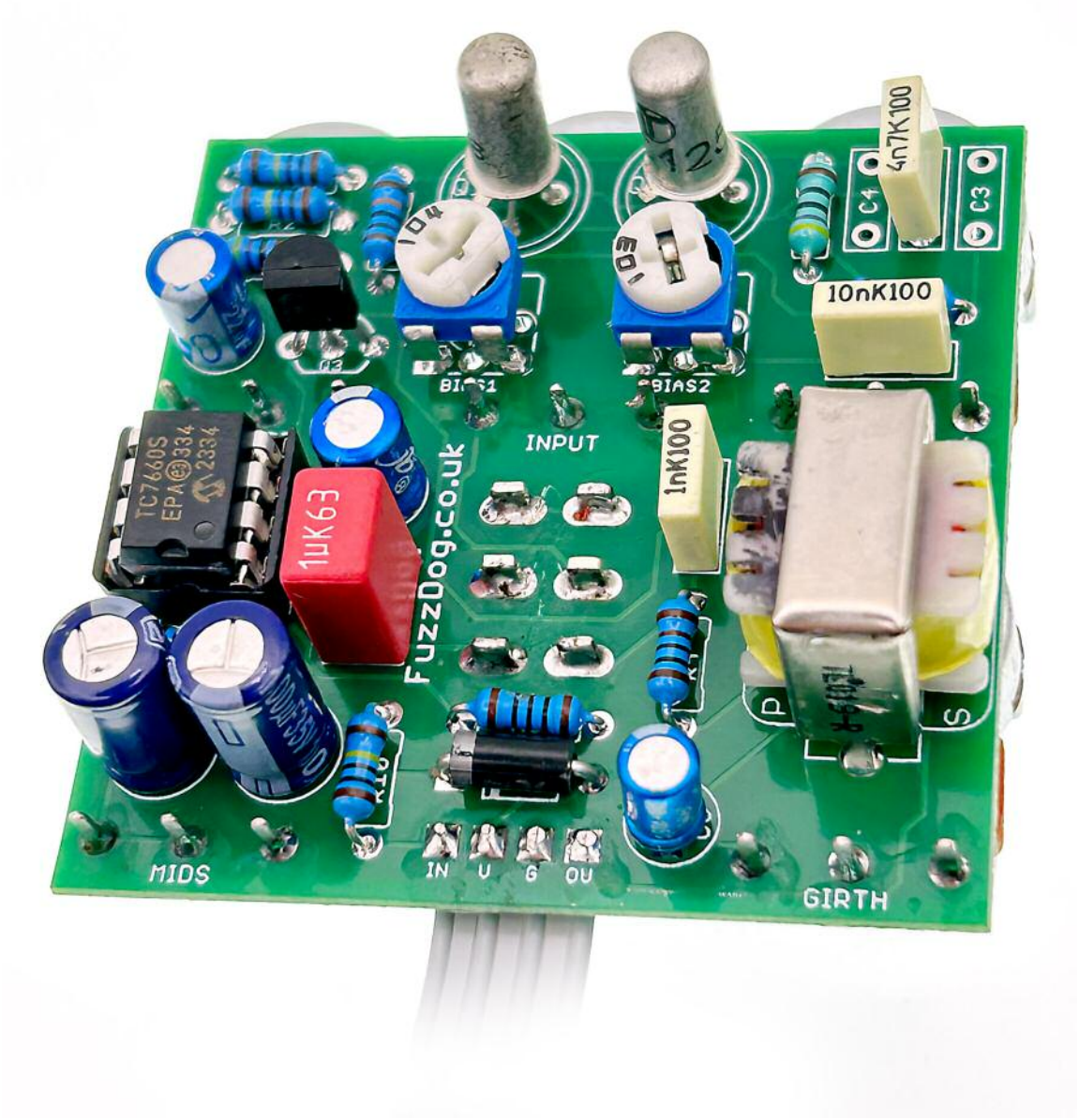
