

Shotgun

Based on:

JHS Double Barrel

Effect type:

Two integrated overdrives

Build difficult:

Advanced

Amount of parts:

High, total 105 components

Technology:

Op-amp

Power consumption:

9V

Enclosure type:

1590bb

Get your board at:

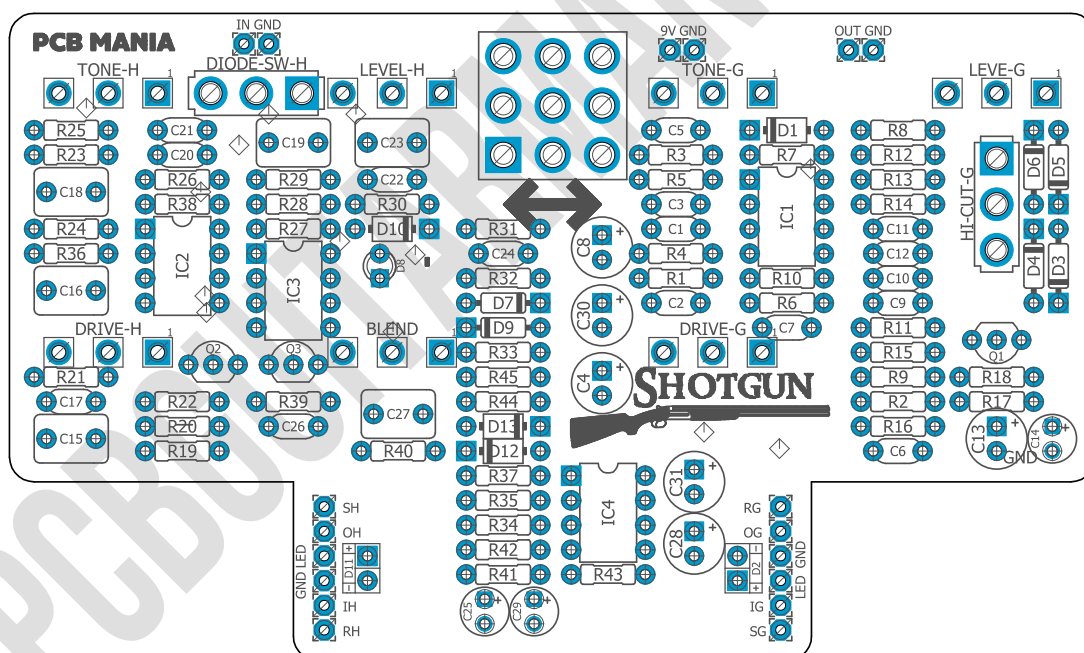
[Shotgun](#)

Get your kit at:

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

Project overview:

Inspired by JHS Double Barrel, two overdrive circuits from JHS' range integrated into one board. Is time to double the fun! Tone stacking for low-to-medium gain settings doesn't get any better.



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Introduction

Shotgun features the latest versions of two of JHS's most popular drive circuits: the [Morning Glory V4](#) and [Moonshine V2](#).

On one side, the best seller [Morning Glory V4](#), delivering a transparent tone. This segment adds a layer of light crunch that gives more life to chords and sustains to lead lines. On the other side, the updated [Moonshine V2](#) overdrive, ready to offer that classic TS-tone with a lot of grit and saturation. This section has an added knob that lets you blend your unaffected signal with the dirt from the pedal al lets you achieve some fantastic Southern blues tones.

Each part of this board is excellent on its own, but the real magic starts to happen when you combine them. Tones that are unique and new will come with ease: Looking for a more colorful crunch tone? Run the Moonshine into the Morning Glory for added gain. Want a gritty solo boost? Toggle the Morning Glory into the Moonshine, then dial in to taste. Since both pedals are grouped inside the same board, there are no cables to swap and no footwork to master, and you will have extra flexibility thanks to the "order switching" toggle.

Try this versatile but transparent overdrive that works flawlessly at medium and light gain levels. And if you are having problems getting the exact tones you want, with the Shotgun you'll find out how easy it is to hit the target!

Controls

- Drive-G
- Drive-H
- Leve-G
- Leve-H
- Tone-G
- Tone-H

Bill of materials

Resistors	
Part	Value
R1	2M2
R2	4K7
R3	4K7
R4	1M
R5	3K3
R6	10K
R7	47K
R8	47K
R9	6K8
R10	220K
R11	1K
R12	6K8
R13	100K
R14	68K
R15	1M
R16	22K
R17	12K
R18	12K
R19	1M
R20	1M
R21	1K
R22	510K
R23	1K
R24	10K
R25	10K
R26	10K
R27	1K
R28	10K
R29	220R
R30	1K
R31	1K
R32	510K
R33	10K
R34	100R
R35	15K
R36	15K
R37	15K
R38	15K

