

# EGODEATH

## FX TYPE: Overdrive/Distortion

Based on the Fulltone® OCD™

Enclosure Size: 1590B

"Softie" compatibility: Softie3

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### Overview

The **EgoDriver** was one of the very first mbp projects way back in 2009. It stuck around for a long time and went through several revisions and tweaks. Coming back to it in 2022, I planned on just updating the layout and releasing it alongside a few other old Fulltone® projects. But, in that process I remembered that during my Function F(x) years we had worked on an OCD™-style project that addressed some of the shortcomings of the original design. It was never released, so I decided (with their permission) to make it an mbp project: the **EgoDeath!**

### Changes Made

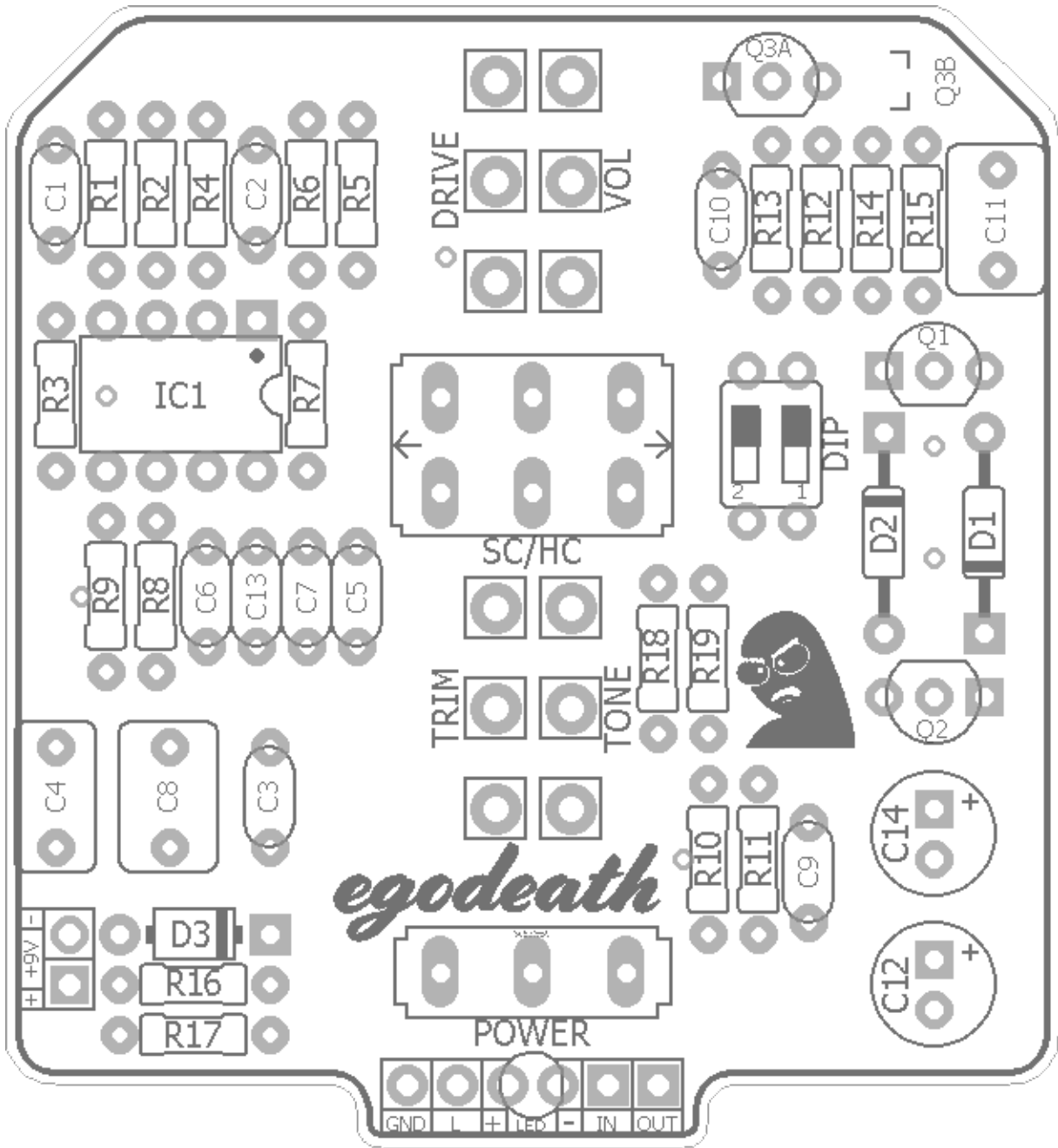
- Many players have complained about the output impedance of the OCD™ not working well in front of some effects. So, I've tacked on a simple JFET output buffer to guarantee a consistent low impedance output. I would like to have made this bypass-able, but there wasn't enough room for that on a 1590B design.
- Many players have complained that the OCD gets way too bassy with the gain dialed up. Here I've added a "Trim" control to reduce the low end at any gain setting. It does reduce the total gain when turned up, so it's a bit of a compromise. But, very useful for neck pickups.
- The last change seemed like a no-brainer: make the same set of diodes hard or soft clipped. That way you can get the touch dynamics of hard clipping, and smoothness of soft clipping. In addition, I added a dip switch so you can put germanium diodes in series with the mosfets (to soften their turn on voltage).
- I changed the values of the tone pot and cap to balance it more to my personal liking.

