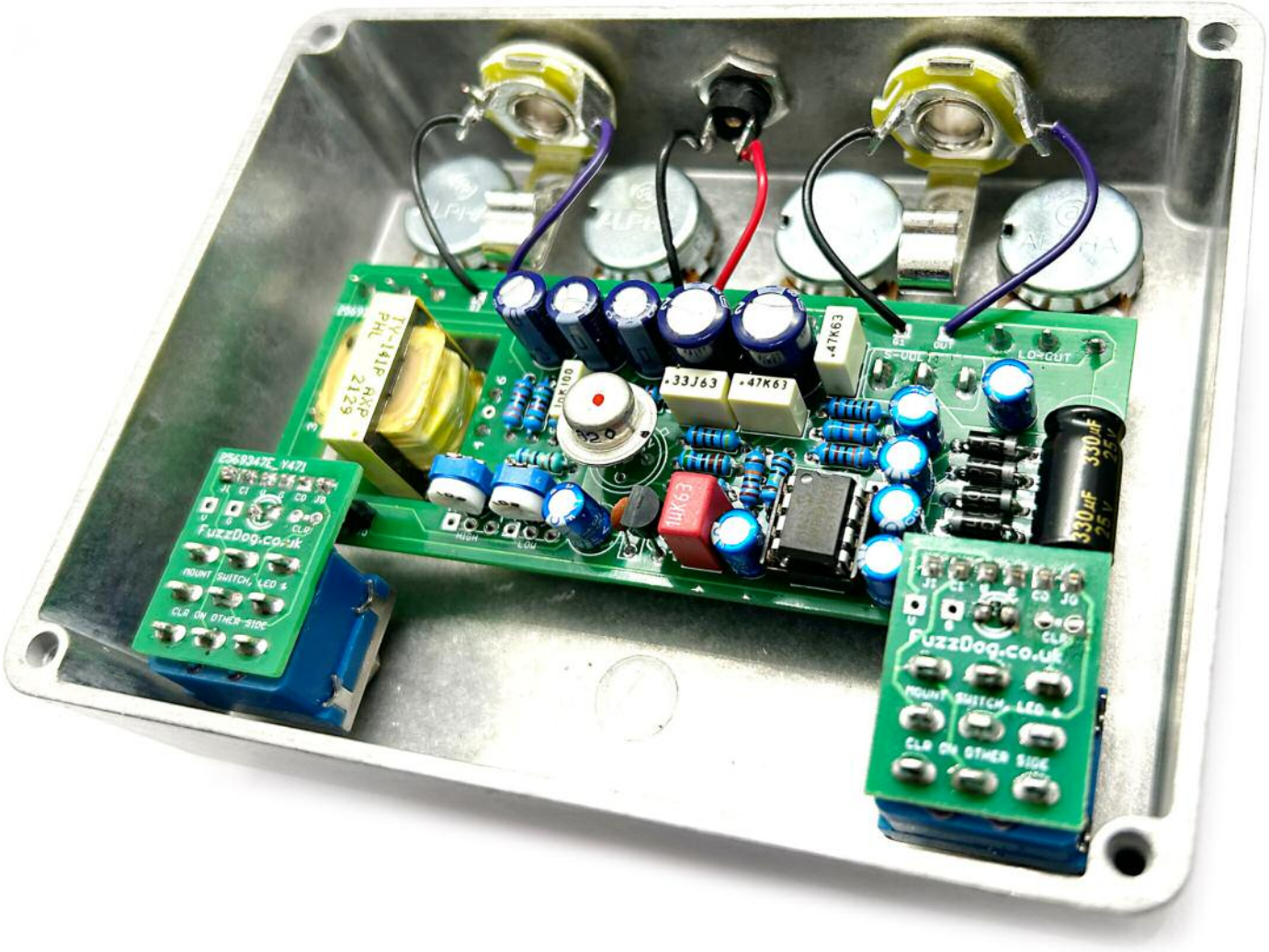
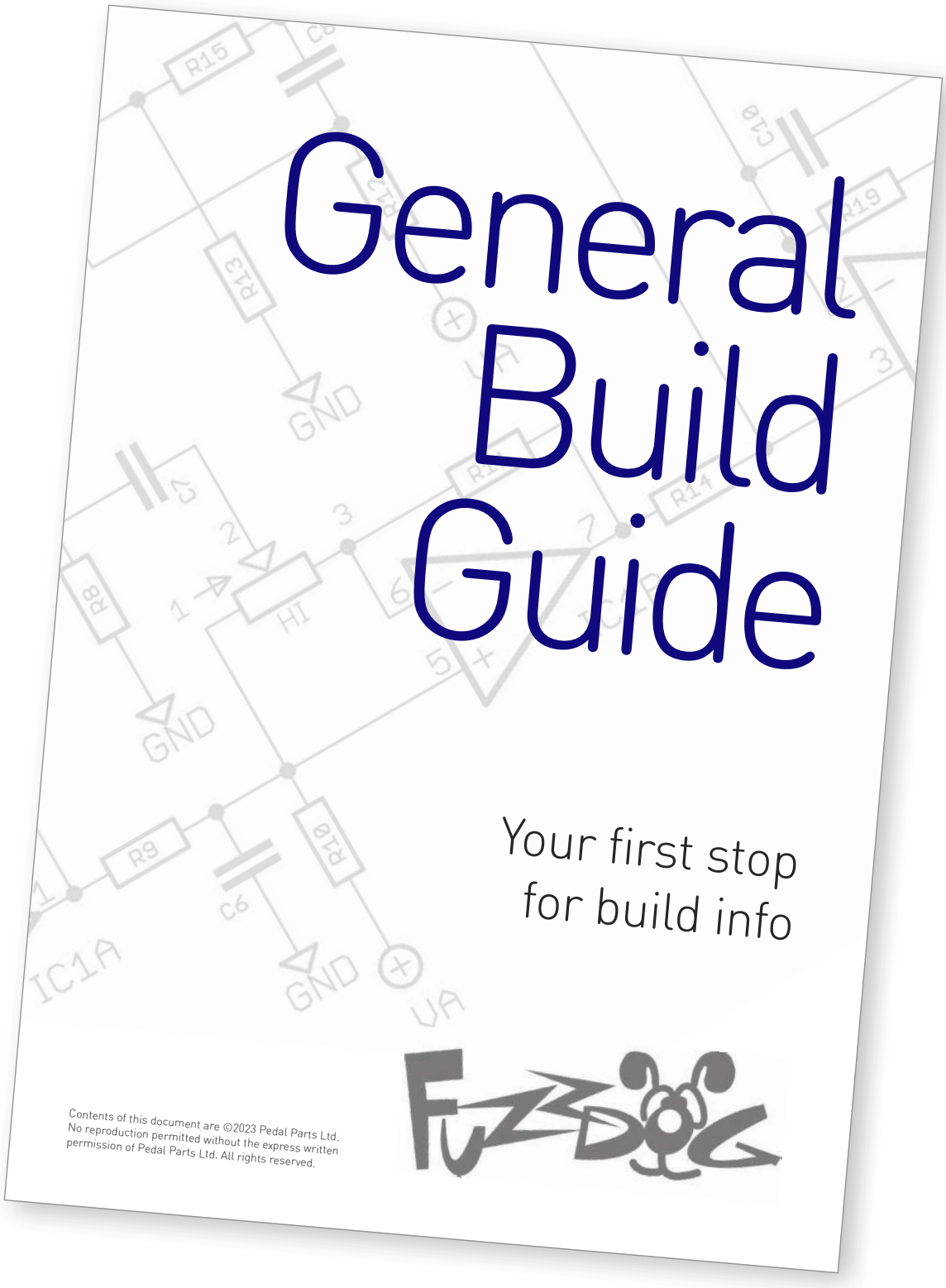


