Cover Page

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REV	DATE	PAGES	BY	CHANGES
01	04-02-2019	All	Daniel De Sousa	Initial Design

Title: **Cover**		
Size: A4	Number:	Revision: **Esperto Watch V3**
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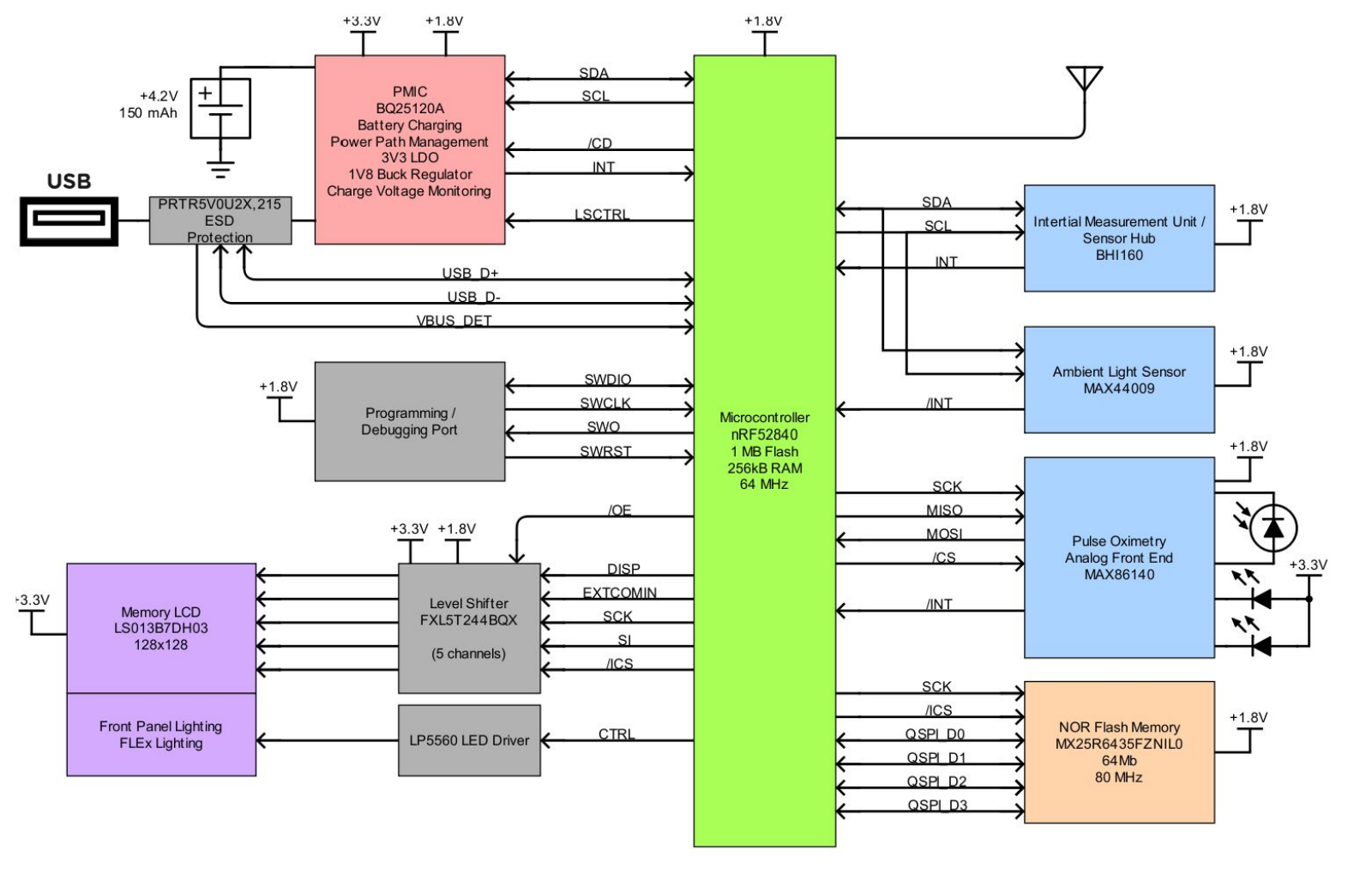
File: C:\Users\..\S01_Cover.SchDoc		Drawn By: **Daniel De Sousa**

