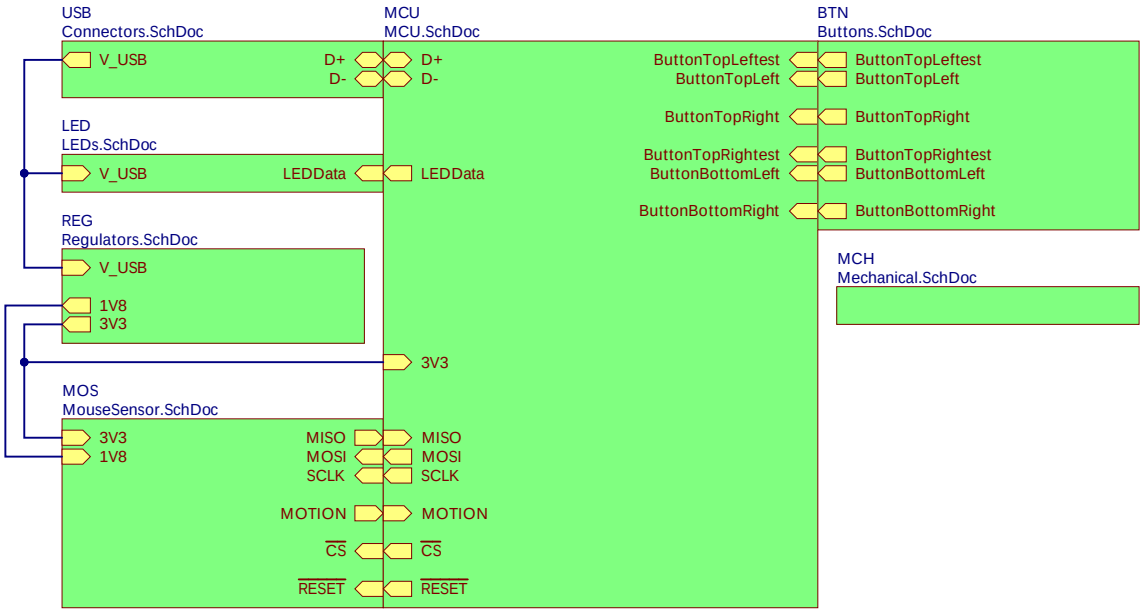

Title:	Madromys.SchDoc
PCB:	Madromys.PrjPCB
Version:	R1.001
Date:	9/6/2023
Time:	11:46:20 AM
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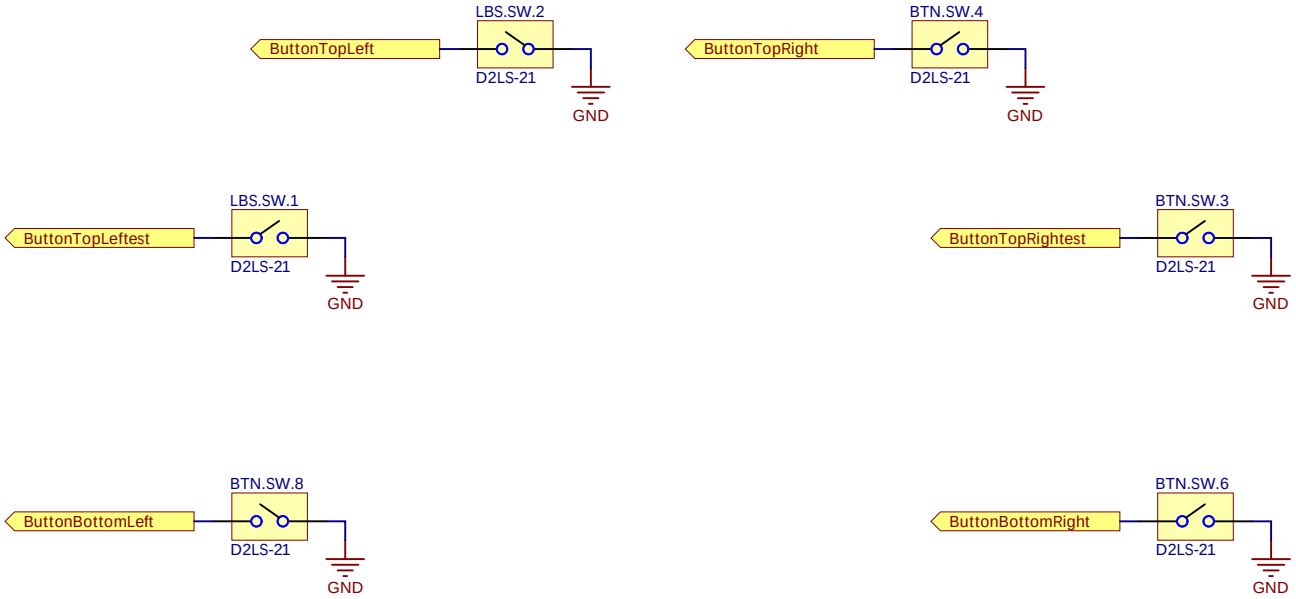
These switches can be found under the various buttons on the mouse.

