| | |
|---|---|
| Ease of build | Advanced |
| -partscount | High |
| -density | High |
| Parts sourcing | Normal |
| Enclosure fitting | Normal |
| Debugging level | Advanced |

# HiFi Headphone Amp 2021

+ Stereo Simulation

## OVERVIEW

If you wish to listen to your guitar via headphones in high quality – this circuit is for you!

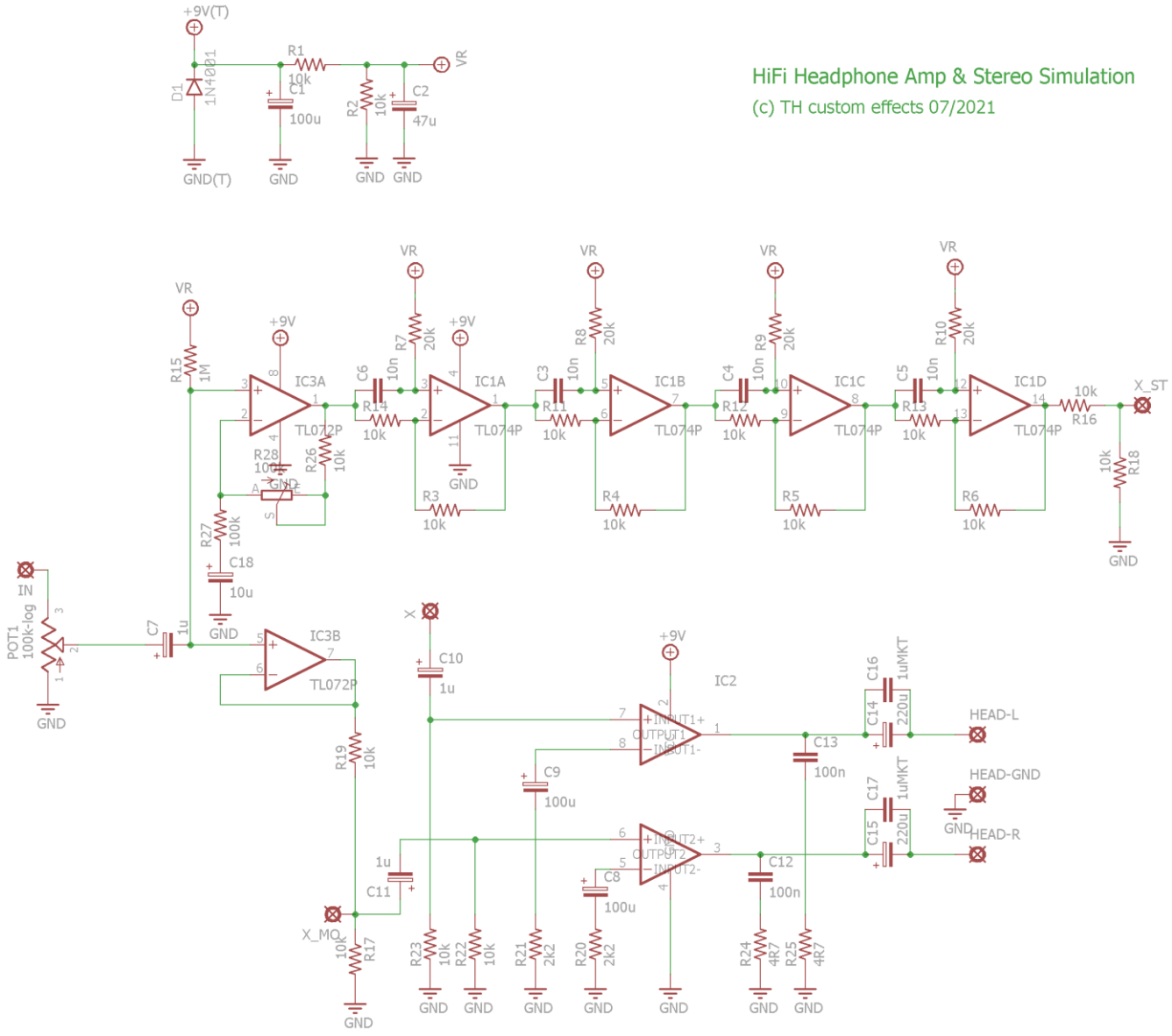
It also is designed to be used for recording purposes. You might need a speaker cabinet simulator in front to color your signal and eliminate unwanted distortion frequencies you usually do not hear when listening through a guitar amp. We do recommend the runoffgroove Condor for this.

V2021 has an optimized layout and changes all upright resistors from previous versions.

## GENERAL

The headphone amp is a HiFi design utilizing a special chip for that purpose. The stereo simulation is basically generated from a time-delayed signal generated out of the original signal using multiple allpass-type filters.

