Fuzz Tang V.1.0

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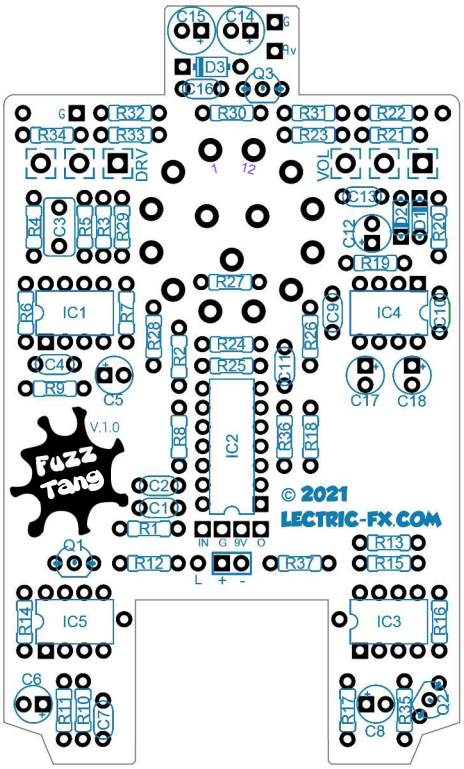



Introducing the Lectric-FX Fuzz Tang, a pedalboard friendly PCB of the vintage Maestro ™ FZ-1 Fuzztain Compressor/Fuzz pedal circuit (not to be confused with the Fuzz-Tone or smaller MFZ-1 circuit).

Legend has it that one Robert Moog was behind this line of enormous foot operated pedals that included classics such as the Stage Phasor & Parametric Filter and we're happy to capitulate to this theory.

The circuit itself could be described as a more refined big muff, producing long sustained fuzz notes and chords. Consisting of a MOSFET-based compressor running in to an op amp distortion stage, three modes are offered via the rotary: Sustain (a straight compressor), Soft (compressor in to soft clipping fuzz) and Hard (compressor in to hard clipping fuzz) with pots to control the input gain and output level.

Op Amp Choice (IMPORTANT!)
Originally, the circuit was designed to run from battery and due to its complex nature and high current draw, TL022 low current chips were selected to extend life, if you cannot find these, TL062* would be a suitable alternative.

If you wish to 'upgrade' the circuit with lower noise op amps, we suggest using TL072 in IC1's position, & replacing IC5 could also offer a small degree of noise improvement. While IC4 will impact noise, this op amp is mainly responsible for the fuzz tone and the lower current draw op amps may produce a preferable tone. IC3 should remain low current draw. Due to the power filtering circuitry, you will also need to reduce R30 to 4k7 to prevent the extra current draw of these upgraded chips from pulling the supply voltage down when doing so (approximately ~7.9V should be seen at pin 8 of the dual op amps).

*LM1458 & LM358 should also work but have not been tested.

## BOM, Parts Quantities, and Comments

| Resistor # | Value | | Capacitor # | Value |
|---|---|---|---|---|
| R1 | 2M2 | | C1 | 100p |
| R2 | 100k | | C2 | 10n |
| R3 | 100k | | C3 | 220n |
| R4 | 200k | | C4 | 10n |
| R5 | 200k | | C5 | 10u |
| R6 | 100k | | C6 | 10u |
| R7 | 200k | | C7 | 1n |
| R8 | 1k | | C8 | 1uF electro |
| R9 | 200k | | C9 | 10n |
| R10 | 1k6 | | C10 | 3n3 |
| R11 | 15k | | C11 | 220p |
| R12 | 100k | | C12 | 10u |
| R13 | 100k | | C13 | 330n |
| R14 | 10k | | C14 | 100u |
| R15 | 51k | | C15 | 100u |
| R16 | 10k | | C16 | 10n |
| R17 | 510k | | C17 | 10u |
| R18 | 10k | | C18 | 10u |
| R19 | 33k | | | |
| R20 | 470k | | Other # | Value |
| R21 | 1k5 | | D1 | 1n4148 |
| R22 | 51k | | D2 | 1n4148 |
| R23 | 1M | | D3 | 1n5817 |
| R24 | 39k | | | |
| R25 | 51k | | IC1 | TL022 ** |
| R26 | 22k | | IC2 | CD4007UBE |
| R27 | 1M | | IC3 | TL022 |
| R28 | 110k | | IC4 | TL022 |
| R29 | 11k | | IC5 | TL022 |
| R30 | 10k * | | | |
| R31 | 200k | | Q1 | 2N3904 NPN |
| R32 | 100R | | Q2 | 2N3904 NPN |
| R33 | 100k | | Q3 | 2N3904 NPN |
| R34 | 100k | | | |
| R35 | 510k | | VOL | 25KA |
| R36 | 100k | | DRIVE | 100KB |
| R37 | 4k7- CLR | | 3P2-4T | 3P2-4T Rotary *** |

