

Überknall

Based on:

Bogner Überschall Tube amp

Effect type:

High gain PreAmp

Build difficult:

Average

Amount of parts:

Average, total 57 components

Technology:

Opamp Frequency response emulation

Power consumption:

9V

Enclosure type:

125b

Get your board at:

[Überknall](#)

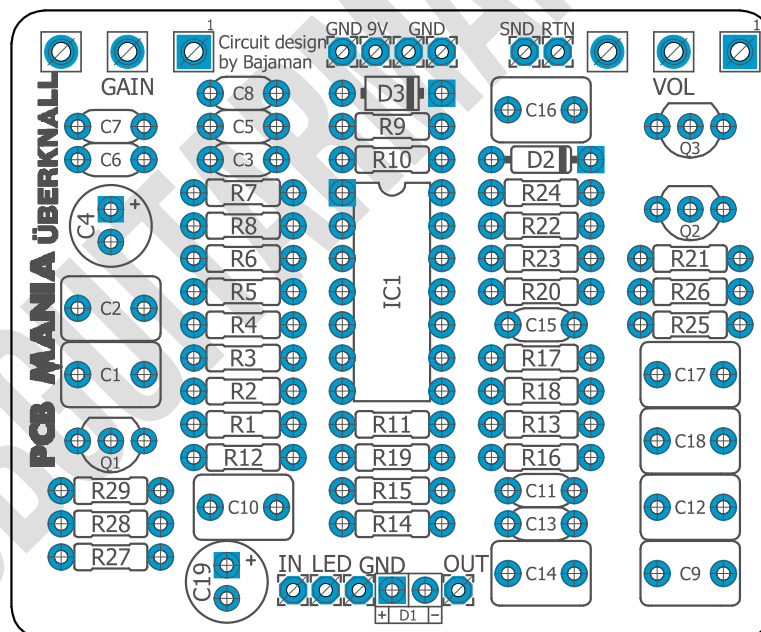
Get your kit at:

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

Project overview:

Based on the frequency response of the Bogner Überschall. Part of the series 'Develop your own Preamp' where you can combine preamp sections of iconic amplifiers with different types of eqs in order to create your own custom boutique pedal. [More information about the EQ sections here.](#)

When making this pedal, you can choose between the standard version of the High-Gain Mode.



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Introduction

As you may know from our other Preamp projects Designed by Bajaman, we love his circuits, the authenticity of the sound compared to the real amps, the response, the air they moving or the charme the bring depending on the model and well.... this time he designed one that will smash you to the ground, eat you alive and spit you back out before you maxed out the gain.

Actually, even I'm surprised that he did this monstrous metal beast based on the fantastic Bogner Überschall™ Tube Head. That one is, as far as my knowledge goes, the most brutal amp out there. Believe me; I tried them all. Even the Diezel VH4™ was just designed because Peter Diezel was so flashed by this amp that he wanted to build something similar in brutality and sound. If you're looking for super heavy metal tones, you are right here.

This version comes with only volume and gain knob to give you the most accurate tone you can get. (no worries, your amp has an EQ you can use. If you want to use it in the return of your FX loop - we got you covered with passive and active EQ boards as well.) We even dared to add a **High Gain MODE** option that gives you even more destructive power. Choose it if you have nothing to lose and everything to GAIN!

If you are looking for a Rock´n´Roll Drive, pass this one, you will not tame it. We have other Bogner projects on the way, but this one is not in the mood to take prisoners.

Controls

- Gain •
- Level •
- Send & return pads to attach an external EQ

Bill of materials

Resistors	
Part	Value
R1	1M5
R2	1M
R3	10K
R4	470K
R5	6K8
R6	1K8
R7	2K7 or High Gain Mod*
R8	1K5
R9	10K
R10	10K
R11	2K7 or High Gain Mod*
R12	1K
R13	1K
R14	4K7
R15	6K8 or High Gain Mod*
R16	6K8
R17	820R
R18	2K7 or High Gain Mod*
R19	1K
R20	10K
R21	10K
R22	2K7 or High Gain Mod*

R23	1K
R24	2K2
R25	1M
R26	10K
R27	4K7
R28	10K
R29	10K

Electrolytic Capacitors	
Part	Value
C4	2u2
C19	220u

Potentiometers	
Part	Value
GAIN	B100K
VOL	B100K

Capacitors	
Part	Value
C1	1u
C2	1u
C3	22n
C5	10n
C6	4n7
C7	100n
C8	560p

C9	1u
C10	1u
C11	2n2
C12	1u
C13	39n
C14	1u
C15	3n9
C16	1u
C17	1u
C18	1u

Trimpots	
Part	Value
IC1	TL064

Transistors	
Part	Value
Q1	J201
Q2	J201
Q3	BC547B

Diodes	
Part	Value
D1	3mm LED
D2	1N4148
D3	1n5817

Shopping list

Resistors		
Qty	Value	Parts
8	10K	R3, R9, R10, R20, R21, R26, R28, R29
4	1K	R12, R13, R19, R23
1	1K5	R8
1	1K8	R6
2	1M	R2, R25
1	1M5	R1
1	2K2	R24
4	2K7	R7, R11, R18, R22
1	470K	R4
2	4K7	R14, R27
3	6K8	R5, R15, R16
1	820R	R17

Electrolytic Capacitors		
Qty	Value	Parts
1	220u	C19
1	2u2	C4

Potentiometers		
Qty	Value	Parts
2	B100K	GAIN, VOL

Capacitors		
Qty	Value	Parts
1	100n	C7
1	10n	C5
9	1u	C1, C2, C9, C10, C12, C14, C16, C17, C18
1	22n	C3
1	2n2	C11
1	39n	C13
1	3n9	C15

