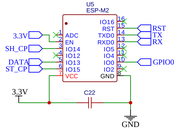
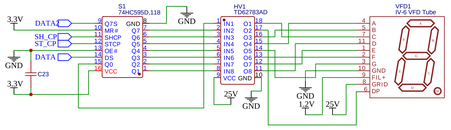
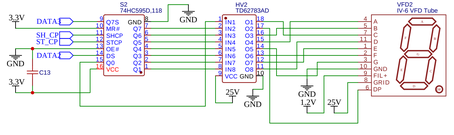


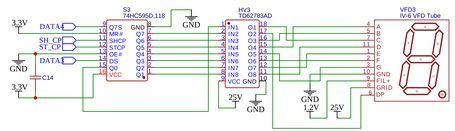
ESP-M2 is used for its tiny footprint

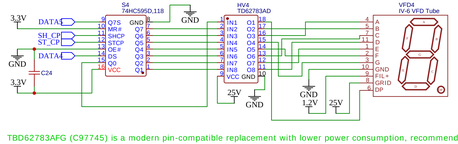
GPIO4, GPIO5 and GPIO12 are unused in the design and perfect for any use.

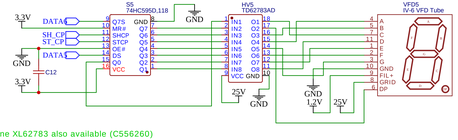
VFD + shift registers

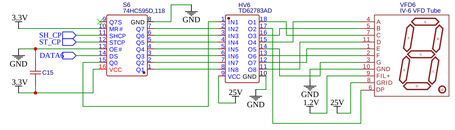










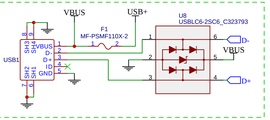


TBD62783AFG (C97745) is a modern pin-compatible replacement with lower power consumption, recommended! Cheap chinese 1:1 clone XL62783 also available (C556260)

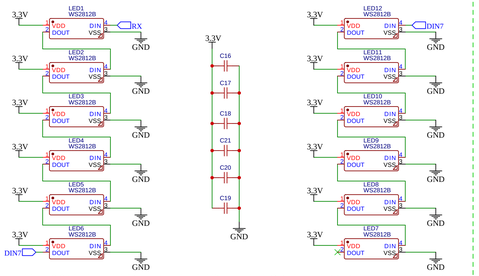
The VFD pin holes on the PCB are misleading (looks flipped) so pay attemtion to GRID and FILAMENT positions. Double and TRIPLE check before soldering all pins. I suggest to start with the grid pin. (!!!!!)

KID65783AF-EL/P (lcsc part no. C125259) can be also used but PCB change is required (20pin package vs 18pin)

Micro USB + ESD protection



Colon leds

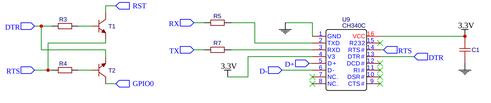


Powered from 3.3V for lower brightness + no level shifter required. Out of spec but tested on several different chips

Depending on exact chip used, you will have to adjust colors in the sketch

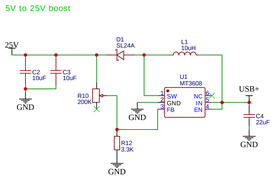
WS2812B are almost too bright. WS2812C (lcsc C114587) recommended for lower max brightness.

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

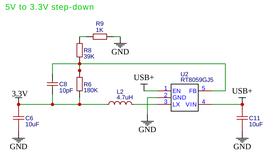
3.3V, 25V, 1.2V voltages



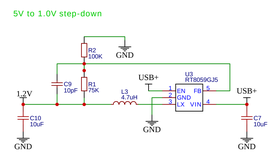
Absolute max voltage is 28V but it's good to stay below 25V

21-23V should work fine with reasonable brightness and low MT3608 temperature

It is easy to fry the MT3608 (I did) while adjusting it so go nice and slow. Good to have some spares just in case.



C207842 should also fit for 10uH, C280924 for 4.7uH



180K R2 + 100K R1 can be used to set voltage to 0.9V

0.9V = dimmer numbers but lowest current hand best lifetime

1V = middleground, good brightness, reasonable current consumption

1.2V = very bright, high current, MT3608 overheats

TITLE: FLORA IV-6 VFD Clock		REV: 1.1
EasyEDA	Company:	Sheet: 1/1
	Date: 2020-12-21	Drawn By: NiceThings