Transmit

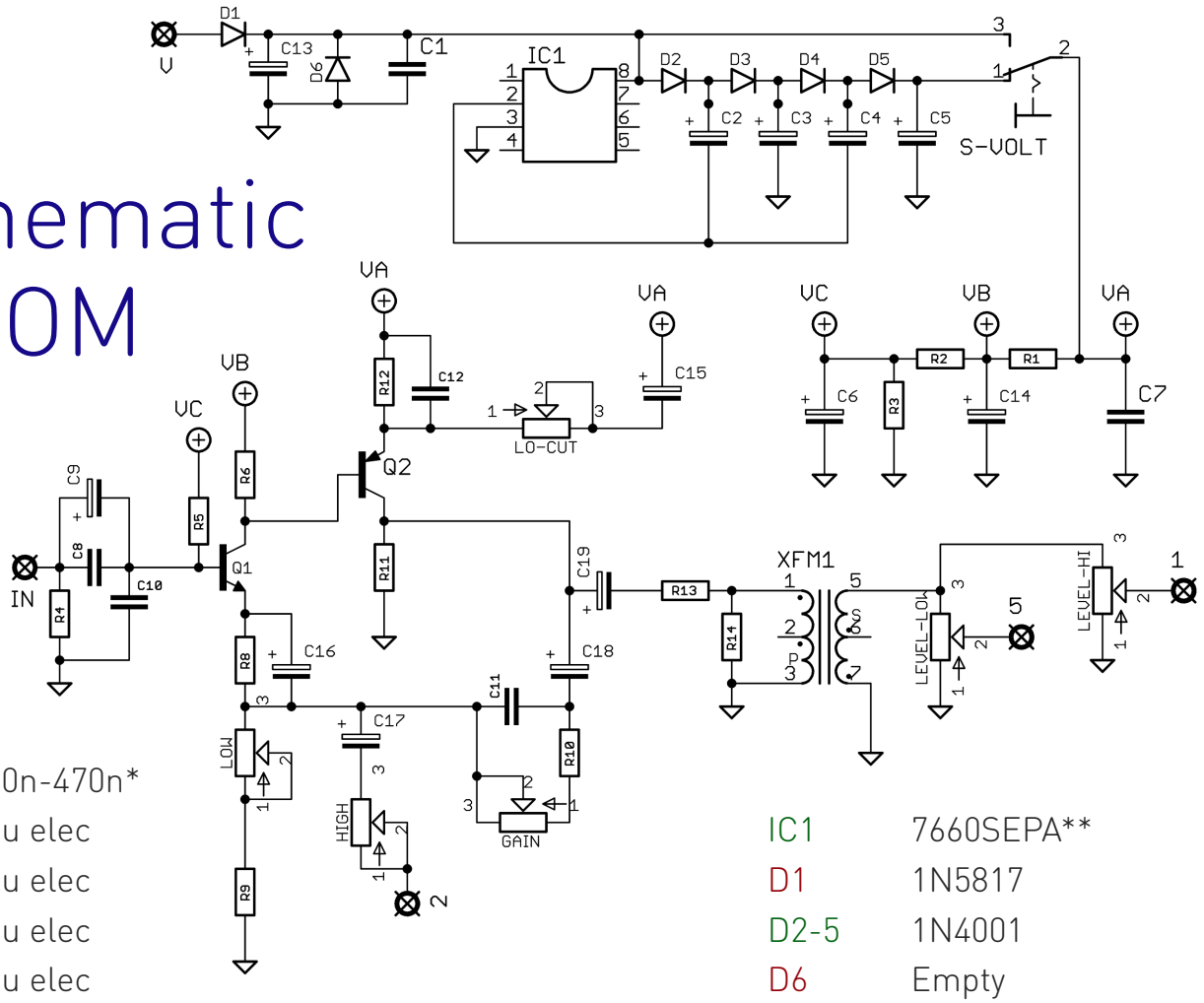
A nifty pre-amp/overdrive worth shouting about

