Filter cutoff frequency of R1 , C4 , and C5 = 476 Hz
Measured AVDD current = 470uA. Voltage drop through 33R = 16mV
U1RX and U2RX require PIC32MZ internal pull-up to prevent spurious RX data

U1
PIC32MZ0512EFE064-I/MR

Pin	Left signal	Right signal	Pin
1	AN17/ETXEN/RPE5/PMD5/RE5	AN18/ERXERR/PMD4/RE4	64
2	AN16/ETXD0/PMD6/RE6	TRD3/SQID3/ERXCLK/EREFCLK/RPE3/PMD3/RE3	63
3	AN15/ETXD1/PMD7/RE7	TRD2/SQID2/ERXDV/ECRSDV/AECRSDV/PMD2/RE2	62
4	AN14/C1IND/RPG6/SCK2/PMA5/RG6	TRD1/SQID1/ERXD0/PMD1/RE1	61
5	AN13/C1INC/RPG7/SDA4/PMA4/RG7	VDD	60
6	AN12/C2IND/RPG8/SCL4/PMA3/RG8	VSS	59
7	VSS	TRD0/SQID0/ERXD1/PMD0/RE0	58
8	VDD	TRCLK/SQICLK/ERXD2/AETXD0/RPF1/RF1	57
9	MCLR	ERXD3/AETXD1/RPF0/RF0	56
10	AN11/C2INC/RPG9/PMA2/RG9	VSS	55
11	AN45/C1INA/RPB5/RB5	VDD	54
12	AN4/C1INB/RB4	SQICS1/RPD5/PMRD/RD5	53
13	AN3/C2INA/RPB3/RB3	SQICS0/RPD4/PMWR/RD4	52
14	AN2/C2INB/RPB2/RB2	AERXERR/ETXCLK/RPD3/SCL3/RD3	51
15	PGEC1/VREF-/CVREF-/AN1/RPB1/RB1	ETXERR/AETXEN/RPD2/SDA3/RD2	50
16	PGED1/VREF+/CVREF+/AN0/RPB0/PMA6/RB0	EMDIO/AEMDIO/RPD1/SCK1/RD1	49
17	PGEC2/AN46/RPB6/RB6	SOSCO/RPC14/T1CK/RC14	48
18	PGED2/AN47/RPB7/RB7	SOSCI/RPC13/RC13	47
19	AVDD	AERXD1/ETXD3/RPD0/RTCC/INT0/RD0	46
20	AVSS	AERXCLK/AEREFCLK/ECRS/RPD11/PMCS1/PMA14/RD11	45
21	AN48/RPB8/PMA10/RB8	ECOL/RPD10/SCL1/SCK4/RD10	44
22	AN49/RPB9/PMA7/RB9	AERXD0/ETXD2/RPD9/SDA1/PMCS2/PMA15/RD9	43
23	TMS/CVREFOUT/AN5/RPB10/PMA13/RB10	RPF5/SCL5/PMA8/RF5	42
24	TDO/AN6/PMA12/RB11	RPF4/SDA5/PMA9/RF4	41
25	VSS	VSS	40
26	VDD	VDD	39
27	TCK/AN7/PMA11/RB12	RPF3/USBID/RF3	38
28	TDI/AN8/RB13	D+	37
29	AN9/RPB14/SCK3/PMA1/RB14	D-	36
30	AN10/EMDC/AEMDC/RPB15/OCFB/PMA0/RB15	VSS	35
31	OSC1/CLKI/RC12	VUSB3V3	34
32	OSC2/CLKO/RC15	VBUS	33

