Freeman BE-OD

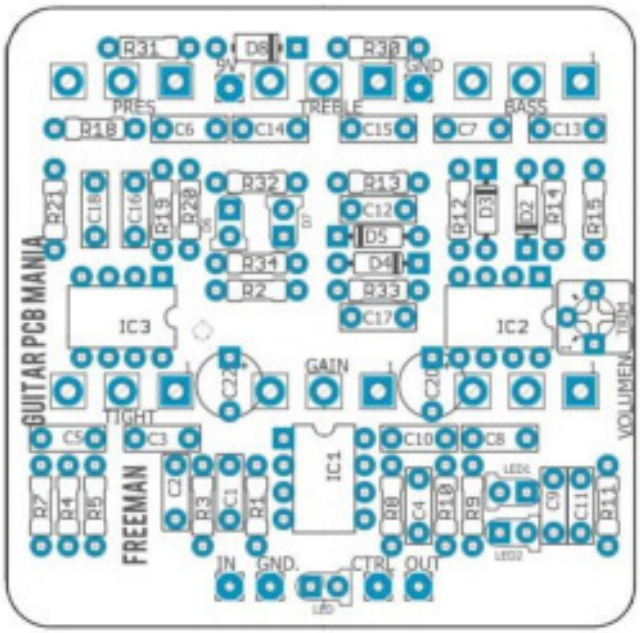
Based on:
Friedman BE - OD
Effect type:
Pre amp Emulator
Build difficult:
Intermediate

Amount of parts:
Average, total 61 components
Technology:
Dual Op Amp
Power consumption:
9V

Enclosure type:
125b
Get your board at:
Freeman BE-OD
Get your kit at:
Das Musikding (Europe)

Project overview:

This Amplifier simulator puts the intense tone of their BE100 amplifier onto your pedalboard. This is a wide-ranging, British-flavored overdrive that can be pushed well into high gain territory.



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Introduction

Freeman BE-OD has the original controls of the mystic amp ready for you to dial everything from smooth breakup to sustaining metal tones.

If you want the sonic flexibility of Friedman's BE100 guitar amplifier in a compact pedal, here is the perfect board for you!

Controls

- TIGHT
- TREBLE
- VOLUME
- BASS
- PRES
- GAIN

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Bill of materials

Resistors	
Part	Value
R1	1M
R2	470K
R3	10K
R4	22K
R5	39K
R7	4.7K
R8	10K
R9	22K
R10	22K
R11	22K
R12	22K
R13	220K
R14	10K
R15	10K
R18	2.2K
R19	33K
R20	33K
R21	10K
R30	10R
R31	4.7K
R32	10K
R33	10K
R34	2.2K

Capacitors	
Part	Value
C1	22N
C2	47P
C3	10N
C4	1N
C5	100N
C6	100N
C7	100N
C8	100N
C9	47P
C10	100N
C11	47N
C12	120P
C13	100P
C14	10N
C15	4.7N
C16	22N
C17	220N
C18	220N

Electrolytic Capacitors	
Part	Value
C20	100U electro
C22	22U electro

IC	
Part	Value
IC1	TL072
IC2	TL072
IC3	TL072

Potentiometers	
Part	Value
TIGHT	C100K
TREBLE	B100K
VOLUMEN	A50K
BASS	C100K
PRES	C10K
GAIN	B1M

Trimpots	
Part	Value
TRIM	100K

Diodes	
Part	Value
D2	1n4148
D3	1n4148
D4	1n4148
D5	1n4148
D6	LED3mm
D7	LED3mm
D8	1n5817
LED1	3mm
LED2	3mm

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Shopping list

Capacitors		
Qty	**Value**	**Parts**
5	100N	C5, C6, C7, C8, C10
1	100P	C13
2	220N	C17, C18
2	22N	C1, C16
1	1N	C4
1	47N	C11
2	47P	C2, C9
1	120P	C12
2	10N	C3, C14
1	4.7N	C15

Electrolytic Capacitors		
Qty	**Value**	**Parts**
1	100U electro	C20
1	22U electro	C22

Resistors		
Qty	**Value**	**Parts**
2	33K	R19, R20
1	39K	R5
2	4.7K	R7, R31
1	470K	R2
2	2.2K	R18, R34
1	220K	R13
7	10K	R3, R8, R14, R15, R21, R32, R33
1	10R	R30
5	22k	R4, R9, R10, R11, R12
1	1m	R1

IC		
Qty	**Value**	**Parts**
3	TL072	IC1, IC2, IC3

Potentiometers		
Qty	**Value**	**Parts**
1	A50K	VOLUMEN
1	B100K	TREBLE
1	B1M	GAIN
2	C100K	BASS, TIGHT
1	C10K	PRES

Diodes		
Qty	**Value**	**Parts**
4	1n4148	D2, D3, D4, D5
1	1n5817	D8
4	LED3MM	D6,D7,LED1,LED2

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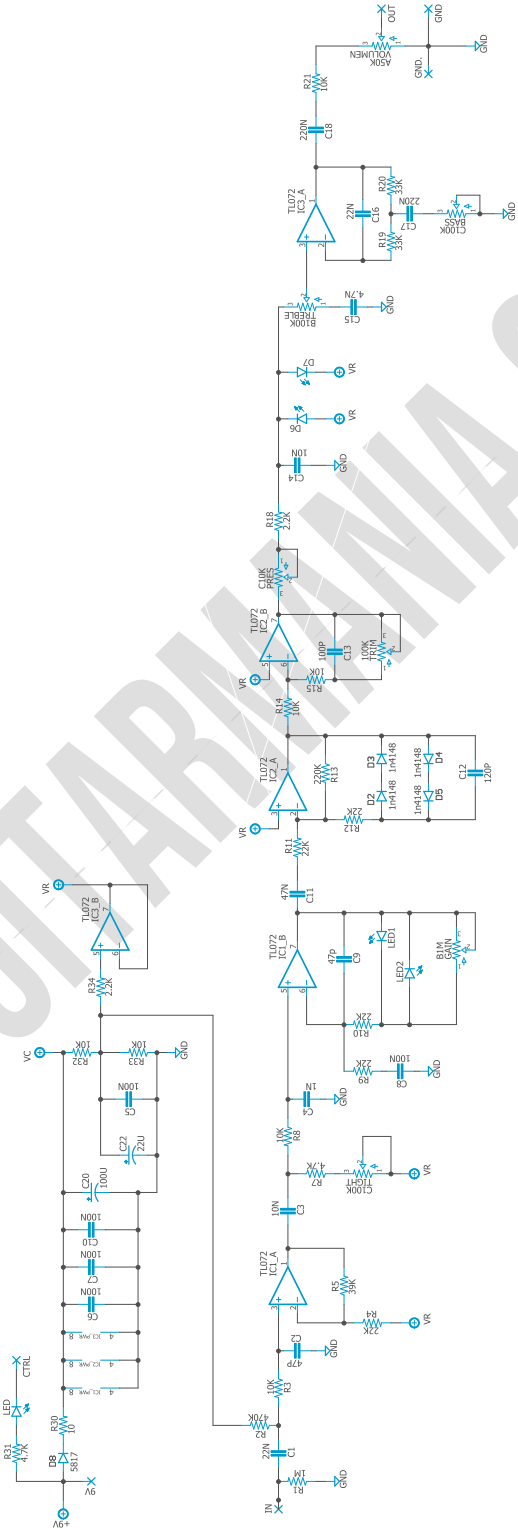
Schematic



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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

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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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