Busta Noise

Building instructions

v1.0

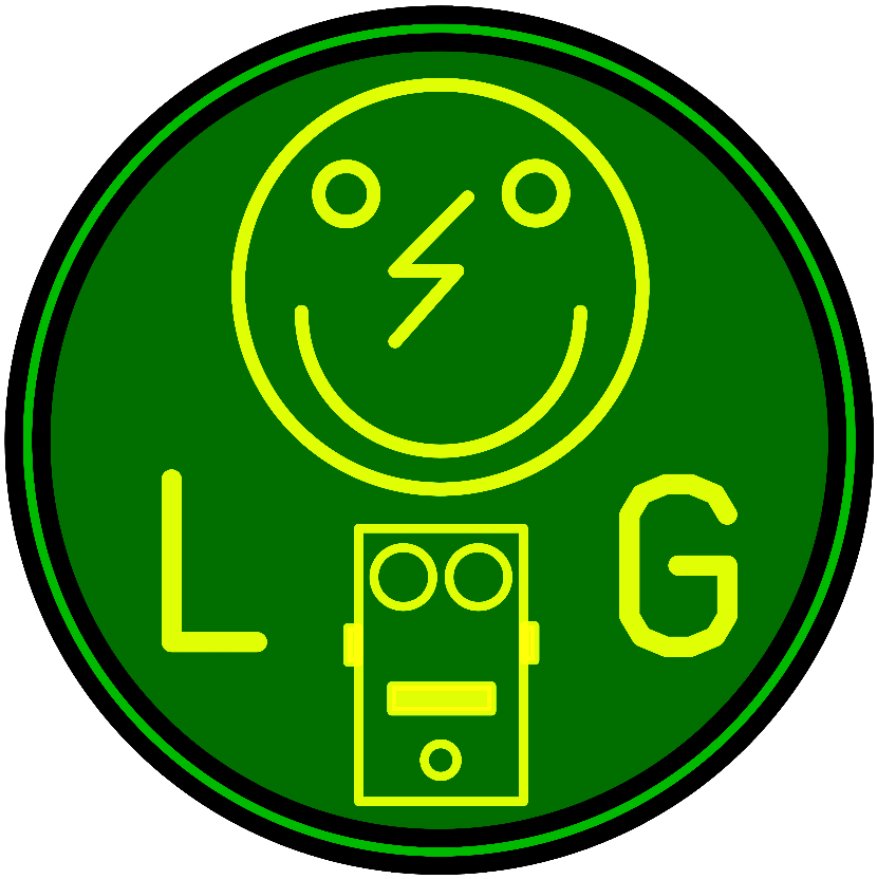
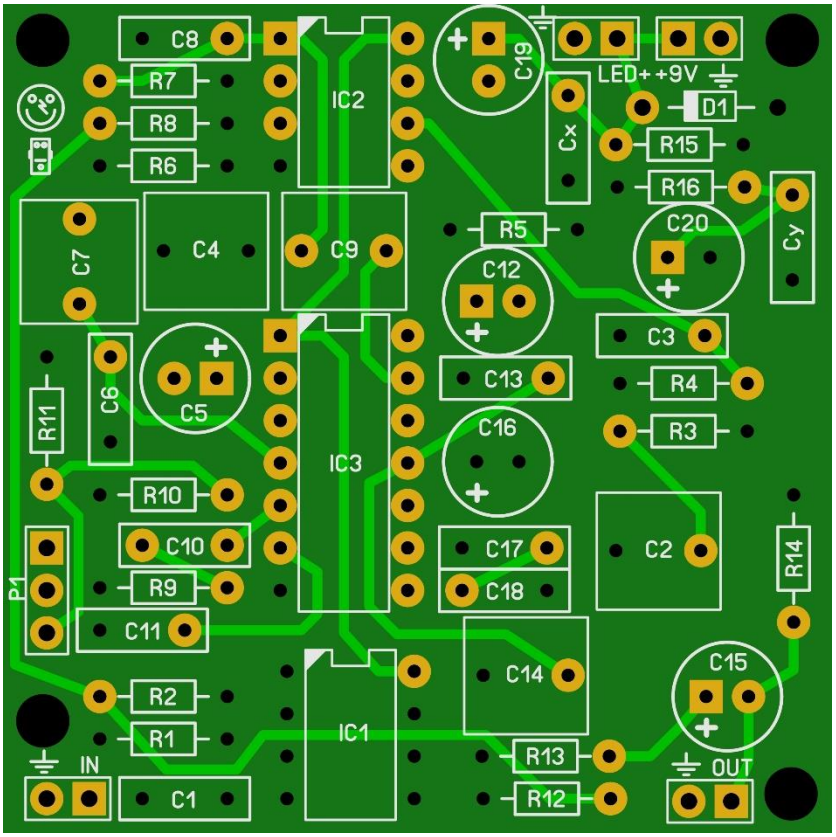


Table of contents

Read this entire manual thoroughly before you start building the effect! There are some available options and you should choose which one you want to incorporate before starting your build.