x-IMU3-SA-AX[5C] CH8
x-IMU3-SA-AX[5C] CH7
x-IMU3-SA-AX[5C] CH6

x-IMU3-SA-AX[3D] MCLR
x-IMU3-SA-AX[5C] CH5

x-IMU3-SA-AX[3C] TX

x-IMU3-SA-AX[3D] PGEC
x-IMU3-SA-AX[3D] PGED

x-IMU3-SA-AX[3D] Debug

AVDD

U2RX
U1RX

x-IMU3-SA-AX[5C] CH4
x-IMU3-SA-AX[5C] CH3
x-IMU3-SA-AX[5C] CH2
x-IMU3-SA-AX[5C] CH1

VDD
C1 100nF
GND

C3 100nF
GND
VDD

C6 100nF
GND
VDD

GND

GND

VDD
C2 100nF
GND
VDD

R1 33R

C4 10uF
C5 100nF
GND

GND
C7 100nF
VDD

Y1
ECS-2520MV-240-BN-TR

VDD
1 OE VDD 4
2 GND OUT 3
GND
C8 100nF
GND

CLKI

VDD

J2
SP-3533-02

T
R
S

VIN
TX R
GND

R3 470R

TX x-IMU3-SA-AX[4A]

J1
Molex 90121-0770

VDD
1
2
3
4
5
6
7
8
9
10

CH1 R
CH2 R
CH3 R
CH4 R
CH5 R
CH6 R
CH7 R
CH8 R

GND

R2
YC248-FR-07220RL

CH1 x-IMU3-SA-AX[4B]
CH2 x-IMU3-SA-AX[4B]
CH3 x-IMU3-SA-AX[4B]
CH4 x-IMU3-SA-AX[4B]
CH5 x-IMU3-SA-AX[4A]
CH6 x-IMU3-SA-AX[4A]
CH7 x-IMU3-SA-AX[4A]
CH8 x-IMU3-SA-AX[4A]

