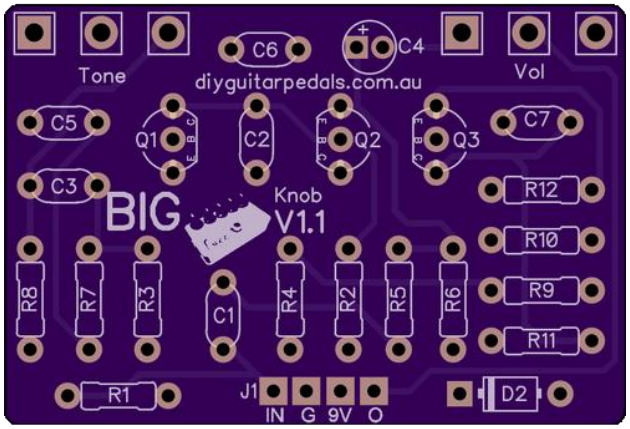
Big Knob

What do you get when a One Knob Fuzz collides with a Big Muff Pi Tone Stack? Ok, minds out of the gutter…The Big Knob of course! I've always felt the One Knob Fuzz could use a tone control for versatility as well as experimentation. The Big Muff Pi won the deal, it marries seamlessly with the One Knob Fuzzes expressive output. 16mm pot spacing and silicon transistors make this project a good contender for a silicon fuzz with "bang for buck".

Bill of materials

Resistors		Capacitors	
R1	1M	**C1**	100nf
R2	10k	**C2**	220pf
R3	82R	**C3**	10nf
R4	2k2	**C4**	10uf
R5	150k	**C5**	22nf
R6	1k	**C6**	220nf
R7	39k	**C7**	220nf
R8	47k		
R9	430k	**Transistors**	
R10	100k	**Q1**	2n3904 (see notes)
R11	15k	**Q2**	2n3904 (see notes)
R12	3k3	**Q3**	2n5088
Potentiometer		**Diodes**	
Volume	100ka (16mm)	**D1**	1n4001
Tone	100kb (16mm)		



PCB Spacing

The Big Knob PCB is spaced for 1590B sized enclosures or larger

Pot Spacing

The Big Knob's pcb mounted potentiometers are spaced for Alpha 16mm potentiometers.

Modifications

Following is a couple of worthwhile modifications that I discovered expermenting with the Big Knob

Transistors

This ones obvious. Q1 and Q2 form the gain stages of this silicon fuzz. Increasing and decreasing the gains of these transistors will effect the tonal character of the fuzz. In my experimentation a lot of NPN's sounded good, I personally perferred the S9013's though (available on my store) as they are relatively low gain. To intention mismatch gains (like a lot of fuzzes have), a 2n3904 in Q1 and a higher gain transistor in Q2 may increase sustain of the effect. The original circuit used BC107 and BC108 for Q1 and Q2 respectively, these can still be sourced. Q3 is the recovery stage of the big muff and wont have much effect on tone shaping.

Germanium Transistor Mod

As this circuit is very similar in topology to the classic circuit of the fuzz face germanium transistors can be used in place of silicons. Note that you will need NPN germanium transistors (PNP's will not work). I have tried low gain NPN's (60 and 80 hfe) and they sound very good. See the sound demo of the Big Knob for an example.

Shopping List

Although I do not stock all components you will need for the Big Knob, a lot of what you need can be found on my store. The remaining parts you will need are an enclosure (1590b), A 3pdt footswitch, led and current limit resistor and bezel, the 2 potentiometers and any other aesthetic additions you choose.

