SNARKDOODLE2019

FX TYPE: Distortion

Enclosure Size: 1590A

Based on the Way Huge® Red Llama™

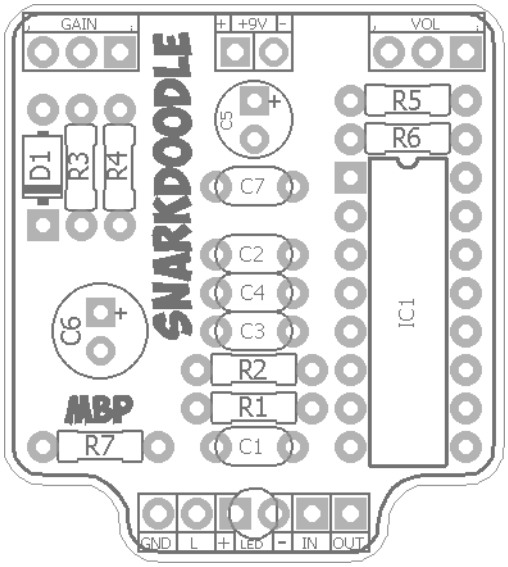
Overview

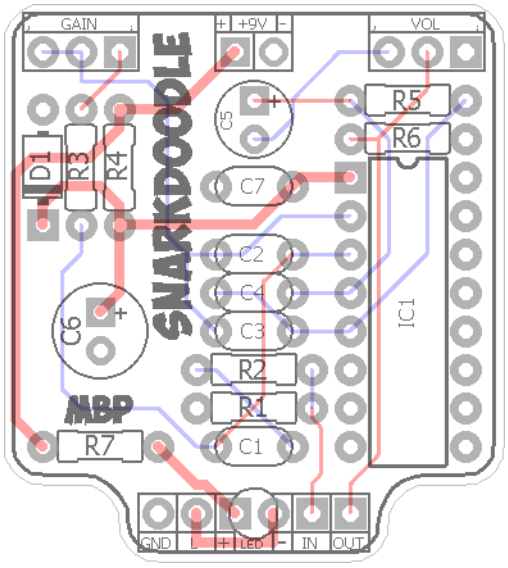
The Craig Anderton Tube Sound Fuzz is a classic DIY project that has been built, modified and abused for years. The design was popularized commercially with the Way Huge® Red Llama™ (with minor tweaks to the original circuit). The effect is based off a CMOS Hex inverter to generate thick and meaty fuzz. But, this is no one-trick pony. There are a variety of more subtle overdrive tones to be found with the gain pot turned down. The TSF/Red Llama can also be a fairly low gain overdrive or boost with the Gain ¼ up and the volume knob at over ½. The tone of the effect is a moderate mid-range cut and a certain amount of depth (dimensionality) added to the guitar signal. It is a terrific project, and one that every DIY enthusiast should build!

Controls

- **VOL -** Total Output
- **GAIN** - Fuzz, dog!

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.


GAIN
+9V
VOL
SNARKDOODLE
D1
R3
R4
C5
C7
C2
C4
C3
C6
R2
R1
C1
R5
R6
IC1
R7
MBP
GND
L
LED
IN
OUT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C1
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R6
IC1
R7
MBP
GND
L
LED
IN
OUT

Resistors	
R1	1M
R2	100k
R3	100k
R4	1k
R5	1M
R6	1M
R7	4k7
Caps	
C1	68n
C2	51pf
C3	33n
C4	100pF
C5	10uF
C6	100uF
C7	100n
Diodes	
D1	1N4004
IC	
IC1	CD4049UBE
Pots	
VOL	10kA
GAIN	1MB

Value	QTY	Type	Rating
1k	1	Carbon / Metal Film	1/4W
4k7	1	Carbon / Metal Film	1/4W
100k	2	Carbon / Metal Film	1/4W
1M	3	Carbon / Metal Film	1/4W
51pf	1	Ceramic / MLCC	16v min.
100pF	1	Ceramic / MLCC	16v min.
33n	1	Film	16v min.
68n	1	Film	16v min.
100n	1	Film	16v min.
10uF	1	Electrolytic	16v min.
100uF	1	Electrolytic	16v min.
1N4004	1		
CD4049UBE	1		
10kA	1	Solder Lug	9mm or 12mm
1MB	1	Solder Lug	9mm or 12mm

This is a simple build that can be done by any level of DIY'er. It might be a little more challenging for a total beginner if built in the 1590A enclosure. If you are new to DIY, you might consider using the 1590B instead of an "A" enclosure.