U2
LP5907SNX-3.0

VIN
4 IN OUT 1
3 EN GND 2
C10 10uF
GND

VDD
C9 10uF
GND

J3
DNP

VDD
R4 10kR
VDD

x-IMU3-SA-AX[4A] MCLR

1 MCLR/VPP
2 VDD
3 Ground
4 PGD
5 PGC
6 LVP

x-IMU3-SA-AX[4A] PGED
x-IMU3-SA-AX[4A] PGEC
x-IMU3-SA-AX[4B] Debug

GND

TITLE
x-IMU3-SA-AX.SchDoc

SIZE
A3

PROJECT
x-IMU3-SA-AX

VERSION
v1.0

VARIANT [No Variations]
AUTHOR Seb Madgwick

SHEET 1 OF 1
DATE 12/28/2024

TECHNOLOGIES

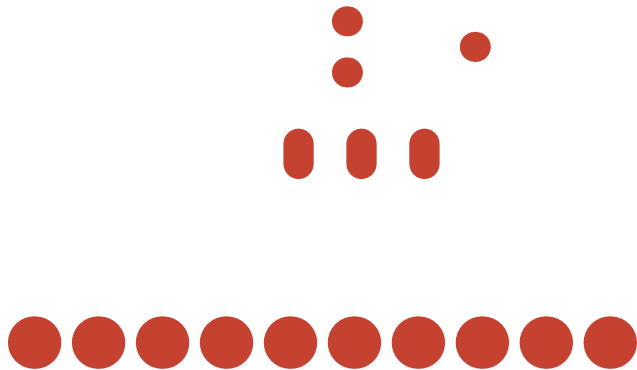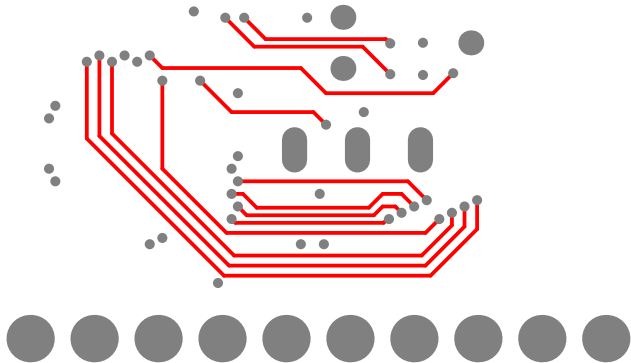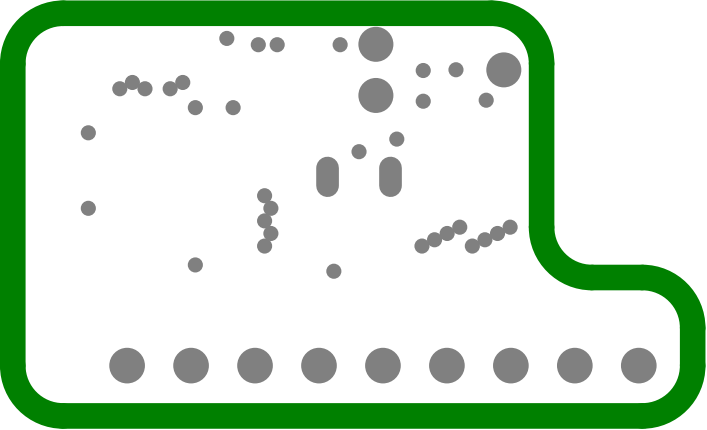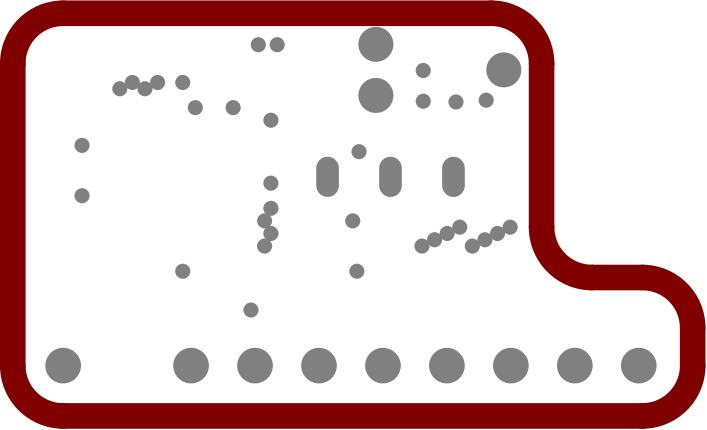**x-IMU3-SA-AX**
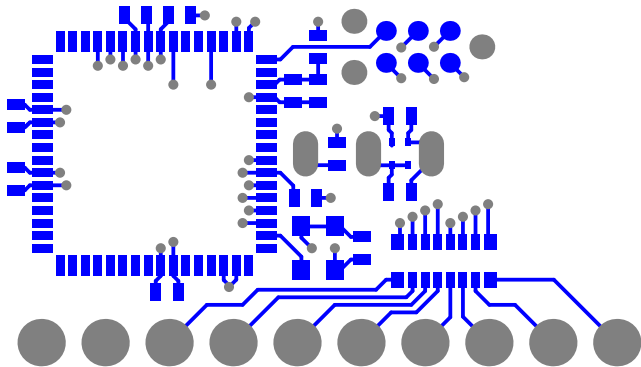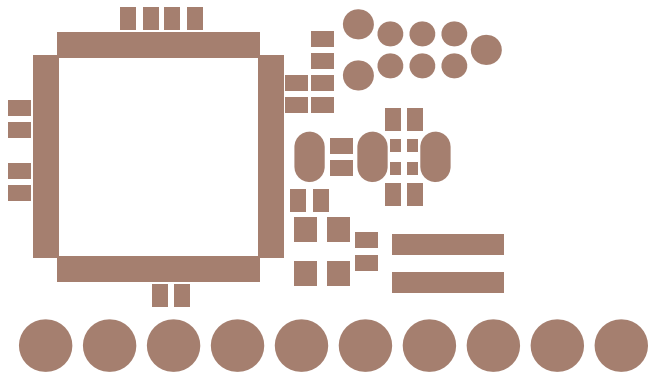**v1.0**

