Sinner Amp GT-2

Based on:
Sans Amp GT-2

Effect type:
Analog Amp Simulator

Build difficult:
Advanced

Amount of parts:
High, total 45 components

Technology:
4 OpAmp

Power consumption:
50mA (9v)

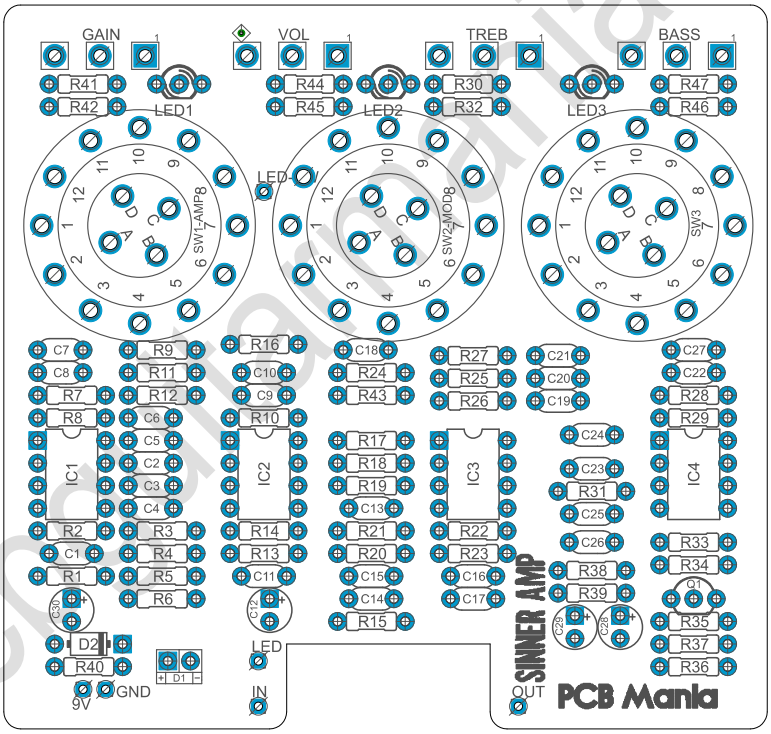
Enclosure type:
1590bb

Get your board at:
Sinner Amp Gt-2

Get your kit at:
Das Musikding (Europe)

Project overview:

The Sinner amp is truckload of great amps in a single pedal. Based on Sans Amp GT2, this circuit allows you to dial the perfect tone by choosing 3 types of amplifiers, 3 types of mods and the speaker/mic configuration.



Real measures are:

85mm width x 81mm height

3.34” width x 3.18” height

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Introduction

Choose amplifier type, modification and speaker cabinet/mic placement, create your own rig in seconds. You can easily achieve the most sought-after tube amp tones.

Playing with the different combinations you can achieve any guitar tone you want, from the American tweed to the classic British or modern California (Messa Boogie).

The circuit also has a 2-knobs baxandall tone control to adjust the treble and base frequencies.

This project has been designed for using 3 rotary switches instead of the traditional sliders, also we included status LEDs for each mode.

Controls

The Gain and Volume controls are pretty much self-explanatory, the interesting part of the controls are the Baxandall tone control, that works excellent for cutting or boosting the bass and treble frequencies, and of course the 3 rotary switches explained below:

Amp modes

- Tweed = Fender®-style
- British = Marshall®-style
- California = Mesa Boogie®-style

Mod type

- Clean, which gives you a stock tube amp set-up.
- Hi Gain, which gives you an extra gain stage, as if you were to install an additional 12AX7 tube in the pre-amp section.
- Hot-Wired, which gives you a scooped-out midrange for a sizzling, over-the-edge quality.

Mic Type

- Classic = distant miking without ambiance.
- Center = close miking at the center of a speaker cone.
- Off-Axis = close miking at the edge of a speaker cone.

Bill of materials

Resistors	
Part	**Value**
R1	1m
R2	10k
R3	1m
R4	100k
R5	2k2
R6	22k
R7	100k
R8	22k
R9	3k3
R10	330k
R11	22k
R12	22k
R13	330k
R14	1k
R15	10k
R16	1k
R17	10k
R18	22k
R19	22k
R20	22k
R21	10k
R22	33k
R23	33k
R24	10k
R25	6k2
R26	22k
R27	22k
R28	100k
R29	330k
R30	3k3
R31	10k
R32	10k
R33	10k
R34	1k
R35	10k
R36	100k
R37	1k
R38	10k
R39	10k
R40	2k7
R41	2k7
R42	2k7
R43	22k
R44	2k7
R45	2k7
R46	2k7
R47	2k7