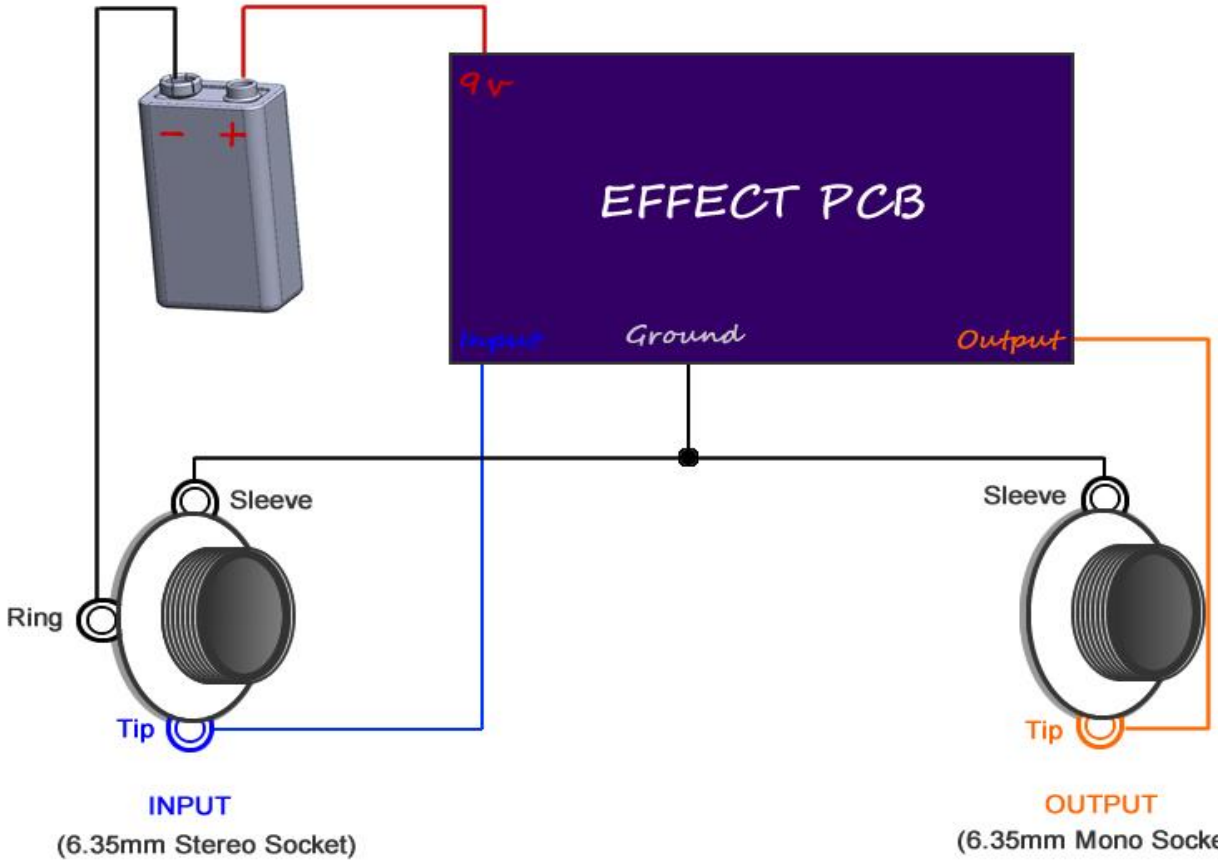
Click on the value to go to the webstore page:

Big Knob V1.1 – Shopping List

Resistors		Capacitors	
R1	1M	**C1**	100nf
R2	10k	**C2**	220pf
R3	82R	**C3**	10nf
R4	2k2	**C4**	10uf
R5	150k	**C5**	22nf
R6	1k	**C6**	220nf
R7	39k	**C7**	220nf
R8	47k		
R9	430k	**Transistors**	
R10	100k	**Q1**	2n3904 or S9013 (see notes)
R11	15k	**Q2**	2n3904 or S9013 (see notes)
R12	3k3	**Q3**	2n5088
Hardware (for DC power Only)		**Diodes**	
Mini Mono Jack x 2		**D1**	1n4001
Compact DC jack - Economy			
All knobs on my page will fit spacing			
Wire			

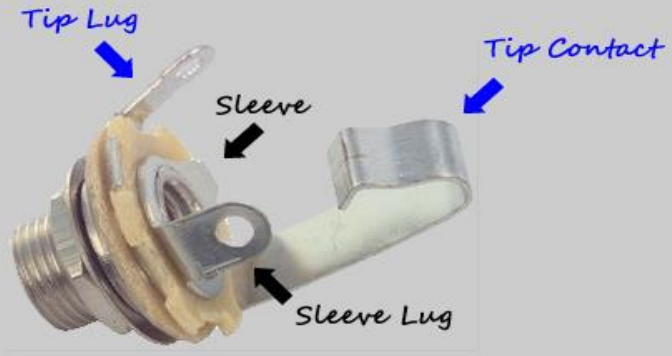
Testing Your Effect

Using aligator clips or soldering directly, wire your effect as in the following...



