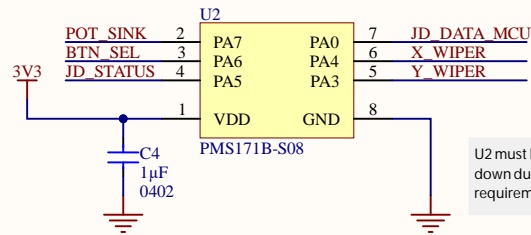
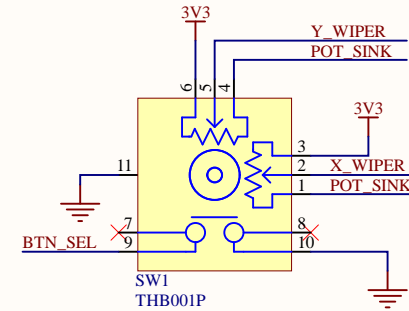


## MCU



U2 must be programmed before being soldered down due to restrictive in-circuit programming requirements. JD\_STATUS is PWM-capable GPIO.

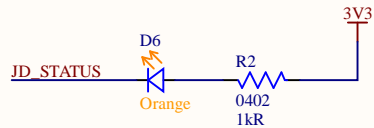
## 2-axis analog thumb joystick



Pins 1,2,3 potentiometer X-axis.  
Pins 4,5,6 potentiometer Y-axis.  
Pin 11 connects to mounting holes.

BTN\_SEL shorts to ground when pressed, requires internal MCU pull-up. X\_WIPER and Y\_WIPER connect to MCU ADC input.

## Status LED



Place status LED same side of PCB as the joystick.

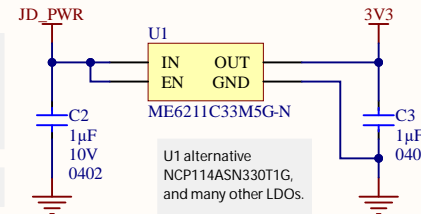
D6 alternative part  
SML-D12D  
E6C0603SEAC1UDA  
NCD0603O1

Jacdac modules require a status LED. Can be monochrome or multicolor depending on GPIO availability. If using alternative part recalculate the resistor value R2.

## 3V3 regulator

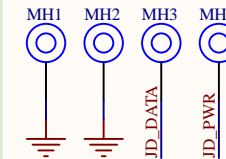
Recommendation: consider replacing ME6211C33M5G-N with an LDO that is robust to repeated spikes of 8V or more on its input in case there is noise on the Jacdac bus.

This component is a power-consumer.



U1 alternative  
NCP114ASN330T1G,  
and many other LDOs.

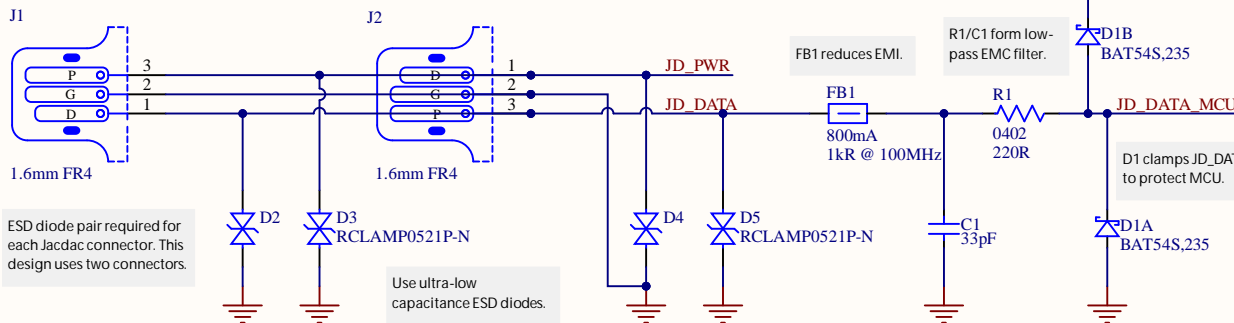
## Mounting holes



Mounting holes are electrically connected to the Jacdac bus nets so they can be used as an alternative to the PCB edge connector. Please use the following reference designators and net mapping:

MH1 & MH2: GND  
MH3: JD\_DATA  
MH4: JD\_PWR

## Jacdac connector



ESD diode pair required for each Jacdac connector. This design uses two connectors.

Use ultra-low capacitance ESD diodes.

FB1 reduces EMI.

R1/C1 form low-pass EMC filter.

D1 clamps JD\_DATA to protect MCU.

This design uses Jacdac 'small' mounting holes: PTH with finished diameter of 2.1mm, annular copper ring of 3.0mm diameter & copper/component keepout of 5.0mm. The mounting holes must be on 2.5mm pitch. Mounting holes should have appropriate silkscreen marker, and MH1 should have a pin 1 marker on the top side.

This reference design is a guideline. Please refer to the Jacdac docs online at <https://aka.ms/jacdac> for the definitive and most up-to-date information.

Silkscreen should include text to identify the module type and revision, and optionally a QR code.

