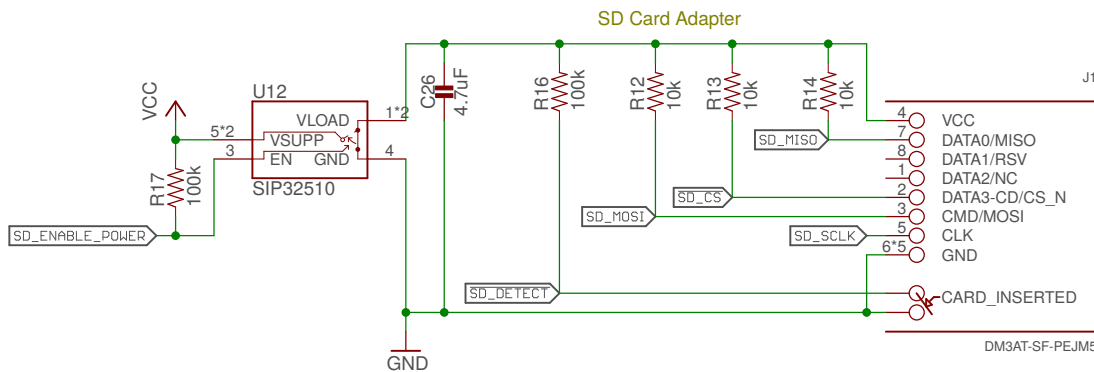
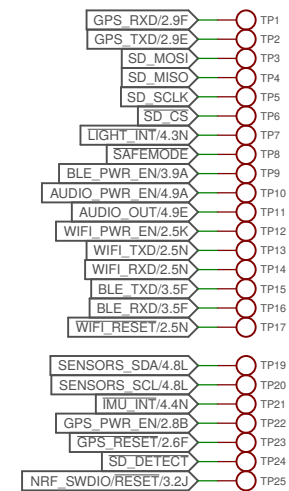
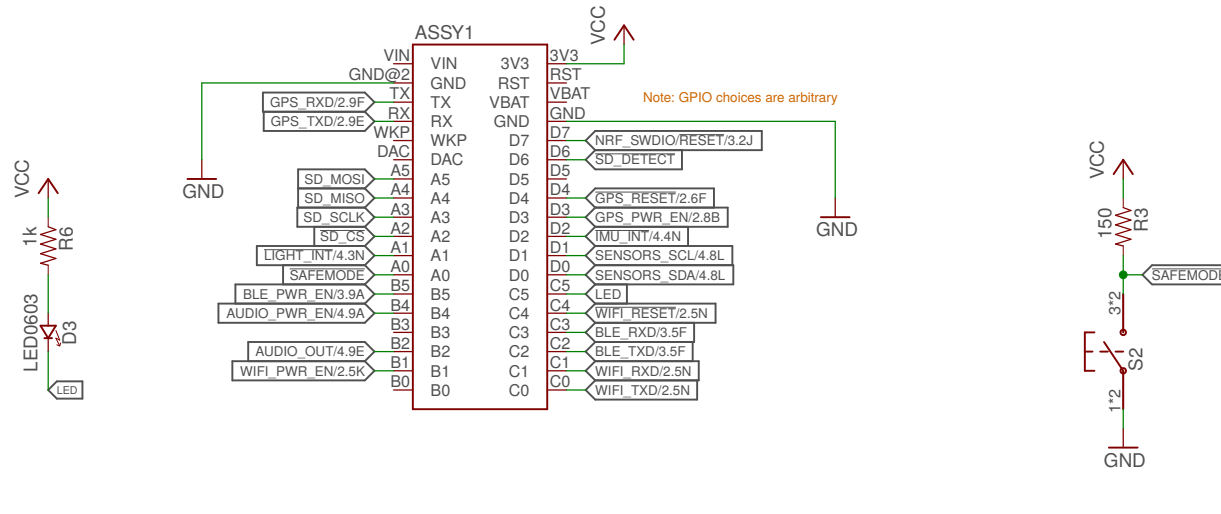


