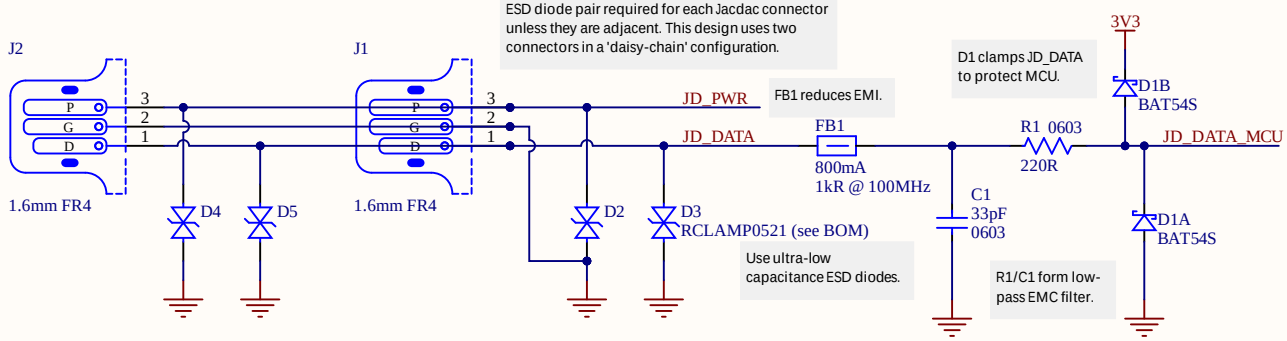
Jacdac connector



ESD diode pair required for each Jacdac connector unless they are adjacent. This design uses two connectors in a 'daisy-chain' configuration.

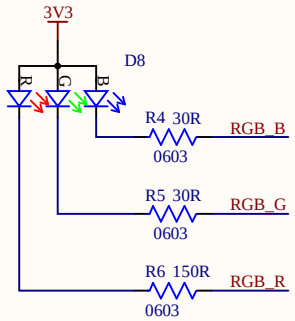
FB1 reduces EMI.

D1 clamps JD_DATA to protect MCU.

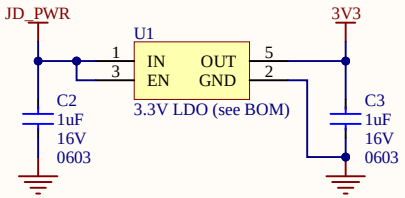
Use ultra-low capacitance ESD diodes.

R1/C1 form low-pass EMC filter.

RGB LED



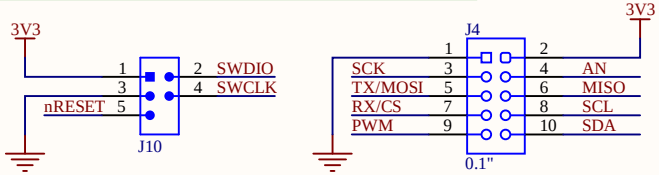
3V3 regulator



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.

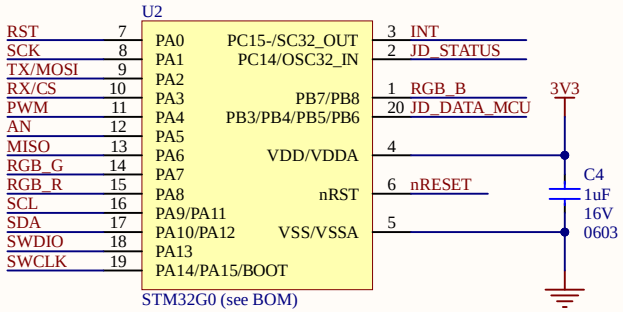
Programming/debug/expansion



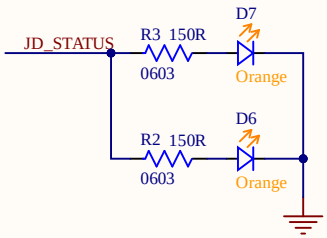
"Hack-connect" SWD adapter. https://arcade.makecode.com/hardware/dbg

MCU

Pin mappings based on Michal's 'starfighter' design: https://github.com/microsoft/pxt-32-hw/blob/master/jm-v3.4/mikrobus28/jdmikrobus.pdf

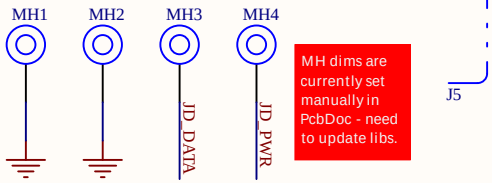


Status LED

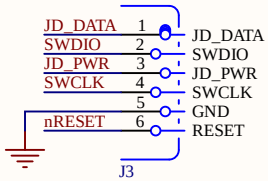


Jacdac modules require a status LED per port (can be shared if ports are adjacent). Can be monochrome or multicolor depending on GPIO availability.

Mounting holes



MH dims are currently set manually in PcbDoc - need to update libs.



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

This design uses PTH mounting holes with finished diameter of 3.1mm, annular copper ring of 4.4mm diameter & copper/component keepout of 7.0mm. The mounting holes must be on 10mm pitch. Mounting holes should have appropriate silkscreen marker, and MH1 should have a pin 1 marker in copper on the top side only.

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.

This design uses an enclosure compatible board shape.