Before you dig in, ensure you download and read the **General Build Guide**.

It contains all the information you need for a successful outcome.



Schematic + BOM



C1	100n-470n*
C2	10u elec
C3	10u elec
C4	10u elec
C5	10u elec
C6	10u elec
C7	470n
C8	330n
C9	Empty
C10	330p
C11	1n
C12	330n
C13	220u elec
C14	220u elec
C15	330u elec
C16	100u elec
C17	100u elec
C18	100u elec
C19	10u elec

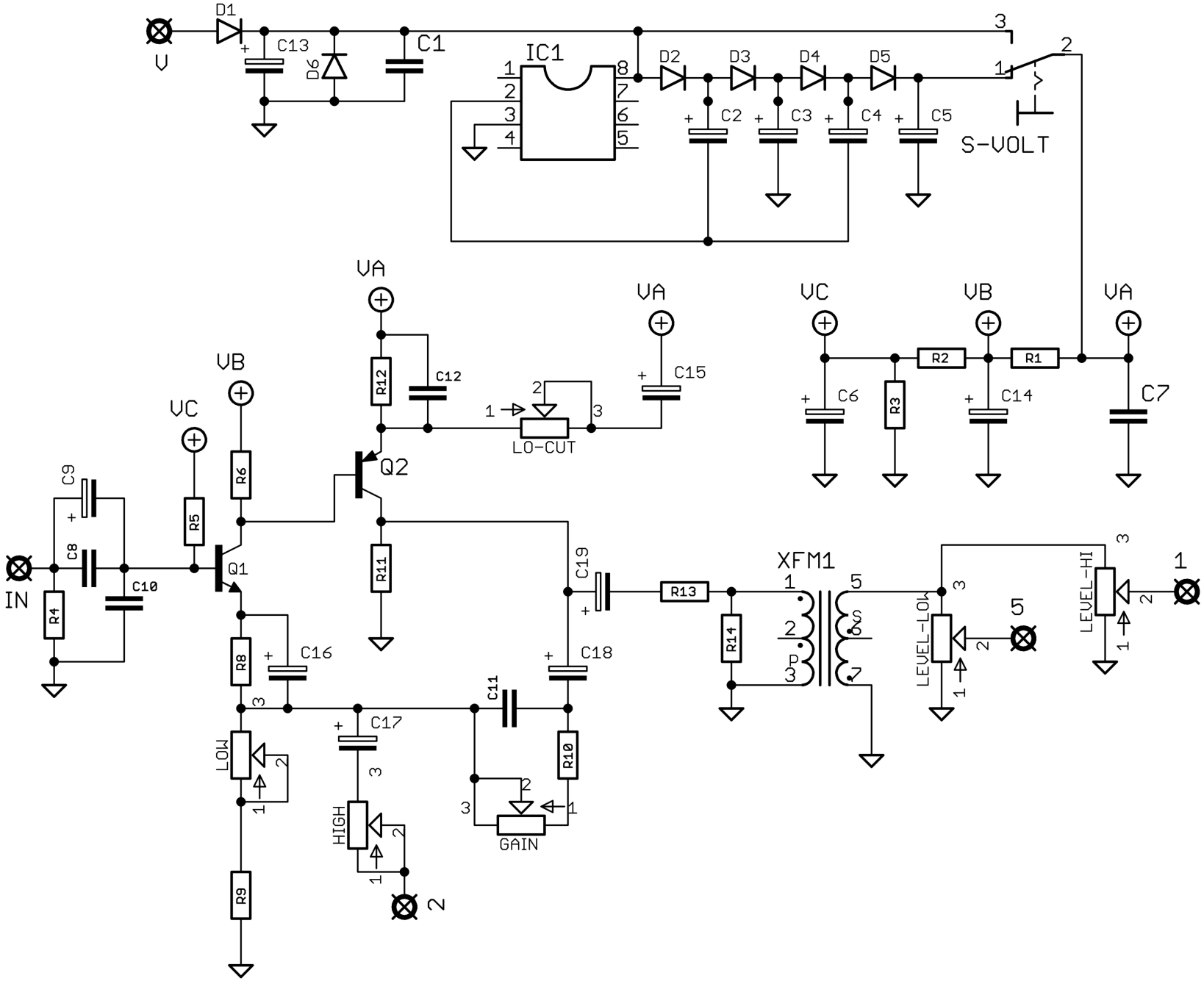
R1	1K
R2	56K
R3	33K
R4	1M
R5	220K
R6	5K6
R8	5K6
R9	68R
R10	5K6
R11	5K6
R12	4K7
R13	15K
R14	33K

