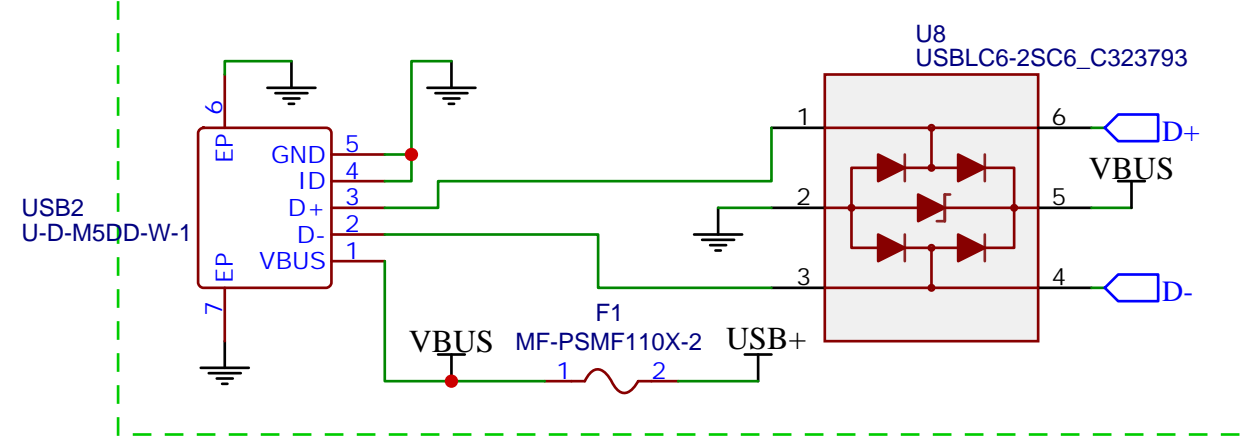
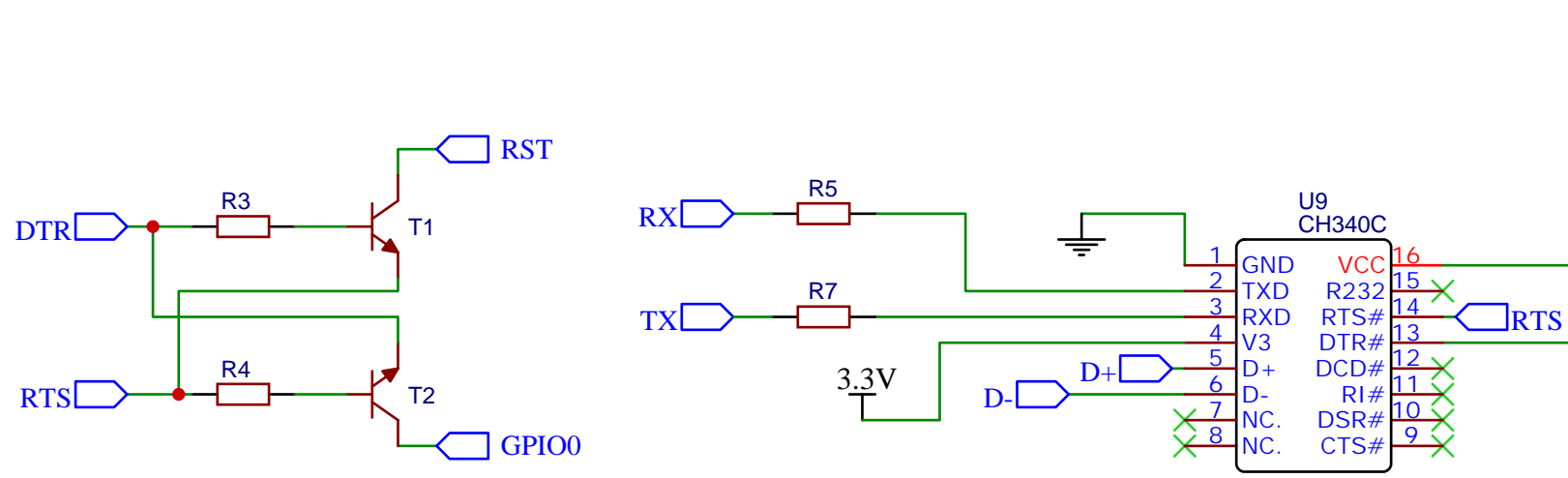


GPIO4, GPIO5 and GPIO12 are unused in the design and perfect for any use.