# Headers

## Electron headers



PlugWatch

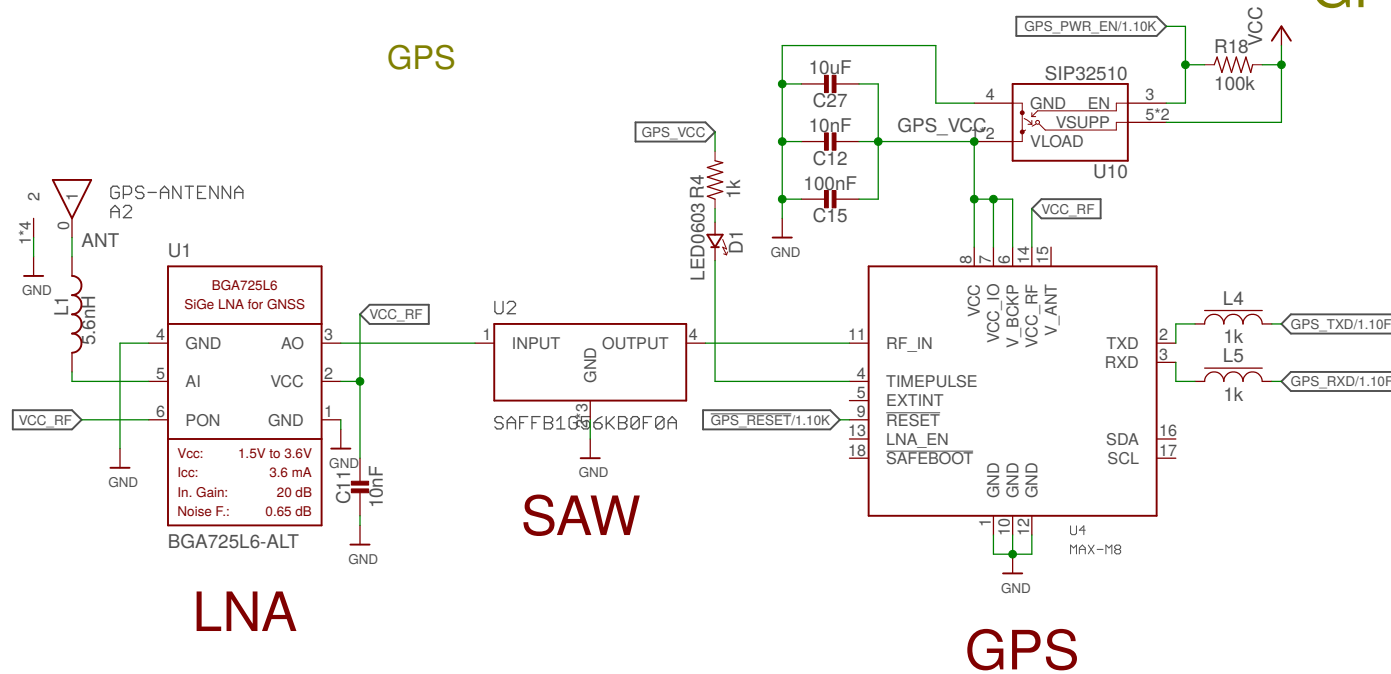
Author: Noah Klugman

Date: 1/23/18 9:58 PM

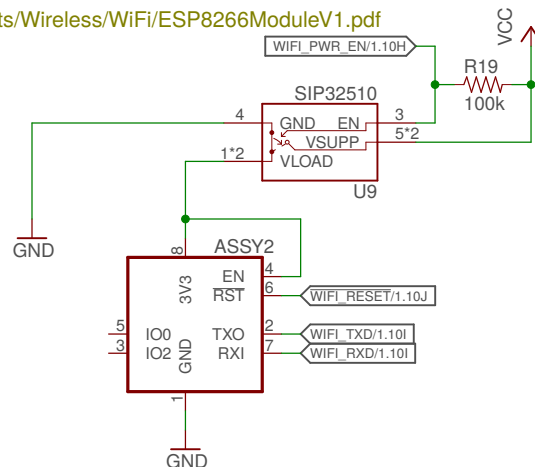
REV:  
B

Sheet: 1/4

# GPS and WiFi Radios



**WiFi**  