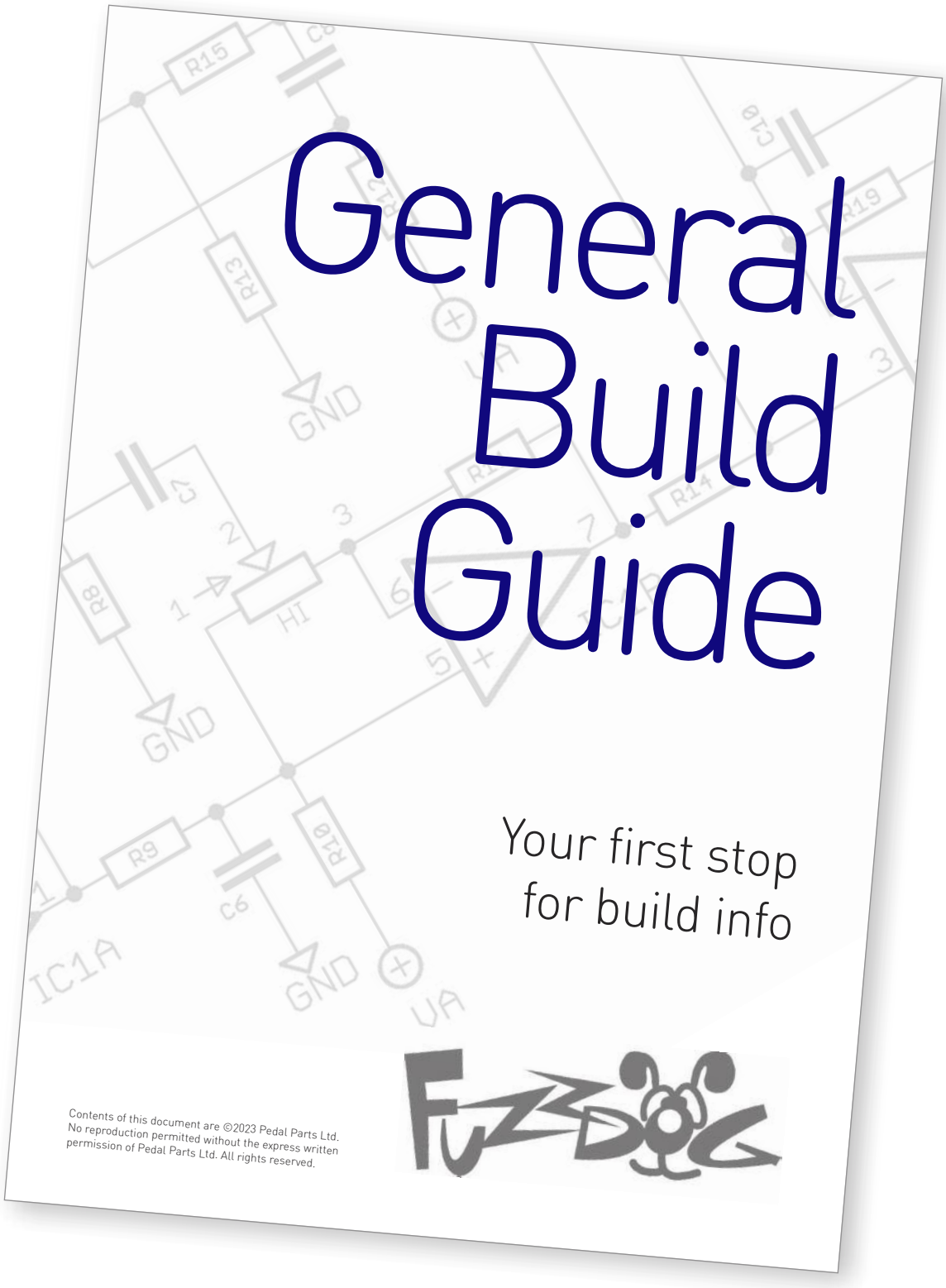


