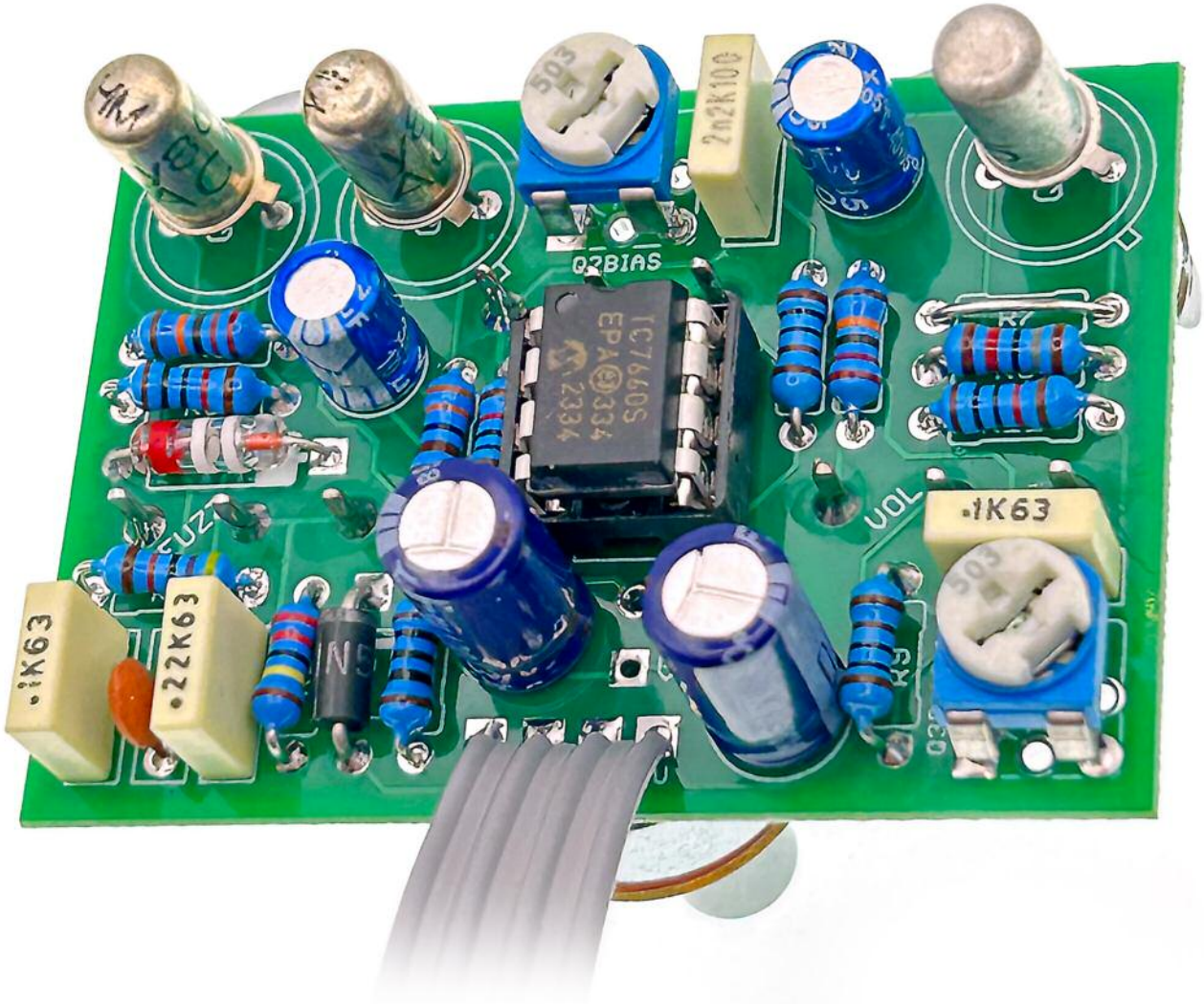
