

Freeman Boost

Based on:
Friedman Buxom Boost
Effect type:
Booster +Active EQ
Build difficult:
Average

Amount of parts:
Average, total 45 components
Technology:
Three Dual OpAmp + TC1044
voltage inverter
Power consumption:
9v – 18v

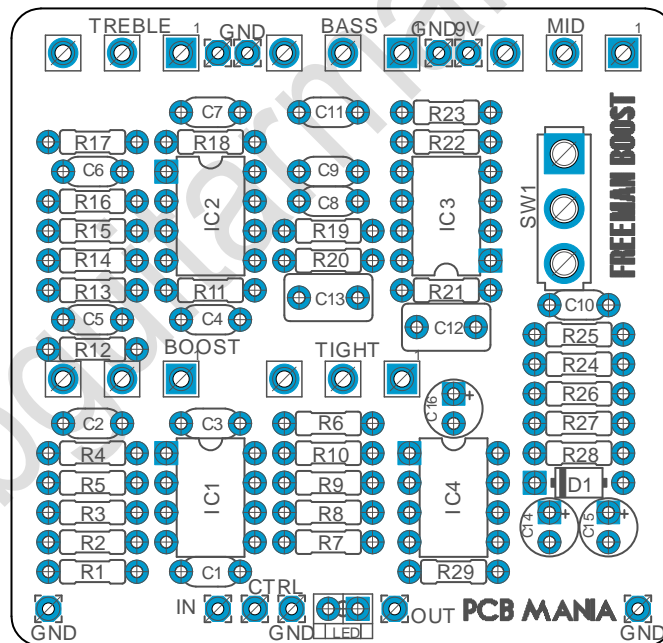
Enclosure type:
125B
Get your board at:
[Freeman boost](#)
Get your kit at:
[Das Musikding \(Europe\)](#)

Project overview:

The Freeman Boost is one of the most interesting and versatile pedals out there. The first part of the circuit is a crystal clear boost that pushes the front of your amp for thick harmonic overdrive.

The second section is a three band active EQ to tailor your tone at taste.

With a simple toggle you can select to bypass the EQ section or not.



Real measures are:

54mm width x 57mm height

Index

- | | |
|-----------------------------------|-------------------------|
| 1. Project overview | 6. Build Notes |
| 2. Index, Introduction & Controls | 7. Schematic |
| 3. Bills of Materials, BOM | 8. Wiring Diagram |
| 4. Shopping Lists | 9. Drill Template |
| 5. Components Recommendations | 10. Licensing and Usage |

Introduction

The Freeman boost is one of the most useful tools you can get on your pedal board. This circuit pushes a pure, clean signal to conjure the absolute most from your tone.

Turning the boost control is your ticket to volume increase, pushing the front of your amp for thick harmonic overdrive, or balancing between two guitars with varying output.

Whether you're after a tone tailored by its active mid, treble, and bass controls or the pedal's ability to achieve total transparency - thanks to its onboard EQ Bypass switch - it's all in there.

We've even added a useful tight control for reigning in your tube amp's bottom end when boosted.

With an internal voltage inverter the OpAmps works at the double of the input voltage guaranteeing plenty of transparent headroom on your tone.

Controls

- Active 3-band EQ with boost bass and mid controls and boost/cut treble control
- Volume: Set the output of the circuit.
- EQ Bypass switch removes the 3-band EQ from the signal for a truly transparent tone
- Tight: tames your boosted amp's low end

Bill of materials

Resistors	
Part	Value
R1	1m
R2	470k
R3	10k
R4	47k
R5	100k
R6	10k
R7	2k2
R8	100k
R9	47r
R10	10k
R11	4k7
R12	470r
R13	100k
R14	47k
R15	2k2
R16	10k
R17	2k2
R18	47k
R19	33k
R20	33k
R21	2k2
R22	2k2
R23	22k
R24	100k
R25	2k2
R26	100k
R27	2k2
R28	100k
R29	4k7