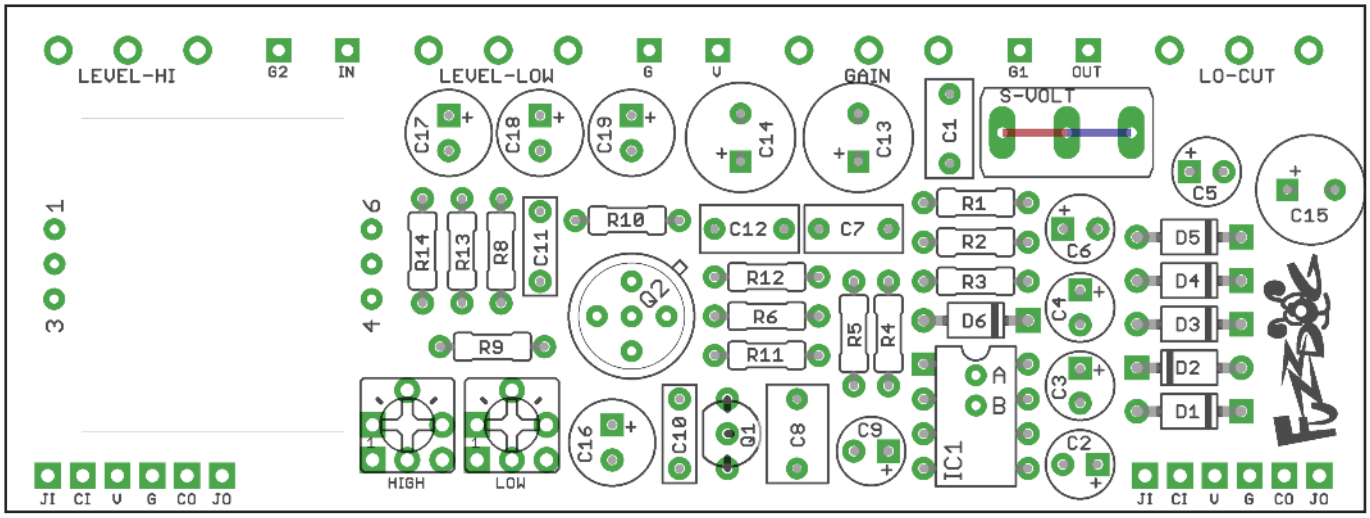
IC1	7660SEPA**
D1	1N5817
D2-5	1N4001
D6	Empty
Q1	BC549C
Q2	PNP Ge***
XFM1	TY-141P
GAIN	250KA
LO-CUT	10KA
LEV-H	100KA
LEV-L	100KA
HIGH	1K Trimmer
LOW	1K Trimmer
S-VOLT	SPDT ON-ON

*Extra-overkill power filtering. Leave it out if you aren't too concerned.

**Or MAX1044S, LT1054. See note on page 5 about charge pump / jumpers.

***Original has been built with different Ge transistors with a wide range of hFE. Seems the gain isn't too important. See notes on page 5 regarding Q2 pinout.


V
D1
C13
D6
C1
IC1
D2
D3
D4
D5
C2
C3
C4
C5
S-VOLT
VA
VB
VC
C12
R12
LO-CUT
C15
C6
R3
R2
R1
C14
C7
C9
C8
C10
R4
R5
R6
Q1
Q2
R11
C19
R13
XFM1
R14
LEVEL-LOW
LEVEL-HI
IN
C16
C18
C11
C17
R8
R10
LOW
HIGH
GAIN
R9
2
5



CHARGE PUMP

This is completely optional. It will power your circuit at approx 24V from your 9V supply, giving more headroom if that's what you're after.

If you're using a 7660SEPA or MAX1044S you need to connect pads A and B under IC1 with a jumper. This connects pins 1 and 8, changing the operating frequency of the IC. LT1054 doesn't require a jumper. If you don't want to include the charge pump leave out all the parts marked in GREEN on the BOM, leave out the toggle switch and add a jumper as shown in red above.

If you'd like to include the charge pump and run the circuit at 24V only, omit the toggle switch and add a jumper as shown in blue above.

