Voodoo Fuzz

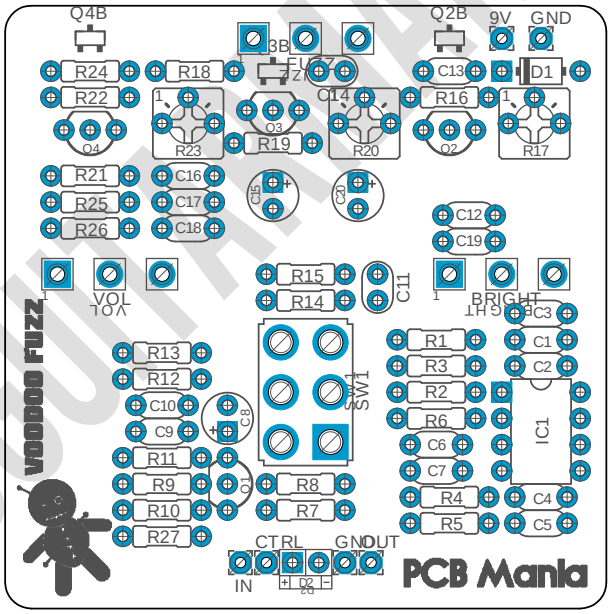
Based on:
Wampler's Velvet Fuzz
Effect type:
Fuzz-plexi emulator
Build difficult:
Average

Amount of parts:
Average, total 58 components
Technology:
LM-386 & 2N5089 fuzz in front of a J201 Plexi-emulator
Power consumption:
23mA (9v)

Enclosure type:
125B
Get your board at:
Voodoo Fuzz
Get your kit at:
Das Musikding (Europe)

Project overview:
The Voodoo Fuzz is a unique circuit that combines two different selectable fuzz tones and a Plexi amp emulation. The toggle selects between a LM386 (Tight) circuit, and a 2N5089 (Big) circuit. These then push a Plexi Drive circuit that gives the Marshall amp emulation, just like many of the masters of the fuzz tone have done through the years.

The board has been laid out for through hole and SMD J201 (choose either of them). Trimmers to help bias the J201 JFETs had been included over the original layout.



Real measures are:

58.40mm width x 58.40mm height

2.30" width x 2.30" height

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Introduction

Not just another fuzz, the Voodoo Fuzz combines two selectable classic fuzz with the sound of an Plexi-drive stack to give you a massive tone.

Including a fuzz selector switch that could be wired as an standard DPDT toggle or as stomp switch for more versatility, and select in between the Tight Fuzz (LM386) and the Big Fuzz(2N5089).

The "tight" setting gives you big fuzz-like distortion. When flipped to the "big" setting, the Velvet Fuzz delivers classic fuzz tone with loads of compression. Rolling back your guitar's volume cleans up the sound for a fat rhythm tone.

If you're looking for that fuzz-into-a-screaming-stack sound, the iconic tone of guitarist such as David Gilmour, Jimi Hendrix, and many others, then grab our Voodoo Fuzz board and start soldering!

This version includes three trimmers to bias the JFET at taste, or just to place a 15k resistor instead of the trimmers just as the original. Also features pads to use standard through hole J201 or the more available and reliable SMD version.

Controls

The Pineapple drive has the same controls as most overdrive or distortion effects, but including some interesting and useful improvements:

- Volume: This controls the output level of the pedal. It works just like the volume knob on your guitar or your amp. As you raise the FUZZ knob, and depending on how you adjust the BRIGHTNESS control and switches, you may need to raise or lower them to have the same output level.
- Fuzz: Controls the amount of fuzz that is heard. As usual the amount of fuzz achieved and the style of the fuzz depends on where the switch is
- Brightness – This adjusts between a much darker, bassier sound at the fully counterclockwise position, to a very highs-forward, present sound fully clockwise.
- Big / Tight Switch: The beauty of this pedal is the options you get from this switch. Select which of the two fuzz circuits to place in front of the Plexi section.

Bill of materials

Resistors	
R1	1k
R2	1k
R3	1m
R4	3k3
R5	2k2
R6	1m
R7	1m
R8	100k
R9	1k
R10	20k
R11	10k
R12	82k
R13	20k
R14	1k
R15	1m
R16	1k
R18	1k
R19	1k
R21	10k
R22	1k
R24	100k
R25	15k
R26	15k
R27	4k7

Capacitors	
C1	220n
C2	1n
C3	100n
C4	220n
C5	100n
C6	100pf
C7	470n
C8	47uf
C9	1uf
C10	4n7
C11	100pf
C12	100n
C13	2n2
C14	100p
C15	47uf
C16	22n
C17	1uf
C18	2.2n
C19	10n
C20	220U