This design uses a 'cute' board shape.

Silkscreen & layout notes

Block name

Design notes

This information is provided "as-is". You bear the risk of using it. Some information relates to pre-released specification which may change without notice. Microsoft makes no warranties, express or implied, with respect to the information provided here.

When this PDF is viewed with Adobe Reader, clicking on components shows part numbers and other details.

PROJECT FILENAME JacdacJoystick 44.PrjPCB

PROJECT CODENAME JacdacJoystick

SHEET FILENAME JacdacJoystick 44.SchDoc

LICENCE Attribution 4.0 International (CC BY 4.0)

Microsoft

PROJECT DESCRIPTION

Jacdac PADAUK 2-axis analog thumb joystick

SHEET DESCRIPTION

Complete design

LAST MODIFIED 21/12/2021

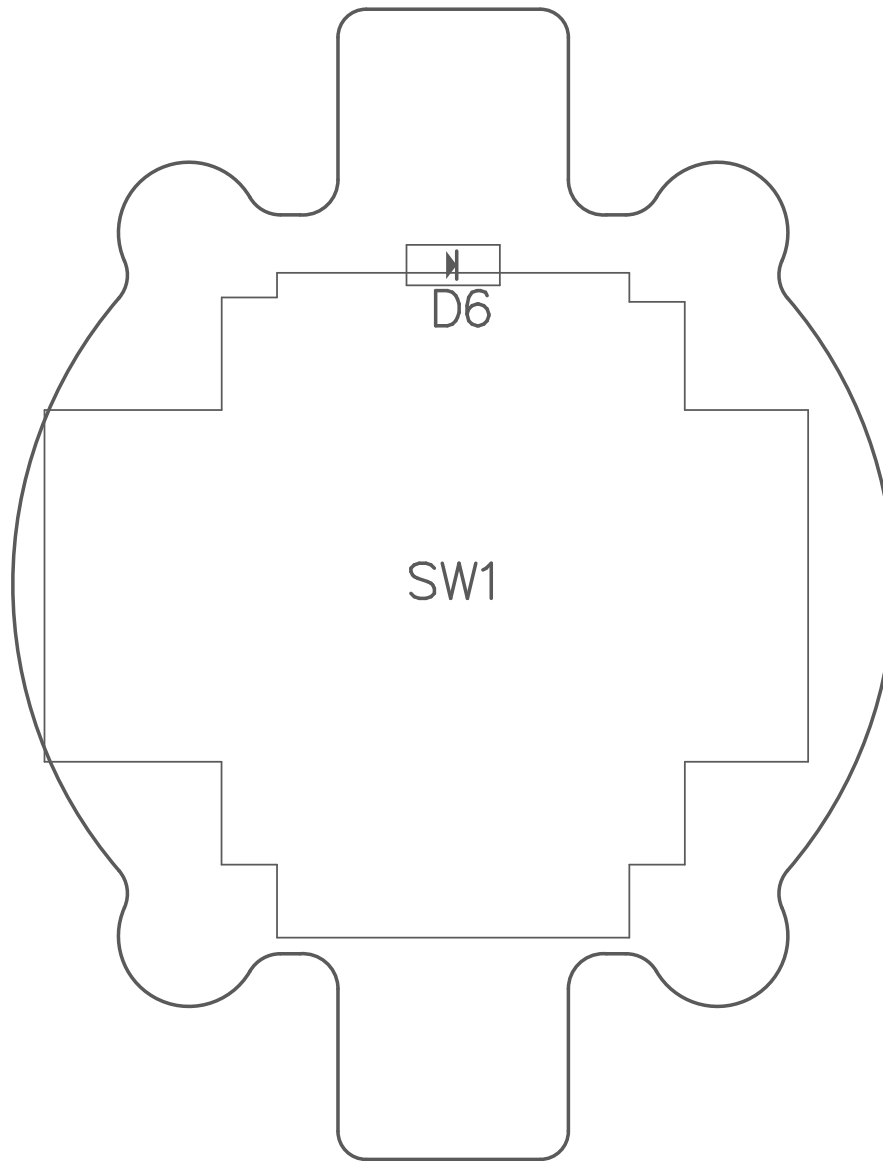
PAGE 1 OF 1

DRAWN BY DG, MM, GD & SH

REVISION 0.4

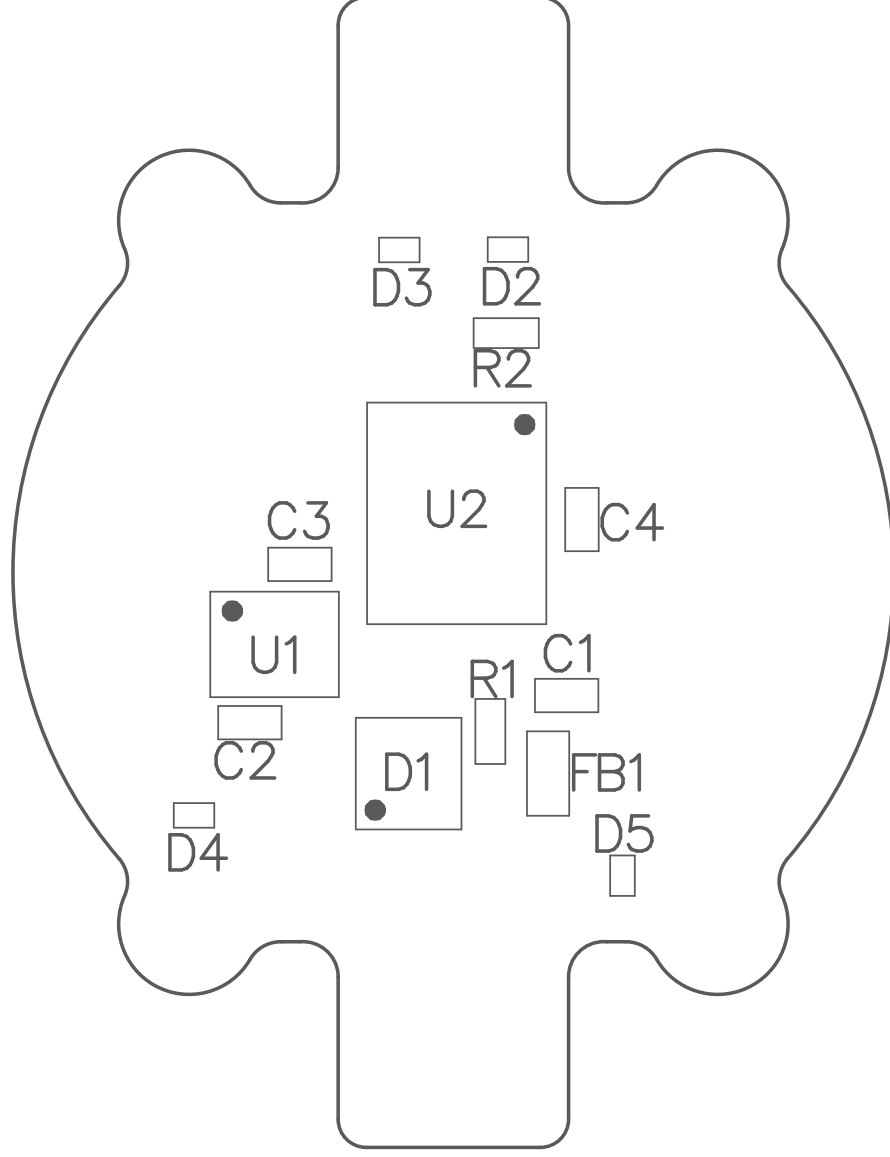
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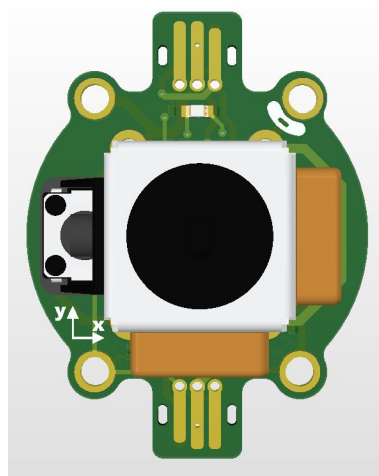
Board Outline  
Top Assy