Block Diagram



Title	**Block Diagram**		
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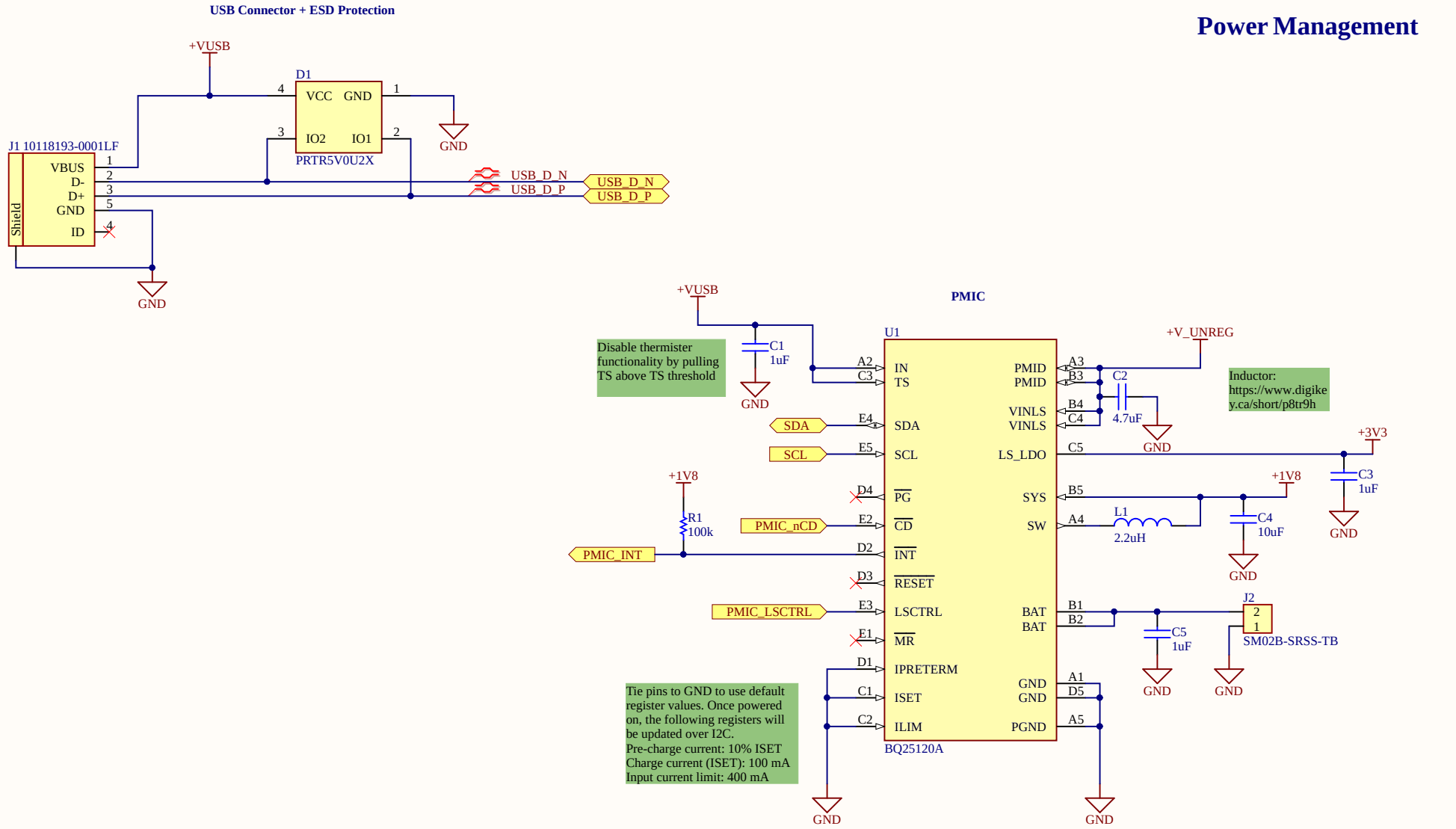
File: C:\Users\..\S02_Block_Diagram.SchDoc		Drawn By: **Daniel De Sousa**	