Ics	
Part	Value
IC1	TL072
IC2	TL072
IC3	TL072
IC4	TC1044SCPA

Capacitors	
Part	Value
C1	22n
C2	120p
C3	22n
C4	120p
C5	220n
C6	4n7
C7	1n
C8	22n
C9	220n
C10	2n2
C11	10n
C12	470n
C13	470n
C14	100u electro
C15	47u electro
C16	10u electro

Diodes	
Part	Value
D1	1N5817
LED	3mm LED

Pots	
Part	Value
TIGHT	100k C
TREBLE	100k B
BASS	100k C
BOOST	100k C
MID	100k C

Switches	
Part	Value
SW1	SPDT ON-ON

Shopping list

Resistors		
Qty	Value	Parts
1	1m	R1
2	4k7	R11, R29
1	470r	R12
2	33k	R19, R20
1	470k	R2
1	22k	R23
4	10k	R3, R6, R10, R16
3	47k	R4, R14, R18
6	100k	R5, R8, R13, R24, R26, R28
7	2k2	R7, R15, R17, R21, R22, R25, R27
1	47r	R9

Capacitors		
Qty	Value	Parts
3	22n	C1, C3, C8
1	2n2	C10
1	10n	C11
2	470n	C12, C13
1	100u	C14
1	47u	C15
1	10u	C16
2	120p	C2, C4
2	220n	C5, C9
1	4n7	C6
1	1n	C7

Pots		
Qty	Value	Parts
4	100k C	BASS, BOOST, MID, TIGHT
1	100k B	TREBLE

Semiconductors		
Qty	Value	Parts
1	1N5817	D1
3	TL072	IC1, IC2, IC3
1	TC1044SCPA	IC4
1	3mm LED	LED

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.