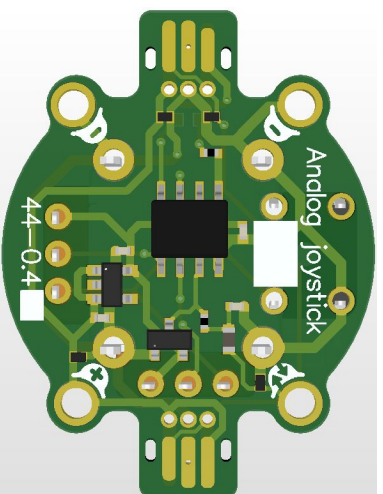


Board Outline

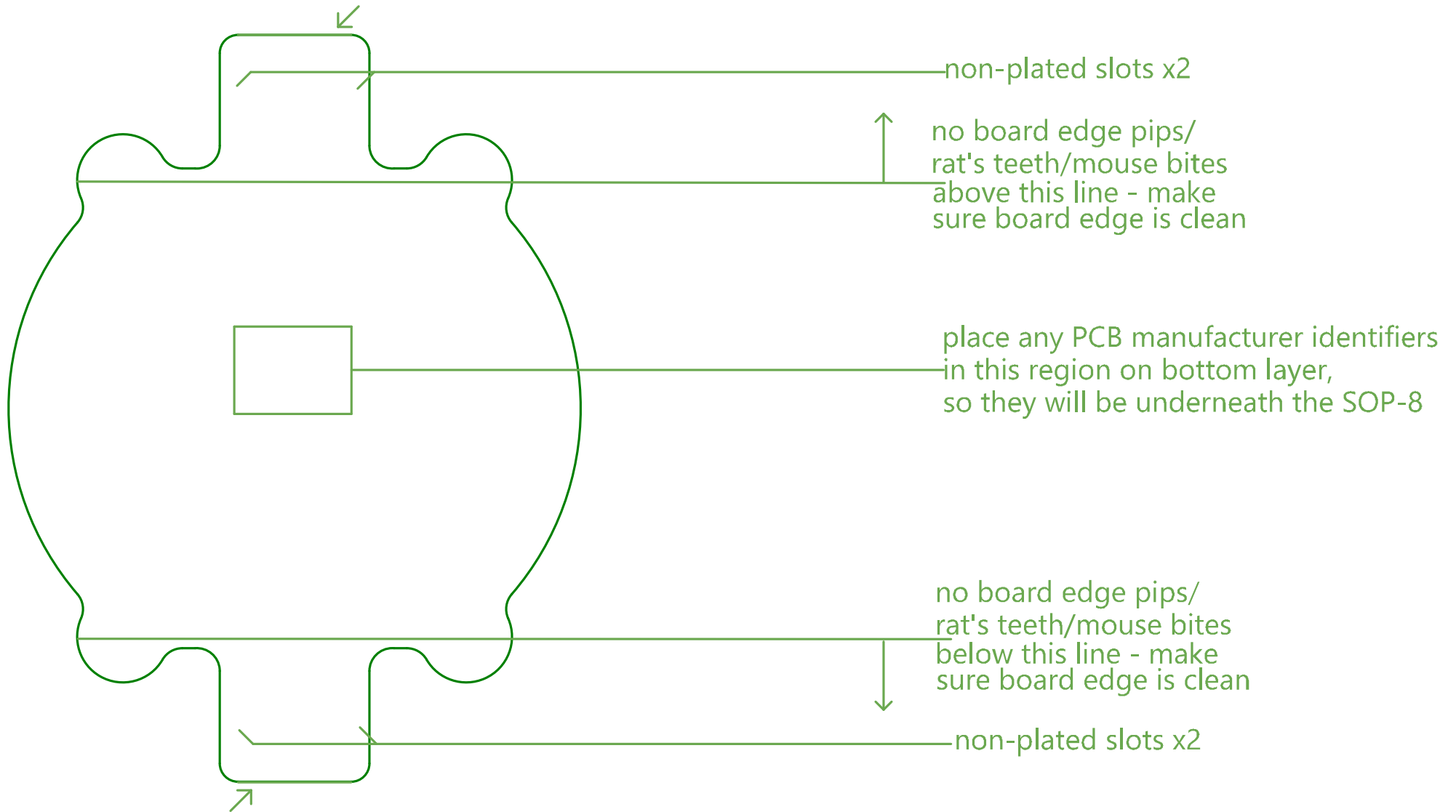
Bottom Assy





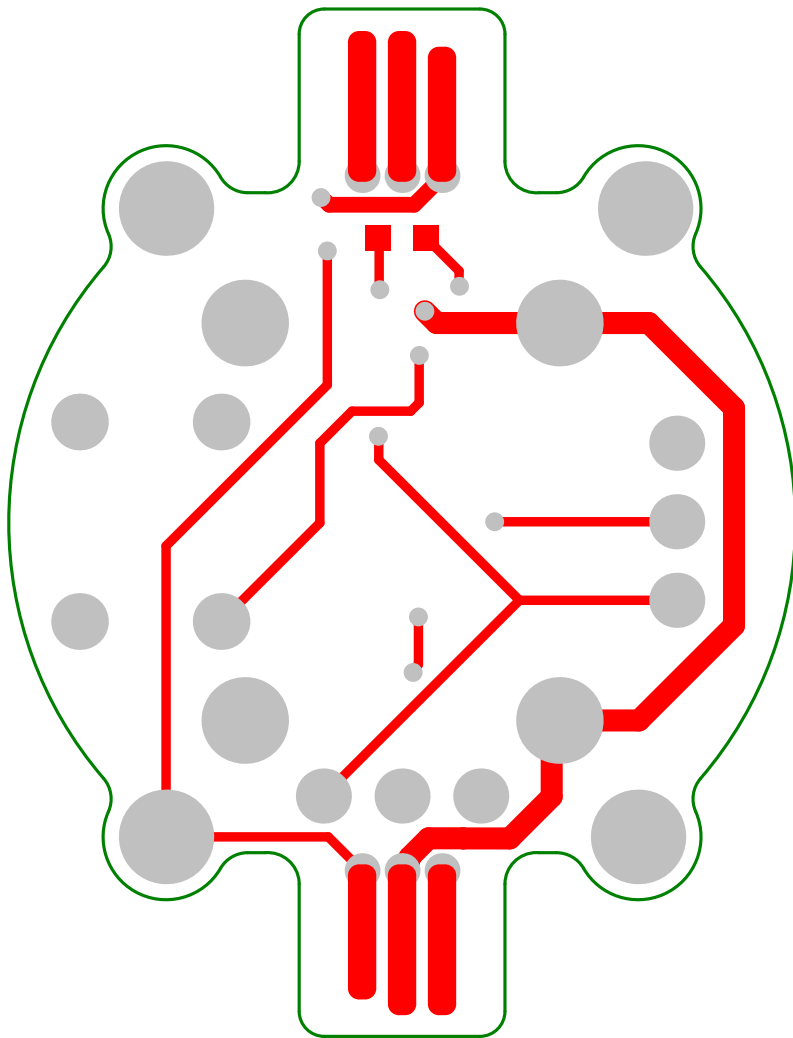


