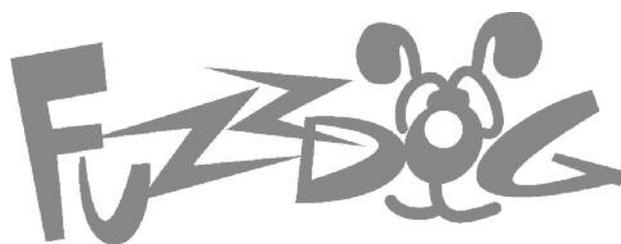
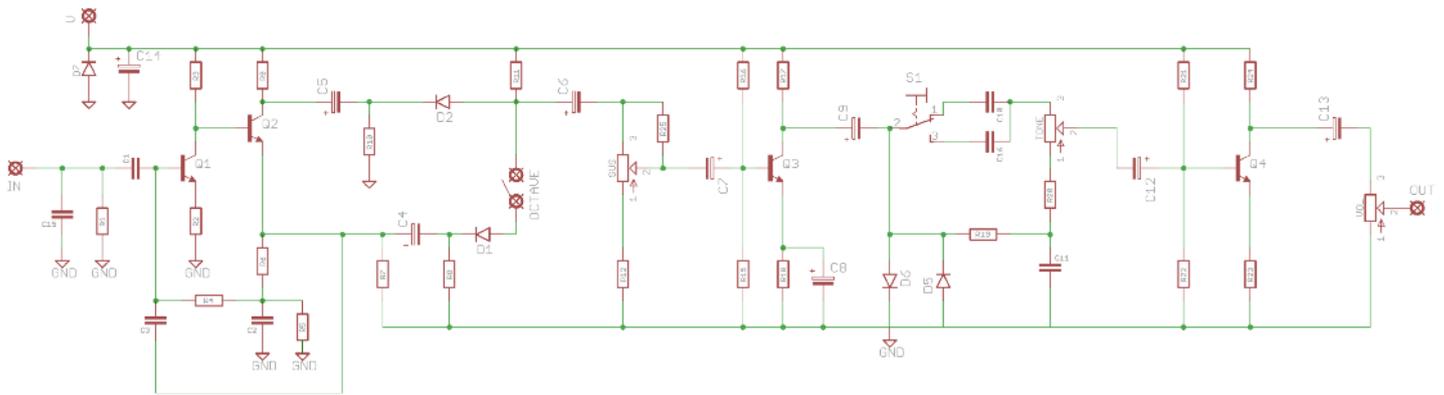


