

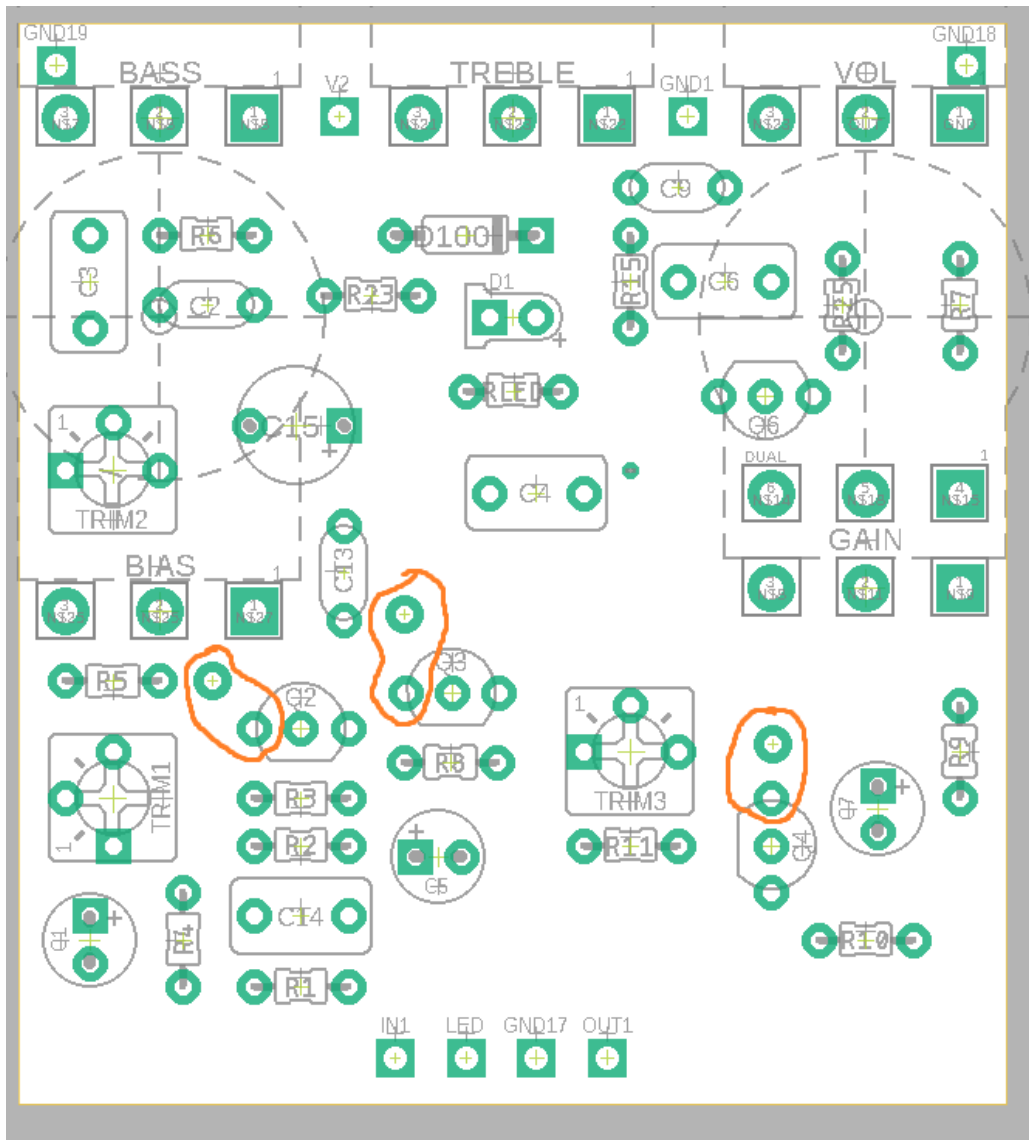
SSBS MINI PCB

DISCLAIMER: I am not responsible for any harm or injury or even fatality that may arise from the building and usage of this device/PCB.

BUILD OF MATERIALS		
<i>Capacitors</i>	<i>Semiconductors</i>	<i>Potentiometers</i>
C1 10u	Q2 J201	TREBLE B10K
C2 1n	Q3 J201	GAIN B100K (dual gang)
C3 220n	Q4 2N5457	VOL A100K
C4 1u	Q6 2N5089	BASS C1M
C5 10u		BIAS B10K
C6 1u	<i>Resistors</i>	
C7 10u	R1 1m	TRIM1 50k
C9 15n	R2 47k	TRIM2 10-20k
C13 100n	R3 1m	TRIM3 50k
C14 1u	R4 1k	
C15 220u	R5 1k	
<i>Diodes</i>	R6 33k	
D1 LED	R7 4k7	
D100 1N5817	R8 1k	
	R9 4k7	
	R10 1k	
	R11 1k	
	R15 1k	
	R23 10R	
	R25 4k7	
	RLED 3K3	