## Fabrication Notes Board Outline



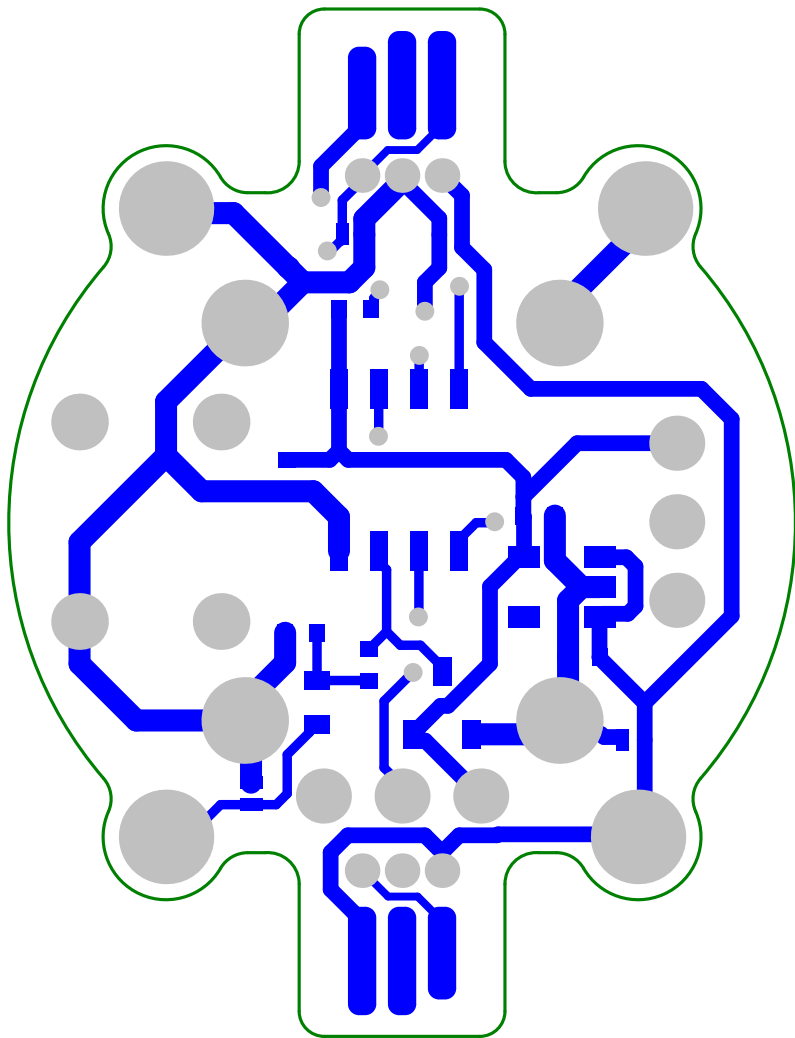
Top Layer

Board Outline



Bottom Layer

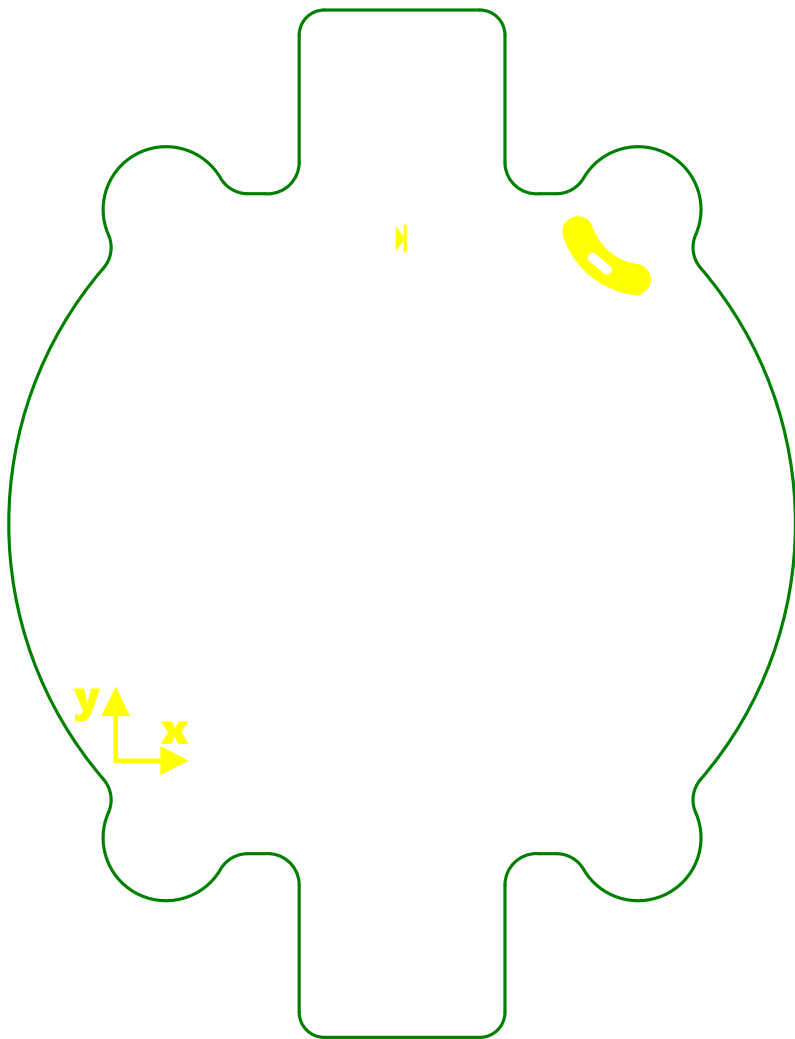
