

BAT EAR FUZZ

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Version 1.0 2024

The Bat Ear Fuzz is a simple little fuzz that sounds very gnarly and raw. It does asymmetrical wave folding, which gives it a bit of an octave up fuzz sound.

The name comes from the output waveshape that looks like batmans ears when looking at it with an oscilloscope. This pedal cleans up when turning the guitar volume down and can sound very different depending on your guitar pickups.

Have fun building and playing the Bat Ear Fuzz!

Prototype build



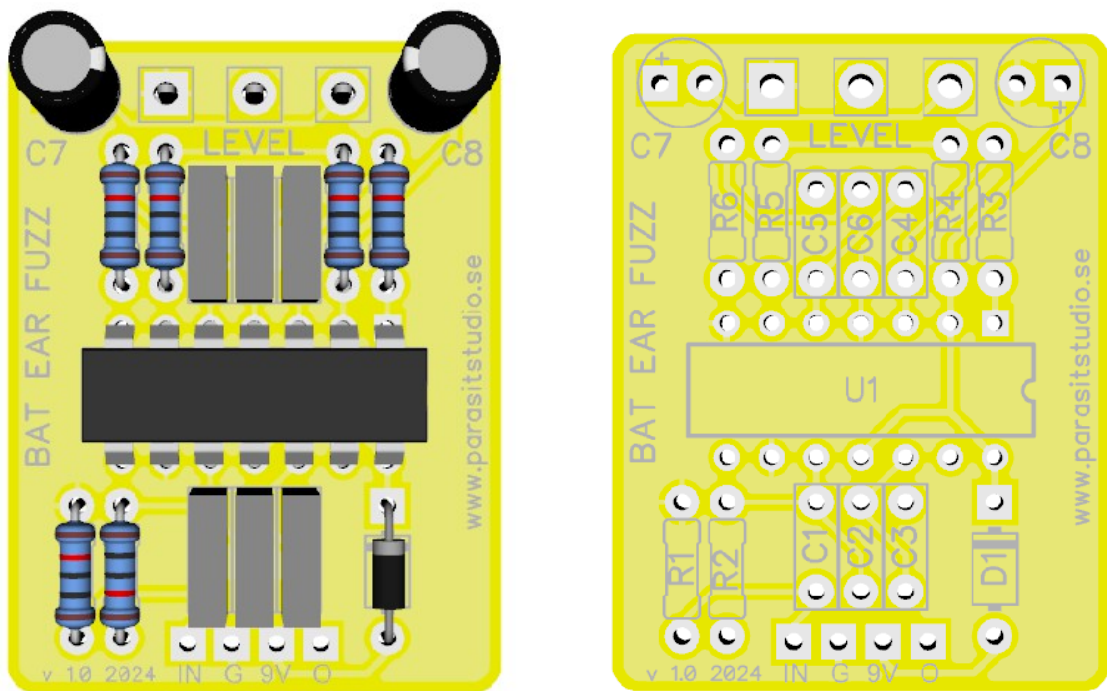
Power

Input voltage - 9V DC

Current draw - 5mA

The populated PCB

Here's a 3D render approximation of what the fully populated board should look like (except that the IC should be in a socket).



The PCB measures 28mm wide x 37mm tall

General building tips

- Just follow the Bill of Materials and solder the low profile components first.

Recommended order: resistors and diodes, chip sockets, trim pot, multilayer and ceramic capacitors, film box capacitors, electrolytic capacitors, pots and switches, offboard wiring (jacks and the 3PDT switch). Bend the legs of the components a little bit to prevent them from falling out, or use tape to hold them in place while soldering.

- Pay special attention to the orientation of the LED's, diodes and the electrolytic capacitors.
- Always use sockets for IC chips to avoid heating them directly. It also makes it much easier to swap them out if needed.
- CMOS chips are very sensitive to static charges and can be easily damaged. It's a good idea to wear an anti-static wristband. Or at least don't wear a woolen jumper and pat your dog while building, and keep the circuit away from rugs... Put the chips in last, after everything else is soldered in place.
- Break off the small tab on the potentiometer, so it can sit flush against the top cover.
- Make sure that the backside of the potentiometer is covered so it doesn't short anything on the PCB. If you don't have a pot cover I recommend pvc electrical tape.
- *Notice the orientation of the IC!*

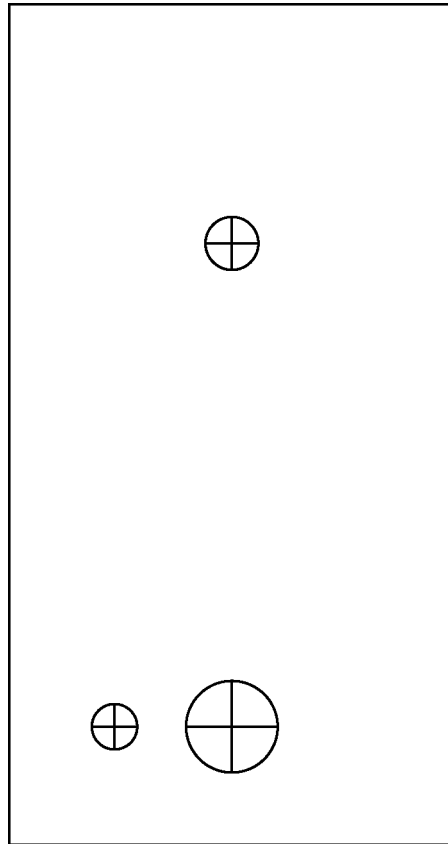
Bat Ear Fuzz BOM (Bill of Materials)