Notes:

- JFETS
 - Knowledge of biasing and/or selecting JFETs is **HIGHLY RECOMMENDED** and use of SMT JFETs is **HIGHLY RECOMMENDED**.
 - Depending on what JFETs are used (model, specs, etc.), you may need to alter the source resistor (Rs). I recommend socketing R4, R8, and R10. From my own experience, biasing Q3 and finding the appropriate R8 component is imperative to gain the full potential of the Bias knob.
 - In Gray Bench's analysis of the pedal, he identified the pedal had three 2N5457 JFETs for Q2, Q3, Q4. If you use 2N5457, you will need R4, R8, and R10 accordingly because of the variance in Rs.
- Bias Knob
 - Preface that there is a Bias knob and there is the action of biasing a JFET's drain voltage.
 - To adjust the Bias knob, turn down Bias down to 0. Use TRIM2 to bias the drain voltage of Q3 to 4.5V. When adjusting the Bias knob, your drain voltage should change. Some report a range of 1-4.5V; others 2-7V.
 - I use a 50K trimpot for TRIM2. When adjusting TRIM2,
- Pot Selection
 - For Gain, B100K dual-gang potentiometer was noted in the initial schematic posted on an online forum and corroborated by the initial creator himself. However, Gray Bench noted it is an A100K dual-gang potentiometer in his analyzed model.
 - For Bass, C500K was noted in the initial schematic posted on an online forum and corroborated by the initial creator himself. However, Gray Bench noted it is a C1M potentiometer in his analyzed model.



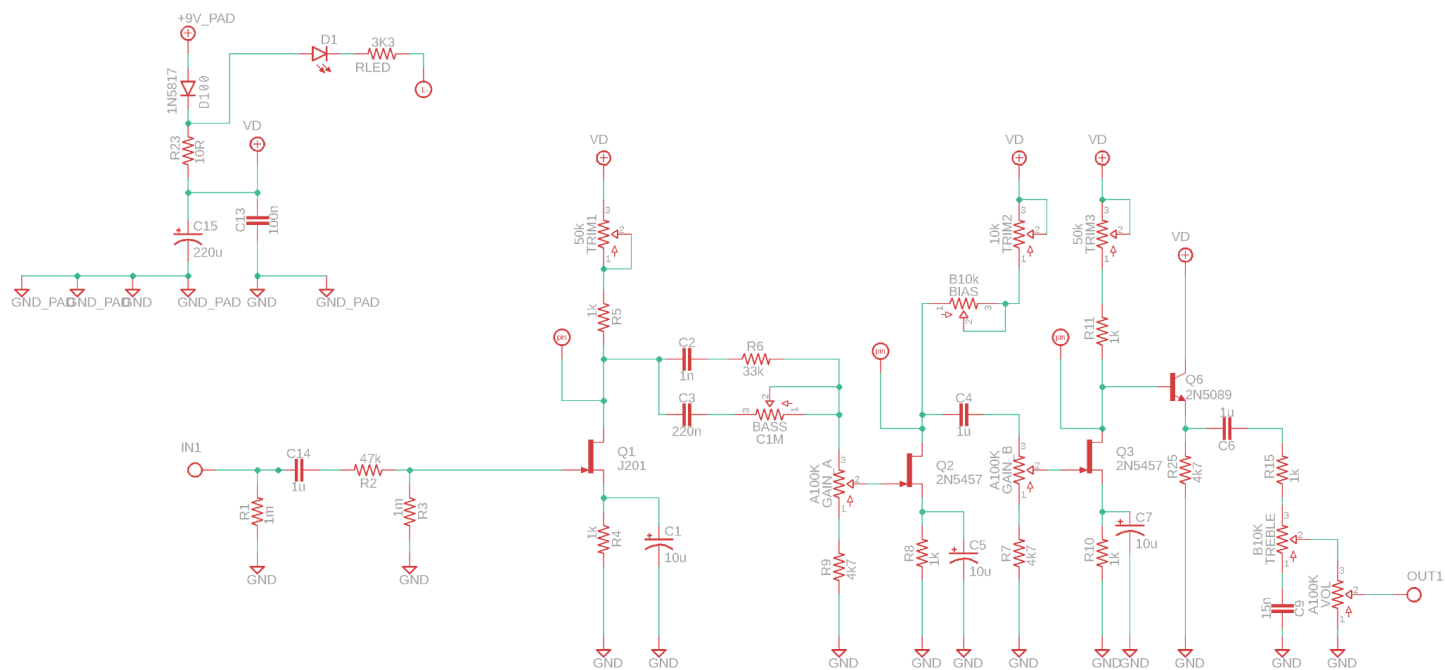
Bias all the drain voltages as follows:

- Q2 = 5.1 V +/- 0.2V
- Q3 = 4.5 V (adjust while Bias knob is 0:00)
 - Q4 = 4.5-4.7V