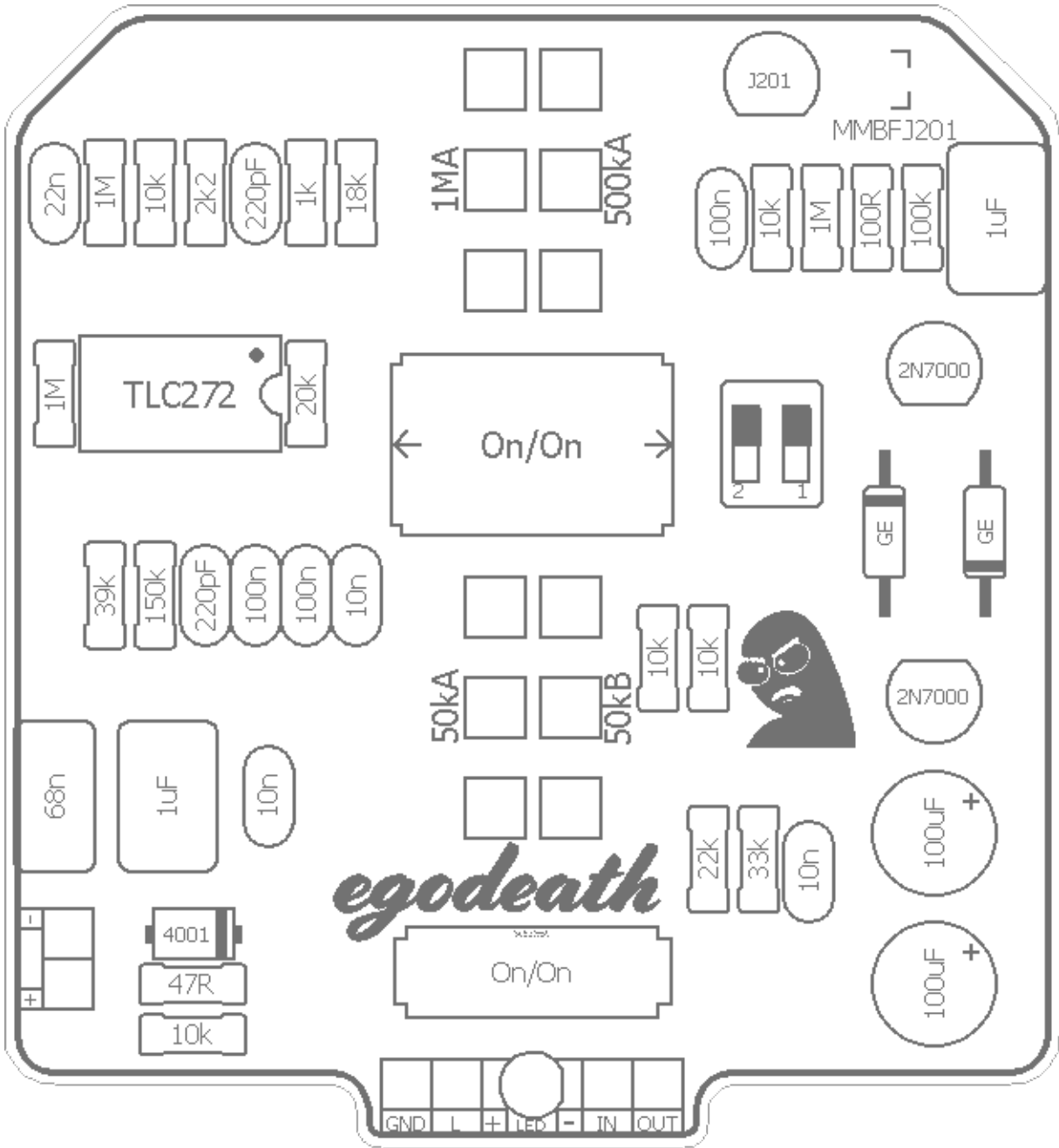
### Controls

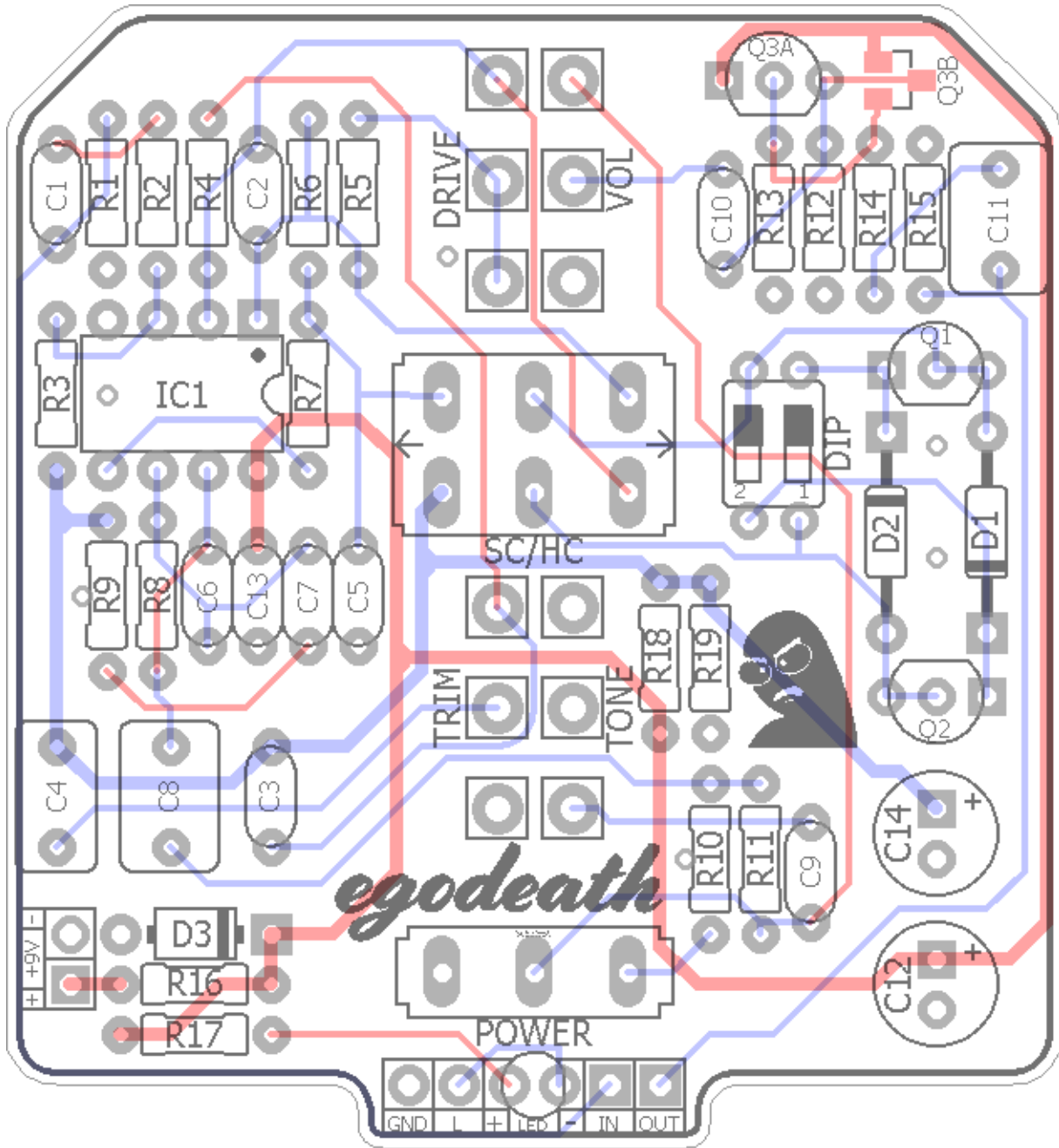
- **VOL, TONE, DRIVE** - Standard overdrive/distortion controls.
- **TRIM** - CCW: stock OCD™ setting. When turned clockwise it will reduce the amount of low end in gain stage. It will reduce the maximum amount of gain, as well.
- **SC/HC** - Hard-clipping mode (left) is the stock OCD™ setting. In the right position, the switch moves the clipping diodes to the feedback loop of the IC. It's not a drastic change in tone, but does soften it up a bit.
- **POWER** - The POWER control is intended to balance between low and high output pickups. In the LO position (left) the audio signal passes through a single 33k resistor before the output buffer. In the HI (right) a 22k resistor is added in parallel to reduce the overall resistance, thus increasing the output level. This setting will be somewhat brighter, as well.
- **DIP** - This 2-pos dip switch allows you to short the germanium diodes in series with the mosfet clippers. The germaniums are active in the down position of each switch, and shorted in the up position. The stock OCD™ setting is right switch down and left up. You can use any combination on the DIP switch for slightly different coloration.