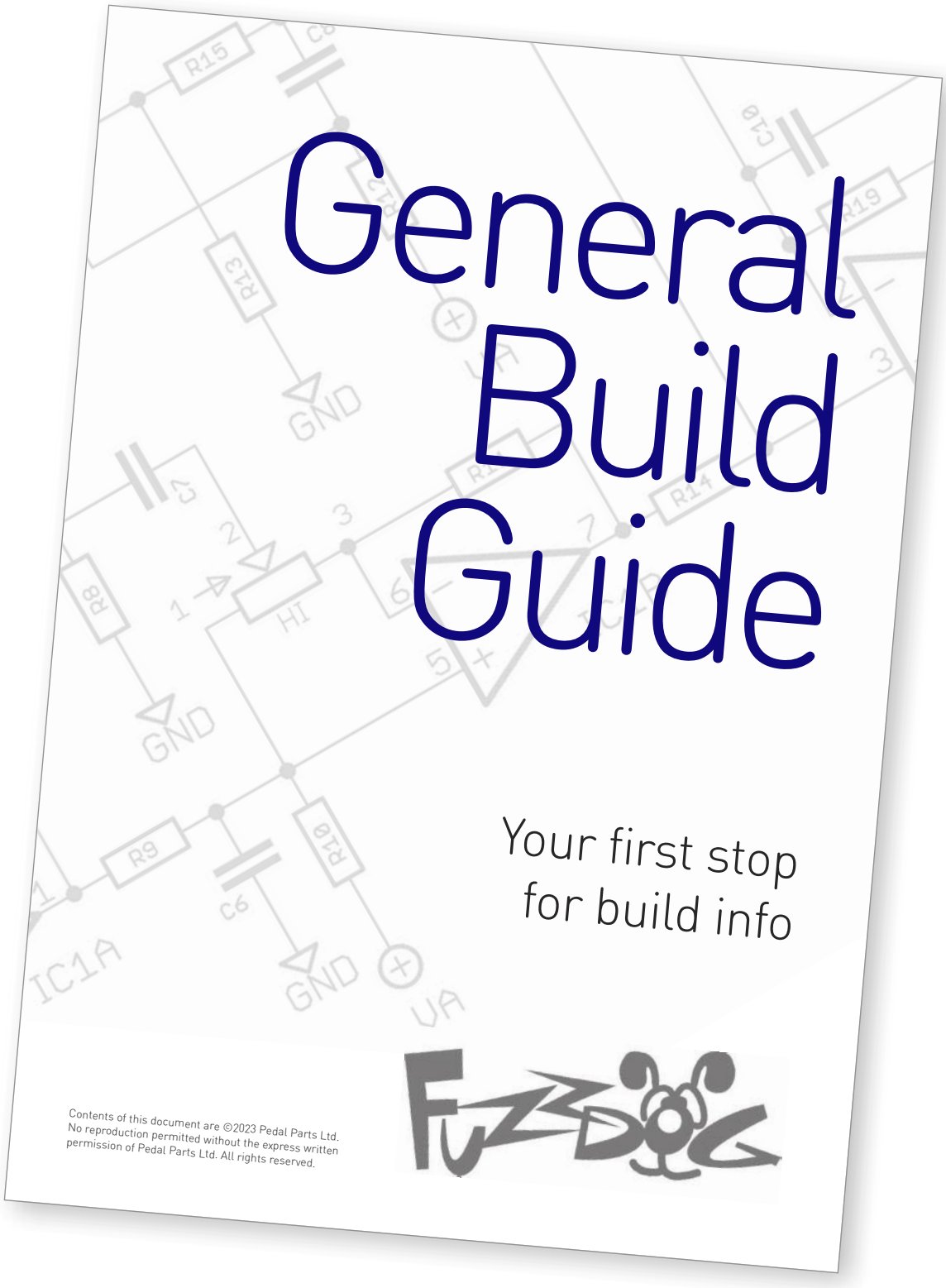