Micro USB + ESD protection

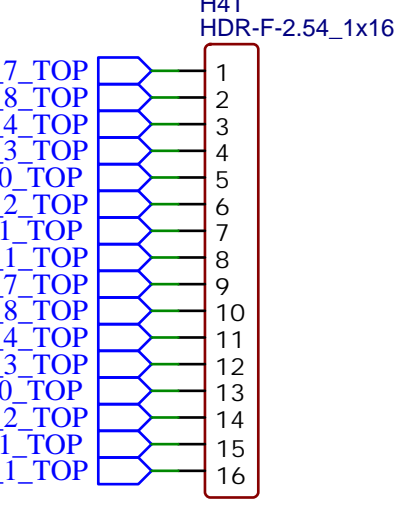
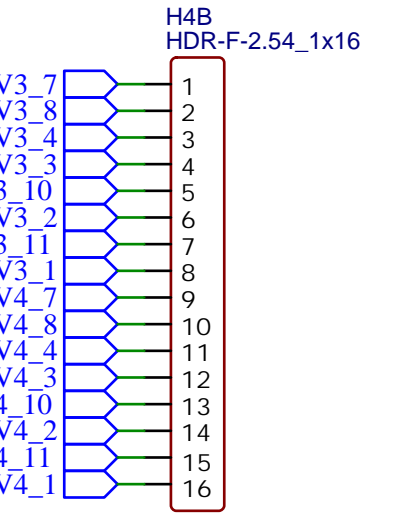
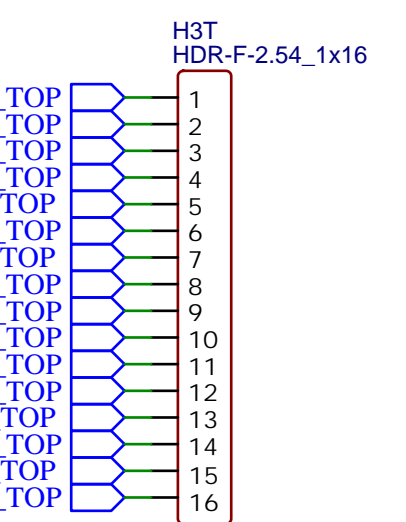