Capacitors	
Part	**Value**
C1	22n
C2	22n
C3	22n
C4	22n
C5	22n
C6	47n
C7	2n2
C8	10n
C9	220pf
C10	22n
C11	220pf
C12	2.2uf
C13	10n
C14	47n
C15	560pf
C16	2n2
C17	1n
C18	10n
C19	4n7
C20	4n7
C21	22n
C22	10n
C23	100n
C24	10n
C25	22n
C26	22n
C27	10n
C28	2.2uf
C29	220uf
C30	220uf

Semiconductors	
Part	**Value**
IC1	TL072
IC2	TLC2262CP
IC3	TLC2262CP
IC4	TLC2262CP
Q1	2N5088

Pots	
Part	**Value**
TREB	100K B
VOL	100K B
BASS	100K B
GAIN	100K B

Switches	
Part	**Value**
SW1-AMP-	4P3T
SW2-MOD-	4P3T
SW3	4P3T

Diodes	
Part	**Value**
D1	3mm LED
D2	5817
LED1	Dual LED common anode
LED2	Dual LED common anode
LED3	Dual LED common anode

Shopping list

Resistors		
Qty	Value	Parts
1	6k2	R25
3	330k	R10, R13, R29
2	33k	R22, R23
2	3k3	R9, R30
1	2k2	R5
4	1k	R14, R16, R34, R37
2	1m	R1, R3
4	100k	R4, R7, R28, R36
11	10k	R2, R15, R17, R21, R24, R31, R32, R33, R35, R38, R39
7	2k7	R40, R41, R42, R44, R45, R46, R47
10	22k	R6, R8, R11, R12, R18, R19, R20, R26, R27, R43

Pots		
Qty	Value	Parts
4	100K B	BASS, GAIN, TREB, VOL

Switches		
Qty	Value	Parts
3	**4P3T****	SW1-AMP-, SW2-MOD-, SW3

Semiconductors		
Qty	Value	Parts
1	3mm LED	D1
1	1n5817	D2
3	**Dual Led common anode*****	LED1, LED2, LED3

Capacitors		
Qty	Value	Parts
1	100n	C23
1	1n	C17
2	2.2uf	C12, C28
2	220pf	C9, C11
2	220uf	C29, C30
6	10n	C8, C13, C18, C22, C24, C27
9	22n	C1, C2, C3, C4, C5, C10, C21, C25, C26
2	2n2	C7, C16
2	47n	C6, C14
2	4n7	C19, C20
1	560pf	C15

Semiconductors		
Qty	Value	Parts
1	TL072	IC1
3	**TLC2262CP***	IC2, IC3, IC4
1	2N5088	Q1

Components Recommendations

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.

The **TLC2262CP*** is a dual OpAmp "rail-to-rail", which means these ICs can deliver much more output without unwanted distortion or saturation. However they share the same pin out as a normal TL072 or any other classic dual OmAmp, so you can socket and try many others, personally I think that the **TL2272CP**, that's also a rail to rail OpAmp, works great. Socket and try!

For the 4P3T** I used the following ones
https://www.musikding.de/Rotary-switch-4P3T-sealed-pcb

https://www.taydaelectronics.com/rotary-switch-4-pole-3-position-alpha-sr2612f.html

Set the steps of the rotary with the washer and the ring on 3 positions each.

Dual Led common anode*** This type of LED has three Legs, being the central one the anode, the one where it's feed with the voltage. For this project the rotary switches are connected to the LEDs in order to change the color according to the program.

As this LEDS have only two different colors, so for the third position both colors are enabled. Try to choose a LED with two contrasting colors such as Red and Blue so for the third position you'll have a nice Purple light.

Also you can choose if you want to set the Mode LEDs as "always on" or to turn them on-off while it's on bypass mode.

