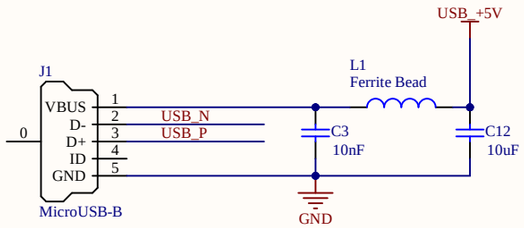
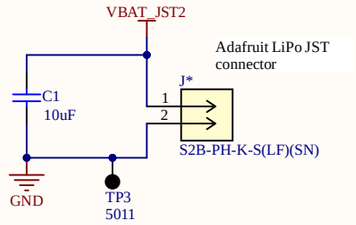
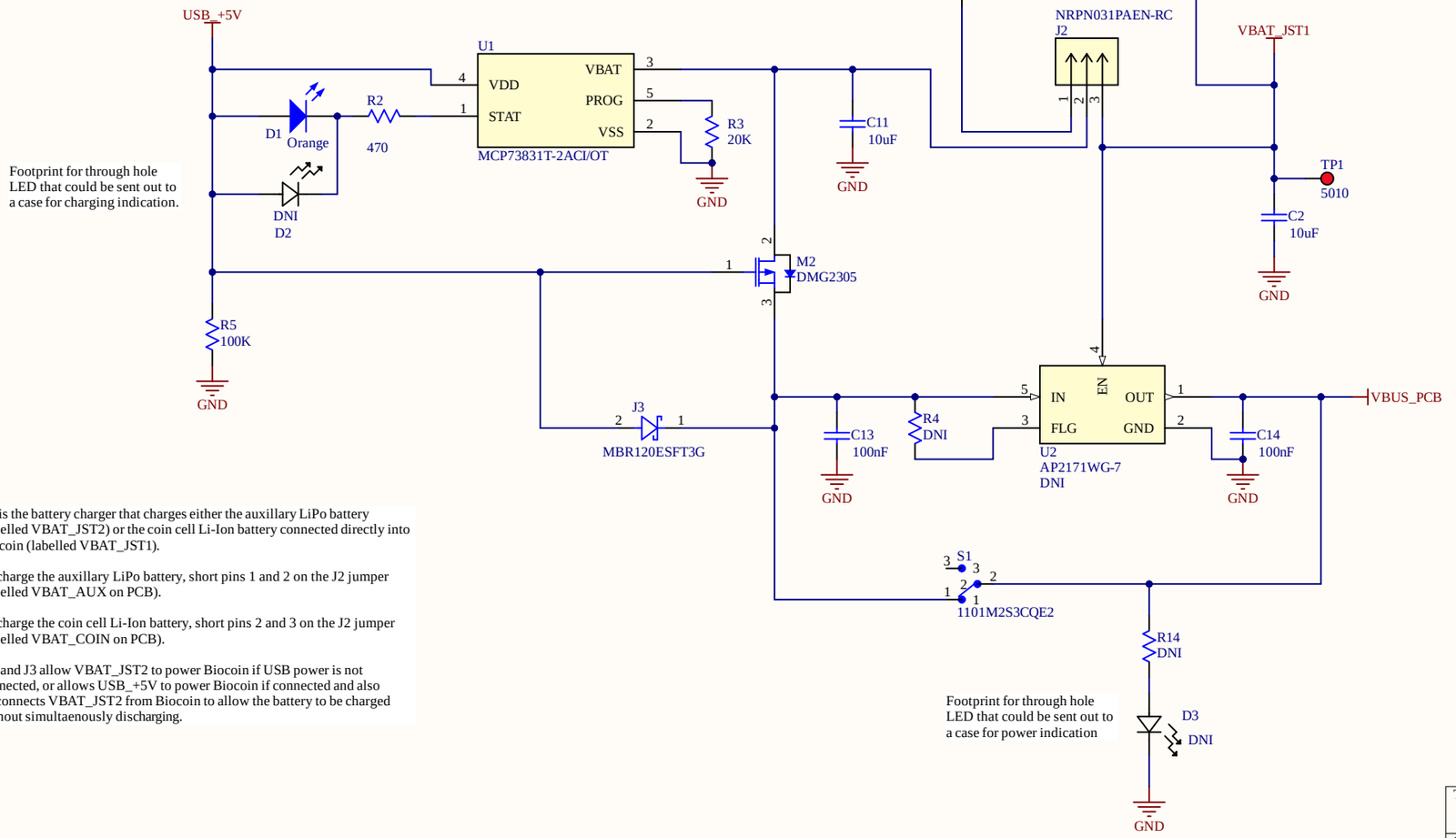
Micro-USB Connector





