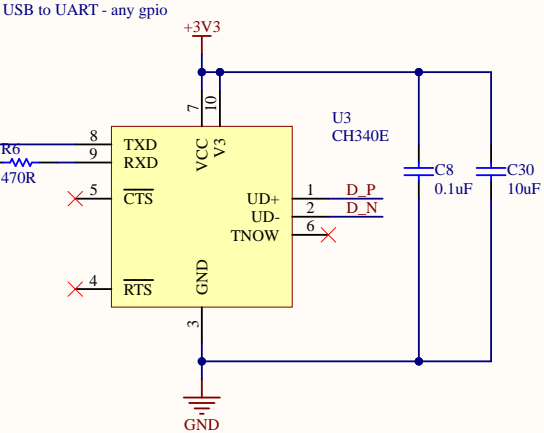
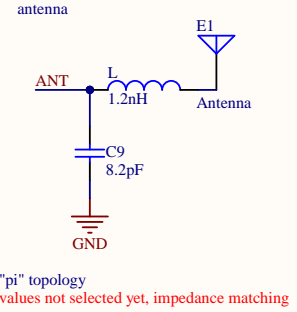


turns out, SD SPI and "SPI" peripheral are NOT the same, and thus conflict interesting enough, they share the same set of pins but have slightly different assignments to use SDIO SPI, hook up as if planning to use SDIO (ofc, can also use SDIO) conflict found; a couple of NC pins so rewired Pins IO16, IO17, CMD, CLK, SD0 and SD1.

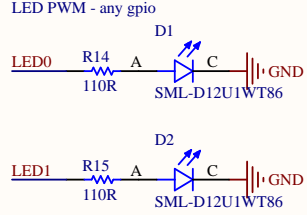


believe 3v3 goes to both VCC and V3

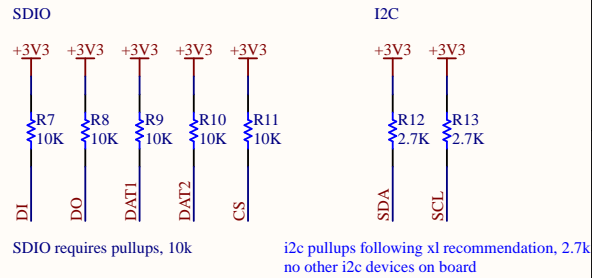
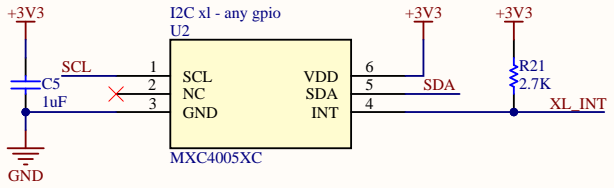
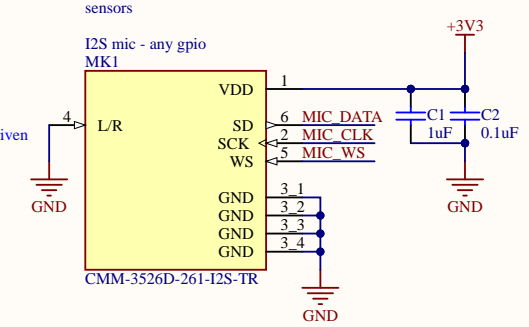


$$R = (3.3V - 2.2V) / (10mA) \quad 20mA \text{ is max current}$$

$$R = 110ohms$$



reference schematic from open-smartwatch project



Title		wristLogger - main		otherwise, ti guide or stackexchange	
Size	Number	Revision		1	
A4					
Date:	9/27/2021	Sheet of		1 of 3	
File:	C:\Users\...\main.SchDoc	Drawn By:		Alan Han	