Ultimatum Fuzz

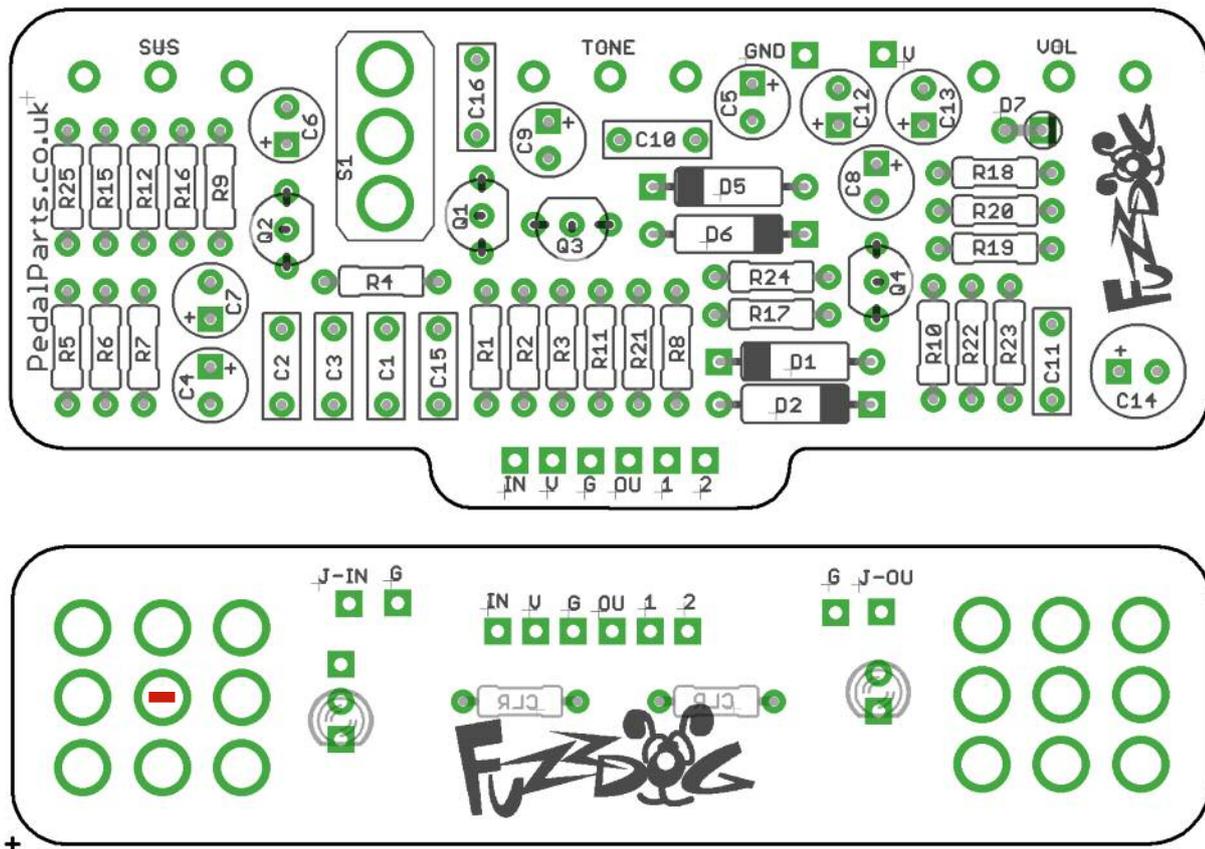
The Ultimate experience in vintage-style octave-up fuzz



Schematic + BOM



R1	1M	C1	47n	D1-2	1N34A
R2	1K	C2	47n	D3-4	LED
R3	47K	C3	1n	D5-6	1N34A
R4	47K	C4	10u elec	D7	1N4001
R5	100K	C5	10u elec	Q1-4	2N3904
R6	100K	C6	10u elec	TONE	100KB
R7	4K7	C7	10u elec	VOL	100KB
R8	100K	C8	10u elec	SUST	100KB
R9	4K7	C9	10u elec	SW1	DPDT
R10	100K	C10	15n		
R11	100K	C11	100n		
R12	220R	C12	10u elec		
R13	CLR (2K2)	C13	10u elec		
R14	CLR (2K2)	C14	100u elec		
R15	15K	C15	10p		
R16	150K	C16	1n		
R17	10K				
R18	1K				
R19	22K				
R20	4K7				
R21	470K				
R22	47K				
R23	1K5				
R24	10K				
R25	100K				



PCB Layout ©2015 Pedal Parts Ltd.

