

Fuzz Phase

Based on:

Vintage Soviet schematics, redesigned/renewed

Effect type:

Vintage germanium fuzz

Build difficult:

Advanced

Amount of parts:

High, total 101 components

Technology:

Amplifier Transistors

Power consumption:

9V

Enclosure type:

1590bb

Get your board at:

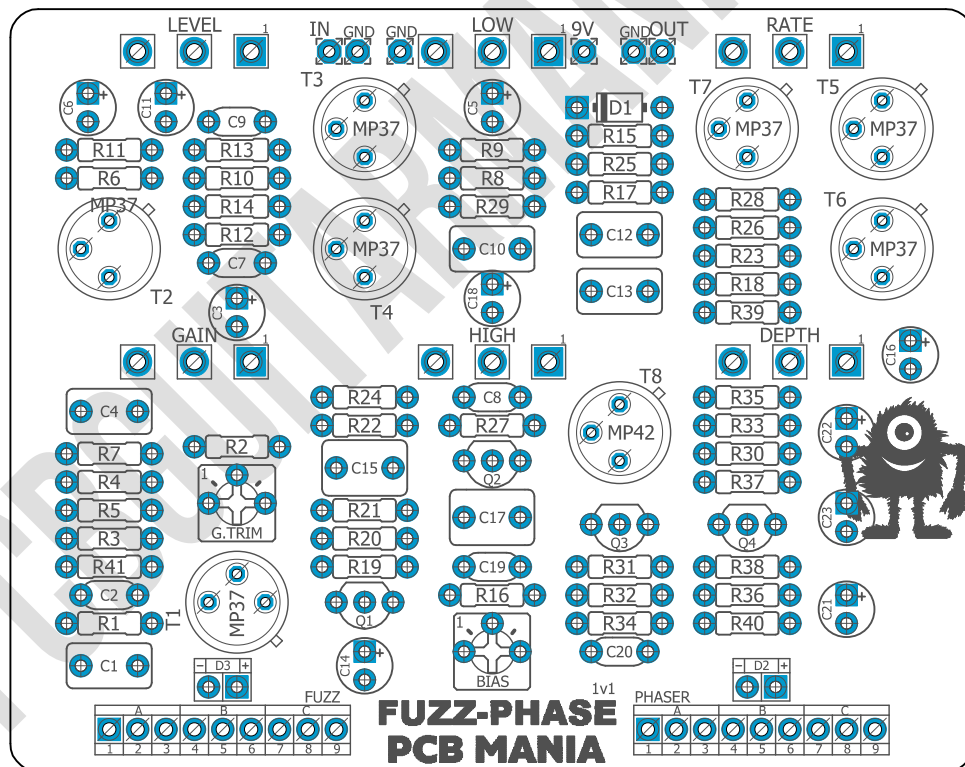
[Fuzz Phase](#)

Get your kit at:

[Das Musikding \(Europe\)](#)

Project overview:

This circuit's origins are different Soviet electronics magazines and books from behind the iron curtain redesigned and renewed by the PCB Guitar Mania team into a unique vintage germanium fuzz with EQ and gentle phasing vibrato effect.



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Introduction

Whether you're a fan of vintage fuzz pedals or looking to add a distinctive flavor of fuzz to your collection, this exclusive design from PCB Guitar Mania is sure to please.

This unique germanium fuzz is based on different schematics from the Soviet era that we crystallized into one circuit and readapted to modern times while maintaining the original flavor of the early soviet phasers. The result is a truly unique pedal that offers a great vintage fuzz sound with EQ and a smooth phasing vibrato effect.

These types of projects take a lot of rework and experimentation until we reach the final result. If you are interested in similar projects, I recommend you to take a look at our [Bulgarian Fuzz.](#)

Controls

Potentiometers

- DEPTH
- GAIN
- HIGH
- LEVEL
- LOW
- RATE

Bill of materials

Resistors	
Part	Value
R1	1m
R2	3k3
R3	18k
R4	11k
R5	330R
R6	47k
R7	10k
R8	6k2
R9	200R
R10	62k
R11	4k7
R12	100R
R13	3k3
R14	330R
R15	51k
R16	1M
R17	180k
R18	24k
R19	51k
R20	51k
R21	560R
R22	560R
R23	4k7
R24	3M
R25	15k
R26	3k3
R27	1M
R28	24k
R29	33k
R30	510k
R31	510k
R32	510k

R33	3k
R34	24k
R35	220R
R36	330k
R37	5k6
R38	330R
R39	910R
R40	6k8
R41	6k8

Capacitors	
Part	Value
C1	330n
C2	470p
C4	470n
C7	3n3
C8	10n
C9	15n
C10	470n
C12	330n
C13	330n
C15	1u
C17	1u
C19	100n
C20	220n

Electrolytic Capacitors	
Part	Value
C3	10u
C5	2u2
C6	10u
C11	10u
C14	2u2

C16	4u7
C18	4u7
C21	4u7
C22	100u
C23	2u2

Potentiometers	
Part	Value
DEPTH	B50k
GAIN	B1k
HIGH	B220k
LEVEL	A50k
LOW	B220k
RATE	B50k