- R7 (the LED CLR) was placed before R4 to avoid creating a voltage divider when the bypass LED is activated.
- C6 is changed from the stock 330uF to 100uF to fit in a 1590A enclosure.
- C7 was added for additional filtering of high frequency power supply noise. R1 was added as a pulldown resistor.
- I listed C2 and C4 as either MLCC (multi-layer ceramic) or ceramic. There is a small chance that MLCC type caps can become microphonic in high gain applications. If you experience that issue, switch to regular ceramic caps (or just use those to begin with!) If you can't find a 51pF for C2, use 47pF instead.
- Solder the CD4049 directly to the PCB (if using a 1590A enclosure). When soldering IC pins, do 3 or 4 at a time then work on some other components. This prevents the IC form overheating.

Mods

- C1 and C3 set the overall tone shaping and bass in the circuit. Increase or decrease those values to change the total bass in the same manner.
- Some people *claim* changing R4 from 1k to 330R reduces some of the raspiness at high gain settings. I don't think it is especially "raspy", as is. YMMV.

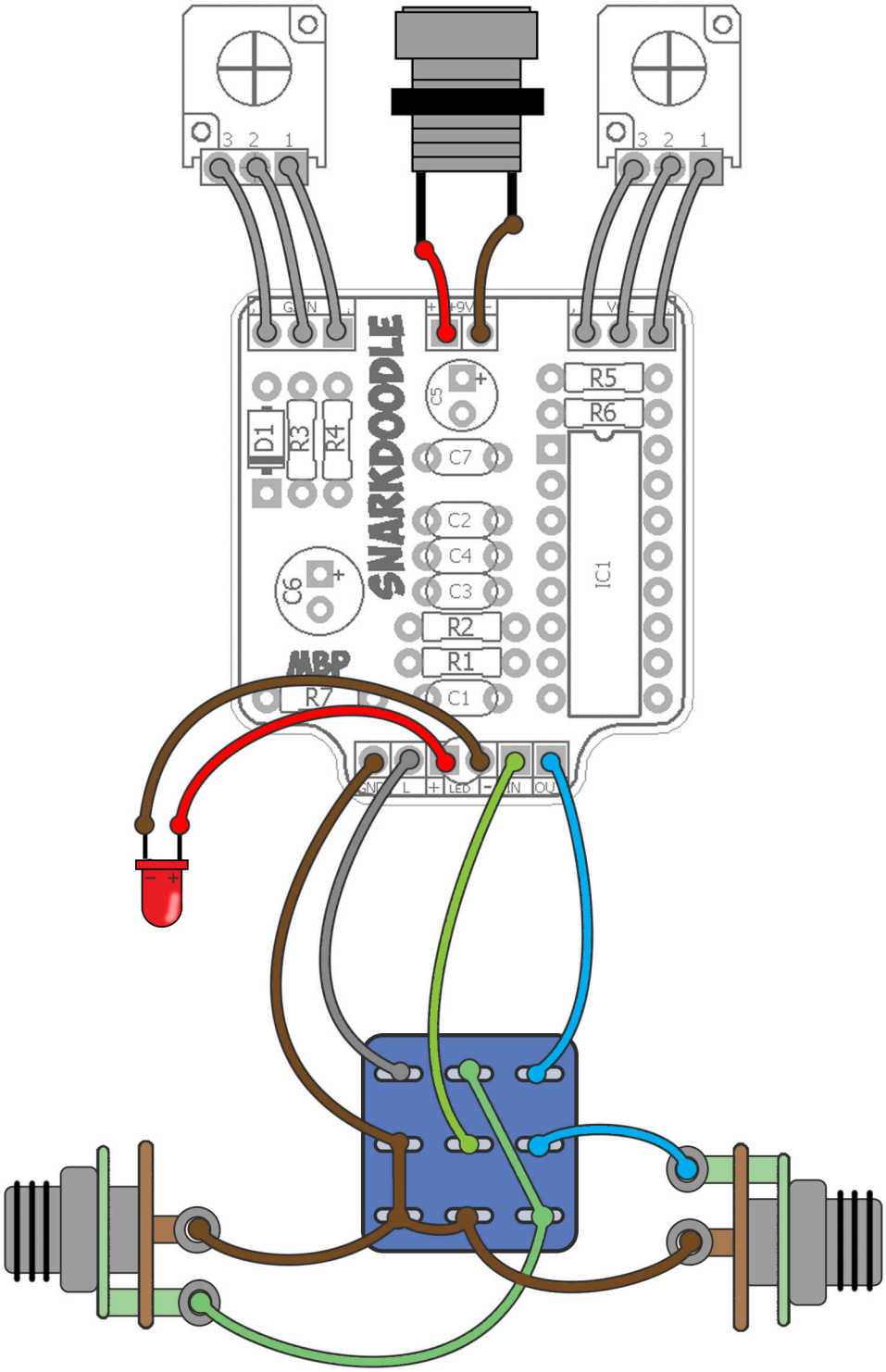
Parts Guide

- Use low-profile electrolytic caps if building the Snarkdoodle2019 in the 1590A enclosure.

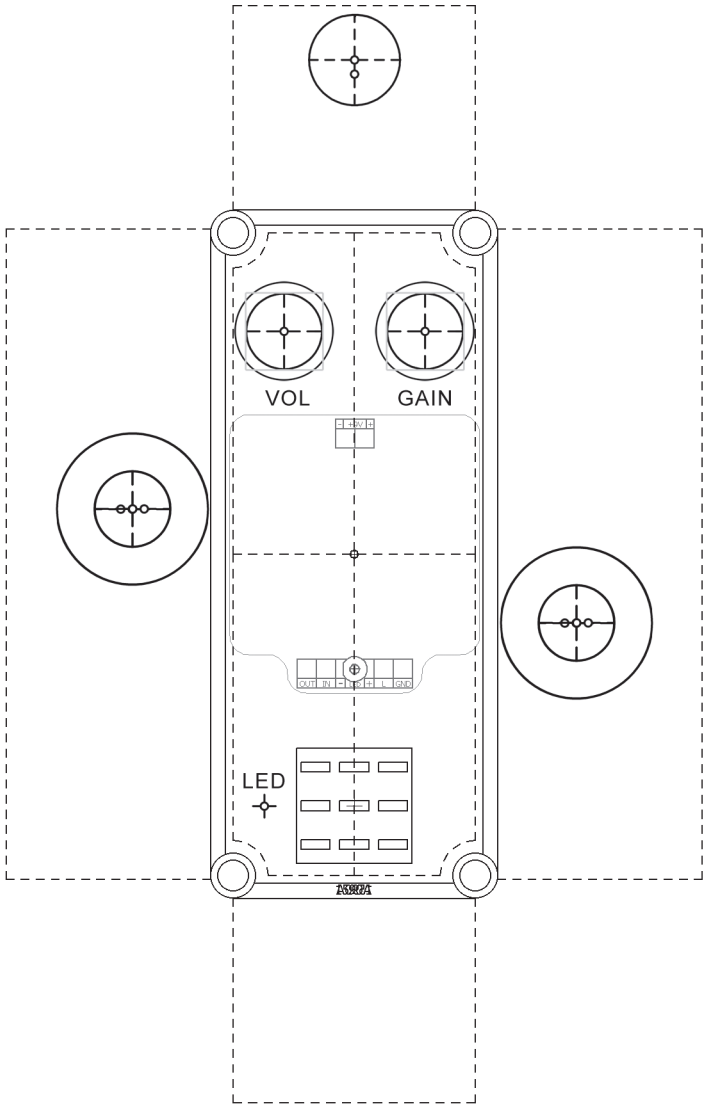
Low-Profile: http://smallbear-electronics.mybigcommerce.com/electrolytic-radial-low-profile-16v-1-f-100-f/