## SCHEMATIC

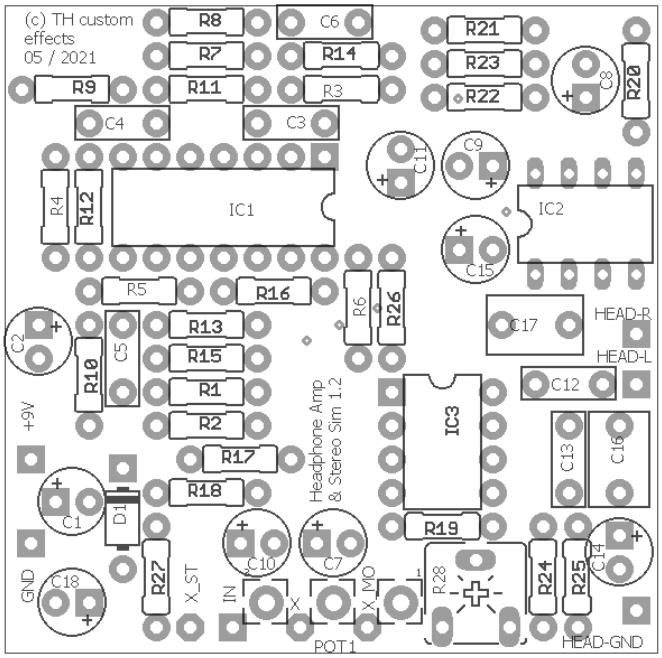


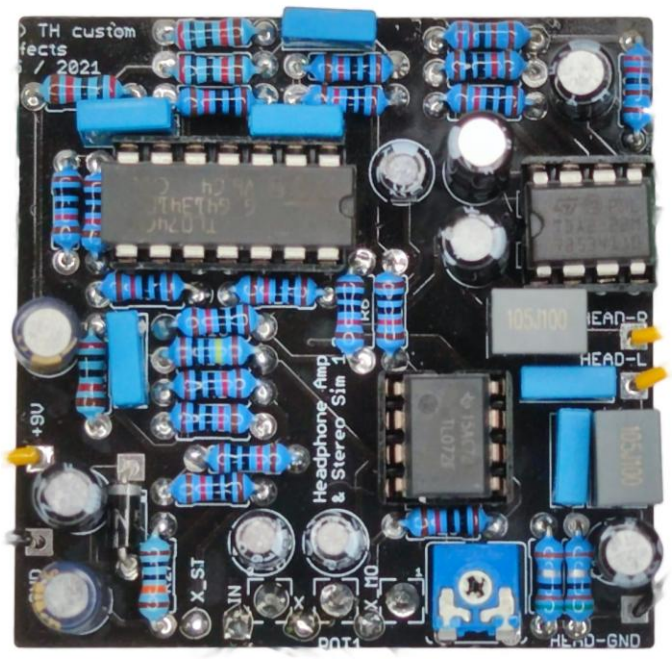
## BILL OF MATERIALS

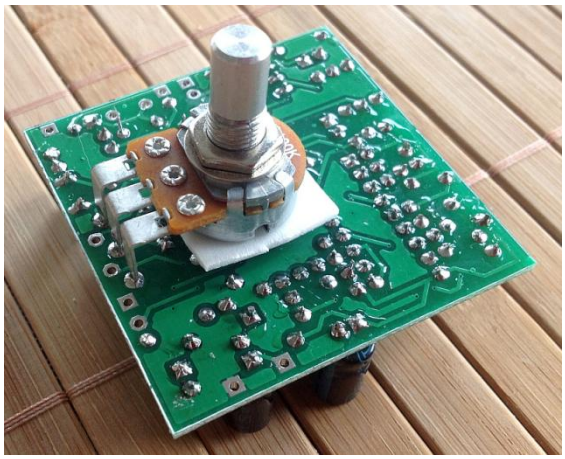
| | Parts | Value | Qty | Description |
|---|---|---|---|---|
| **Resistors** | R1-R6,R11-R14,R16-R19,R22,R23,R26 | 10k | 17 | |
| | R7,R8,R9,R10 | 20k* | 4 | Use 220k,68k,20k,11k for more selective phase shifting |
| | R15 | 1M | 1 | |
| | R20,R21 | 1k2-2k2 | 2 | |
| | R24,R25 | 4R7 | 2 | Or 5R1 |
| | R27 | 100k | 1 | |
| **Capacitors** | C1,C8,C9 | 100u | 3 | pol. electro |
| | C2 | 47u | 1 | pol. electro |
| | C3-C6 | 10n | 4 | box film |
| | C7,C10,C11 | 1u | 3 | pol. electro |
| | C12,C13 | 100n | 2 | box film |
| | C14,C15 | 100u-220u | 2 | pol. electro |
| | C16,C17 | 1u | 2 | box film |
| | C18 | 10u | 1 | pol. electro |
| **Diodes** | D1 | 1N4001 | 1 | |
| **Pots** | R28 | 100k | 1 | 6mm trim |
| | POL1 (VOLUME) | 100k-log | 1 | Potentiometer |
| **ICs** | IC1 | TL 074 | 1 | |
| | IC2 | TDA 2822M | 1 | |
| | IC3 | TL 072 | 1 | |
| **Other** | SW1 | SPDT | 1 | |

## BUILDING

Start populating the diode and resistors first. Then IC sockets and the low height box film capacitors. Last go the electro caps and the 1uF box caps.

