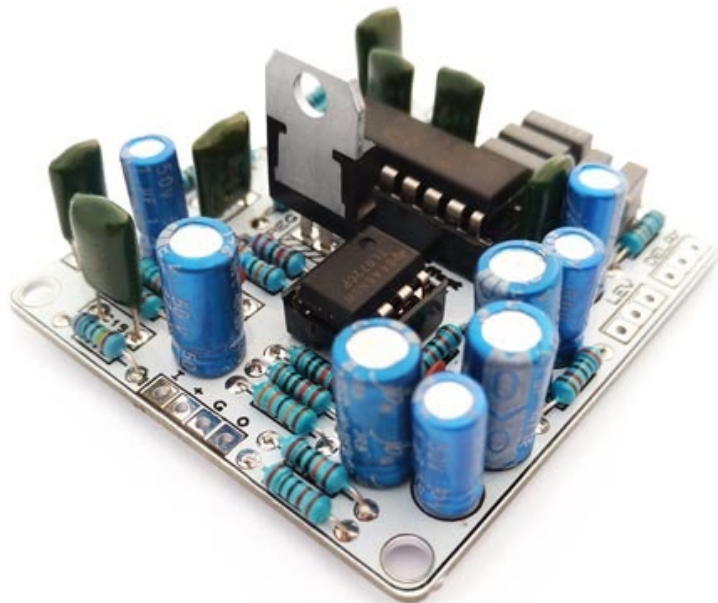















# **Echo Delay Kit Building Manual**



# BOM (1/2)

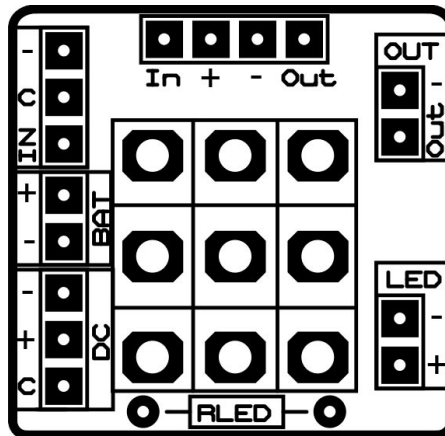
Resistors (21)				Capacitors (22)		
1	R1	2.7k		2	C1, C8	2.2n
7	R2, R3, R8, R9, R10, R19, R20	10k		4	C2, C3, C13, C14	100n
2	R4, R16	20k		1	C4	15n
2	R5, R17	1k		1	C5	10n
1	R6	2k		4	C6, C11, C16, C17	1u (electrolytic)
1	R7	5.1k		1	C7	47n
1	R11	180k		1	C9	4.7n
1	R12	360k		2	C10, C19	22n
1	R13	1M		3	C12, C20, C22	47u (electrolytic)
1	R14	22k		1	C15	100p (ceramic)
1	R15	12k		1	C18	47p (ceramic)
1	R18	33		1	C21	100u (electrolytic)
1	R21	100k				

# BOM (2/2)

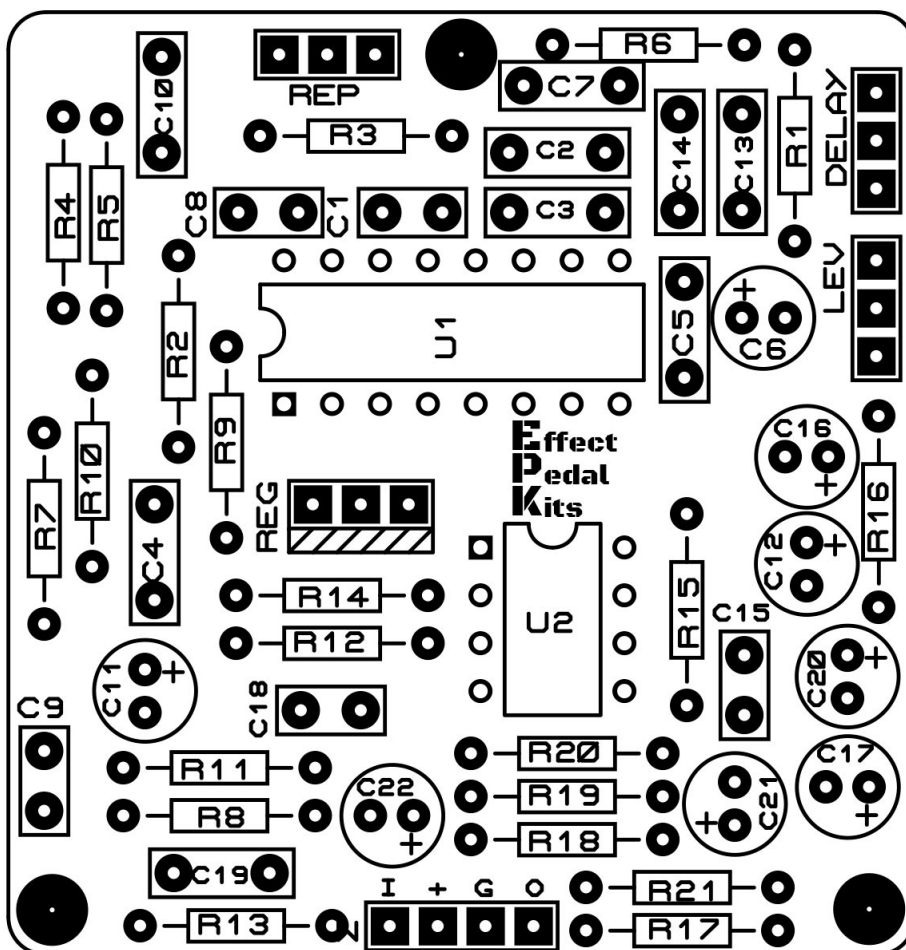
Diodes, Transistors and ICs			Generic Parts and Potentiometers		
1	U1	PT2399	1	Battery clip	
1	U2	TL072	1	DC Jack	
1	REG	7805	1	RLED	1k LED resistor
			1	LED Bezel	
			1	3PDT	
			2	IN, OUT	6.35mm Jacks
			3	50k Linear (B) Potentiometer	Delay, Lev, Rep