Utility Face

Highly tweakable Fuzz Face
built to get on with your chain

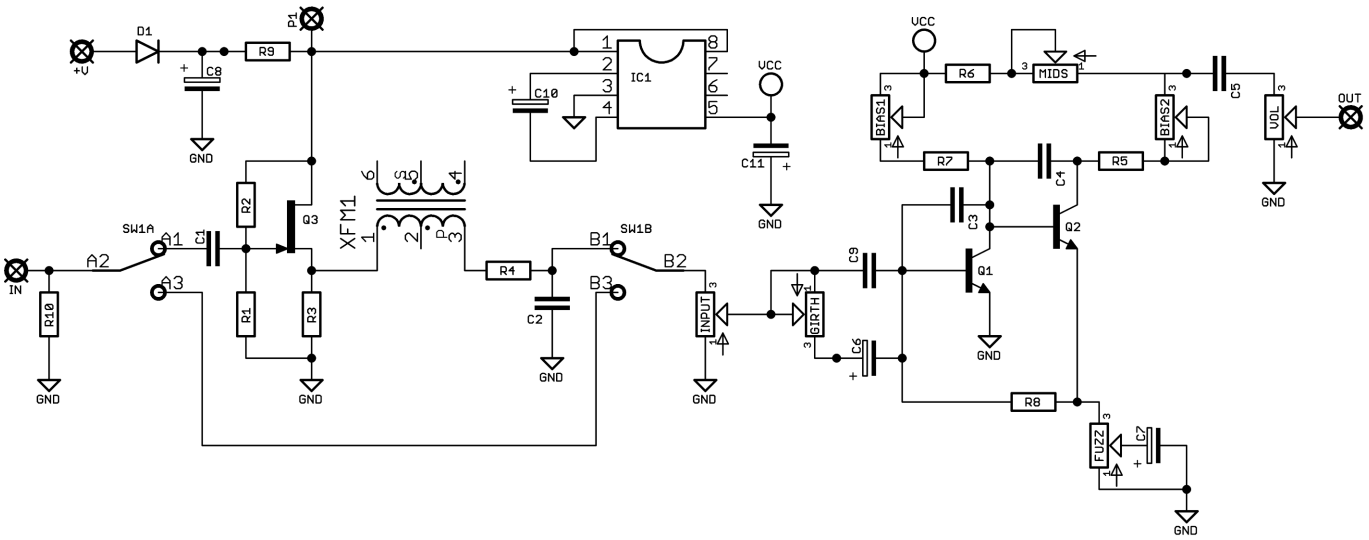
Before you dig in, ensure you download and read the **General Build Guide**.

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



Full schematic

All the bells and whistles



The circuit includes a voltage inverter to power PNP-based builds on a standard polarity supply, and switchable input buffer and pickup simulator to help your signal chain cope with the notoriously picky-about-being-first Fuzz Face.

Include as many as you like. They're all optional.

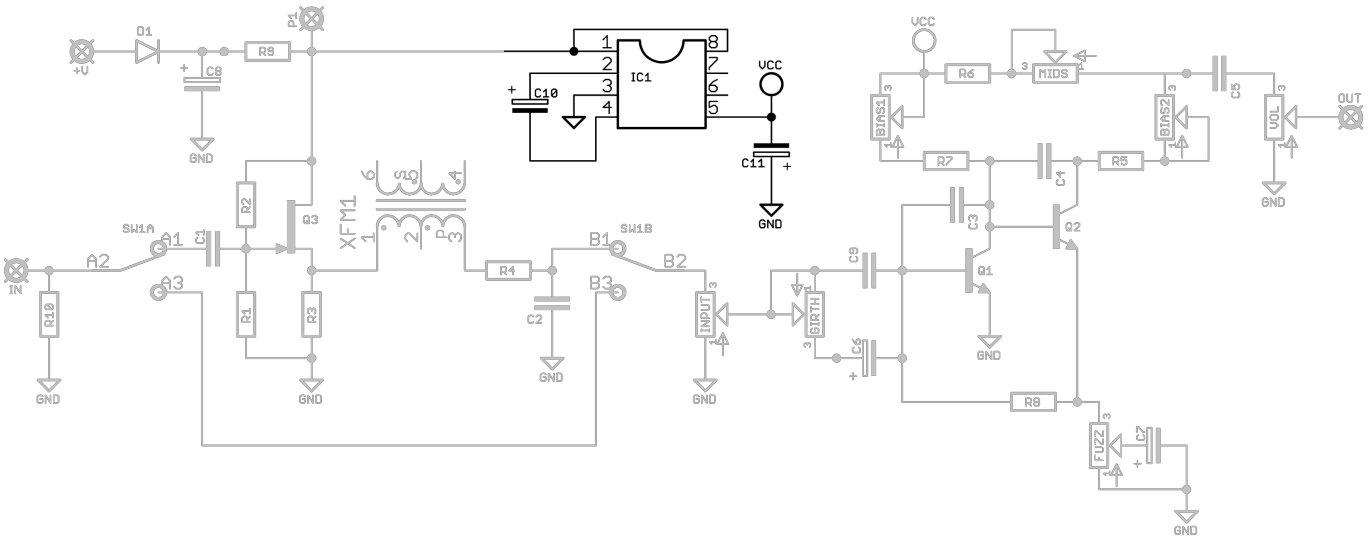
INPUT emulates your guitar volume knob, limiting the input signal post-buffer.