| Quantity | Value |
|---|---|
| 1 | 100R |
| 1 | 1k |
| 1 | 1k5 |
| 1 | 1k6 |
| 1 | 4k7 |
| 4 | 10k |
| 1 | 15k |
| 1 | 11k |
| 1 | 22k |
| 1 | 33k |
| 1 | 39k |
| 3 | 1k |
| 8 | 100k |
| 1 | 110k |
| 5 | 200k |
| 1 | 470k |
| 2 | 510k |
| 2 | 1M |
| 1 | 2M2 |

| Quantity | Value |
|---|---|
| 1 | 100p |
| 1 | 220p |
| 1 | 1n |
| 1 | 3n3 |
| 4 | 10n |
| 1 | 220n |
| 1 | 330n |
| 1 | 1uF electro |
| 5 | 10u |
| 2 | 100u |

| Quantity | Value |
|---|---|
| 2 | 1n4148 |
| 1 | 1n5817 |

| Quantity | Value |
|---|---|
| 3 | TL022 |
| 1 | CD4007UBE |

| Quantity | Value |
|---|---|
| 3 | 2n3904 |

| Quantity | Value |
|---|---|
| 1 | 25KA |
| 1 | 100KB |

| Quantity | Value |
|---|---|
| 1 | 3P2-4T Rotary |

* Change to 4k7 if 'upgrading' IC1 and/or IC5. Adjust shopping quantities accordingly.

** See first page for notes on IC swaps.

*** Use a part number from the following vendors

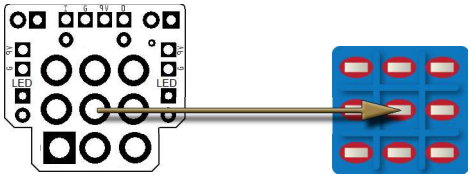
Smallbear SKU: 0226
Mouser Part #: 105-SR2612F-34-21RN
Tayda SKU: A-1891

The rotary should be set to 3 positions with the adjustable toothed stop ring.

## Build Notes

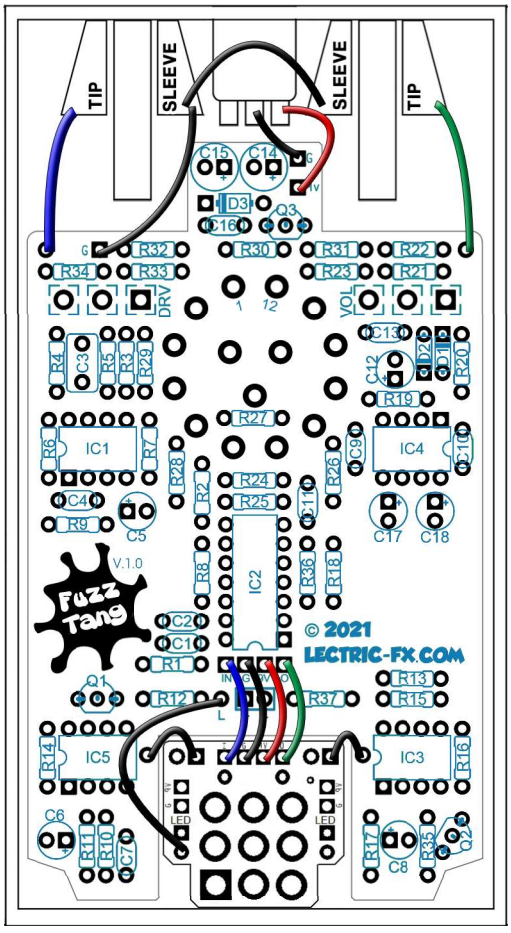
The type of rotary switch used in this project sits up pretty high inside the enclosure, to where the pcb is about 15.5mm away from what's underneath. This is higher than standard length pc-mount pot legs will reach. You can wire your own lug terminal pots like I did, or you can try the right-angle long pin variety, being aware that you'll need to trim the pins to be "skinnier" to a certain depth, which is something you'll understand if you try it. Basically, I think you'd need to alter the pins to where they will slide into the pcb holes past the point where they were designed to stop, so they'd match the15.5mm height as the rotary switch. Should be pretty easy with a decent pair of wire snippers.