Last update: 14-1-2018

PCB layout



Dimensions: **50 mm x 50 mm**
1.97 inch x 1.97 inch

Components

Name	Value	Comment	Name	Value	Comment
C1	47n	MKT/SMF	**D1**	1N4001	
C2	1u	MKT/SMF	**IC1**	JRC4558D	
C3	100p	MLCC	**IC2**	JRC4558D	
C4	1u	MKT/SMF	**IC3**	LM1894N	
C5	100u	Electrolyte	**P1**	B1k	Frequency
C6	8n2	MKT/SMF	**R1**	1k	
C7	1u	MKT/SMF	**R2**	510k	
C8	100p	MLCC	**R3**	10k	
C9	1u	MKT/SMF	**R4**	10k	
C10	100n	MKT/SMF	**R5**	4k7	
C11	1n	MKT/SMF	**R6**	10k	
C12	100u	Electrolyte	**R7**	10k	
C13	8n2	MKT/SMF	**R8**	4k7	
C14	1u	MKT/SMF	**R9**	180R	
C15	10u	Electrolyte	**R10**	2k4	
C16	4u7	Electrolyte	**R11**	100R	
C17	47n	MKT/SMF	**R12**	510k	
C18	22n	MKT/SMF	**R13**	470R	
C19	100u	Electrolyte	**R14**	100k	
C20	47u	Electrolyte	**R15**	10k	
Cx	100n	MKT	**R16**	10k	
Cy	100n	MKT			

Build sequence

Soldering this board can be very complicated for some people since the solder pads are very close together. Use a magnifying glass to make the job easier.

The trick to soldering a PCB is to work from small to big components. My building sequence suggestions in this section are based on the parts I used myself. Sometimes some components are smaller (or bigger) so always use your own common sense and change the order accordingly. Usually capacitors can differ a lot in size depending on their rating and value.

Note: Do not blow on your solder in an attempt to cool it down. That can result in a bad join that might corrode! Also take extra care not to short components.

Start by soldering the resistors and diodes. Socket the IC's . Wait with placing the IC's to once you are finished with all soldering and off board wiring!

Now continue by soldering the MLCC, SMF and MKT capacitors and finish with soldering the the Electrolytics.

I suggest you now drill the holes in your enclosure so you can use it during the off board wiring.

Note: Really take some time to determine where to place the pot, switch, jacks and PCB in the enclosure before you start drilling. Measure twice, drill once.

You are almost ready to rock, well… not really. The difficult part starts now.

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

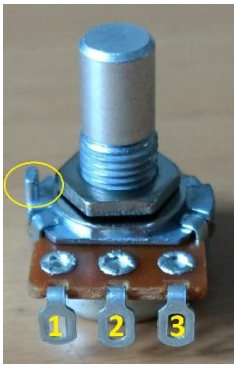
- **1 mono input jack, 1 stereo jack,** or 2 mono jacks if you are not planning on using a battery
- **3PDT footswitch** (9 pins)
- **2,1mm DC jack** (isolated).
- **22 gage stranded hook-up wire.**
- **LED holders.** This enables you to mount the LEDs in the enclosure.
- **LED (3mm or 5mm depending on your taste).** These are the status LEDs
- **Hammond 1590B** case (or similar) in your favorite color.

Off board wiring

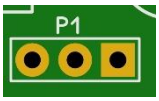
Potentiometers

In the pictures below you see the correct pin numbering of the pots (Alpha 16mm style).
Solder the wires accordingly and it is always a good idea to twist the wires together to create some extra shielding against external noise. The rectangle pad marks the pad for **pin 1**.

You can break off the pin I marked with the yellow circle with a small pair of pliers.

