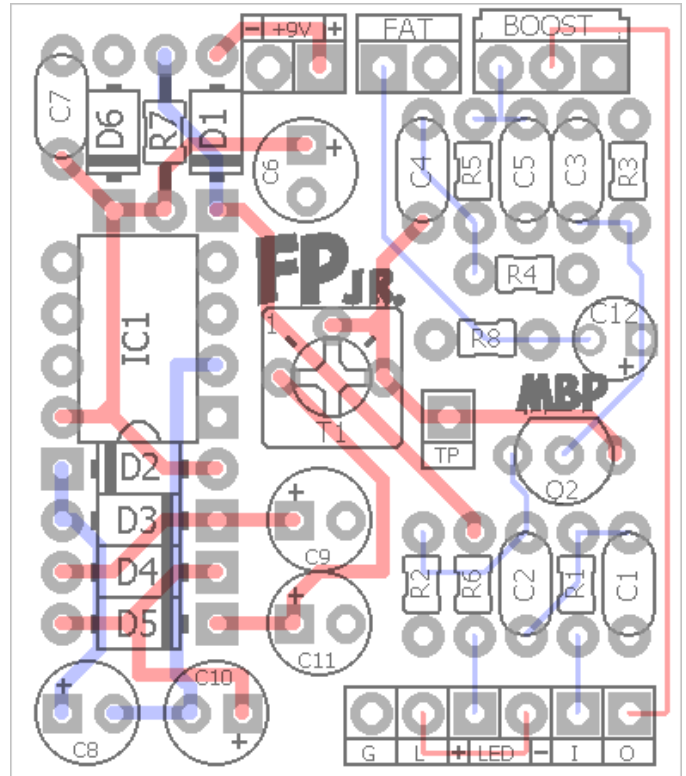
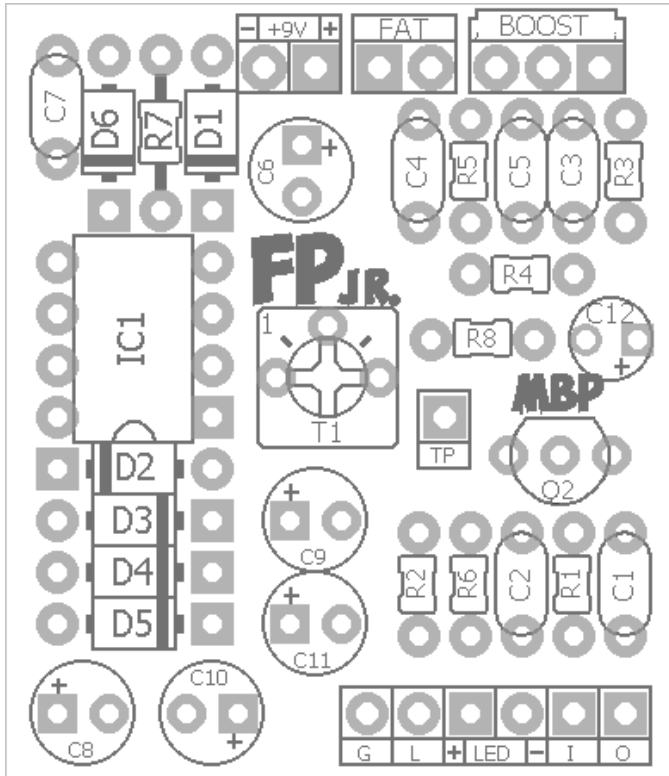


