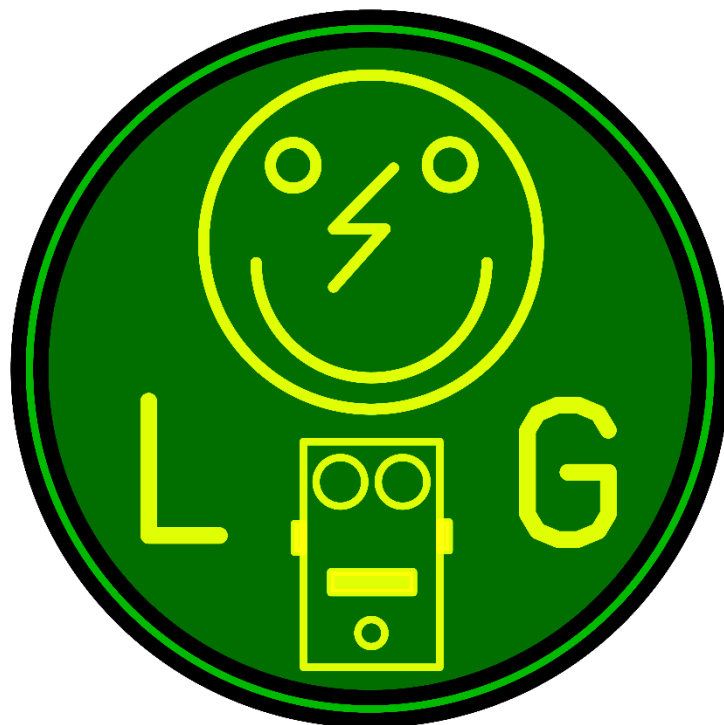


# Charge pumper

## Building instructions

### V1.1



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Read this entire manual thoroughly before you start building!

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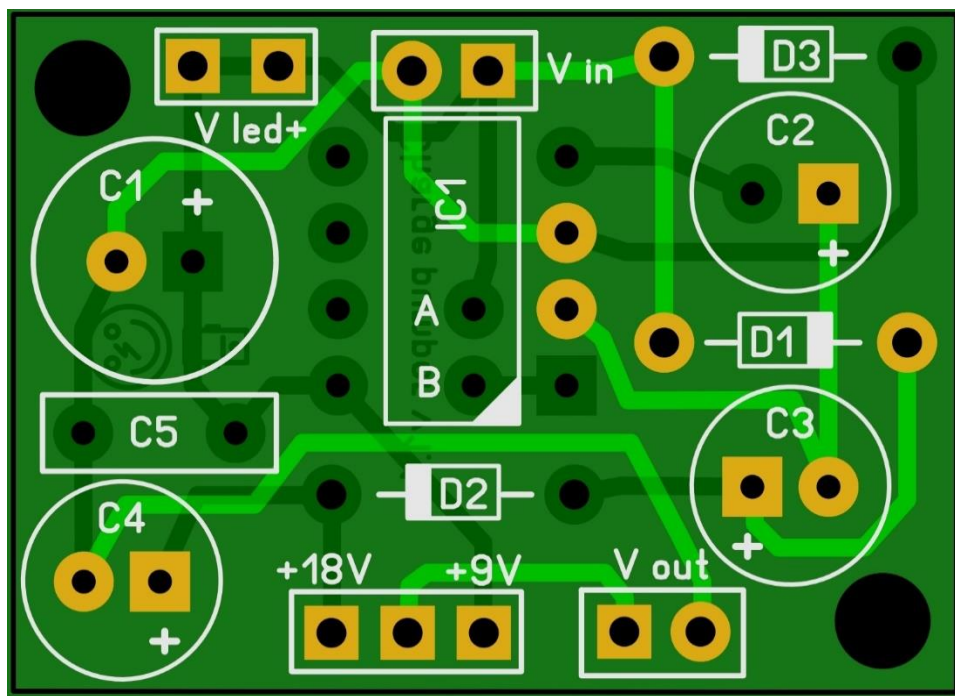


## Components

Name	Value	Comment
C1	100u	Electrolyte 35V+
C2	10u	Electrolyte 35V+ Optional see p4
C3	10u	Electrolyte 35V+
C4	10u	Electrolyte 35V+
C5	100n	MKT 35V+
D1	1N5817	
D2	1N5817	
D3	1N4001	
IC1	ICL7660S/LT1504	See page 4

**Note that all capacitors should be rated 35V or more!**

## PCB layout



Besides the components mentioned in the table, you will need:

- 2,1mm DC jack (isolated).
- 22 gage stranded hook-up wire (red and black).
- Depending on your application (see next page), a 3 pin male headers and a shunt, a SPST switch or a miniature SPST slide switch



## General building tips

It is advised to socket the voltage converter IC1 using a DIP-8 socket so it can be easily replaced in case it breaks. It is not advised to power the board with a battery as this may result in weird behavior as the battery's Voltage drops as it gets empty (sag). The board can be used with either an ICL7660s or LT1504.