**Terms of Use:** You are free to use purchased **EgoDeath** circuit boards for both DIY and small commercial operations. You may not offer **EgoDeath** 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/forum). 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	22n	D1	GE
R2	10k	C2	220pF	D2	GE
R3	1M	C3	10n	D3	1n4001
R4	2k2	C4	68n	Transistors	
R5	18k	C5	10n	Q1	2N7000
R6	1k	C6	220pF	Q2	2N7000
R7	20k	C7	100n	Q3A	J201
R8	150k	C8	1uF	IC	
R9	39k	C9	10n	IC1	TLC272
R10	22k	C10	100n	Switches	
R11	33k	C11	1uF	DIP	2 pos.
R12	1M	C12	100uF	POWER	SPDT
R13	10k	C13	100n	SC/HC	DPDT
R14	100R	C14	100uF	Pots	
R15	100k			TRIM	50kA
R16	47R			TONE	50kB
R17	10k			VOL	500kA
R18	10k			DRIVE	1MA
R19	10k				

Value	Qty	Type	Rating
47R	1	Metal / Carbon Film	1/4W
100R	1	Metal / Carbon Film	1/4W
1k	1	Metal / Carbon Film	1/4W
2k2	1	Metal / Carbon Film	1/4W
10k	5	Metal / Carbon Film	1/4W
18k	1	Metal / Carbon Film	1/4W
20k	1	Metal / Carbon Film	1/4W
22k	1	Metal / Carbon Film	1/4W
33k	1	Metal / Carbon Film	1/4W
39k	1	Metal / Carbon Film	1/4W
100k	1	Metal / Carbon Film	1/4W
150k	1	Metal / Carbon Film	1/4W
1M	3	Metal / Carbon Film	1/4W
220pF	2	Ceramic / MLCC	16v min.
10n	3	Film	16v min.
22n	1	Film	16v min.
68n	1	Film	16v min.
100n	3	Film	16v min.
1uF	2	Film	16v min.
100uF	2	Electrolytic	16v min.
GE	2	1n34a, or similar	
1n4001	1		
2N7000	2		
J201	1	or, MMBFJ201	
TLC272	1	*suggested	
SPDT	1	On/On, PCB or Pin Mount	
DPDT	1	On/On, PCB or Pin Mount	
50kA	1	PCB Right Angle	16mm
50kB	1	PCB Right Angle	16mm
500kA	1	PCB Right Angle	16mm
1MA	1	PCB Right Angle	16mm