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

Silkscreen & layout notes

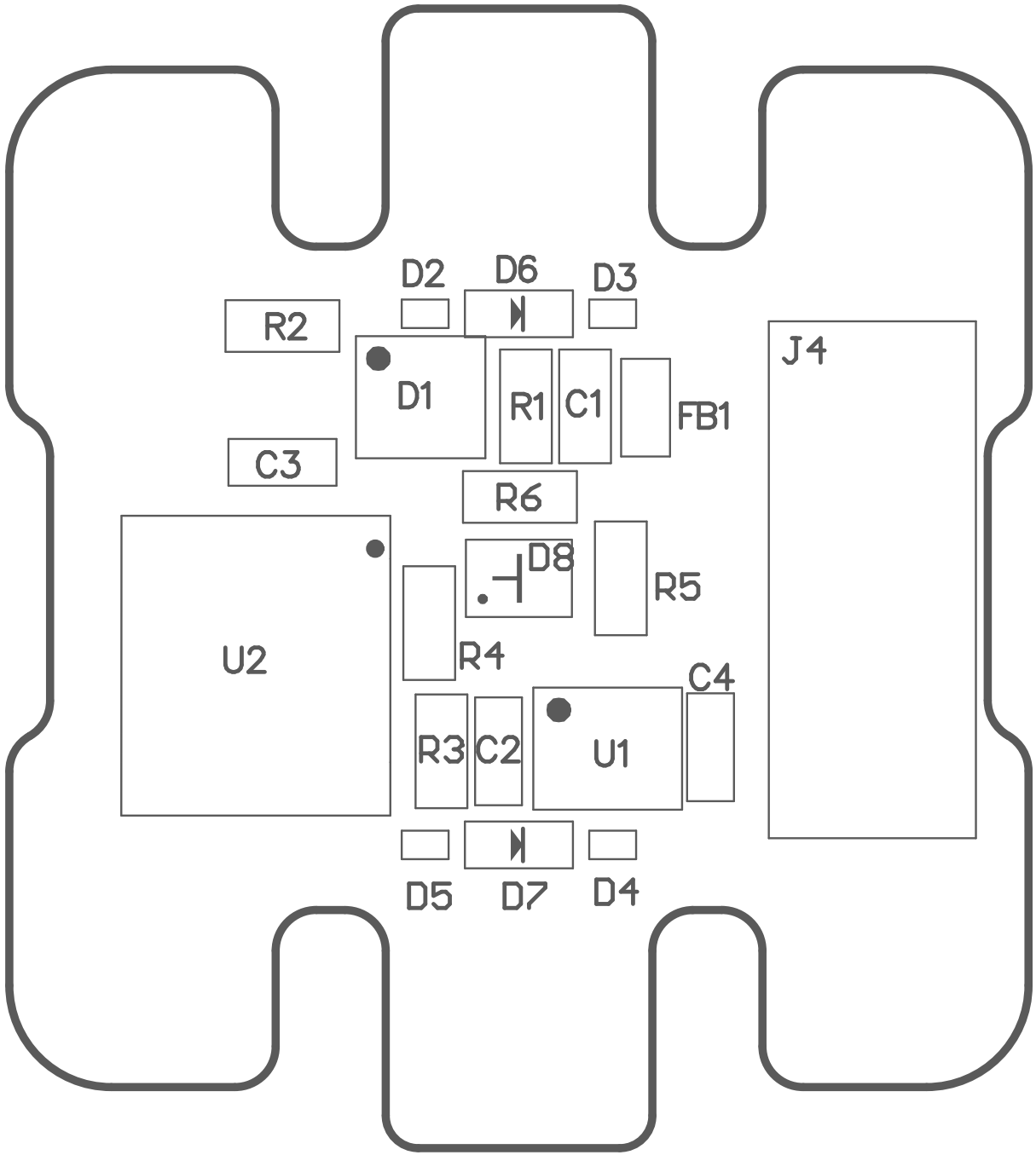
Block name

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 JacdacRgbLed1Ec30 77.PrjPCB	PROJECT CODENAME JacdacRgbLed1Ec30	Microsoft	PROJECT DESCRIPTION G0-based single RGB LED/breakout (3.0mm EC design)
SHEET FILENAME JacdacRgbLed1Ec30 77.SchDoc	LICENCE Attribution 4.0 International (CC BY 4.0)	LAST MODIFIED 02/03/2022	PAGE 1 OF 1
		DRAWN BY S. Hodges	SHEET DESCRIPTION Complete design
			REVISION 0.3 PCB ID 77-0.3