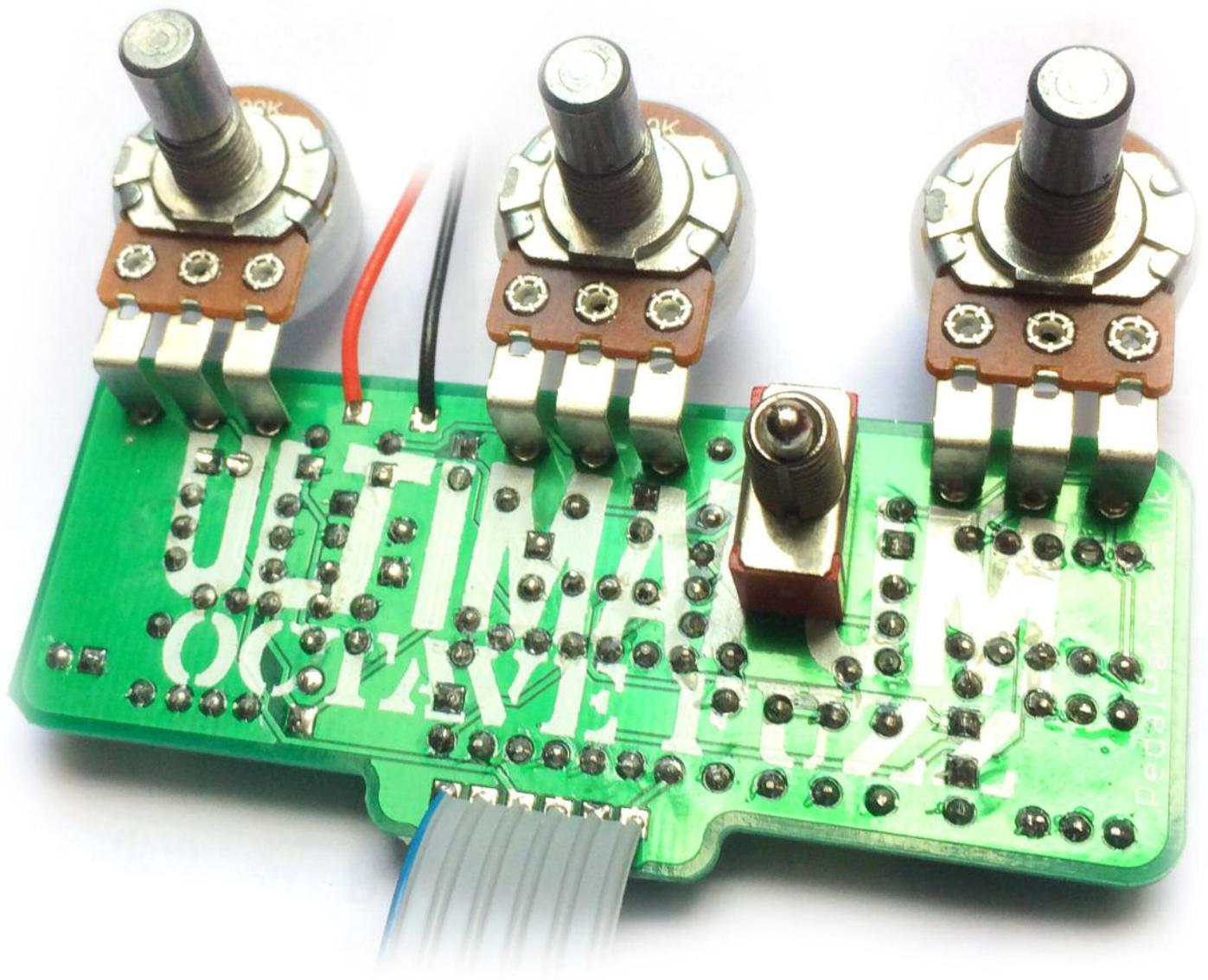
Be very careful when soldering the diodes, LEDs and transistors. They're very sensitive to heat. You should use some kind of heat sink (crocodile clip or reverse action tweezers) on each leg as you solder them. Keep exposure to heat to a minimum (under 2 seconds).

The long leg (anode) of the electrolytic capacitors go into the square pads. The striped leg (cathode) of the diodes goes into the square pads. C14 should be placed flat to the board as seen on the cover image. This gives lots of clearance when mounting into the enclosure.

