Svenson Preamp

Based on:
Benson Preamp

Effect type:
Preamp overdrive/boost/fuzz

Build difficult:
Intermediate (Requires Biasing JFET)

Amount of parts:
Average, total 38 components

Technology:
JFET transistors

Power consumption:
9V

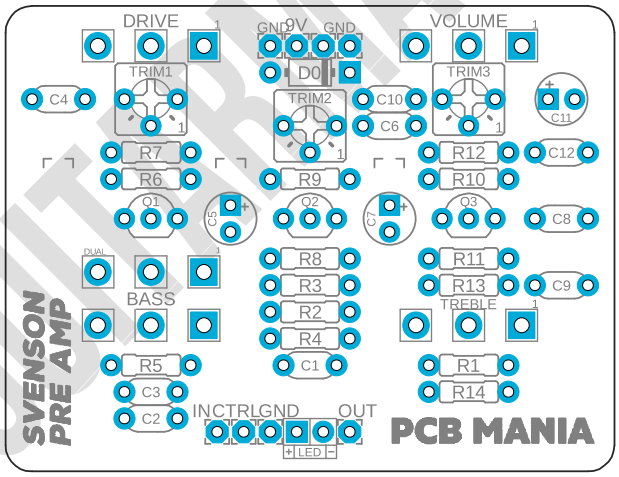
Enclosure type:
125b

Get your board at:
Svenson Preamp

Get your kit at:
Das Musikding (Europe)

Project overview:

This JFET preamp overdrive/distortion/fuzz is a Benson Chimera 30 Watt amplifier inside a box that has it all. It delivers a clean boost, soulful-bluesy overdrive, and even fuzz and distortion; all this versatility reached effortlessly.



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Introduction

The Svenson Preamp is a circuit that captures the Chimera amplifier soul by substituting vacuum tubes for JFET transistors, like we have seen in many other preamps in a box or in Wampler Plexi.

This circuit is a jack of all trades, so better be ready to have all in one pedal: this circuit adds thickness to your tone and gives a blues drive-like sound without going to metal. Enriches your sound by incorporating harmonics and a very musical EQ into your signal chain. Delivers rusty overdrive/distortion waves while maintaining all your guitar's original character. All of this, with the ability to dial effortless in the exact feature you want!

Controls

- Drive
- Treble
- Volume
- Bass

Bill of materials

Resistors	
Part	**Value**
R1	1m
R2	220k
R3	1m
R4	1k
R5	470k
R6	10k
R7	470k
R8	1k
R9	10k
R10	100k
R11	1k
R12	10k
R13	47k
R14	4k7

Capacitors	
Part	**Value**
C1	100n
C2	22n
C3	250p
C4	470p
C6	22n
C8	22n
C9	22n
C10	2n2
C12	100n

Electrolytics Capacitors	
Part	**Value**
C5	10u
C7	10u
C11	100u

Potentiometers	
Part	**Value**
DRIVE	1M A
TREBLE	250K A
VOLUME	100K A
BASS	1M B DUAL

Trimpots	
Part	**Value**
TRIM1	50k
TRIM2	50k
TRIM3	50k

Transistors	
Part	**Value**
Q1	J201
Q2	J201
Q3	J201

Diods	
Part	**Value**
D0	1n5817
LED	3mm Red LED

Shopping list

Resistors		
Qty	**Value**	**Parts**
1	100k	R10
3	10k	R6, R9, R12
3	1k	R4, R8, R11
2	1m	R1, R3
1	220k	R2
2	470k	R5, R7
1	47k	R13
1	4k7	R14

Capacitors		
Qty	**Value**	**Parts**
1	100n	C1
1	100n	C12
4	22n	C2, C6, C8, C9
1	250p	C3
1	2n2	C10
1	470p	C4