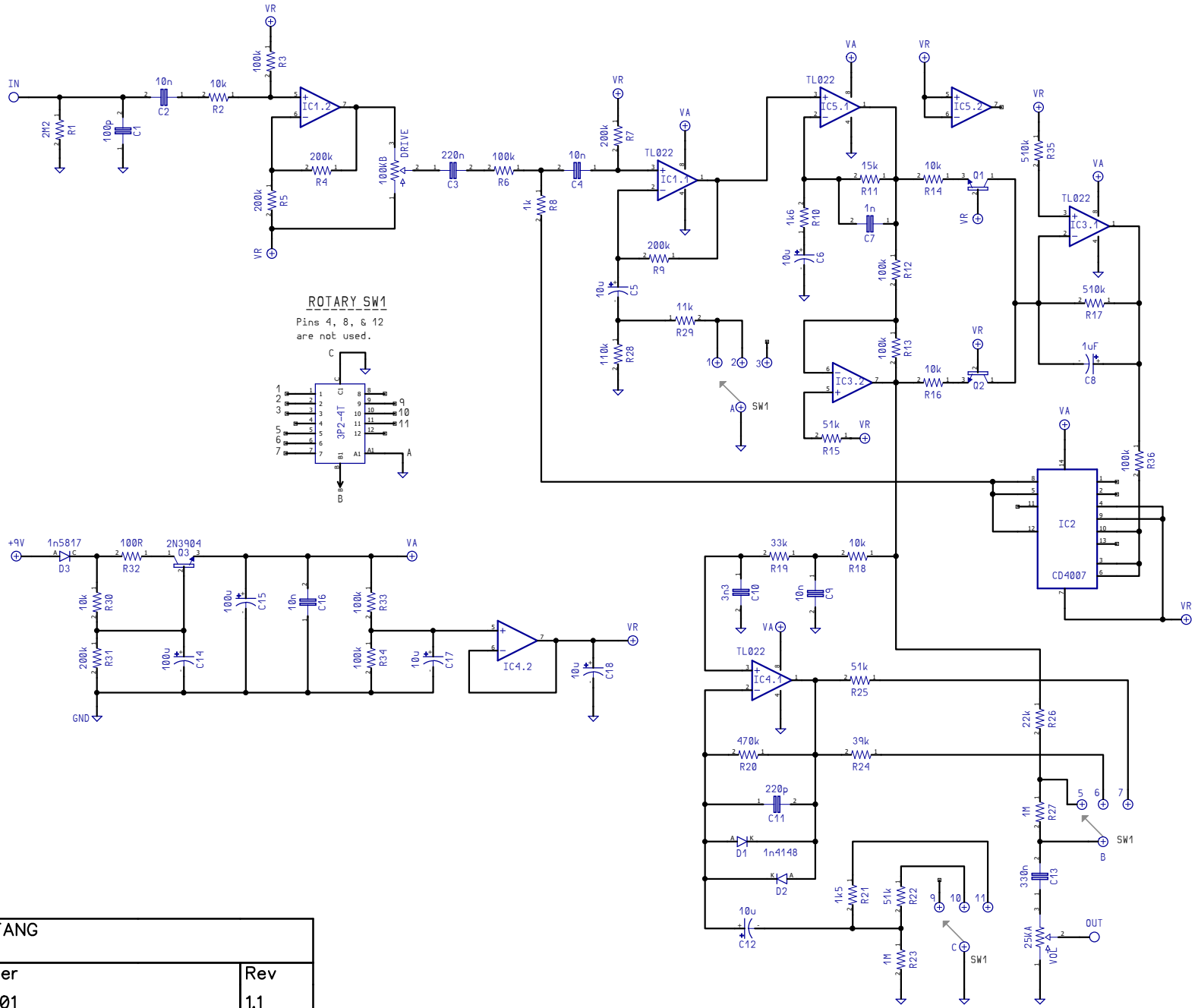
## WIRING SUGGESTION



A miniature 3pdt footswitch pcb will be provided with each Fuzz-Tang pcb sold, at no extra cost (provided it's in stock). You can use it to aid in wiring if you choose, or just use your favorite true-bypass wiring scheme instead.
The CLR (current-limiting resistor) and bypass LED are both on the pcb in this case, so all you have to do is wire the mini pcb to the larger pcb. Make sure the square pad is in the bottom left corner as shown (and the silkscreen of the resistor is facing away so you don't see it).