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

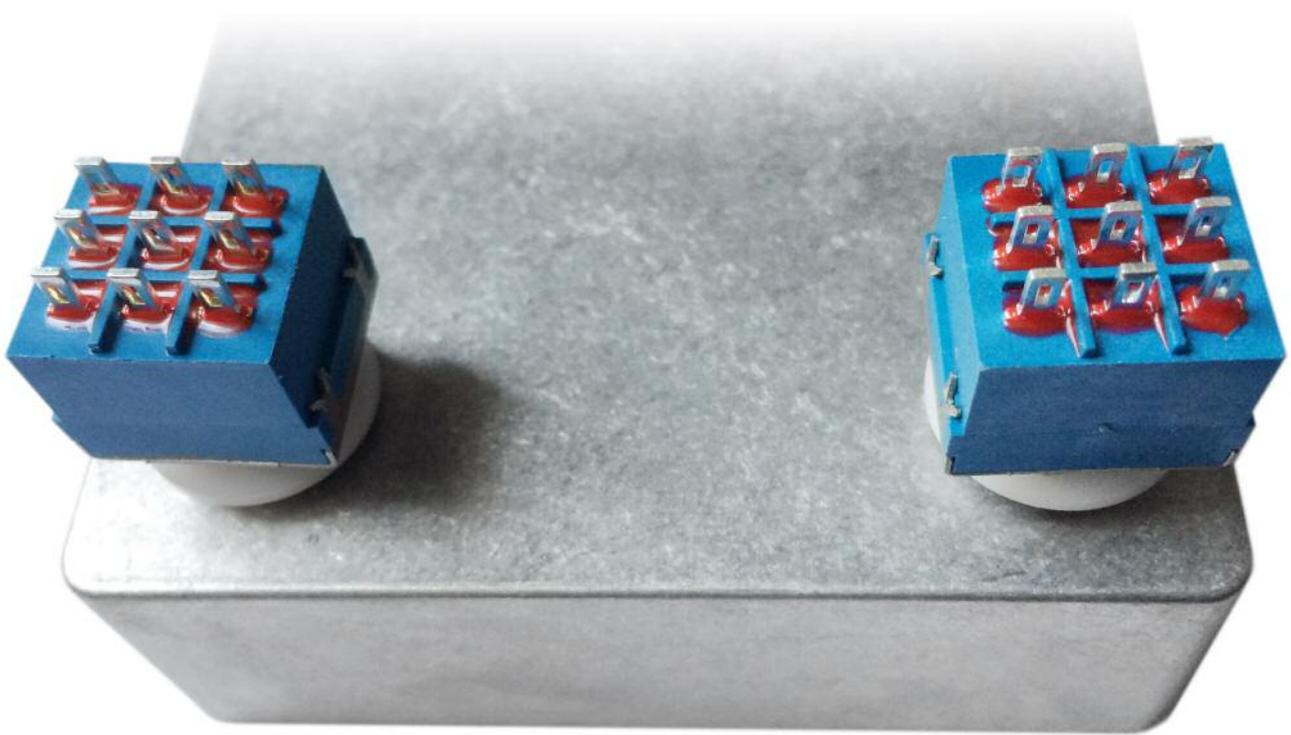
Pots and switches mount on the back side of the board. Red line in the image above shows the direction of the switch tags. If you're using board-mounted pots you'll have to place these last as they'll restrict your access to the pads for the other components.

Pots and toggle switch mount on the back side of the board. You can use vertical-mount pots or just wire up 'normal' ones. It's a good idea to place the pots in their holes in the enclosure when you're soldering them in place on the PCB. That way you know they're going to line up ok. Best way to do it is to solder a single pin of each pot in place, then do a visual check to see that they're all sitting at the same height. If not, melt the joints and readjust any that are off.



The back of your board should be looking lovely, just like this (except you haven't attached the ribbon cable yet - just imagine it isn't there).

You're ready to get the footswitch daughterboard set up. Let's go...