Activate the pull-up resistors on the GPIO pins attached to these switches to make them work.



Title: Buttons.SchDoc			
PCB: Madromys.PrjPCB		Version: R1.001	
Date: 9/6/2023	Time: 11:46:20 AM	Sheet 2 of 8	

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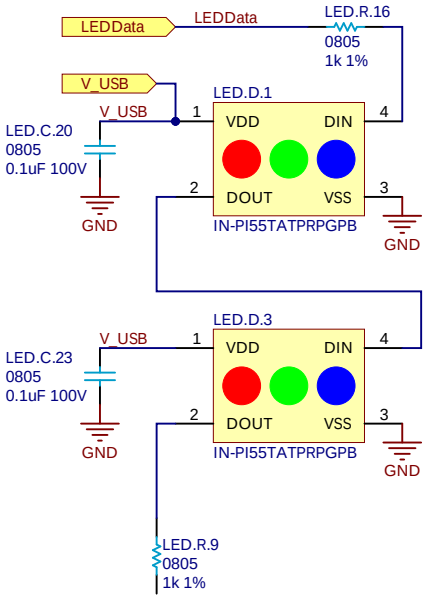

Title: LEDs.SchDoc			Ploopy Corporation
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Pick and Place Fiducials

MCH.FID.1

IPC-7351 Fiducial 1mm

MCH.FID.2

IPC-7351 Fiducial 1mm

MCH.LOGO.1

Ploopy

Ploopy logo, silkscreen

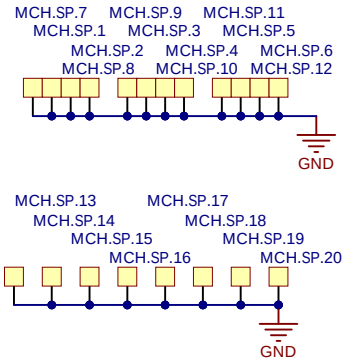
MCH.LOGO.2

X/Y

Coordinate system marker for assembly

Spark Gaps -- Case

Since the case has gaps in it, we expect ESD to worm its way in via creepage and perhaps other ways. To protect the board from this eventuality, we place spark gaps along the edges.



Title: Mechanical.SchDoc			
PCB: Madromys.PrjPCB		Version: R1.001	
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The SCKI nets have to be connected to one of the GPOUT<n> pins on the RP2040. These are GPIO21,23,24,25.