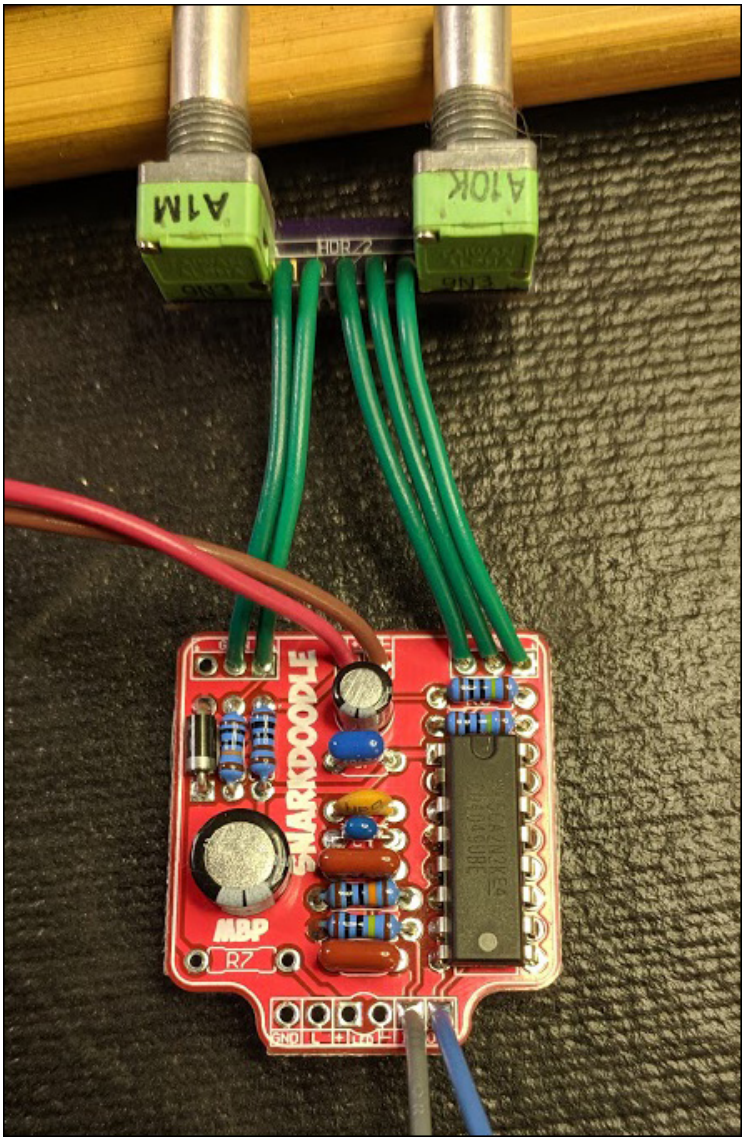
- For pots, either the 9mm or 12mm variety work fine. The 12mm have a small advantage in that they have solder lugs. That's what I would choose, unless you have a breakout board for 9mm pot soldering.

12mm pots: http://smallbear-electronics.mybigcommerce.com/alpha-single-gang-12mm-solder-terms/
9mm pots: http://smallbear-electronics.mybigcommerce.com/alpha-single-gang-9mm-pc-mount/


