AFTERLIFE2020

FX TYPE: Compressor

Based on the John Hollis Flatline

Enclosure Size: 1590A

“Softie” compatibility: none

Overview

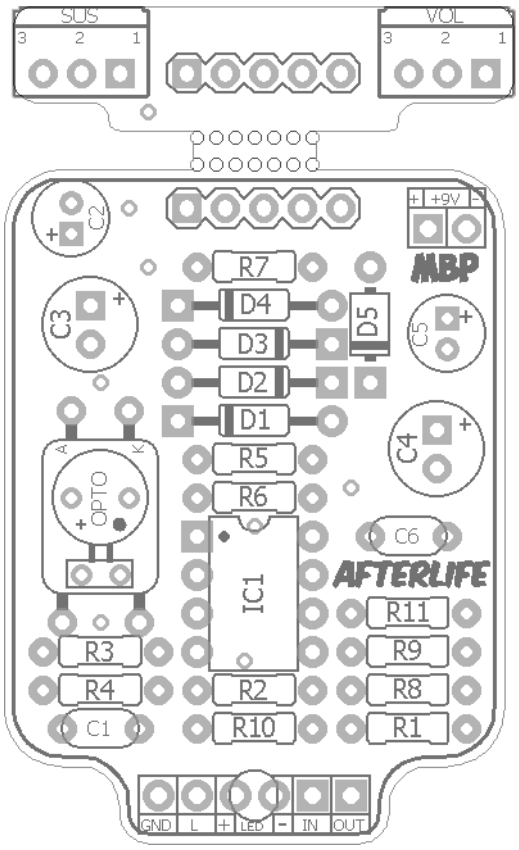
The Afterlife compressor is based on the John Hollis Flatline. It is a low-parts count, optical compressor that will add excellent sustain and compression to your guitar tone. A simple op-amp gain stage at the signal input sets the compression amount. The dynamic level of the input is processed through IC1B where the signal is then rectified to drive an LED. The LED is the “engine” that drives the photocell in parallel with R3 which dynamically changes the overall gain of IC1A. The end result is that your guitar signal is compressed so that the overall dynamic level is evened out, thus creating sustain. The release of the compression is determined by the value of C3.

Controls

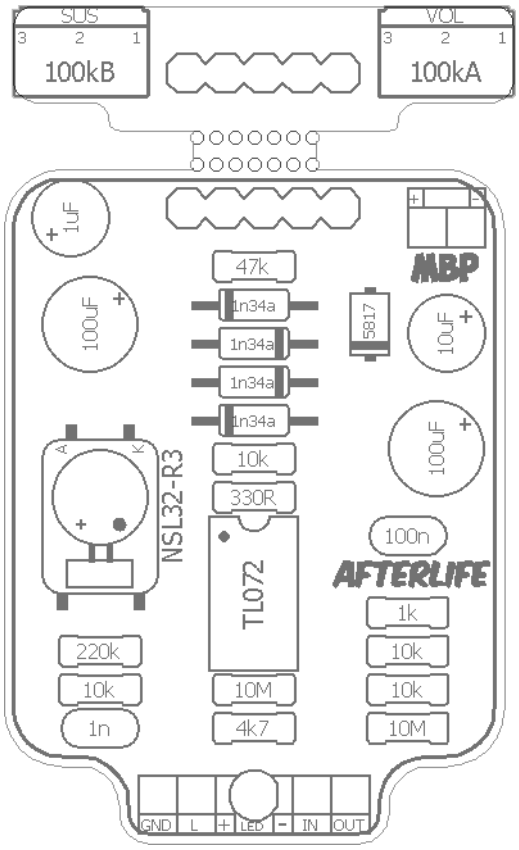
- **VOL -** Total Output.
- **SUS -** Compression level.