Potentiometers	
FUZZ	500k A
BRIGHT	25K B
VOL	100K A
R17	50k trimpot
R20	50k trimpot
R23	50k trimpot

Semiconductors	
Q1	2N5089
Q2	J201
Q3	J201
Q4	J201
IC1	LM386
D1	1n5817
D2	3mm led

Switches	
SW1	Dpdt ON-ON

Shopping list

Resistors		
Qty	Value	Parts
2	100k	R8, R24
2	15k	R25, R26
8	1k	R1, R2, R9, R14, R16, R18, R19, R22
4	1m	R3, R6, R7, R15
2	10k	R11, R21
2	20k	R10, R13
1	2k2	R5
1	3k3	R4
1	4k7	R27
1	82k	R12

Capacitors		
Qty	Value	Parts
1	2n2	C13
1	470n	C7
1	4n7	C10
2	220n	C1, C4
1	22n	C16
1	1n	C2
2	1uf tantalum	C9, C17
1	2.2n	C18
3	100n	C3, C5, C12
3	100pf	C6, C11, C14
1	10n	C19

Semiconductors		
Qty	Value	Parts
1	LM386	IC1
3	J201	Q2, Q3, Q4
1	3mmled	D2
1	2N5089	Q1
1	1n5817	D1

Potentiometers		
Qty	Value	Parts
1	25K B	BRIGHT
1	100K A	VOL
1	500K A	FUZZ
3	50k trimpot	R17, R20, R23

Switches		
Qty	Value	Parts
1	DPDT ON-ON	SW1

Electrolytics		
Qty	Value	Parts
2	47uf	C8, C15
1	220U	C20

Components Recommendations

For this project is a must to use **JFET J201*** from a trusted source such as Das Musikding, Small bear, and many other pedal related suppliers. DO NOT trust non verified vendors, as are many counterfeits out there, and they won't work properly on your build.

This board features the possibility of use the SMD (Surface mounted device) J201, as well as the classic format TO-92 (regular transistor) now discontinued, place either the SMD version or the standard one per transistor position.

Always ensure the max tolerance of your **electrolytic capacitors**** is over 25v.

This board has been tested using Film box capacitors for most of the values over 1nf, and ceramics discs for the ones under 1nf. However, high quality components such as Wima's Capacitors and Panasonic's electrolytics can deliver a better performance.

All the resistors used for testing this project are 1/4W Metal Film.

All the pots are Alpha 16mm.

This board features trim pots to bias the J201 Q2, Q3 & Q4, replacing the original 15k resistors. If you don't feel to experimente biasing the transistors, you can always swap the trimmers for a 15k resistor; just place it in between pads 1 and 3.

The BOM and Shopping list are exclusively regarding this project. It doesn't include all the hardware like the 3PDT bypass switch, audio/dc jacks, enclosure, etc.

The **SW1** DPDT could be replaced by a Stomp switch as its featured on some Wampler's versions. Just follow the same pattern for wiring it as the one presented on board.

Build Notes

If this is one of your first projects I recommend you to take a look on our Pedal Building Guide

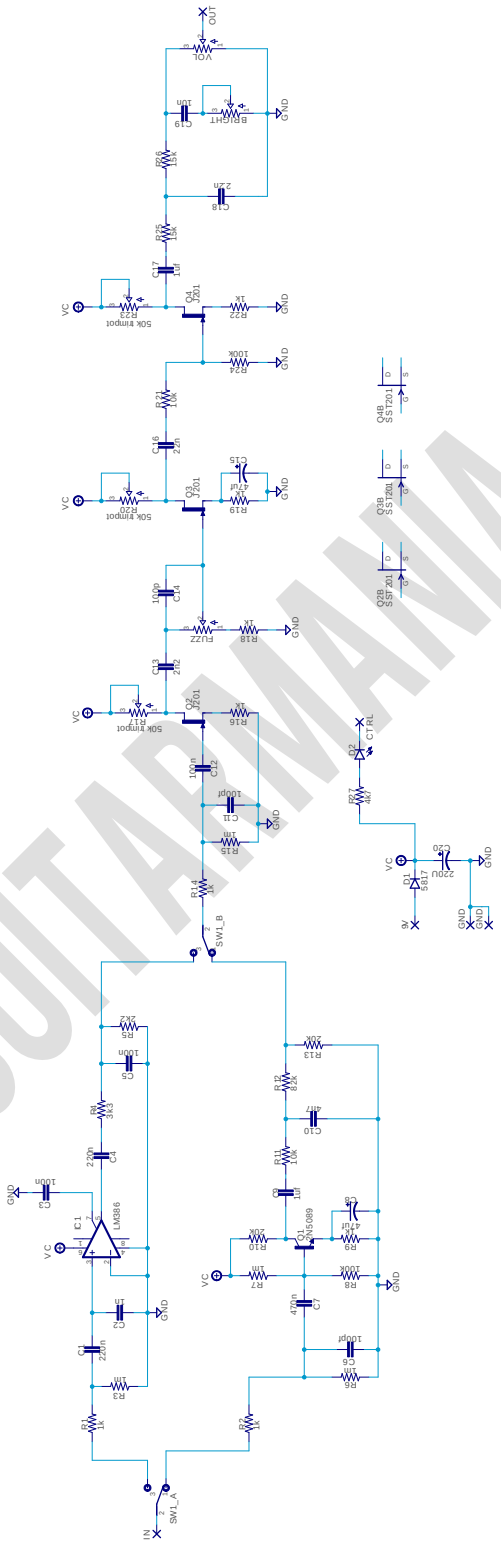
For a successful and tidy build it's recommended the following order:

1. SMD Transistors
2. Resistors & diodes
3. Capacitors, starting with the smaller ones and the ceramic ones.
4. Electrolytic capacitors (always check the polarity)
5. Transistors
6. Wires
7. Potentiometers and switches
8. Off board wiring
9. Transistor bias

Biasing the JFET

To bias correctly the transistors you must plug your finished build into the power supply first. With your tester on voltage mode (V20) plug the negative tip into the ground of the project, some alligators could be really helpful. With the positive tip touch the Drain leg of your transistor and it should appear the voltage on your tester screen. Tweak the trim pot till you read 4.5v if you are using a 9v power supply. Do the fine adjustment by ear, in order to bias at your own personal taste.

Schematic

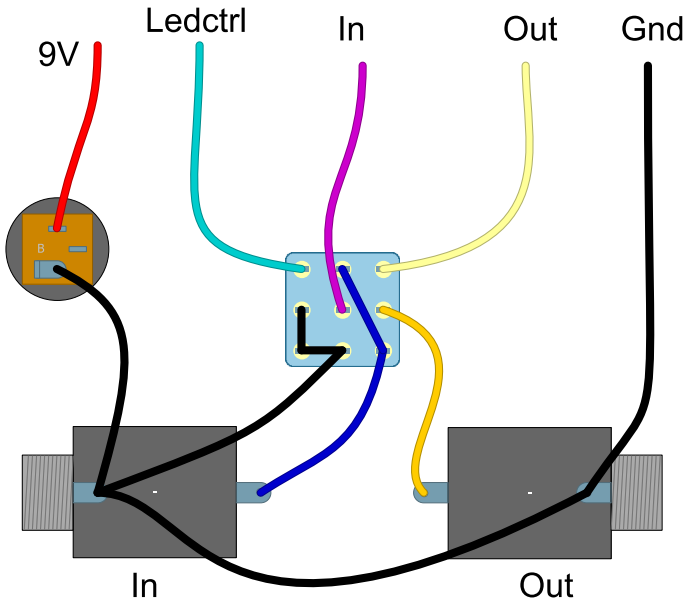


Wiring Diagram

All our projects include a free 3PDT Board to make the wiring easier and tidier. Also all of our PCBs feature the status LED on board.

The pad named “Ctrl” or “LED” is the one that controls the status of the led, wire it to the “LED”pad on the 3PDT board, or in control slug of your 3PDT.

You can take a look on the following diagram to understand the general connections. For further information check our Pedal Wiring guide.



Drill Template

This Project has been planned to fit into a 125B enclosure type (122x67x35mm approx.)

Check the Attached “Drilling templates” to drill the box properly. The files are on Scale 1:1, ready to print in a A4 page.

Licensing and Usage

We really appreciate your trust and support buying this PCB, as well as your will to dive into the DIY electronics world. That's why for us is really important that you can make this project work properly and to enjoy not only the building process, but also to experiment and play with it on your rig.

We try to reply to every question we receive on our email or in our social media, but we try to encourage all our customers to join our PCB Guitar Mania – Builders Grup on Facebook, in order to post all your doubts, issues, suggestions or request, as well to share your builds and have some feedback from us and other fellow builders!

All of our projects have been tested following this same guide on their standard configurations. Although, not all of the variations and mods have necessarily been tested. These are suggestions based on the schematic analysis, and on the experiences and opinions of others. Feel free to share with us your opinions and suggestions regarding the mods our your own personal experimentation.

These boards may be used for commercial endeavors in any quantity unless specifically noted. No attribution is necessary, though accreditation or a link back is always greatly appreciated.

If you are a builder planning to make your own run of pedals we also offer the service of custom made boards with your brand and logo, design according your specifications.

The only usage restrictions are that, first, you cannot resell the PCB as part of a kit without prior arrangement with us, and second, you cannot scratch off the silk screen, or other way of trying to hide our logos and the source of the PCBs. Like its written above, if you want to have your own designs, with your brand and logo we could certainly reach an agreement.

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