Power Management



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Microcontroller + Memory

Inductors:
15nH: HK100515NJ-T
10uH: LBMF1608T100K
3.9nH: LQP15MN3N9B02D

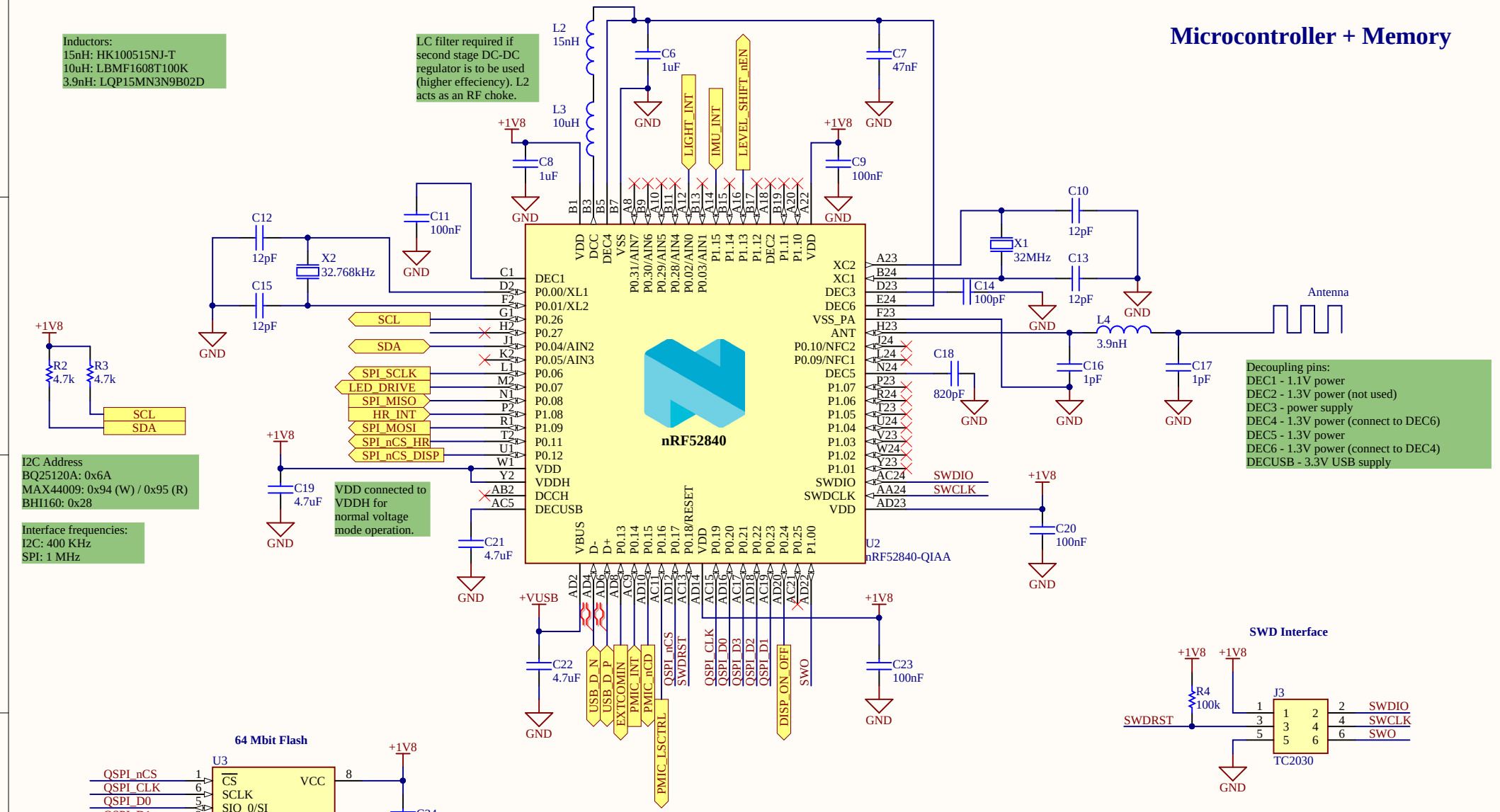
LC filter required if second stage DC-DC regulator is to be used (higher effeciency). L2 acts as an RF choke.

