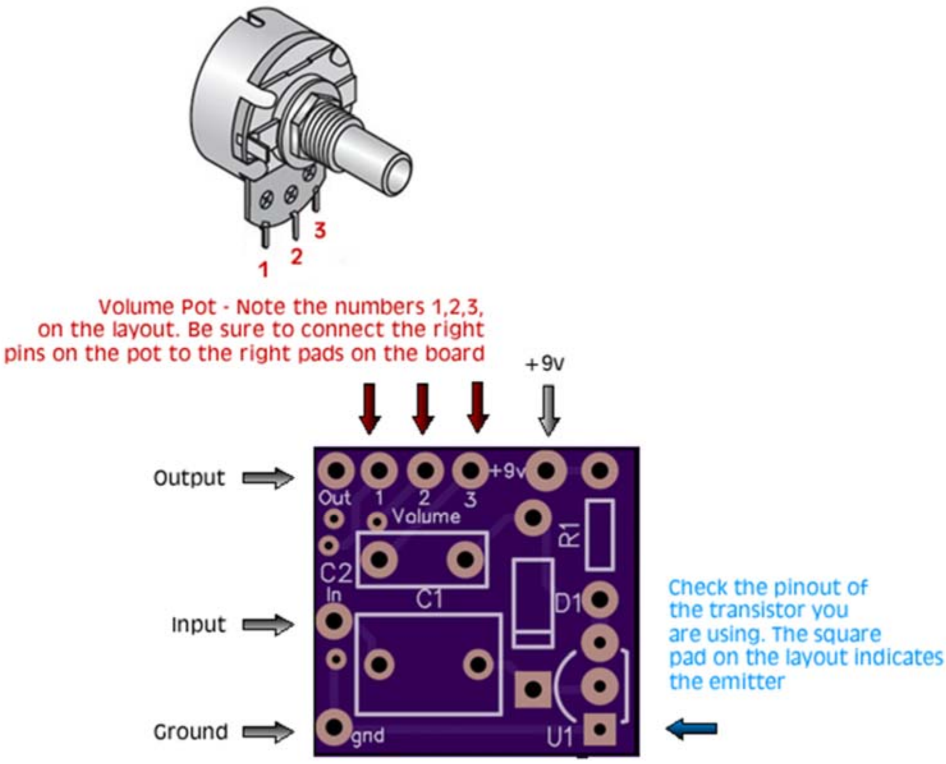
7 Min Fuzz

The 7 min fuzz is a low part count high-gain circuit that produces a very respectable, thick sounding fuzz tone. However this is just one of the sounds capable from this circuit. It is quite adaptable and if you have purchased the experimenters kit you can follow along with my basic notes on how to tweak it! The BOM below lists the 'standard' configuration (thick sounding fuzz).

Bill of materials

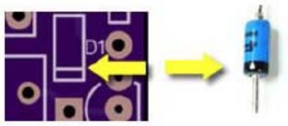
Resistors		**Diode**	
R1	10k	**D1**	BAT41
Capacitors		**Transistor**	
C1	1uf (105)	**U1**	MPSA13
C2	100nf (104)		
		Potentiometer	
		Volume	100ka Log



Orientation and Polarity of the Components

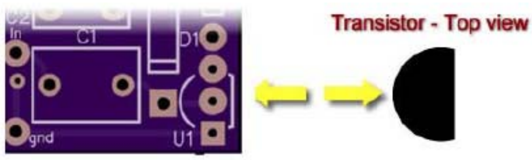
Polarity of the BAT41 Diode

Note the polarity of the BAT41 diode. The Band on the diode must match up with the band printed on the circuit board:



Orientation of the MPSA13 Transistor

The Transistor must also be installed into the circuit the correct way around. Note the image of the transistor printed onto the circuit board. This must be matched with the shape of the body of the transistor



Orientation of the resistor and capacitors

The resistors and capacitors (film) are not polarised and can be inserted into the circuit board either way