# FATPANTS JR.

FX Type: Boost

© 2015 madbeanpedals

1.3" W x 1.5" H



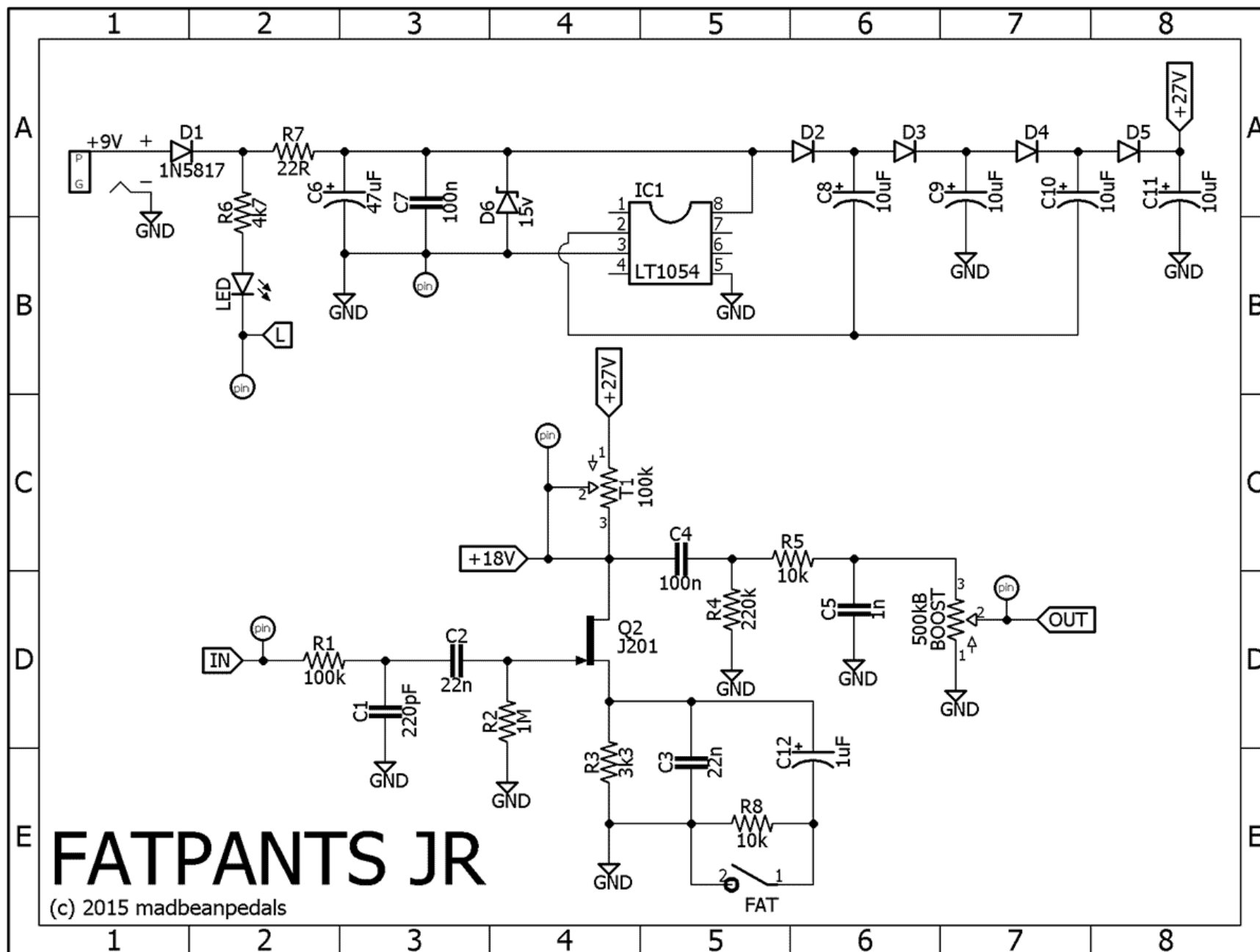
| B.O.M.    |      |      |       |            |        |
|-----------|------|------|-------|------------|--------|
| Resistors |      | Caps |       | Diodes     |        |
| R1        | 100k | C1   | 220pF | D1 - D5    | 1N5817 |
| R2        | 1M   | C2   | 22n   | D6         | 15v    |
| R3        | 3k3  | C3   | 22n   | Transistor |        |
| R4        | 220k | C4   | 100n  | Q2         | J201   |
| R5        | 10k  | C5   | 1n    | IC         |        |
| R6        | 4k7  | C6   | 47uF  | IC1        | LT1054 |
| R7        | 22R  | C7   | 100n  | Switch     |        |
| R8        | 10k  | C8   | 10uF  | FAT        | SPST   |
|           |      | C9   | 10uF  | Trimmer    |        |
|           |      | C10  | 10uF  | T1         | 100k   |
|           |      | C11  | 10uF  | Pot        |        |
|           |      | C12  | 1uF   | BOOST      | 500k   |

