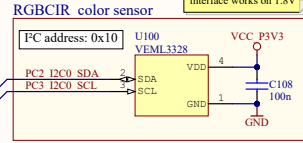
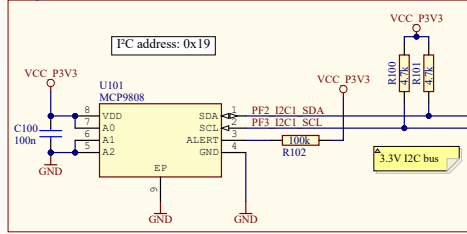


Temperature sensor

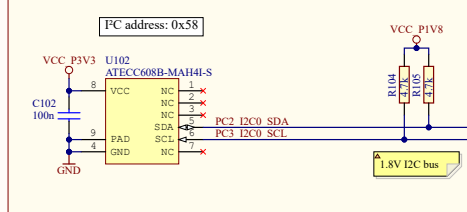


AVEML3228 is powered by 3.3V, but the I2C interface works on 1.8V

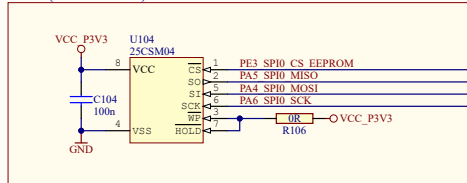
MCU

Note that the supply voltage to the phototransistor will drop below 3.3V when running from battery and the battery voltage is low. The VCC P3V3 voltage should be measured before measuring the phototransistor in order to calculate the correct light sensor value.

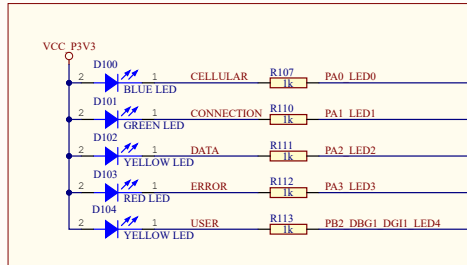
Crypto device



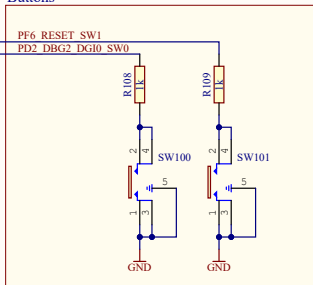
4-Mb (512K x 8-BIT) Serial EEPROM



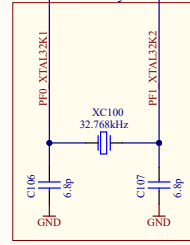
Leds



Buttons



32KHz Crystal

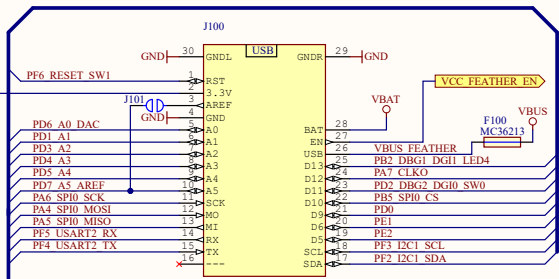


Crystal datasheet:
Crystal = 7pF
max ESR = 70kOhm
Accuracy ±20ppm

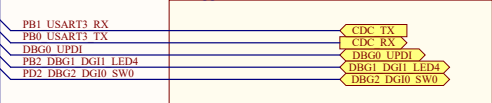
AVR128DB48 datasheet:
Cxin = 4pF (typical value)
Cout = 4pF (typical value)
Cl ≈ 1 / ((1/4pF) + (1/4pF)) = 2.0pF
Maximum Load = 8pF
Maximum ESR = 50kOhm
Estimated Cpcb = 1.0pF

Estimated load
C = 2 (Crystal-Cpara-Cpcb)
C = 2 (7pF - 2.0pF - 1.0pF)
C = 8pF

Selected in design after verification
C = 6.8pF/6.8pF



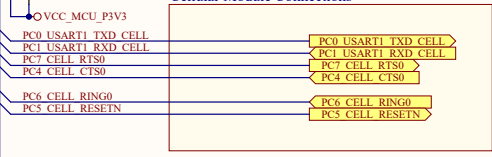
Debugger Connections



Power Supply Connections



Cellular Module Connections



Drawn By: PB

Engineer: PB, ST, TF, AH

Project Title: AVR-IoT Cellular Mini

Sheet Title: MCU

Size: A3

PCB Assembly Number: A09-3437

PCBA Revision: 6

PCB Number: A08-3135

PCB Revision: 2

Date: 2022-05-04

File: AVR-IoT-Cellular-Mini-MCU-SchDoc

Page: 2 of 6

Designed with Altium



WF1001A-W204ER1