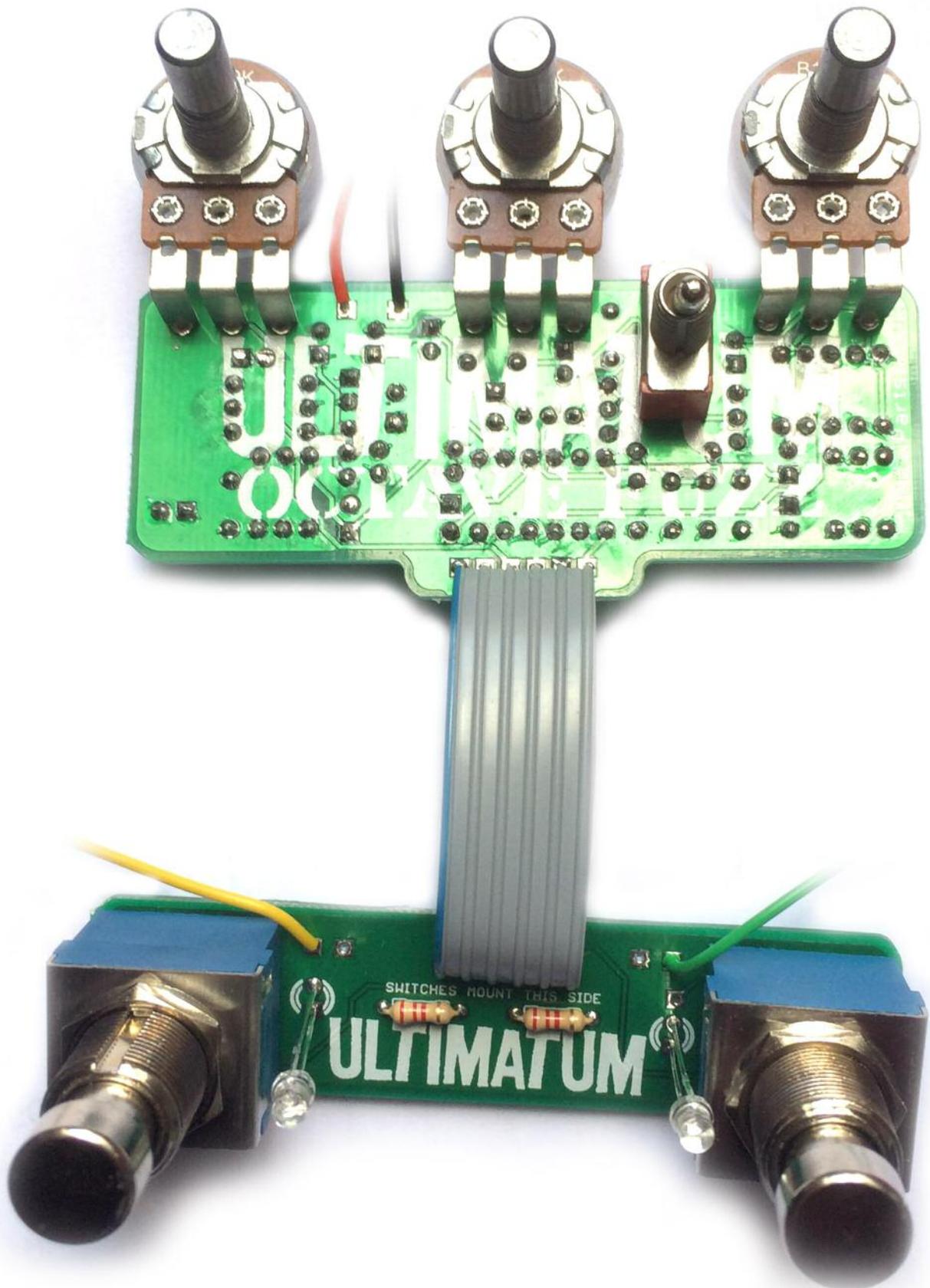


When mounting the footswitches it's a good idea to do it using the enclosure. Drop the footswitches into their holes in the enclosure, but on the top face on the box (as above). Now place your daughterboard onto the switches and get them nice and straight. Solder a single tag of each footswitch into place, then take them out of the enclosure and check the positioning. You want the tags as horizontal as possible for the best fit, and the switches should be flat against the PCB. If they're at all wonky, melt the solder joint and adjust. Once they're looking good and you're sure they still sit in the enclosure holes ok, get the other tags soldered in too. Don't forget to solder in the current limiting resistors for your LEDs, but leave the LEDs out for now.



Now you need to join the two boards together. You have a nice 6-way ribbon cable, right? If not, just run six lengths of wire between the two boards. The pads are clearly marked, just join like for like.

Now attach some decent lengths of wire to the rest of the offboard pads - your V and G connections at the top of the board, and your jack connections on the daughterboard. Ignore those LEDs again - they aren't really there...