GIRTH fattens up your input signal. Feel free to adjust the cap values to taste.

MIDS tweaks the biasing of Q2 and does nice things to your signal.

Voltage inverter

Only required for PNP transistor builds

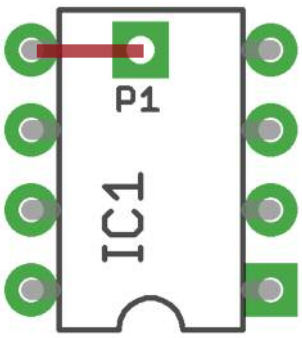


C10 10u elec
C11 100u elec
IC1 7660SEPA/LT1054

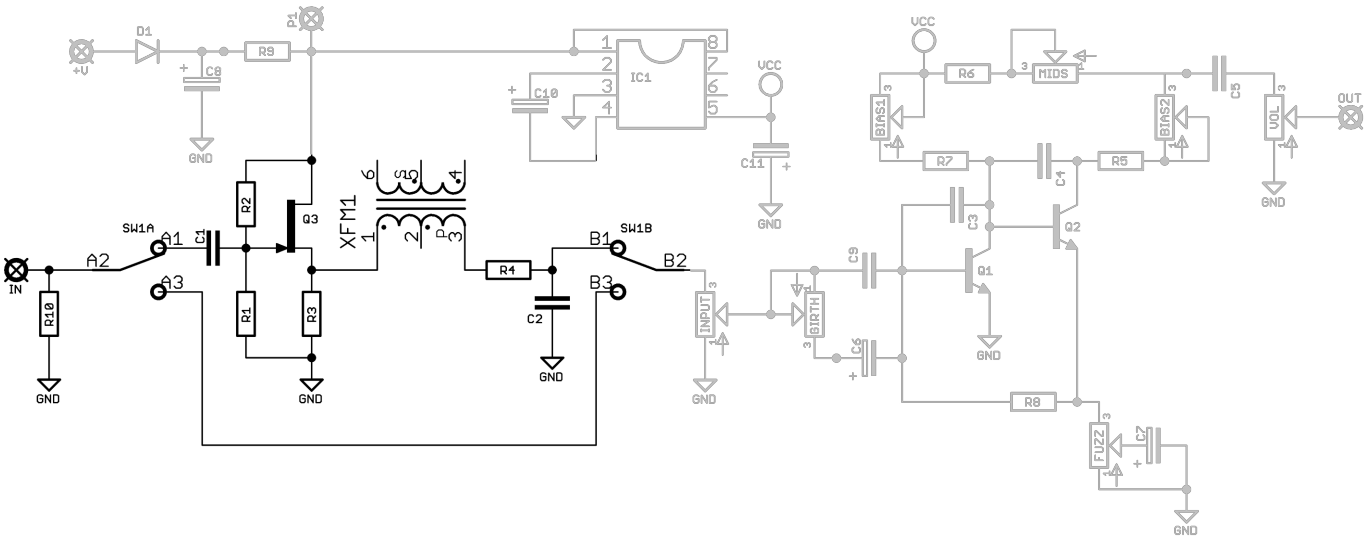
This provides -9V to the Fuzz Face section of the circuit.

You MUST reverse the polarity of C7 for PNP builds.

If you're building with NPN transistors, so don't require the voltage inverter, add a jumper as shown from P1 to the pin 5 pad of IC1. This will connect your supply voltage to VCC.



Buffer and pickup sim

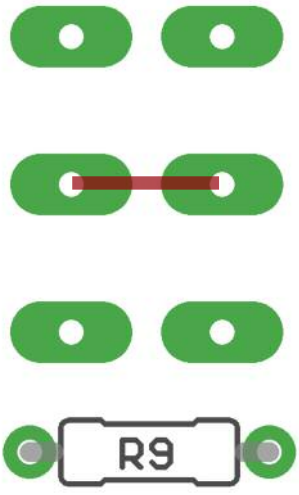


R1	1M	C1	1u	Q3	2N5457*
R2	1M	C2	1n		
R3	4K7			XFM1	42TL019
R4	1K				
R10	1M			SW1	DPDT ON-ON**

This switchable section helps the Fuzz Face fit in anywhere in your chain.

