Bunker 33

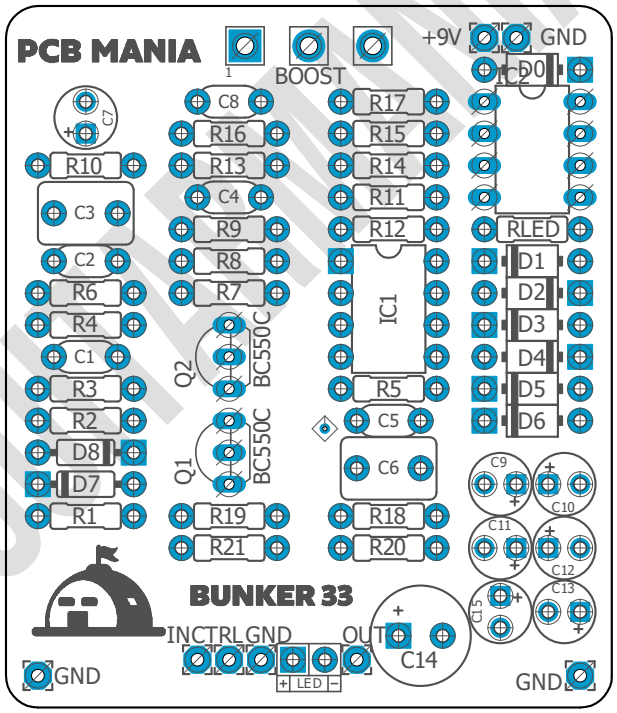
Based on:
Fortin 33
Effect type:
Booster
Build difficult:
Average

Amount of parts:
Average, total 52 components
Technology:
OpAmp + Silicon transistors + Charge pump
Power consumption:
9V

Enclosure type:
125b
Get your board at:
Bunker 33
Get your kit at:
Das Musikding (Europe)

Project overview:

Based on Fortin 33, this clean boost delivers +22db of clean gain boost to drive your dirt channel into a djent metal machine without coloring your tone! Includes an internal charge pump to give you all the extra headroom you need.



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Introduction

The Bunker 33 is based around the Fortin 33 ™ a boost that makes every amp a metal wrecking ball. With its massive build in charge pump it provides 22db of extra clean headroom to make sure your guitar signal just hits the amp way harder to unlock extra gain from your amp without colouring its overall tone. Because some amps can't handle that much gain without getting muddy there is a fixed high pass to roll of some lower frequency's to make sure your guitar tone stays where it has to be in a band situation. Al together gives you the signature boost of Fredrik Thordendal from Meshuggah.

Only thing we left out compared to the original unit is the separate jack that Switches your amps channel when engaging the pedal to avoid making this project way more expensive to build and harder to drill.

It's anyways fairly big for a boost and the channel switch from the original is not compatible with all amps. The guys that want features like this usually have a Switcher anyways. Have fun building.

Make sure your electrolytic capacitors are rated for 35v or more!

Controls

- Boost

Bill of materials

Resistors	
Part	**Value**
R1	1M
R2	22K
R3	4K7
R4	1M
R5	100K
R6	220K
R7	820R
R8	1K8
R9	220R
R10	3K9
R11	11K
R12	10K
R13	120R
R14	47R
R15	2K2
R16	4K7
R17	12K
R18	10K
R19	100K
R20	100K
R21	820K
RLED	4K7

Capacitors	
Part	**Value**
C1	47n
C2	100p
C3	1u
C4	100n
C5	47n
C6	470n
C8	10n

Electrolytics Capacitors	
Part	**Value**
C7	4u7
C9	10u **35v min**
C10	10u **35v min**
C11	10u **35v min**
C12	10u **35v min**
C13	10u **35v min**
C14	100u
C15	4u7

Potentiometers	
Part	**Value**
BOOST	A5K

IC	
Part	**Value**
IC1	TL071
IC2	TC1044SCPA

Transistors	
Part	**Value**
Q1	BC550C
Q2	BC550C

Diods	
Part	**Value**
D0	1N5817
D1	1n4001
D2	1n4001
D3	1n4001
D4	1n4001
D5	1n4001
D6	1n4001
D7	1n914
D8	1n914
LED	RED LED 5mm

Shopping list

Resistors		
Qty	**Value**	**Parts**
3	100K	R5, R19, R20
2	10K	R12, R18
1	11K	R11
1	120R	R13
1	12K	R17
1	1K8	R8
2	1M	R1, R4
1	220K	R6
1	220R	R9
1	22K	R2
1	2K2	R15
1	3K9	R10
1	47R	R14
3	4K7	R3, R16, RLED
1	820K	R21
1	820R	R7

Capacitors		
Qty	**Value**	**Parts**
1	100n	C4
1	100p	C2
1	10n	C8
1	1u	C3
1	470n	C6
2	47n	C1, C5

