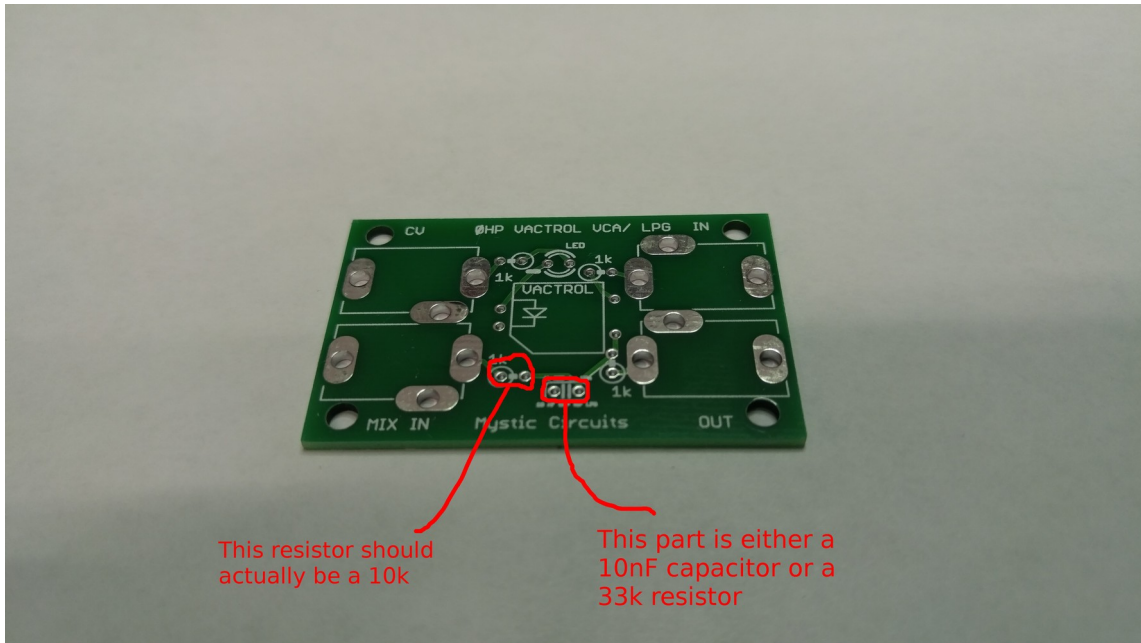


0HP Vactrol VCA/ LPG board rough draft of build docs

Both the Vactrol based modules (VCA and LPG) use the same board, the only difference is whether or not a specific part is a capacitor or a resistor.