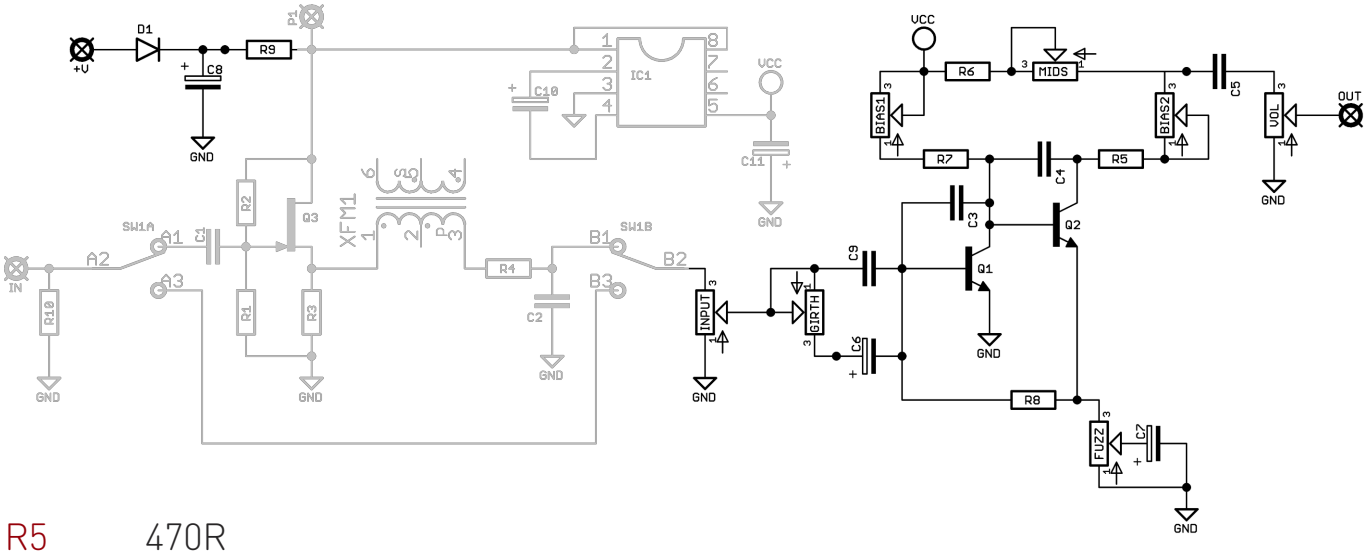
*Other FETs with similar specs should work OK.

**If you want to omit the switch so it's always in the circuit, leave out SW1 and place a jumper as shown .



The fuzzy bit

Plus components that'll be in every build



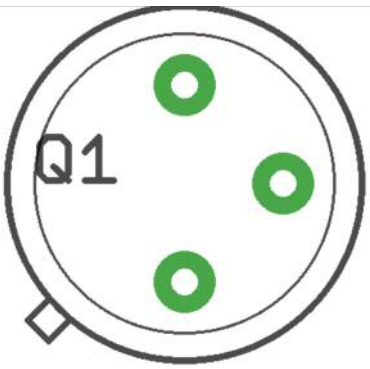
R5	470R
R6	180R
R7	10K
R8	100K
R9	100R
C3	100p/Empty*
C4	100p/Empty*
C5	10n
C6	2u2 elec
C7	22u elec**
C8	100u elec
C9	10n
D1	1N5817
Q1-2	***
BIAS1	100K Trimmer
BIAS2	20K Trimmer
FUZZ	1KC
GIRTH	100KB
INPUT	250KB
MIDS	1KB
VOL	500KA

*Caps are only required here if building a silicon version, as the gain is much higher than germanium builds, causing oscillation without these caps.

**The orientation of C7 is correct for an NPN build. Reverse the polarity for PNP.

***Any low-medium gain silicon transistors can be used for an NPN build, such as BC108, 2N2222, 2N3904 etc. You can also use NPN germaniums such as AC176. PNP transistors such as AC128 require the voltage inverter. Check your pinout.