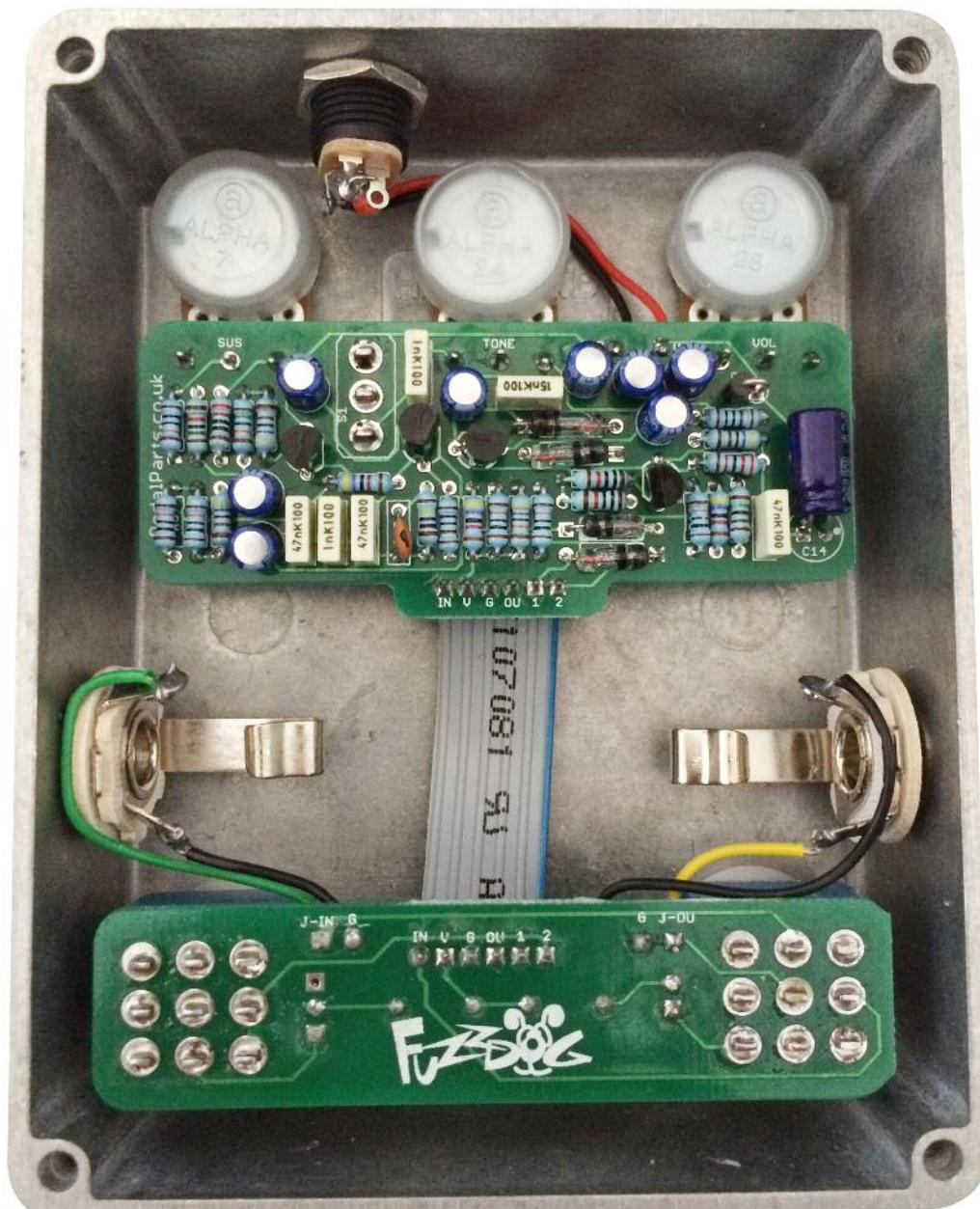


Now we take a break from the norm. Usually you'd do some testing before boxing up your circuit. In this case there are only six connections to make offboard, and they're the same connections you'd have to make to test the circuit as to actually complete it, so let's go ahead and make them neat. NOW we get to place those LEDs too. Pull the LEDs through the board (long leg to round pad), and bend the legs slightly so they don't fall out. Get your jacks and DC socket in place and tightened. Now drop your two circuit boards into place and tighten things up. Connect your jack and DC wires (there's a diagram on the next page if it needs to be clearer than the pic below). Of course, your DC socket will be on the correct side of the enclosure. Oops!