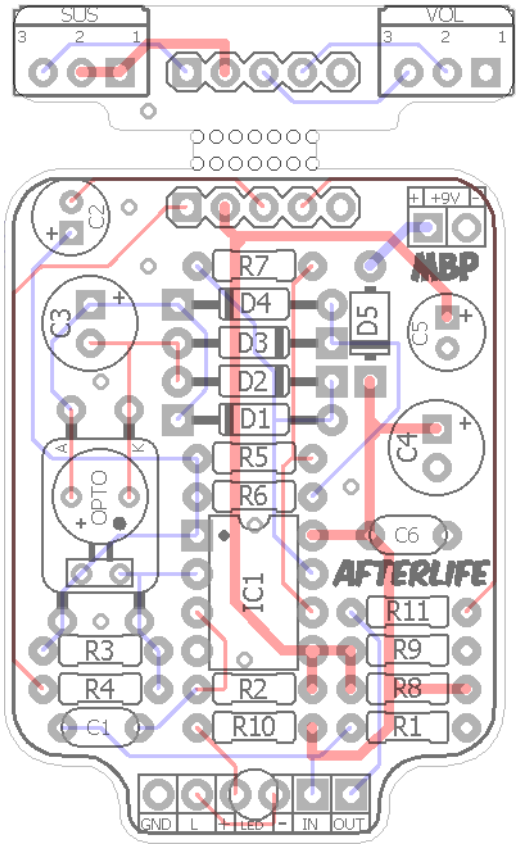
More info about the John Hollis circuits: http://www.hollis.co.uk/john/circuits.html

Technical assistance for your build(s) is available via the madbeanpedals 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.



Don’t forget to break apart the two PCBs before you start building!


SUS
3 2 1
100kB
VOL
3 2 1
100kA
1uF
100uF
47k
1n34a
1n34a
1n34a
1n34a
5817
MBP
10uF
100uF
NSL32-R3
A
K
10k
330R
TL072
100n
AFTERLIFE
1k
10k
10k
10M
220k
10k
1n
10M
4k7
GND
L
+
LED
-
IN
OUT


SUS
3 2 1
VOL
3 2 1
+9V
C2
R7
D4
D3
D2
D1
D5
C3
C5
C4
R5
R6
OPTO
C6
IC1
AFTERLIFE
R11
R9
R8
R1
R3
R4
R2
R10
C1
GND L + LED - IN OUT

Resistors		Caps		Diodes	
R1	10M	C1	1n	D1 - D4	1n34a
R2	10M	C2	1uF	D5	1N5817
R3	220k	C3	100uF	IC	
R4	10k	C4	100uF	IC1	TL072
R5	10k	C5	10uF	Optical	
R6	330R	C6	100n	OPTO	NSL32-R3
R7	47k			Pots	
R8	10k			SUS	100kB
R9	10k			VOL	100kA
R10	4k7				
R11	1k				

Value	QTY	Type	Rating
330R	1	Metal / Carbon Film	1/4W
1k	1	Metal / Carbon Film	1/4W
4k7	1	Metal / Carbon Film	1/4W
10k	4	Metal / Carbon Film	1/4W
47k	1	Metal / Carbon Film	1/4W
220k	1	Metal / Carbon Film	1/4W
10M	2	Metal / Carbon Film	1/4W
1n	1	Film	16v min.
100n	1	Film	16v min.
1uF	1	Low Profile Electrolytic	16v min.
10uF	1	Low Profile Electrolytic	16v min.
100uF	2	Low Profile Electrolytic	16v min.
1n34a	4	or, BAT46	
1N5817	1		
TL072	1		
NSL32-R3	1	or, VTL5C3	
100kA	1	PCB Mount	9mm
100kB	1	PCB Mount	9mm

NSL32-R3:
http://www.smallbear-electronics.mybigcommerce.com/photocoupler-silonex-nsl-32sr3/

1n34a:
http://www.smallbear-electronics.mybigcommerce.com/diode-nos-germanium/

You can also use BAT46 in place of 1n34a:
http://smallbear-electronics.mybigcommerce.com/diode-schottky-bat46/

Low profile Electrolytic caps:
http://smallbear-electronics.mybigcommerce.com/electrolytic-radial-low-profile-16v-1-f-100-f/

9mm PC Mount pots:
http://smallbear-electronics.mybigcommerce.com/alpha-single-gang-9mm-pc-mount/

Thinline DC Jack:
http://smallbear-electronics.mybigcommerce.com/dc-power-jack-all-plastic-unswitched-2-1-mm/

Enclosed Mono:
http://smallbear-electronics.mybigcommerce.com/1-4-in-mono-enclosed-jack/
http://smallbear-electronics.mybigcommerce.com/1-4-in-mono-enclosed-switchcraft-111x/

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

The Afterlife2020 has been updated to conform to the newer style of 1590A layouts I've done in the past year. The circuit is mostly the same with these exceptions:

- SUS pot changed from 100kA to 100kB. With a 100kA the tail end of the control (highest compression) comes on very suddenly. The linear pot spreads the control out a bit more. Either taper is fine but I tried a 100kB this time and ended up preferring it.

