

Death by Fuzz I

Based on:
Death By Audio Fuzz War I™
Effect type:
Silicon Fuzz
Build difficult:
Average

Number of parts:
Average, total 25 components
Technology:
Reverse Beta NPN transistors.
Power consumption:
9V(1mA)

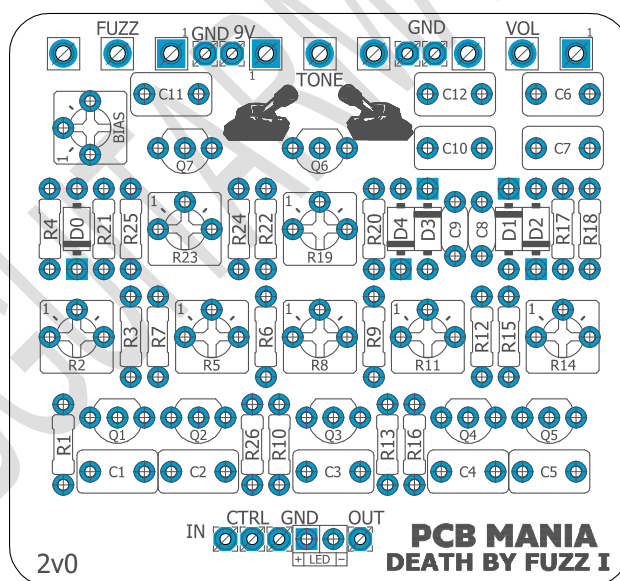
Enclosure type:
125B
Get your board at:
[Death by Fuzz I](#)
Get your kit at:
[Das Musikding \(Europe\)](#)

Project overview:

Based on the first version of the Fuzz War by Death by Audio, a seven-gain stage monster that's nothing related to the current production model Fuzz War II, which has a much Bigger muff-inspired circuit.

We designed the Fuzz control as a regular potentiometer for this project, instead of a trimpot like in the original unit. Also, we included in this project a bias control cause we all know how fun is to experiment with starving fuzzes!

Don't forget to check the additional notes on the Tone stack Section.



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Introduction

When talking about the Fuzz War by Death by Audio TM, there is much controversy in the DIY community and the players. Everybody knows that the Fuzz War II is a super dirty Muff-inspired circuit, but there's not that much information regarding the original version of this saturated and dirty fuzz. That's why we took on our hands the task of replicating this amazing circuit piece by piece, and after analyzing many units and schematics, here we have the final version of dirty saturated fuzz.

Spoiler alert! No effort is spared when giving you the best-sounding projects in your hands. You get the PCB with the matching documents to build our take on the first version that is no longer in production.

By analyzing the schematic, you can tell there's nothing related to a Big Muff but the Tone control. This is a seven-gain stage monster!

Fully saturated fuzz is the main territory of this pedal. So, the answer to the question: "Does it doom?" Hell yeah!

Also great on bass, but we recommend adding a blend board to keep the low end alive.

Controls

- Fuzz
- Volume
- Tone
- Bias (Trimmer)

Bill of materials

Resistors	
Part	Value
R1	1m
R3	120k
R4	390r
R6	180k
R7	390r
R9	120k
R10	390r
R12	180k
R13	390r
R15	180k
R16	390r
R17	33k
R18	33k
R20	27k
R21	180k
R22	390r
R24	180k
R25	390r
R26	4k7

Capacitors	
Part	Value
C1	680n
C2	680n
C3	680n
C4	680n
C5	680n
C6	680n
C7**	220nf
C8***	20n
C9***	120n
C10	680n
C11	680n
C12	680n

Potentiometers	
Part	Value
FUZZ	100K B
TONE****	100K B
VOL	1M B

Trim pots	
Part	Value
BIAS	10k
R2	1m*****
R5	1m*****
R8	1m*****
R11	1m*****
R14	1m*****
R19	1m*****
R23	1m*****

Transistors	
Part	Value
Q1	2N5088
Q2	2N5088
Q3	2N5088
Q4	2N5088
Q5	2N5088
Q6	2N5088
Q7	2N5088

Diodes	
Part	Value
D0	1n5817
D1	1n34a
D2	1n34a
D3	1n34a
D4	1n34a
LED	3mm red LED

Shopping list

Resistors		
Qty	Value	Parts
2	120k	R3, R9
5	180k	R6, R12, R15, R21, R24
1	1m	R1
1	27k	R20
2	33k	R17, R18
7	390r	R4, R7, R10, R13, R16, R22, R25
1	4k7	R26

Capacitors		
Qty	Value	Parts
1	120n	C9****
1	20n	C8***
1	220nf	C7**
9	680n	C1, C2, C3, C4, C5, C6, C10, C11, C12

Potentiometers		
Qty	Value	Parts
2	100K B	FUZZ, TONE

1	1M B	VOL
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Trim pots		
Qty	Value	Parts
1	10k	BIAS
1	1m*****	R2, R5, R8, R11, R14, R19, R23

Transistors		
Qty	Value	Parts
7	2N5088	Q1, Q2, Q3, Q4, Q5, Q6, Q7

Diodes		
Qty	Value	Parts
4	1n34a	D1, D2, D3, D4
1	1n5817	D0
1	3mm red LED	LED

Notes:

C7**

On the original unit this is a 680nf capacitor, however we found the tone control works the best with a 220nf capacitor. Feel free to socket and experiment different values.

C8 & C9

These two capacitors are connected in parallel, and remember the rule, if two capacitors are in parallel add their value to each other, so as 120nf + 20nf = 140nf you can replace them with a single 150nf on either C8 or C9 spot.

1m***** - R2, R5, R8, R11, R14, R19, R23

Originally, the schematic called for 1m resistors but due to the inconsistency in the HFE (DC current gain) of the transistors we are using, we have decided to implement a different solution.