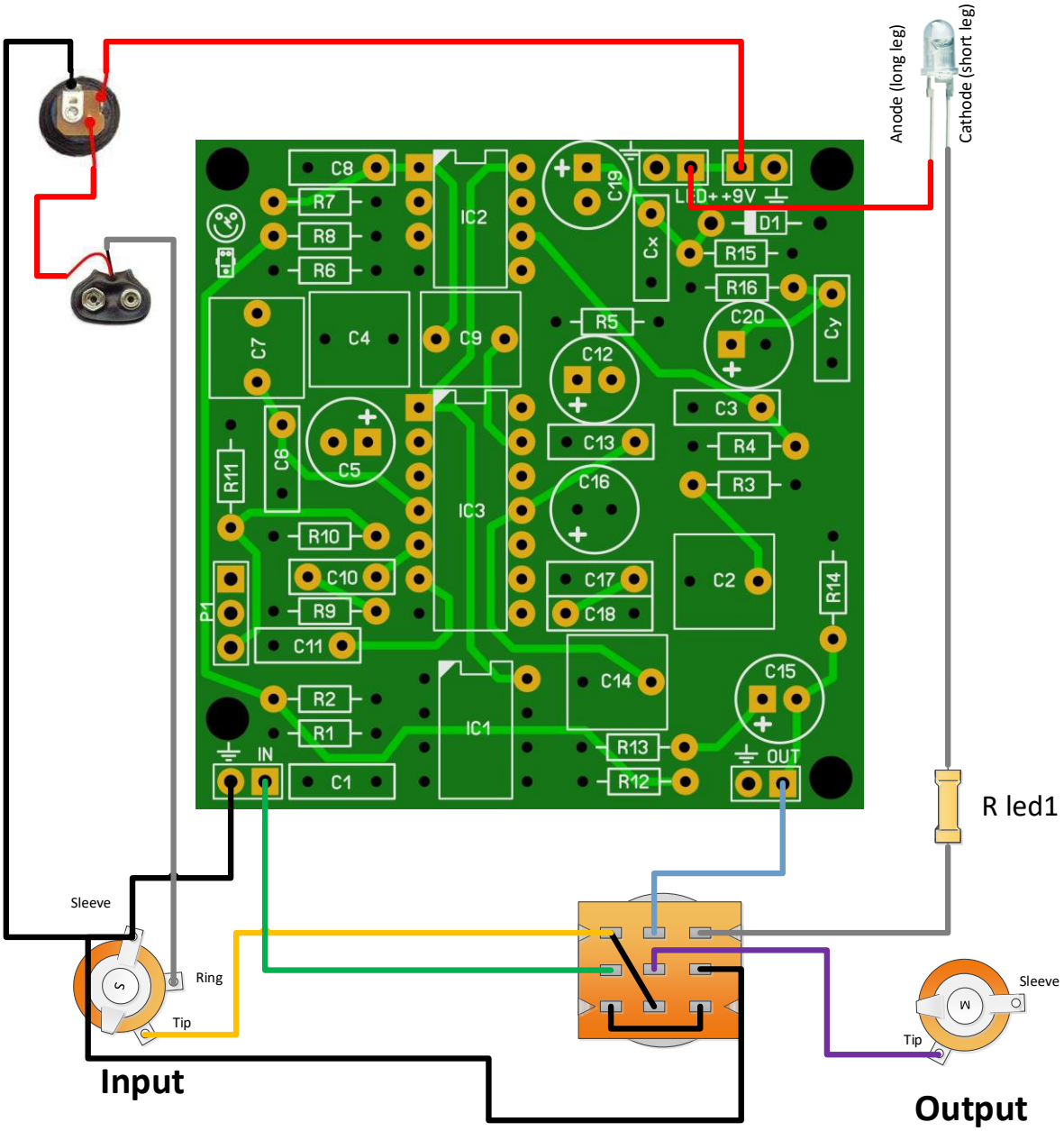


Frequency



3 2 1

Note that **R led1 is 4k7** resistors. You can change these value depending on the type of LED you use but 4k7 is safe enough for almost all LEDs @9V.



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). Pay special attention to the polarity.
- Check that you oriented the capacitors, IC's ,transistors and diodes the right way. SMF, MKT and ceramic capacitors as well as resistors do not need to be oriented. A likely sign of incorrect capacitors and/or orientation is when an effect is sputtering, rumbling or "motorboating".
- Check if you used the correct values of the components. For resistors you can look here: http://www.diyaudioandvideo.com/Electronics/Color/
- Double and triple check your soldering! A loose or cold solder can be really bad for your board.
- Replace the IC and/or transistors, one might be defective. Before doing that first unplug the 9V and wait for 5 seconds.
- Check that you have good/high grade components. A lot of Chinese sourced parts are fakes (especially high end opamps, audio capacitors, vintage diodes and transistors) so be careful that you source your parts from reliable suppliers.

Schematic