

Green Lemon

Based on:
Green Matamp GT120MV

Effect type:
Overdrive- preamp

Build difficult:
Advanced

Amount of parts:
High, total 89 components

Technology:
JFET

Power consumption:
9V

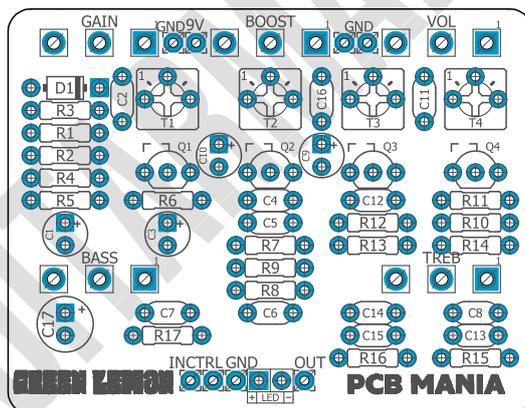
Enclosure type:
125b

Get your board at:
[Green Lemon](#)

Get your kit at:
[Das Musikding \(Europe\)](#)

Project overview:

The fuzziest and thickest pre-amp you always wanted, now in a pedal format. Inspired by Green amplifiers, the Green lemon is Green as the leaves that inspired the most famous stoner riffs. Do you dare to try this blasting beast of doom?



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Introduction

Green amps are the holy grail of Dopesmoker's tones and a must on every doom-stoner player. These amplifiers are well known for their brutally thick fuzz tones and growling bass; however, it's almost impossible for you to get to plug your ax of doom into one of these heads as they are as expensive as rare.

With the Green Lemon, we wanted to fix this by making this fantastic circuit available for everyone in the DIY world by designing a JFET version of this tremendous pre-amp keeping the tone and the main structure and functionality of the original tube amplifier.

The signal path follows the same order, featuring a Baxandall tone stack between the gain stages delivering its massive trademark sound.

If you love these JFET doomy pre-amp stompboxes, don't forget to check out our Lemon Rockverb, Black Sun of Doom, and our JM 1800 (add links to each). You will be blown away by the jawbreaking power of these circuits. Only available on DIY format... for now!

Controls

- Bass
- Boost
- Gain
- Treb
- Vol

Bill of materials

Resistors	
Part	Value
R1	68k
R2	1m
R3	220k
R4	2k2
R5	100k
R6	2k2
R7	100k
R8	22k
R9	100k
R10	220k
R11	2k2
R12	1k5
R13	15k
R14	1k
R15	15k
R16	15k
R17	4k7

Capacitors	
Part	Value
C2	68n
C4	68n
C5	330p
C6	2n2
C7	22n
C8	2n2
C11	1n
C12	68n
C13	68n
C14	68n
C15	2n2
C16	2n2

Electrolytics Capacitors	
Part	Value
C1	47u

C3	47u
C9	100u
C10	22u
C17	100u

Potentiometers	
Part	Value
BASS	1M A
BOOST	1K B
GAIN	1M A
TREB	1M A
VOL	100K A

Trim pots	
Part	Value
T1	100K Trimp**
T2	100K Trimp**
T3	100K Trimp**
T4	100K Trimp**

Transistors	
Part	Value
Q1	2N5457*
Q2	2N5457
Q3	J201*
Q4	J201*

Diodes	
Part	Value
D1	1n5817
LED	3mm red LED

Shopping list

Resistors		
Qty	Value	Parts
3	100k	R5, R7, R9
3	15k	R13, R15, R16
1	1k	R14
1	1k5	R12
1	1m	R2
2	220k	R3, R10
1	22k	R8
3	2k2	R4, R6, R11
1	4k7	R17
1	68k	R1

Capacitors		
Qty	Value	Parts
1	1n	C11
1	22n	C7
4	2n2	C6, C8, C15, C16
1	330p	C5
5	68n	C2, C4, C12, C13, C14