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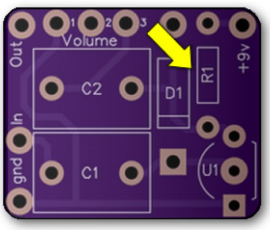
Reference Designators

The reference designator (the letter followed by a number found on the bill of materials, see picture below) identifies the component of an electrical schematic. This Reference Designator ("refdes" for short) also appears on the silkscreened printing on the circuit board. See below an example of the reference designator for R1, a 10k resistor, found on the bill of materials and the printed circuit board. So for R1, we would solder a 10k resistor into this position.

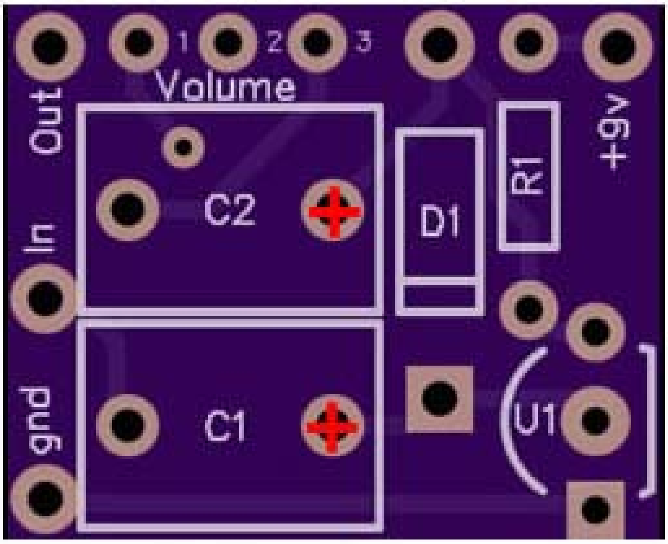
Resistors	
R1	10k
Capacitors	
C1	1uf (105)
C2	100nf (104)



7 Min Fuzz – Bass Guitar Mod

The Capacitors included in the 7 Min Fuzz Kits are selected for electric guitar, however the circuit will work with bass guitar as well with only a small modification; higher value capacitors on the input and output, C1 and C2 (available on the webstore). Film capacitors in values above 1uf are quite expensive, so it's typical to use electrolytics in their place. Electrolytic capacitors in values between 1uf and 10uf would be suitable for experimentation.