**1n34a GE diode:** You can sub a BAT41 Schottky for 1n34a.

1. <https://stompboxparts.com/semiconductors/1n34a-germanium-diode/>

**TL082:** (stock chip)

<https://www.mouser.com/ProductDetail/595-TL082CP>

<https://stompboxparts.com/semiconductors/tl082-dual-op-amp-ic/>

**TLC272CP** (suggested, not required):

1. <https://www.mouser.com/ProductDetail/595-TLC272CP>

**J201:** (in stock as of 12/2022)

1. <https://smallbear-electronics.mybigcommerce.com/transistor-fet-fairchild-j201/>

**Subs for through-hole J201:**

1. <https://smallbear-electronics.mybigcommerce.com/fairchild-jfet-mmbf5457/>
2. <https://stompboxparts.com/semiconductors/mpf102-jfet-nos-fairchild/>

**MMBFJ201:** (not in stock as of 12/2022)

1. <https://www.mouser.com/ProductDetail/512-MMBFJ201>

**MMBF5457:** (sub for smd J201)

1. <https://smallbear-electronics.mybigcommerce.com/fairchild-jfet-mmbf5457/>

**2 Pos. Dip Switch:**

1. <https://smallbear-electronics.mybigcommerce.com/dip-switch-2-position/>
2. <https://stompboxparts.com/switches/dip-switch-2-position/>
3. <https://www.taydaelectronics.com/black-dip-switch-2-positions-gold-plated-contacts-top-actuated.html>

**SPDT (On/On):**

1. <https://smallbear-electronics.mybigcommerce.com/spdt-on-on-short-lever/>
2. <https://lovemyswitches.com/taiway-spdt-on-on-switch-solder-lug-short-shaft/>
3. <https://stompboxparts.com/switches/spdt-toggle-switch-on-on-solder-lug-short-bat/>

**DPDT (On/On):**

1. <https://smallbear-electronics.mybigcommerce.com/dpdt-short-lever-on-on/>
2. <https://lovemyswitches.com/taiway-dpdt-on-on-switch-solder-lug-short-shaft/>
3. <https://stompboxparts.com/switches/dpdt-toggle-switch-on-on-solder-lug-short-bat/>

**16mm Right Angle Pots:**

1. <http://smallbear-electronics.mybigcommerce.com/alpha-single-gang-16mm-right-angle-pc-mount/>
2. <https://stompboxparts.com/pots/16mm-potentiometer-short-pcb-leg/>

**DC Jacks:**

1. <https://smallbear-electronics.mybigcommerce.com/2-1-mm-all-plastic-round/>
2. <https://stompboxparts.com/power-connections/dc-power-jack-2-1mm-low-profile/>
3. <https://lovemyswitches.com/thinline-lumberg-dc-power-jack-2-1mm/>

**1/4" jacks:**

1. <https://smallbear-electronics.mybigcommerce.com/1-4-in-mono-nys229/>
2. <https://smallbear-electronics.mybigcommerce.com/1-4-in-mono-switchcraft-11/>
3. <https://lovemyswitches.com/1-4-mono-jack-lumberg-klbm-3/>
4. <https://lovemyswitches.com/1-4-mono-jack-neutrik-rean-nys229/>

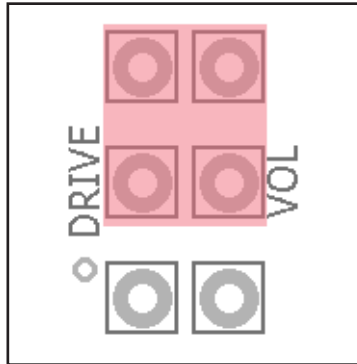
**My preferred 3PDT switch:**

1. <https://lovemyswitches.com/pro-3pdt-latched-foot-switch-solder-lugs-feather-soft-click/>

- You can use either a through-hole or surface mount transistor for the JFET buffer. Make sure you only use one option!