Electrolytics Capacitors		
Qty	Value	Parts
2	100u	C9, C17
1	22u	C10
2	47u	C1, C3

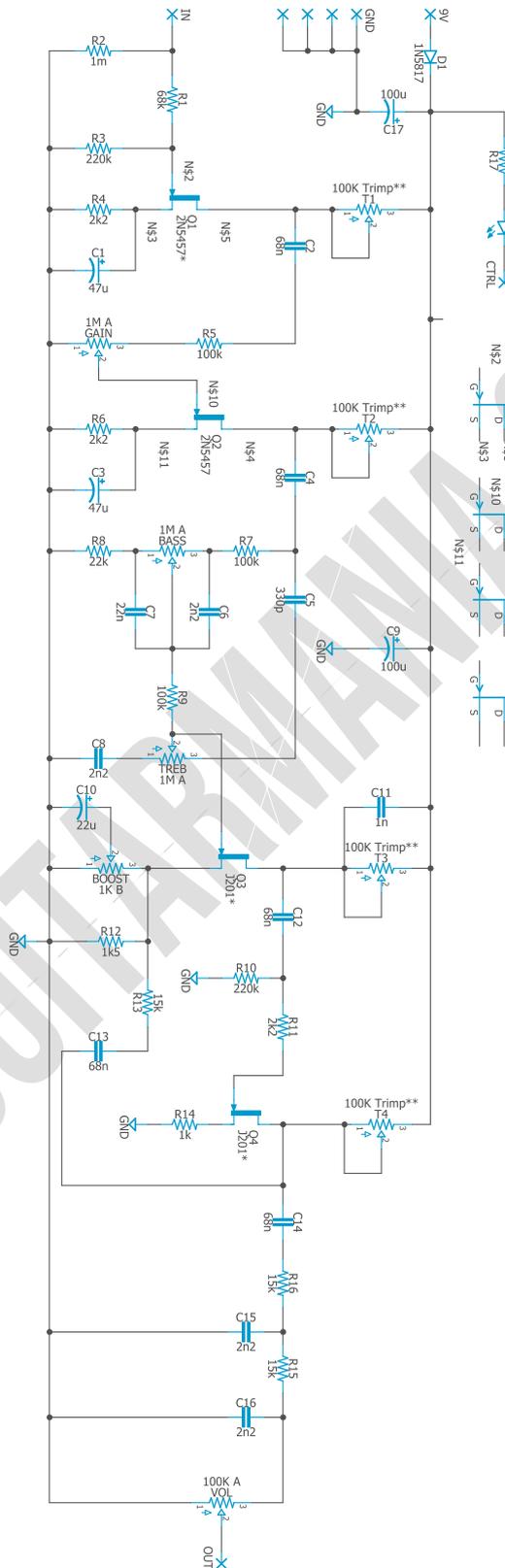
Potentiometers		
Qty	Value	Parts
1	100K A	VOL
1	1K B	BOOST
3	1M A	BASS, GAIN, TREB

Trim pots		
Qty	Value	Parts
4	100K Trimp**	T1, T2, T3, T4

Transistors		
Qty	Value	Parts
1	2N5457	Q2
1	2N5457*	Q1
2	J201*	Q3, Q4

Diodes		
Qty	Value	Parts
1	1n5817	D1
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

2N5457* - J201* The PCB has been designed so you can use the SMT equivalents of these FETs.

100K Trimp** If you want to be really precise with your biasing you can use multi-turn trimmers.

Remember, this project requires sourcing some good quality JFET from trusted sources for proper functioning. We always recommend using SMD JFET as their reliability is far superior to the discontinued through-hole counterpart. Also, bear in mind this project requires bias the transistors correctly with the respective trim pots.

To do this correctly, plug the pedal into your 9v power supply/battery, grab your multimeter and plug the black terminal into any ground of the circuit. Simultaneously, with the read touch, the Drain legs of your transistors, if it's done correctly, should appear how much voltage is receiving that leg.

Now turn the trimpot with a screwdriver till you can read 4.5v- or half of your power supply; in case you are using 18v- on the screen of your multimeter. Repeat this process with all transistors and their respective trim pots till all of them are measuring 4.5v, then proceed to do fine-tuning by ear on what you hear are the best settings of each transistor. Don't forget to share your favorite bias settings and pictures of your build on our Facebook group!

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.

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