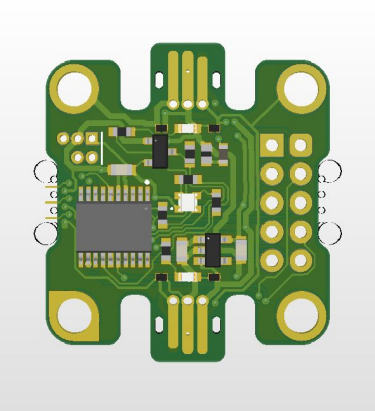


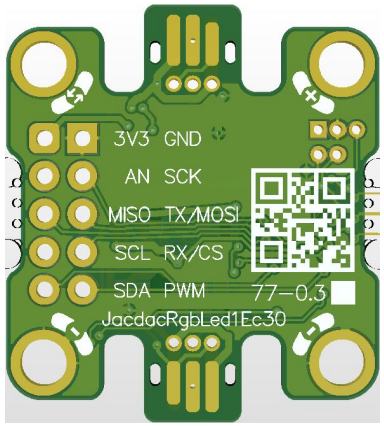
Top Assy

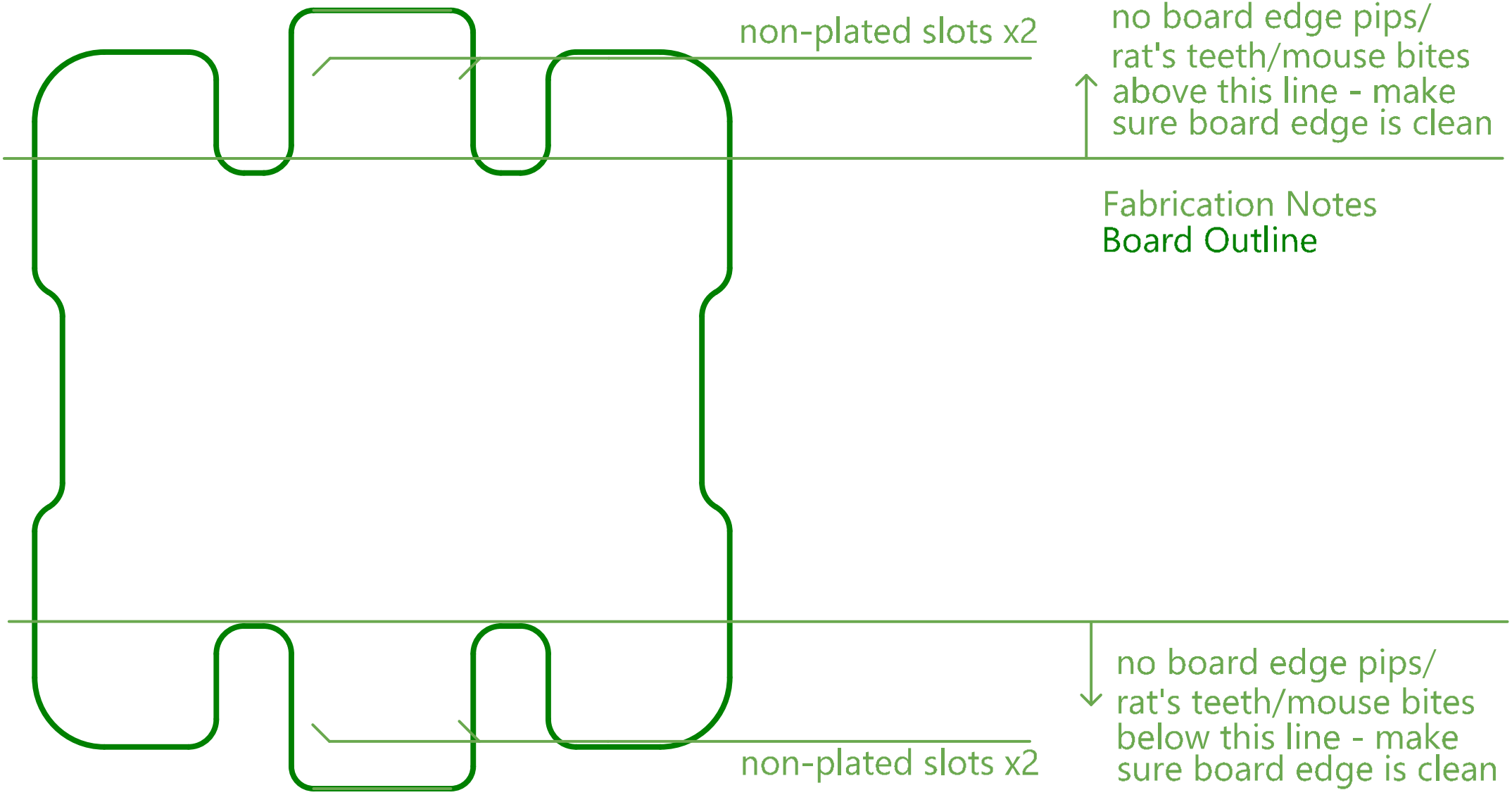
Board Outline

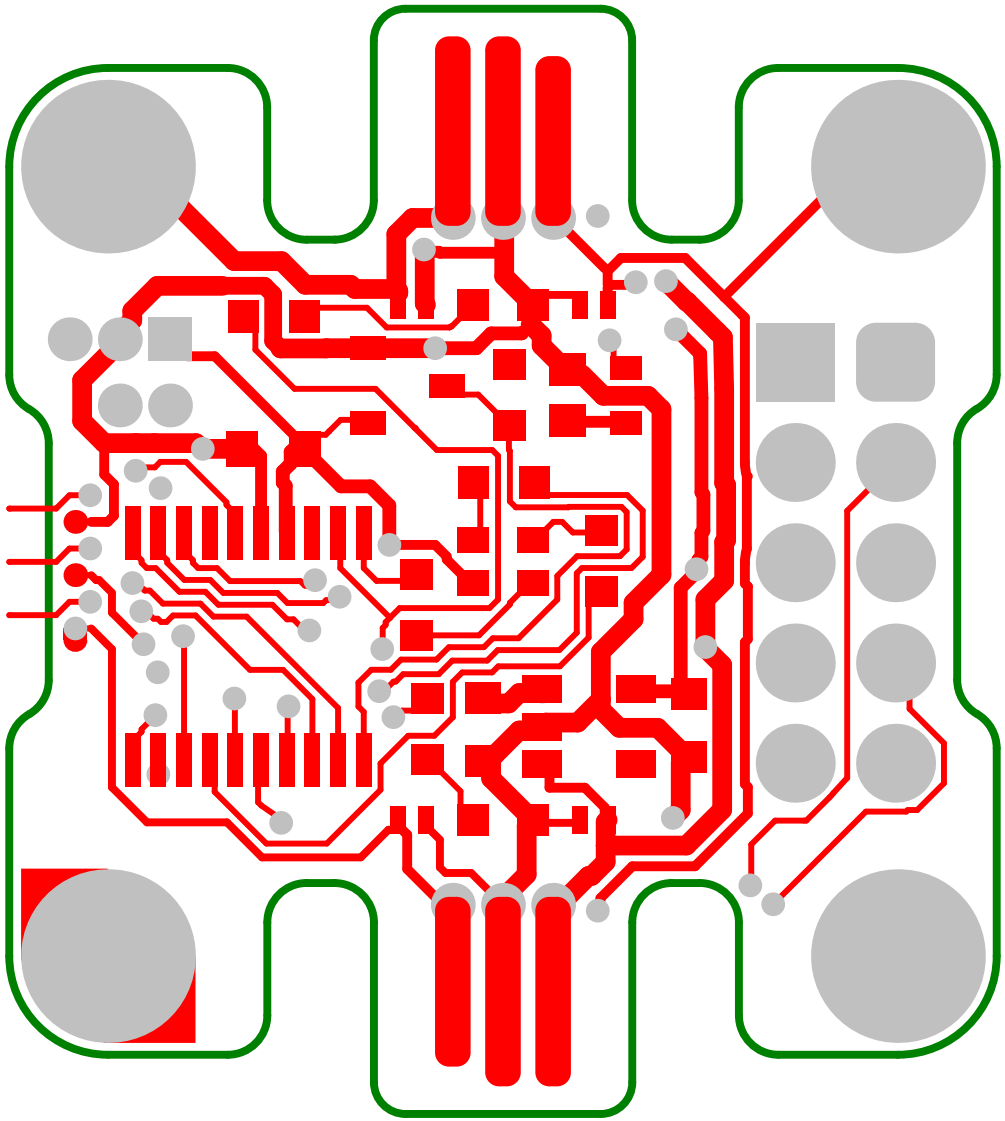
Board Outline

Bottom Assy



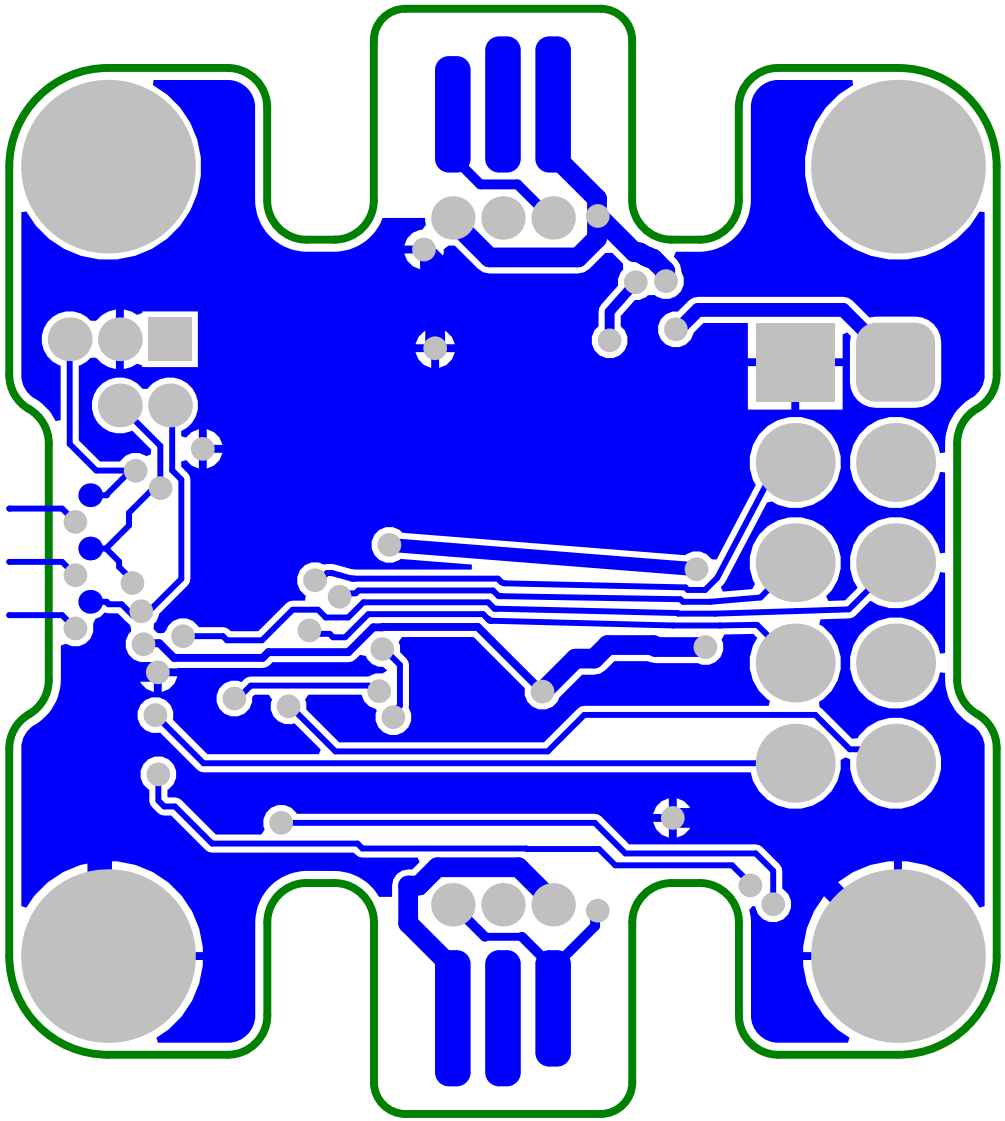

3V3 GND
AN SCK
MISO TX/MOSI
SCL RX/CS
SDA PWM
77-0.3
JacdacRgbLed1Ec30


non-plated slots x2
no board edge pips/
rat's teeth/mouse bites
above this line - make
sure board edge is clean
Fabrication Notes
Board Outline
no board edge pips/
rat's teeth/mouse bites
below this line - make
sure board edge is clean
non-plated slots x2

