Master Fuzz

Based on:
Maestro FZ1

Number of parts:
Average, total 51 components

Enclosure type:
125b

Effect type:
Fuzz / Distortion

Technology:
Silicon NPN transistors

Get your board at:
Master Fuzz

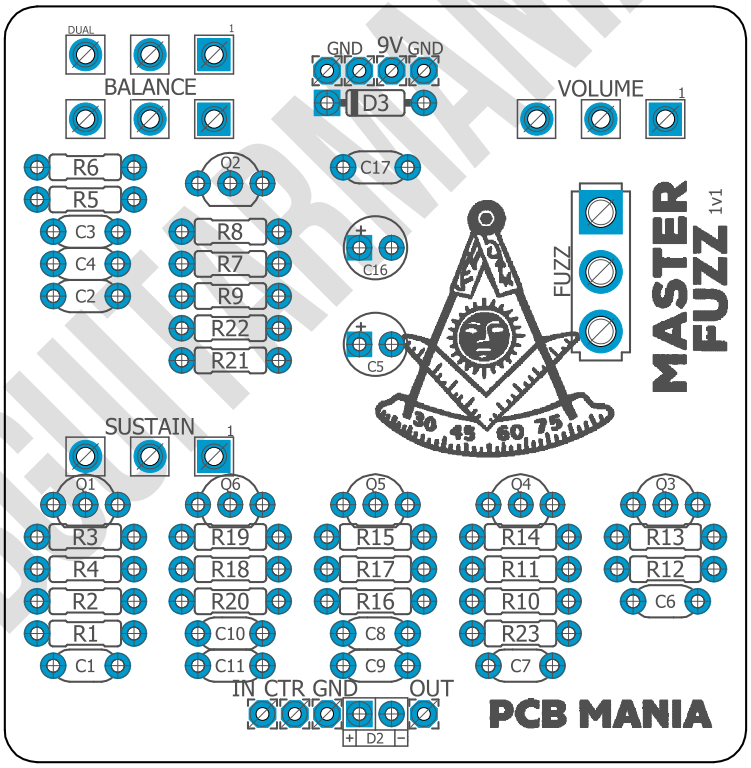
Build difficult:
Intermediate

Power consumption:
9V

Get your kit at:
Das Musikding (Europe)

Project overview:

Inspired by the classic Maestro FZ-1 Fuzz-Tone, the first widely marketed fuzz distortion guitar and bass effect. This unique, versatile fuzz circuit from the early 60s is the perfect choice if you're looking for something different than the usual Fuzz Face or Big Muff. Are you craving a classic with a wide range of tones? This is the right pedal for you!



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Introduction

In 1962 Gibson introduced the first mass-market fuzz pedal: the Maestro FZ-1 Fuzz-Tone, a dirty, saturated pedal that forever changed the history of music. Before that, the mainstream music listener had rarely even heard guitar saturation beyond a dimed tube amplifier.

Designed by recording engineers Glenn Snoddy and Revis V. Hobbs, the first version had a three-germanium transistor circuit that later would be replaced by 2N2614 or 2N2613 transistors.

It wasn't until 1965 and the release of the Rolling Stones' hit *(I Can't Get No) Satisfaction* that mainstream audiences began to experience fuzz in full effect. The famous riff launched the Maestro FZ-1 sales into the stratosphere and started the fuzzy dominoes effect. The plethora of fuzz pedals that we know today exists due to this iconic pedal!

Controls

Potentiometers

- Sustain
- Volume

Switches

- Fuzz

Bill of materials

Resistors	
Part	**Value**
R1	1m
R2	47k
R3	15k
R4	100k
R5	33k
R6	33k
R7	470k
R8	1k5
R9	1m
R10	470k
R11	220k
R12	220k
R13	100k
R14	68k
R15	100k
R16	1m
R17	47k
R18	150k
R19	470r
R20	1m5
R21	680r
R22	10k
R23	4k7

Capacitors	
Part	**Value**
C1	100n
C2	47n
C3	220n
C4	47n
C6	680p
C7	680p
C8	5n6
C9	22n
C10	22n
C11	10n
C17	100n

Electrolytics Capacitors	
Part	**Value**
C5	1u
C16	220u

Potentiometers	
Part	**Value**
SUSTAIN	100K B
VOLUME	100K A
BALANCE	50K B Dual-gang

Transistors	
Part	**Value**
Q1	2N5088
Q2	2N5088
Q3	2N5088
Q4	2N5088
Q5	2N5088
Q6	2N5088

