Sinner Character

Based on:
Sansamp Character Series
Effect type:
All-in-one pre-amp distortion, overdrive
Build difficult:
Advanced

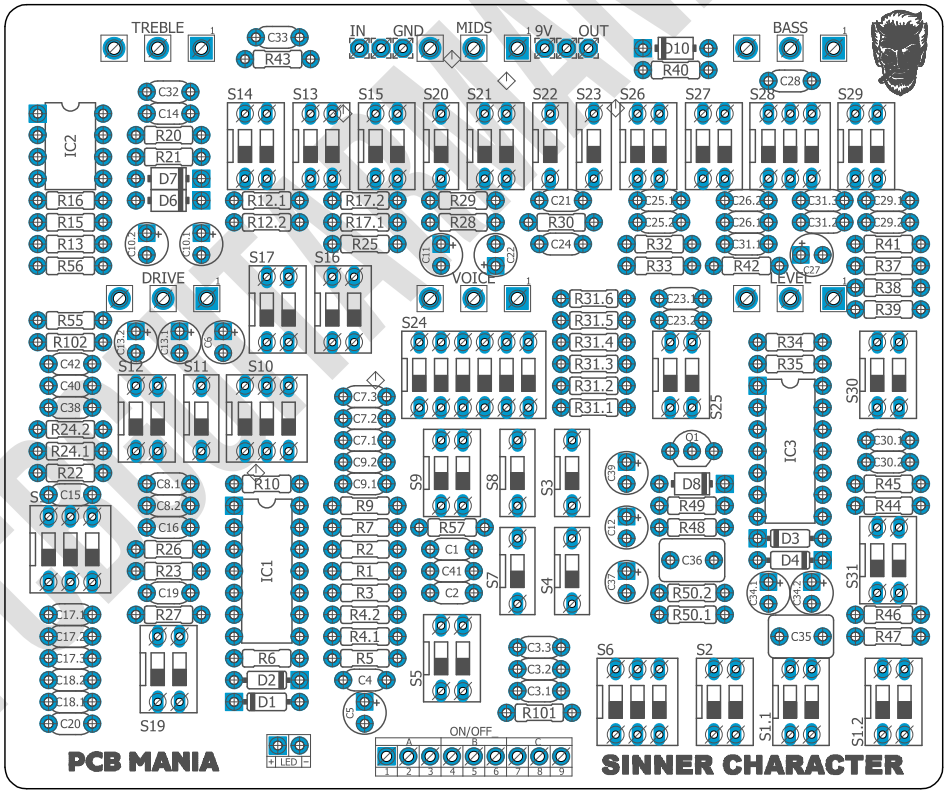
Amount of parts:
High, 171 components
Technology:
Op Amp and MOSFET transistors
Power consumption:
9V

Enclosure type:
1790NS
Get your board at:
Sinner Character
Get your kit at:
Das Musikding (Europe)

Project overview:

Versatile board capable of building most of the Sansamp Tech 21 Character Series preamps and custom versions.

This board includes more than 30 internal switches, for you to choose your favorite preamp out of a single build!



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Introduction

This project combines the best of all the Sansamp character series in one single master board that allows you to dial any of your favorite preamp just by setting up the dip switches accordingly.

Choose your favorite preamp from the Switches Position list on this Building Doc, or experiment with all the different configurations until you find the perfect custom combination.

Soon we will make a smaller board for those who want a reduced dedicated version without the switches.

