
VFD + shift registers
The VFD breakout on the PCB is a bit misleading so pay attemtion 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" :)
GPIO4, GPIO5 and GPIO12 are unused in the design and perfect for any use.
You will need 2x 16pin header + 2x 8pin header, both male and female
Micro USB + ESD protection
Colon leds
3.3V, 25V, 1.2V voltages
5V to 25V boost
5V to 3.3V step-down
5V to 1.0V step-down
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
Powered from 3.3V for lower brightness + no level shifter required. Out of spec but tested on several different chips
Depending on exact chip used, you will have to adjust colors in the sketch
WS2812B are almost too bright. WS2812C (lcsc C114587) recommended for lower max brightness.
Absolute max voltage is 28V but it's good to stay below 25V
20-23V works fine with reasonable brightness and reasonable MT3608 temperature
I personally had good results with 20V + 1.2V filament or 23V + 1.0V filament
Use inductors with rating of 2A or higher, C357083 should also work well
SX1308 can also be used 1:1 pin compatible
100K R2 + 75K R1 => 1.0V
100K R2 + 100K R1 => 1.2V
TITLE: FLORA IV-22 VFD Clock
REV: 1.1
Company:
Sheet: 1/1
Date: 2020-12-21
Drawn By: NiceThings