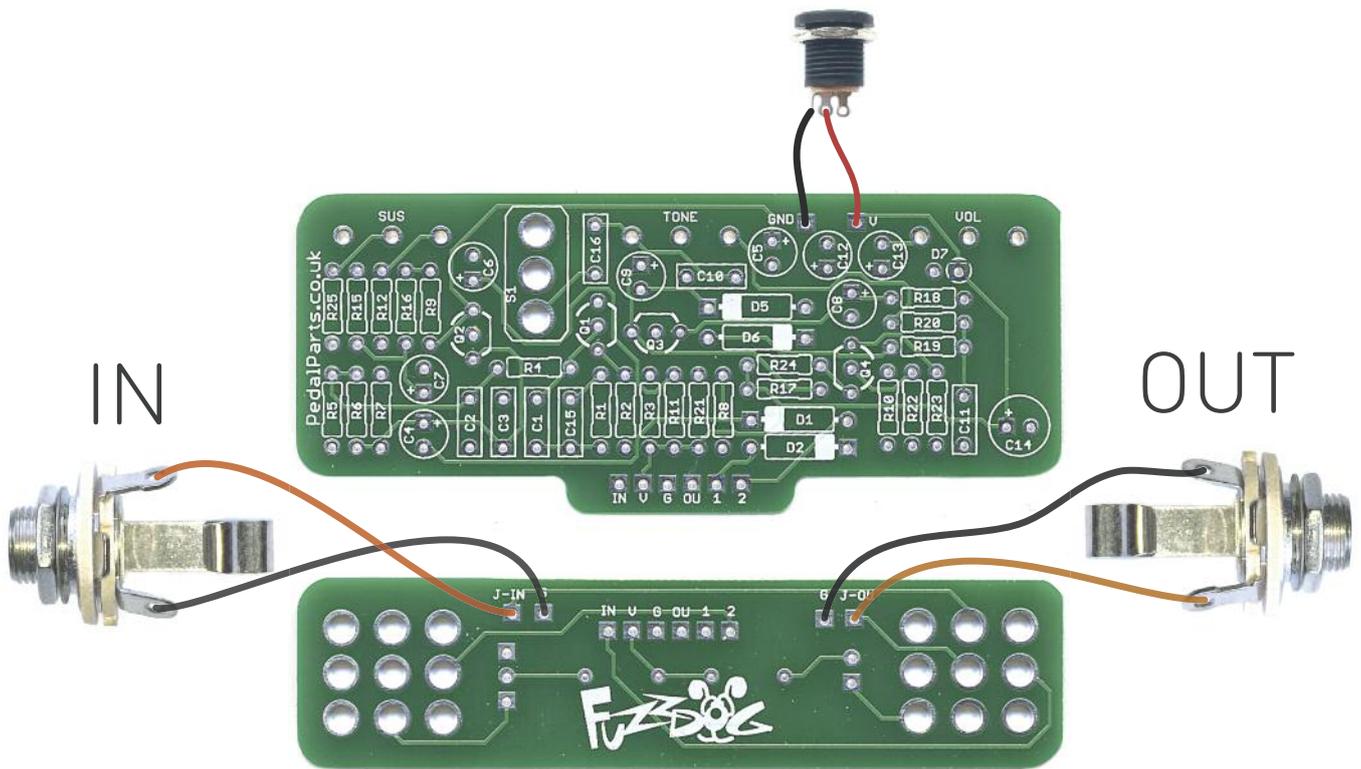
You can now get your LEDs in place. Unbend the legs and push them down to locate into their holes in the enclosure. Once seated, solder them in. Simple! No need for bezels.

WHY IS THERE AN EXTRA PAD FOR THE 'OCTAVE' FOOTSWITCH LED...?

You can use a bi-colour LED in there if you want, i.e. green for normal, red for octave. Use a common-anode LED. We like to keep it simple around here though, so a standard LED is supplied.



Wiring



Couldn't be much simpler. Six wires to connect as above.

This circuit is standard, Negative GND. Your power supply should be Tip Negative / Sleeve Positive. That's the same as your standard pedals (Boss etc), and you can safely daisy-chain your supply to this pedal.