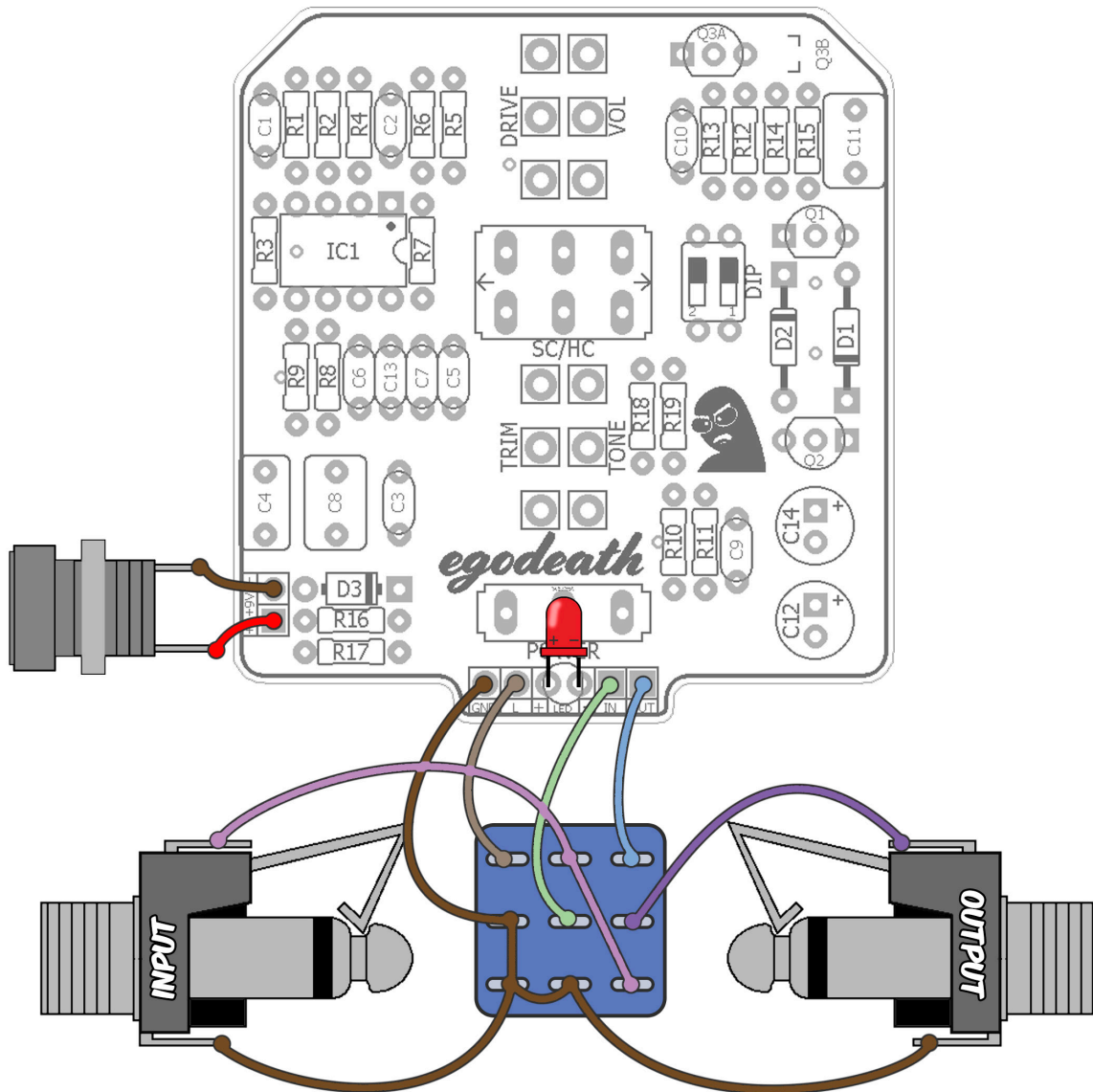


- If you use a top mounted DC jack, you may need to trim the first two rows of the DRIVE and VOL pots (provided you use a PCB mounted pot instead of wired one). Clearance is tight. Or, just use a side mounted DC Jack as show on the drill template.