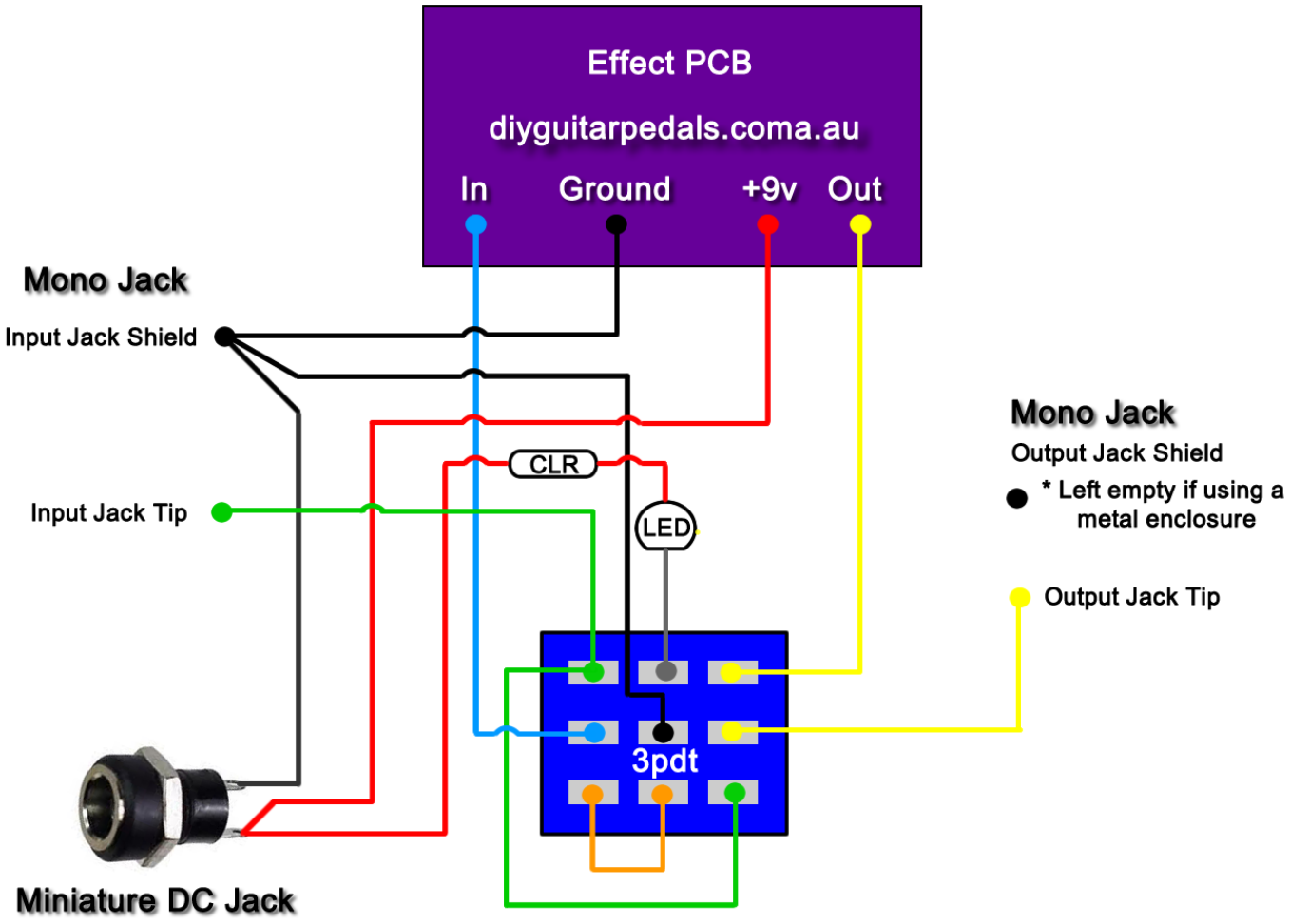
Input and Output Sockets

Pay close attention to the lugs of your sockets. Look at them side on so that you can distinguish the sockets individual layers. For instance the tip lug is connected to tip contact. The stereo jack looks the same as the socket below except it has an extra lug and contact for “Ring”.