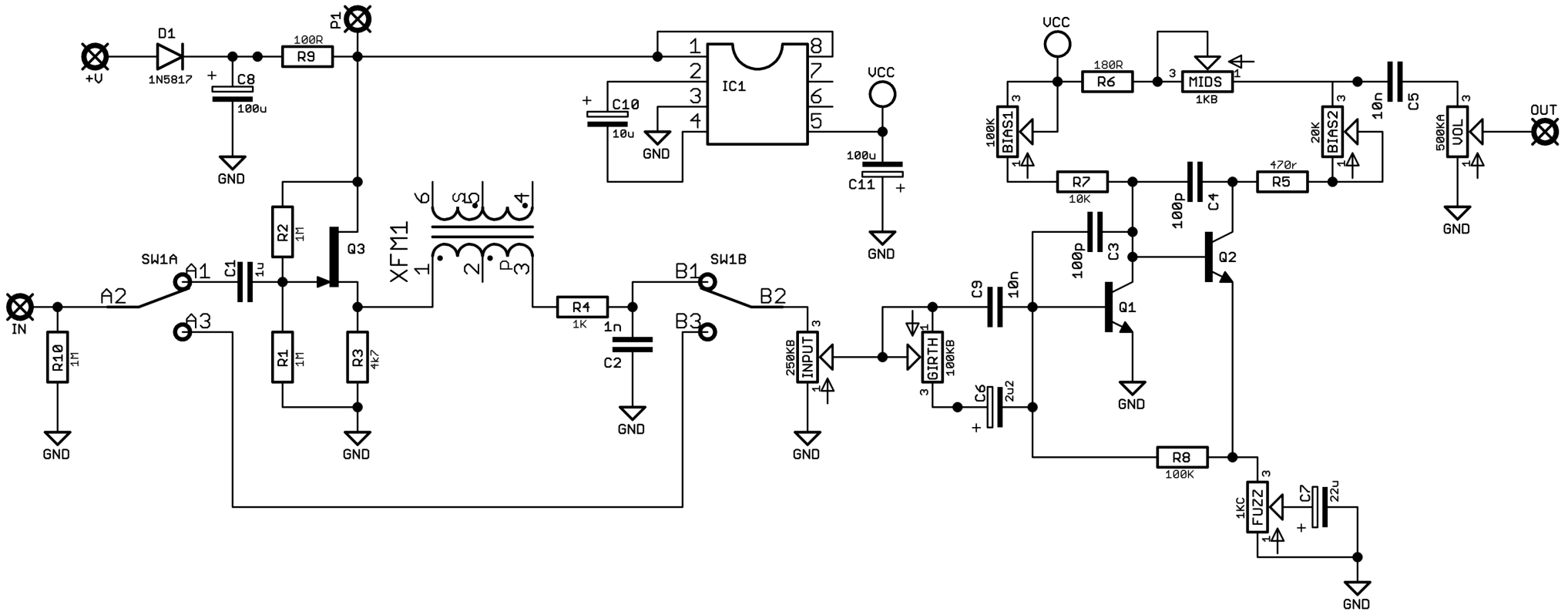
Typical hFE for Fuzz Face germaniums is:
Q1 - 65-85, Q2 - 100-140

