

SILVERFOX

FX TYPE: Overdrive

Based on the Barber® LTD Silver™

Enclosure Size: 1590B

Softie compatibility: Softie3

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Overview

The **Silverfox** was one of the earliest PCB layout projects I attempted way back in 2009. It was offered for a while as a hand-made etched board and then fell off the map, as many mbp projects have done over the last 12 years.

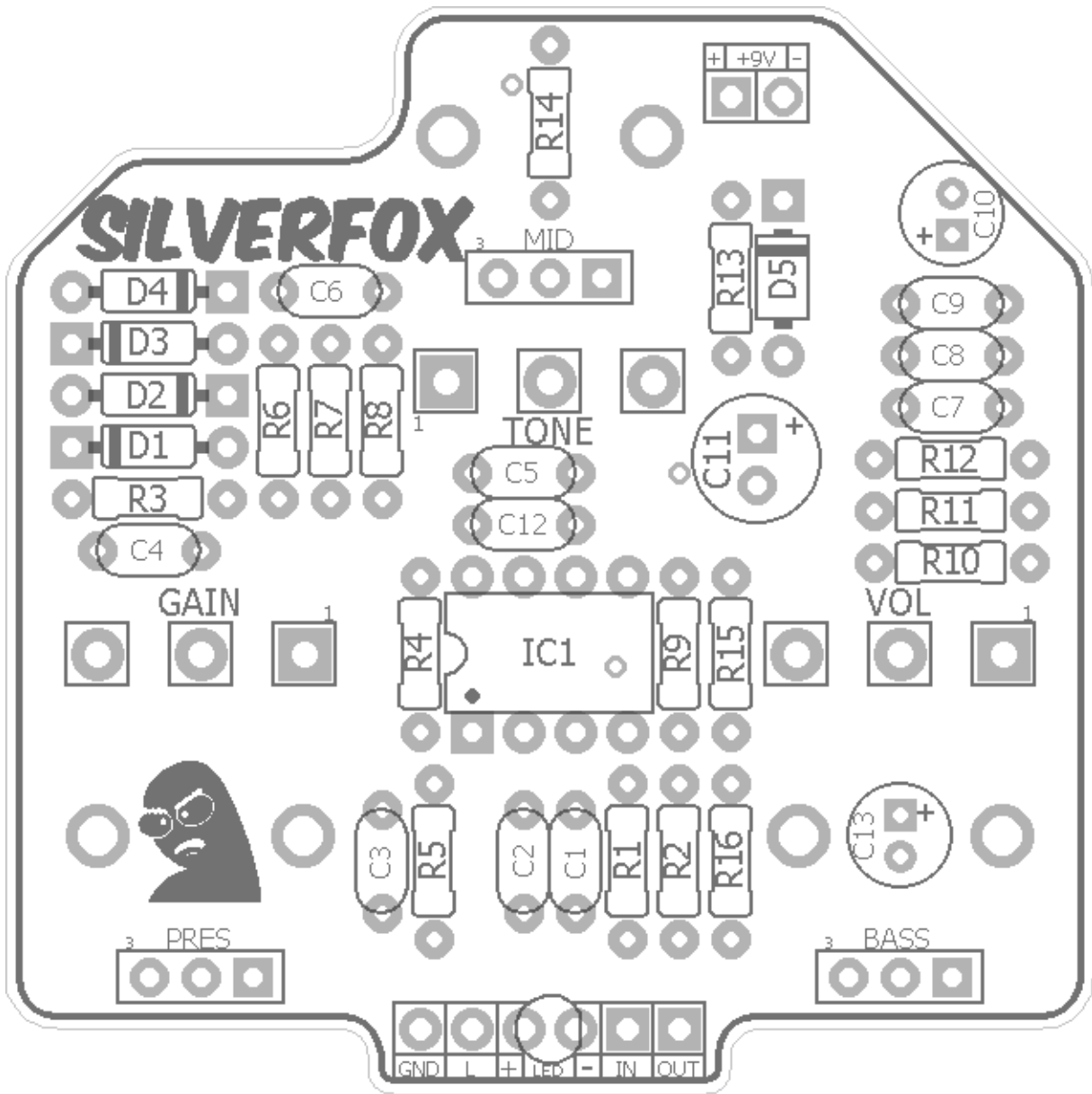
For the Fall 2021 Giveaway, I decided it would be fun to revisit this project since it is a great low-gain overdrive and because my project design skills are somewhat improved from 2009. Dave Barber always shows an elegance in his approach and execution. There are familiar circuit elements here but put together in a way so that it's not quite like anything else.