R39	50K
R40	3K6
R41	10K
R42	100R
R43	4K7
R44	47K
R45	47K

Capacitors	
Part	Value
C1	10n
C2	47n
C3	10n
C5	47p
C6	100n
C7	100n
C9	470p
C10	10n
C11	10n
C12	100n
C15	1u
C16	1u
C17	27n
C18	1u
C19	330n
C20	51p
C21	220n
C22	220n
C23	1u
C24	100n
C26	100p
C27	1u

Electrolytics Capacitors	
Part	Value
C4	100u
C8	100u
C13	2u2
C14	10u

C25	10u
C28	100u
C29	10u
C30	100u
C31	100u

Potentiometers	
Part	Value
BLEND	B10K
DRIVE-G	B100K
DRIVE-H	A500K
LEVE-G	A100K
LEVEL-H	B100K
TONE-G	B25K
TONE-H	B5K

Trimpots	
Part	Value
IC1	LM833N
IC2	NE5532
IC3	LM833
IC4	TC1044SCPA

Transistors	
Part	Value
Q1	2N5457
Q2	2N3904
Q3	2N3904

Switches	
Part	Value
SW3	3PDT
DIODE-SW-H	On/Off/On
HI-CUT-G	SPDT On-On

Diodes	
Part	Value
D1	1N5817

D2	3mm red LED
D3	1N914
D4	1N914
D5	1N914
D6	1N914
D7	BA482
D8	Red 3mm
D9	BA482
D10	1N4002
D11	3mm red LED
D12	1N5817
D13	1N5817

Shopping list

Resistors		
Qty	Value	Parts
1	100K	R13
2	100R	R34, R42
7	10K	R6, R24, R25, R26, R28, R33, R41
2	12K	R17, R18
4	15K	R35, R36, R37, R38
6	1K	R11, R21, R23, R27, R30, R31
4	1M	R4, R15, R19, R20
1	220K	R10
1	220R	R29
1	22K	R16
1	2M2	R1
1	3K3	R5
1	3K6	R40
4	47K	R7, R8, R44, R45
3	4K7	R2, R3, R43
1	50K	R39
2	510K	R22, R32
1	68K	R14
2	6K8	R9, R12

Capacitors		
Qty	Value	Parts
4	100n	C6, C7, C12, C24
1	100p	C26

4	10n	C1, C3, C10, C11
5	1u	C15, C16, C18, C23, C27
2	220n	C21, C22
1	27n	C17
1	330n	C19
1	470p	C9
1	47n	C2
1	47p	C5
1	51p	C20

Electrolytics Capacitors		
Qty	Value	Parts
5	100u	C4, C8, C28, C30, C31
3	10u	C14, C25, C29
1	2u2	C13

Potentiometers		
Qty	Value	Parts
1	A100K	LEVE-G
1	A500K	DRIVE-H
2	B100K	DRIVE-G, LEVEL-H
1	B10K	BLEND
1	B25K	TONE-G
1	B5K	TONE-H

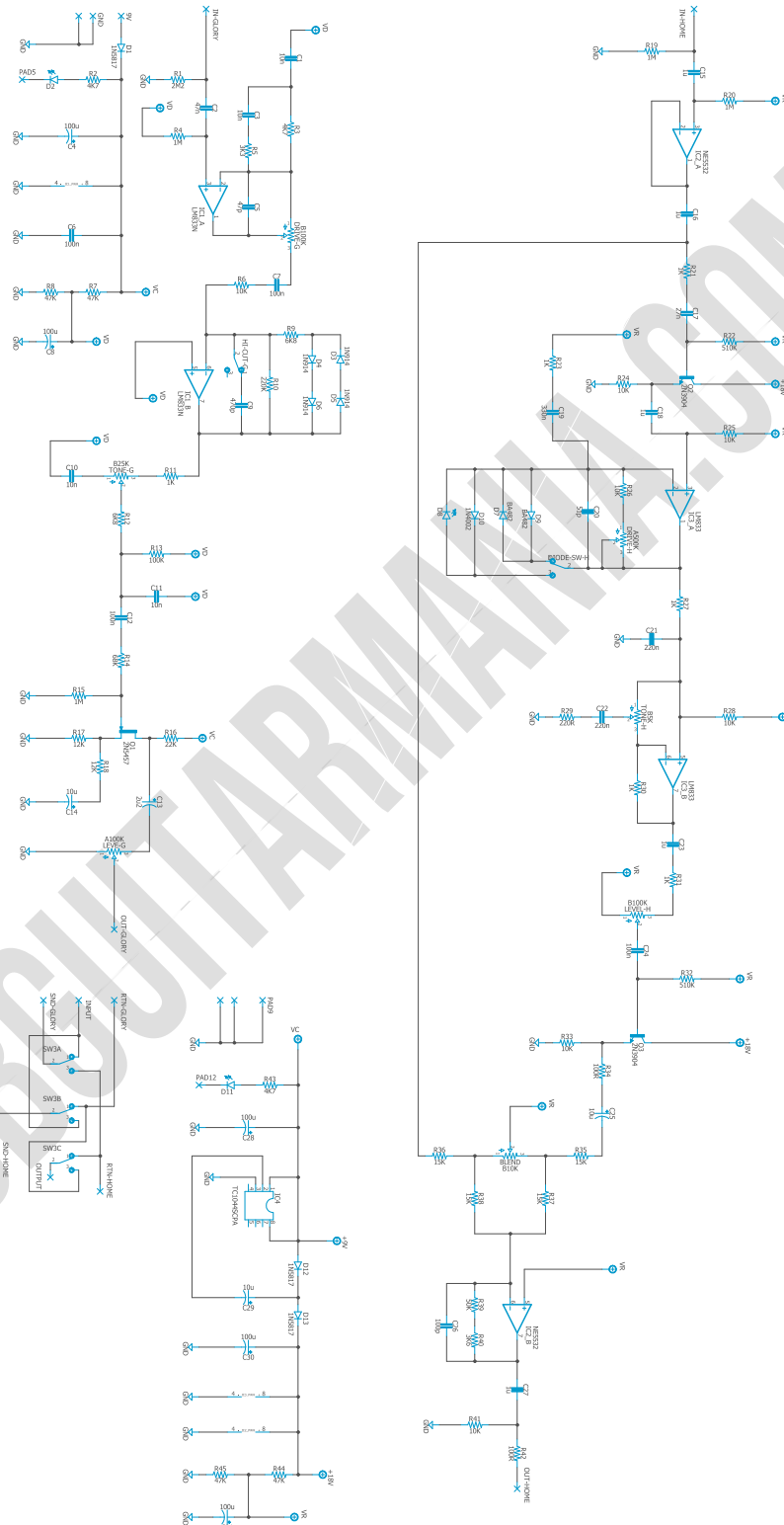
IC		
Qty	Value	Parts
1	LM833	IC3
1	LM833N	IC1
1	NE5532	IC2
1	TC1044SCPA	IC4