Switches	
Part	**Value**
-	3PDT Stomp foot
Fuzz	SPDT On/On

Diodes	
Part	**Value**
D2	3mm Red LED
D3	1n5817

Shopping list

Resistors		
Qty	**Value**	**Parts**
3	100k	R4, R13, R15
1	150k	R18
1	15k	R3
1	1k5	R8
3	1m	R1, R9, R16
1	1m5	R20
2	220k	R11, R12
2	33k	R5, R6
2	470k	R7, R10
1	470r	R19
2	47k	R2, R17
1	4k7	R23
1	680r	R21
1	68k	R14
1	10k	R22

Capacitors		
Qty	**Value**	**Parts**
2	100n	C1, C17
1	10n	C11
1	220n	C3
2	22n	C9, C10
2	47n	C2, C4
1	5n6	C8
2	680p	C6, C7

Electrolytics Capacitors		
Qty	**Value**	**Parts**
1	1u	C5
1	220u	C16

Potentiometers		
Qty	**Value**	**Parts**
1	100K A	VOLUME
1	100K B	SUSTAIN
1	50K B Dual-gang	BALANCE

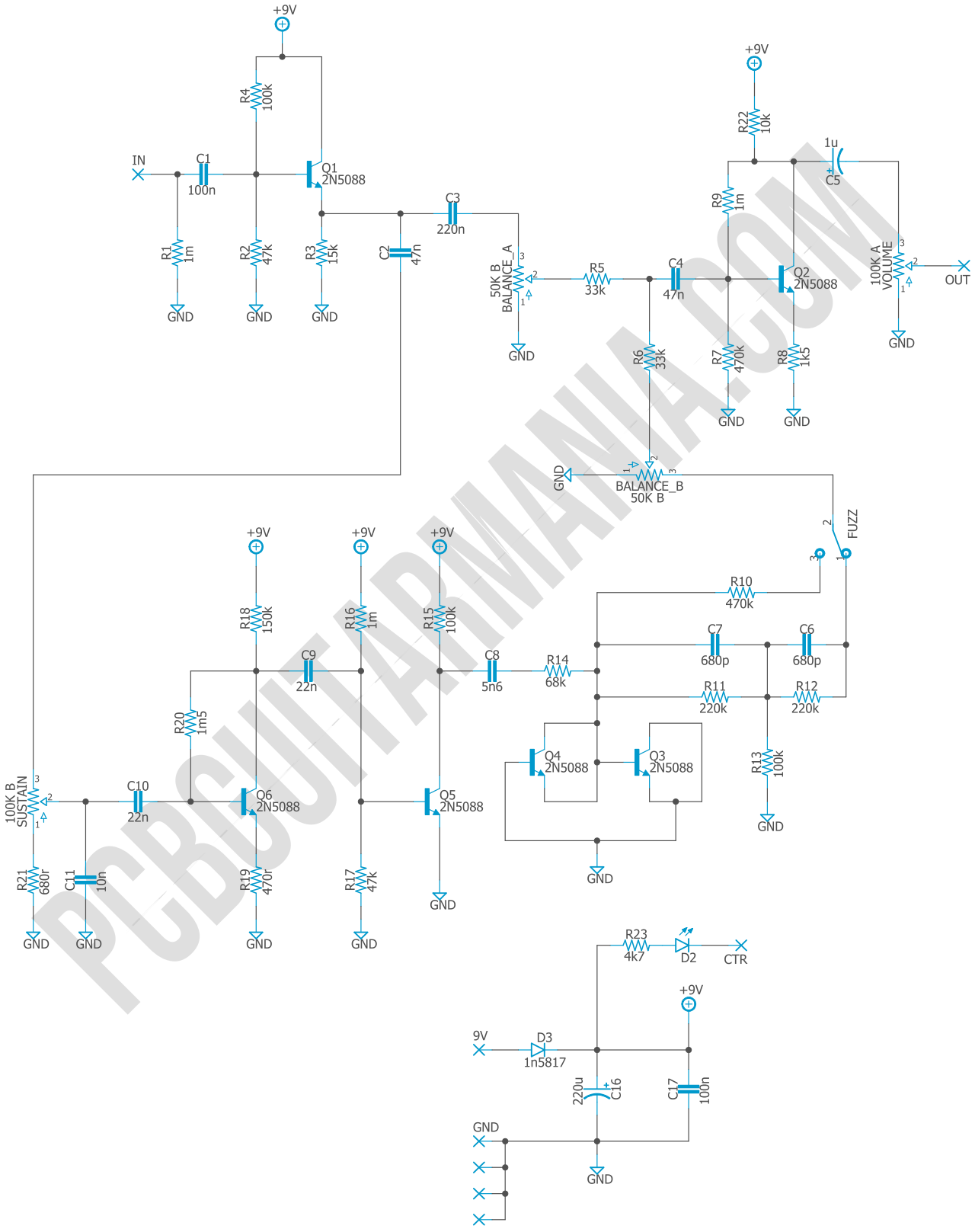
Transistors		
Qty	**Value**	**Parts**
6	2N5088	Q1, Q2, Q3, Q4, Q5, Q6