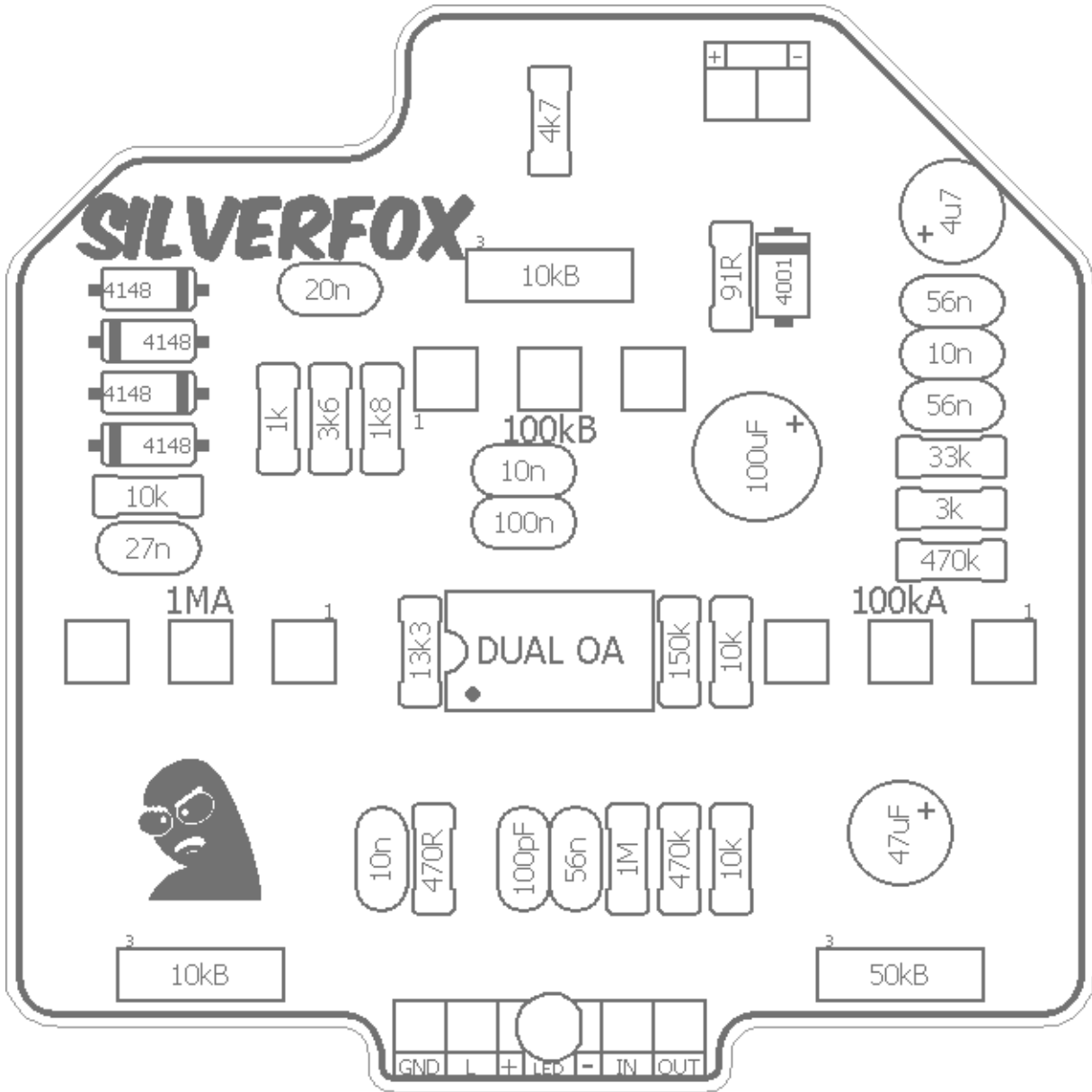
Controls

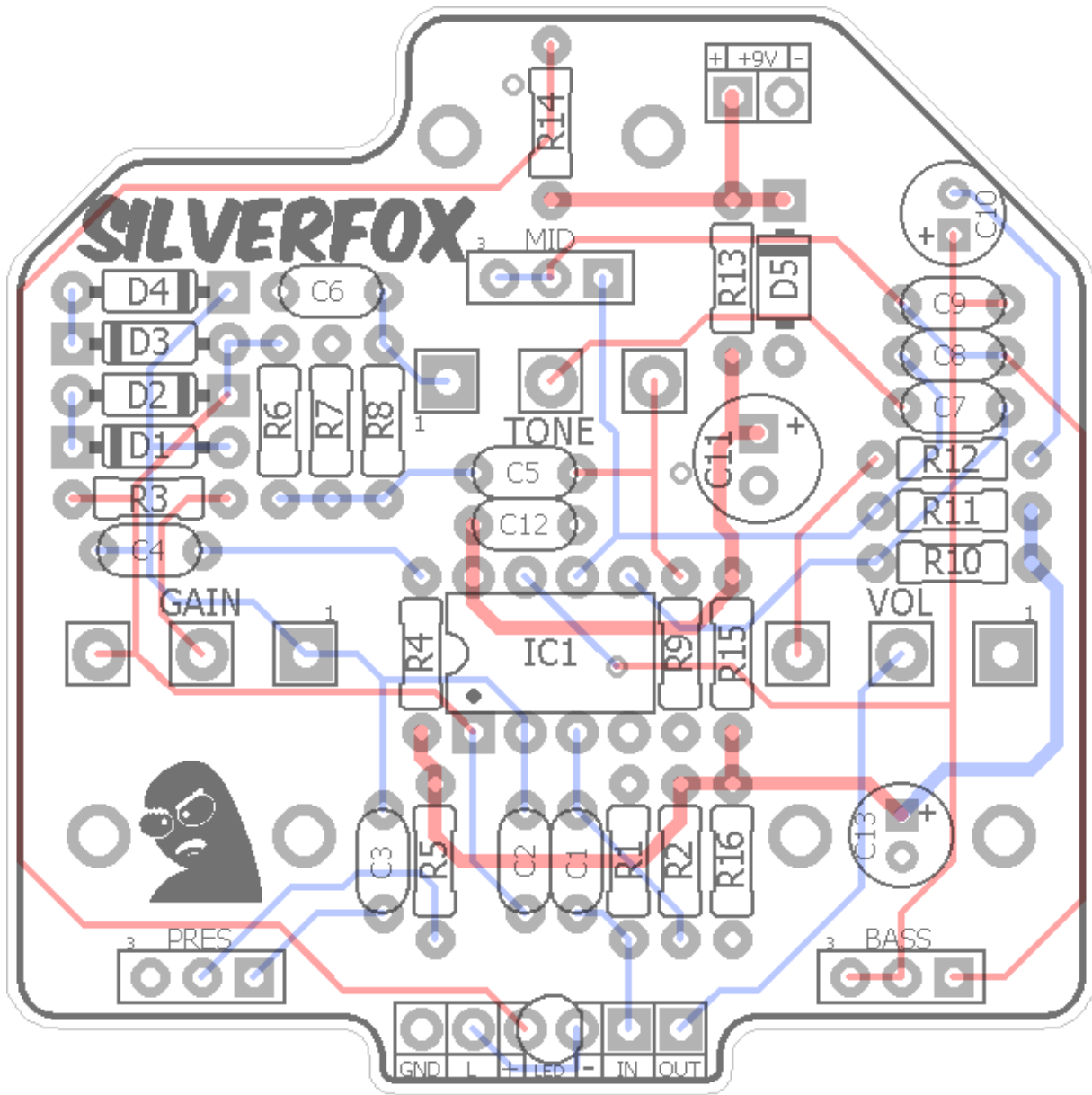
- **VOL** - Effect output level.
- **GAIN** - Overdrive amount. At max setting it does get hairy but falls off quickly to low gain overdrive when turned down.
- **STONE** - A Muff style tone control, but voiced very differently than the BM.
- **BASS** - Trimmer in the stock unit. This control will increase low end after the clipping stage.
- **MID** - A fixed resistor (9k1) in the stock unit. This control ranges from mids cut to mids focused.
- **PRES** - Trimmer in the stock unit. This control is limited in range. It can add a slight amount of low to upper mids clipping when turned up but only when the MID control is also set high. At low MID settings, there is no real audible effect. Overall, it's just very subtle so don't expect a lot out of it.

