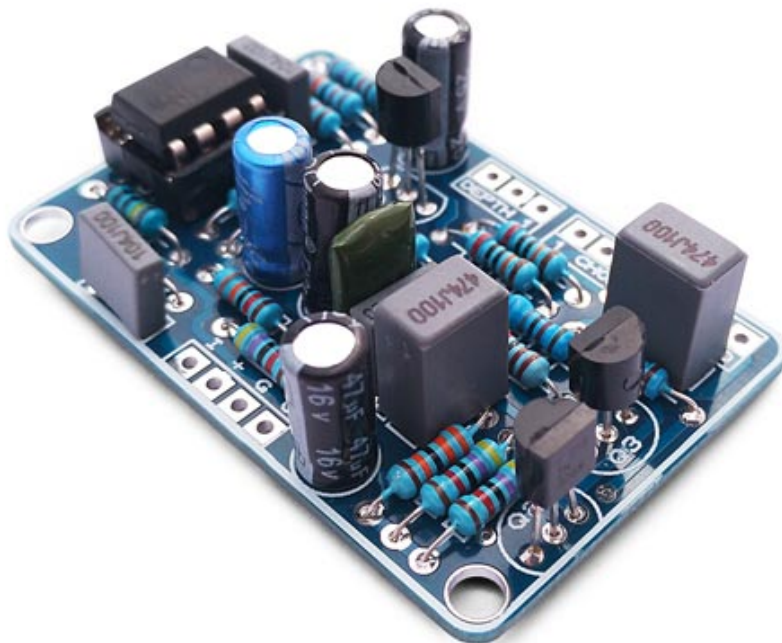# EPK

Pulsar Tremolo Kit
Building Manual

Effect Pedal Kits: Pulsar Tremolo

With the Pulsar Tremolo Kit you'll be able to build your own ElectroHarmonix Pulsar! This tremolo has a very natural sound, and a smooth rounded LFO waveform to produce a pleasing tremolo effect. Some mods have been made on the original ElectroHarmonix Pulsar (newer and quieter opamps, caps for wider range…). The Pulsar Tremolo has a wide variety of settings adjusting the Rate and Depth knobs, as well as the Chop switch.

Besides of the standard tremolo mode, the Pulsar Tremolo features a Chop mode where the LFO produces a square wave. In this mode, the pedal produces a "helicopter" tremolo sound, rhythmically turning the volume on and off directly, instead of smoothly as it does in the standard mode. The ElectroHarmonix Pulsar is almost unavailable nowadays, so don't miss this opportunity and get your Pulsar Tremolo Kit!

BOM (1/2)

Resistors (19)			
2	R1, R10	1M	
4	R2, R8, R15, R16	47k	
2	R3, R6	30k	
1	R4	39k	
1	R5	27k	
1	R7	33k	
2	R9, R11	10k	
2	R12, R13	200k	
1	R14	330k	
1	R17	2.2M	
1	R18	1.2k	
1	R19	68k	

Capacitors (10)		
2	C1, C10	100n
1	C2	47u (electrolytic)
1	C3	22u (electrolytic)
1	C4	1u (electrolytic)
1	C5	4.7u (electrolytic)
1	C6	22n
1	C7	220n
2	C8, C9	470n

BOM (2/2)

Diodes, Transistors and ICs				Generic Parts and Potentiometers	
1	U1	TL072		1	Battery clip	
3	Q1, Q2, Q3	2N5088		1	DC Jack	
				1	RLED	1k LED resistor
				1	LED Bezel	
				1	3PDT	
				2	IN, OUT	6.35mm Jacks
				1	100k Logarithmic (A) Potentiometer	Speed
				1	1M Logarithmic (A) Potentiometer	Depth
				1	SPDT	Chop