J2

− + 1 2 3 4 5 6 7 8

J1
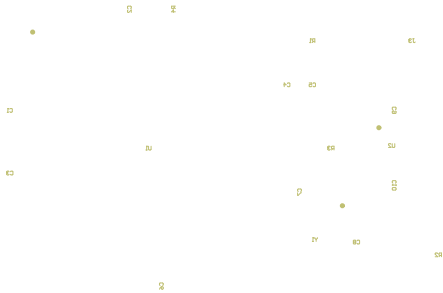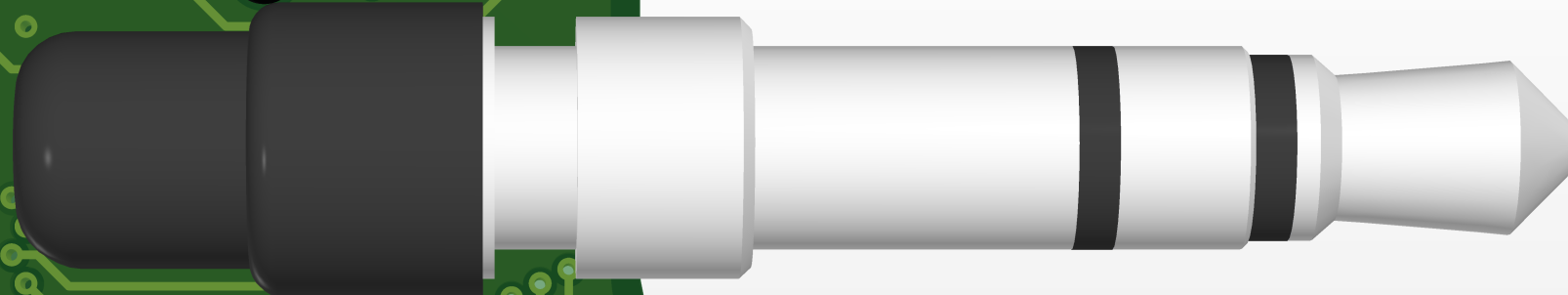