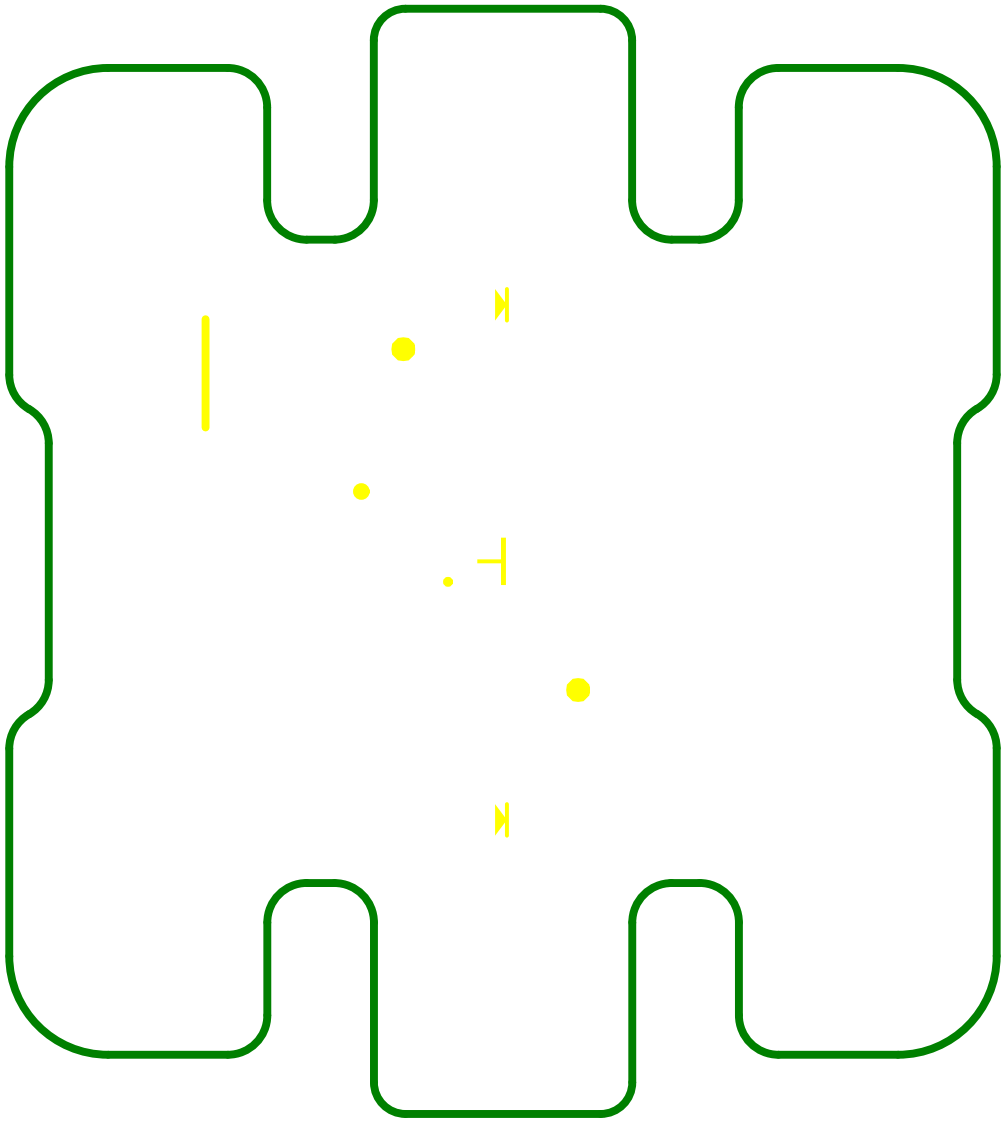


Top Layer

Board Outline



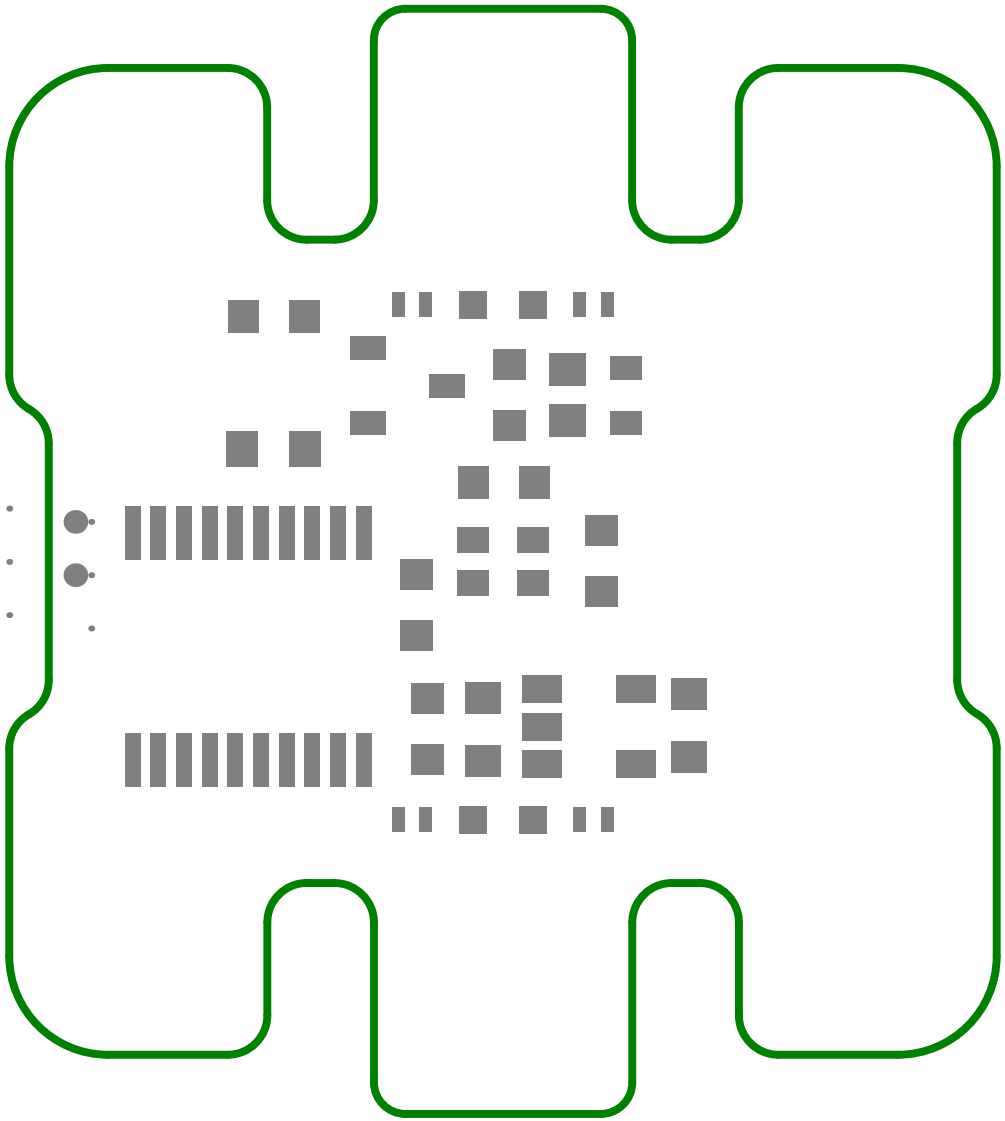
Bottom Layer Board Outline



