

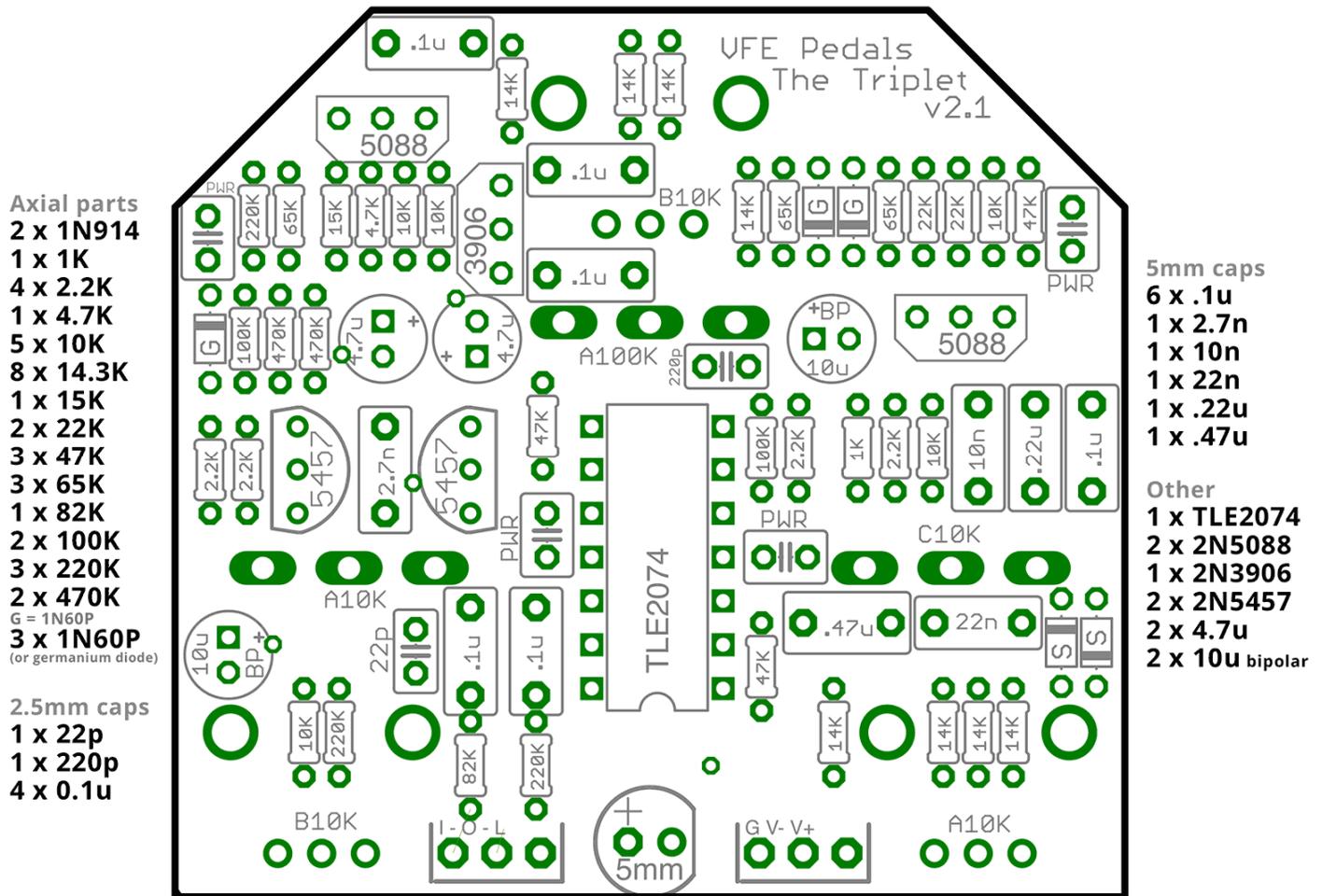
# THE TRIplet™

FX TYPE: Comp+Oct+Dist

Images © VFE and MBP

Project Doc © madbeanpedals

2.17" W x 2.025" H



**Note:** Use the values listed on the image above – not the values indicated on the silk-screen of the PCB. Some values changed over time in the VFE product cycles.