- I made the default optical device the NSL32-R3. IMO, this gives even more compression than the previous part, the VTL5C3. And, it is cheaper. However, the pads for the VTL part are still available on the PCB. I do not recommend "rolling your own" optical device with an LED/LDR for this circuit. It does not produce as much compression.

- I added R11 to try and tame the switch pop on this effect. Unfortunately, the circuit will pop and there doesn't seem to be an easy way around it. My guess is it is due to the envelope detection circuit. Any mechanical pop at the input gets detected by the envelope which causes a sudden level change due to the LDR reacting.

Additional Notes

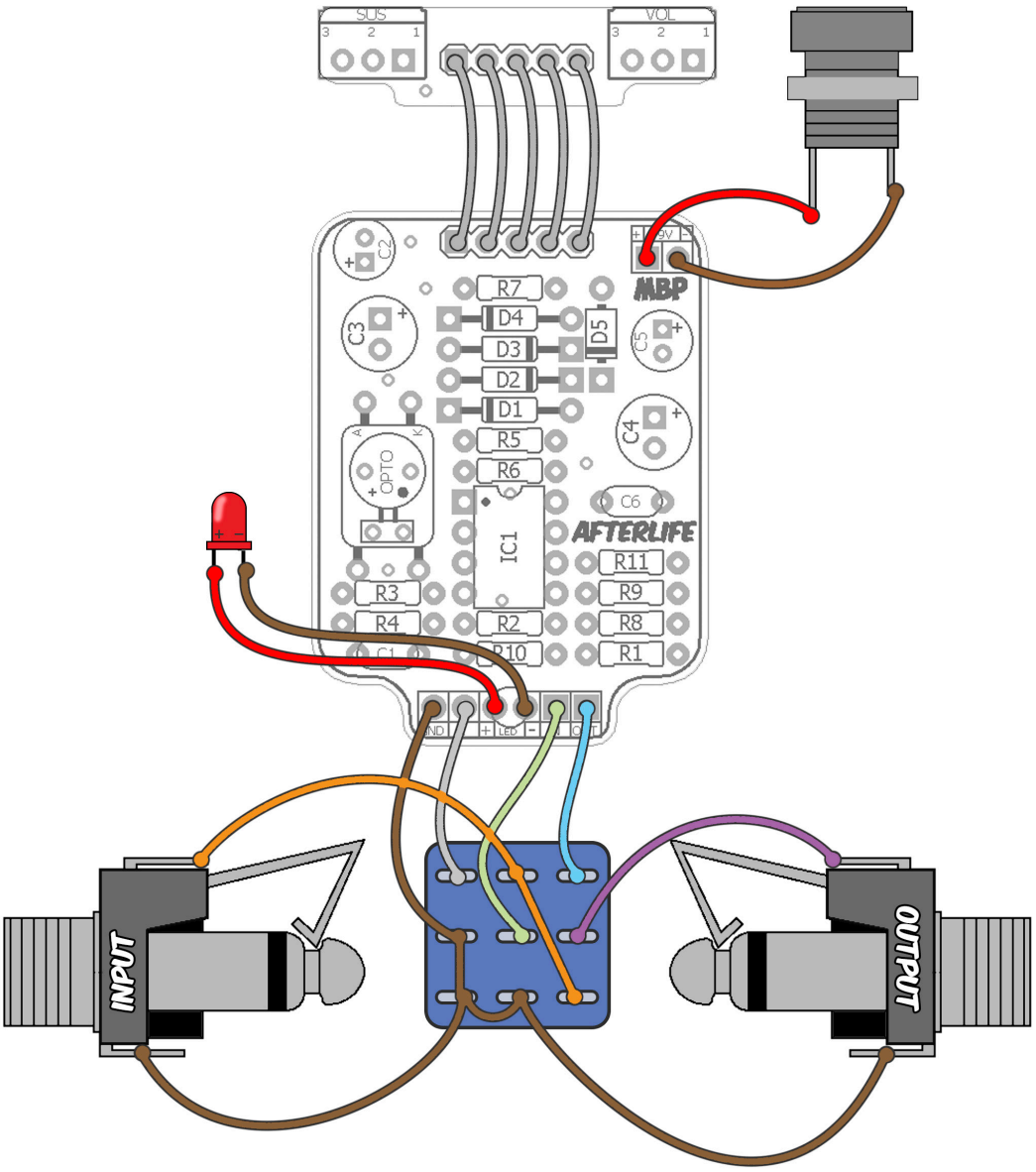
The Afterlife is a bright sounding compressor due to its incredibly high input impedance. If you prefer a more neutral tone, you can tame the brightness by changing the circuit input. Change R1 and R2 to 1M and C1 to 47n. However, I found that this does impact the total amount of compression in the circuit (it dampens the maximum sustain). I've tried it both ways and I prefer it stock.