Board Outline

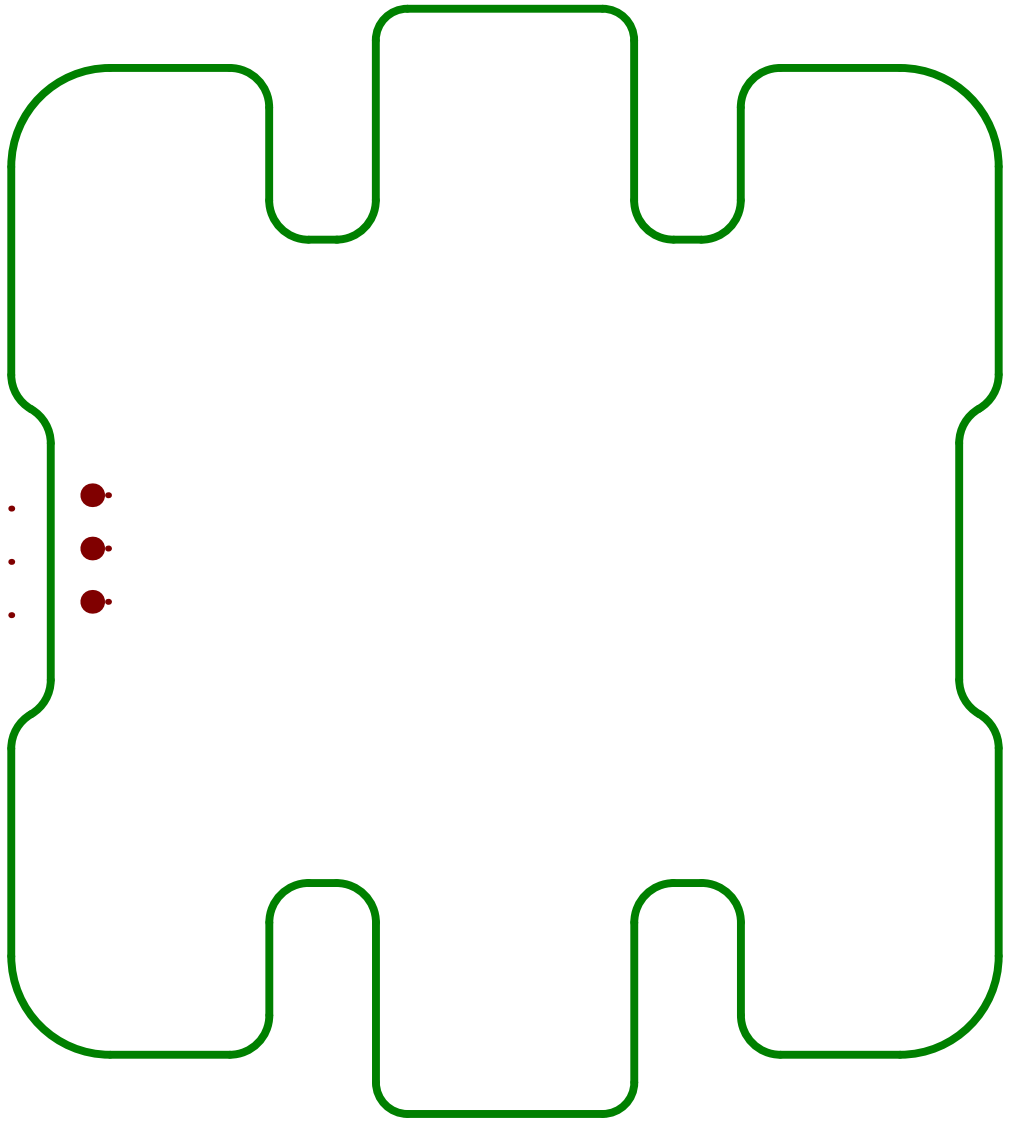
Top Overlay

3V3 GND
AN SCK
MISO TX/MOSI
SCL RX/CS
SDA PWM
77–0.3
Board Outline
Bottom Overlay



