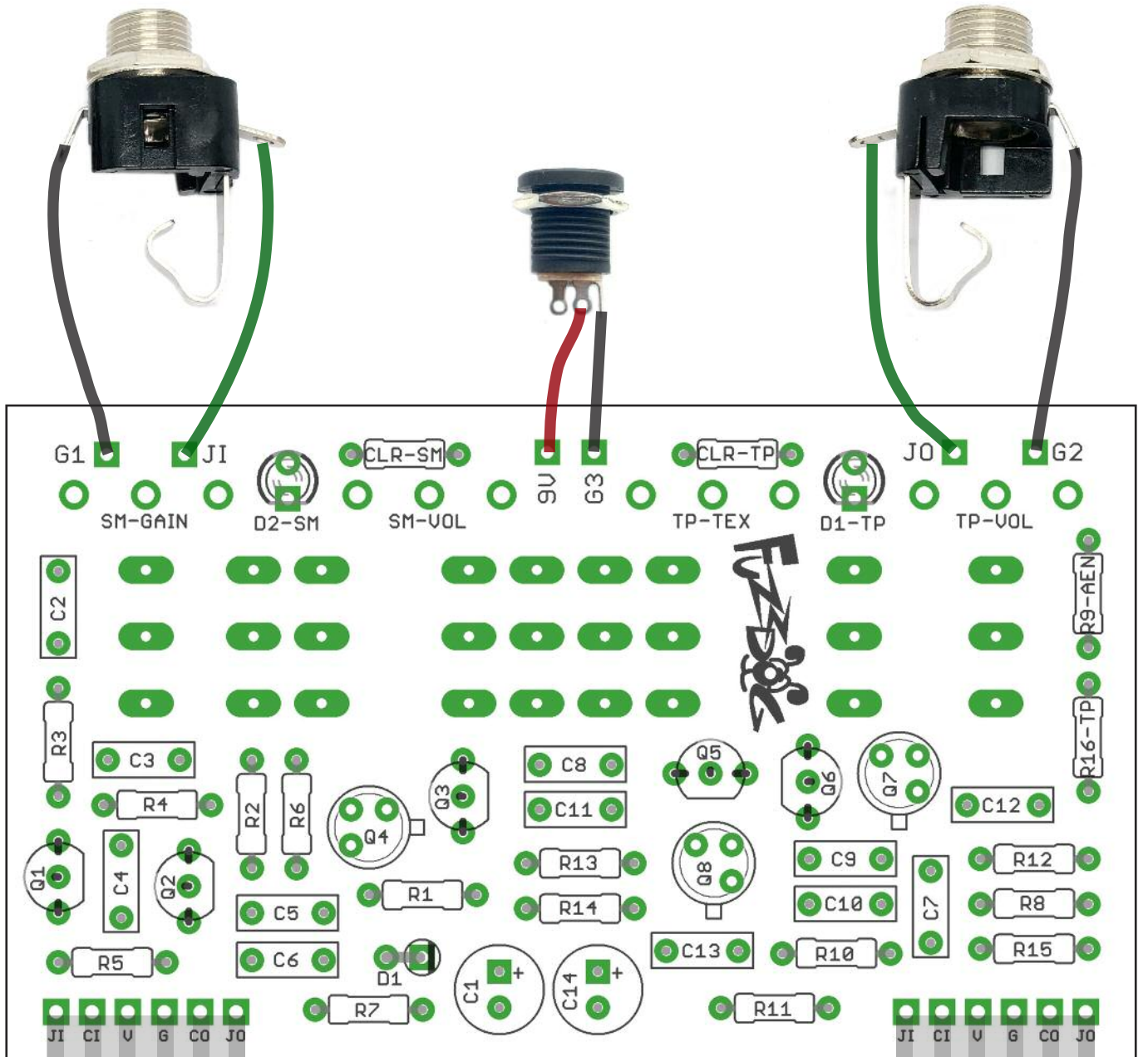
To omit this simply leave out the toggle switch. No jumper required.



JOINING THE BOARDS

Connect the two footswitch daughterboards to the main PCB with wires or ribbon cables. Ensure the pads correspond, i.e. don't get the switch boards upside down!

Don't forget the current limiting resistors (CLRs) for the LEDs. The fit vertically in the two pads marked CLR on the daughterboards, same side as the footswitches.