As I mentioned in the Shopping List, you can use BAT46 in place of the 1n34a. They work equally as well and can be cheaper. Keep your germanium didoes for your overdrives!

R7 impacts the overall sensitivity of the envelope. Higher values will increase the envelope output but I do find 47k to be the best balance.

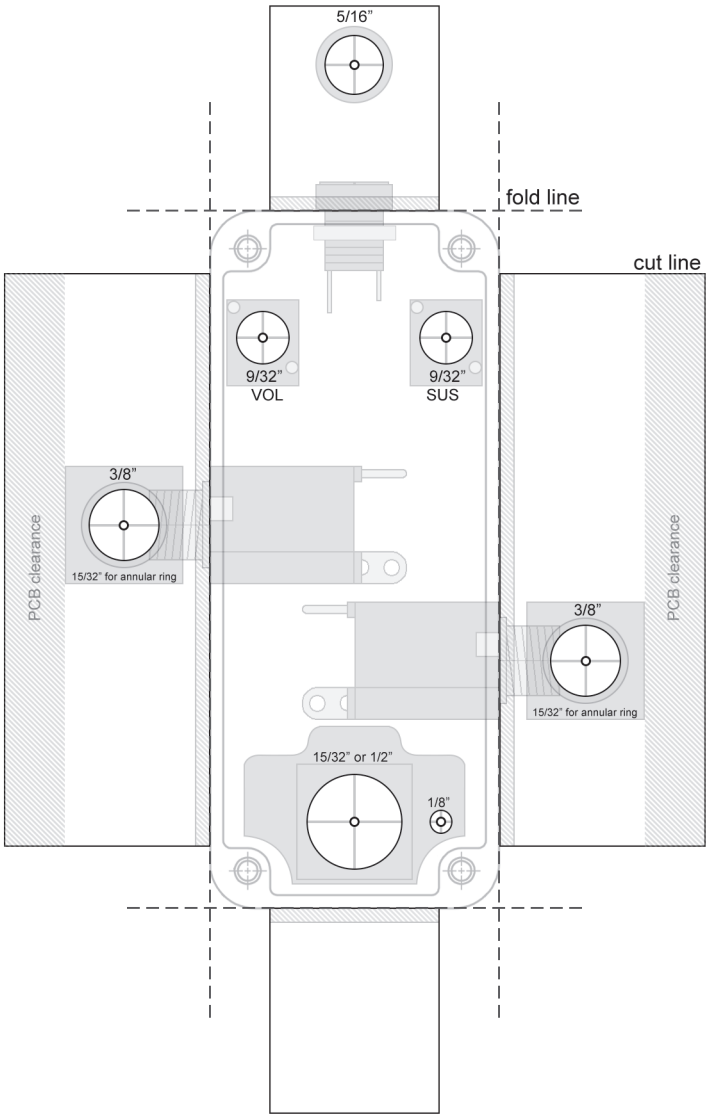
Build Tip (optional)

Before soldering your optical device into the PCB, hook everything up to your testing rig. Insert an LED loose into either the "A" (anode) and "K" (cathode) pads or the + and - pads below it (they are connected to one another). Play some notes and watch the LED light up. This let's you know the effect is working correctly and will give you an idea of the attack and release times of the compressor. You don't need to connect to an amp to do this test.



Make sure you solder your 9mm pots to the top of the daughter PCB. For reference, the bottom side of the PCB says “reversed” under each pot.