Using 7660s (input 9-12 V DC, output 18-24V DC):

1. Connect hole A with B (eg using a spare piece of diode leg left after cutting it to size)
2. Install C2

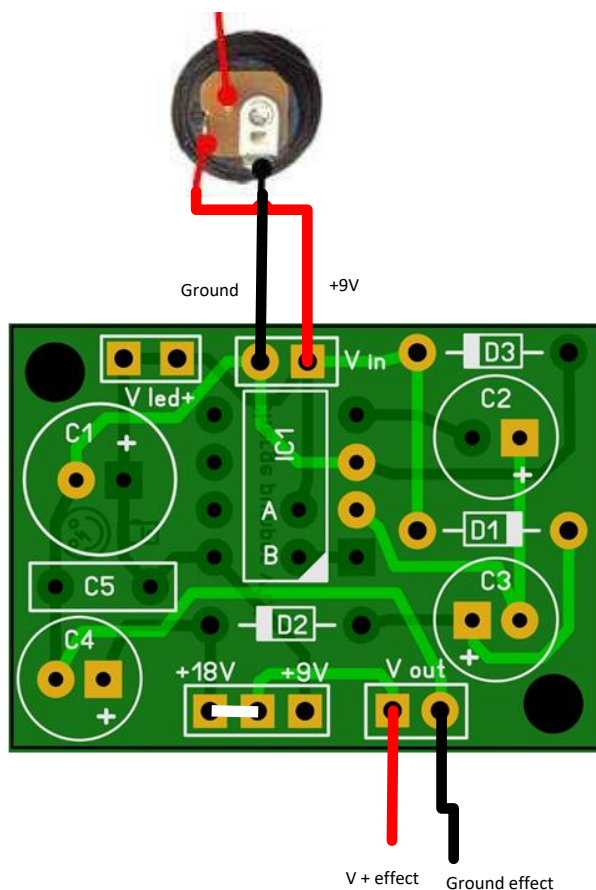
Using LT1054 (input 9-12 V DC, output 18-24V DC):

1. Do NOT connect holes A and B
2. Do NOT install C2

The charge pump enables you to feed your effects by either +9V or +18V. If you have LED's in your build which can only take +9V then you can connect up to 2 LED's on the **V led+** pad's. You can integrate it into your builds in several different ways:

1. **Not switchable (hard wired +18V)**

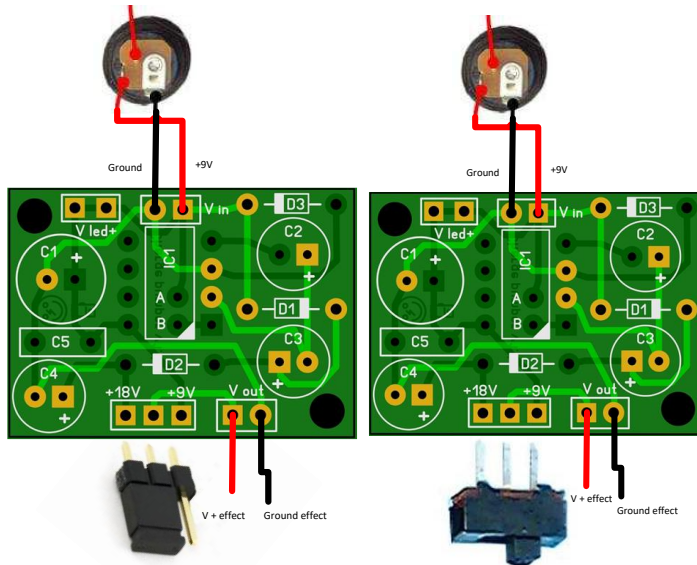
If you only want the charge pump to deliver +18V than solder a jumper wire between V out and +18V like this:





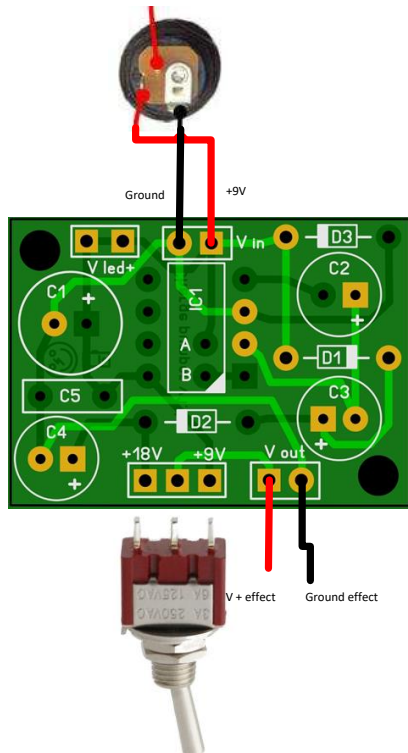
## 2. Internally switchable

If you prefer to use your effect with +18V but want to be able to switch it back sometime in the future, then you can make it switchable using either a miniature slide switch or a 3 pin male header with a shunt. Use 2,54 mm pitch.



## 3. Externally switchable

You can make the board externally switchable so you can change the voltage as you play and do not have to open up the effect to reach the switch. You will need a miniature SPDT switch for that.





## Troubleshooting

All PCB's have been 100% factory e-tested and out of every batch I receive I build an effect to double check, so there should not be a connection problem on the PCB itself.

The board is not working (at all), what now?

- Check if your 9V is plugged in correctly (and/or soldered correctly on the board).
- Check that you oriented the capacitors, IC's ,transistors and diodes the right way. SMF, MKT capacitors and resistors do not need to be oriented.
- Check if you used the correct values of the components.
- Double and triple check your soldering! A loose or cold solder can be really bad for your board.
- Replace the IC, it might be defective. Before doing that first unplug the 9V and wait 5 seconds.
- Check that you have good/high grade components. A lot of Chinese sourced parts are fakes (especially high end op-amps, vintage diodes and transistors) so be careful that you source your parts from reliable suppliers.

## Schematic