**REMINDER: PETER RUTTER / VFE DOES NOT PROVIDE SUPPORT FOR THESE PROJECTS. PLEASE DO NOT CONTACT HIM FOR QUESTIONS OR TECHNICAL SUPPORT. VISIT THE VFE SECTION OF THE MADBEANPEDALS FORUM FOR QUESTIONS AND ANSWERS!**

**Terms of Use:** These projects are intended for DIY use only and may not be used in any commercial Endeavour including the sale of completed pedals or "kits". The PCBs are the actual boards used to build the recently discontinued line of VFE pedals and have been generously provided to the DIY community by VFE for the purpose of DIY only.



Shopping List				
QTY	Value	Type	Rating	Spacing
1	1k	Metal / Carbon Film	1/8W	
4	2k2	Metal / Carbon Film	1/8W	
1	4k7	Metal / Carbon Film	1/8W	
5	10k	Metal / Carbon Film	1/8W	
8	14k3	Metal / Carbon Film	1/8W	
1	15k	Metal / Carbon Film	1/8W	
2	22k	Metal / Carbon Film	1/8W	
3	47k	Metal / Carbon Film	1/8W	
3	65k	Metal / Carbon Film	1/8W	
1	82k	Metal / Carbon Film	1/8W	
2	100k	Metal / Carbon Film	1/8W	
3	220k	Metal / Carbon Film	1/8W	
2	470k	Metal / Carbon Film	1/8W	
1	22pF	MLCC	25v min.	2.5mm
1	220pF	MLCC	25v min.	2.5mm
4	100n	MLCC	25v min.	2.5mm
1	2n7	Film	25v min.	5mm
1	10n	Film	25v min.	5mm
1	22n	Film	25v min.	5mm
6	100n	Film	25v min.	5mm
1	220n	Film	25v min.	5mm
1	470n	Film	25v min.	5mm
2	4u7		25v min.	
3	10uF	Bi-Polar / Non-Polar	25v min.	
2	1n914			
3	1n60p	or, 1n34a		
1	TLE2074			
2	2n5088			
1	2n3906			
2	2n5457			
1	10kA	PC Mount, Plastic Shaft	9mm	
2	10kB	PC Mount, Plastic Shaft	9mm	
1	10kC	PC Mount, Right Angle	16mm	
1	10kA	PC Mount, Right Angle	16mm	
1	100kA	PC Mount, Right Angle	16mm	

- You can safely sub either 14k or 15k for the 14k3 resistors.
- There are two types of 1n60p diodes: one is germanium and the other is Schottky. Peter used the Schottky version. However, these are not widely available and a regular 1n34a (or work-alike) is fine for a sub. I used 1n34a in my build.

This list is for the audio board only. See the v.2 Switching Board doc for the parts needed for the switching system. This effect does use a split-rail power supply.

**2.5mm caps:**

**22pF (MLCC):**

<http://www.mouser.com/Search/ProductDetail.aspx?R=C315C220J5G5TAvirtualkey64600000virtualkey80-C315C220J5G>

**220pF (MLCC):**

<http://www.mouser.com/ProductDetail/KEMET/C320C221J2G5TA/?qs=sGAEpiMZZMt3KoXD5rJ2N%252bwgBl1a522xefKI%252bxFregl%3d>

**100n (MLCC):** <http://www.mouser.com/Search/ProductDetail.aspx?R=C320C104K5R5TAvirtualkey64600000virtualkey80-C320C104K5R>

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**9mm Plastic Shaft, PC Mount (10kA, 10kB):**