**Terms of Use:** You are free to use purchased **FatPantsJr.** circuit boards for both DIY and small commercial operations. You may not offer **FatPantsJr.** boards for resale or as part of a "kit" in a commercial fashion. Peer to peer re-sale is, of course, okay

## Shopping List

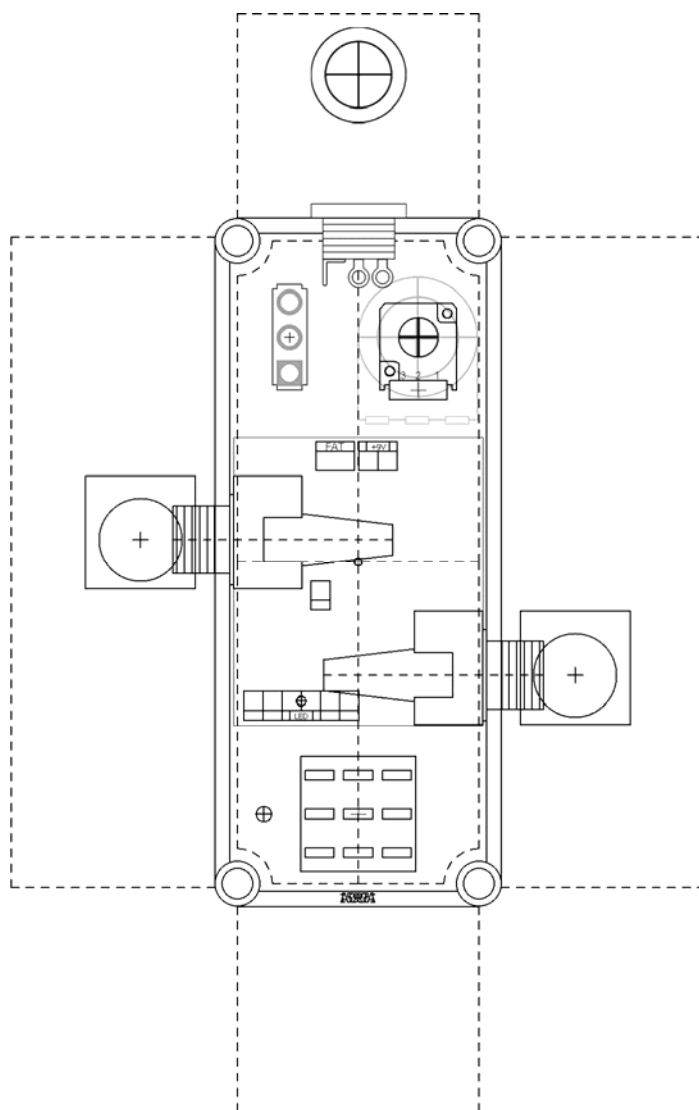
| Value  | QTY | Type                | Rating       | Suggested Parts   |
|--------|-----|---------------------|--------------|---|
| 22R    | 1   | Metal / Carbon Film | <b>1/4W</b>  | <a href="http://www.mouser.com/ProductDetail/Xicon/271-22-RC/?qs=sGAEpiMZZMu61qfTUdNhG7rDiDSER6VeJru%252bdnsKzwl%3d">http://www.mouser.com/ProductDetail/Xicon/271-22-RC/?qs=sGAEpiMZZMu61qfTUdNhG7rDiDSER6VeJru%252bdnsKzwl%3d</a>   |
| 3k3    | 1   | Metal / Carbon Film | 1/8W or 1/4W | <a href="http://www.mouser.com/ProductDetail/Xicon/270-33K-RC/?qs=sGAEpiMZZMu61qfTUdNhG1Sr7lGMEIz%252bNSyVPPTI1JE%3d">http://www.mouser.com/ProductDetail/Xicon/270-33K-RC/?qs=sGAEpiMZZMu61qfTUdNhG1Sr7lGMEIz%252bNSyVPPTI1JE%3d</a>   |
| 4k7    | 1   | Metal / Carbon Film | 1/8W or 1/4W | <a href="http://www.mouser.com/ProductDetail/Xicon/270-47K-RC/?qs=sGAEpiMZZMu61qfTUdNhG8DCUhfQWu4h9pac%2fWX5ZY%3d">http://www.mouser.com/ProductDetail/Xicon/270-47K-RC/?qs=sGAEpiMZZMu61qfTUdNhG8DCUhfQWu4h9pac%2fWX5ZY%3d</a>   |
| 10k    | 2   | Metal / Carbon Film | 1/8W or 1/4W | <a href="http://www.mouser.com/ProductDetail/Xicon/270-10K-RC/?qs=sGAEpiMZZMu61qfTUdNhG%2fNICq4NOtz5D3ChGwXeq%3d">http://www.mouser.com/ProductDetail/Xicon/270-10K-RC/?qs=sGAEpiMZZMu61qfTUdNhG%2fNICq4NOtz5D3ChGwXeq%3d</a>   |
| 100k   | 1   | Metal / Carbon Film | 1/8W or 1/4W | <a href="http://www.mouser.com/ProductDetail/Xicon/270-100K-RC/?qs=sGAEpiMZZMu61qfTUdNhG0T8NRN%2fRayYYP90eo1gO0Q%3d">http://www.mouser.com/ProductDetail/Xicon/270-100K-RC/?qs=sGAEpiMZZMu61qfTUdNhG0T8NRN%2fRayYYP90eo1gO0Q%3d</a>   |
| 220k   | 1   | Metal / Carbon Film | 1/8W or 1/4W | <a href="http://www.mouser.com/ProductDetail/Xicon/270-220K-RC/?qs=sGAEpiMZZMu61qfTUdNhG15Sz3PBOPbZ%252bXemycOErKw%3d">http://www.mouser.com/ProductDetail/Xicon/270-220K-RC/?qs=sGAEpiMZZMu61qfTUdNhG15Sz3PBOPbZ%252bXemycOErKw%3d</a>   |