Tone Bender Mk III

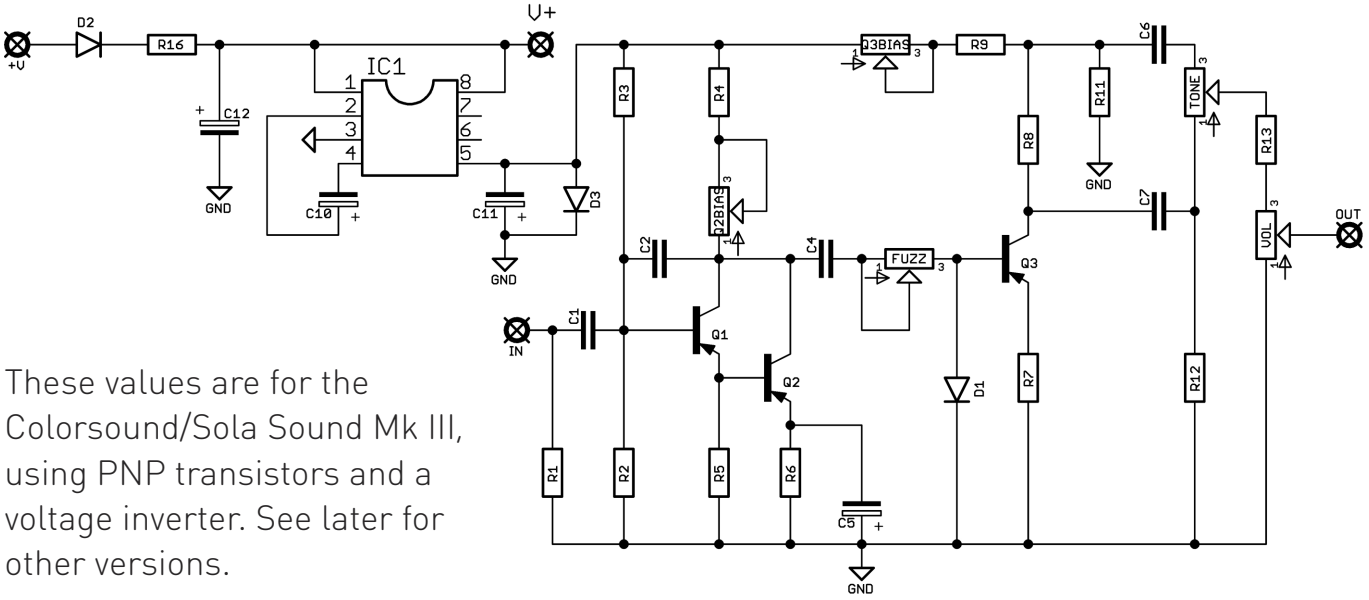
What it says up there

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



These values are for the Colorsound/Sola Sound Mk III, using PNP transistors and a voltage inverter. See later for other versions.

R1	2M2
R2	47K
R3	220K
R4	1K
R5	10K
R6	3K3
R7	Jumper
R8	18K
R9	1K
R11	10K
R12	10K
R13	220K
R16	100R

C1	100n
C2	220p
C4	220n
C5	10 elec*
C6	100n**
C7	2n2**
C10	10u elec
C11	100u elec
C12	100u elec

D1	Ge
D2	1N5817
D3	Empty
Q1-3	PNP Ge***
IC1	7660SEPA / LT1054
FUZZ	100KB
TONE	100KB
VOL	100KA
Trims	50K

*C5 is oriented for NPN builds. Reverse it for PNP.

**The Tone control goes from very thin to thick.
If you'd prefer it to go the other way, simply swap C6-7.

***This circuit isn't as fussy as earlier Tone Benders. You can go with a typical Tone Bender set (50 / 70 / 120hFE), but it'll work just as well with Q1-2 lower or higher than the typical gains. Stick with 120ish for Q3, preferably with some leakage.