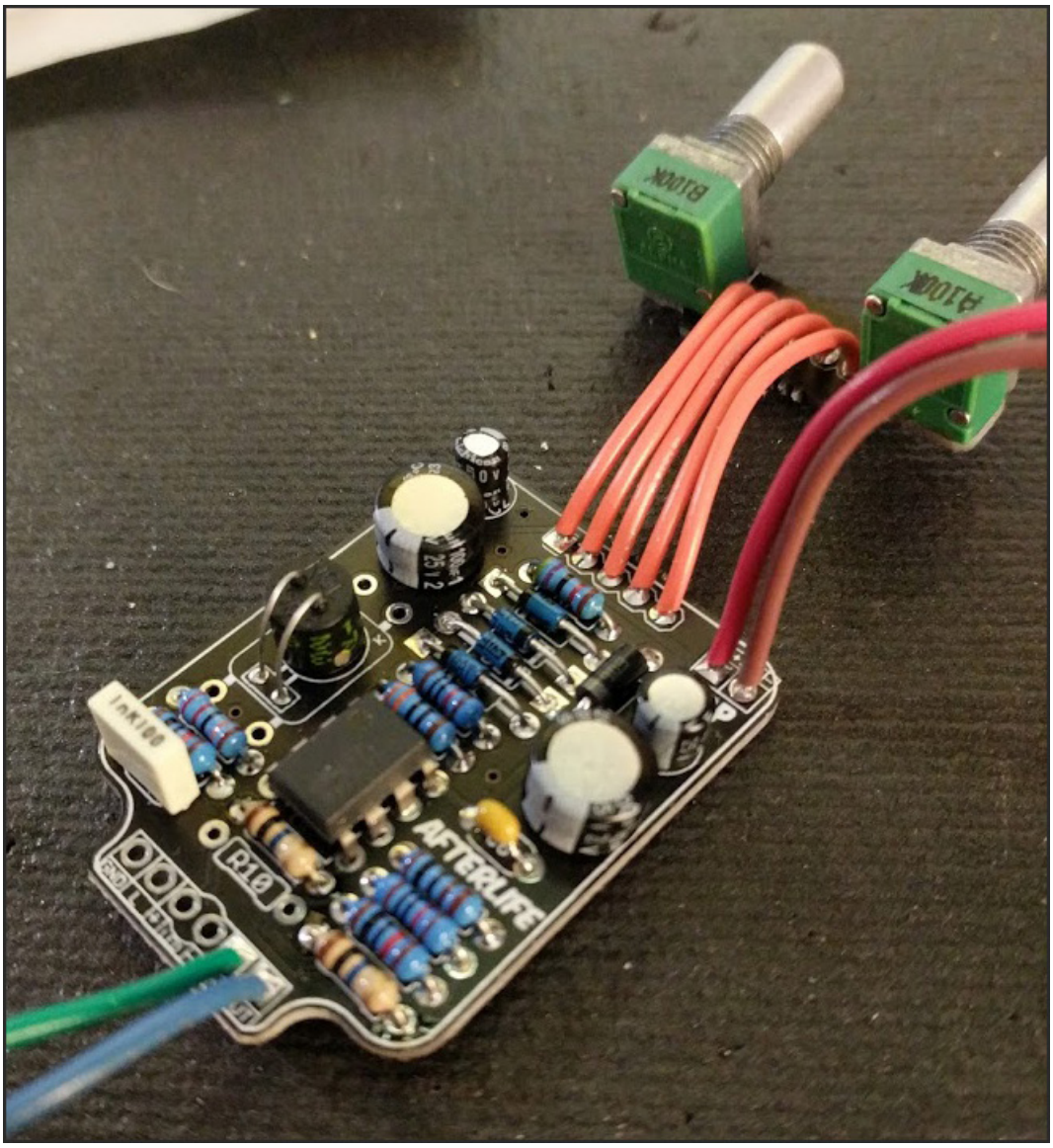
Note: *Drill Guides are approximate and may require tweaking depending on the types of jacks, switches and pots you use.*