Sinner Character includes:

- Oxford (Orange)
- California(Mesa Boogie)
- US Steel (Peavey)
- British (Marshall)
- Liverpool (Vox)
- Blondie

Controls

Potentiometers

- Bass
- Drive
- Level
- MIDs
- Treble
- Voice

Switches

- 32 internal switches

Bill of materials

Resistors	
Part	**Value**
R1	10k
R2	1M
R3	22k
R4.1	10k
R4.2	3k3
R5	22k
R6	1k
R7	100k
R9	100k
R10	3k3
R12.1	10k
R12.2	3k3
R13	3k3
R15	220k
R16	220k
R17.1	100k
R17.2	51k
R20	220k
R21	3k3
R22	10k
R23	33k
R24.1	33k
R24.2	47k
R25	100k
R26	33k
R27	33k
R28	22k
R29	6k2
R30	10k
R31.1	22k
R31.2	15k
R31.3	27k
R31.4	68k
R31.5	36k
R31.6	100k
R32	3k3
R33	100k
R34	3k3
R35	100k
R37	3k3
R38	1M
R39	3k3
R40	3k3
R41	100k
R42	1M
R43	3k3
R44	1k
R45	1M
R46	100k
R47	1k
R48	2M2
R49	10k
R50.1	10k
R50.2	20k
R55	10k
R56	10k
R57	20k
R101	51r
R102	33r

Capacitors	
Part	**Value**
C1	22n
C2	47n
C3.1	10n
C3.2	18n
C3.3	22n
C4	1n
C7.1	10n
C7.2	22n
C7.3	27n
C8.1	10n
C8.2	22n
C9.1	100p
C9.2	120p
C14	47n
C15	47n
C16	10n
C17.1	470p
C17.2	560p
C17.3	180p
C18.1	2n7
C18.2	2n2
C19	1n
C20	2n7
C21	47n
C23.1	100p
C23.2	120p
C24	22n
C25.1	22n
C25.2	18n
C26.1	100p
C26.2	120p
C28	100n
C29.1	10n
C29.2	10n
C30.1	100p
C30.2	120p
C31.1	1n2
C31.2	1n5
C31.3	1n
C32	4n7
C33	22n
C35	2u2
C36	2u2
C38	47n
C40	100n
C41	22n
C42	100n

Electrolytic Capacitors	
Part	**Value**
C5	2u2
C6	2u2
C10.1	2u2
C10.2	1u
C11	47u
C12	47u
C13.1	2u2
C13.2	1u
C22	1u
C27	1u
C34.1	1u
C34.2	2u2
C37	100u
C39	47u

Potentiometers	
Part	**Value**
BASS	B100k
DRIVE	B100k
LEVEL	B100k
MIDS	B100k
TREBLE	B100k
VOICE	B100k

ICs	
Part	**Value**
IC1	TL064
IC2	TL062
IC3	TL064

Transistors	
Part	**Value**
Q1	2N7000

Switches	
Part	**Value**
S1.1	dip2
S1.2	dip2
S2	dip2
S3	dip1
S4	dip1
S5	dip2
S6	dip3
S7	dip1
S8	dip1
S9	dip2
S10	dip3
S11	dip1
S12	dip2
S13	dip2
S14	dip2
S15	dip2
S16	dip2
S17	dip2
S18	dip3
S19	dip2
S20	dip1
S21	dip2
S22	dip1
S23	dip1
S24	dip6
S25	dip2
S26	dip2
S27	dip2
S28	dip3
S29	dip2
S30	dip2
S31	dip2

Diodes	
Part	**Value**
D1	1N4148
D2	1N4148
D3	1N4148
D4	1N4148
D6	3V3 Zener
D7	3V3 Zener
D8	9V1 Zener
D10	1n5817
LED	3mm red LED

Shopping list

Resistors		
Qty	**Value**	**Parts**
9	100k	R7, R9, R17.1, R25, R31.6, R33, R35, R41, R46
9	10k	R1, R4.1, R12.1, R22, R30, R49, R50.1, R55, R56
1	15k	R31.2
4	1M	R2, R38, R42, R45
3	1k	R6, R44, R47
2	20k	R50.2, R57
3	220k	R15, R16, R20
4	22k	R3, R5, R28, R31.1
1	27k	R31.3
1	2M2	R48
4	33k	R23, R24.1, R26, R27
1	33r	R102
1	36k	R31.5
11	3k3	R4.2, R10, R12.2, R13, R21, R32, R34, R37, R39, R40, R43
1	47k	R24.2
1	51k	R17.2
1	51r	R101
1	68k	R31.4
1	6k2	R29

