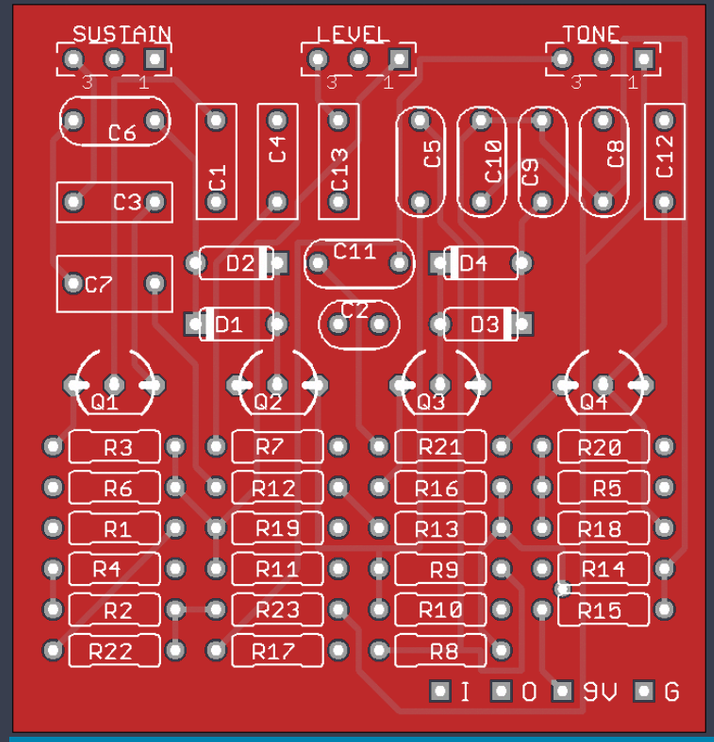
OtalgiaFX

MUFF MASTER



"Classic Fuzz based on the NPN Triangle Variant"

Build Guide
October 2019

www.otalgiafx.co.uk

BILL OF REQUIREMENTS

PART LIST

** Please note that this some of the parts in this list are interchangeable. For example you can use carbon resistors instead of metal film, however it is possible that changing these components might alter the sound slightly.

PART	VALUE	DEVICE TYPE
CAPACITORS		
C1	100nf	5mm Polyester Box, 63v (or higher)
C2	560pf	Ceramic, 50v
C3	100nf	5mm Polyester Box, 63v (or higher)
C4	100nf	5mm Polyester Box, 63v (or higher)
C5	560pf	Ceramic, 50v
C6	47nf	5mm Polyester Box, 63v (or higher)
C7	100nf	5mm Polyester Box, 63v (or higher)
C8	560pf	Ceramic, 50v
C9	47nf	5mm Polyester Box, 63v (or higher)
C10	3n9	5mm Polyester Box, 63v (or higher)
C11	10nf	5mm Polyester Box, 63v (or higher)
C12	100nf	5mm Polyester Box, 63v (or higher)
C13	100nf	5mm Polyester Box, 63v (or higher)
DIODES		
D1-D4	1N4148	Small Signal

BILL OF REQUIREMENTS

PART LIST (CTD)

PART	VALUE	DEVICE TYPE
RESISTORS		
R1	33K	1/4W Through Hole, Metal Film
R2	82K	1/4W Through Hole, Metal Film
R3	100 OHM	1/4W Through Hole, Metal Film
R4	390K	1/4W Through Hole, Metal Film
R5	22K	1/4W Through Hole, Metal Film
R6	1K	1/4W Through Hole, Metal Film
R7	8K2	1/4W Through Hole, Metal Film
R8	82K	1/4W Through Hole, Metal Film
R9	390K	1/4W Through Hole, Metal Film
R10	12K	1/4W Through Hole, Metal Film
R11	100 OHM	1/4W Through Hole, Metal Film
R12	8K2	1/4W Through Hole, Metal Film
R13	82K	1/4W Through Hole, Metal Film
R14	390K	1/4W Through Hole, Metal Film
R15	22K	1/4W Through Hole, Metal Film
R16	100 OHM	1/4W Through Hole, Metal Film
R17	39K	1/4W Through Hole, Metal Film

BILL OF REQUIREMENTS

PART LIST (CTD)

PART	VALUE	DEVICE TYPE
RESISTORS		
R18	390K	1/4W Through Hole, Metal Film
R19	100K	1/4W Through Hole, Metal Film
R20	12K	1/4W Through Hole, Metal Film
R21	2K7	1/4W Through Hole, Metal Film
R22	1M	1/4W Through Hole, Metal Film
R23	39K	1/4W Through Hole, Metal Film
TRANSISTORS		
Q1 - Q4	2N5088	Low noise, NPN
POTENTIOMETERS		
SUSTAIN	B100K	16mm Linear, LUG Terminals
LEVEL	A100K *	16mm Log, LUG Terminals
TONE	B100K	16mm Linear, LUG Terminals
***** Some schematics show the level pot as a B100K instead of an A100K. Both will work but will change the volumes sweep.		