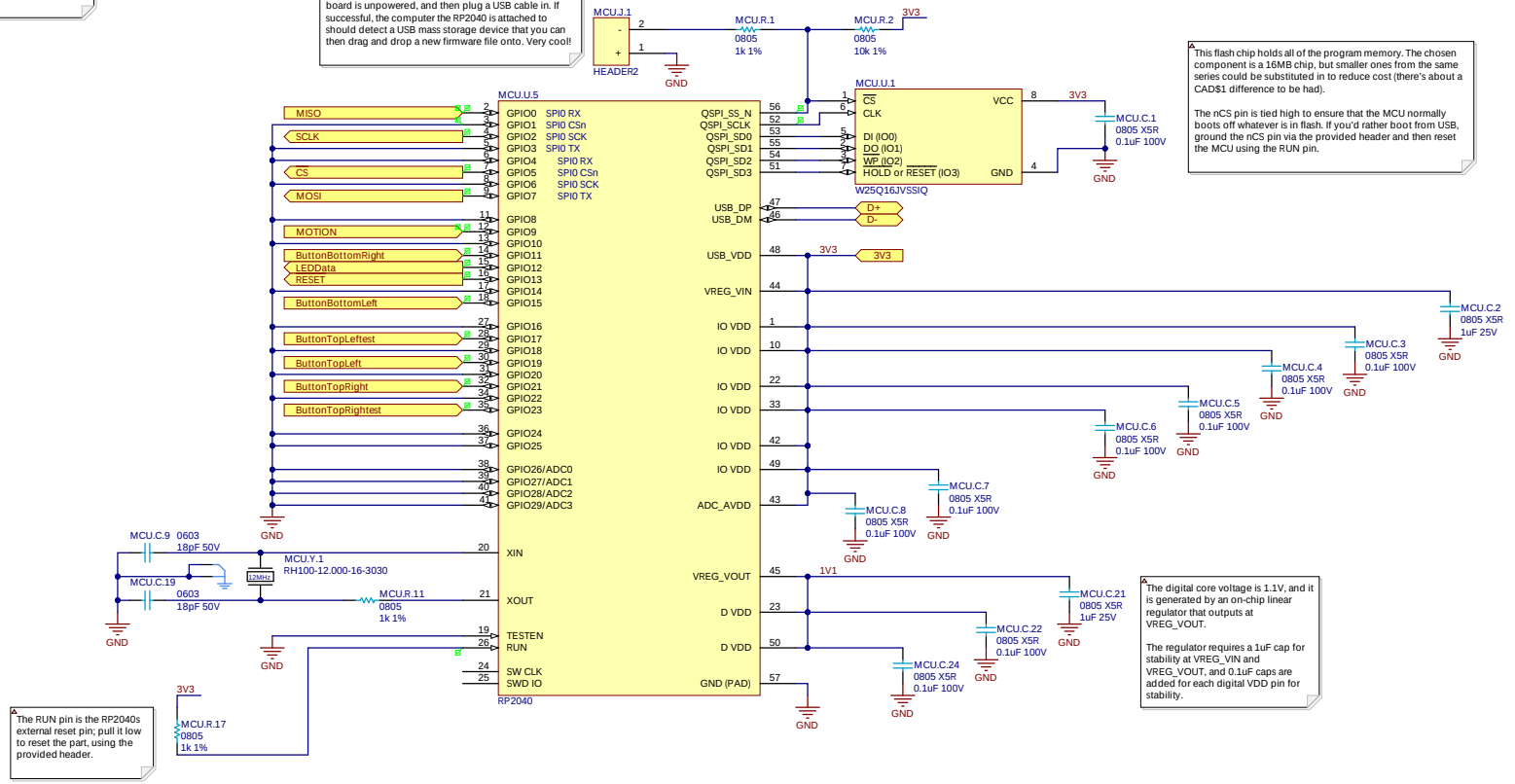
Only one of the two outputs has to actually send a clock over to the PCM3060, which can operate from one clock pin.

I2C pins are connected to every GPIO pin! SCL is connected to odd GPIO pin numbers and SDA is connected to even ones. Make sure you connect both pins to the SAME I2C port though (there are 2)!

PIO pins are mappable to all GPIO pins, so it doesn't matter where the I2S lines are hooked up.

Pins adjacent to I2S lines are grounded for signal integrity, since these signals go quite quickly. Unused pins are also grounded and should be set to output LOW to improve grounding.

This header can be pinched with tweezers or otherwise shorted during startup to force the RP2040 into USB bootloader mode. To do this, short the header while the board is unpowered, and then plug a USB cable in. If successful, the computer the RP2040 is attached to should detect a USB mass storage device that you can then drag and drop a new firmware file onto. Very cool!



This flash chip holds all of the program memory. The chosen component is a 16MB chip, but smaller ones from the same series could be substituted in to reduce cost (there's about a CAD$1 difference to be had).