Electrolytics Capacitors		
Qty	**Value**	**Parts**
5	10u **35v min**	C9, C10, C11, C12, C13
2	4u7	C7, C15
1	100u	c14

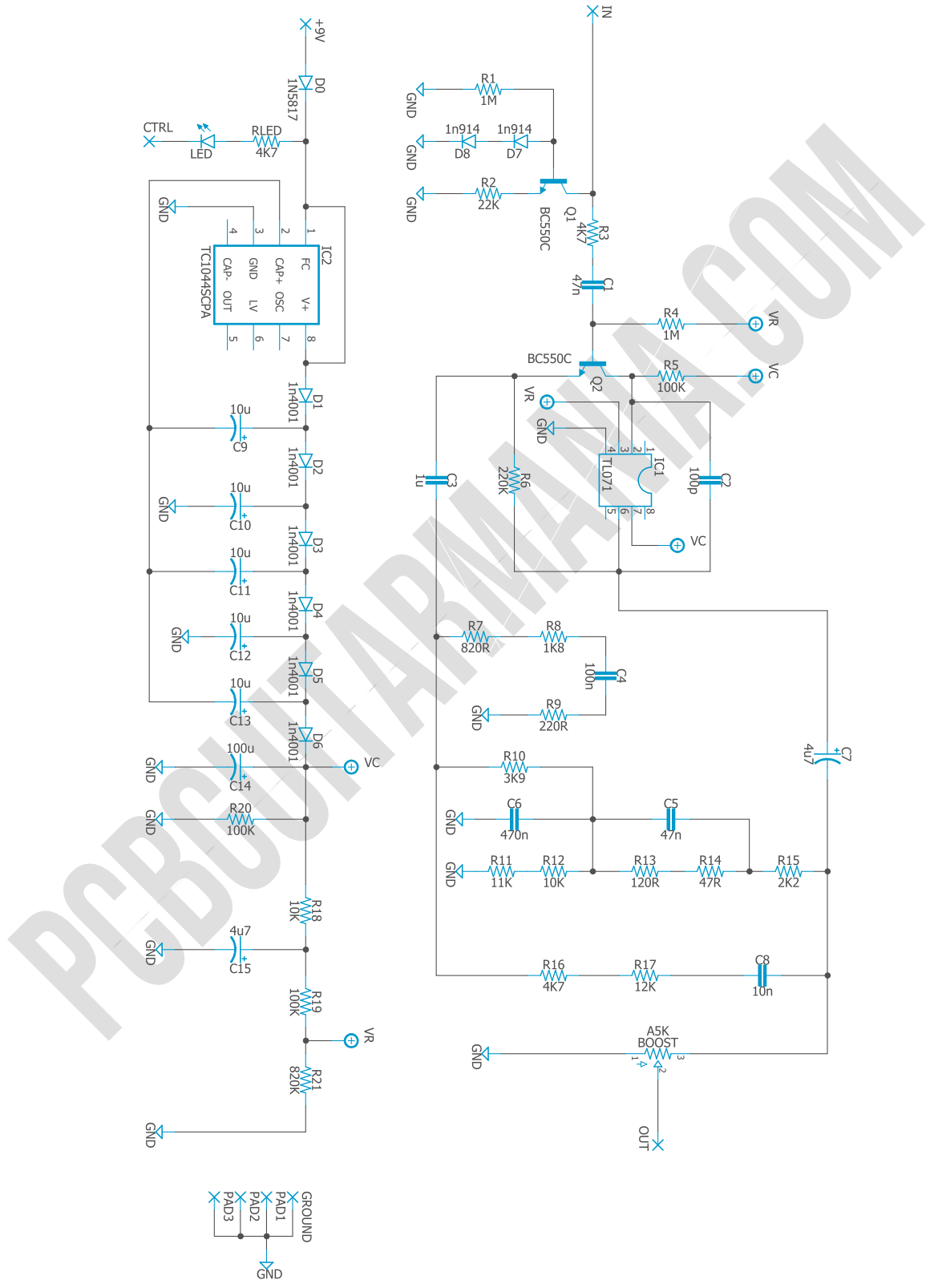
Potentiometers		
Qty	**Value**	**Parts**
1	A5K	BOOST

IC		
Qty	**Value**	**Parts**
1	TC1044SCPA	IC2
1	TL071	IC1

Transistors		
Qty	**Value**	**Parts**
2	BC550C	Q1, Q2

Diodes		
Qty	**Value**	**Parts**
2	1n914	D7, D8
1	RED LED	LED
1	1N5817	D0
6	1n4001	D1, D2, D3, D4, D5, D6

Schematic



Components Recommendations

As many people like to experiment some pedals with higher voltage, always ensure the max tolerance of your **electrolytic capacitors** is over 36v.

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

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.

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