To address the issue and ensure proper biasing for each transistor, we have opted to replace those resistors with 1M trimpots. This modification will allow us to manually adjust the biasing of each transistor, thereby ensuring optimal performance and stability in the circuit.

By utilizing the trimpot, we can individually fine-tune the biasing for every transistor, accommodating their unique characteristics and compensating for any variations in the HFE values. This approach will contribute to a more reliable and consistent performance of our circuit.

Additionally, it is important to note that operating the transistors at voltages higher or lower than the optimal range may result in undesired effects such as gating, hissing, or the introduction of unwanted noises into the circuit. By introducing the 1M trimpot for manual biasing, we can fine-tune the voltages to ensure they remain within the recommended range, minimizing the risk of such issues and preserving the overall integrity of the circuit's performance.

Green Russian Tone Stack mod

Tone**** The stock tone stack is a modified Big muff Tone stack with an extra pair of additional diodes on the low pass filter giving extra darkness and compression on the low pass filter, this works rather as somehow of “Character control” than as a traditional tone stack.

As many people might find this pretty useless here below, we have a suggested mod on how to transform it into a more user-friendly Big muff Tone stack.

Alternative tone Stack	
C7	3n9
C8	10n
C9	empty
R17	22k
R18	20k
D1	empty
D2	empty

Components Recommendations

As many people like to experiment some pedals with higher voltage, 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.

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.

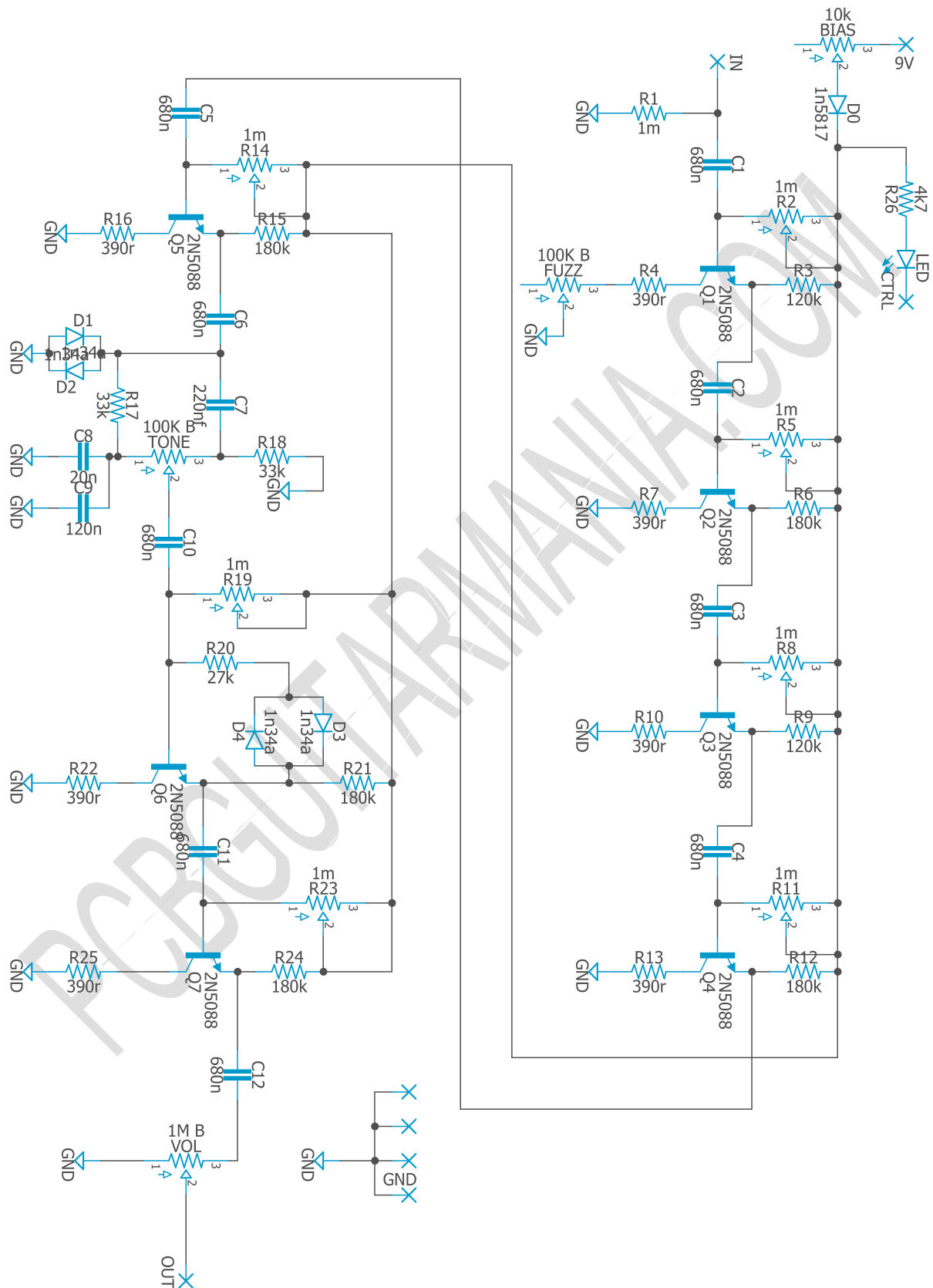
Build Notes

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. 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

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.

This board has been designed to match our EZ 3PDT PCB check it [here](#) to access to 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 in an 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 Group](#) 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 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 it’s written above, if you want to have your own designs, with your brand and logo we could certainly reach an agreement.

Follow us on [Instagram](#) and [Facebook](#) to stay in tune with the latest projects!