



## Sushi Box FX - Black Eye

The Black Eye is inspired by the Soldano Supercharger GTO tube distortion pedal. This is an all-tube, high-gain pedal with minimal parts count and minimal tone controls—and it is my all-time favorite pedal in the world. Soldano didn't make these for very long, and the used units that are out there fetch high prices, so why not build one yourself?

## DISCLAIMER AND WARNING

This circuit contains high voltages exceeding 200V and is EXTREMELY DANGEROUS. Sushi Box FX is not responsible for any damage or injury caused by improper use or assembly. I encourage you to use the utmost care when building, testing, and using this pedal. If high voltages make you uncomfortable, DO NOT BUILD THIS. Just don't. This is not a beginner project and should not be treated as such. It was designed to be as easy as possible to assemble and make it work, but **you have to be careful**.

Normally I would recommend testing a circuit before putting it into the box, but in this case I recommend fully boxing the unit before testing for the sake of safety. If for any reason you need to probe voltages inside the box, do so with extreme caution, and only keep one hand near the box at a time, do not allow both hands to touch the box/circuit at the same time.

## Recommended Build Instructions

This will go similar to most pedal builds; I recommend starting with smaller components and working your way up to the larger components. I recommend assembling in the following order:

1. Resistors
2. Diodes
3. IC socket
4. Ceramic capacitors
5. Film capacitors
6. Electrolytic capacitors
7. Inductor
8. BJT transistor
9. Power MOSFET
10. Tube sockets
11. Potentiometers
12. Ribbon cable

The power jack must be installed prior to the board being inserted. Additionally, the power jack tabs must be bent outwards in order to provide adequate clearance for the board. I recommend soldering the wires to the power jack prior to putting the board in, as there won't be much room to reach in to solder them afterward. The ¼" jacks have more room and can be soldered in after the board has been installed. You will need to put the tubes in before soldering the ribbon cable to the 3PDT board as the ribbon cable will cover one of the tubes.