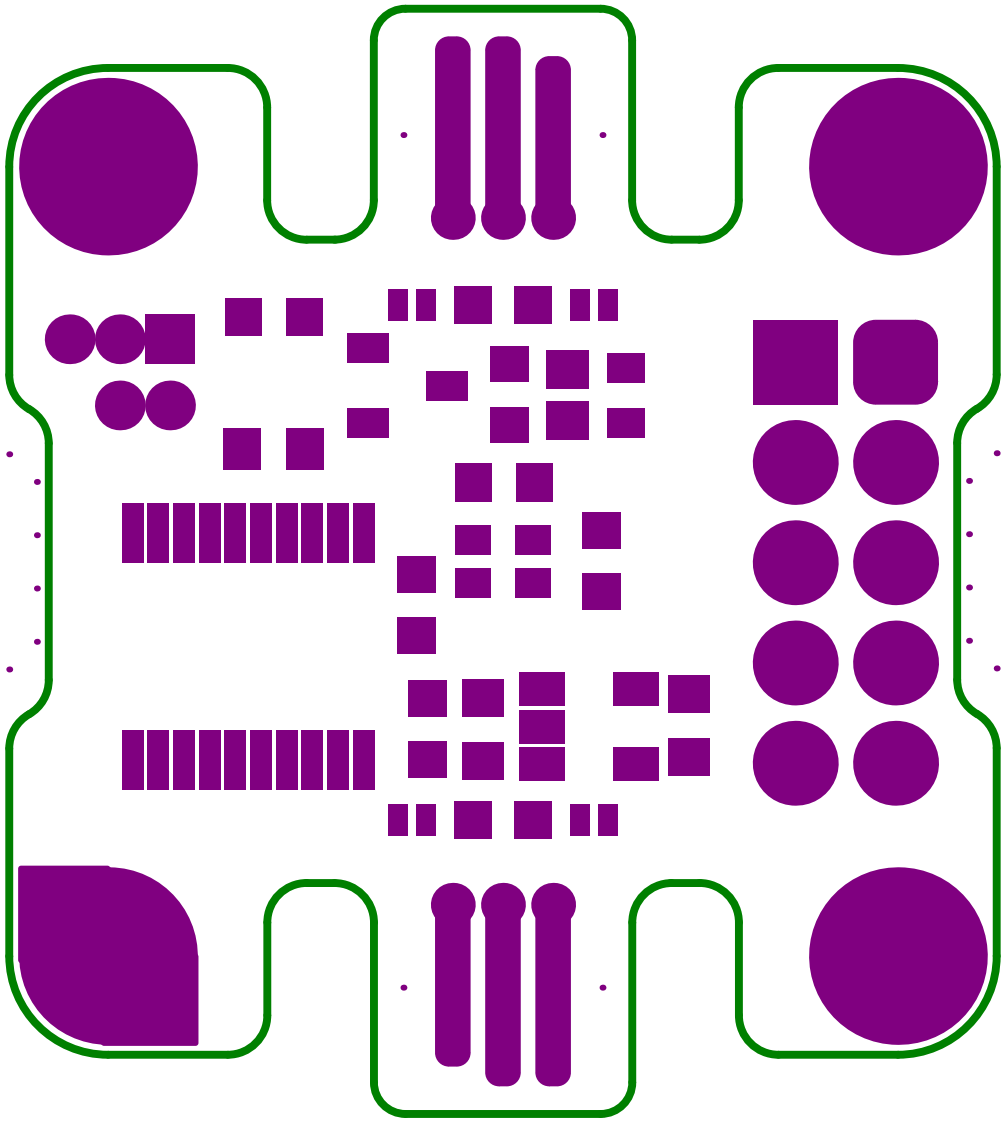
Board Outline

Top Paste



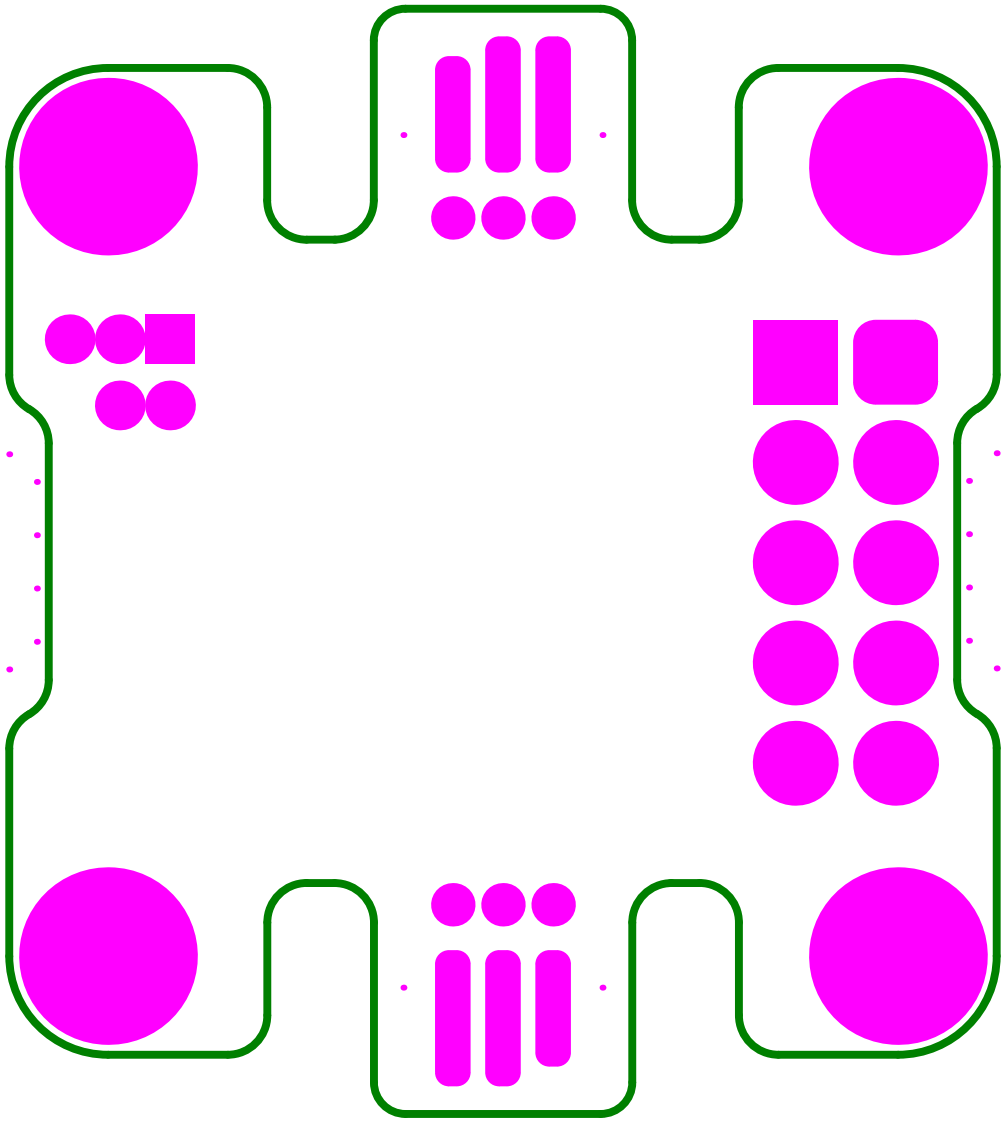
Board Outline

Bottom Paste