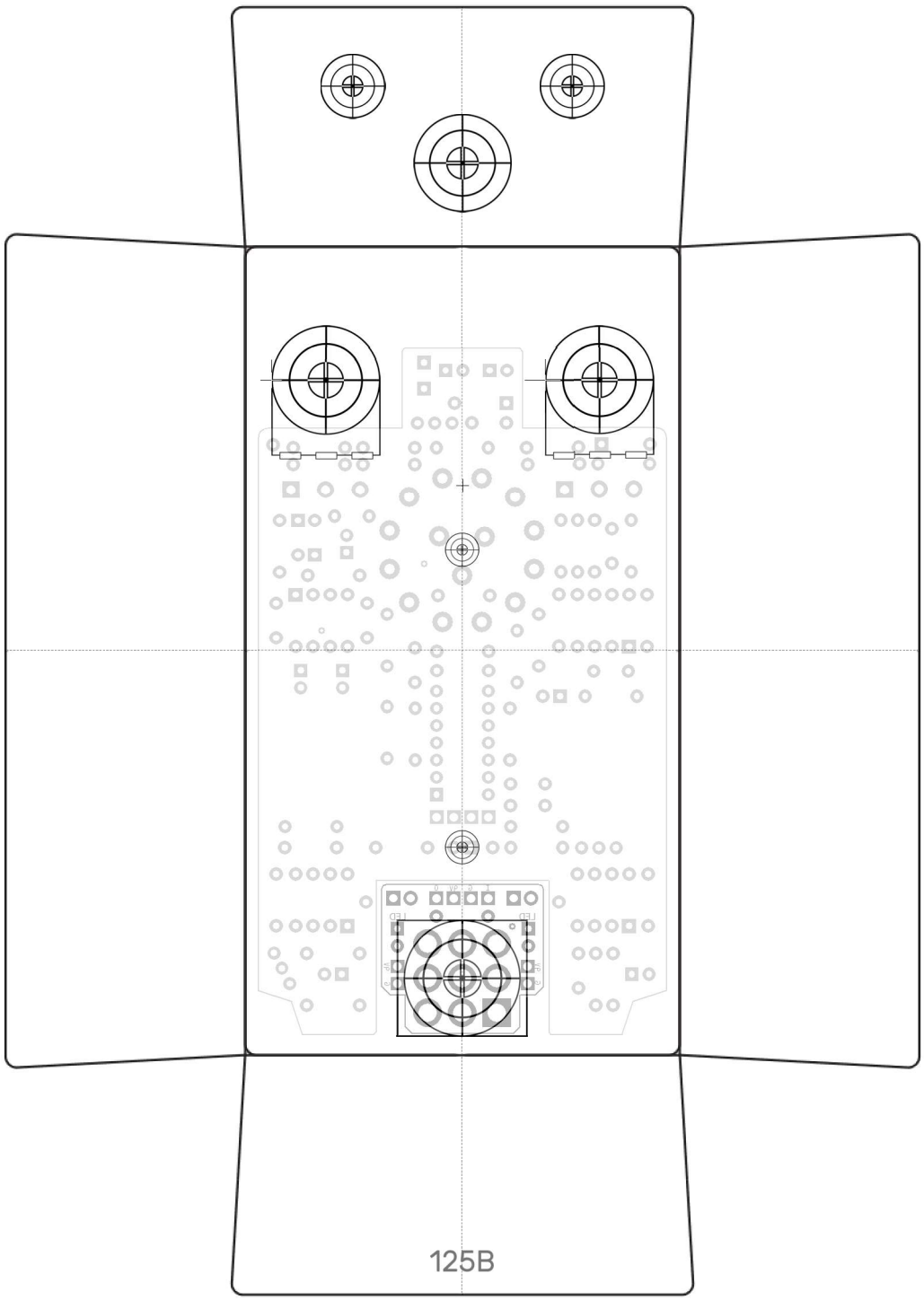
## INNER VIEW OF BOX






| | | |
|---|---|---|
| Title: FUZZ TANG | | |
| Size: A4 | Number: 000001 | Rev: 1.1 |
| Date: Aug 05, 2021 | Drawn by: Habby | |
| Lectric-fx.com | Sheet 1 of 1 | |

# Drill Guide Suggestion




Stomp switch shown with included mini 3pdt from Lectric-fx