<http://smallbear-electronics.mybigcommerce.com/alpha-single-gang-9mm-right-angle-pc-mount-w-knurled-plastic-shaft/>

**16mm Right Angle, PC Mount (10kC, 10kA, 100kA):**

<http://smallbear-electronics.mybigcommerce.com/alpha-single-gang-16mm-right-angle-pc-mount/>

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**TLE2074:**

<http://www.mouser.com/ProductDetail/Texas-Instruments/TLE2074CN/?qs=sGAEpiMZZMtCHixnSjNA6CumnoLUEIGjtkQTPuP%252bT7A%3d>

**470n:**

<https://www.mouser.com/ProductDetail/KEMET/R82DC3470Z360J/?qs=sGAEpiMZZMv1cc3ydrPrF0%2fKYujtVgoK1HnXG0zURSM%3d>

**10uF BP:**

<http://www.mouser.com/Search/ProductDetail.aspx?R=ECE-A1EN100Uvirtualkey66720000virtualkey667-ECE-A1EN100U>

**1n60p:**

<https://www.taydaelectronics.com/1n60p-1n60-schottky-diode-45v-30ma.html>

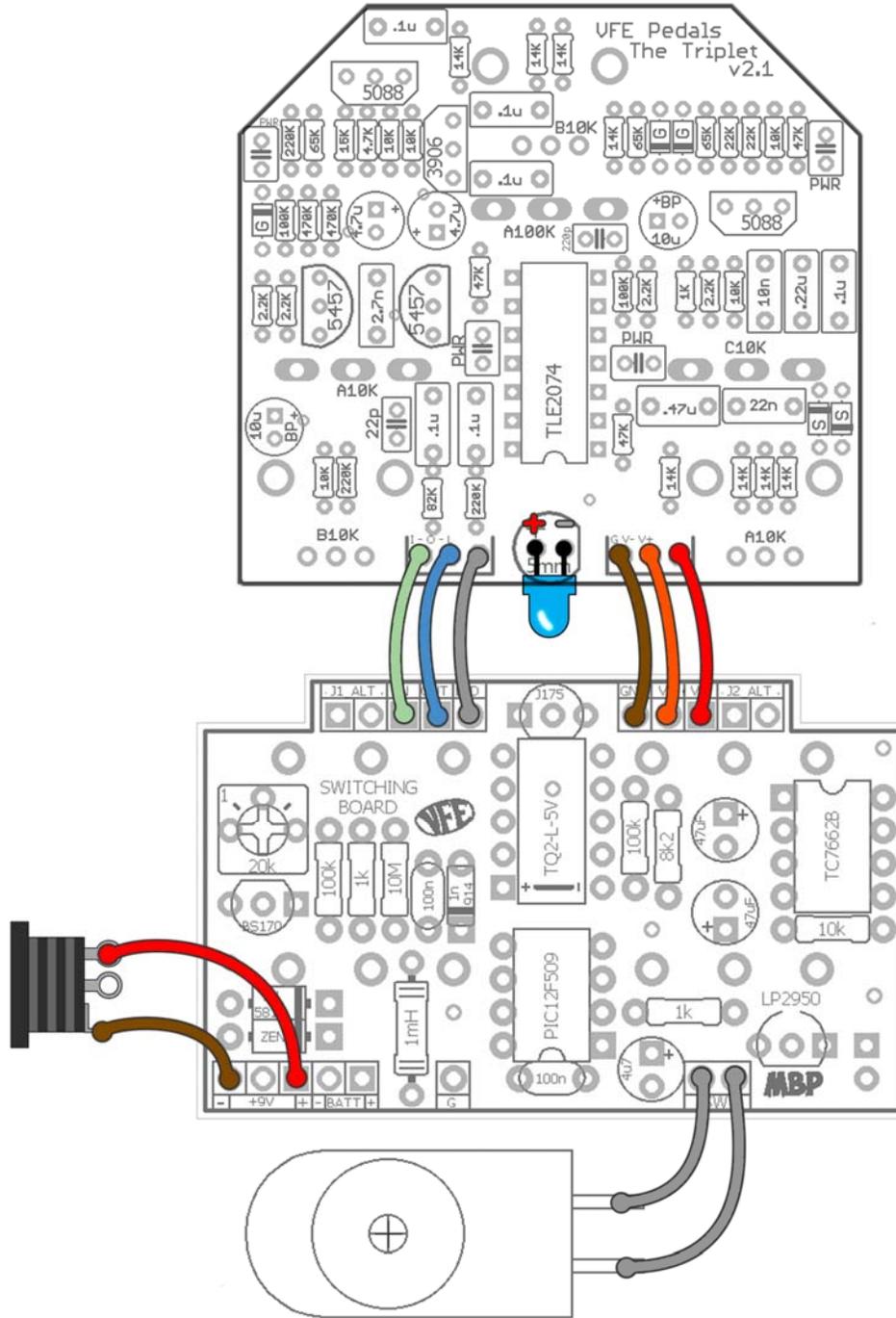
**or, 1n34a work-alike:**

<http://www.smallbear-electronics.mybigcommerce.com/diode-nos-germanium-transitron-an307/>

<http://www.smallbear-electronics.mybigcommerce.com/diode-nos-germanium-1n278-house-number/>

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# Wiring



For more detailed wiring information and options, please refer to the "v2" Switching Board doc.

## Overview

**From the VFE Website:** THE TRIPLET gives you three classic effects for the price (and size) of one. It all starts with a simple FET compressor, which can be set for mild dynamic control or some seriously squishy sustain. Next is a simple analog octave up that can be blended for a full octave effect or just a subtle sweetening. A simple distortion circuit is last, and can also be blended in, allowing you to create even more tones than would be possible if you bought 3 separate pedals.

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## Controls

Descriptions from the VFE website: <http://vfepedals.com/the-triplet.html>