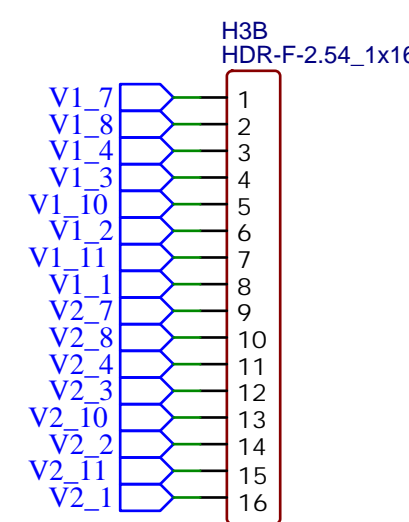
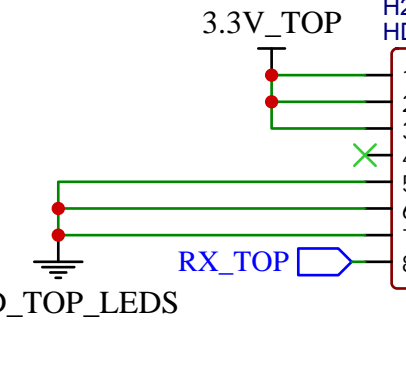
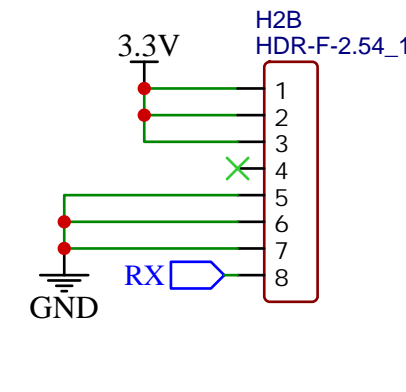
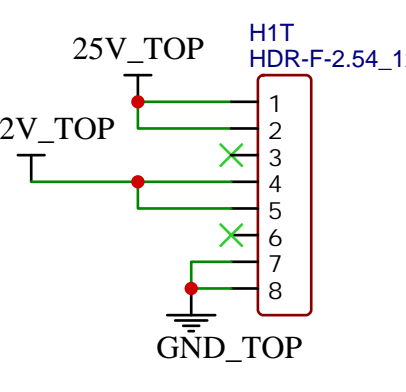
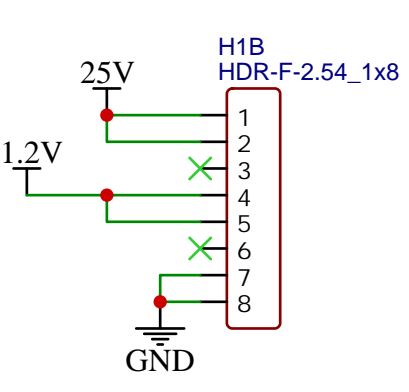