A

B

C

D

A

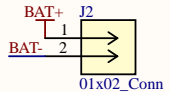
B

C

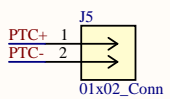
D

power supplies

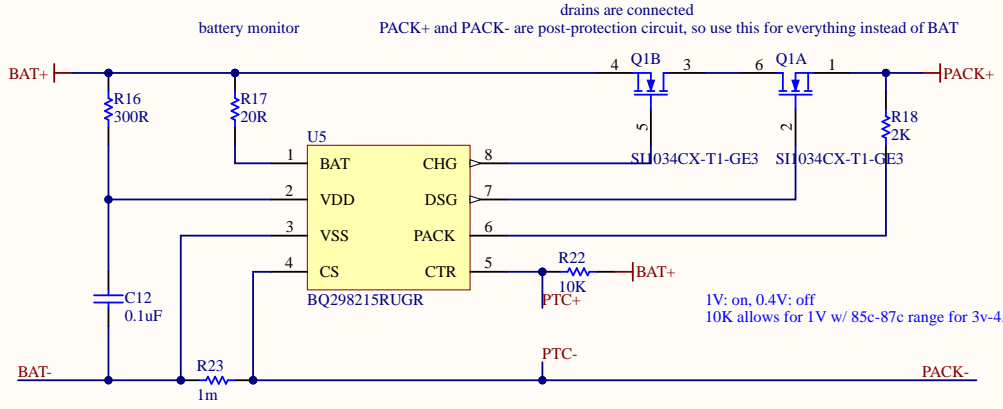
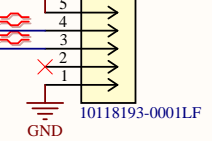
battery conn



PTC conn

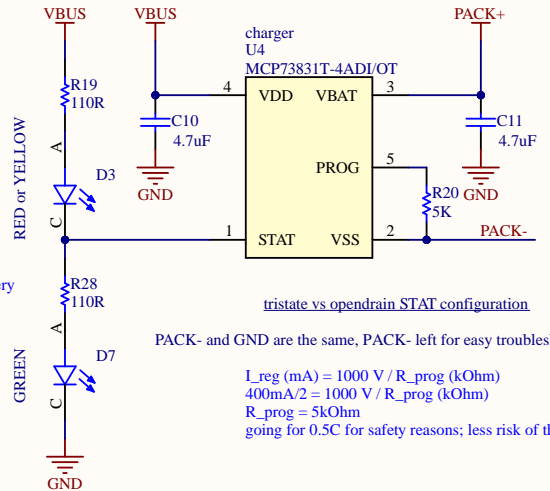


VBUS

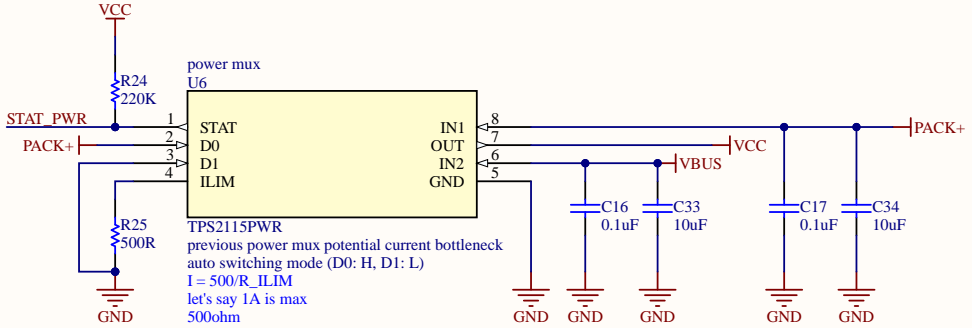


BQ part was replaced w/ variant that support OT removed battery control pin; only PTC is connected now
 1mOhm is cited as lowest r_sns possible
 the calculated values for OCC, OCD, and SCD (8A, 8A, 20A, respectively)
 not sure if this is protecting much at those thresholds for my case... good thing battery has onboard protection as well
 found out that most of the specs don't do enough for my specific battery
 this part is really only being used for OT protection at this point
 assume that internal pullup disabled for OT, based on datasheet offerings

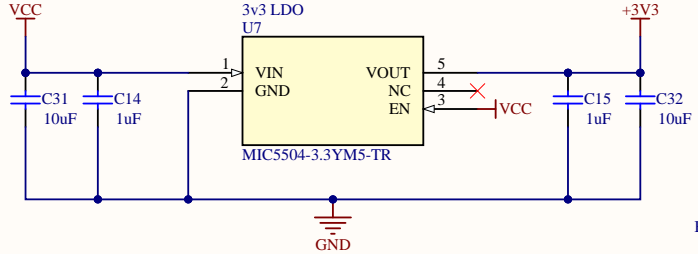
battery power management



tristate vs opendrain STAT configuration
 PACK- and GND are the same, PACK- left for easy troubleshooting
 $I_{reg} (mA) = 1000 V / R_{prog} (k\Omega)$
 $400mA/2 = 1000 V / R_{prog} (k\Omega)$
 $R_{prog} = 5k\Omega$
 going for 0.5C for safety reasons; less risk of thermal runaway



previous power mux potential current bottleneck auto switching mode (D0: H, D1: L)
 $I = 500/R_{ILIM}$
 let's say 1A is max 500ohm