Switches		
Qty	**Value**	**Parts**
1	3PDT Stomp foot	-
1	SPDT On/On	Fuzz

Diodes		
Qty	**Value**	**Parts**
1	1n5817	D3
1	3mm Red LED	D2

Jacks		
Qty	**Value**	**Parts**
1	DC JACK	-
2	AUDIO JACK	-

Schematic



Components Recommendations

As many people like to experiment with some pedals with higher voltage, always ensure your **electrolytic capacitors'** max tolerance is over 25v.

This board has been tested using Film box capacitors for most of the values over 1nf and ceramics discs for those 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.

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

Build Notes

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

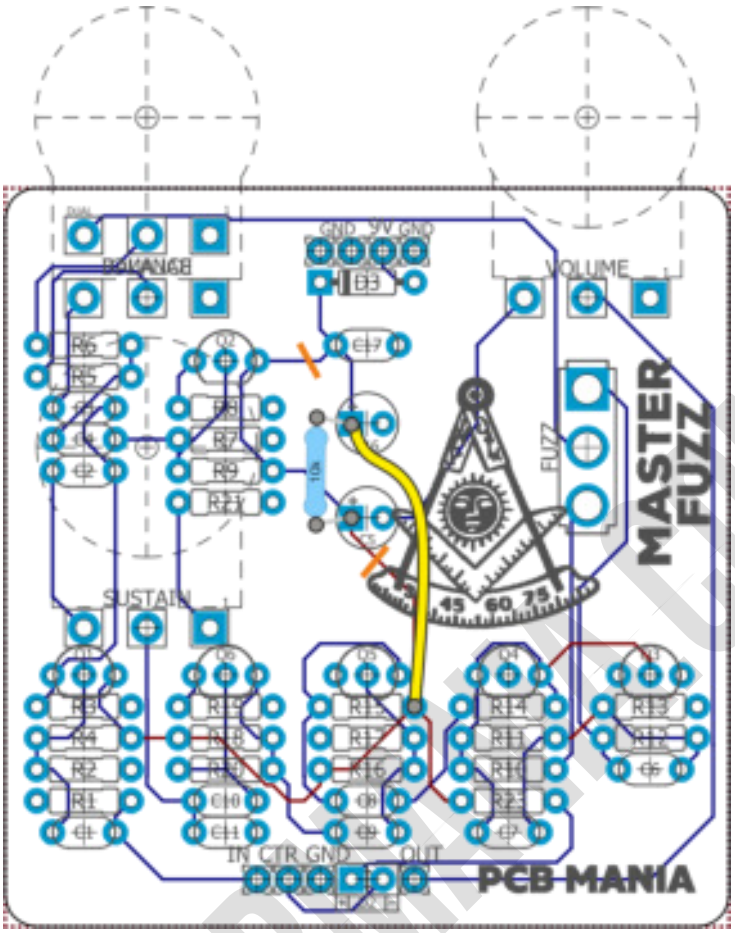
For a successful and tidy build, it's recommended the following order:

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

IMPORTANT:

The first version had one missing resistor. We solved the issue on version 1v1.
However, if you purchased the Master Fuzz and somehow received the original version, please get in touch with us, and we will ship you the updated version for free.
It's still possible to make the first version work by making the following modifications:

1. Cut the traces marked with an orange stripe on the solder side (blue trace) and component side (red trace)
2. Place a 10k resistor as indicated on the graphic, connecting both electrolytic capacitors. We recommend placing it on the solder side.
3. Place a wire connecting the positive side of C6 with the indicated leg of R15. We also recommend doing this on the solder side.



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 the control slug of your 3PDT.

This board has been designed to match our EZ 3PDT PCB; check it here to access our Pedal Wiring Guide.

Drill Template

This Project has been planned to fit into a 125b enclosure type.

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

Licensing and Usage

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

We try to reply to every question we receive on our email or our social media. Still, we try to encourage all our customers to join our PCB Guitar Mania – Builders Group on Facebook to post all your doubts, issues, suggestions, or requests, share your builds, and have some feedback from other fellow builders and us!

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

These boards may be used for commercial endeavors in any quantity unless expressly noted. No attribution is necessary, though accreditation or a link back is always much 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 to 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 silkscreen or other way of trying to hide our logos and the source of the PCBs. Like it's written above, if you want to have your designs with your brand and logo, we could undoubtedly reach an agreement.

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