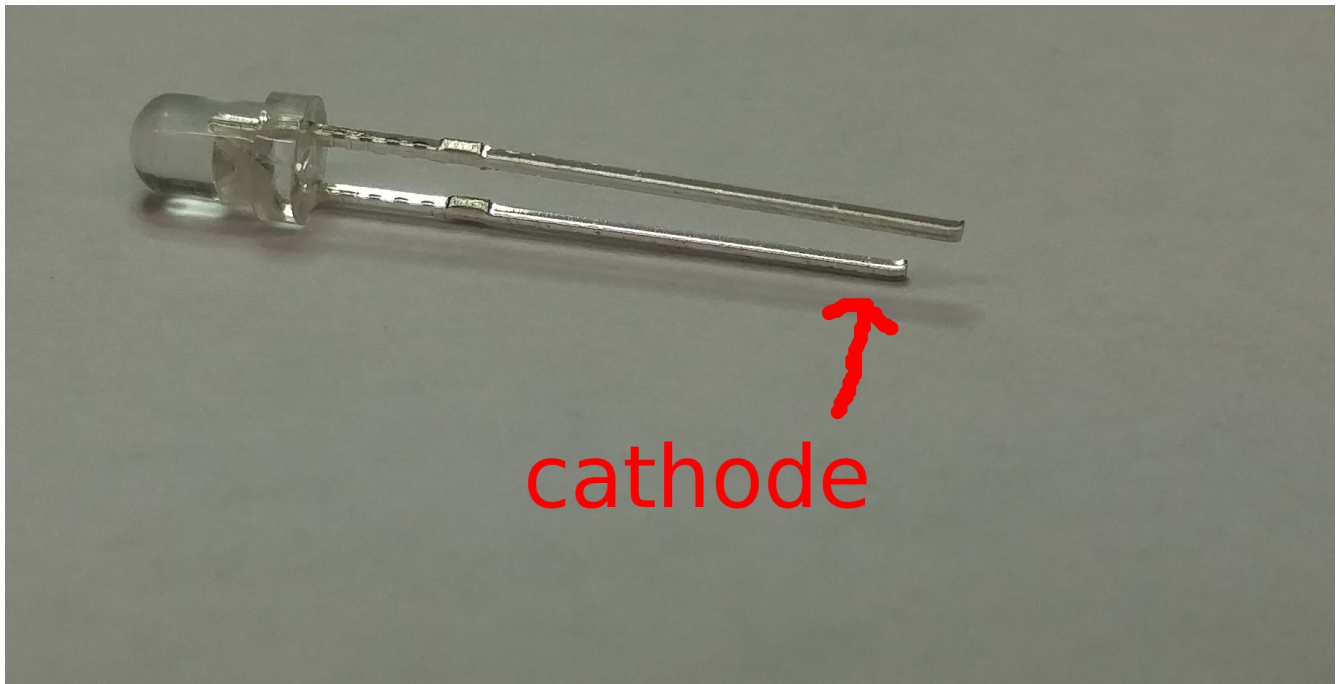


In both cases there is an error in labeling for the resistor in the lower left hand corner, it should be a 10K resistor instead of a 1K resistor. It is the closest resistor to the 'MIX IN' jack.

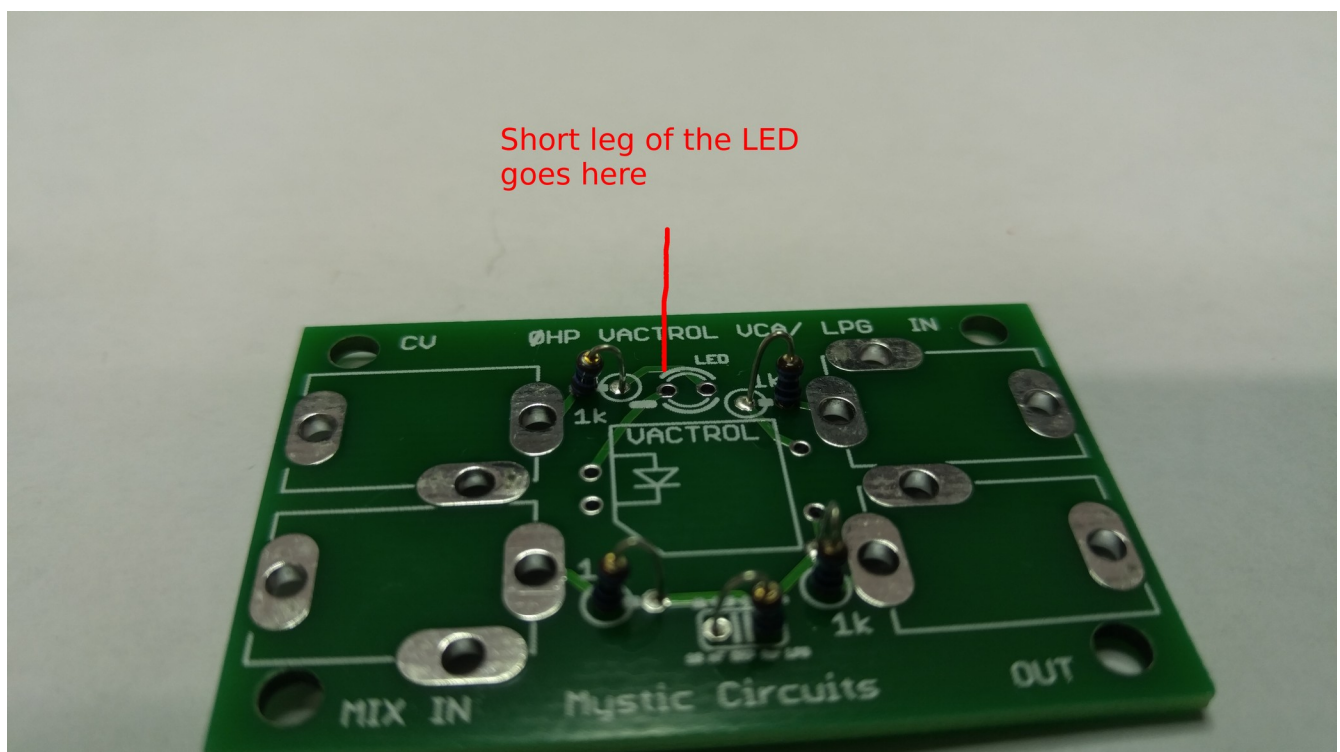
In the middle of the board, below the vactrol but above the 'Mystic Circuits' logo, is the footprint for the part that determines whether the module is a LPG or a VCA. Place a 10nF capacitor here for LPG operation and a resistor for VCA operation. I use a 33k resistor in my designs but all vactrols are different and especially vactrols from different manufacturers are different. As such I simply put a 100k multiturn trim pot in the kits/ BOM for the VCA. You have to snip one of the legs and solder in the two that are left, then once the module is done calibrate the VCA to balance signal loss with bleed. Ill write a few more notes on this at the end, but if you don't feel like dealing with calibration I suggest building the LPG.