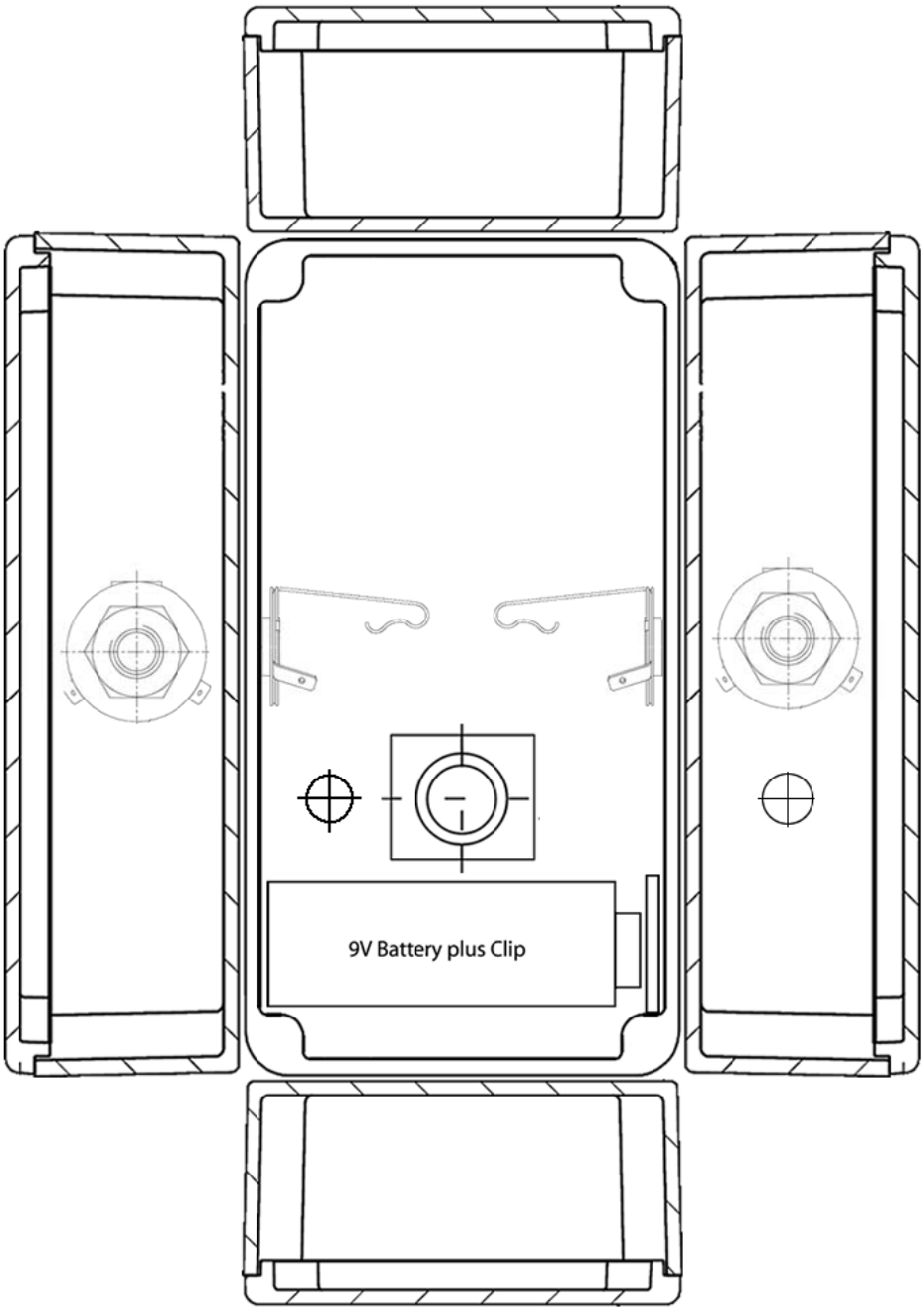


Offboard Wiring Diagram

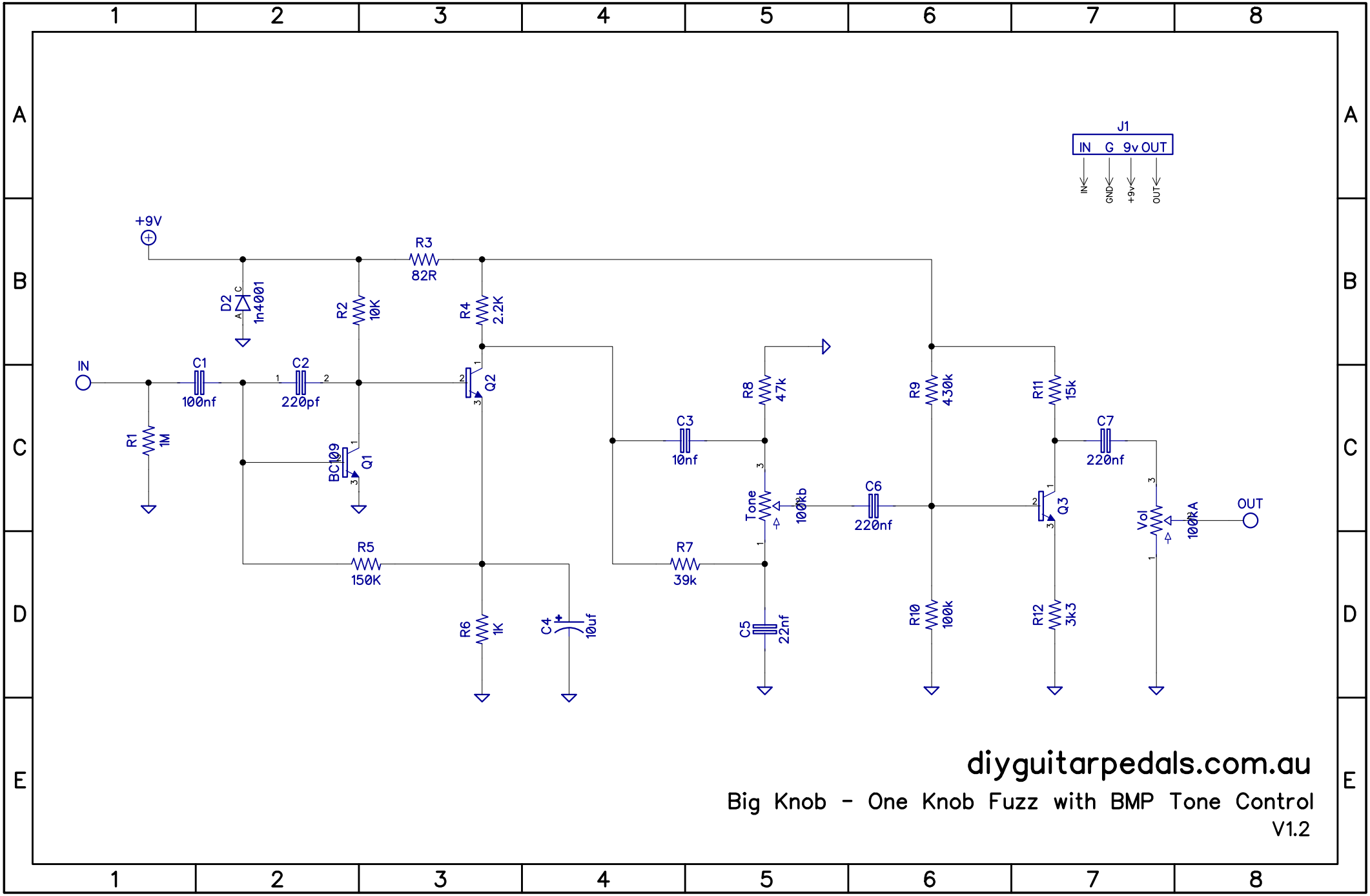
Using a non-switched Miniature DC Jacks and 2 Mono Jacks



1590b Drill Guide



due to variances in hardware and enclosure sizes
please use this template as a guide only
Please check dimensions before committing to drilling


J1
IN G 9v OUT
IN
GND
+9v
OUT
+9V
R3
82R
D2
1n4001
R2
10K
R4
2.2K
IN
C1
100nf
C2
220pf
Q2
R1
1M
BC109
Q1
C3
10nf
R8
47k
R9
430k
R11
15k
C7
220nf
Tone
100kb
C6
220nf
Q3
Vol
100kA
OUT
R5
150K
R7
39k
R6
1K
C4
10uf
C5
22nf
R10
100k
R12
3k3
diyguitarpedals.com.au
Big Knob - One Knob Fuzz with BMP Tone Control
V1.2