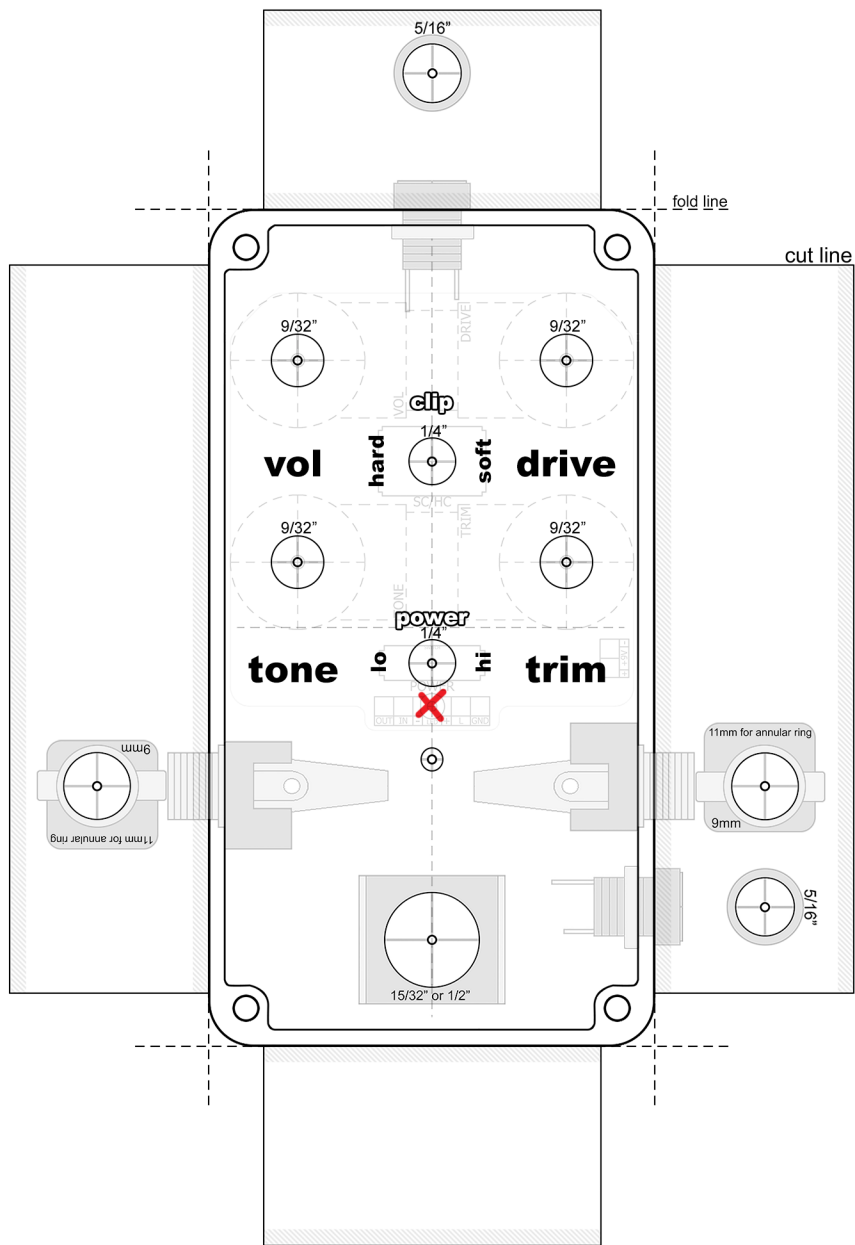
- The bypass LED is in a bad spot on this layout (too close to the switch). The drill template shows a lower position for the LED. You will need to bend the leads a bit to make it reach. Please see the build pic at the end of this doc for an example.
- I stuck a TLC272 in my build and liked it. But, that chip is limited to 16v max. If you want to try the EgoDeath at 18v, then I suggest sticking with the stock chip, the TL082. Or, another one that can tolerate the higher voltage.





The bypass LED was put in an awkward place. It's too close to the Power switch. I still recommend soldering it directly to the PCB but extended downward to give the LED extra space. See my build pic for reference at the end of this document.