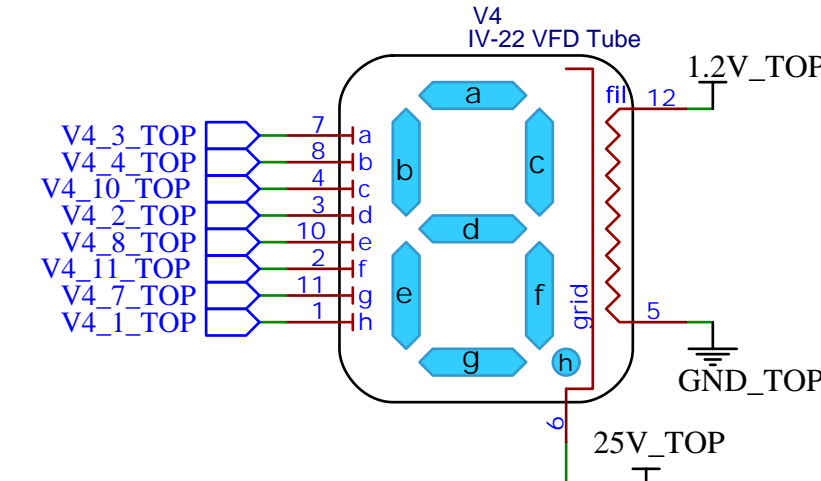
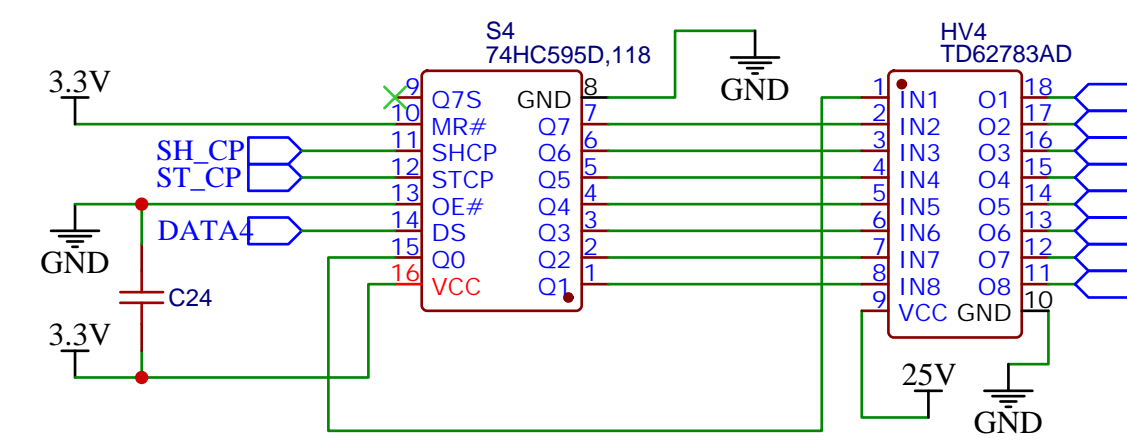
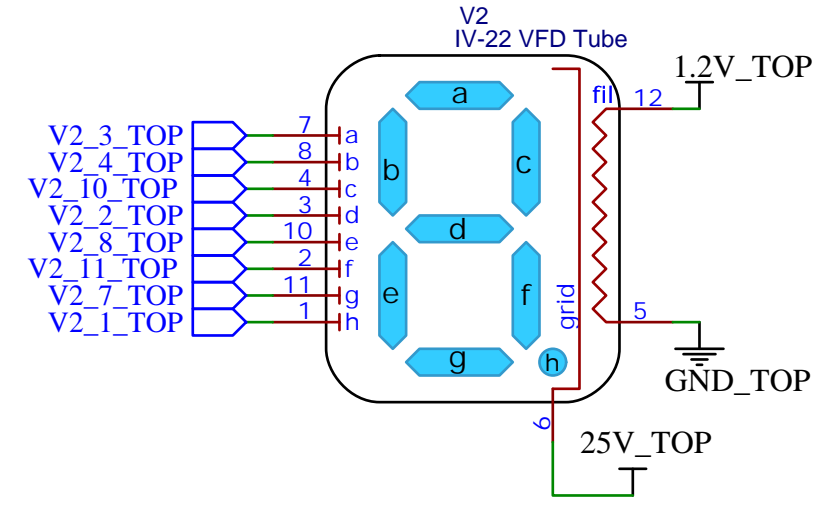
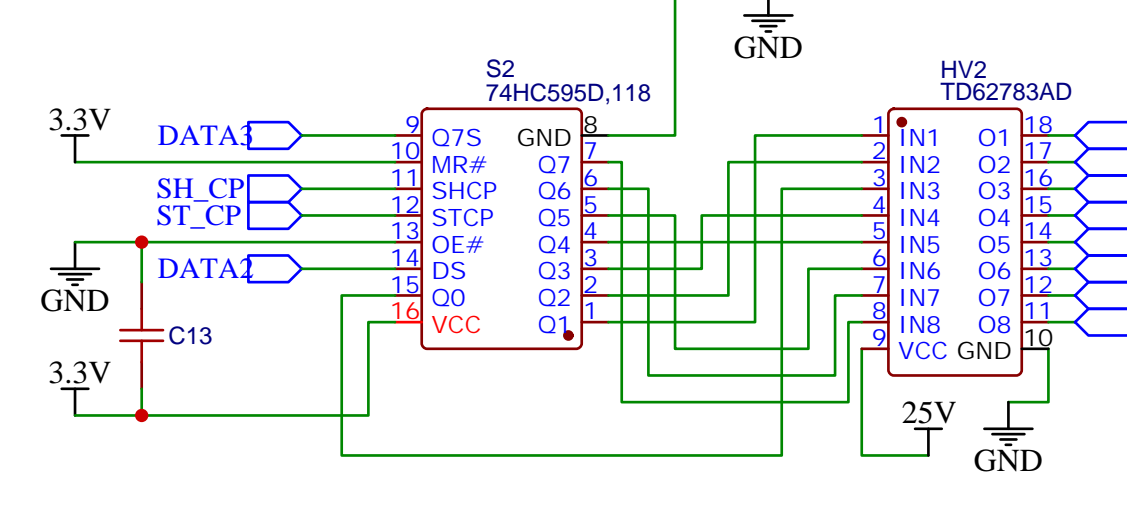