Q2 SPEC / PINOUT

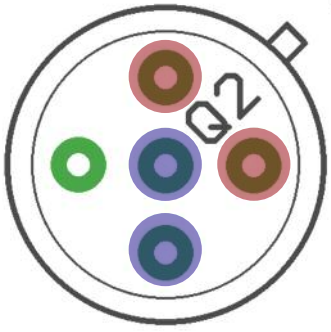
It seems the circuit isn't too fussy on the hFE of Q2, as those used in the original vary so much. We've tried it with as low as 40hFE and as high as 200hFE and there's no audible difference.

Extra pads are included on the PCB to easily accommodate different pinouts. Use those that match your transistor.

EMITTER

COLLECTOR

BASE



CAPS / C15

All electrolytics should be minimum 35V rated if you're including the charge pump.

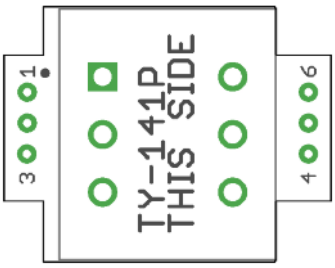
330uf caps are massive. We've left space on the PCB so you can lay C15 flat to save height.

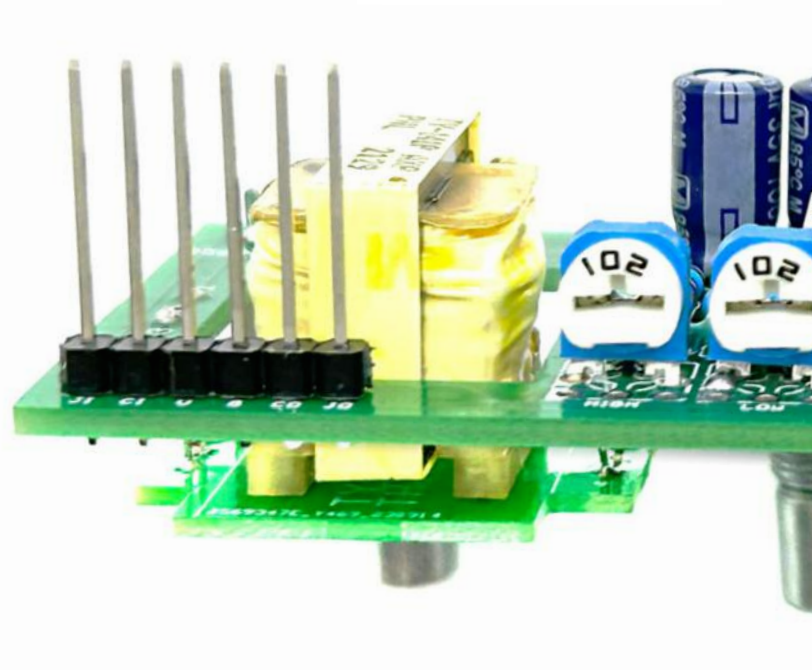
TRANSFORMER

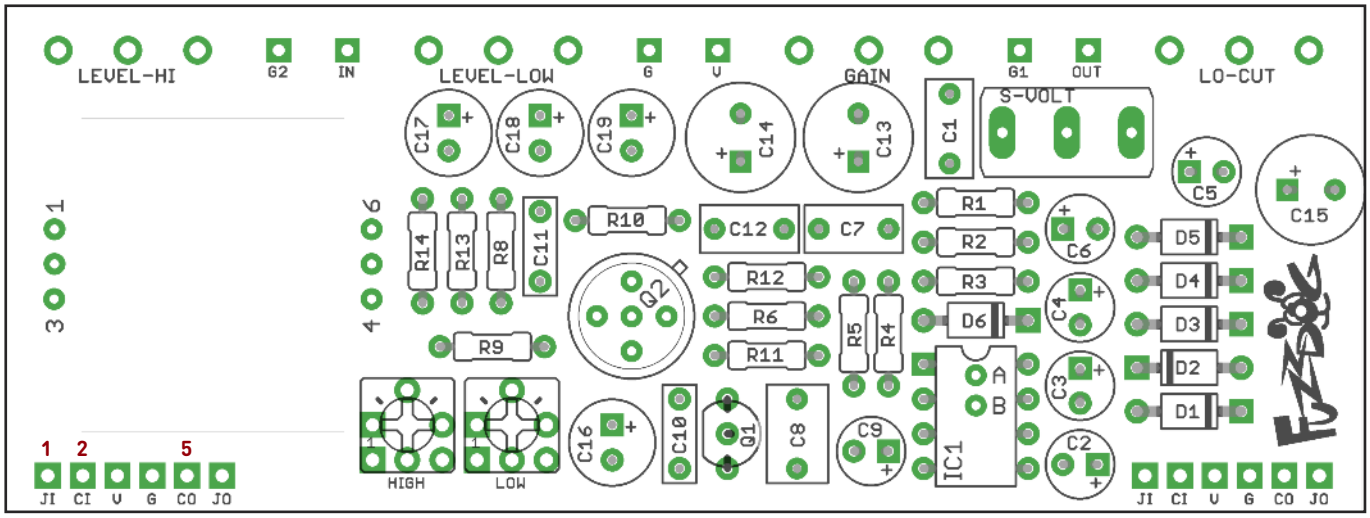
This sits on a separate daughterboard so it can be positioned below the level on the main PCB. This is to keep the circuit 1590BB-friendly. Unfortunately we made the mounting holes too small to use header pins, so use snipped component legs to connect the two boards together.