**GAIN:** Sets the output volume coming out of the compressor. The order of effects in The Triplet goes compressor to octave to distortion, so turning up this control will drive the other sections.

**LEVEL:** This simple control sets the output of the pedal. For the cleanest setting possible, crank this control and then use the GAIN knob to set the desired volume level.

**FILTER:** This is a variable treble cut, but it only affects the distortion section. If the DIST control is fully counterclockwise, this control has no effect.

**OCTAVE:** Blends in the analog octave up effect. A blended octave can sweeten up your tone and give it that extra something to cut through the mix on your solos.

**DIST:** Blends in the distortion circuit. Blended distortion tone can add top end clarity and bottom end punch, and work especially well when stacking with other drive pedals.

**COMP:** Sets the threshold point where the compressor kicks in. Turn this up to lower the threshold and increase compression. Due to the variability of the FETs in this circuit, this control intentionally has too much range...which means if you crank it all the way, the signal will cut out completely.

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## Notes

This is an unusual circuit and takes a little time to dial in. Couple things to keep in mind:

- The Gain control is basically a volume control after the compressor stage. This means you will need to set it at least  $\frac{1}{4}$  to  $\frac{1}{3}$ <sup>rd</sup> up to get any output.
- The Dist and Octave are mix controls. You will hear some of the clean (or compressed) signal when you turn them up. For example, you will hear a mix of clean and dirty tones with the Dist knob until it's turned all the way up (at which point the clean audio is muted).
- The Filter control only works when the Dist knob is turned up.
- Lastly, the Comp knob has a limited range. It will cut out the signal completely when turned all the way up and the most useful settings fall between  $\frac{1}{3}$ <sup>rd</sup> and  $\frac{2}{3}$ <sup>rd</sup> up. Also, when you turn the Comp knob you may hear a momentary volume swell – this is because the bias on the associated FET compression resets when the resistance changes. The same thing happens on the MBP “Cupcake” compressor which is also based on the Orange Squeezer (although the Comp control is a set-and-forget trimmer in that project).