Board Outline





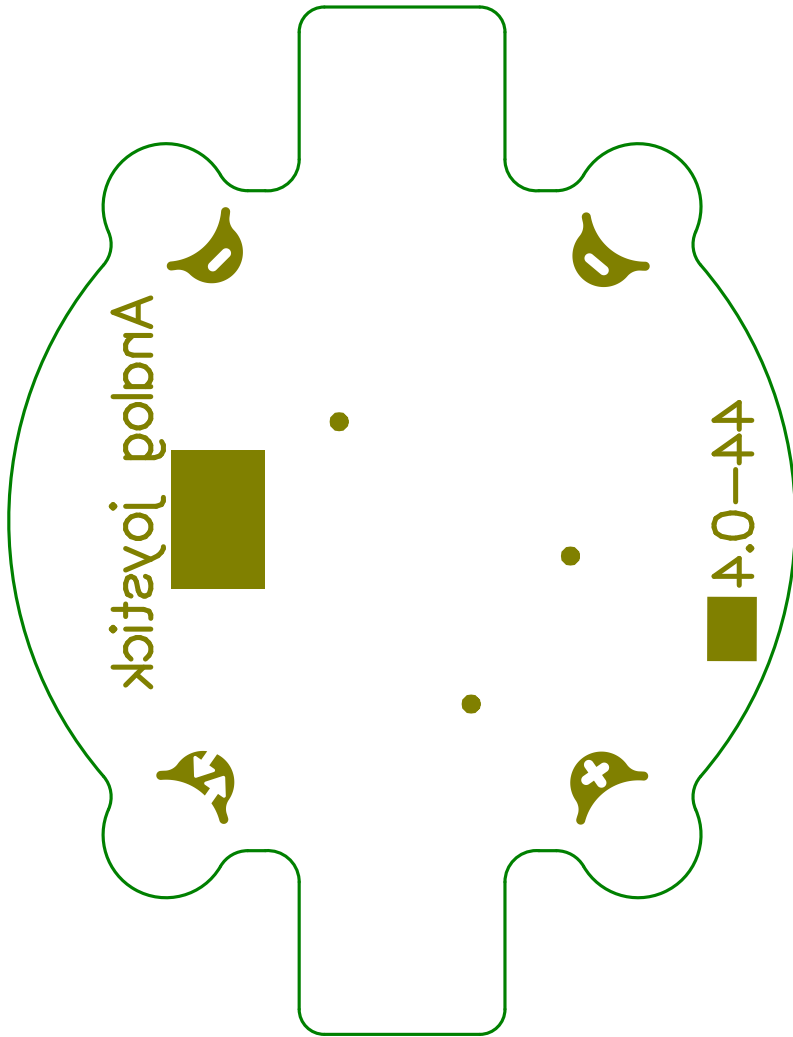
Board Outline

Top Overlay



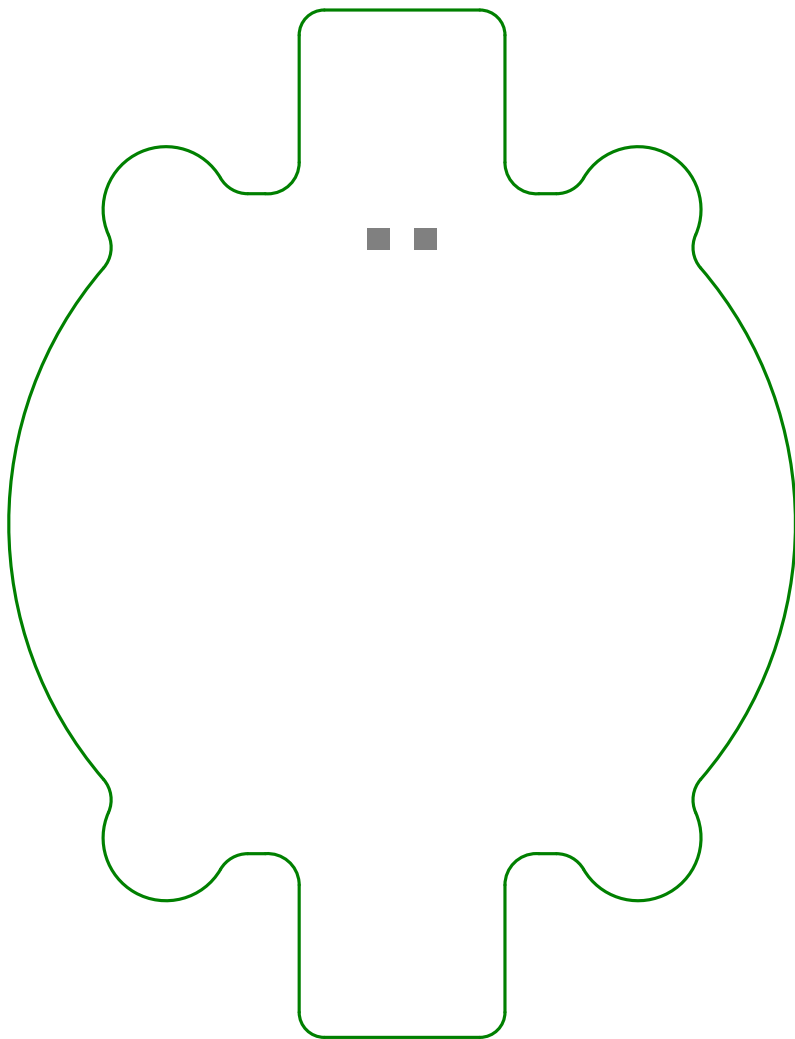