Variations and recommendations

MORE VOLUME

It's not a loud circuit. To increase available output without affecting impedence and messing with the tone section, reduce R13 to 68K and increase VOL to 250KA.

VOX MKIII / 3 KNOB PARK SOUND

R2 100K
R3 680K
C4 6u8 elec

2 KNOB PARK SOUND

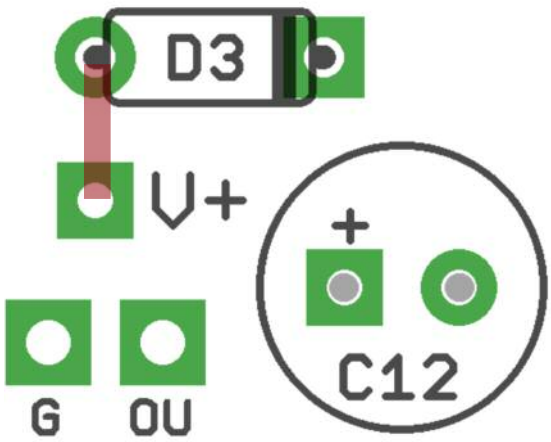
R2 100K
R3 680K
C4 22u elec
Jumper outer pads of FUZZ

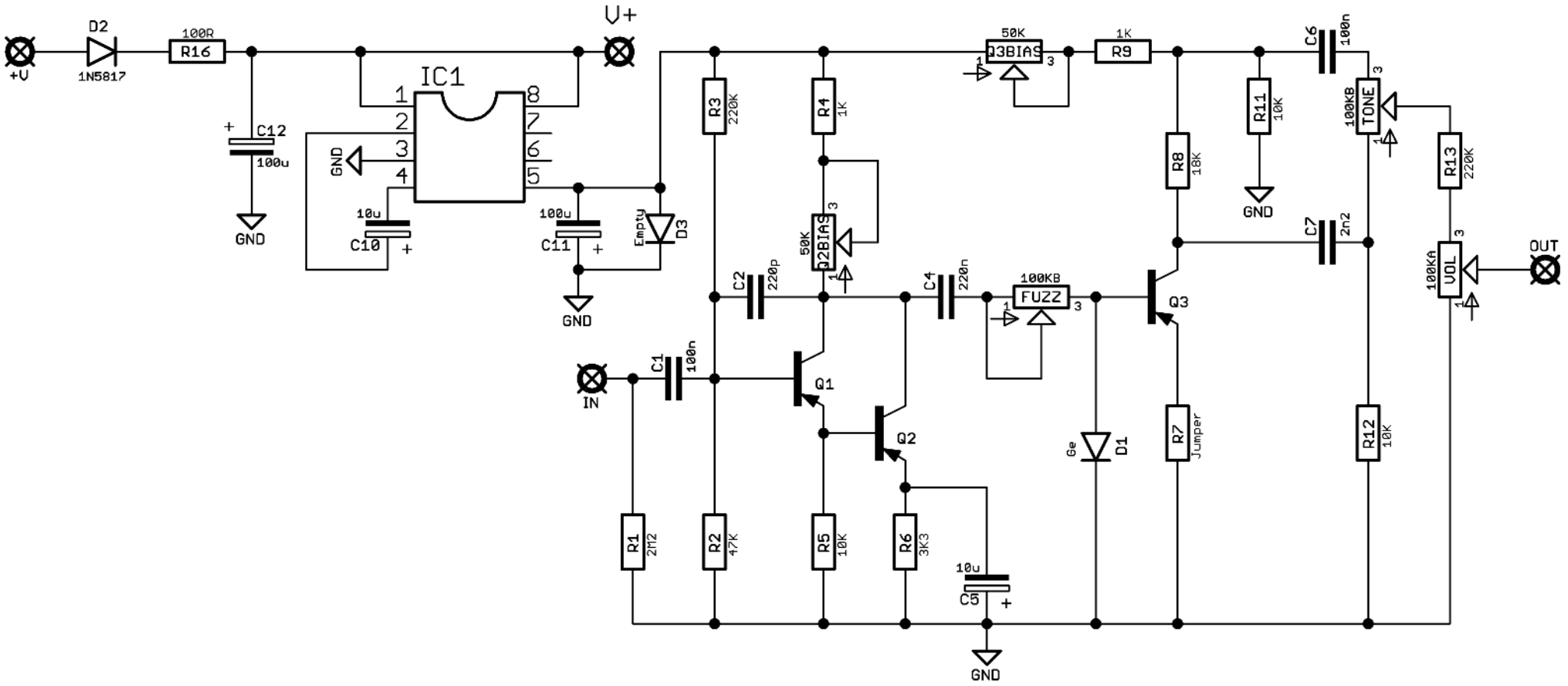
2 KNOB PARK SOUND

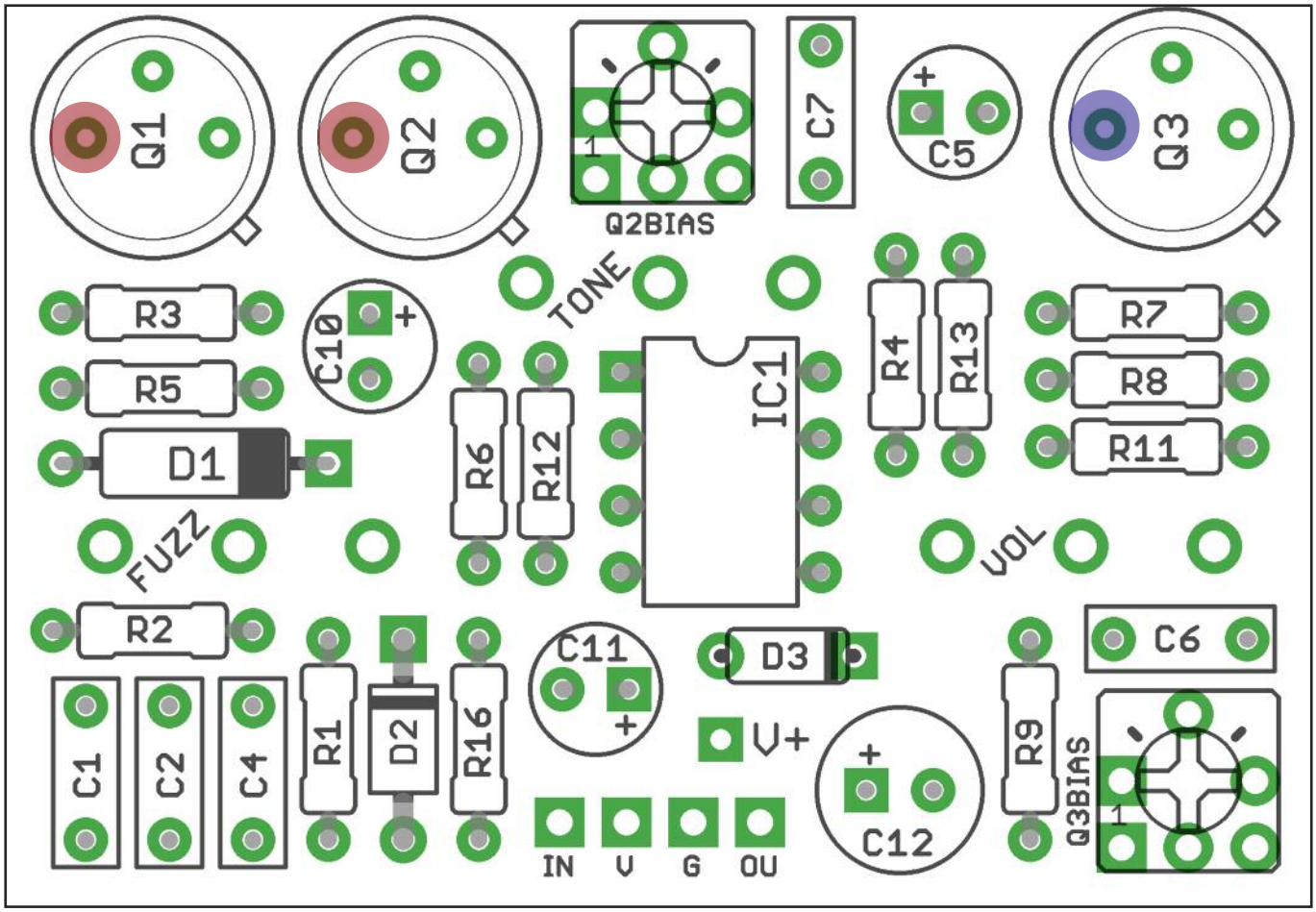
R2 100K
R3 680K
C4 22u elec
Jumper outer pads of FUZZ