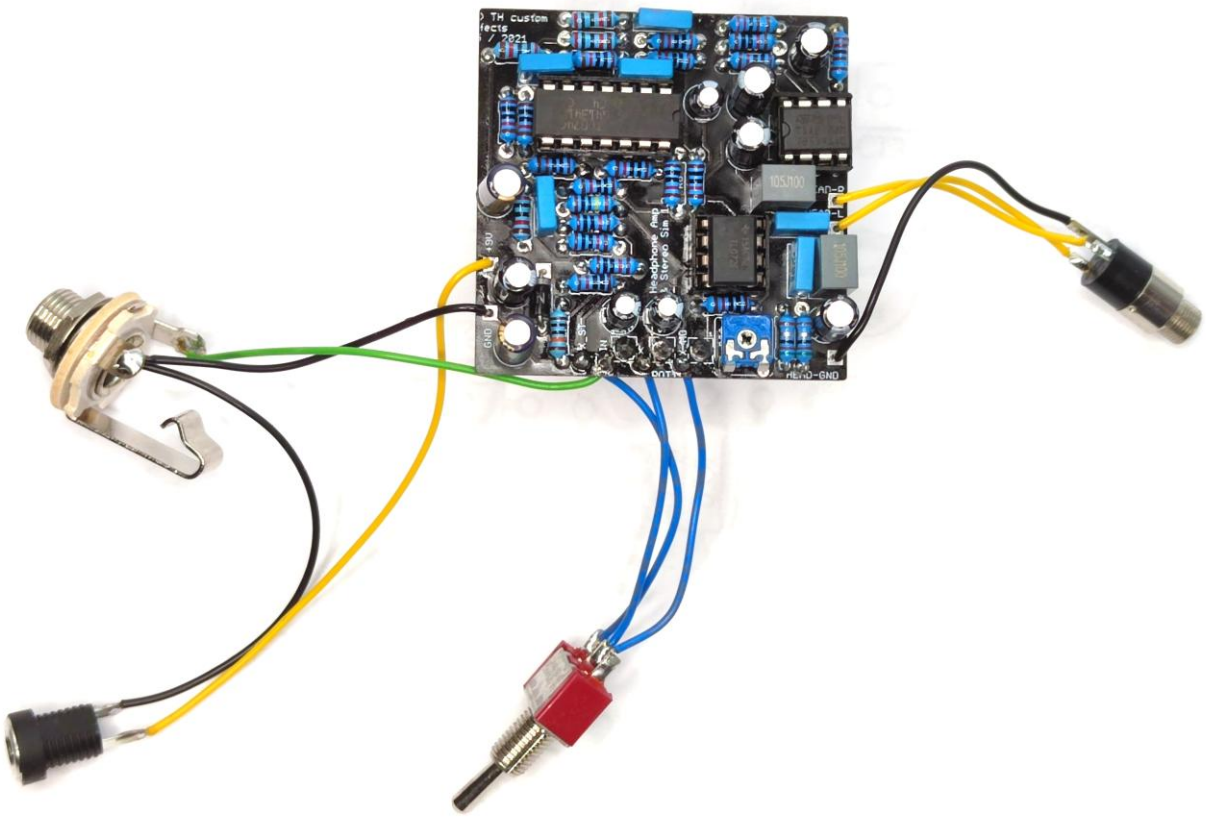




Next put the board mounted pot on the backside. Please cover the pots backside with tape so there cannot be any shortcuts with the solder pins of the populated board.
Don’t forget to clip off the notch.

## WIRING



## TROUBLES AND SHOOTING THEM

Since this circuit was initially released years ago we noticed sometimes people had issues with it.
Sometimes people claim the TDA2822 gets hot.
There are various reasons but interestingly they are not because of a faulty TDA 2822.
The overall amplification is set by R21 and R20. You might want to raise the resistors value to reduce the overall gain of the amplifier.
In other cases replacing the TL072 fixed this!  We don't know why exactly this happens but often replacing the TL072CN with TL072IP fixed the issue.

## FINALLY

This is how it can look when boxed up.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