Drop the transformer board around 4mm below the main PCB.

Dot = pin 1.







TRANSMIT

FOOTSWITCH DAUGHTERBOARDS

There are two provided with the main PCB. Though the pad labels are the same, the daughterboards are not. When designing the boards we thought we could do the gain-channel switching using one of our standard boards. Once they were into production we realised this was not the case, and had to add an altered daughterboard to the order. We'll update the second board labelling on the next fabrication order to make things clearer.

Looking at the board above, your right hand daughterboard is your bypass/engage switch. The left is the channel select switch. This daughterboard has 'TRANSMIT' printed on it.

The connections on this board correspond to the numbering above, also shown on the schematic. It switches the connections between the outputs of the two LEVEL pots to the CO pad, therefore the circuit output, of the main footswitch. When the LEVEL-HI is engaged the HIGH trimmer/C16 are connected to ground, completing the high gain element of the circuit. The LED is lit when the high-gain channel is engaged, whether the main circuit is bypassed or engaged. All six connections need to be made, not just those numbered above.

Q1

You can use 2N5088 instead of BC549C.

Reverse the orientation compared to the silkscreen print if you are.

TRIMMERS

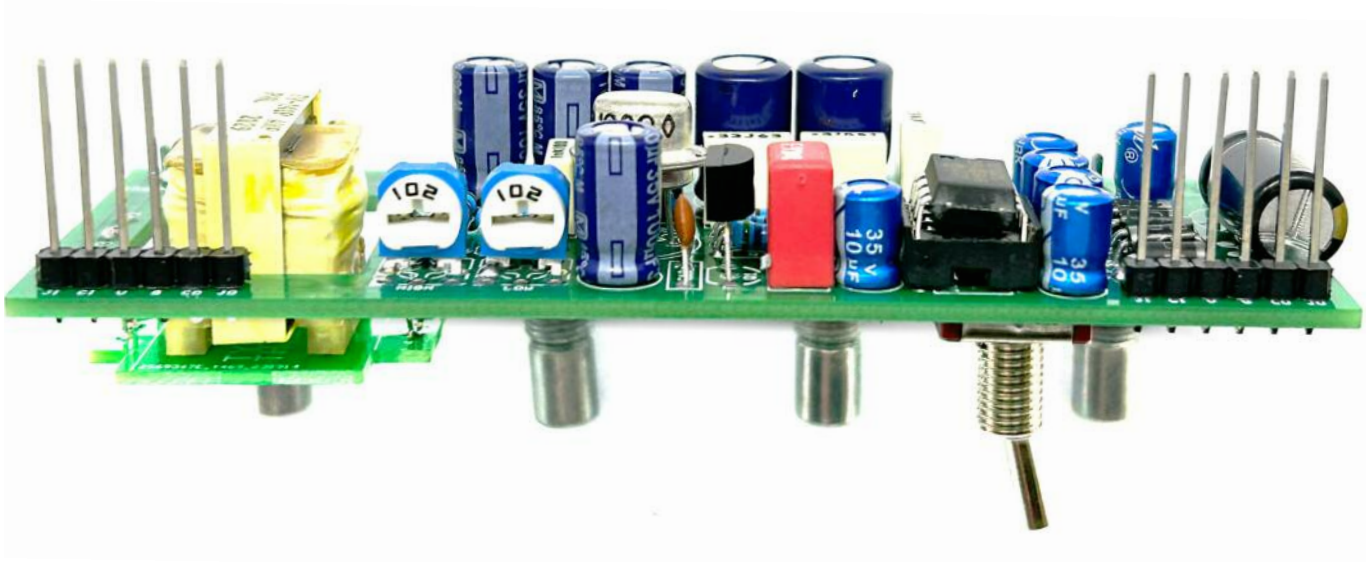
The HIGH and LOW trimmers enable the setting of two different gain ranges for the two channels.

Set your gain pot to max and adjust these to taste with the approriate channel output selected. There's no correct setting. It's entirely down to personal taste.

INPUT CAPS

The board was designed for those on the single channel version. The dual dropped it down to a single 330n. Leave C9 empty.

Attaching daughterboards



We've designed the kit so you can mount the footswitch daughterboards using 20mm header pins, as you can see above. This keeps everything neat and tidy, but isn't a necessity. You can use wires if you prefer.

One disadvantage of this mounting method is once the boards are together it's a little fiddly to get the LEDs into place, but who doesn't like a challenge?

Solder your headers nice and straight - if they aren't at 90° to the PCB you're going to have trouble getting everything lined up.

Mount your footswitches into the enclosure. Tighten them enough that the serrated locking washer is flattened and the switches are at the height they'll be in the finished pedal.

Drop your finished main PCB into place and secure loosely with the pot nuts.

Ensure you have your CLRs soldered into the daughterboards before the next stage.

Now drop the appropriate daughterboard over the headers and down onto the switch lugs.