NPN VERSIONS

Omit the voltage inverter parts (C10, C11, IC1).
Use NPN transistors.
Place C5 as shown on the silk screen.
Place a jumper wire as shown for the power.




+U
D2
1N5817
100R
R16
C12
100u
GND
IC1
1
2
3
4
8
7
6
5
GND
10u
C10
+
100u
C11
+
Empty
D3
V+
GND
R3
220K
R4
1K
50K
D2BIAS
C2
220p
C4
220n
50K
D3BIAS
1K
R9
100KB
FUZZ
R8
18K
R11
10K
GND
C6
100n
100KB
TONE
C7
2n2
R13
220K
100KA
VOL
OUT
IN
C1
100n
Q1
Q2
Q3
Ge
D1
R7
Jumper
R12
10K
R1
2M2
R2
47K
R5
10K
R6
3K3
10u
C5
+
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.

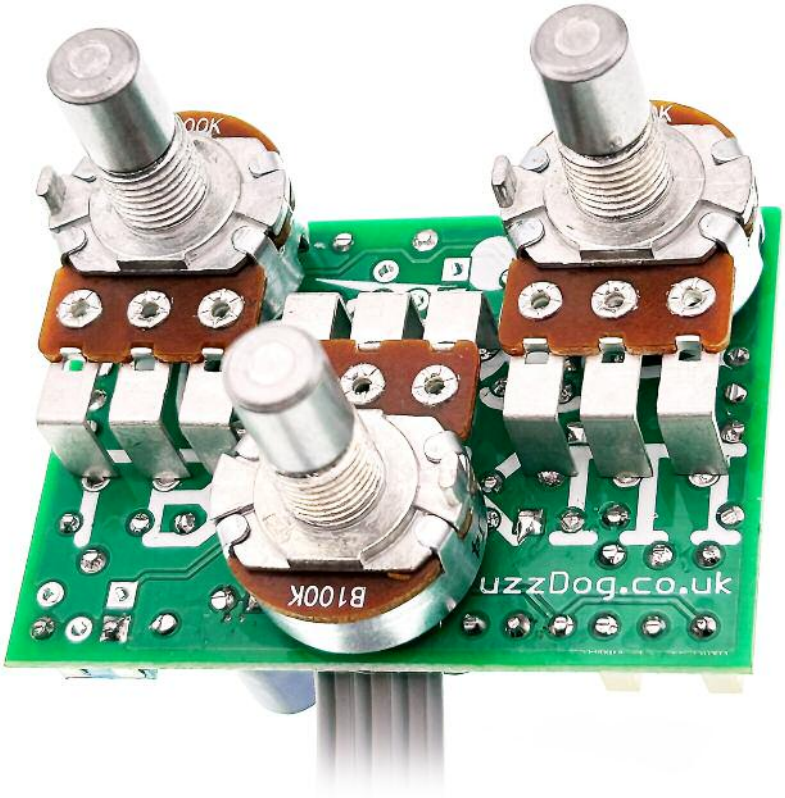
Once they're in place you'll have no access to much of the board.