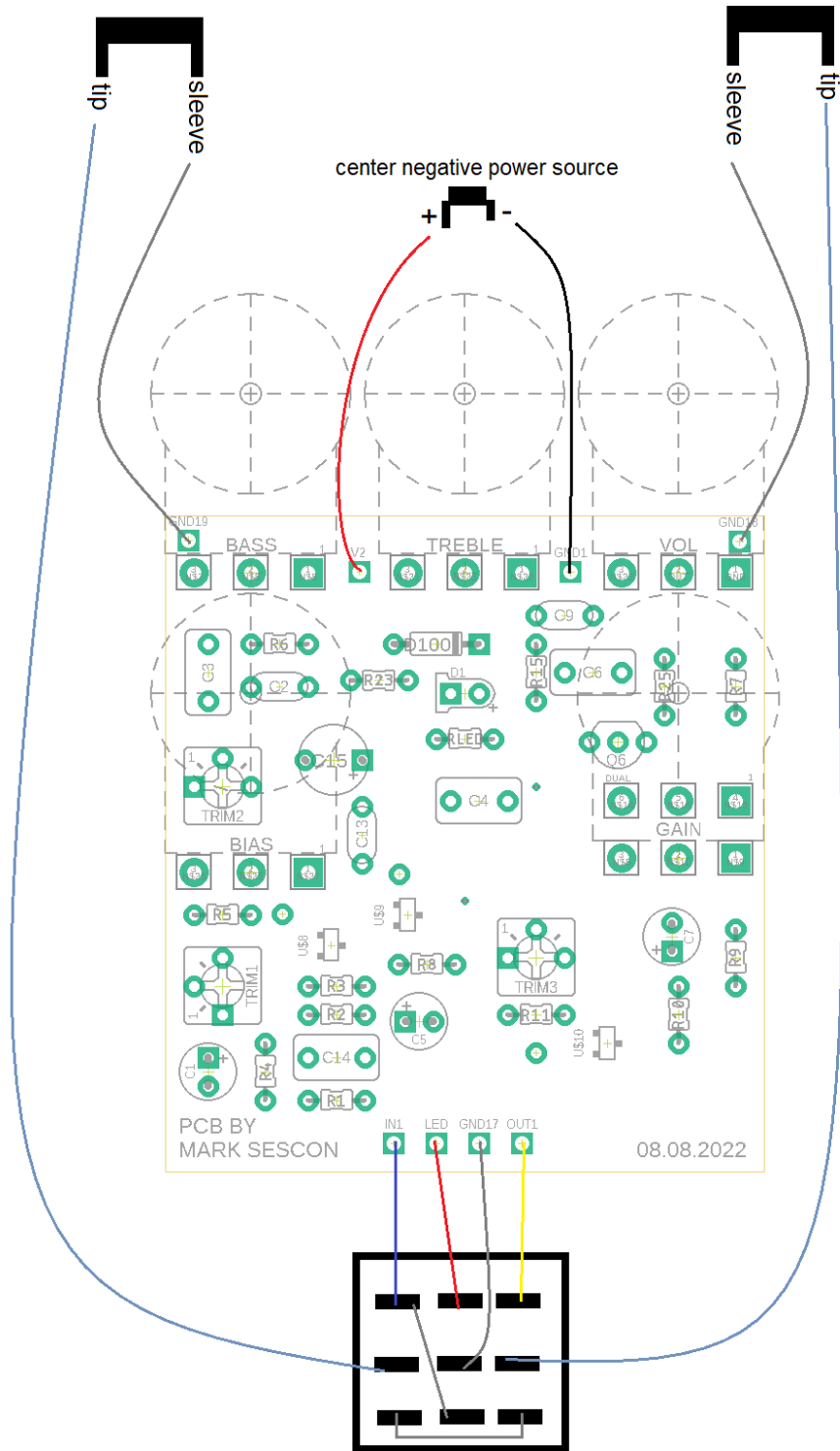
(I personally do 4.5V for all of these.)

You can use the empty pads to place a multimeter probe. The circles show which respective drain pin applies to each empty pad.

Schematic



Wiring Diagram



Additional Reading:

- Adjusting trimmer of Q3 in light of Bias and the source resistor (R8):
<https://www.freestompboxes.org/viewtopic.php?t=30921>
- Biasing JFETs: <http://diy.smallbearelec.com/HowTos/BreadboardBareAss/BreadboardBareAss.htm>
- Brian commenting with insight:
<http://tagboardeffects.blogspot.com/2016/07/smallsoundbigsound-mini-overdrive.html>
- Run Off Groove insight on JFETs:
<http://www.runoffgroove.com/fetzervale.html>

Release Notes

- August 15 - Initial draft.
- August 21 - Additional instructions about biasing JFETs. Additional instructions about Gain pot selection.
- August 29 - Additional information about JFET and potentiometer selection. Additional information about how to adjust Bias knob. Wiring diagram.