My favorite setting:

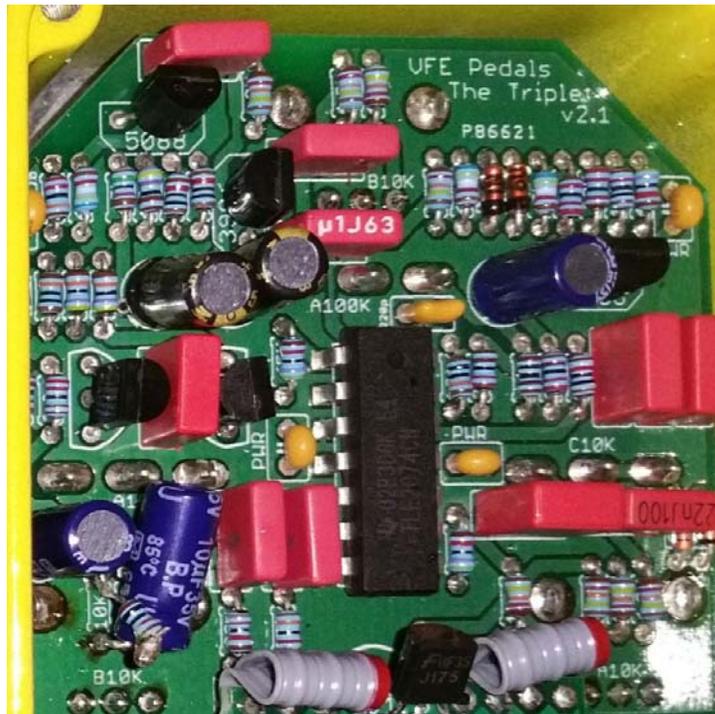
**GAIN:**  $\frac{3}{4}$  up  
**LEVEL:** To taste  
**FILTER:** All the way up  
**OCTAVE:**  $\frac{1}{2}$  up  
**DIST:**  $\frac{1}{3}$  up  
**COMP:**  $\frac{1}{2}$  up

This type of octave effect works really well around the 12<sup>th</sup> -15<sup>th</sup> fret. Also, try the octave on your neck pickup with your tone control rolled all the way down.

To get an idea of what The Triplet can do check out this excellent Mike Herman demo here:  
<https://www.youtube.com/watch?v=KTsBw8Vi0DU>

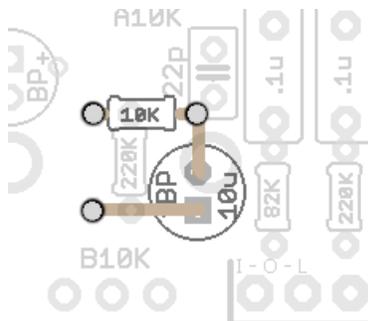
## Mod

The production PCB appears to include a mod which was not mentioned in the materials I received from Peter. It is a 10uF Bi-Polar cap soldered between the inverted input and 10k resistor of the first gain stage. Since this stage has a moderate amount of gain to it, I suspect it was done to prevent amplifying any DC offset from the TLE2074. Whether or not it was done on every build or case by case basis, I don't know. But, it's an easy mod to do and I recommend it.