To avoid safety hazards and short circuits, DO NOT connect both batteries into the PCB at the same time.

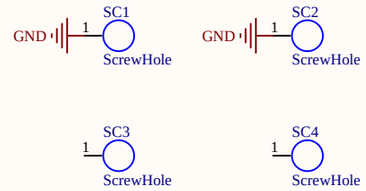
LIPO Battery Charger



Footprint for through hole LED that could be sent out to a case for charging indication.

Footprint for through hole LED that could be sent out to a case for power indication

JST1 connects to the positive battery voltage terminal of the JST connector on Biocoin.



U1 is the battery charger that charges either the auxillary LiPo battery (labelled VBAT_JST2) or the coin cell Li-Ion battery connected directly into Biocoin (labelled VBAT_JST1).

To charge the auxillary LiPo battery, short pins 1 and 2 on the J2 jumper (labelled VBAT_AUX on PCB).

To charge the coin cell Li-Ion battery, short pins 2 and 3 on the J2 jumper (labelled VBAT_COIN on PCB).

M2 and J3 allow VBAT_JST2 to power Biocoin if USB power is not connected, or allows USB_+5V to power Biocoin if connected and also disconnects VBAT_JST2 from Biocoin to allow the battery to be charged without simultaenously discharging.

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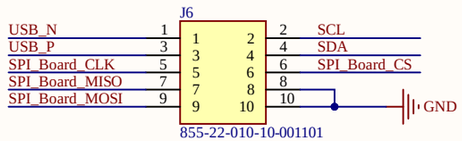
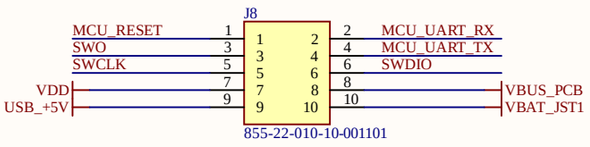
Date: 10/02/2025		Sheet of
File: C:\Users\..\POWER.SchDoc		Drawn By:

Digital/Power POGO Pin Signals

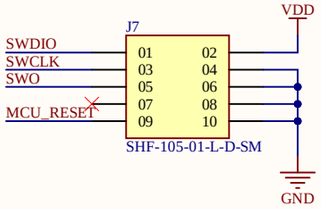
These two sets of pins contain the digital signals and power nets that connect up to Biocoin for debug, programming, charging, etc.





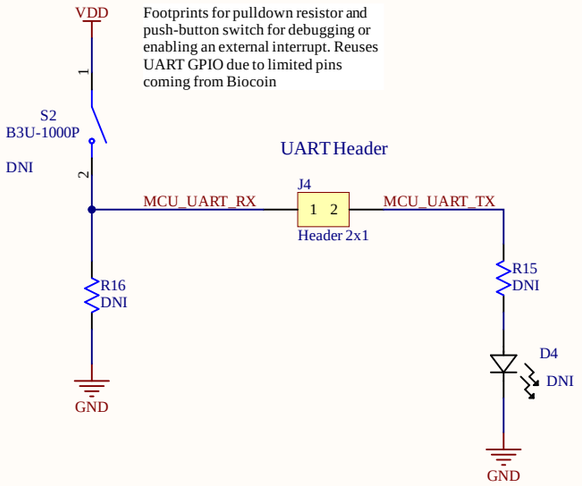
SWD Header

Digital SWD signals needed for burning the MCU bootloader or programming the device via Segger



Digital Signal Headers

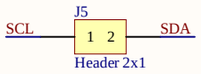
Headers for digital signal debugging/observation