Resistors		Capacitors		IC's	
R1	1M	C1	100nF	U1	CD4007
R2	1M	C2	1nF	LEVEL	Potentiometer A100K
R3	1M	C3	100nF		
R4	1M	C4	2.2nF	Diode D1 1N5817 1x LED for bypass **	
R5	10K	C5	47nF		
R6	2.2K	C6	10nF		
CLR *	4.7K-22K	C7	1uF		
		C8	47uF		

BOM Notes

- * = current limiting resistors for the bypass LED. Wired off board or on the optional 3PDT daughterboard.
- ** = bypass LED. Wired off board of on the optional 3PDT daughterboard.

Drill Template (1590B)

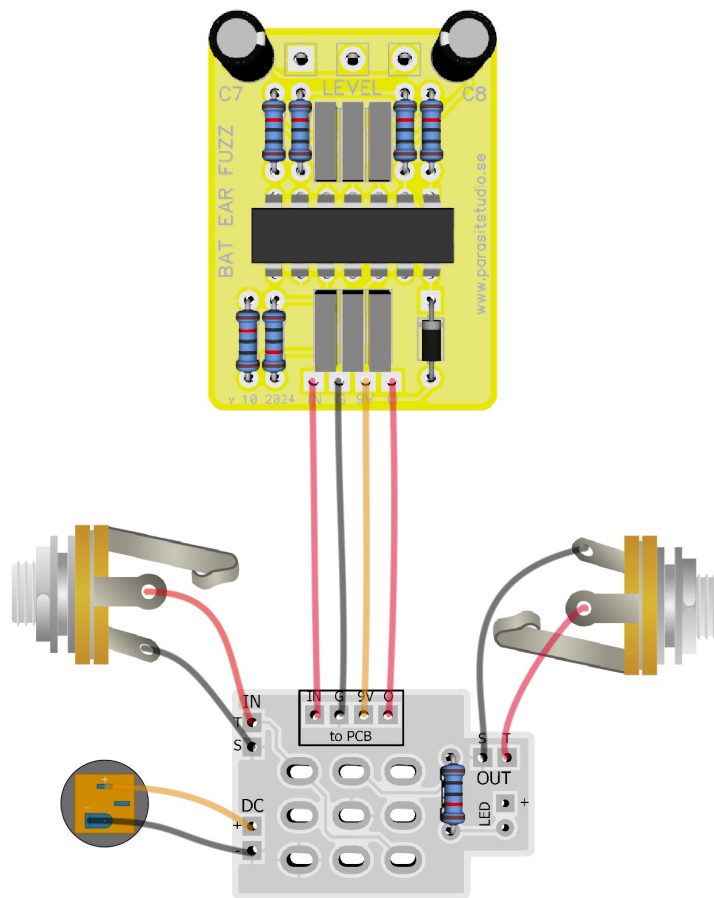


- Since this pedal has a very small PCB and only has one potentiometer, you can use this suggestion or optionally move the pot down to make space for top mounted jacks.
- Make sure your printer isn't doing any scaling (100% print size).
- Drill the positions for the footswitch, DC jack and input/output jacks to your own preference.

- Typical drill sizes are:
 - switches / LED bezel (for a 3mm LED) - 6mm
 - potentiometers - 7mm
 - DC jack / 3PDT footswitch – 12mm
(8mm for lumberg style DC jacks)
 - input/output jacks (Neutrik style) – 9,5mm
(9mm for Lumberg style jacks)

Measure and confirm before drilling!

Off Board Wiring



The top row of connections on the 3DPT daughterboard connects directly across to the main PCB as shown.

Input jack sleeve → "S" IN pad *the lug that connects with the inner ring of the jack*

Input jack tip → "T" IN pad *the lug that connects to the tip bracket on the jack*

Output jack sleeve → "S" OUT pad *the lug that connects to the inner ring of the jack*

Output jack tip → "T" OUT pad *the lug that connects to the tip bracket on the jack*

DC jack negative → "-" DC pad *the widest lug, or the short lug (Lumberg style jack)*

DC jack positive → "+" DC pad *the outer lug if it's a 3 pin DC connector, or the long lug if using a Lumberg style jack*

If you are not using the 3DPT daughterboard PCB, have a look at the offboard wiring diagram here (fig1/3): [wiringrev3.pdf \(parasitstudio.se\)](http://www.parasitstudio.se/wiringrev3.pdf)

Troubleshooting

There's always a chance of running into trouble. To minimize error, follow the BOM and general building tips carefully. Take your time and don't rush. Take a break now and then. Use good solder, and it helps to have a decent soldering station insted of a cheap iron.

Musikding DIY kit

If you have bought the Musikding DIY kit and have recieved a faulty faulty, incorrect or missing component, please contact musikding.

[Contact us](#)

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Schematic