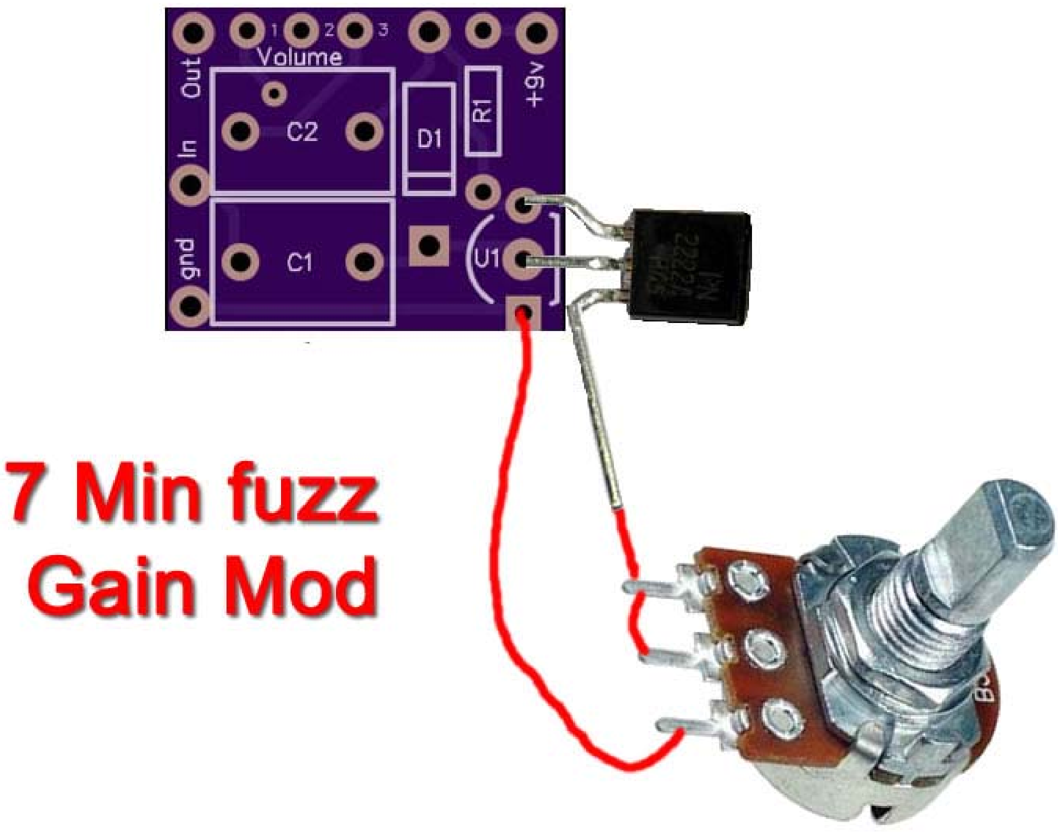
Electrolytic capacitors are polarized, one lead is negative the other positive. The positive lead should be connected to the 'more positive' side of the circuit. I have marked the positive pads with red crosses on the picture of the PCB below for your convenience:



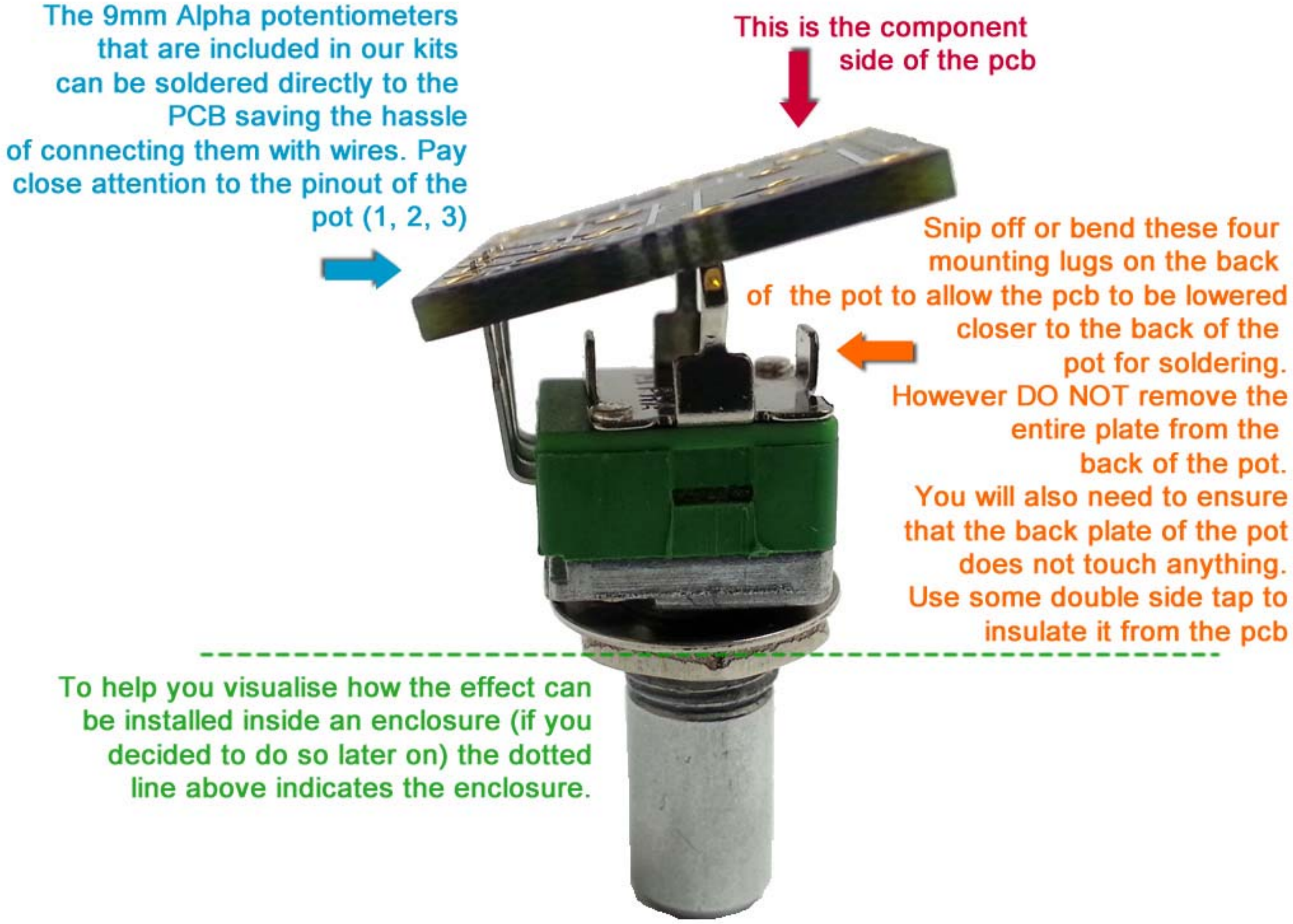
7 Min Fuzz – Gain Control Mod

Adding resistance to the emitter of the 7 min fuzz transistor will reduce the gain of the circuit. We can add a modification for adjusting the gain of the effect by adding a potentiometer to the circuit, a device that increases resistance as you turn the dial.
Check out the wiring diagram below for a visual representation of how to go about adding this gain control and also my video on how to add a Gain control the 7 min fuzz circuit:
(youtube link)