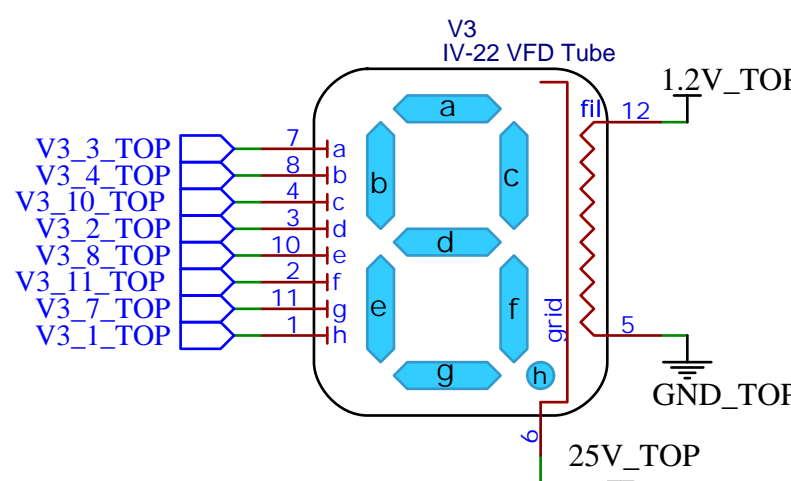
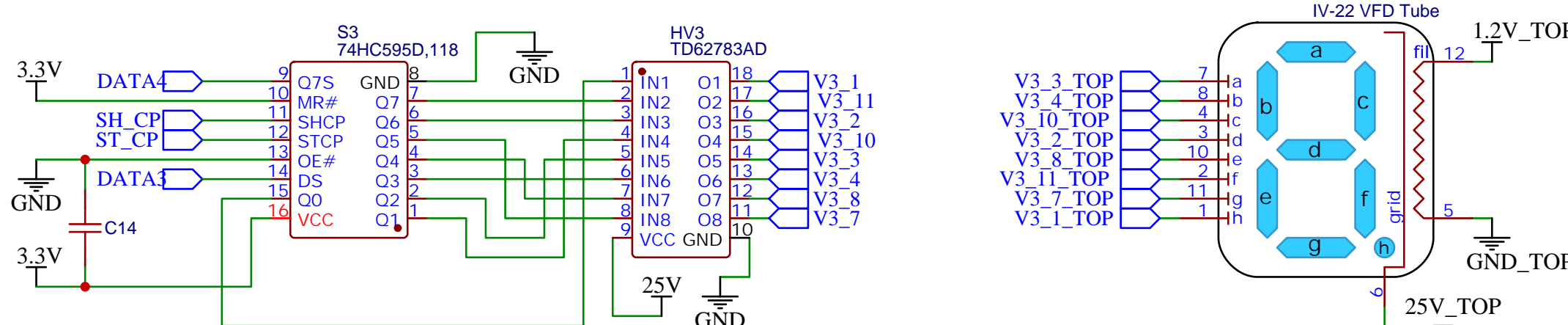
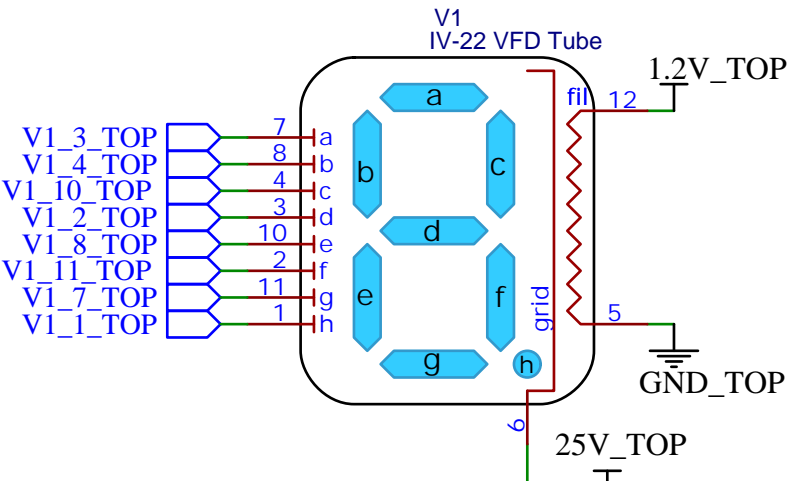
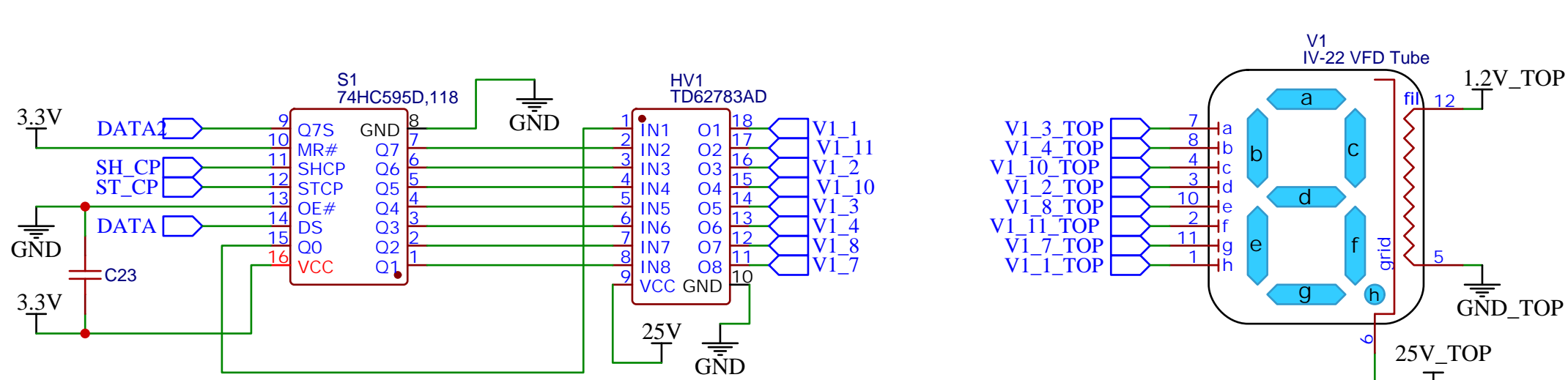


