

The Greenest AC mains clock in the USA !!!!  
Preliminary Schematic - subject to change!

First NeoPixel input = 10 o'clock - see PCB layout tracks

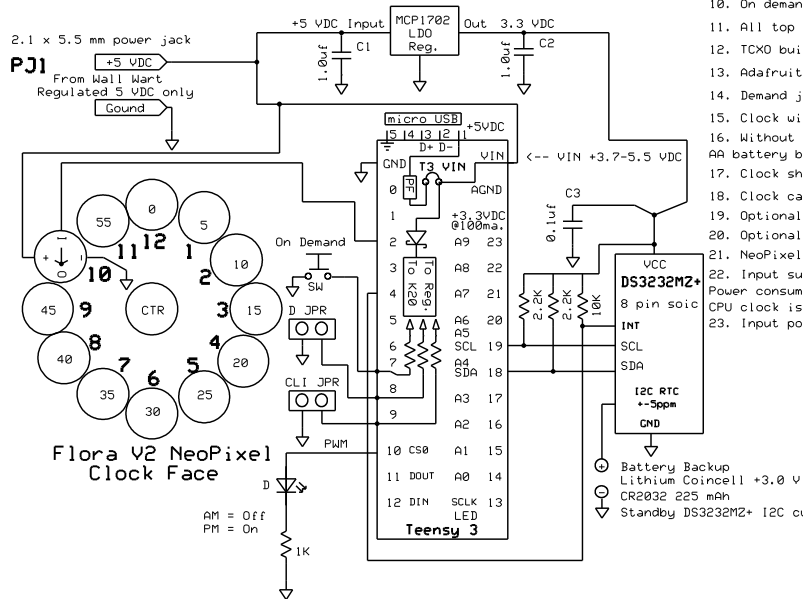
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10 o'clock = 0      1 o'clock = 9
9 o'clock = 1      Center (CTR) NeoPixel = 10
8 o'clock = 2
7 o'clock = 3      12 o'clock = 11
6 o'clock = 4      11 o'clock = 12
5 o'clock = 5
4 o'clock = 6      Current consumption:
3 o'clock = 7      Clock running @ 24 Mhz: ~ 13mA
2 o'clock = 8      Clock DC current consumption: ~ 10mA

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Clock running @ 24 Mhz: ~ 13 ma. + 3 NeoPixels on.  
Clock DC current consumption sleeping : ~ 350 uA.

2.1 x 5.5 mm power jack  
**PJ1** +5 VDC  
From Wall Wart



1. **Warning-Remove T3 VIN Jumper for NeoPixel clock operation!**
2. NeoPixels are daisy chained from 10 o'clock +- in/out
3. Warning ...DS3232M+ cannot be connected to T3 3.3 VDC regulated output
4. All Flora Rev 2 NeoPixels On = 13 x ~ 60 Ma. = 780 Ma.
5. Flora V2 NeoPixel address position starts at zero at 10 ' clock CCW
6. To save power - there should be only 3 NeoPixels on at the same time!
7. AM/PM indicated by low power LED near 7 or 8 o'clock.
8. Clock is set by grounding digital pin 9 for CL1.  
CL1 (command line interface) will allow setting clock without IDE.
9. Demand jumper used for emergency mode when powered by batteries.
10. On demand tact switch will display time when demand JPR is installed
11. All top Teensy 3 pins are needed for clock PCB.
12. TCXO built-in the RTC allows outdoor operation with minimal drift.
13. Adafruit Flora V2 NeoPixel spec: WS2812 @ 800 KHZ @ 60 ma.
14. Demand jumper will allow on demand tact switch to function.
15. Clock without AC mains power will drain the RTC battery down faster!
16. Without AC mains power, for days, install demand JPR and provide +5 VDC AA battery booster power on PJ1. Used for emergency or survival conditions
17. Clock should run, with AC Mains or DC power for seven years.
18. Clock can run outside in non water resistance or waterproof conditions
19. Optional PIR motion sensor can be attached to any unused T3 SMT pins.
20. Optional infrared receiver can be attached to any unused T3 SMT pins.
21. NeoPixel brightness control set @ 10 from max. 255 to save power.
22. Input supply power supply is rated for all NeoPixels on @ 60 ma.  
Power consumption is much less due to LED brightness control variable(s).  
CPU clock is reduced to 24 MHz and is switched to low power when not used.
23. Input power supply should be a high efficiency switcher @ 1 A 5V +-5%

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12C RTC +-SPFH DS3232M2+ Digikey part# DS3232M2/V+-ND
Adafruit Flora RGB Smart NeoPixel V2 - ID 1260
Sparkfun switch mode power supply 5V 1A # TOL-08269
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## NeoPixel Green Mains Clock

Hacker	Rev 1.0b	Page 1 of 1
	11/1/2013	