The nCS pin is tied high to ensure that the MCU normally boots off whatever is in flash. If you'd rather boot from USB, ground the nCS pin via the provided header and then reset the MCU using the RUN pin.

The digital core voltage is 1.1V, and it is generated by an on-chip linear regulator that outputs at VREG_VOUT.

The regulator requires a 1uF cap for stability at VREG_VIN and VREG_VOUT, and 0.1uF caps are added for each digital VDD pin for stability.

The RUN pin is the RP2040s external reset pin; pull it low to reset the part, using the provided header.

Title:	MCU.SchDoc
PCB:	Madromys.PrjPCB
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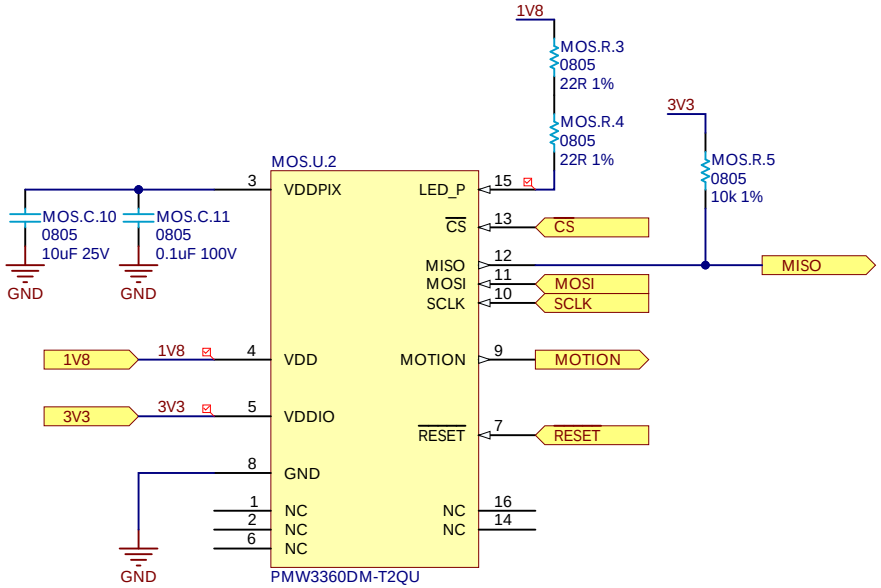

Title:	MouseSensor.SchDoc		
PCB:	Madromys.PrjPCB	Version:	R1.001
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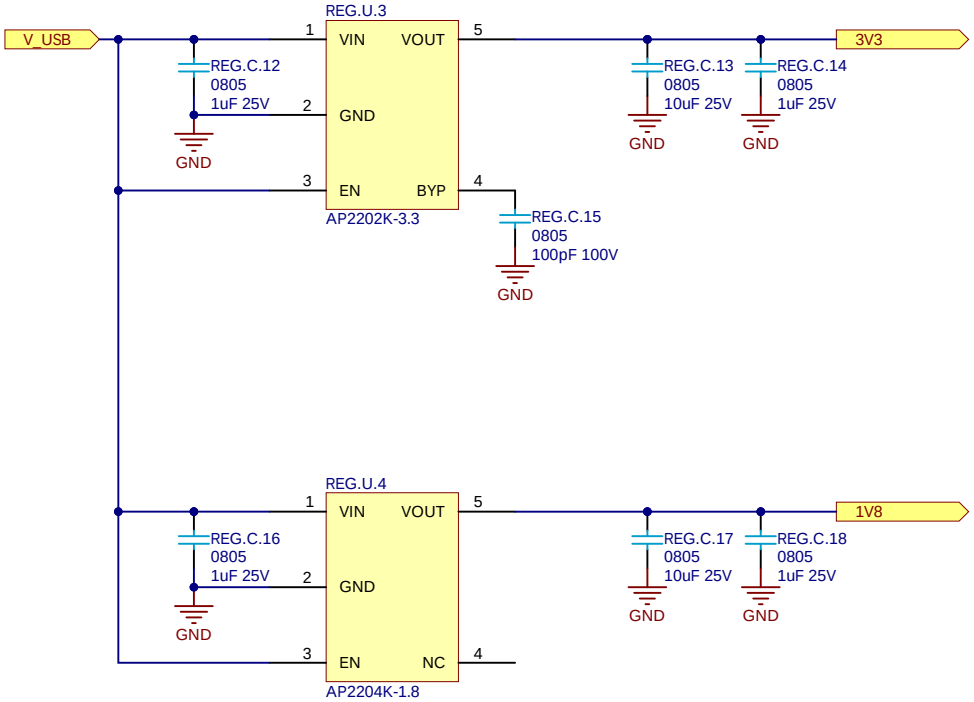