3 2 1
3 2 1
SNARKDOODLE
MBP
D1
R3
R4
C6
C5
C7
C2
C4
C3
R2
R1
C1
R7
R5
R6
IC1
+9V
LED

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

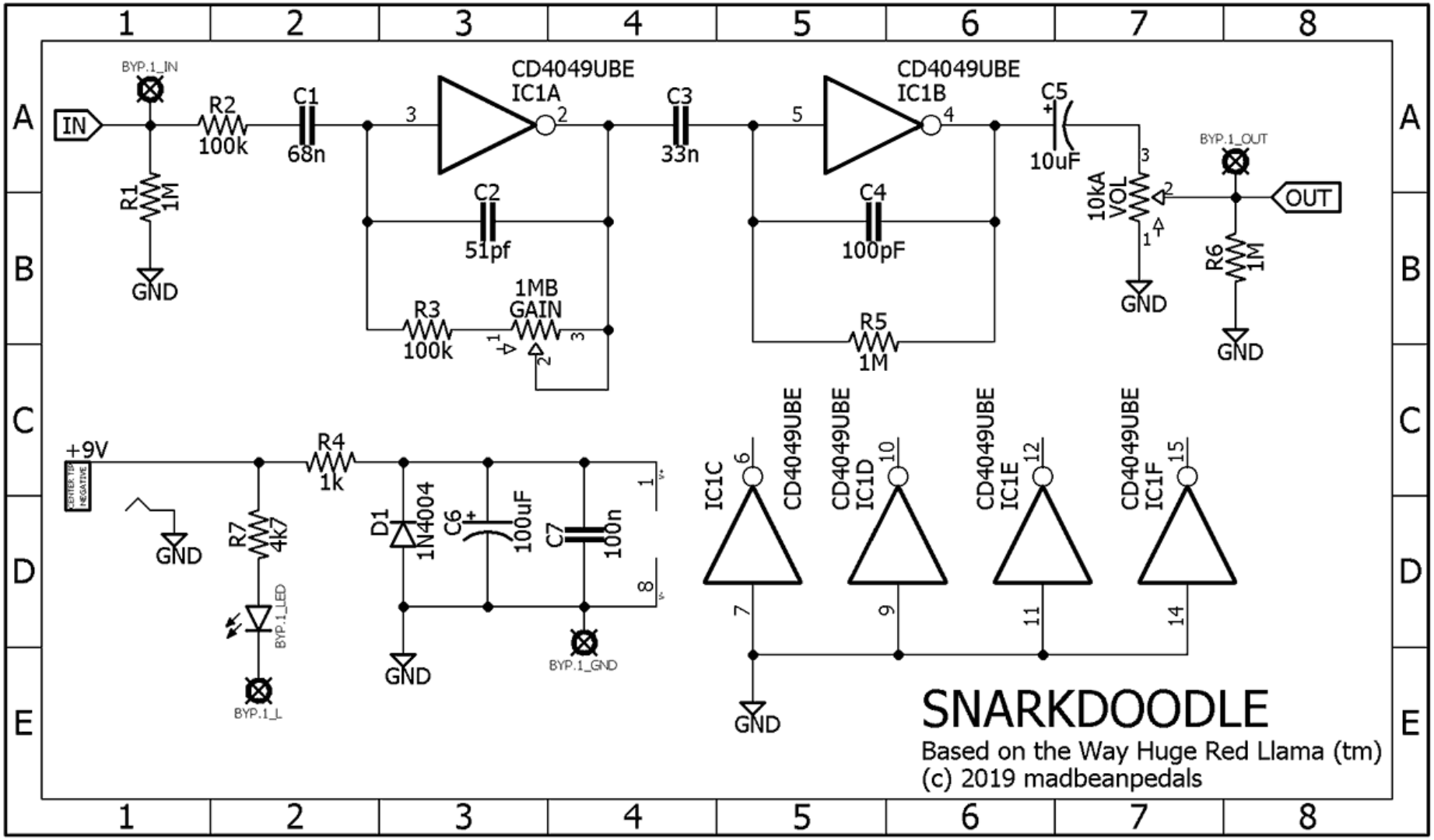




4049UBE	DC
1	5.71
2	2.41
3	2.45
4	2.41
5	2.41
6	5.71
7	0
8	0
9	0
10	5.71
11	0
12	5.71
13	ignore
14	0
15	5.71
16	ignore

I used an old header I had from a different Snarkdoodle build for this version. It had a 1MA gain pot and I decided to stick with that. I actually prefer the A taper for it.

You can see just how much that 1k resistor drops the supply voltage. From 9.42v on my power supply down to 5.71v!


BYP.1_IN
IN
R2
100k
C1
68n
CD4049UBE
IC1A
C3
33n
CD4049UBE
IC1B
C5
10uF
BYP.1_OUT
OUT
10kA
VOL
R1
1M
GND
C2
51pf
C4
100pF
R3
100k
1MB
GAIN
R5
1M
R6
1M
+9V
R4
1k
R7
4k7
D1
1N4004
C6
100uF
C7
100n
BYP.1_LED
BYP.1_L
BYP.1_GND
IC1C
IC1D
IC1E
IC1F
SNARKDOODLE
Based on the Way Huge Red Llama (tm)
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