Drilling template

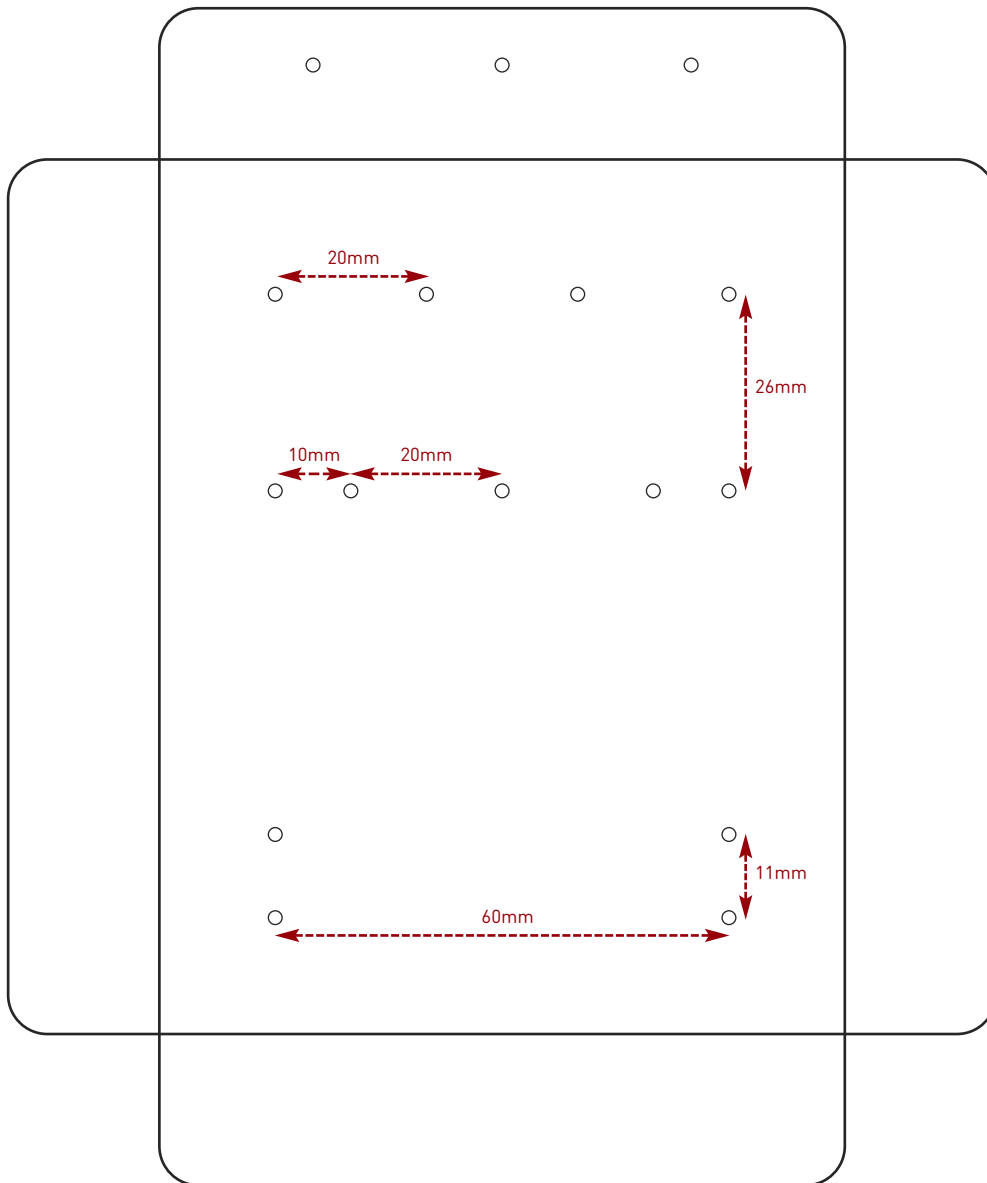
Hammond 1590BB

It's a good idea to drill the pot and toggle switch holes 1mm bigger if you're board-mounting them.

Wiggle room = good!

Recommended drill sizes:

| | |
|-----------------|------|
| Pots | 7mm |
| Jacks | 10mm |
| Footswitch | 12mm |
| DC Socket | 12mm |
| Toggle switches | 6mm |



This template is a rough guide only. You should ensure correct marking of your enclosure before drilling. You use this template at your own risk.

Pedal Parts Ltd can accept no responsibility for incorrect drilling of enclosures.

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