Title: Regulators.SchDoc		
PCB: Madromys.PrjPCB	Version: R1.001	
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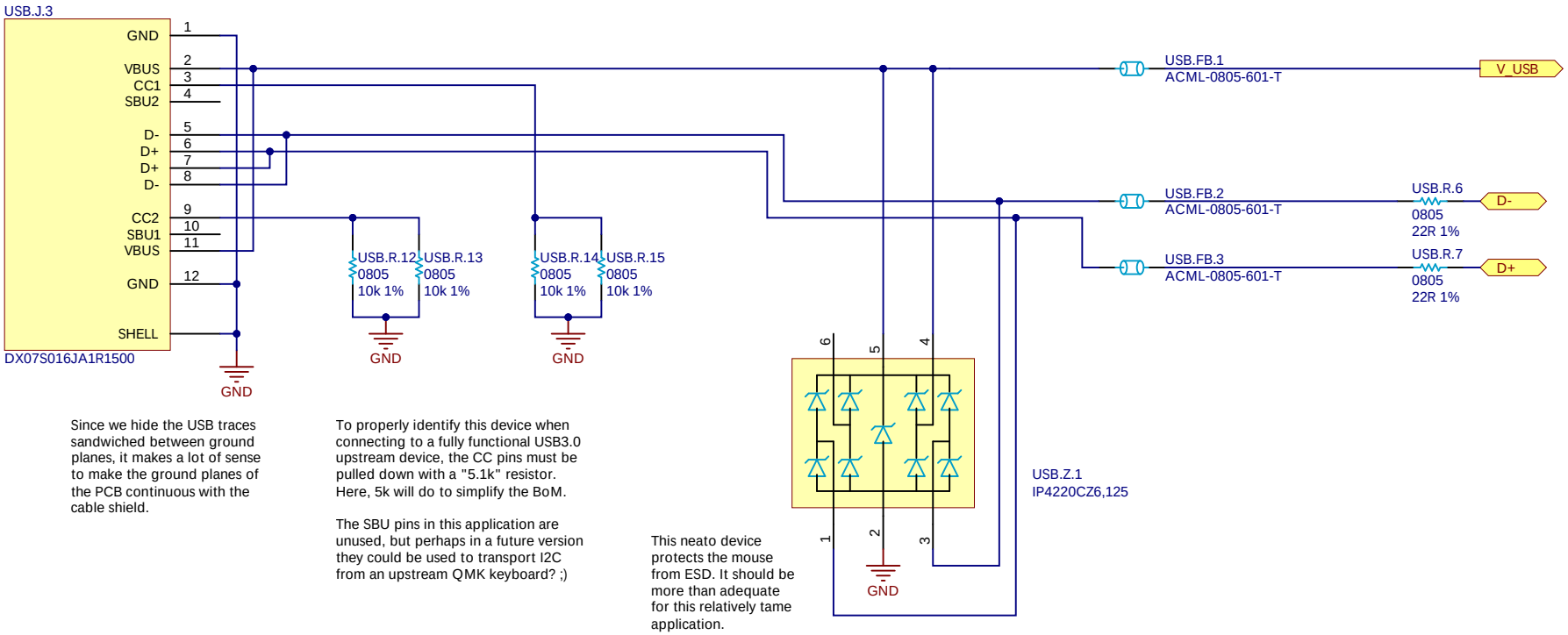