BUILDERS NOTES

In the parts list each component has a component number. This number corresponds to the placement number silk screen printed on the top of the PCB. Components should be mounted on the printed side of the PCB and soldered into place on the underside of the board.

To aid in construction and make soldering easier it is suggested that components are soldered to the board in order of their height profile from low to high, starting with resistors, diodes and then progressing on to larger items such as sockets and capacitors. The potentiometer should be soldered last.

Some items may require correct orientation for the circuit to work correctly as documented below -

Transistors-

The transistors will need to be orientated correct and match the placement image marked on the PCB. If you intend to use transistors that differ from the build list then please be aware than the Collector, Base and Emitter legs may be in a different order. The pinout legs of different transistors can be found by referring to their technical data sheets on the Web.

It is also worth noting that transistors are susceptible to heat damage so take care when soldering. Alternatively use transistor sockets and insert the transistors after the sockets have been soldered into place.

Resistors -

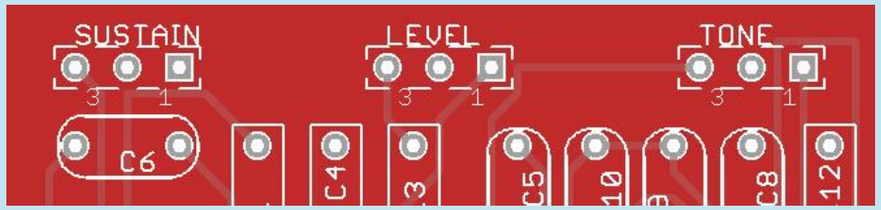
Resistors are not polarised so can be mounted either way around.

BUILDERS NOTES (CTD)

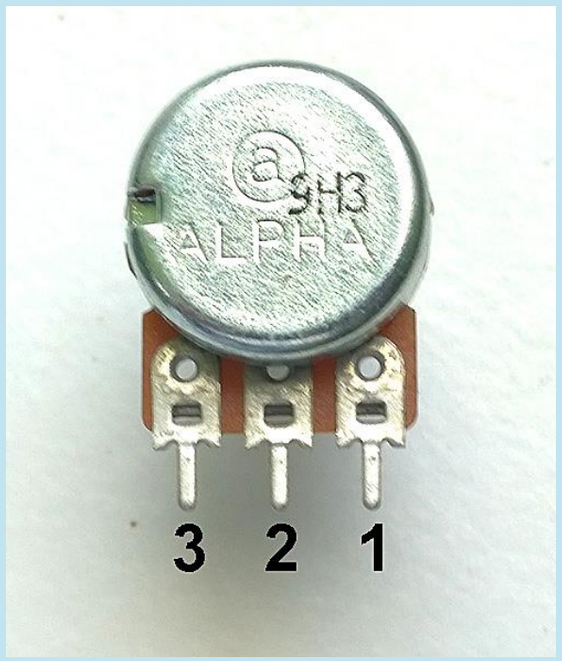
Potentiometers -

The board has been designed so that the Sustain, Level & Tone Potentiometers are connected by wire to the top of the PCB.

The connections are ordered 3,2,1 (see pic below). The middle pin is not numbered on the PCB, this is connection 2.



Each pad is wired to the corresponding pin on the potentiometer. The potentiometer pins are numbered as follows (please note that the picture is taken from the back of the potentiometer)



BUILDERS NOTES (CTD)

Diodes -

A diode has 2 sides - a Cathode and Anode. The Cathode side of a diode has a circular band printed around the body of the component to aid identification. The PCB is printed to also showing this this marking to aid correct orientation. Diodes are sensitive to heat so take care when handling / soldering, or maybe consider use of sockets for mounting.

Non Polarised Capacitors-

Non-Polarised capacitors can be mounted either way around.

TESTING THE CIRCUIT

Before proceeding to the off board wiring of switches and LED's it is advised to test that the circuit is working as expected. To do this you need to solder four wires from the connectors on the PCB, marked I,O,9V & G.

The connectors are sized to accommodate AWG24 Single Strand Wire. If using this wire be careful not over bend it as it may snap. If you are not comfortable with handling single core wire then stranded may also be used.

To test your circuit -

1. Unplug the power supply
2. Plug a mono guitar cable into your guitar and a second mono guitar cable into your amplifier
3. Connect the wire from I (This is the input wire) to the tip of your guitar cable
4. Connect the wire from O (This is the output wire) to tip of your amp cable
5. Connect the wire from 9V (This is the Voltage wire) to the +9V of your power supply
6. Connect the wire from G (This is the Ground wire) to the sleeve of your guitar cable, the sleeve of the amp cable and to the Ground wire of your power supply.
7. Plug in the power supply and test the circuit is working. If it is then you can proceed to off board wiring.

The easiest way to perform off board wiring is to use a 3PDT switch daughterboard -

https://www.otalgiafx.co.uk/wp-content/uploads/2017/09/3PDT-Instructions.pdf