USB to SERIAL + auto-reset



v1.1 note: CH340 powered from 3.3V instead of 5v. Though ESP8266 is 5V tolerant on GPIOs, 3.3V is still better

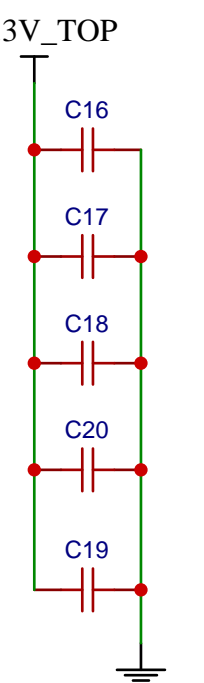
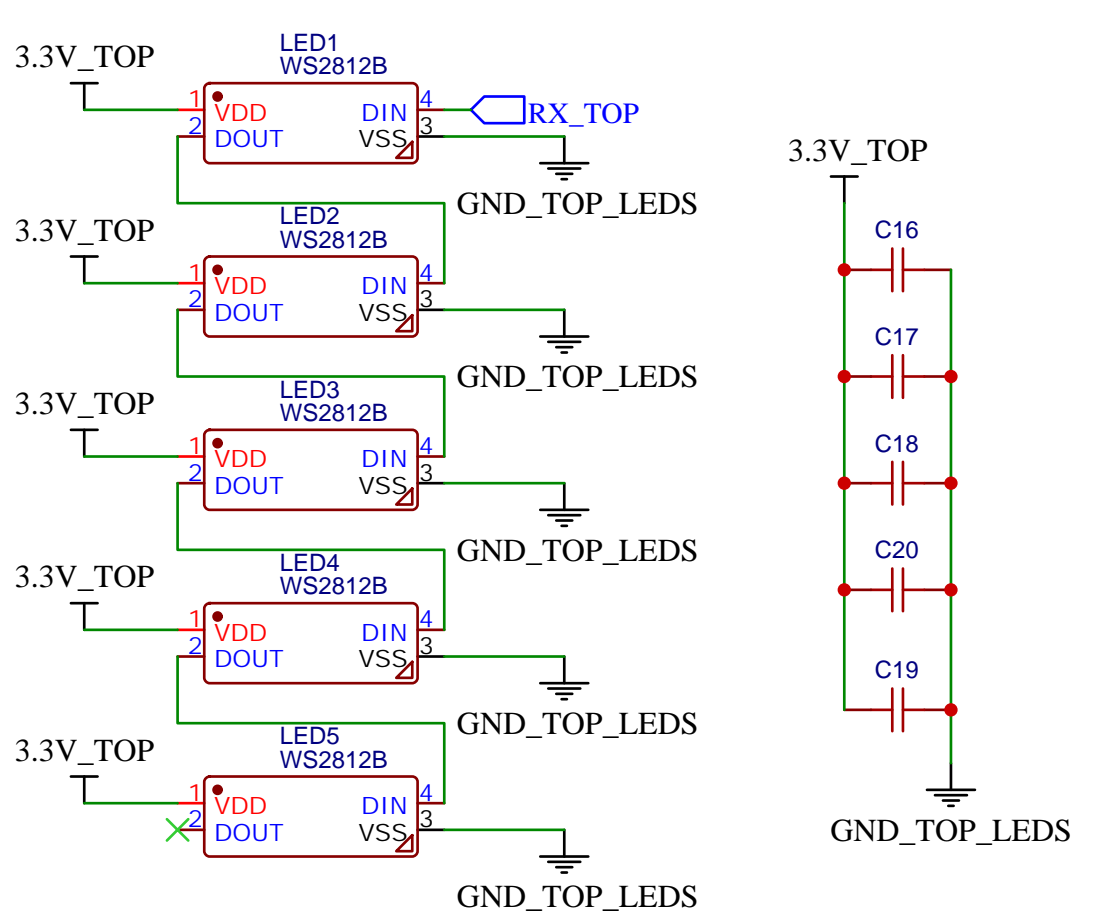
VFD + shift registers