# Board Layouts

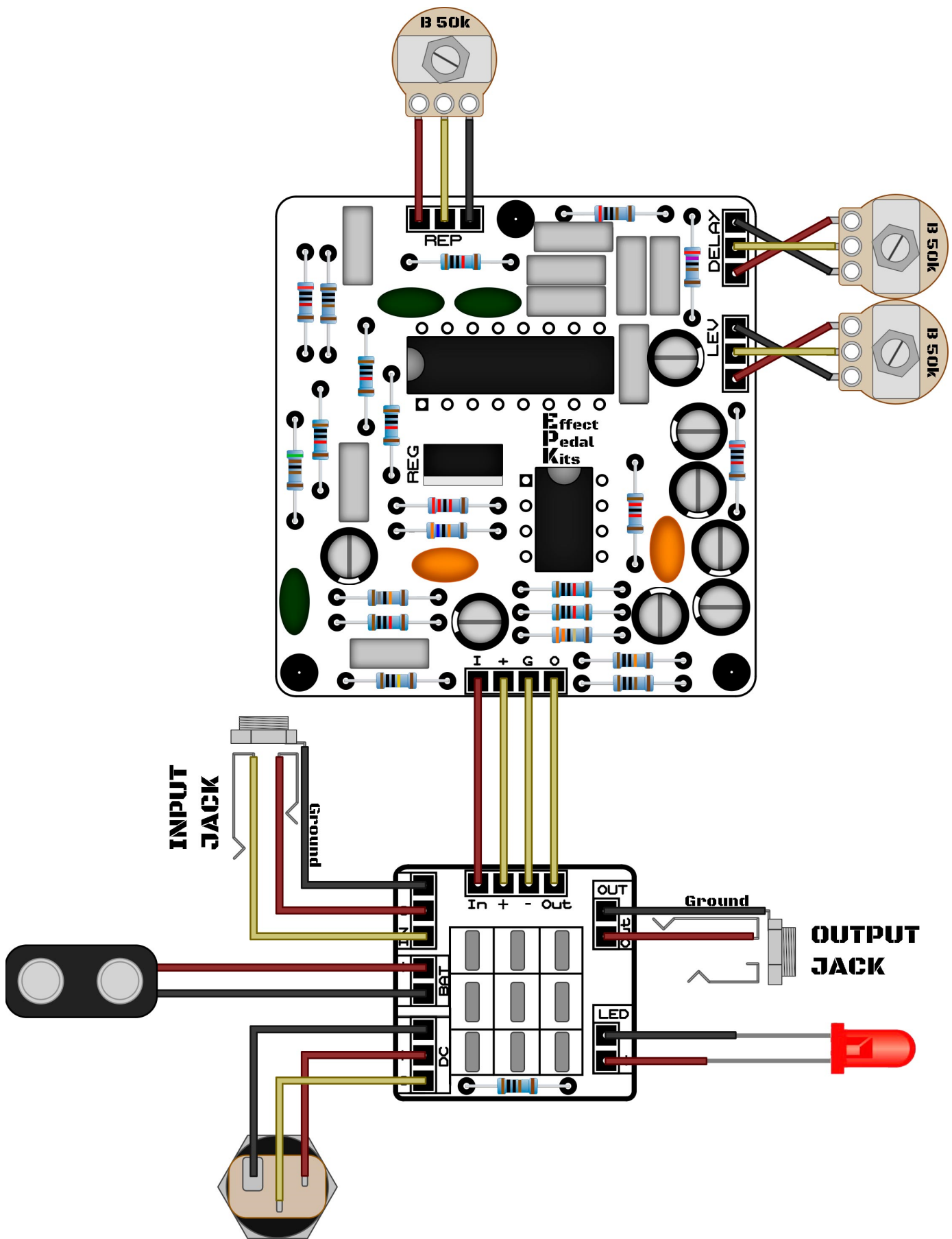
## 3PDT PCB



## Effect PCB

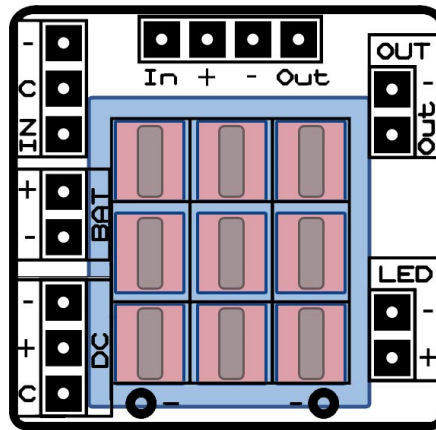


# Component Placement



# Building Tips

- 1- Pay attention to the **orientation of the 3PDT**! In the following picture you can see how the 3PDT pins should be positioned (inserting the pins in the holes can be a bit tight to avoid movement while soldering):



- 2- For a proper soldering you just have to apply the **right amount of solder wire**. A right solder joint should have a concave shape around the joint and look like this:

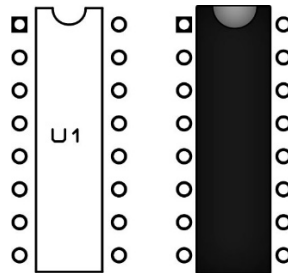


- 3- Don't apply too much heat! When soldering, the time you hold the solder iron against the joint should be **as short as possible** to avoid damaging any part (a few seconds should be enough). If you can't get a solder joint right, **let it cool** a bit before trying again.
- 4- If having troubles with the building, checking the schematic in the last page will help you find **where the audio signal stops**. When you find the spot, check out that **everything around that joint is ok** (components placed at their right place, solder joints...).