Drilling template

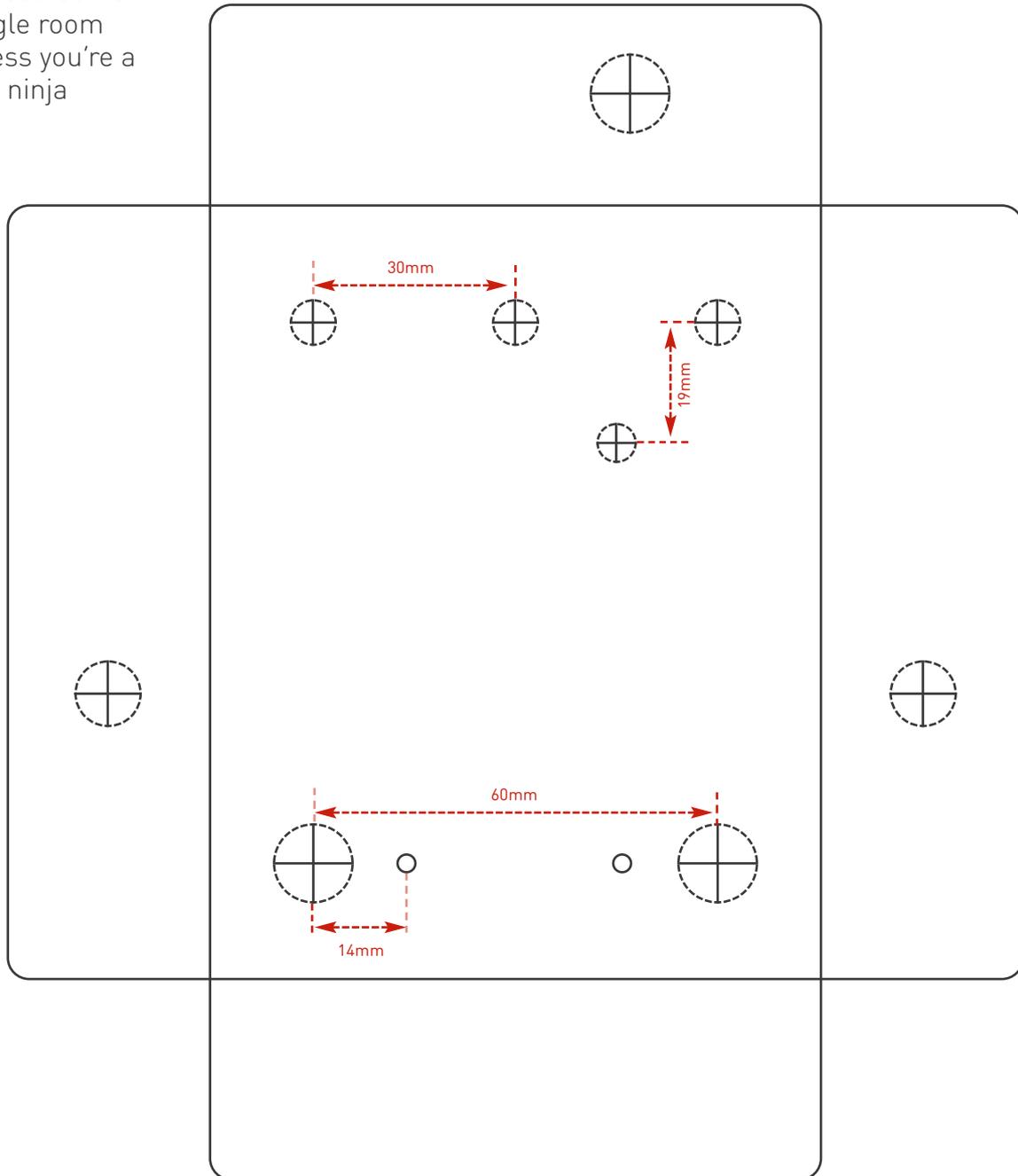
Hammond 1590BB

91 x 116 x 30mm
(top face dimensions, not including lid)

It's a good idea to drill the holes for the pots and toggle 1mm larger to give yourself some wiggle room unless you're a drill ninja

Recommended drill sizes:

Pots	7mm
Jacks	10mm
Footswitch	12mm
DC Socket	12mm
Toggle Switch	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.

PedalParts.co.uk