

DIY PCB fabrication

You can get the pcb from Osh Park for \$3.80 per batch of three, shipped. Off shore suppliers are cheaper but much more lead time is necessary.

https://oshpark.com/shared_projects/mMzHpYbk

The components can be sourced from the states or off shore. Much cheaper from Asia.

First off, I apologize if I am too rudimentary in my instructions. It's going to be fun to do this task, and rewarding at the end when it works as expected. There are some tight tolerances on soldering, but just take your time. I recommend using .032" diameter, Sn63/Pb37, rosin flux solder. Your iron should have a narrow(pointed) tip for ease in soldering smaller components. Reminder, your parts may differ from those used here, so just proceed at your own pace.

Get your 6 components in a group, we'll do the short stuff first.

1. Break apart a board and lightly file the edges smooth. You may use flush cutters if needed to separate the boards. Note: if you are building multiple boards at once, you may choose to keep them connected in one larger panel and place parts on all boards at one time.
2. I start with the 27 ohm resistor; measure the width of the holes and bend the resistor leads to fit. Run the resistor leads thru the holes and push resistor all the way down to board surface. Bend leads slightly on back side of board to hold in place.
3. Repeat with 22uh choke in the same manner.
4. Turn over board and solder leads of those components to the back. Just a small dot of solder at each of the contact points.
5. Carefully snip the excess leads off as close as reasonable to board, taking care not to cut your solder point off, of course.
6. Next install the bridge, double check you have matched the bridge AC/DC orientation correctly of AC side "squiggly symbol"(on right toward choke) and DC side +/- signs(on left toward pot[R2]). Hold gently place, turn over, spread four legs to hold, and solder it. Trim ends as necessary.
7. Potentiometer(trimpot, 200-1k ohms) is next and needs to be oriented with single leg facing front. Insert as far down as practical, bend leads on back side of pcb to hold in place and turn over to solder. Trim leads.
8. The tall components installed now are a little fiddly. Capacitor leads(check positive/negative orientation, long leg is positive) go into proper holes, bend slightly to hold, turn over; solder. Trim ends.

9. Last is the regulator, insert leads(heat sink toward the edge of the board)and bend leads slightly(gently) in opposite directions to hold as best you can in position. Don't bend these leads too much. Solder, then trim ends.
- 10.After all done, I use a tooth brush dipped in isopropyl alcohol and wash/clean board of excess flux, whatever.
- 11.Test it. The contacts are pretty close to use alligator clips so I solder on a jst plug on each side; plug into xfrmr with a section of led strip on the DC side to test out the board. You're testing for: lights work, any heat from components, the cap is working(light decays properly when current is turned off), adjusting the pot dims/brightens lighting, overall the pcb operates as expected.
- 12.When installing in car, be sure not to touch bare bottom of board to chassis or it will short out. I use double sided tape, cut to fit, to stick on car roof or easily available(hidden) surface.

Note: When installing the pcb in your car, more often then not, you can use the original female plug installed in the car. Simply unsolder from original light strip, then re-solder to the AC side of the pcb module. This maintains the original power pickup so you eliminate having to make a new connection.

Have fun with this project...