Terms of Use: You are free to use purchased **Silverfox** circuit boards for both DIY and small commercial operations. You may not offer **Silverfox** PCBs for resale or as part of a "kit" in a commercial fashion. Peer to peer re-sale is fine, though.

Technical assistance for your build(s) is available via the [madbeanpedals forum](http://madbeanpedals.com). Please go there rather than emailing me for assistance on [builds](#). This is because (1) I'm not always available to respond via email in a timely and continuous manner, and (2) posting technical problems and solutions in the forum creates a record from which other members may benefit.







Resistors		Caps		Diodes	
R1	1M	C1	56n	D1 - D4	1n4148
R2	470k	C2	100pF	D5	1N4001
R3	10k	C3	10n	ICs	
R4	13k3	C4	27n	IC1	DUAL OA
R5	470R	C5	10n	Pots	
R6	1k	C6	20n	VOL	100kA
R7	3k6	C7	56n	TONE	100kB
R8	1k8	C8	10n	GAIN	1MA
R9	150k	C9	56n	MID	10kB
R10	470k	C10	4u7	PRES	10kB
R11	3k	C11	100uF	BASS	50kB
R12	33k	C12	100n		
R13	91R	C13	47uF		
R14	4k7				
R15	10k				
R16	10k				

You can sub these values, if needed:

- R4: 10k+3k3 for 13k3
- R13: 100R for 91R
- C6: 22n for 20n
- D1-D4: 1n914 for 1n4148

Value	QTY	Type	Rating
91R	1	Metal / Carbon Film	1/4W
470R	1	Metal / Carbon Film	1/4W
1k	1	Metal / Carbon Film	1/4W
1k8	1	Metal / Carbon Film	1/4W
3k	1	Metal / Carbon Film	1/4W
3k6	1	Metal / Carbon Film	1/4W
4k7	1	Metal / Carbon Film	1/4W
10k	3	Metal / Carbon Film	1/4W
13k3	1	Metal / Carbon Film	1/4W
33k	1	Metal / Carbon Film	1/4W
150k	1	Metal / Carbon Film	1/4W
470k	2	Metal / Carbon Film	1/4W
1M	1	Metal / Carbon Film	1/4W
100pF	1	Ceramic / MLCC / Mica	16v min.
10n	3	Film	16v min.
20n	1	Film	16v min.
27n	1	Film	16v min.
56n	3	Film	16v min.
100n	1	Film	16v min.
4u7	1	Electrolytic	16v min.
47uF	1	Electrolytic	16v min.
100uF	1	Electrolytic	16v min.
1n4148	4		
1N4001	1		
DUAL OA	1	4588, TL072, 4580D, etc	
100kA	1	PCB Mount Right Angle	16mm
100kB	1	PCB Mount Right Angle	16mm
1MA	1	PCB Mount Right Angle	16mm
10kB	2	PCB Right Angle, Plastic Shaft	9mm
50kB	1	PCB Right Angle, Plastic Shaft	9mm

9mm Pots (10k Ω , 50k Ω):

<https://smallbear-electronics.mybigcommerce.com/alpha-single-gang-9mm-right-angle-pc-mount-w-knurled-plastic-shaft/>

16mm pots (100k Ω , 100k Ω , 1M Ω):

<https://smallbear-electronics.mybigcommerce.com/alpha-single-gang-16mm-right-angle-pc-mount/>

Thinline DC Jack:

<http://smallbear-electronics.mybigcommerce.com/dc-power-jack-all-plastic-unswitched-2-1-mm/>

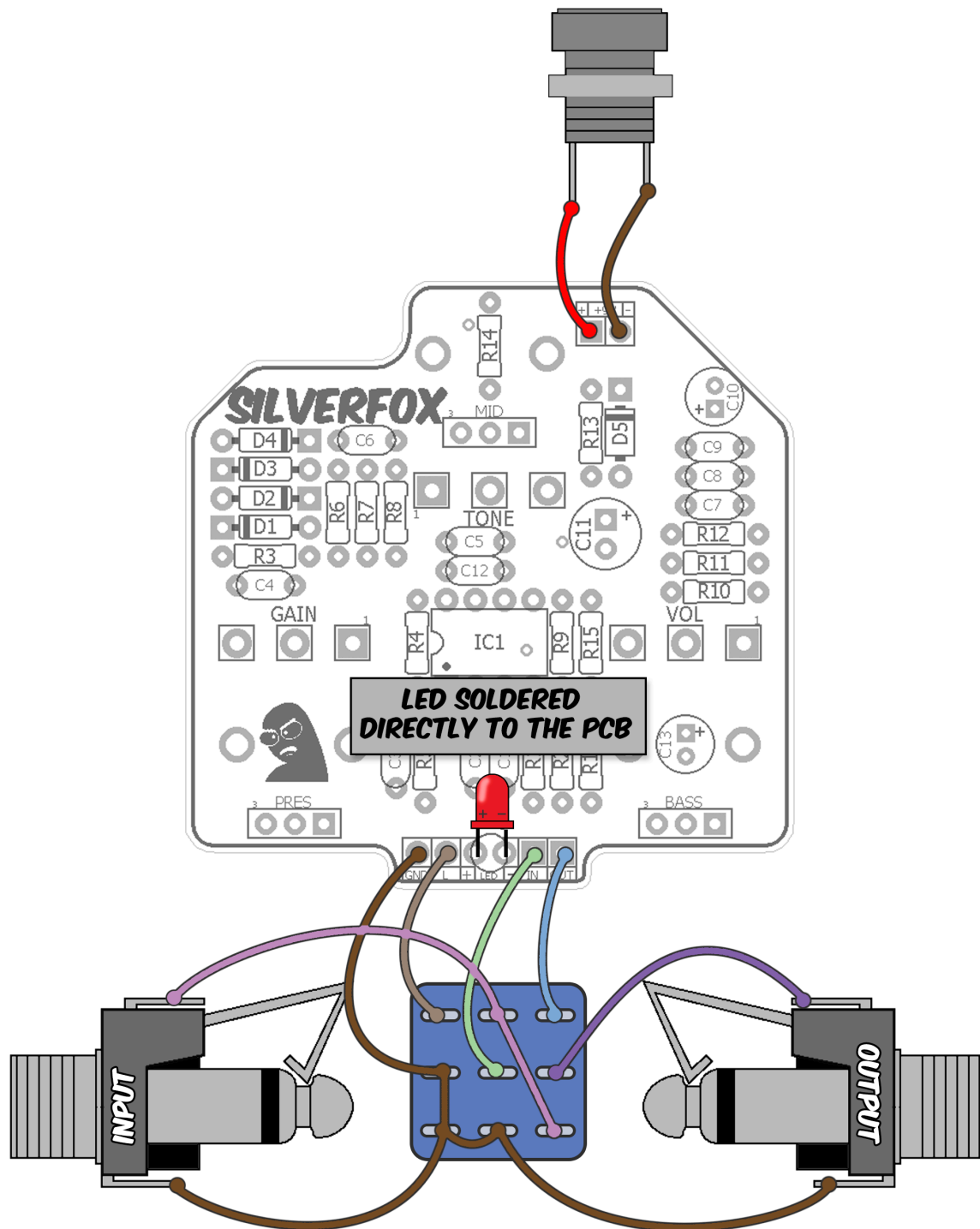
Mono Jacks:

<http://smallbear-electronics.mybigcommerce.com/lumberg-1-4-compact-shrouded-mono-jack/>