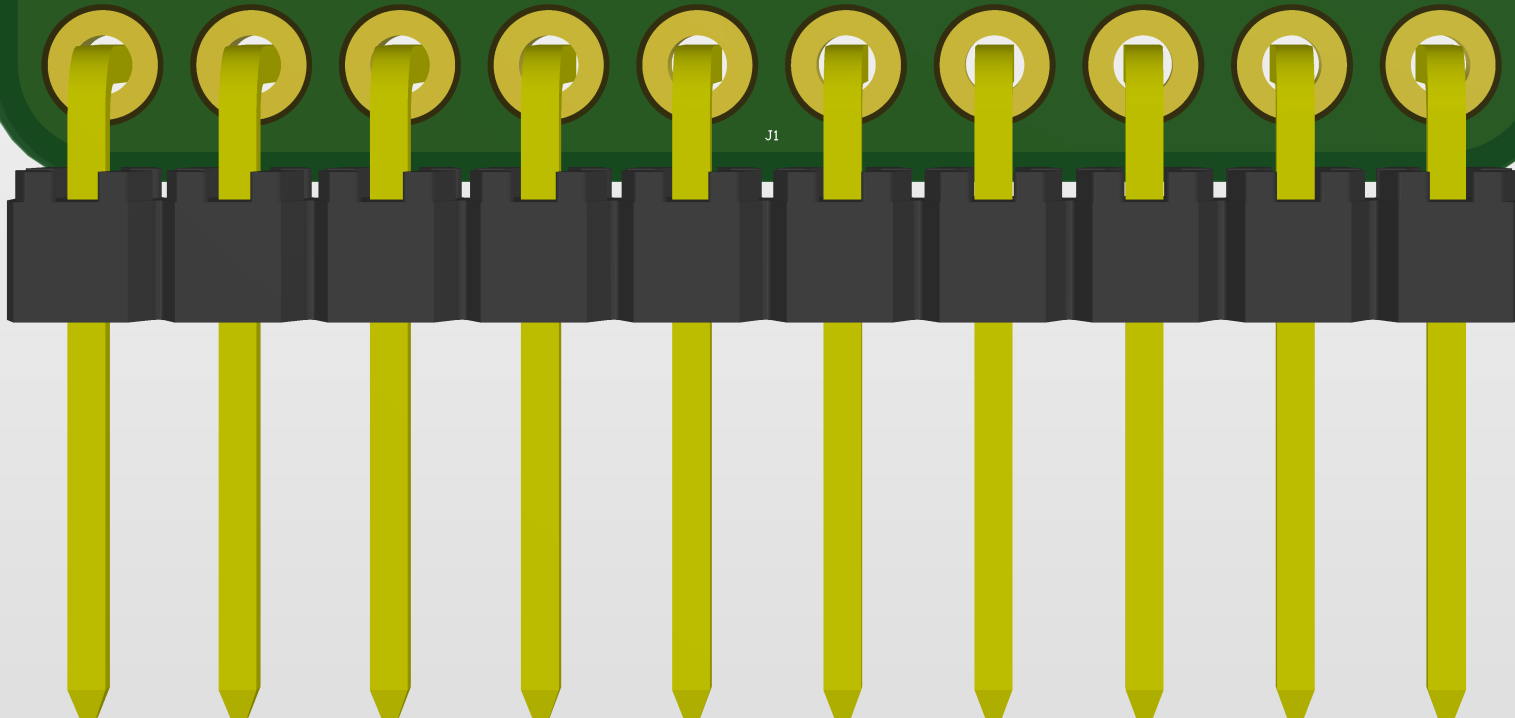
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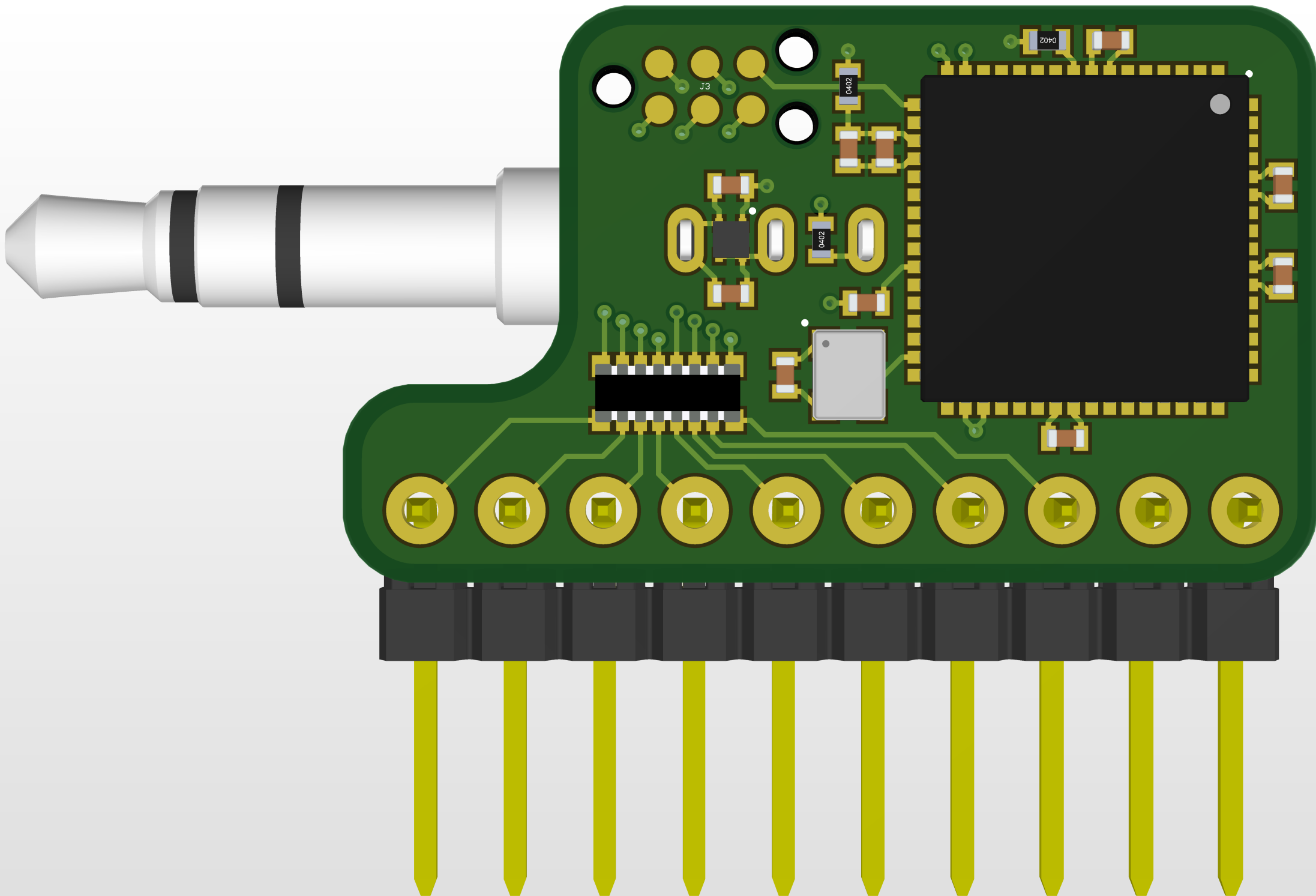
v1.0