I2C Address
BQ25120A: 0x6A
MAX44009: 0x94 (W) / 0x95 (R)
BHI160: 0x28

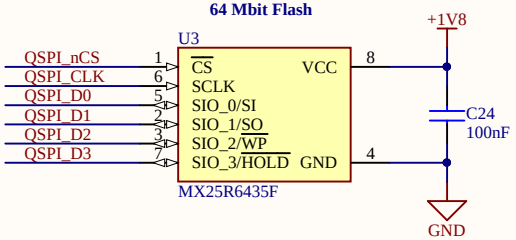
Interface frequencies:
I2C: 400 KHz
SPI: 1 MHz

VDD connected to VDDH for normal voltage mode operation.

Decoupling pins:
DEC1 - 1.1V power
DEC2 - 1.3V power (not used)
DEC3 - power supply
DEC4 - 1.3V power (connect to DEC6)
DEC5 - 1.3V power
DEC6 - 1.3V power (connect to DEC4)
DECUSB - 3.3V USB supply



64 Mbit Flash



SWD Interface

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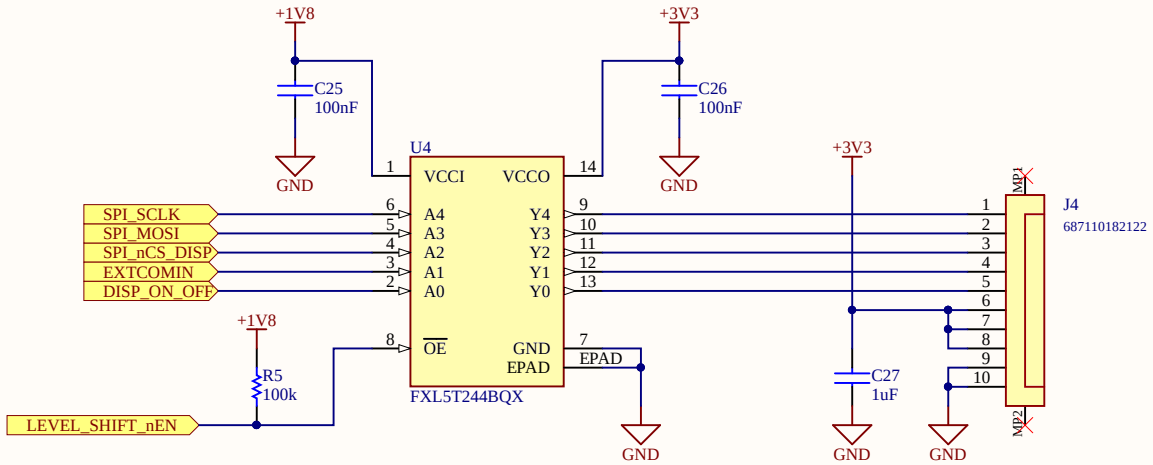
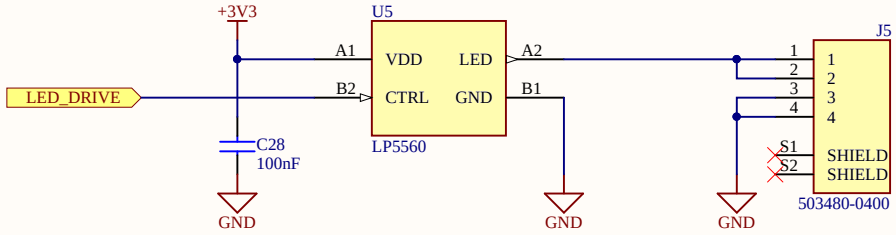
Display

LCD + Level shifting



EXTMODE (pin 8) pulled high to select EXTCOMIN as COM inversion source. This pin will the be the source of a 60 Hz signal which will be used to switch the VCOM bit inside the display. This prevents the buildup of DC bias within the LCD

Front Panel LED Driver



Display panel front light: I < 20 mA, Vf > 2.5V. Driver allows for 8 step settings between 2.8 and 19.5 mA with a headroom voltage of 40 mV