# Building Tips

5- Pay attention to the **parts that have a polarity** and make sure they are connected as in the component placement picture:

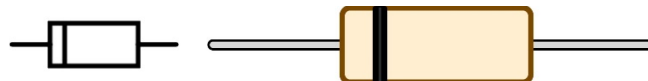
- **ICs** (they have a small dot or indication that must fit the indication in the board)



- **Electrolytic capacitors** (longer pin is connected to the “+” hole):



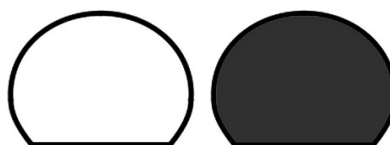
- **Diodes** (check for the mark and make it fit with the one in the PCB):



- **Leds** (longer pin is connected to the “+” hole)

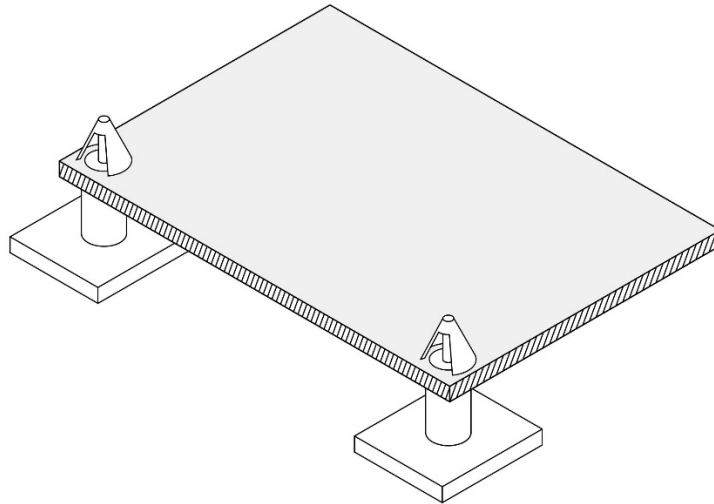


- **Transistors** (inserted to fit the drawing in the PCB)



# **Building Tips**

- 6- With the kit we include plastic PCB supports with an adhesive bottom. You can use them to anchor the PCB to your enclosure for a better stability. Just insert the PCB support tip into the 3.5mm holes and remove the adhesive protective film.



**To avoid any issue always check the latest building manual. Use the pictures only as a reference! Colors/shapes of wires, PCB or parts can change slightly, this doesn't affect their functionality in any way.**

**Always double check part polarity, resistor and capacitor values, potentiometer placement, IC orientation... before soldering.**



# Schematic