Electrolytics Capacitors		
Qty	**Value**	**Parts**
1	100u	C11
2	10u	C5, C7

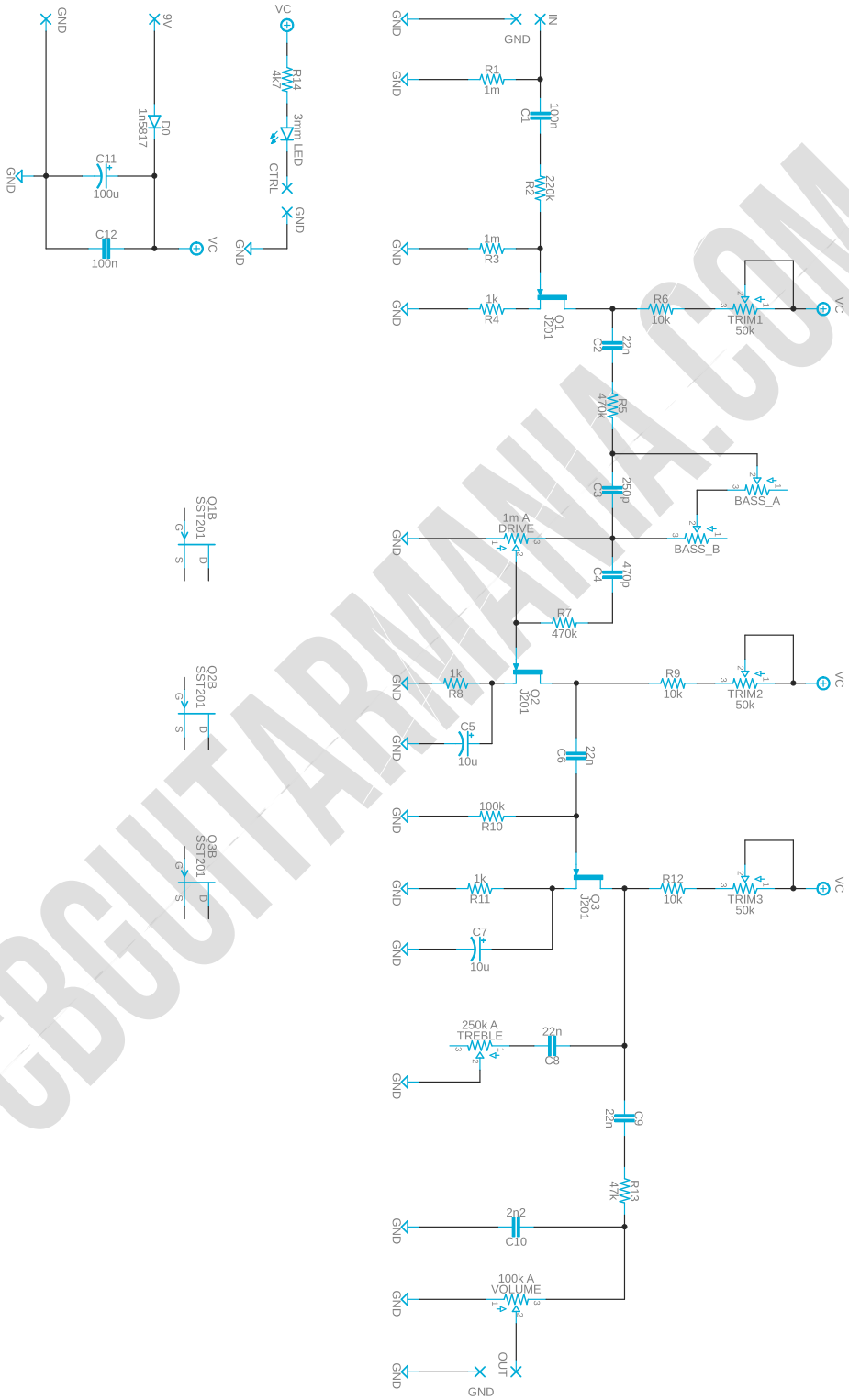
Potentiometers		
Qty	**Value**	**Parts**
1	100k A	VOLUME
1	1m A	DRIVE
1	250k A	TREBLE
1	1M B DUAL	BASS

Trimpots		
Qty	**Value**	**Parts**
3	50k	TRIM1, TRIM2, TRIM3

Transistors		
Qty	**Value**	**Parts**
3	J201	Q1, Q2, Q3
3	SST201	Q1B, Q2B, Q3B

Diods		
Qty	**Value**	**Parts**
1	1n5817	D0
1	3mm Red LED	LED

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

IMPORTANT
This circuit requires JFET Biasing. To do so, grab your multimeter, place the negative tip into the ground of your build and place the positive end into the Drain leg of your first JFET transistor starting from left to right. With the pedal connected to 9v, set your tester to measure voltage. With a screwdriver dial the bias trimpot till it reaches approximately 4.5v. Do that with all the JFETs on your build. In some cases, you will find out one that's always on approximately 9v, and that's fine. Take a look at the schematic as on most designs; there's always one transistor connected directed to 9v with no trim to set up.

After you set all the transistors on 4.5v, you can plug your guitar and start playing while doing the fine-tuning by ear till you find the sweet spot.

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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