Transistors		
Qty	Value	Parts
2	2N3904	Q2, Q3
1	2N5457	Q1

Switches		
Qty	Value	Parts
1	3PDT	SW3
1	SPDT On/Off/On	DIODE-SW-H
1	SPDT On-On	HI-CUT-G

Diodes		
Qty	Value	Parts
1	1N4002	D10
3	1N5817	D1, D12, D13
4	1N914	D3, D4, D5, D6
2	BA482	D7, D9
3	3mm red LED	D2, D8, D11

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.

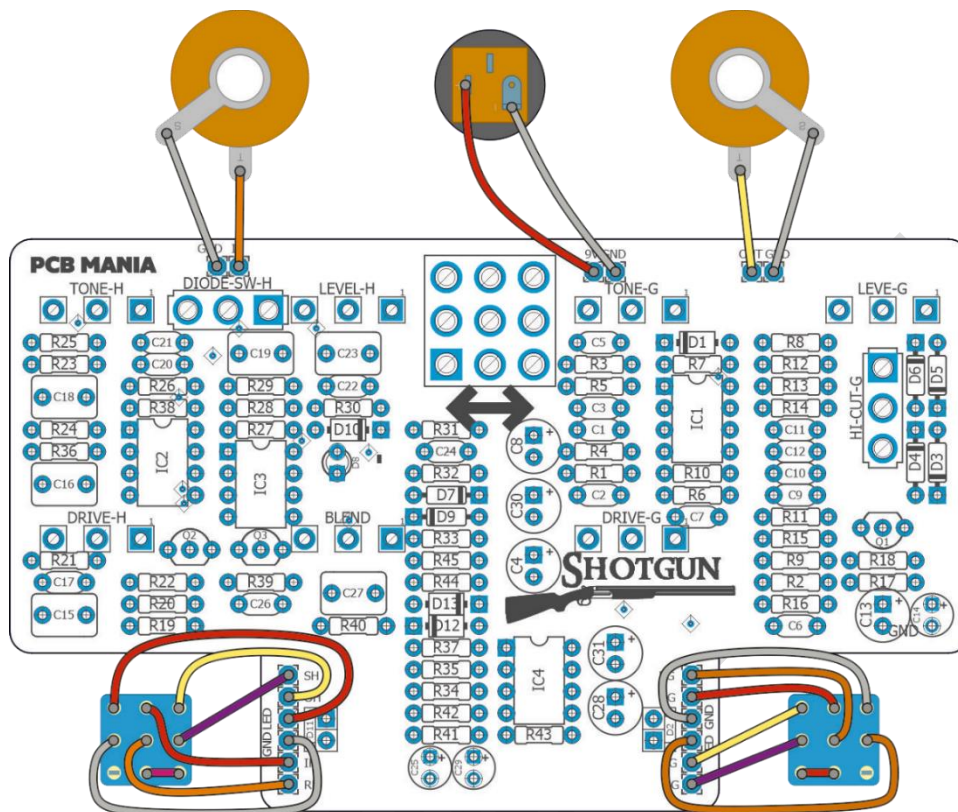
Build Notes

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

Wiring Diagram



Drill Template

This Project has been planned to fit into a 1590bb 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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