Don't worry if it's not an exact fit. The header pins will bend quite easily to take up any slack.

ENSURE YOU HAVE THE CORRECT DAUGHTERBOARD ON THE CORRECT SWITCH.

If everything is drilled correctly and your pins are straight they should drop right in. Solder lug of the switch and one header pin, then check everything is straight. If not, melt and adjust. If yes, go ahead and solder the rest.

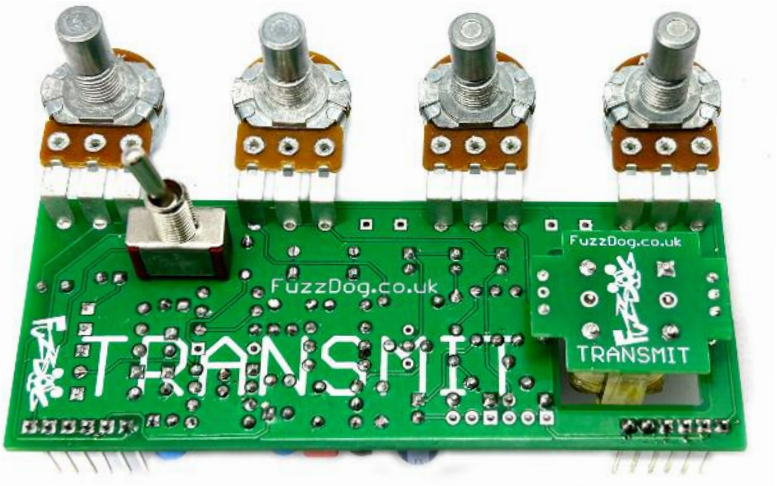
Repeat with the second footswitch.

Once everything looks good, take it all back out.

You now have to turn it all upside down and slip your LEDs into the daughterboards. Notice they won't go further than the main PCB as the gap between that and the daughterboard is too small. No worries - the legs will go through and that's all that matters.

Now drop it all back into place in the enclosure and manoeuvre the LEDs into their holes and solder them in place.

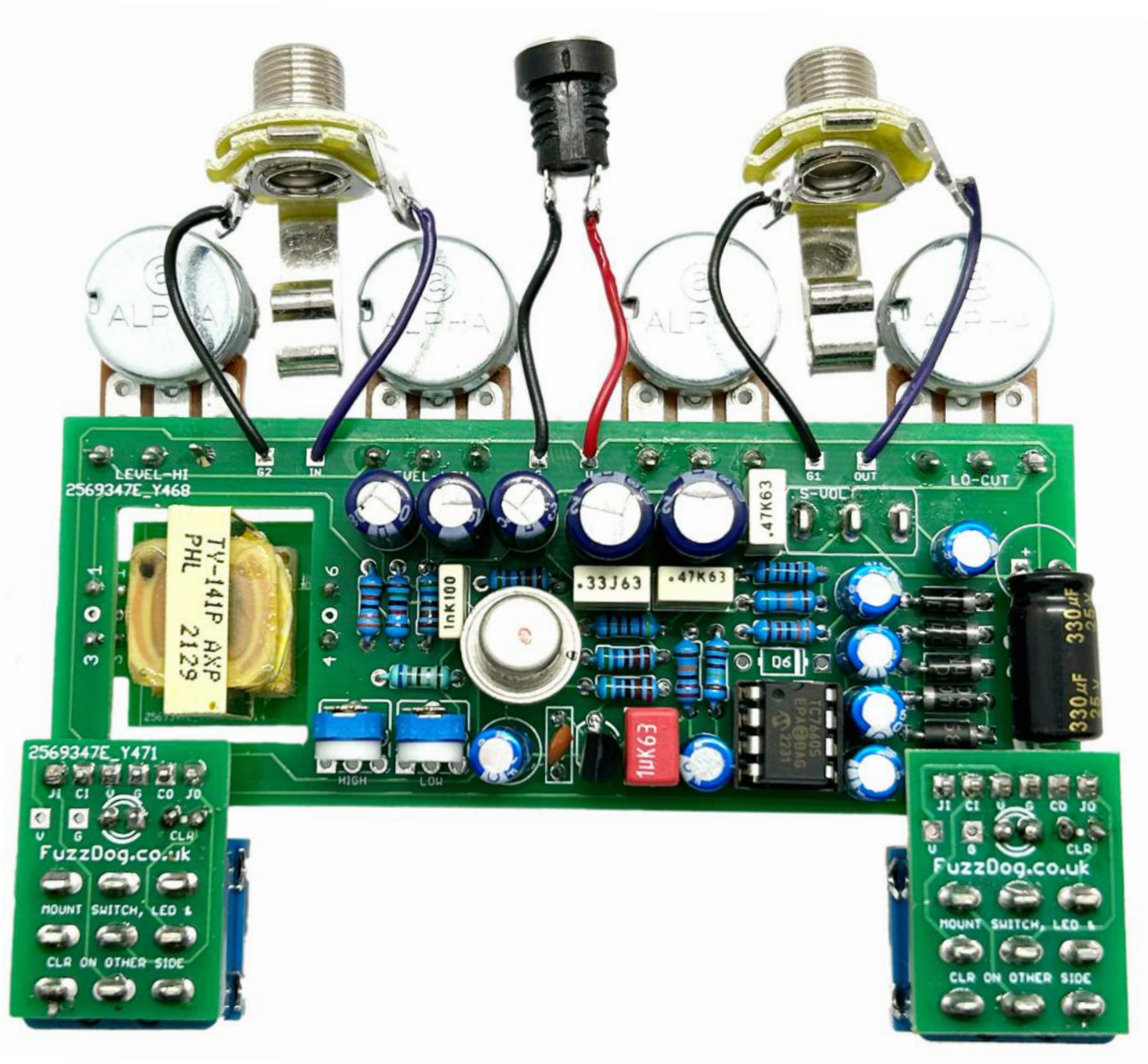
Just the offboard wiring to do now...