| 1M     | 1   | Metal / Carbon Film | 1/8W or 1/4W | <a href="http://www.mouser.com/ProductDetail/Xicon/270-10M-RC/?qs=sGAEpiMZZMu61qfTUdNhG1VZapqQ2mzw5GSB6LCokiA%3d">http://www.mouser.com/ProductDetail/Xicon/270-10M-RC/?qs=sGAEpiMZZMu61qfTUdNhG1VZapqQ2mzw5GSB6LCokiA%3d</a>   |
| 220pF  | 1   | Ceramic             | 25v Min      | <a href="http://www.mouser.com/ProductDetail/Murata-Electronics/RDE5C1H221J0K1H03B/?qs=sGAEpiMZZMvsSlwiRhF8qkG2C6iXIFO%2fIXCtRW1KYNSgsTVmO0%2fX">http://www.mouser.com/ProductDetail/Murata-Electronics/RDE5C1H221J0K1H03B/?qs=sGAEpiMZZMvsSlwiRhF8qkG2C6iXIFO%2fIXCtRW1KYNSgsTVmO0%2fX</a> |
| 1n     | 1   | Film                | 25v Min      | <a href="http://www.mouser.com/ProductDetail/Kemet/MMK5102J50J01L4BULK/?qs=sGAEpiMZZMv1cc3ydrPrF17gluUB4mH1JbiHpuDp0As%3d">http://www.mouser.com/ProductDetail/Kemet/MMK5102J50J01L4BULK/?qs=sGAEpiMZZMv1cc3ydrPrF17gluUB4mH1JbiHpuDp0As%3d</a>   |
| 22n    | 2   | Film                | 25v Min      | <a href="http://www.mouser.com/ProductDetail/Kemet/MMK5223J50J01L165TR18/?qs=sGAEpiMZZMv1cc3ydrPrF17gluUB4mH1KSGWuTiazkc%3d">http://www.mouser.com/ProductDetail/Kemet/MMK5223J50J01L165TR18/?qs=sGAEpiMZZMv1cc3ydrPrF17gluUB4mH1KSGWuTiazkc%3d</a>   |
| 100n   | 2   | Film                | 25v Min      | <a href="http://www.mouser.com/ProductDetail/Kemet/MMK5104J63J01L4BULK/?qs=sGAEpiMZZMv1cc3ydrPrF3QBXSlrGKcETYSqR%2fdweW4%3d">http://www.mouser.com/ProductDetail/Kemet/MMK5104J63J01L4BULK/?qs=sGAEpiMZZMv1cc3ydrPrF3QBXSlrGKcETYSqR%2fdweW4%3d</a>   |
| 1uF    | 1   | Electrolytic        | 25v          | <a href="http://www.mouser.com/ProductDetail/Lelon/SS010M1HBK-0305P/?qs=sGAEpiMZZMtZ1n0r9vR22Yqcl%2fJYgoutJN0ygmfEk40%3d">http://www.mouser.com/ProductDetail/Lelon/SS010M1HBK-0305P/?qs=sGAEpiMZZMtZ1n0r9vR22Yqcl%2fJYgoutJN0ygmfEk40%3d</a>   |
| 10uF   | 2   | Electrolytic        | 25v          | <a href="http://www.mouser.com/ProductDetail/Lelon/SS100M1EBK-0505P/?qs=sGAEpiMZZMtZ1n0r9vR22fOIMi63Ci6pMjznIzIEUe4%3d">http://www.mouser.com/ProductDetail/Lelon/SS100M1EBK-0505P/?qs=sGAEpiMZZMtZ1n0r9vR22fOIMi63Ci6pMjznIzIEUe4%3d</a>   |
| 10uF   | 2   | Electrolytic        | <b>35v</b>   | <a href="http://www.mouser.com/ProductDetail/Lelon/SS100M1VBK-0505P/?qs=sGAEpiMZZMtZ1n0r9vR22fOIMi63Ci6pBG1n4k9tWU%3d">http://www.mouser.com/ProductDetail/Lelon/SS100M1VBK-0505P/?qs=sGAEpiMZZMtZ1n0r9vR22fOIMi63Ci6pBG1n4k9tWU%3d</a>   |