<http://smallbear-electronics.mybigcommerce.com/1-4-in-mono-nys229/>

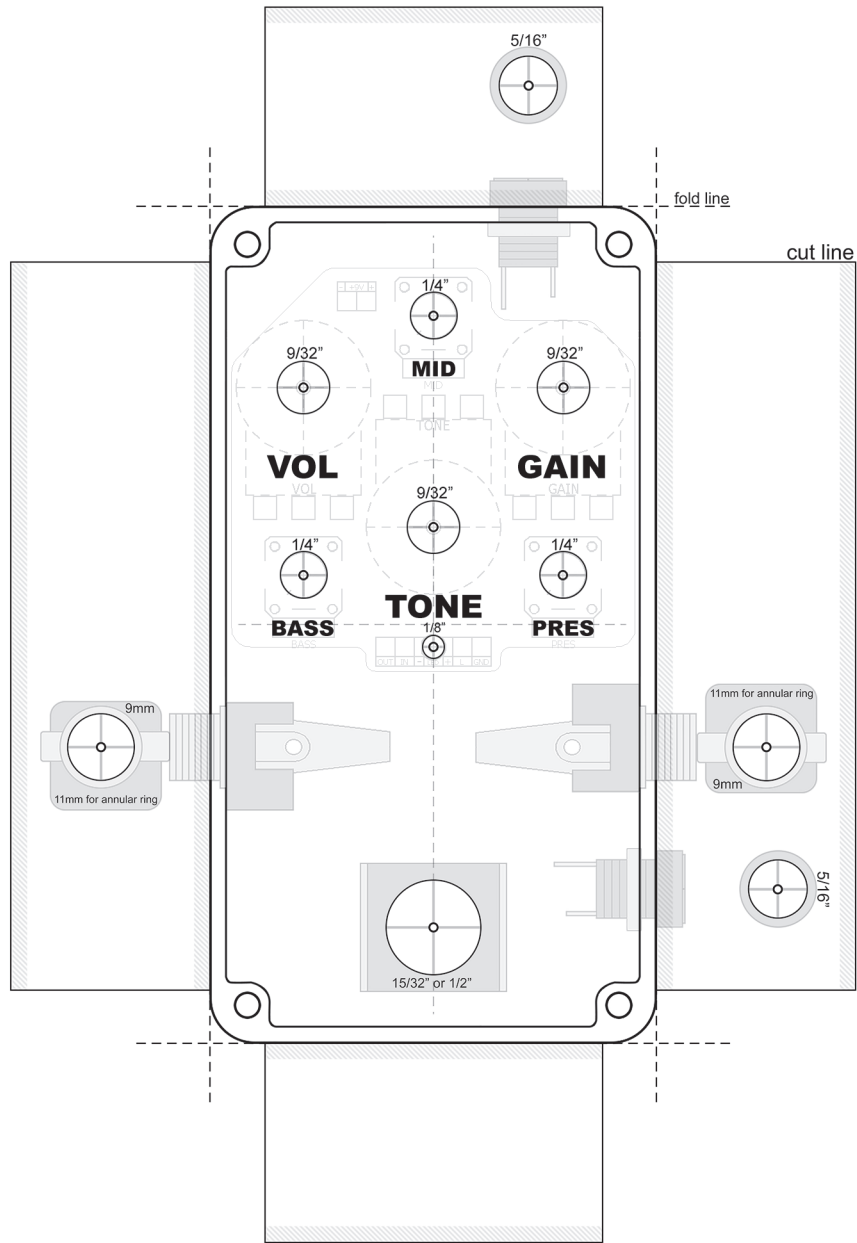
<https://smallbear-electronics.mybigcommerce.com/1-4-in-mono-enclosed-switchcraft-111x/>

- I've seen pics of LTD guts with the JRC/NJM 072BD op-amp, so a TL072 should be a good sub. There's no wrong choice for op-amp here. My favorite dual op-amps for OD tend to be 4580D, 4580DD, 4558, and LM1458.
- If the stock tone control is not to your liking, you can shift the frequency response by using lower values of R9. Dave Barber recommends 47k, 33k or 15k. Socket for experimentation.