Offboard connections

We don't think this requires a diagram.

There are six wires at the top of the board that connect to your two jacks and DC socket.



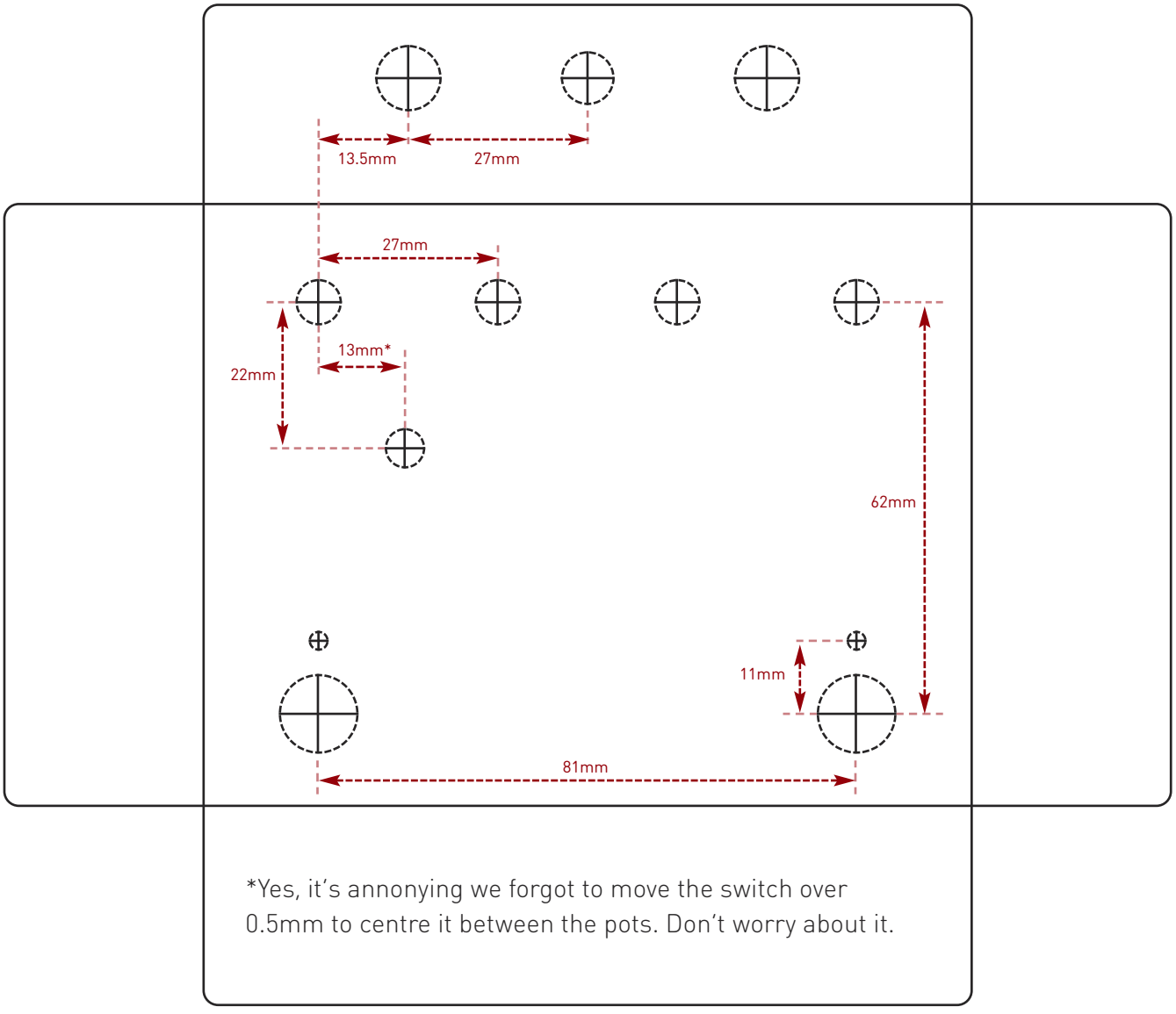
Drilling template

Hammond 1590BB

Drill sizes listed are minimum.
It's a good idea to add 1mm to anything mounted on the PCB that'll poke through the front of the enclosure.

Drill sizes:

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



*Yes, it's annonying we forgot to move the switch over 0.5mm to centre it between the pots. Don't worry about it.

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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