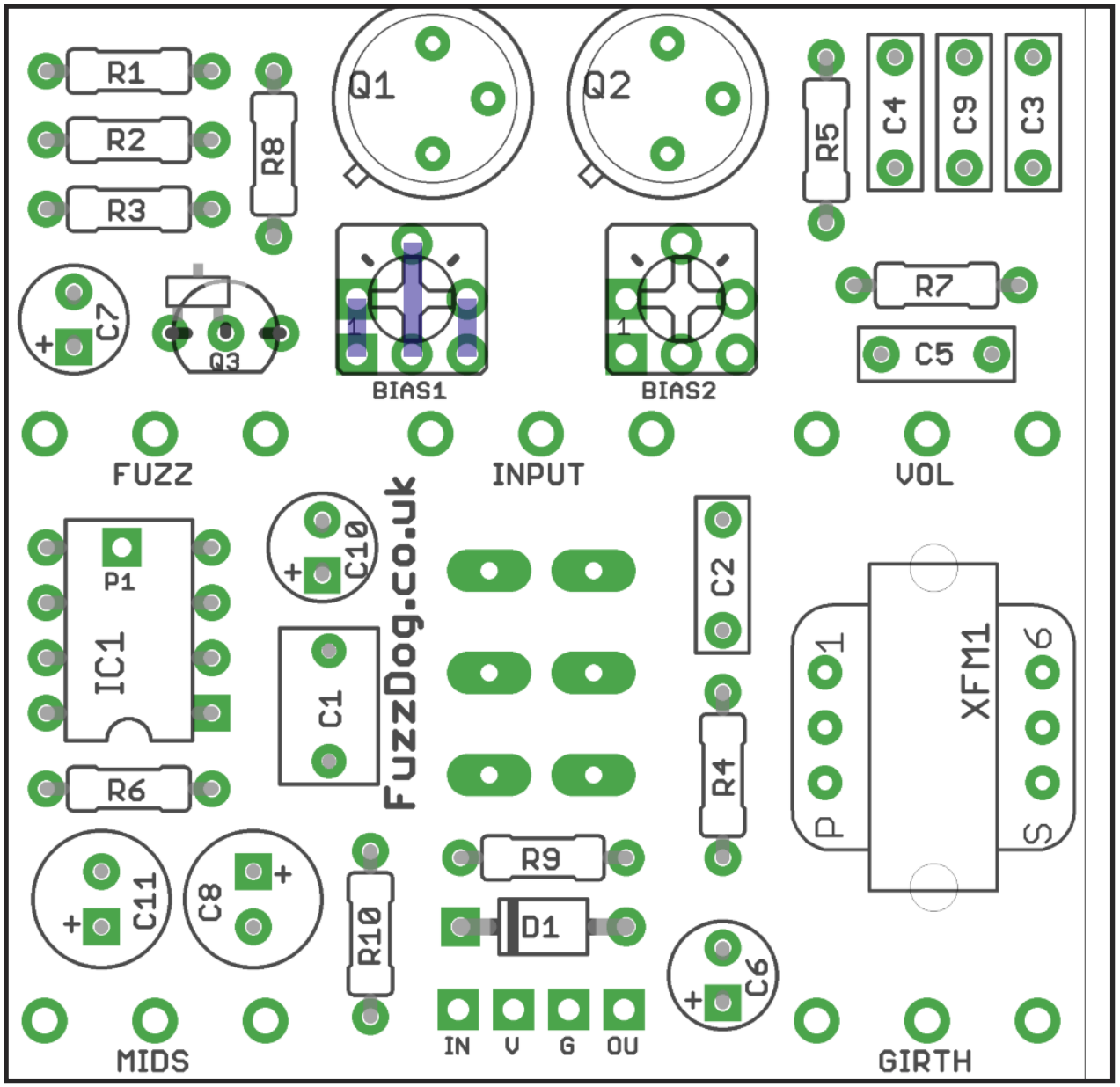


COLLECTOR

BASE

EMITTER


+V
D1
1N5817
C8
100u
GND
100R
R9
P1
IC1
C10
10u
GND
VCC
100u
C11
GND
VCC
180R
R6
MIDS
1KB
100K
BIAS1
20K
BIAS2
10n
C5
500KA
VOL
OUT
GND
R7
10K
470r
R5
100p
C4
GND
100p
C3
Q2
Q1
GND
C9
10n
250KB
INPUT
GIRTH
100KB
C6
2u2
R8
100K
1KC
FUZZ
C7
22u
GND
IN
R10
1M
GND
SW1A
A1
A2
A3
C1
1u
R2
1M
Q3
R1
1M
R3
4k7
GND
XFM1
S
P
R4
1K
1n
C2
GND
SW1B
B1
B2
B3
GND

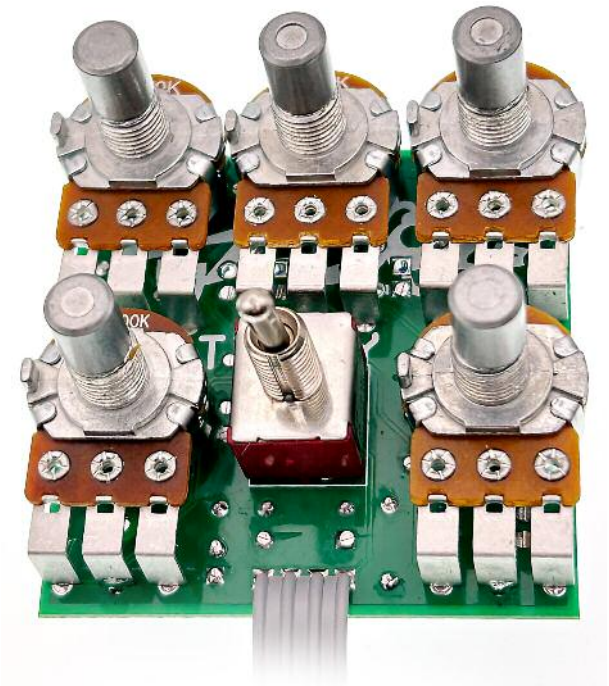


Snap the small metal tag off the pots so they can be mounted flush in the box.