1	4n7	C6
1	560p	C8

IC		
Qty	Value	Parts
1	TL074	IC1

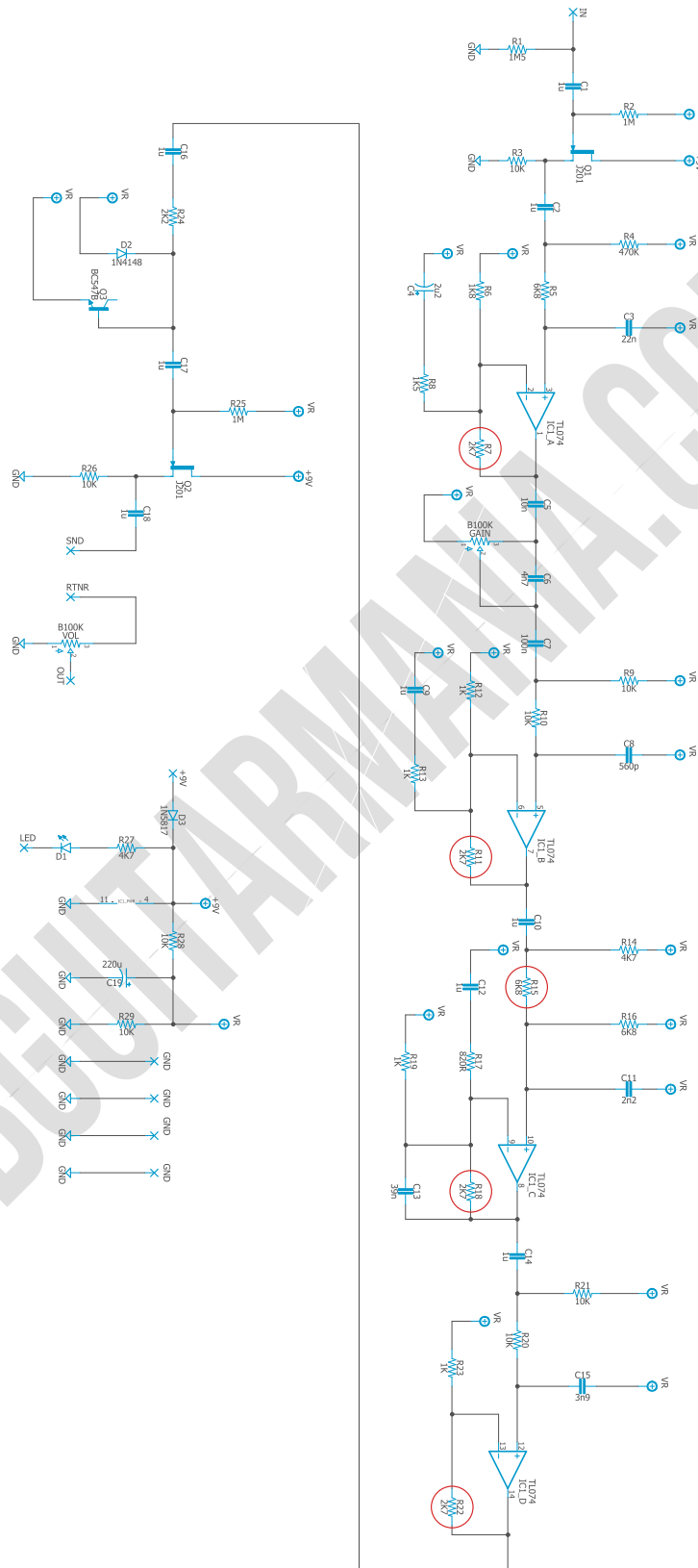
Transistors		
Qty	Value	Parts
1	BC547B	Q3
2	J201	Q1, Q2
2	SST201	QQ1, QQ2

Diodes		
Qty	Value	Parts
1	3mm LED	D1
1	1N4148	D2
1	1N5817	D3

The following part list includes all the extra components needed to make the High Gain Mod:

High Gain Mod*		
Qty	Value	Parts
2	between 1k8 and 2k2	R7, R11
1	between 4k3 and 5k1	R15
1	30k	R18
1	10k	R22

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 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

High Gain Mod*

You can make the **High Gain Mod** by changing the following values:

High Gain Mod	
Part	Value
R7	1k8~2k2
R11	1k8~2k2
R15	4k3~5k1
R18	30k
R22	10k

How does this mod work? R7, R11, R18, and R22 are feedback resistors for Op Amps, while R15 limits one. By lowering R7 and R11, you lower the first gain stages that have filters; by lowering R15, you give a bit more signal to the next stages; and by increasing R18 and R22, you get more gain from the final output amp stages.

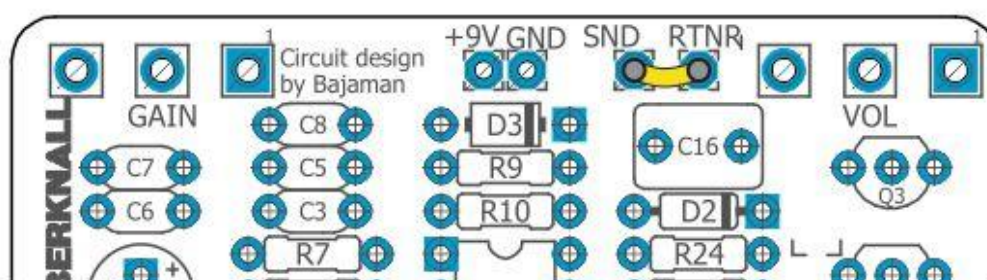
Wiring Diagram

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](#).

This version features send and return pads for hooking up a separate EQ board. For doing just the main PCB, place a jumper between pads.



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.

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