Board Outline

Bottom Overlay



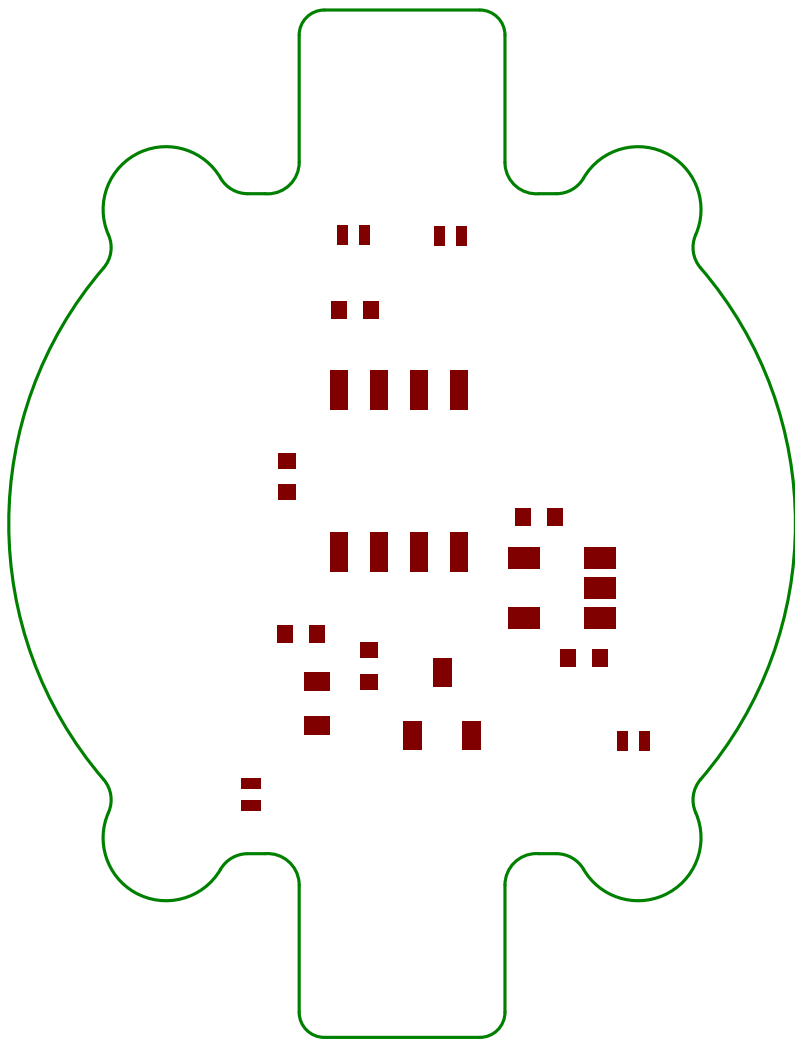
Board Outline

Top Paste



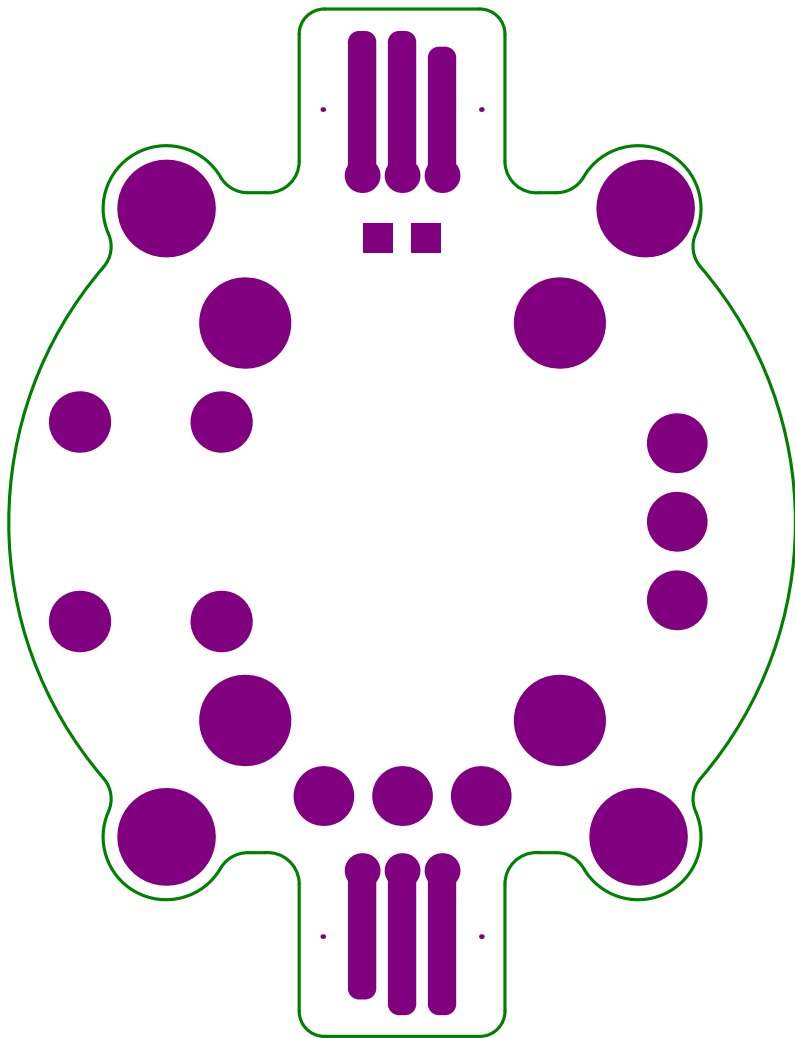
Board Outline