BIASING

With FUZZ fully CW, adjust Q2BIAS until you get around -3.5V, or +3.5V if building NPN, on either of the legs marked in red above.

Adjust Q3BIAS while measuring the voltage on Q3. Aim for around 3V. Then adjust this by ear until you get your desired fuzz tone.

If you're really fuss(zz)y about the precise nature of the output consider using multiturn trimmers for more precise adjustment.



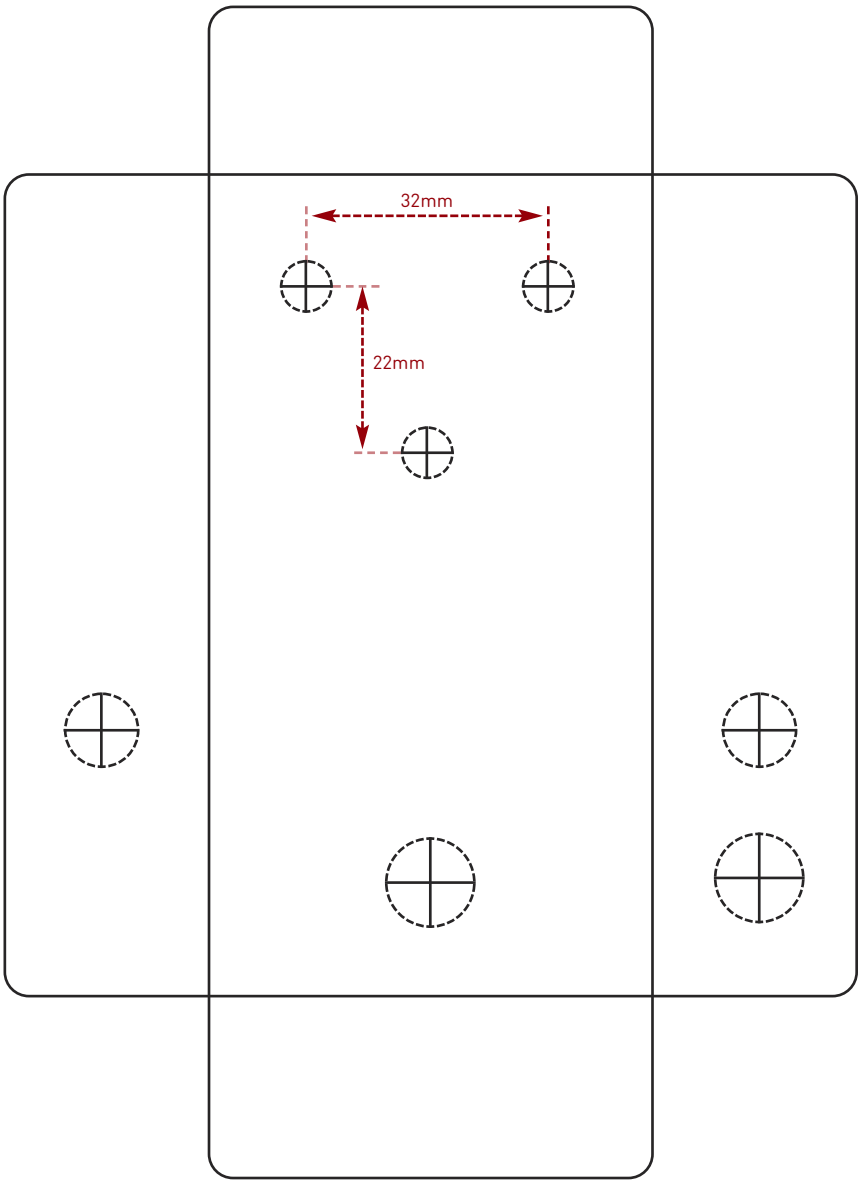
Drilling template

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