Pic of production Triplet, courtesy of forum member Aentons

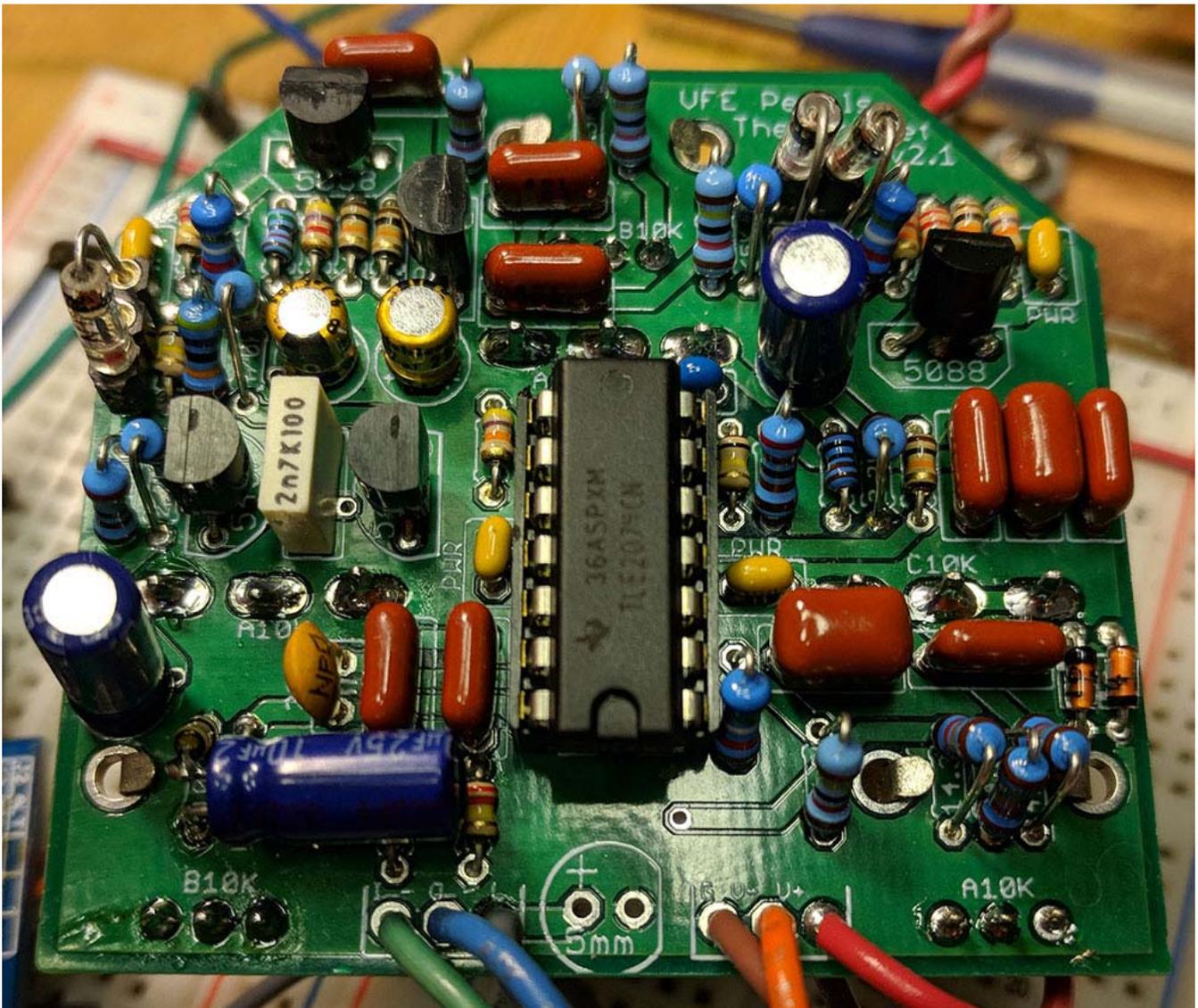
Solder the 10uF cap and 10k resistor as shown below. The cap is non-polar so it doesn't matter which lead you solder first.



Here's how I did it on my build.