| 47uF   | 1   | Electrolytic        | 16v          | <a href="http://www.mouser.com/ProductDetail/Lelon/SEA470M1CSA0507/?qs=sGAEpiMZZMsh%252b1woXyUXi0lol%2f1htsn7Su84Q6b0Cqg%3d">http://www.mouser.com/ProductDetail/Lelon/SEA470M1CSA0507/?qs=sGAEpiMZZMsh%252b1woXyUXi0lol%2f1htsn7Su84Q6b0Cqg%3d</a>   |
| 1N5817 | 5   |                     |              | <a href="http://www.mouser.com/ProductDetail/Fairchild-Semiconductor/1N5817/?qs=sGAEpiMZZMv%252bkWzvOmGqmjZ%252bf%252ba8VPRY">http://www.mouser.com/ProductDetail/Fairchild-Semiconductor/1N5817/?qs=sGAEpiMZZMv%252bkWzvOmGqmjZ%252bf%252ba8VPRY</a>                                       |
| 15v    | 1   | 15v Zener           | 1W           | <a href="http://www.mouser.com/ProductDetail/Fairchild-Semiconductor/1N4744A/?qs=sGAEpiMZZMtQ8nqTKtFS%2fd313Kx94AdFdSPLy44WWjs%3d">http://www.mouser.com/ProductDetail/Fairchild-Semiconductor/1N4744A/?qs=sGAEpiMZZMtQ8nqTKtFS%2fd313Kx94AdFdSPLy44WWjs%3d</a>                             |
| J201   | 1   |                     |              | <a href="http://smallbear-electronics.mybigcommerce.com/transistor-fet-j201-vishay-siliconix/">http://smallbear-electronics.mybigcommerce.com/transistor-fet-j201-vishay-siliconix/</a>   |
| LT1054 | 1   |                     |              | <a href="http://www.mouser.com/ProductDetail/Texas-Instruments/LT1054CP/?qs=sGAEpiMZZMtHtHzVlkrqQXTG%2fniV0HzNzh%2fCTp0tRc%3d">http://www.mouser.com/ProductDetail/Texas-Instruments/LT1054CP/?qs=sGAEpiMZZMtHtHzVlkrqQXTG%2fniV0HzNzh%2fCTp0tRc%3d</a>                                     |
| SPST   | 1   | or, SPDT            |              | <a href="http://smallbear-electronics.mybigcommerce.com/spdt-on-on-0218b/">http://smallbear-electronics.mybigcommerce.com/spdt-on-on-0218b/</a>   |
| 100k   | 1   | Bourns 3362P        |              | <a href="http://www.mouser.com/ProductDetail/Bourns/3362P-1-104LF/?qs=sGAEpiMZZMvyqUB3GLcD7l39JMs%2f%2f%2fL0s09qVZSzi2c%3d">http://www.mouser.com/ProductDetail/Bourns/3362P-1-104LF/?qs=sGAEpiMZZMvyqUB3GLcD7l39JMs%2f%2f%2fL0s09qVZSzi2c%3d</a>   |
| 500kB  | 1   | Alpha               | 9mm or 16mm  | <a href="http://smallbear-electronics.mybigcommerce.com/alpha-single-gang-9mm-pc-mount/">http://smallbear-electronics.mybigcommerce.com/alpha-single-gang-9mm-pc-mount/</a>   |