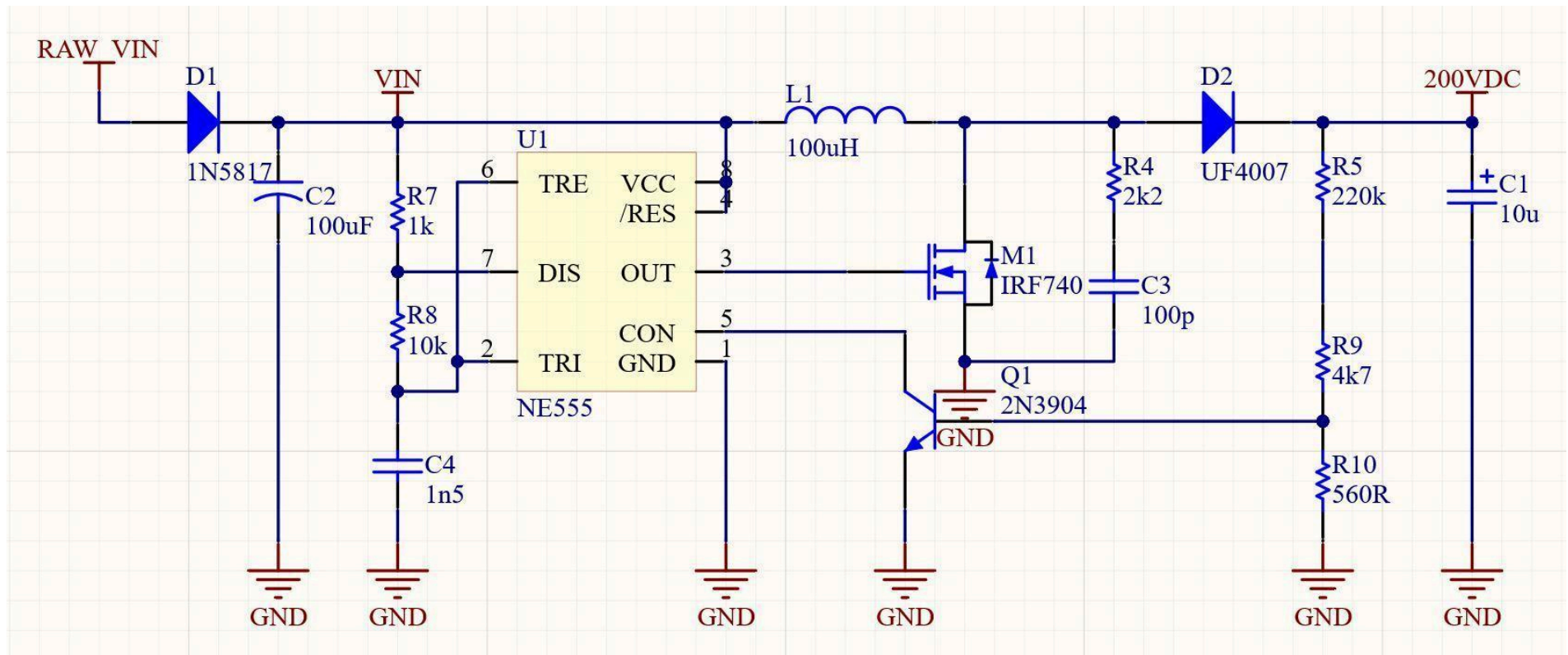
## Bill of Materials

The links below are recommendations and suitable replacements can be used as needed. These are non-affiliated links: I get no compensation of any kind if these links are used.

Value	Rating/Package	Designator	Quantity	Link
10u	250V	C1	1	<a href="#">Tayda Link</a>
100u	25V	C2	1	<a href="#">Tayda Link</a>
100p	50V	C3	1	<a href="#">Tayda Link</a>
1n5	50V	C4	1	<a href="#">Tayda Link</a>
470p	50V	C5, C12	2	<a href="#">Tayda Link</a>
1n	50V	C6, C11	2	<a href="#">Tayda Link</a>
22n	630V	C7, C8, C9, C10	4	<a href="#">Tayda Link</a>
1u	25V	C13, C14	2	<a href="#">Tayda Link</a>
22n	50V	C15	1	<a href="#">Tayda Link</a>
1N5817	Schottky	D1	1	<a href="#">Tayda Link</a>
UF4007	Rectifier	D2	1	<a href="#">Tayda Link</a>
100uH	Inductor	L1	1	<a href="#">Tayda Link</a>
IRF740	TO-220	M1	1	<a href="#">Tayda Link</a>
2N3904	TO-92	Q1	1	<a href="#">Tayda Link</a>
2k2	1/4W	R4, R30	2	<a href="#">Tayda Link</a>
220k	1/4W	R5, R11, R19, R20	4	<a href="#">Tayda Link</a>
1k	1/4W	R7	1	<a href="#">Tayda Link</a>
10k	1/4W	R8, R23, R26, R28	4	<a href="#">Tayda Link</a>
4k7	1/4W	R9	2	<a href="#">Tayda Link</a>
560R	1/4W	R10	1	<a href="#">Tayda Link</a>
100k	1/4W	R12, R13, R14, R21	4	<a href="#">Tayda Link</a>
470k	1/4W	R15, R18	2	<a href="#">Tayda Link</a>
1M	1/4W	R16, R22	2	<a href="#">Tayda Link</a>
68k	1/4W	R17	1	<a href="#">Tayda Link</a>
330k	1/4W	R24	1	<a href="#">Tayda Link</a>
39k	1/4W	R25	1	<a href="#">Tayda Link</a>
1k8	1/4W	R27, R29	2	<a href="#">Tayda Link</a>
A1M	16mm pot	GAIN, OUTPUT	2	<a href="#">Tayda Link</a>
B25k	16mm pot	TONE	1	<a href="#">Tayda Link</a>

NE555		U1	1	<a href="#">Tayda Link</a>
8-pin DIP socket		U1 (optional)	1	<a href="#">Tayda Link</a>
12AX7		V1, V2	2	<a href="#">AES Link</a>
9-pin tube socket		V1, V2	2	<a href="#">AES Link</a>
1590BB enclosure			1	<a href="#">Tayda Link</a>
1/4" jacks			2	<a href="#">BLMS Link</a>
2.1mm jack			1	<a href="#">BLMS Link</a>
3PDT footswitch			1	<a href="#">Tayda Link</a>
LED			1	Any LED
Knobs			3	Any knobs