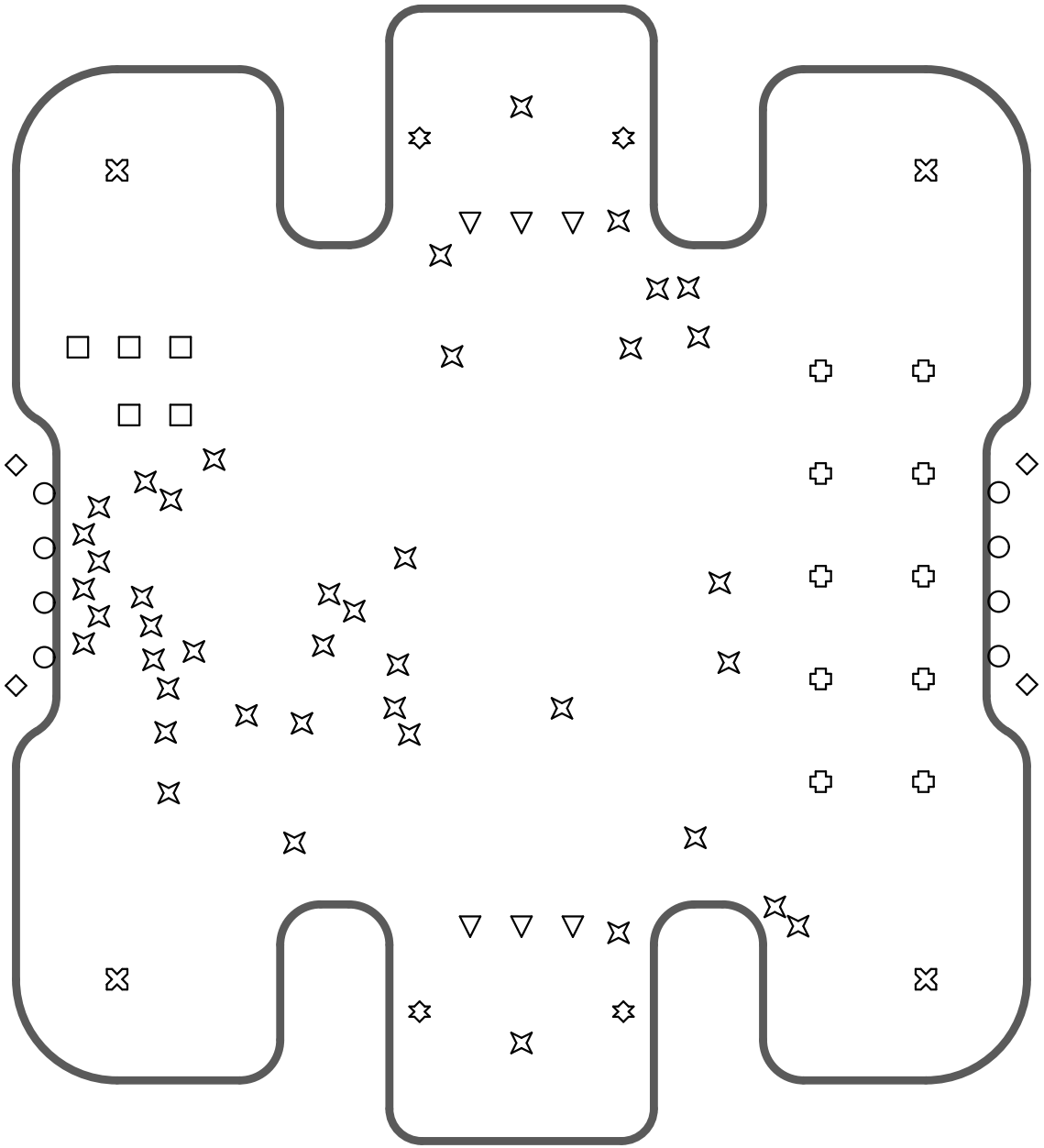
Board Outline

Top Solder (resist)



Board Outline

Bottom Solder (resist)



Board Outline