Trim pots	
Part	Value
BIAS	100k
G.TRIM	220k

Transistors	
Part	Value
Q1	2N5089
Q2	J177
Q3	2N5089
Q4	2N5089

Diodes	
Part	Value
D1	1N5817
D2	3mm LED
D3	3mm LED

Shopping list

Resistors		
Qty	Value	Parts
1	100R	R12
1	10k	R7
1	11k	R4
1	15k	R25
1	180k	R17
1	18k	R3
2	1M	R16, R27
1	1m	R1
1	200R	R9
1	220R	R35
3	24k	R18, R28, R34
3	330R	R14, R38, R5
1	330k	R36
1	33k	R29
1	3M	R24
1	3k	R33
3	3k3	R2, R13, R26
1	47k	R6
2	4k7	R11, R23
3	510k	R30, R31, R32
3	51k	R15, R19, R20
2	560R	R21, R22
1	5k6	R37
1	62k	R10
1	6k2	R8
2	6k8	R40, R41
1	910R	R39

Capacitors		
Qty	Value	Parts
1	100n	C19
1	10n	C8
1	15n	C9
2	1u	C15, C17

1	220n	C20
3	330n	C1, C12, C13
1	3n3	C7
2	470n	C4, C10
1	470p	C2

Electrolytic Capacitors		
Qty	Value	Parts
1	100u	C22
3	10u	C3, C6, C11
3	2u2	C5, C14, C23
3	4u7	C16, C18, C21

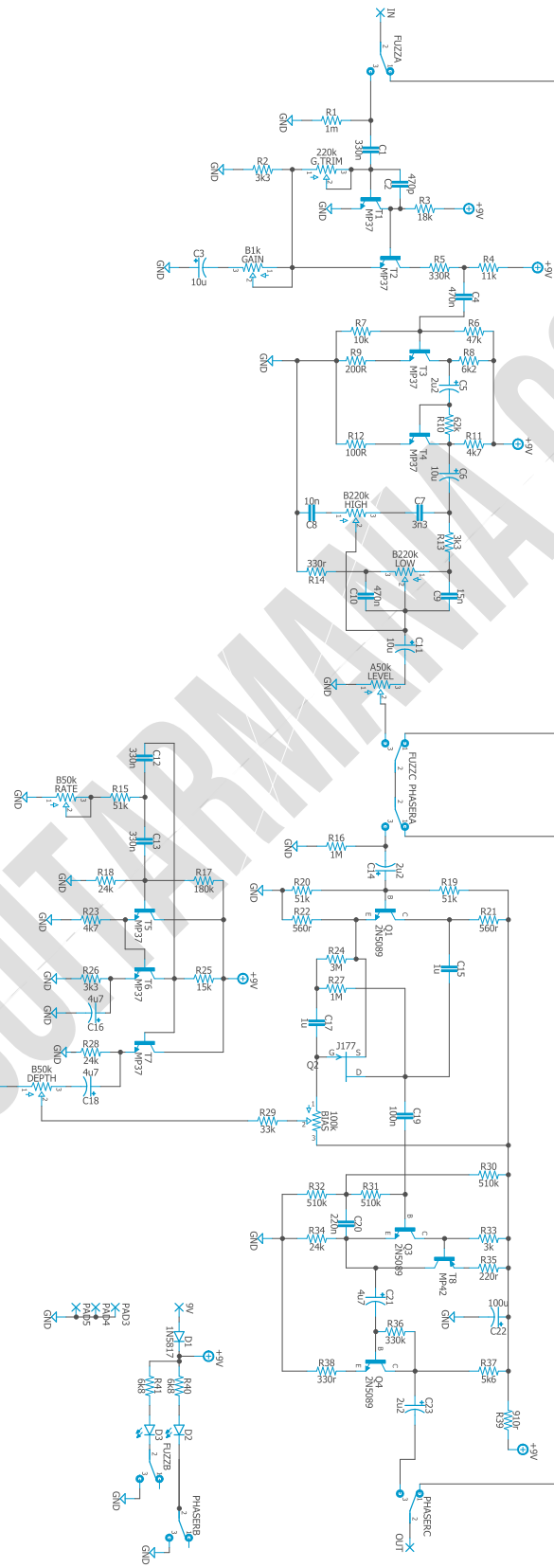
Potentiometers		
Qty	Value	Parts
1	A50k	LEVEL
1	B1k	GAIN
2	B220k	HIGH, LOW
2	B50k	DEPTH, RATE

Trim pots		
Qty	Value	Parts
1	100k	BIAS
1	220k	G.TRIM

Transistors		
Qty	Value	Parts
3	2N5089	Q1, Q3, Q4
1	J177	Q2

Diodes		
Qty	Value	Parts
1	1N5817	D1
2	3mm LED	D2, D3

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

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 1590bb 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.

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