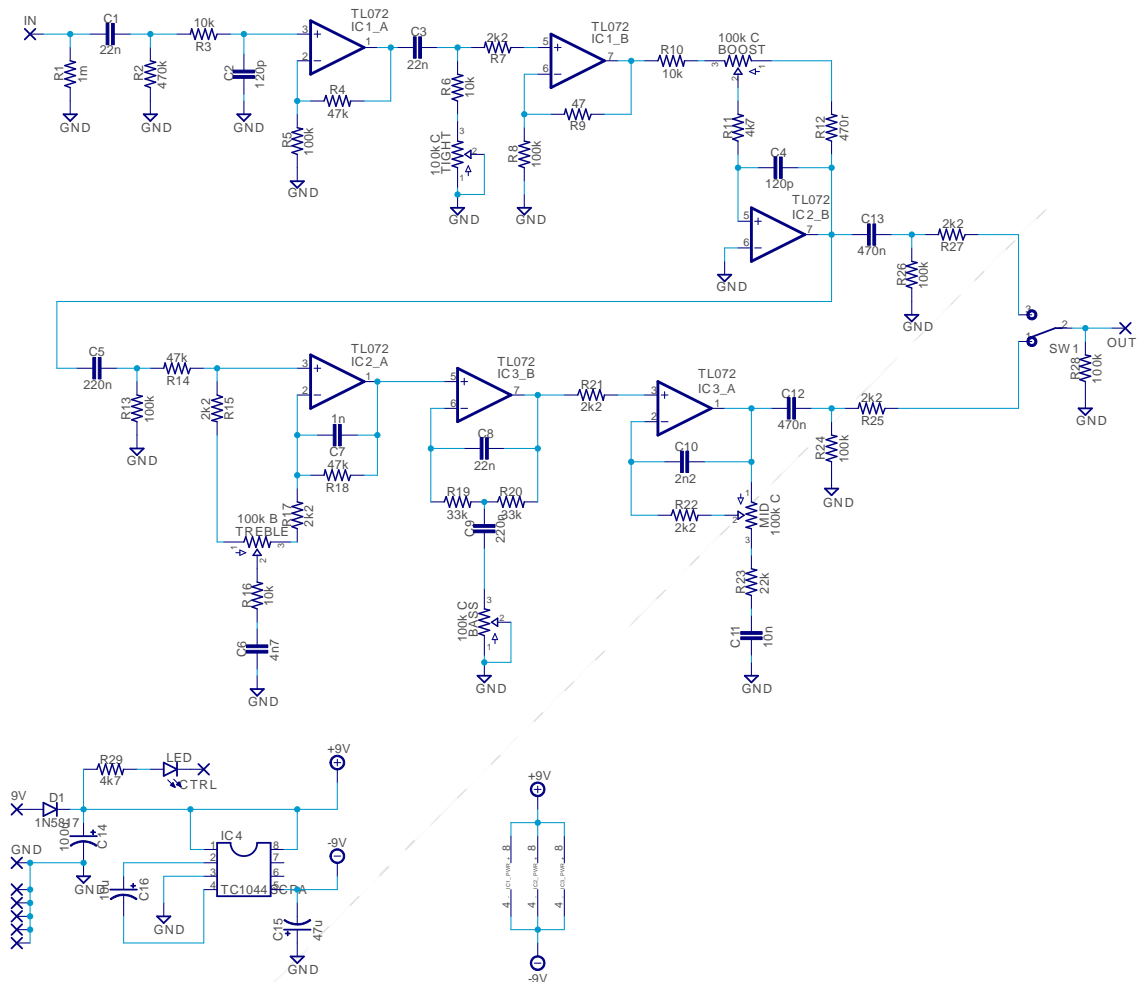
Build Notes

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

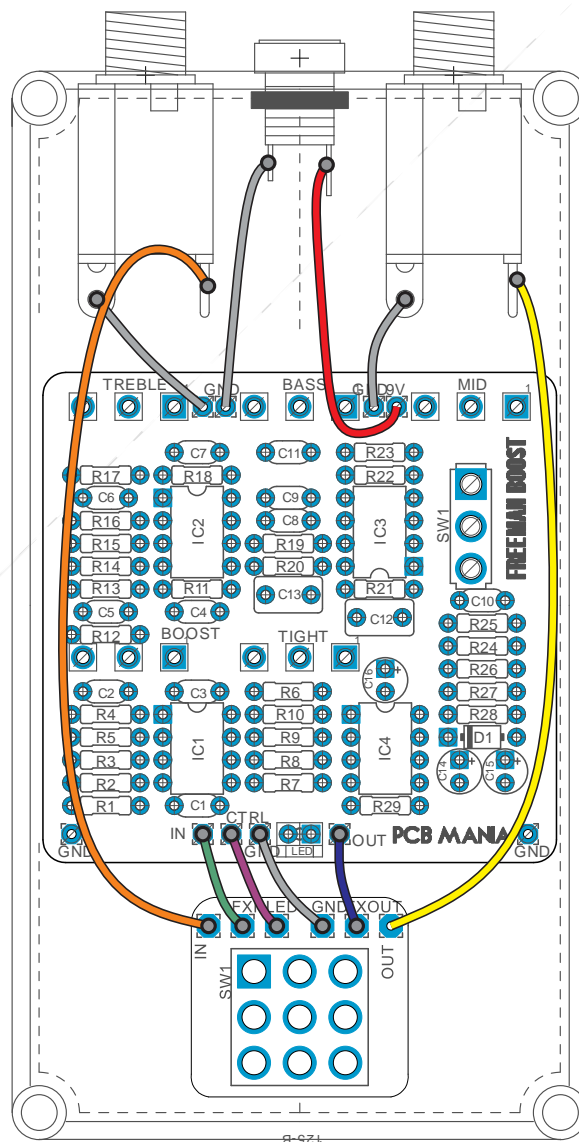


Wiring Diagram

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.

You can take a look on the following diagram to understand the general connections. For further information check our [Pedal Wiring guide](#).



Drill Template

This Project has been planned to fit into a 1590B enclosure type (122x67x35mm approx.)

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!