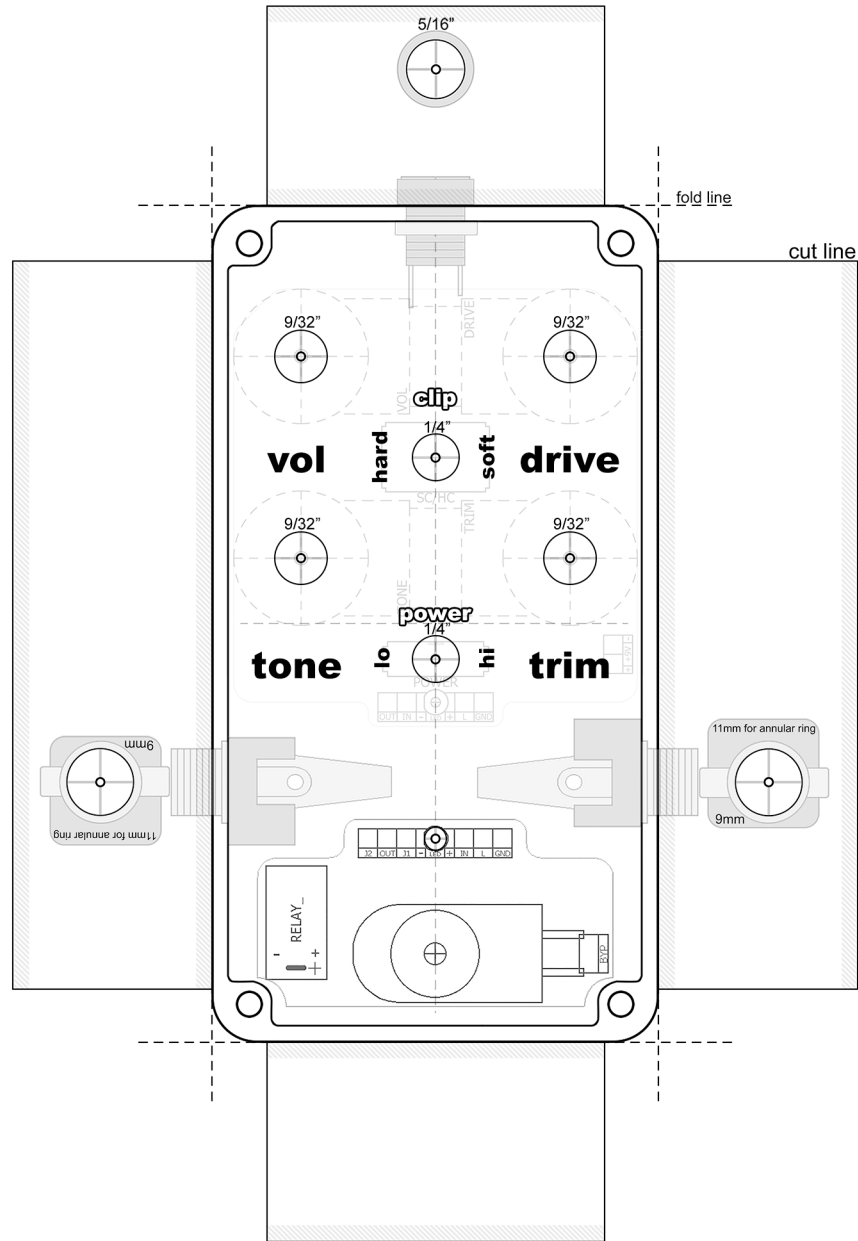
**Note:** Drill Guides are approximate and may require tweaking depending on the types of jacks, switches and pots you use.



Use this template for regular 3PDT bypass. Note that I have moved the bypass LED location further down.

This diagram shows two possible locations for the DC Jack (top and side).

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



Use this template for "Softie3" relay bypass. You should mount the DC Jack at the top of the enclosure. Side mount may be too difficult.

IC1	TLC272
1	4.58
2	4.49
3	4.32
4	0
5	4.58
6	4.69
7	4.9
8	9.4
Q1	MPF102
D	9.4
S	244mV
G	3.48

- 9.5vDC One Spot
- Current Draw: 2mA
- Testing conditions: Pots @ noon. Switches left..