You will need 2x 16pin header + 2x 8pin header, male + female

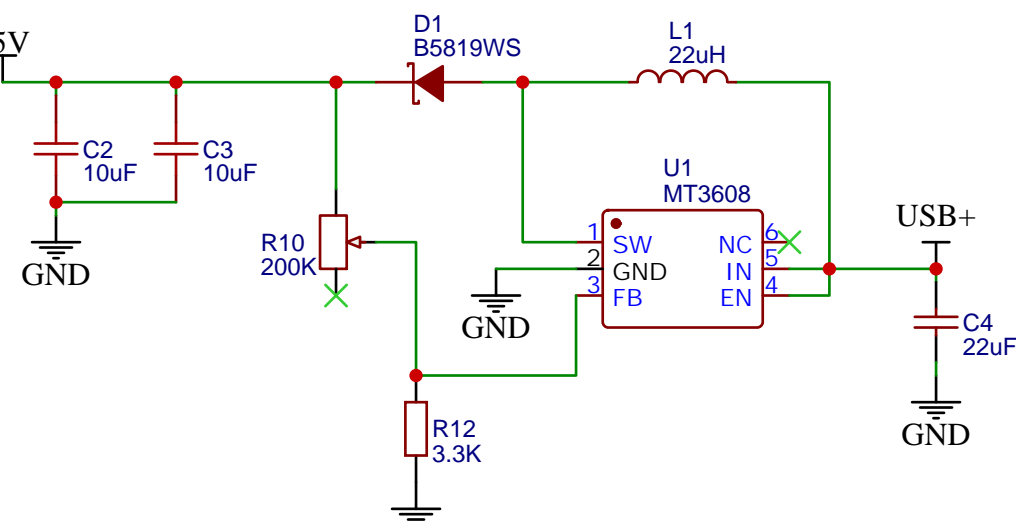
The VFD breakout on the PCB is a bit misleading so pay attention to GRID and FILAMENT positions. Double and TRIPLE check before soldering all pins. I suggest to start with the grid pin.
TBD62783AFG (C97745) is a modern pin-compatible replacement with lower power consumption, recommended! Cheap chinese 1:1 clone XL62783 also available (C556260)
48x golden pin sockets are needed, you can get them on ebay, search for "IN-12 nixie pins" :)