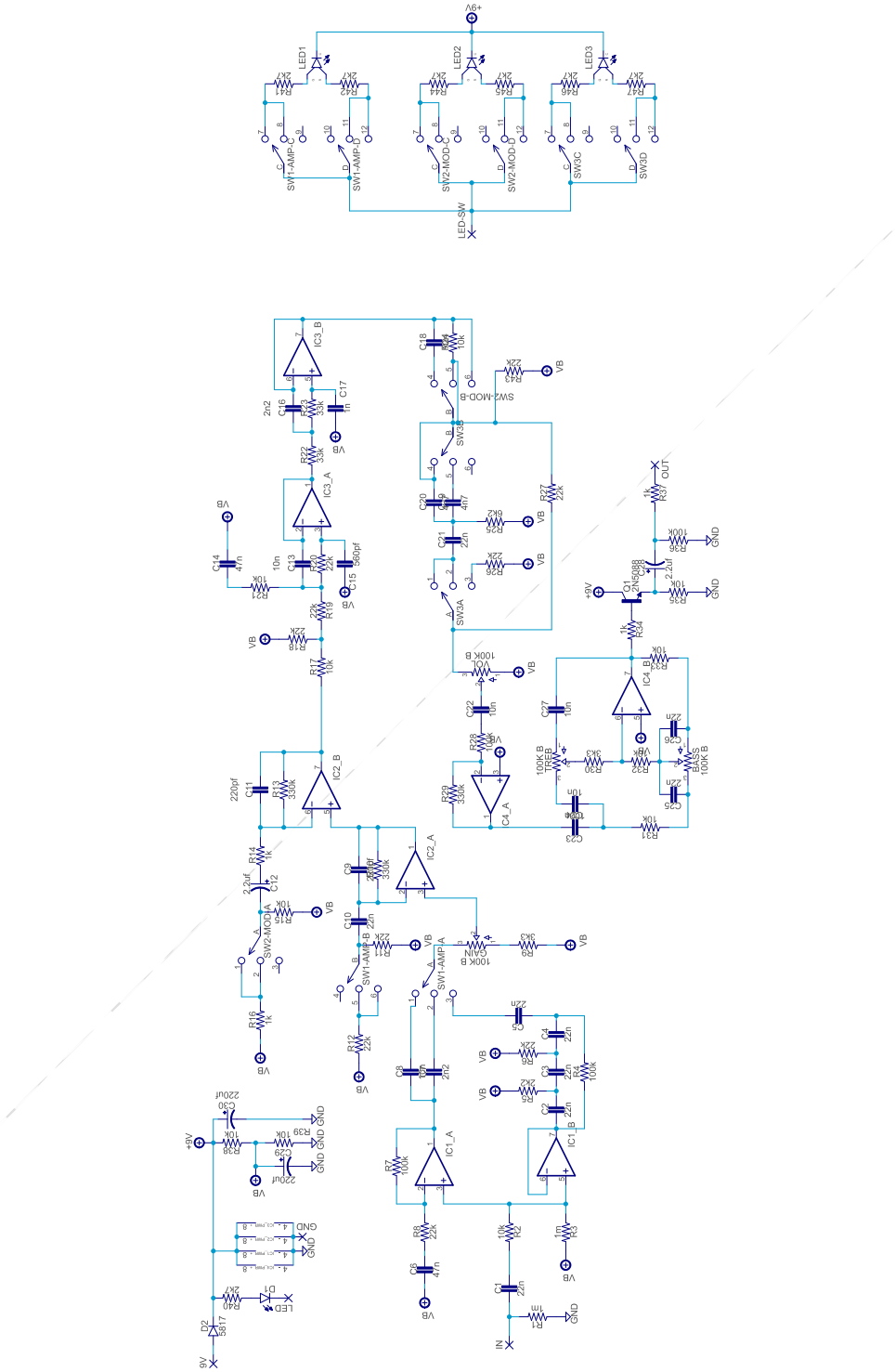
Build Notes

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


+9V
LED1
LED2
LED3
SW1-AMP-C
SW1-AMP-D
SW2-MOD-C
SW2-MOD-D
SW3C
SW3D
LED-SW
IC3_B
IC3_A
IC2_B
IC2_A
IC1_A
IC1_B
IC4_A
IC4_B
SW2-MOD-B
SW3B
SW3A
SW2-MOD-A
SW1-AMP-B
SW1-AMP-A
100K B
GAIN
VOL
100K B
100K B
100K B
Q1
2N5088
OUT
GND
VB
IN
D1
D2
5817
LED
9V
GND

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.

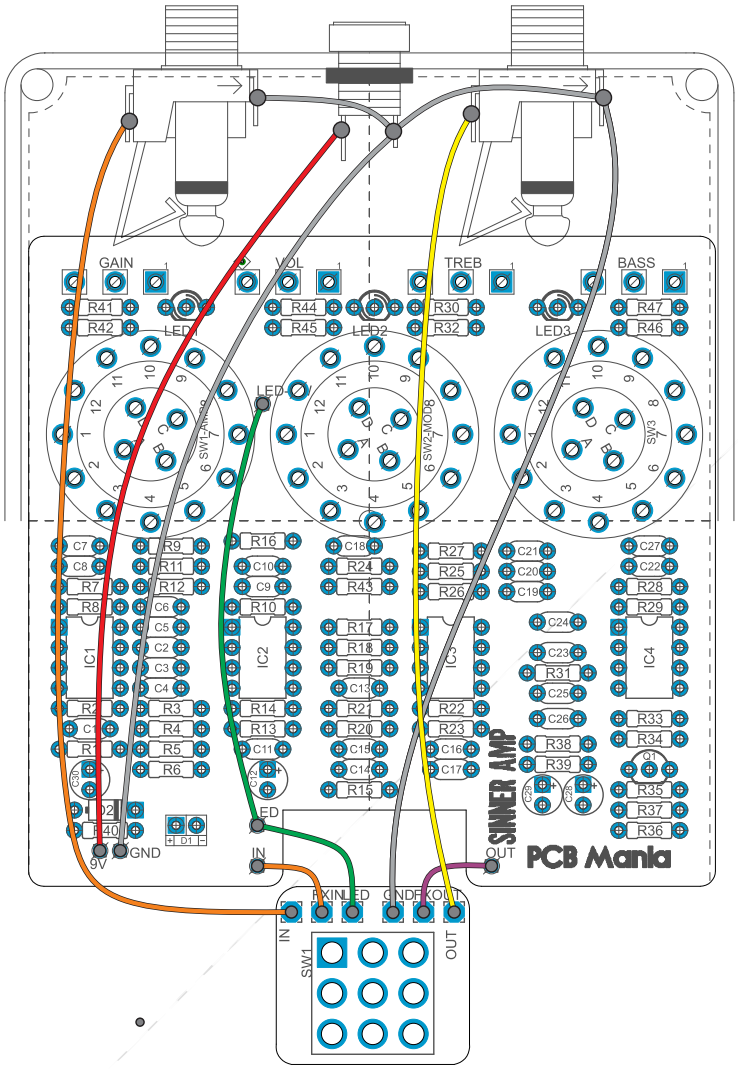
You can take a look on the following diagram to understand the general connections. For further information check our Pedal Wiring guide.