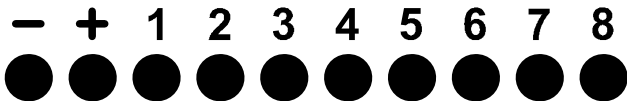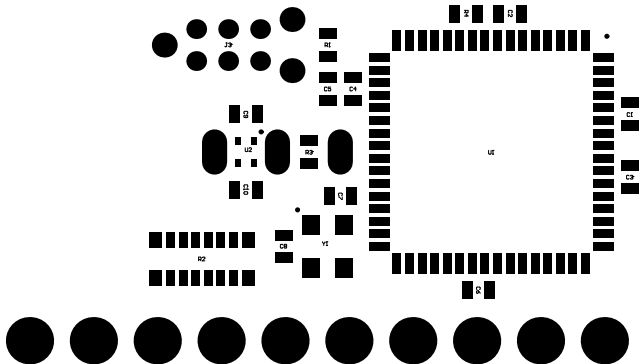− + 1 2 3 4 5 6 7 8

x-IMU3-SA-AX
v1.0

− + 1 2 3 4 5 6 7 8

J1

x-IMU3-SA-AX
v1.0

J2

J1

− + 1 2 3 4 5 6 7 8

Designator	Quantity	Comment	Footprint
C1, C2, C3, C5, C6, C7, C8	7	100nF	Capacitor 0402
C4, C9, C10	3	10uF	Capacitor 0402
J1	1	Molex 90121-0770	Molex 90121-0770
J2	1	SP-3533-02	SP-3533-02
J3	1	DNP	Tag Connect No Legs
R1	1	33R	Resistor 0402
R2	1	YC248-FR-07220RL	YC248
R3	1	470R	Resistor 0402
R4	1	10kR	Resistor 0402
U1	1	PIC32MZ0512EFE064-I/MR	QFN-64
U2	1	LP5907SNX-3.0	X2SON
Y1	1	ECS-2520MV-240-BN-TR	ECS 2x2.5mm