Colon leds



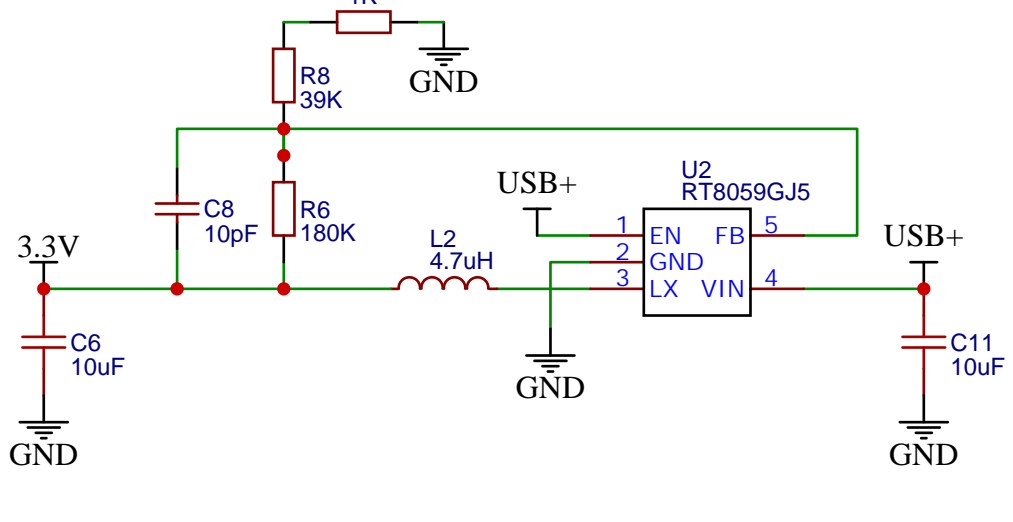
3.3V, 25V, 1.2V voltages

5V to 25V boost

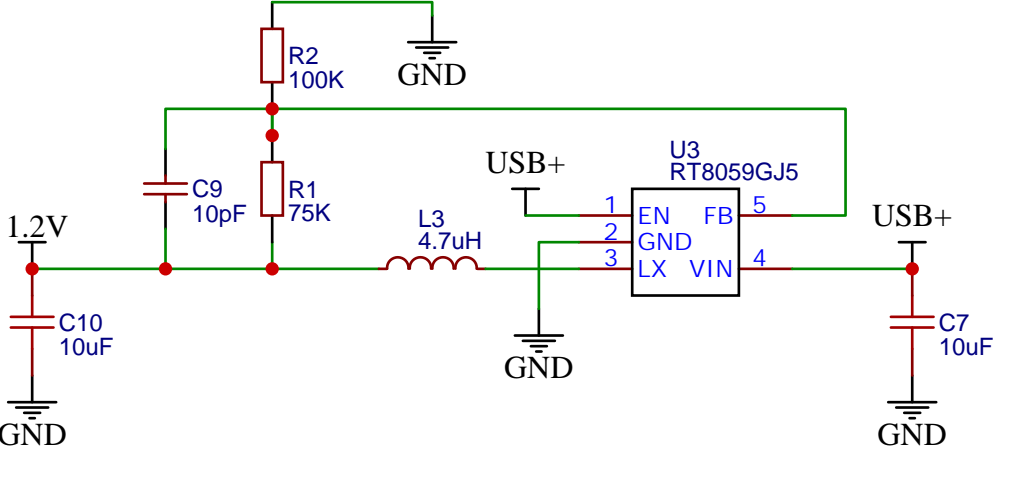


Absolute max voltage is 28V but it's good to stay below 25V
21-23V works fine with reasonable brightness and reasonable MT3608 temperature
Use inductors with rating of 2A or higher, C357083 should also work well

5V to 3.3V step-down



5V to 1.0V step-down



180K R2 + 100K R1 can be used to set voltage to 0.9V
Set to 1V by default, something around 1.1V might also work well with IV22