https://www.youtube.com/watch?v=WCFrhkL1a2I

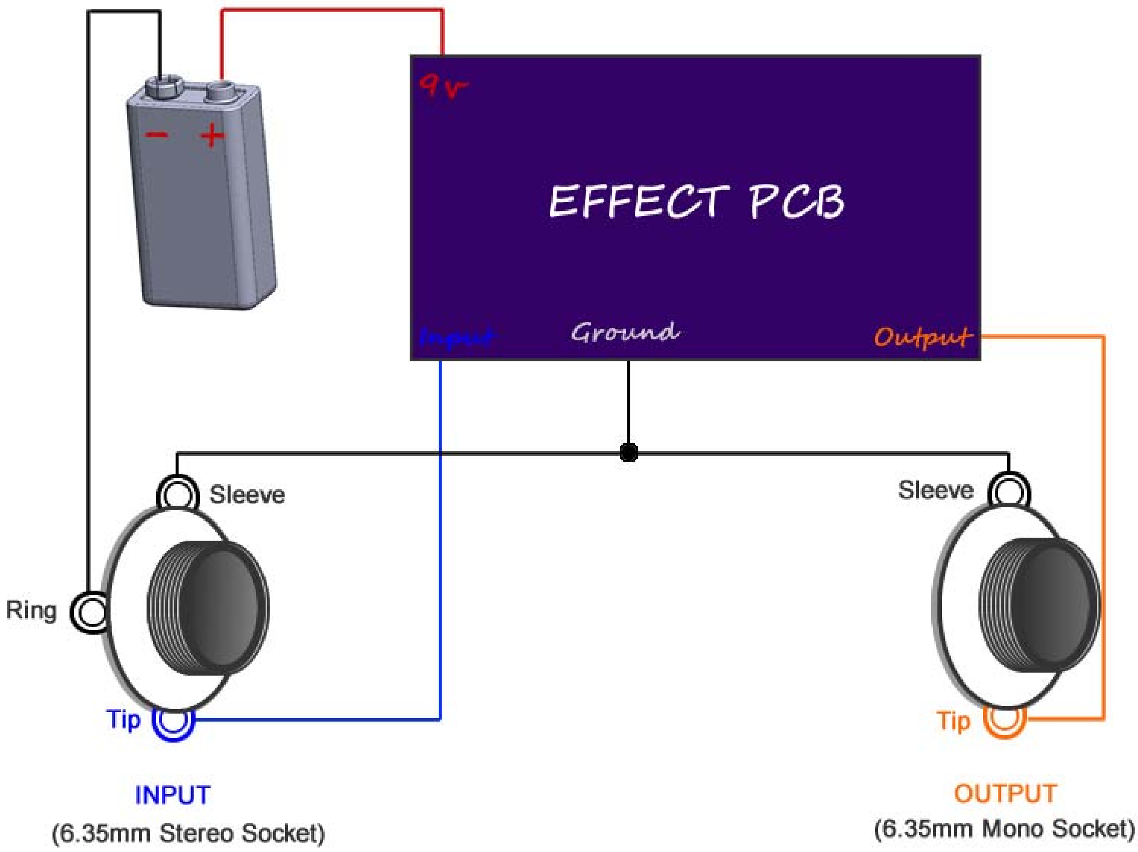


Tip for soldering 9mm Alpha Pots



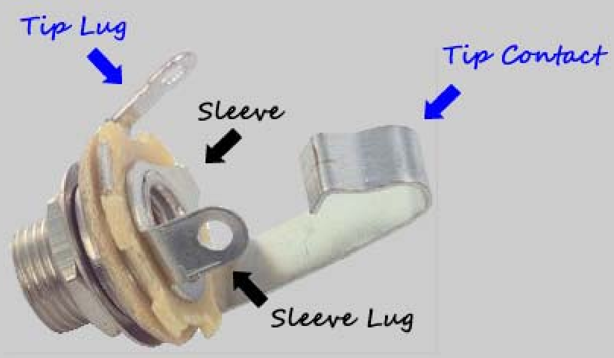
Testing Your Effect

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



Input and Output Sockets

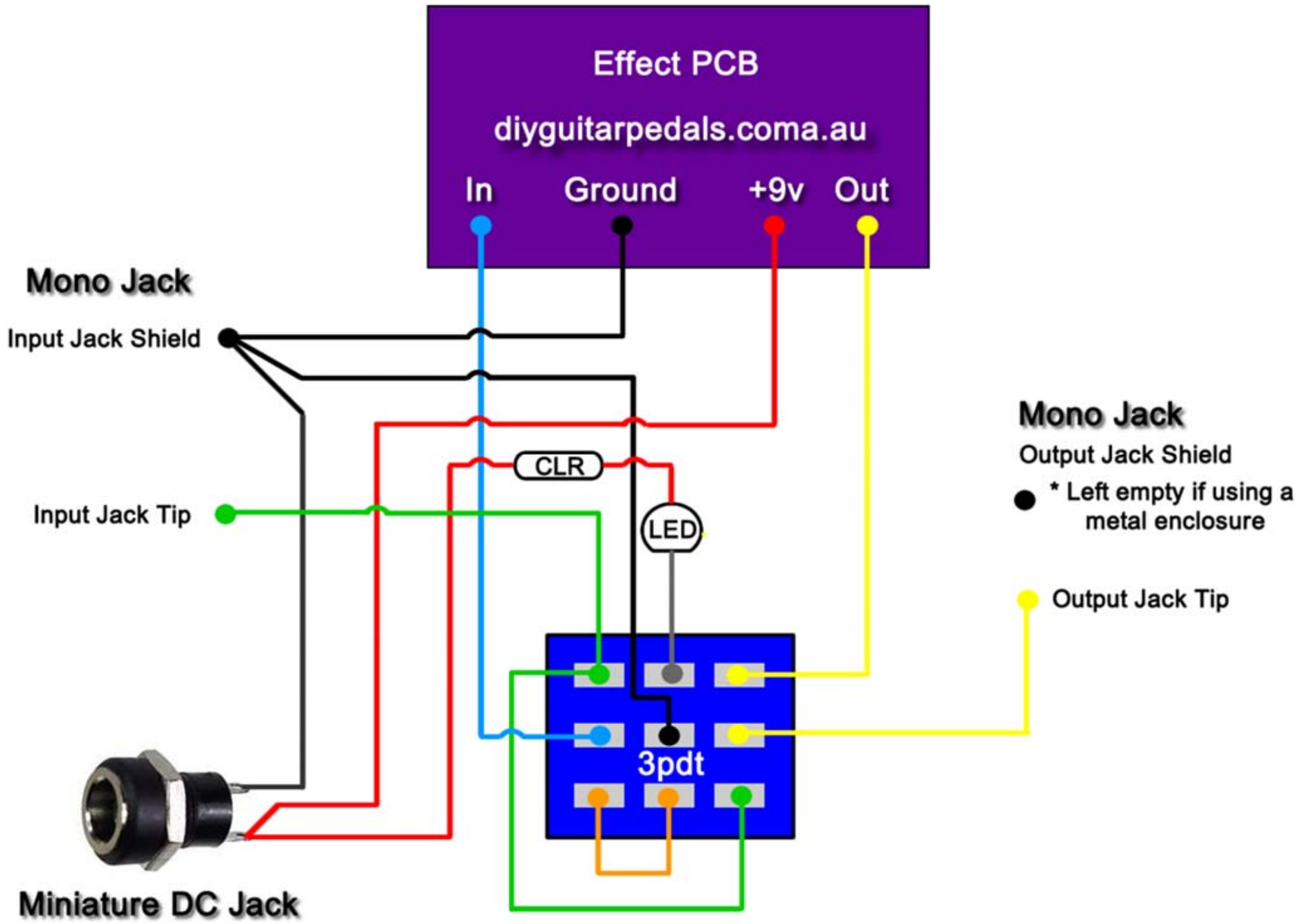
Pay close attention to the lugs of your sockets. Look at them side on so that you can distinguish the sockets individual layers. For instance the tip lug is connected to tip contact. The stereo jack looks the same as the socket below except it has an extra lug and contact for “Ring”.



Note, you can still test your effect with 2 mono jacks, just combine the negative of the battery with the ground input sleeve connection. A DC Jack will also work for a power source, replace the battery above with a dc jack.

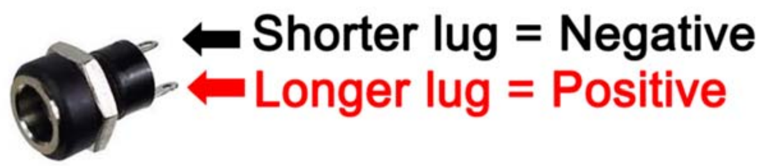
Offboard Wiring Diagram

Using a non-switched Miniature DC Jacks and 2 Mono Jacks (kit option with diyguitarpedal kits)



"CLR" = Current Limit Resistor. This resistor (included with your LED and bezel controls the brightness of the led and stops the LED from blowing. Also note the flat side of the LED, examine your LED closely you will note it physically has a flat side. This is the negative side of the led as pictured above

The Lugs of the Miniature DC Jack



The miniature dc jacks that are sold as a kit option with pcbs have 2 lugs, 1 short and 1 long and should be connected as shown in the picture to the right. To confirm which lug is which, sight done the socket hole, you should be able to see which lug is connected to the pin and which is connected to the barrel of the jack. Also note that miniature dc jacks do not allow for battery switching, they can only be used for DC power.