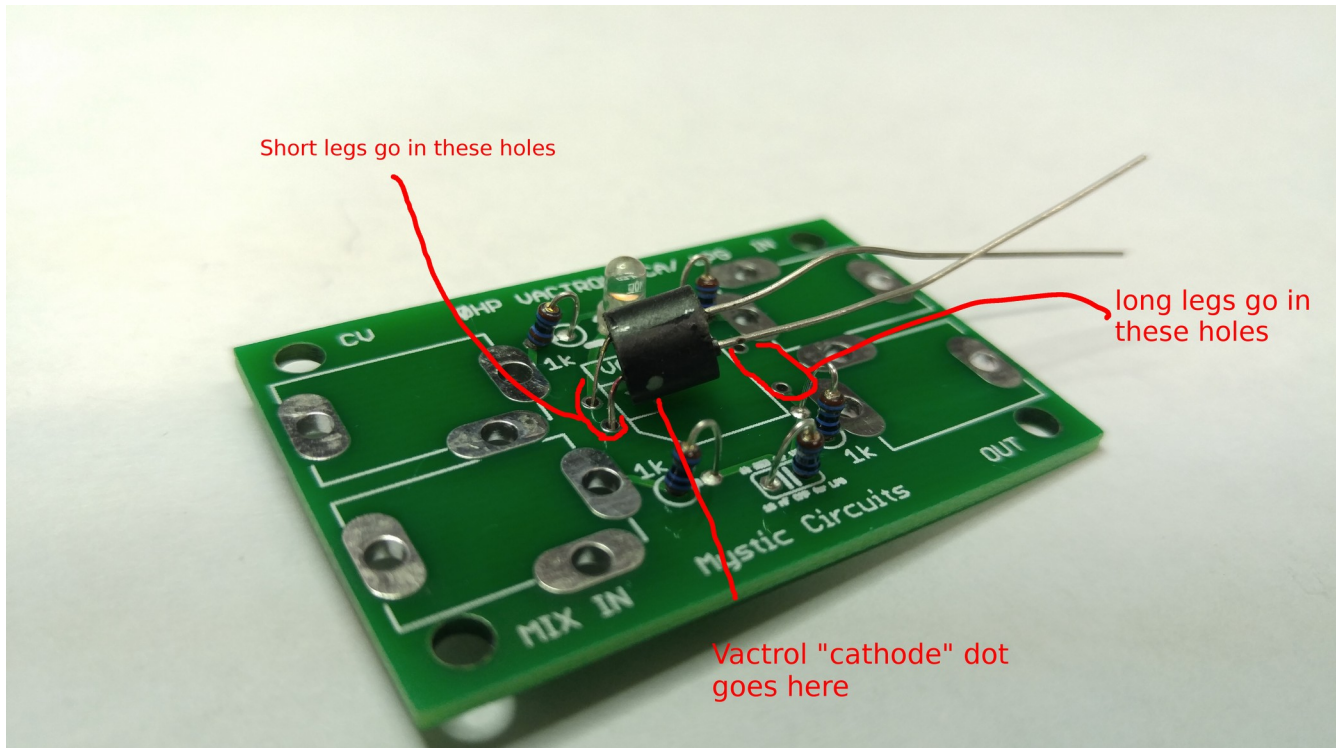
Once you have soldered in the 10k and either the trimpot or the capacitor solder in the three 1k resistors.