## Build Pic

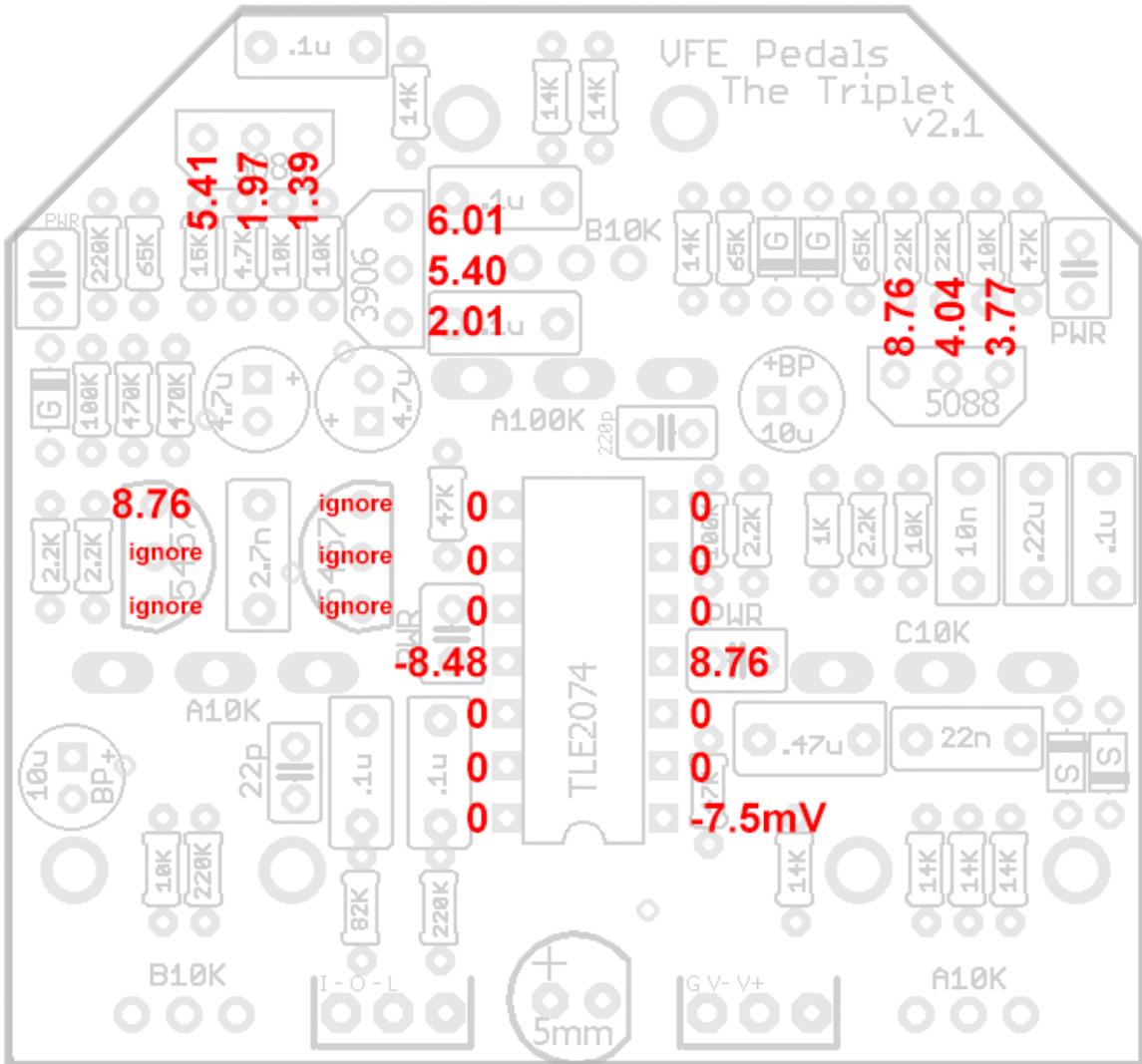


I socketed the diodes on my build since I wasn't sure if I had any 1n60p Schottky. I used 1n34a which worked just fine.

Note: If you use 1n34a, be very careful when bending the leads to fit them in the space allotted. Glass diodes break very easily – don't bend the lead right at the body of the diode but a millimeter or so above.

# Voltages

## 9.42vDC One-Spot Power Supply



Current Draw: 24mA