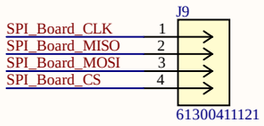
Footprints for pulldown resistor and push-button switch for debugging or enabling an external interrupt. Reuses UART GPIO due to limited pins coming from Biocoin

Footprint for through-hole LED that can be brought out to a case for power or connection indication

I2C Header



SPI Header



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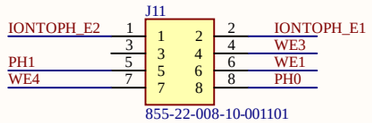
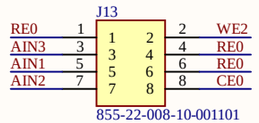
Analog POGO Pin Signals

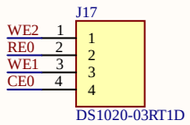
J11 and J13 pins contain the analog signals coming from external electrode connectors and send them up to Biocoin.





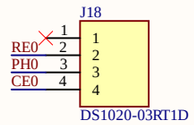
Electrode Connectors

SPE Connector 1



Supports either a 3-electrode connector or a 4-electrode connector. Uses WE1 by default and also WE2 if using 4-electrode connector.

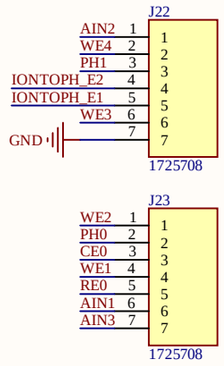
SPE Connector 2



3 electrode measurement for 1 of the OCP measurement channels.

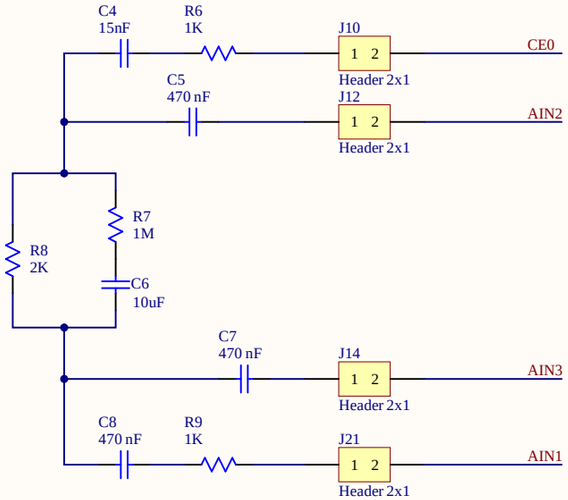
Electrode Connectors

Phoenix screw terminal connectors. Sends all 13 electrode signals to these pins + GND to enable connection to other types of sensors or electrode cables.



Dummy Loads

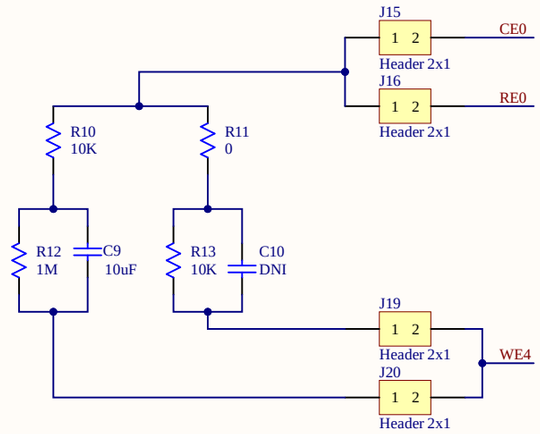
Mock cells for mimicking different types of electrochemical/impedance measurements.



Dummy loads for BioZ:
- Component values picked to mimic those in the AN-1557 App Note from Analog Devices

For 2-wire BioZ:
- Use CE0 and AIN1, and disconnect jumpers to AIN2 and AIN3

For 4-wire BioZ:
- Use all 4 signals and populate all jumpers



Left load: Dummy load for voltammetry/amperometry. To easily test chronoamperometry, don't populate 1M resistor

Right load: Dummy load for EIS. To easily test EIS, don't populate the capacitor

In software, must switch the MUX to WE4 to use dummy loads here

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