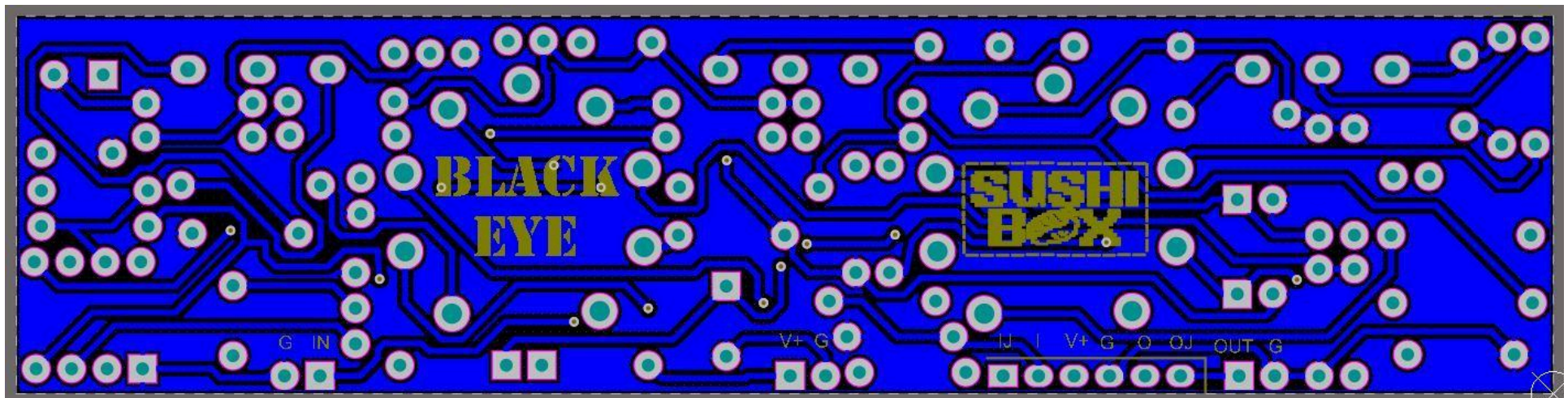
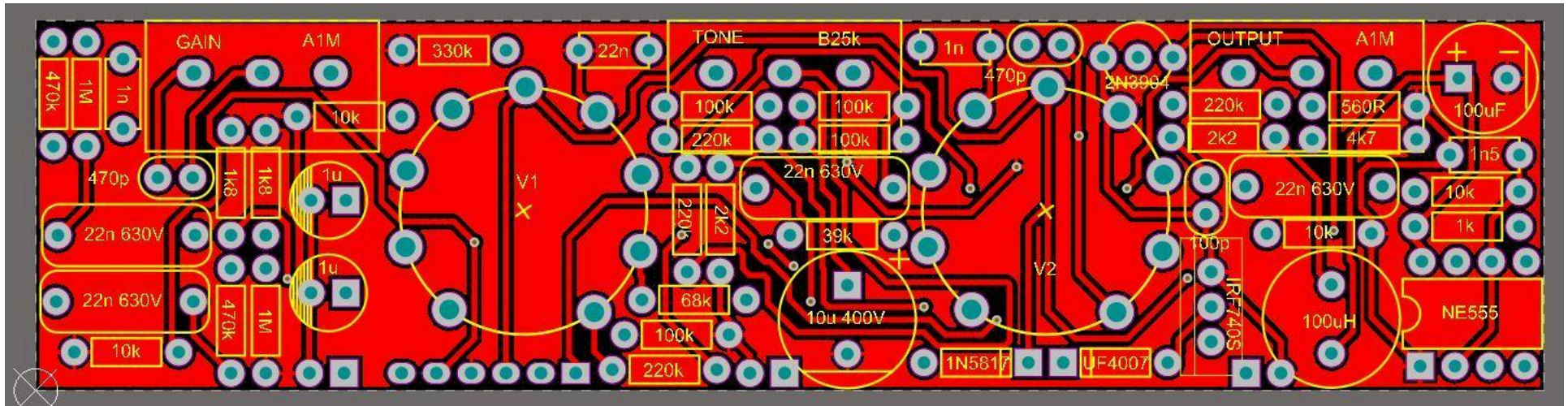
## Schematic: Power Supply



The diagram illustrates a three-stage audio amplifier circuit using 12AX7 vacuum tubes. The circuit is powered by a 200VDC supply. The input stage (V1A) is a common-cathode amplifier with a 22nF 630V coupling capacitor (C7) and a 220k resistor (R11). The middle stage (V1B) is also a common-cathode amplifier with a 22nF 630V coupling capacitor (C8) and a 100k resistor (R12). The output stage (V2A) is a common-cathode amplifier with a 22nF 630V coupling capacitor (C9) and a 100k resistor (R14). The circuit includes various resistors (R11-R29) and capacitors (C1-C15) for biasing and coupling. The output is labeled OUTPUT AIM and OUTPUT.



## Board Layout



**Drill Template - 1590BB** Print to 100% scale; provided as a reference with no guarantees.