Title: Connectors.SchDoc			Ploopy Corporation
PCB: Madromys.PrjPCB		Version: R1.001	137-1140 Burnhamthorpe Road W Mississauga ON L5C 0A3 Canada
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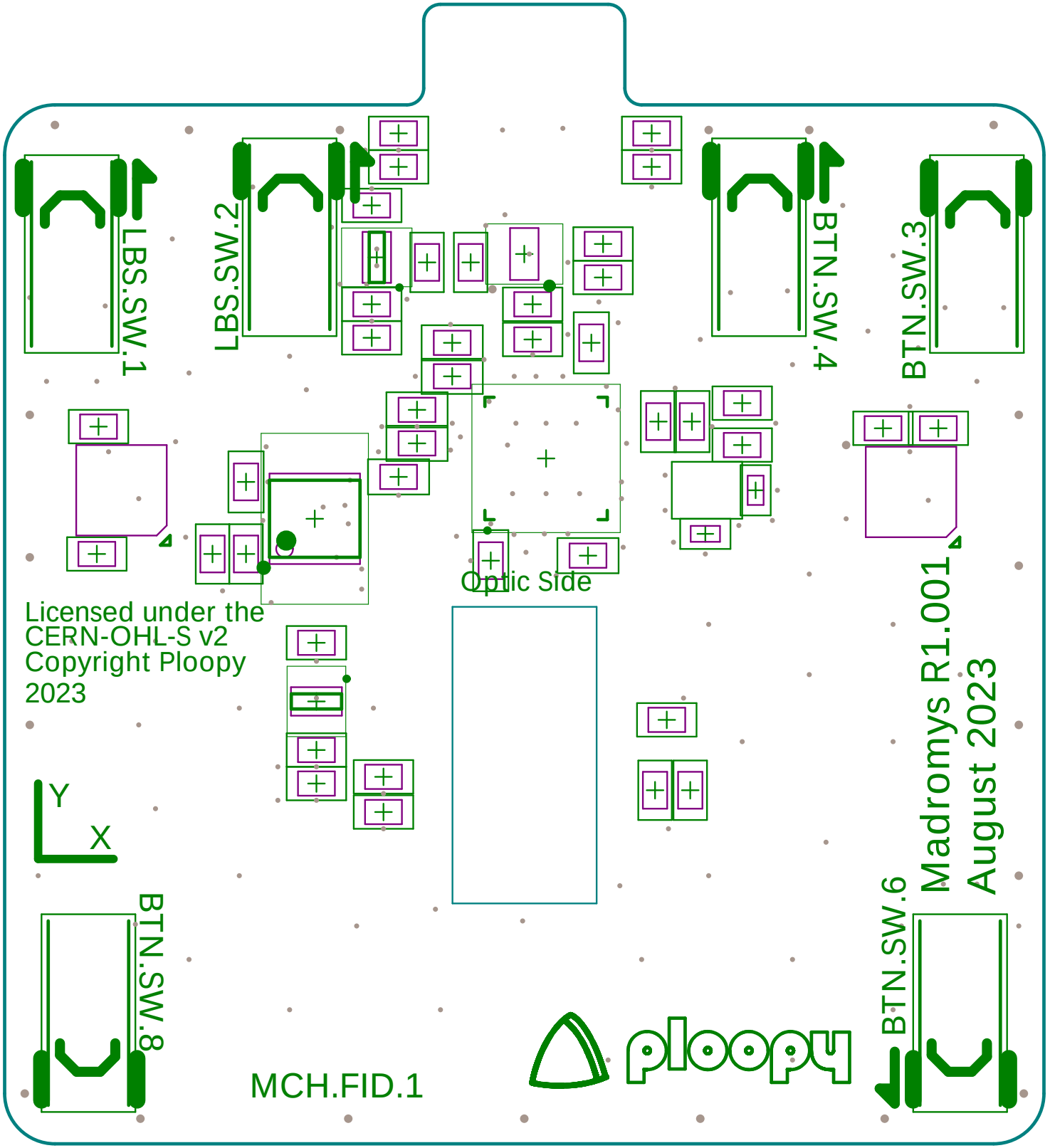
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LBS.SW.2
BTN.SW.4
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