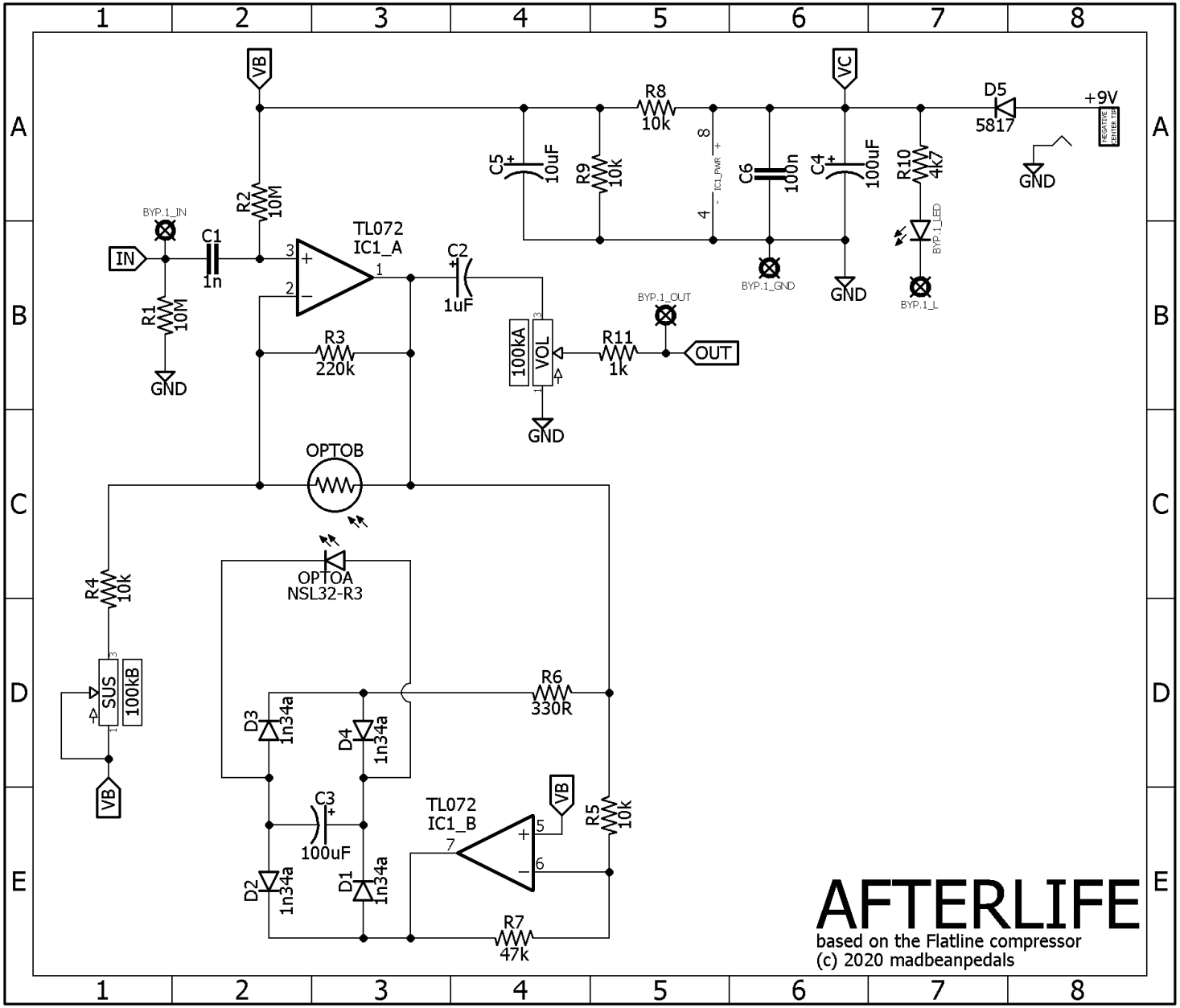


- This template will work for either mono enclosed jacks or the “Lumberg” style.
- It uses the “Thinline” style DC Jack.
- It also shows the 3PDT02 bypass PCB but this is not required. If you are wiring straight to a 3PDT you can use the same LED location on the right side or choose a different spot.

IC1	TL072
1	4.59
2	4.59
3	2.35
4	0
5	4.59
6	4.59
7	4.59
8	9.18

- 9.42vDC One Spot
- Current Draw: ~ 4mA


B100K
A100K
AFTERLIFE
R10


VB
VC
R8
10k
D5
5817
+9V
C5
10uF
R9
10k
C6
100n
C4
100uF
R10
4k7
GND
R2
10M
BYP.1_IN
IN
C1
1n
TL072
IC1_A
C2
1uF
BYP.1_GND
BYP.1_LED
BYP.1_L
R1
10M
R3
220k
100kA
VOL
R11
1k
BYP.1_OUT
OUT
OPTOB
OPTOA
NSL32-R3
R4
10k
SUS
100kB
R6
330R
D3
1n34a
D4
1n34a
C3
100uF
TL072
IC1_B
R5
10k
D2
1n34a
D1
1n34a
R7
47k
AFTERLIFE
based on the Flatline compressor
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