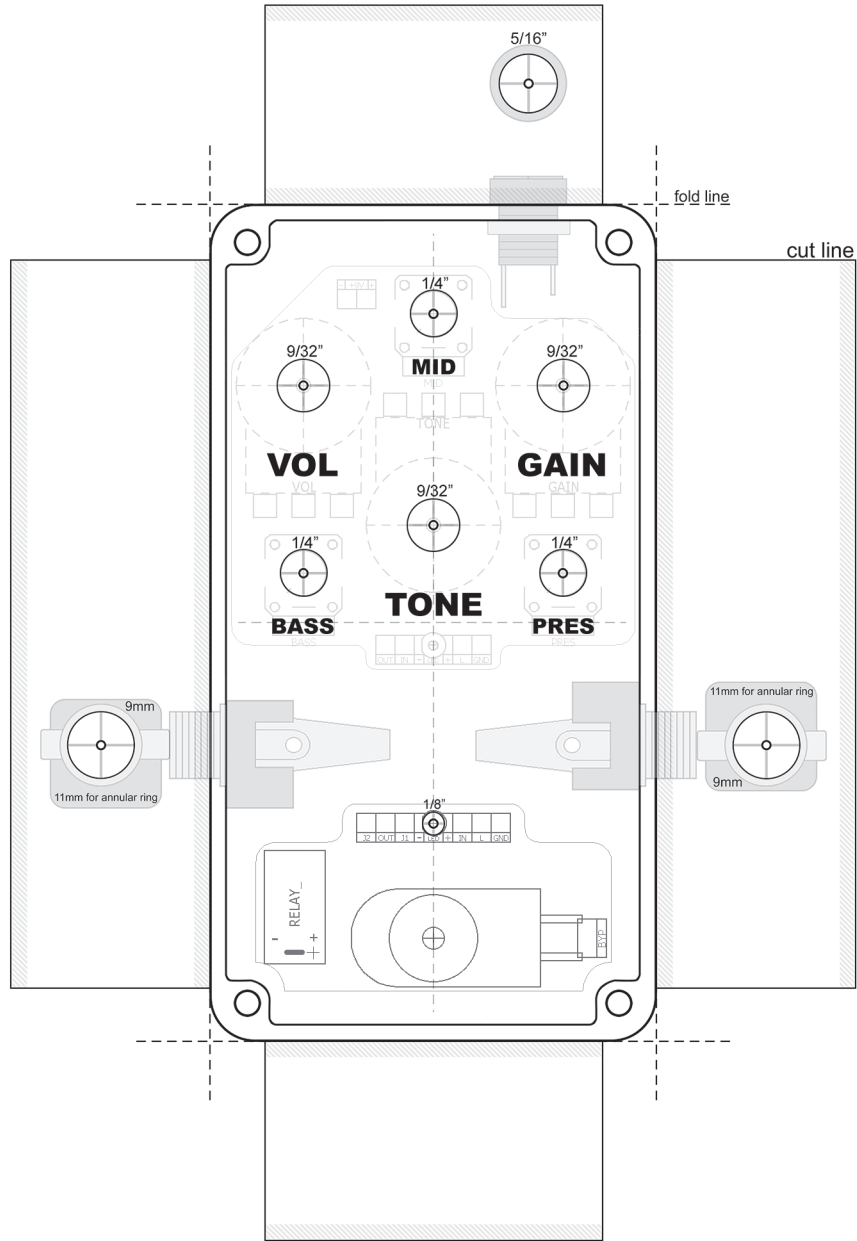
3PDT bypass wiring. If you want to use the Softie3 relay bypass instead (sold separately) please refer to that project documentation for wiring instructions.

Note: Drill Guides are approximate and may require tweaking depending on the types of jacks, switches and pots you use.



Use this drill template for regular 3PDT bypass.

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Use this drill template for Softie3 relay bypass (sold separately).

IC1	Op-Amp
1	4.45
2	4.51
3	4.3
4	0
5	4
6	4.5
7	4.5
8	8.96

- 9.42vDC One Spot
- Current Draw: 4mA