Component Placement
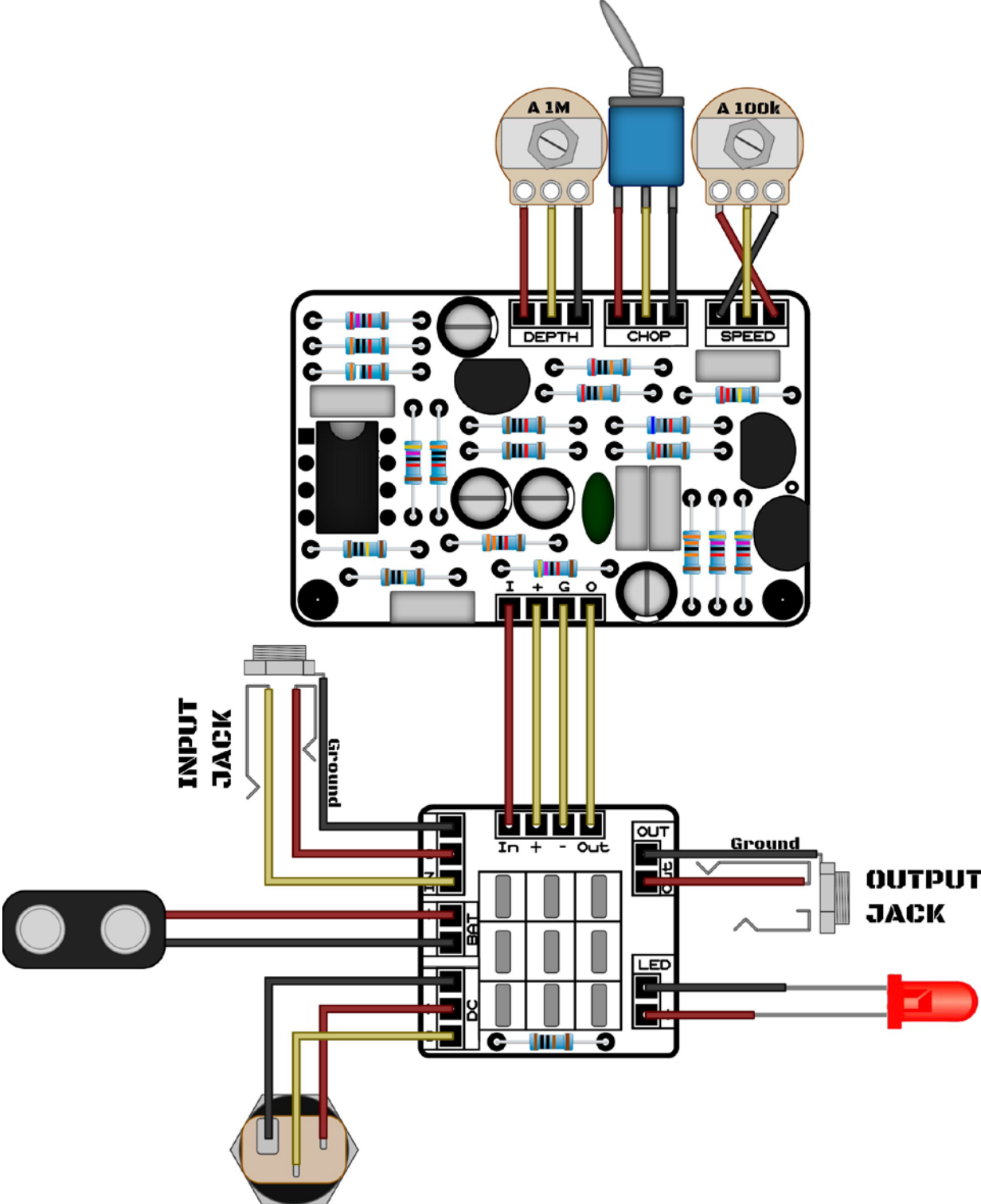
Board Layouts

3PDT PCB
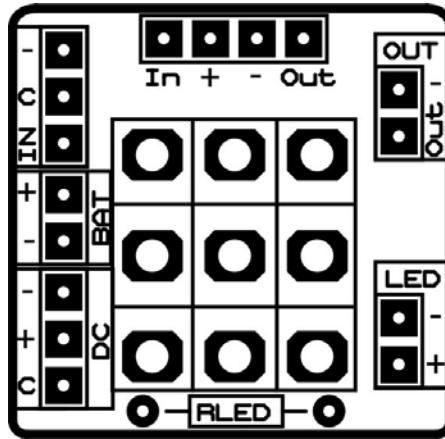
Effect PCB

Building Tips

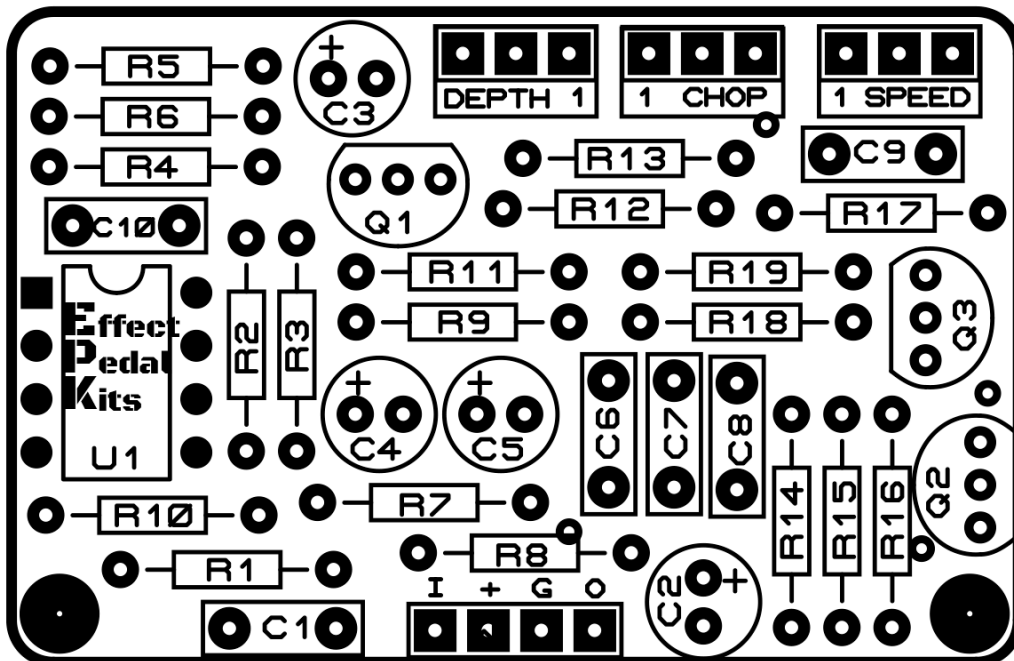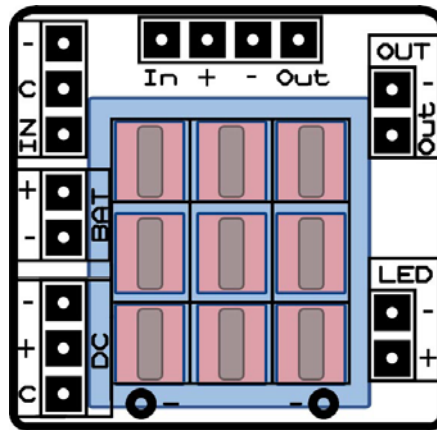1- Pay attention to the **orientation of the 3PDT**! In the following picture you can see how the 3PDT pins should be positioned (inserting the pins in the holes can be a bit tight to avoid movement while soldering):

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 posible** 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:
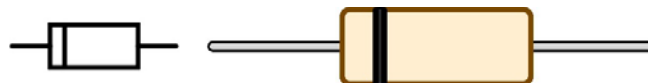
- **ICs** (they have a small dot or indication that must fit the indication in the board
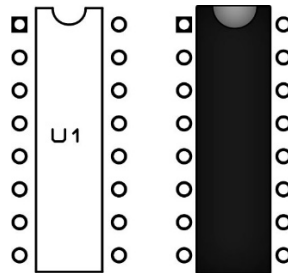
- **Electrolytic capacitors** (longer pin is connected to the "+" hole):

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

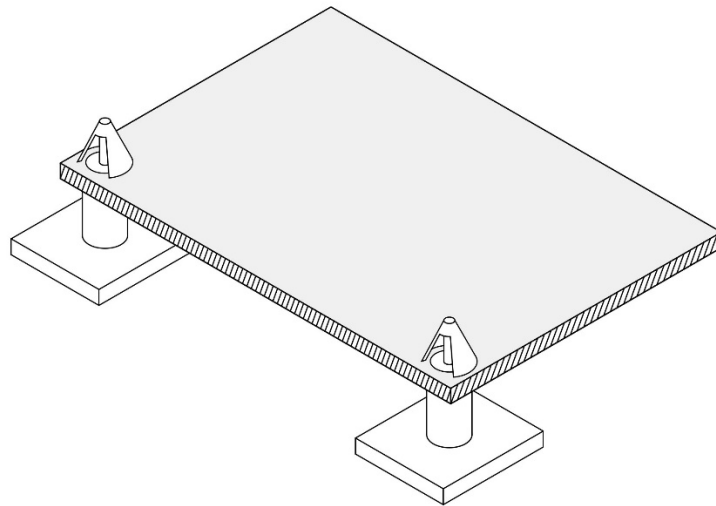- **Leds** (longer pin is connected to the "+" hole)

- **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

IN WIRE FROM 3PDT

VCC SECTION