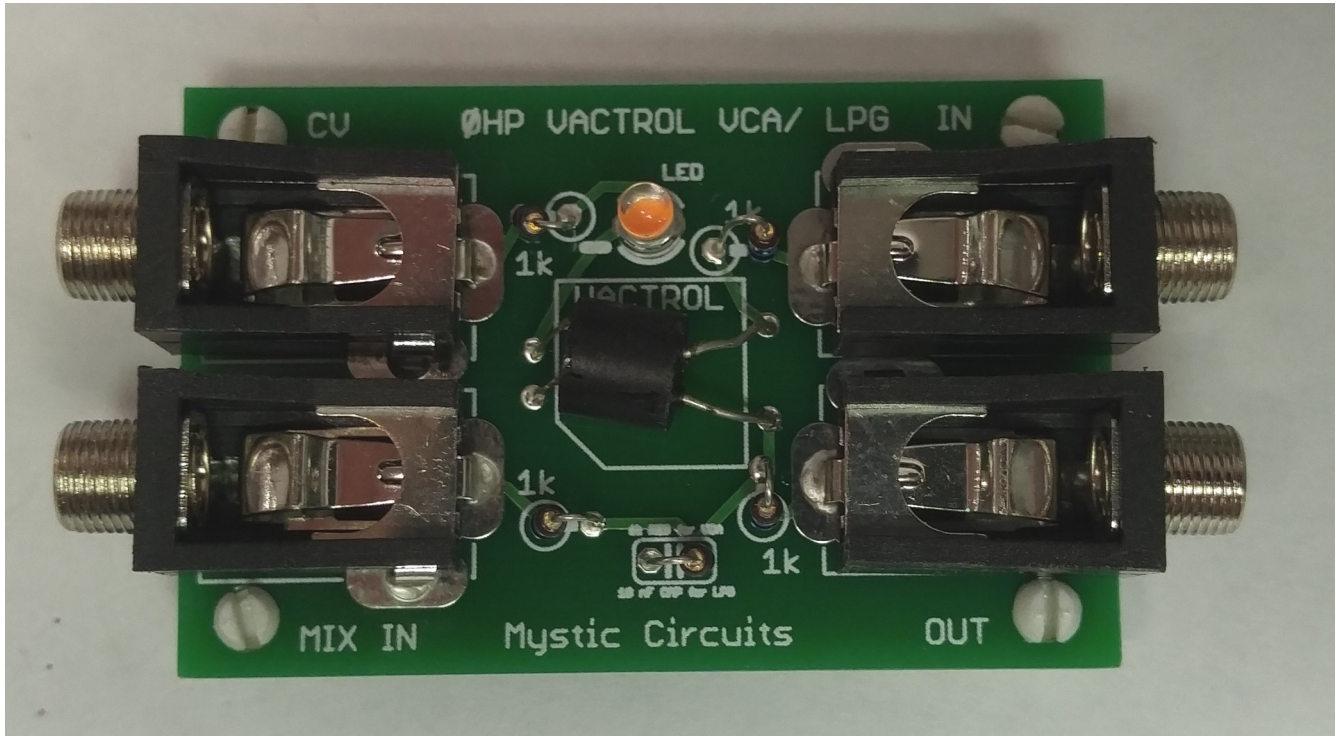
Next we solder the LED. The direction that the LED is soldered in is important! You need to match the short leg on the LED with the big minus sign on the board. If it is soldered in backwards your module will not work.



Now for the vactrol, again the orientation of the vactrol is super important so be careful of the direction it is going. There are two short legs and two long legs on your vactrol, the long legs go to the right while the short ones go to the left. Before placing the part in the hole look for a silver dot on the vactrol, it should be placed in the direction of the 'MIX IN' jack, same direction as the little arrow inside of the vactrol circuit board footprint. If you got a vactrol from somewhere else there will still be a marking for this leg as it is the cathode of the LED inside the vactrol, I know on the VTL vactrols there is a little angled corner there.



Here is what it should look like at the end:



Note your module will look different depending on what you soldered in for the bottom part that determines if the module is a LPG or a VCA.

This is of course after inserting the standoffs, these also have a direction. It isn't crucial but it will make them stick better, one side is more rounded and the other is more angular, the rounded side goes through the PCB. After that is done snap the acrylic backing to the board, try to apply pressure to 2 corners simultaneously as applying too much pressure to one place can cause the board to snap.

That is everything! If you have any questions please contact me at Eli@MysticCircuits.com or comment in the muffwiggler DIY forum thread here:

<https://www.muffwiggler.com/forum/viewtopic.php?t=185982&highlight=>

NOTES ON CALIBRATING THE VACTROL VCAS:

When calibrating the VCA I usually plug in a signal to the 'IN' jack, then listen at the 'OUT' jack with nothing plugged in to either 'MIX' or 'CV'. Next, turn the trimpot until you are no longer able to hear the input signal at the output. Next, apply a trigger or an envelope to the 'CV' input jack and turn the trimpot in the other direction until when the trigger/ envelope is at it's highest voltage the output is almost as loud as the input. In some cases this will introduce a little bit of bleed back into the signal, unfortunately with vactrols bleed is often an issue. You will just have to experiment with the trimpot until you find a happy balance between output bleed and signal loss. Ill have more in depth instructions in a video to come.