Here below we have two ways of wiring the circuit. First you can see there’s a wire going out from the LED pad in between the rotary switches to the Control Led pad, this allows us to turn ON the rotary mode LEDs when the pedal is engaged and to turn it off once the pedal is on Bypass mode.

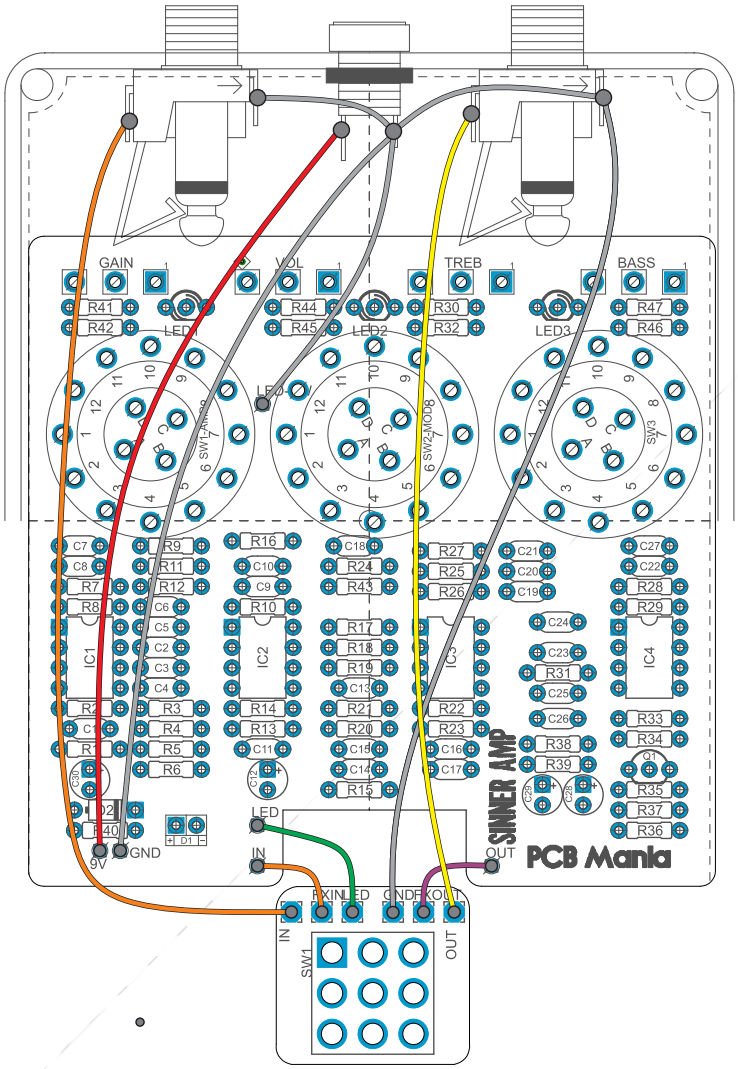
The second diagram is to wire the rotary switches LEDs as Always On, independently of the bypass and the 3PDT.

Choose which one fits better your needs.

Rotary Switches LEDs ON-OFF controlled by 3PDT Switch



Rotary Switches LEDs always on



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 in an A4 page.

This is A SUPER TIGHT BUILD TO BOX! Measure all your parts multiple times before drilling to make sure it will fit perfectly.

Here below are the jacks I used for boxing this project.

https://www.musikding.de/63mm-Mono-jack-Lumberg

https://www.taydaelectronics.com/dc-power-jack-2-1mm-round-type-panel-mount-1.html

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.

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