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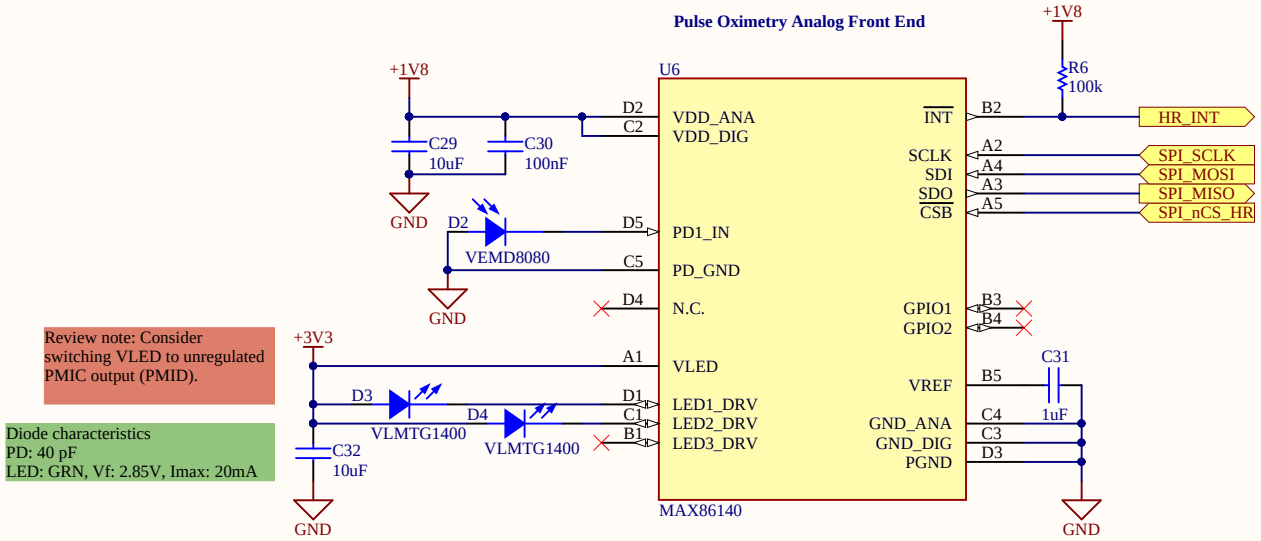
Sensors

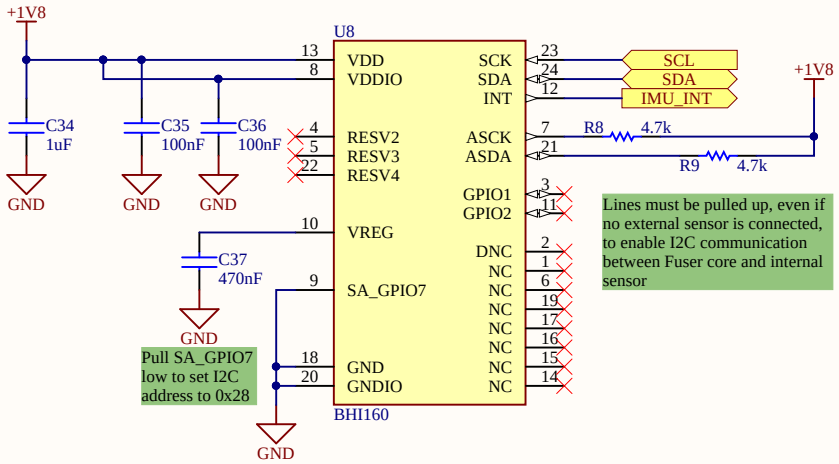
Pulse Oximetry Analog Front End



Review note: Consider switching VLED to unregulated PMIC output (PMID).

Diode characteristics
PD: 40 pF
LED: GRN, Vf: 2.85V, Imax: 20mA

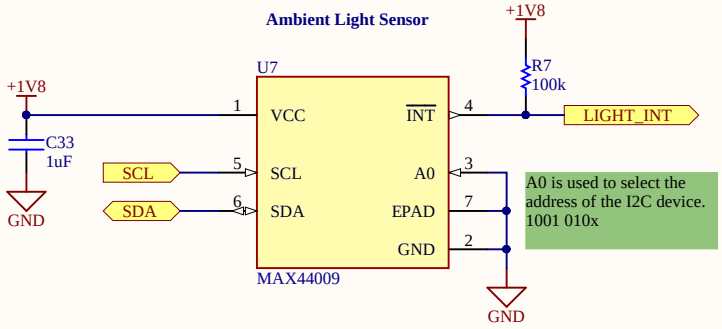
IMU + Sensor Hub



Lines must be pulled up, even if no external sensor is connected, to enable I2C communication between Fuser core and internal sensor

Pull SA_GPIO7 low to set I2C address to 0x28

Ambient Light Sensor



A0 is used to select the address of the I2C device.
1001 010x

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