Capacitors		
Qty	**Value**	**Parts**
3	100n	C28, C40, C42
4	100p	C9.1, C23.1, C26.1, C30.1
6	10n	C3.1, C7.1, C8.1, C16, C29.1, C29.2
4	120p	C9.2, C23.2, C26.2, C30.2
1	180p	C17.3
2	18n	C3.2, C25.2
3	1n	C4, C19, C31.3
1	1n2	C31.1
1	1n5	C31.2
8	22n	C1, C3.3, C7.2, C8.2, C24, C25.1, C33, C41
1	27n	C7.3
1	2n2	C18.2
2	2n7	C18.1, C20
2	2u2	C35, C36
1	470p	C17.1
5	47n	C2, C14, C15, C21, C38
1	4n7	C32
1	560p	C17.2

Electrolytic Capacitors		
Qty	**Value**	**Parts**
1	100u	C37
5	1u	C10.2, C13.2, C22, C27, C34.1
5	2u2	C5, C6, C10.1, C13.1, C34.2
3	47u	C11, C12, C39

Potentiometers		
Qty	**Value**	**Parts**
6	B100k	BASS, DRIVE, LEVEL, MIDS, TREBLE, VOICE

IC		
Qty	**Value**	**Parts**
1	TL062	IC2
2	TL064	IC1, IC3

Transistors		
Qty	**Value**	**Parts**
1	2N7000	Q1

Switches		
Qty	**Value**	**Parts**
1	3PDT Stomp foot	-
8	dip1	S3, S4, S7, S8, S11, S20, S22, S23
19	dip2	S1.1-S2, S5, S9, S12-S17, S19, S21, S25-S27, S29-S31

4	dip3	S6, S10, S18, S28
1	dip6	S24

Diodes		
Qty	**Value**	**Parts**
4	1N4148	D1, D2, D3, D4
1	1n5817	D10
2	3V3 Zener	D6, D7
1	9V1 Zener	D8
1	3mm red LED	LED