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.

Place the trimmer legs into whichever pads they fit naturally into. They're connected within the PCB traces as shown above, so you need one leg in each column.



Biasing

Power up and break out the multimeter, set to DC voltage, scale as low as you can go to handle 9V.

Set your MIDS control around half way.

Adjust BIAS1 until you get around 0.7-0.8V on Q1 collector.
Adjust BIAS2 until you get around 4.5-5V on Q2 collector.

Go back and check Q1 again.

Repeat and tweak until you get close to the above figures.

Play.

Make minor adjustments by ear if you're not happy.

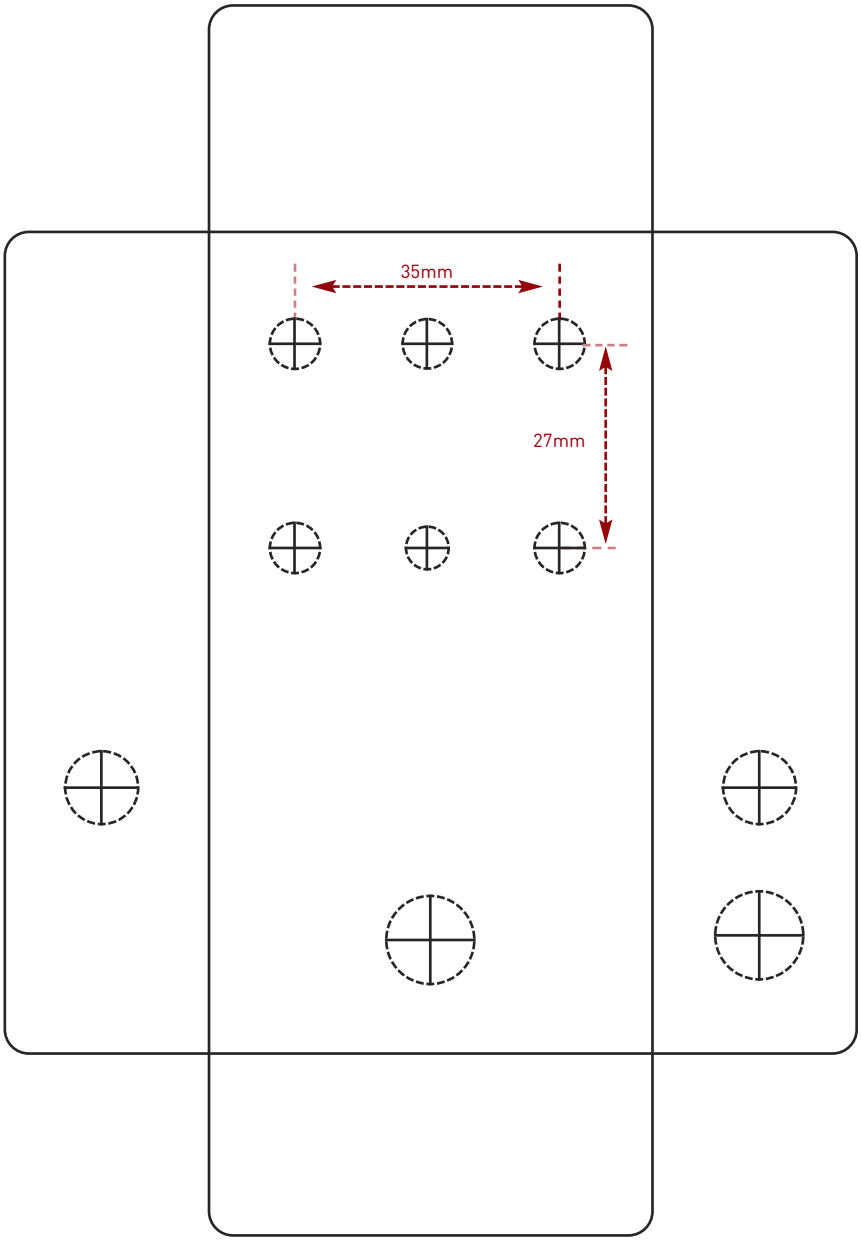
Drilling template

Hammond 1590B - 60 x 111 x 31mm

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



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.

FuzzDog.co.uk