- You can use either a 9mm or 16mm pot.
- C10 and C11 should be 35v "mini" electrolytic caps.
- Use a 1/4W for the 22R resistor. The others can be 1/8W.



## 1590A Drill Guide

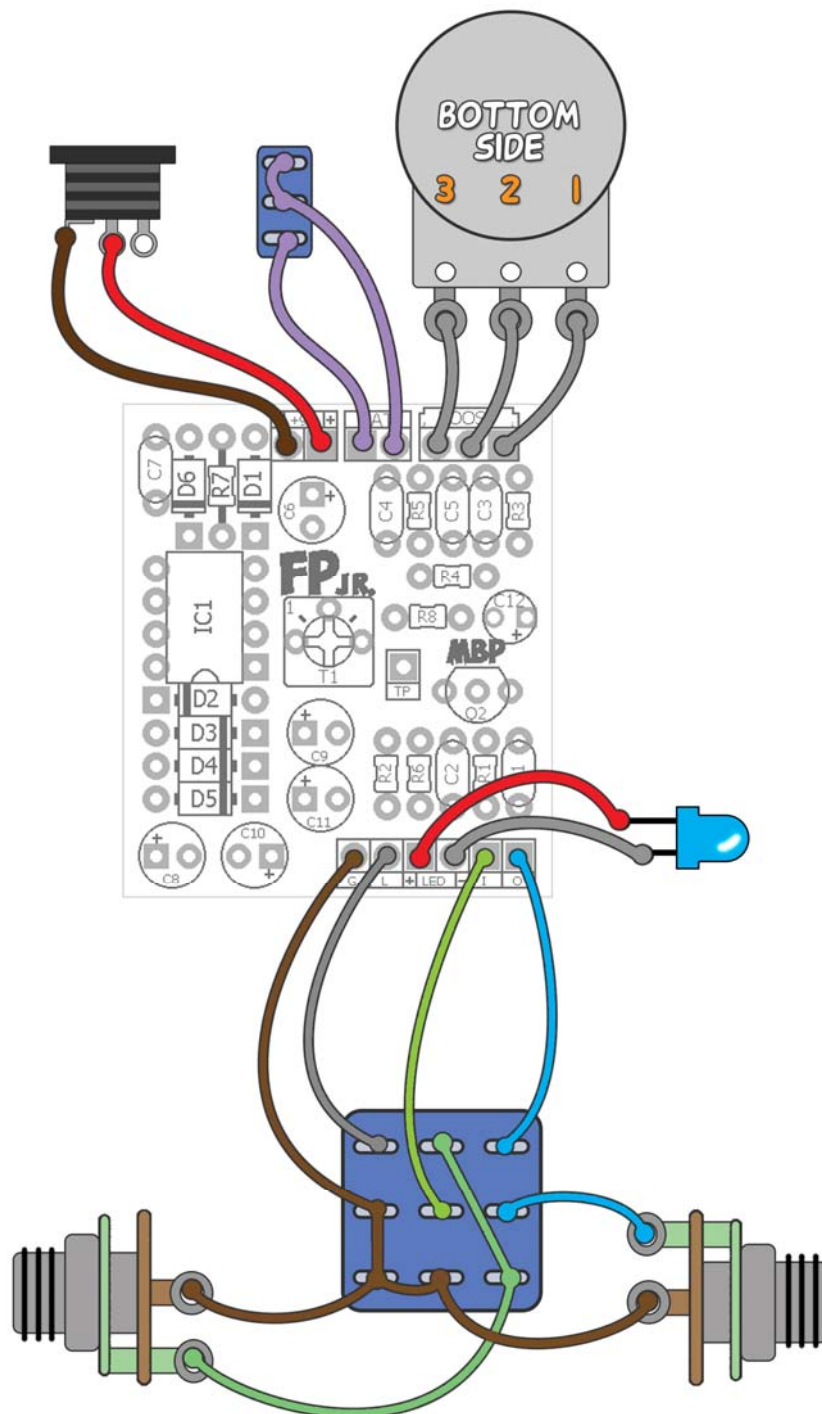
3.63" W x 5.72" H



Use these jacks:

<http://smallbear-electronics.mybigcommerce.com/lumberg-1-4-compact-shrouded-mono-jack/>  
or, <http://smallbear-electronics.mybigcommerce.com/stereo-low-profile-pc-mount/>

## Wiring Guide



The FatPants boost has been a long-running project on madbeanpedals. Over the years it has had several iterations due to the highly mod-able nature of the design. In planning a "final version" of this project the following goals were established; 1) simple design in a small form factor, 2) higher voltage supply than previous versions and 3) make it a easy build. The circuit itself is based on the input stage of the Echoplex (with modifications), which has been popularized in pedal form by ClinchFX and Xotic.

The **FatPants Jr.** is one knob and one switch, Boost and Fat, resp. The Boost knob controls the total amount of signal boost possible from the JFET (up to around 20dB or so). The boosted frequency centers around 2.2kHz which adds presence and "sheen" to the guitar. The Fat switch increases the frequency response of the boost to full range and increases saturation. At low Boost settings, the FatPantsJr will increase pick dynamics and clean up your guitar signal. At high Boost settings, it will drive the front end of a tube amp into compression and saturation. It can be used on its own or to boost a separate overdrive, if you like.

### Biasing

You need to bias the JFET for the boost to work correctly. This is done by adjusting the Drain voltage via the T1 trimmer. To bias the JFET, leave the Fat switch off and set the Boost knob all the way up. Using your DMM, ground the black lead and connect the red lead to the "TP" pad on the FatPantsJR PCB. Now adjust the T1 trimmer until you read about 18vDC. You can make adjustments to T1 until you get the maximum boost obtainable from your transistor (which will be somewhere between 15v and 22v).

### Voltages

One Spot PS measuring 9.42v no load.

| LT1054 |       | J201 |       |
|--------|-------|------|-------|
| Pin    | DC    | Pin  | DC    |
| 1      | 1.38  | D    | 18.36 |
| 2      | 4.98  | S    | 363mV |
| 3      | 0     | G    | 0v    |
| 4      | 0.8mV |      |       |
| 5      | 0     |      |       |
| 6      | 2.52  |      |       |
| 7      | 1.33  |      |       |
| 8      | 9.13  |      |       |