Jacks		
Qty	**Value**	**Parts**
1	DC JACK	-
2	AUDIO JACK	-

Switches positions

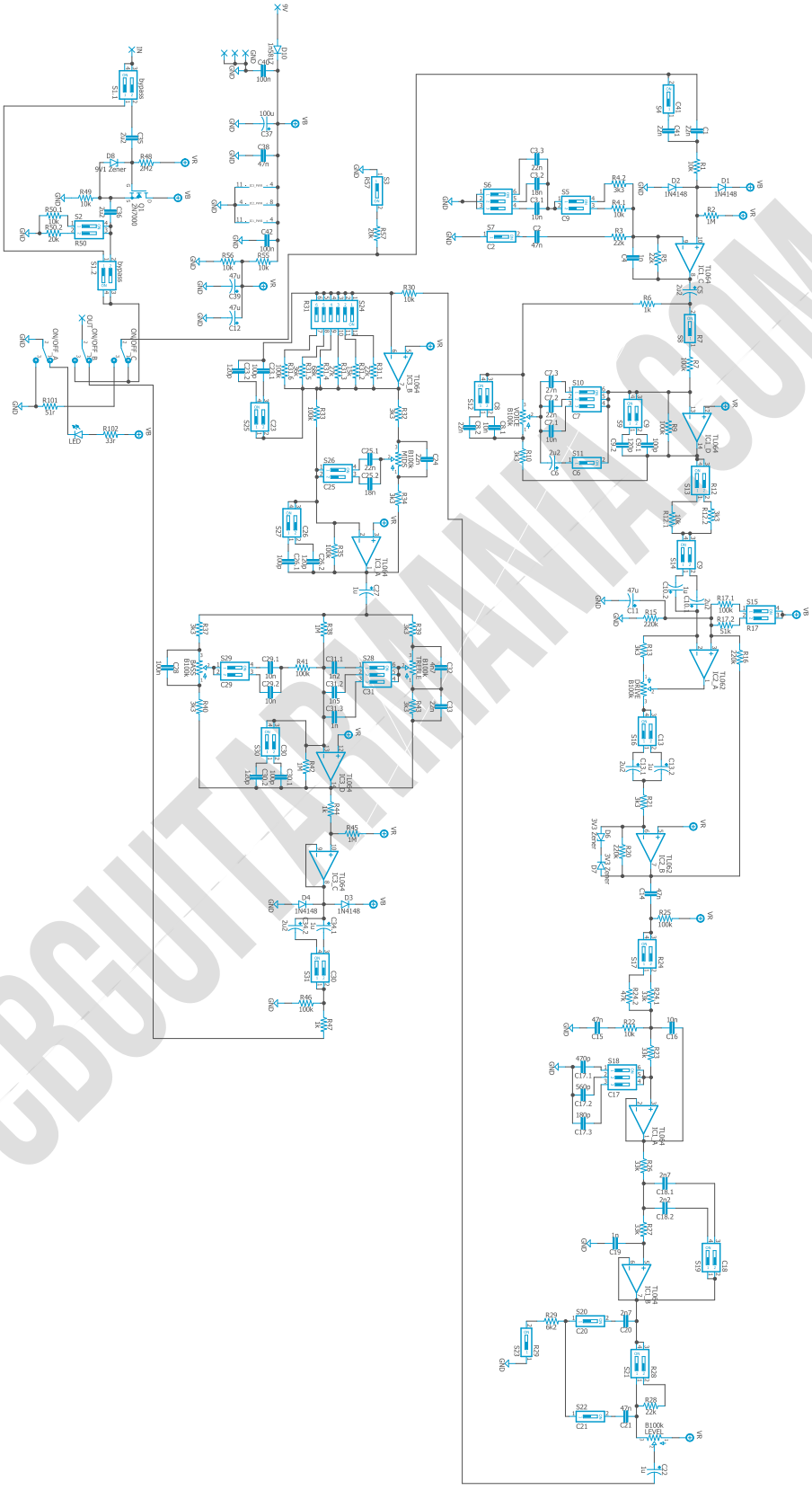
Switch/Position ON	AC Tone	British	American	California	Oxford	Liverpool
S1.1	-	-	-	-	-	-
S1.2	-	-	-	-	-	-
S2	1	1	1	1	2	1
S3	0	0	0	0	1	0
S4	0	0	0	0	1	0
S5	2	2	2	2	2	1
S6	1	2	0	0	3	1
S7	1	1	1	1	0	1
S8	1	1	1	1	0	0
S9	2	2	1	2	2	1
S10	2	3	1	0	3	2
S11	0	0	0	1	0	0
S12	2	2	1	2	2	1
S13	1	1	1	1	2	1
S14	2	2	2	2	1	2
S15	1	1	1	1	2	1
S16	1	1	1	1	2	1
S17	2	2	2	2	2	1
S18	1	1	1	2	1	3
S19	1	1	1	2	2	2
S20	0	0	0	1	0	0
S21	1	1	1	2	1	1
S22	0	0	0	1	0	0
S23	0	0	0	1	0	0
S24	1	2	3	4	5	6
S25	1	1	1	2	2	1
S26	2	1	1	1	1	2
S27	2	2	2	1	1	2
S28	3	3	3	2	1	3
S29	1	1	1	1	2	1
S30	1	1	1	1	2	1
S31	1	1	1	1	2	1

S1.1 - true bypass

S1.2 - buffer

*** - 0-means no dips ON**

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

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 1790NS 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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