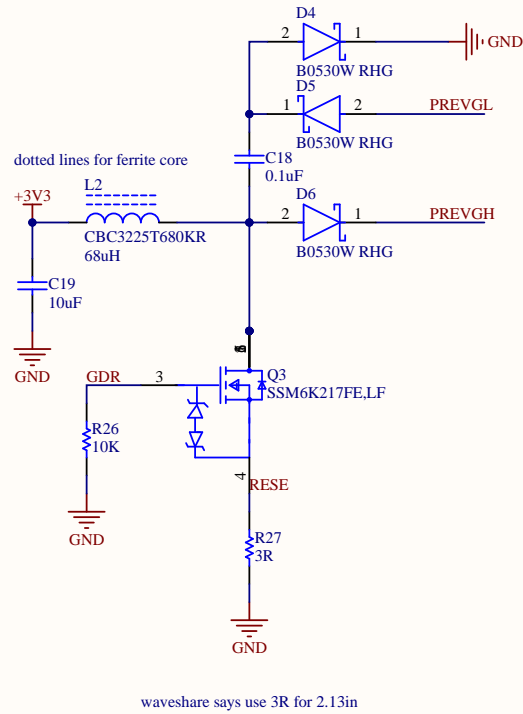


BAT: battery, 3v7
 PACK+: battery, protected
 VCC: 3.7v or 5v
 VBUS: usb, 5v
 +3V3: usable 3v3

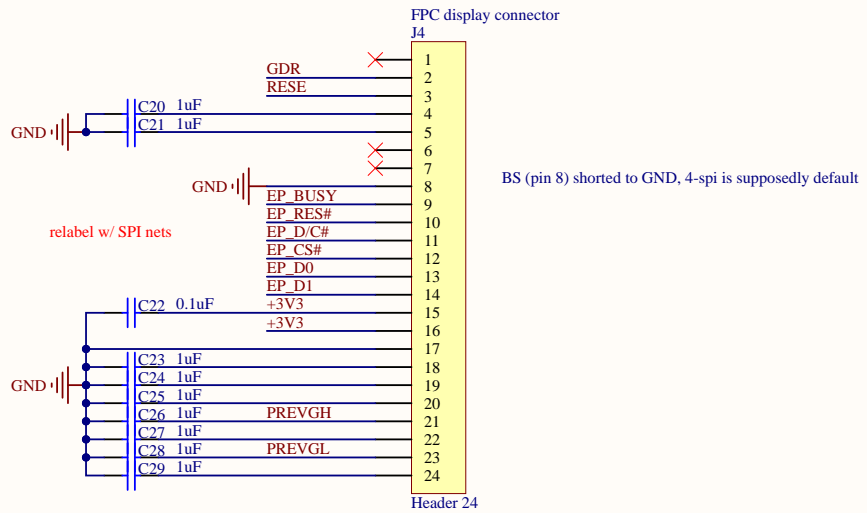
Title			wristLogger - power		
Size	Number		Revision		1
A4					
Date:	9/27/2021		Sheet of	2 of 3	
File:	C:\Users\...\power.SchDoc		Drawn By:	Alan Han	

I partially understand this circuit, but not completely...

https://www.waveshare.com/w/upload/8/80/E-Paper_ESP32_Driver_Board_Schematic.pdf
c/p from waveshare schematic, need some time to decipher how it works
appears that the waveshare demo board has 2 separate LDOS, one for epaper and other for esp32
<https://hackaday.io/project/164772-e-ink-adapter>



waveshare says use 3R for 2.13in



BS (pin 8) shorted to GND, 4-spi is supposedly default

Title		
wristLogger - ePaper		
Size	Number	Revision
A4		1
Date:	9/27/2021	Sheet of 3 of 3
File:	C:\Users\...\ePaper.SchDoc	Drawn By: Alan Han

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15

=Version