Bottom Paste



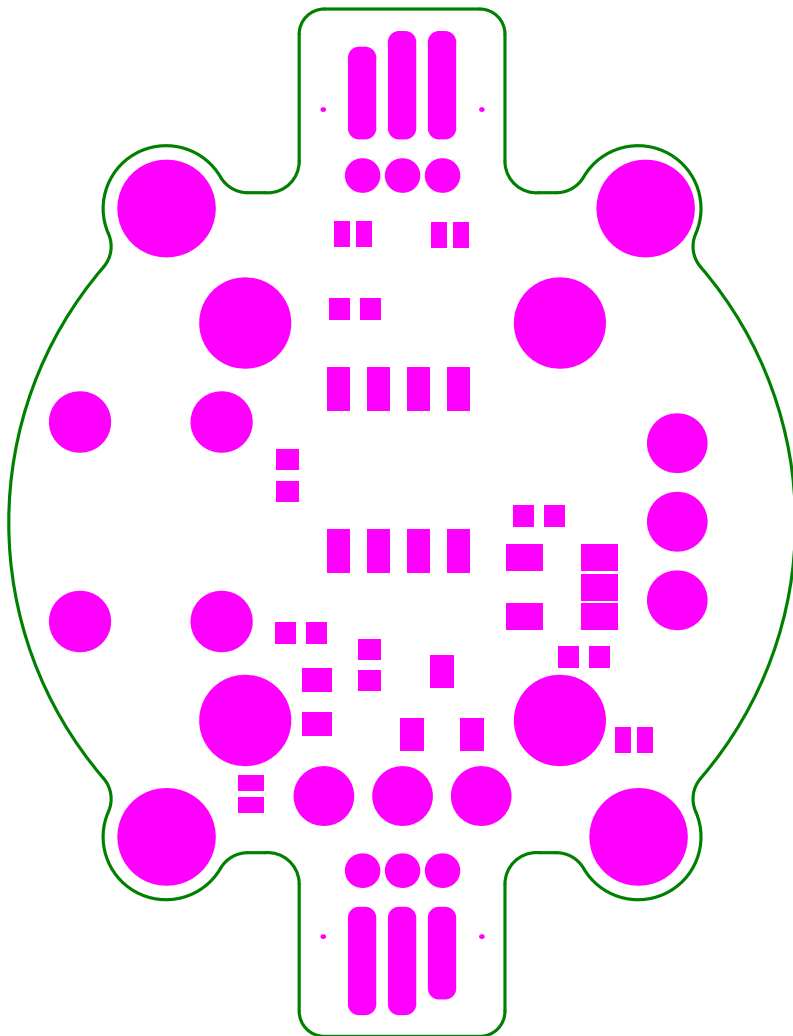
Board Outline

Top Solder (resist)



Board Outline

Bottom Solder (resist)



## Board Outline