<https://cdn.sparkfun.com/datasheets/Wireless/WiFi/ESP8266ModuleV1.pdf>



PlugWatch

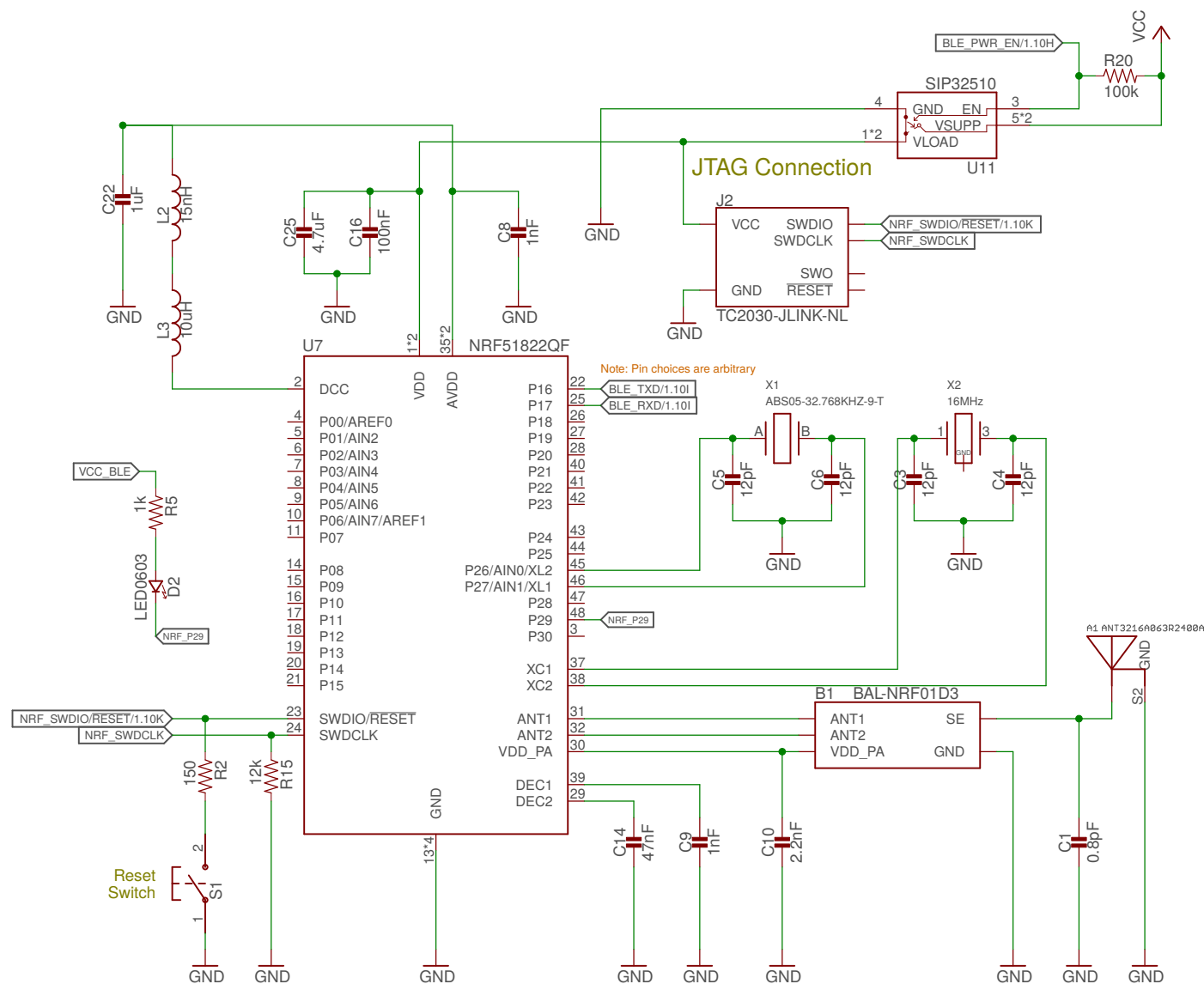
REV:  
B

Author: Noah Klugman

Date: 1/23/18 9:58 PM

Sheet: 2/4

## BLE Radio

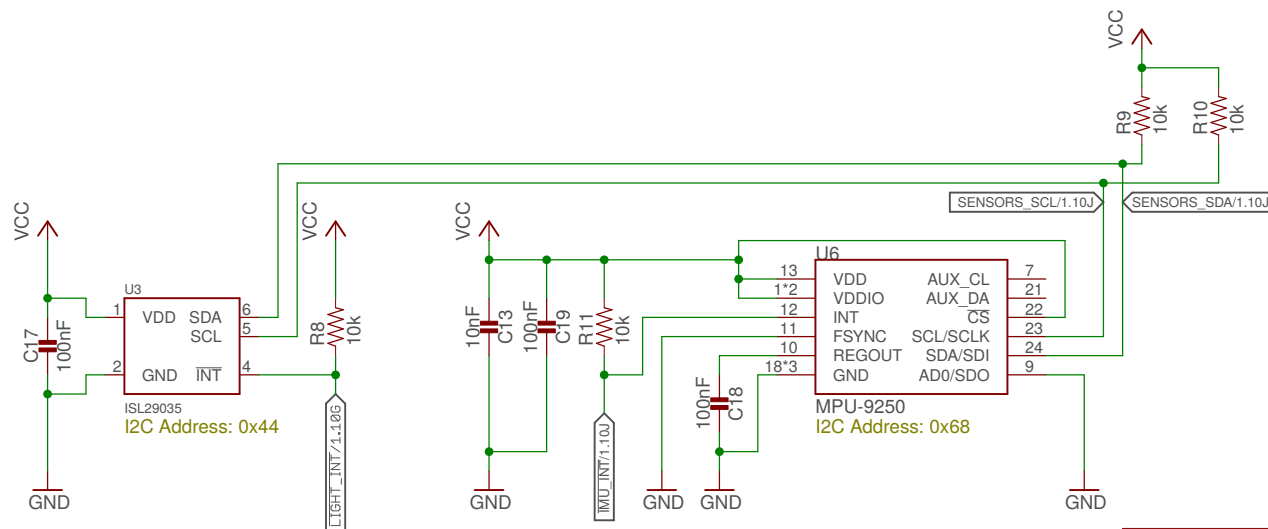
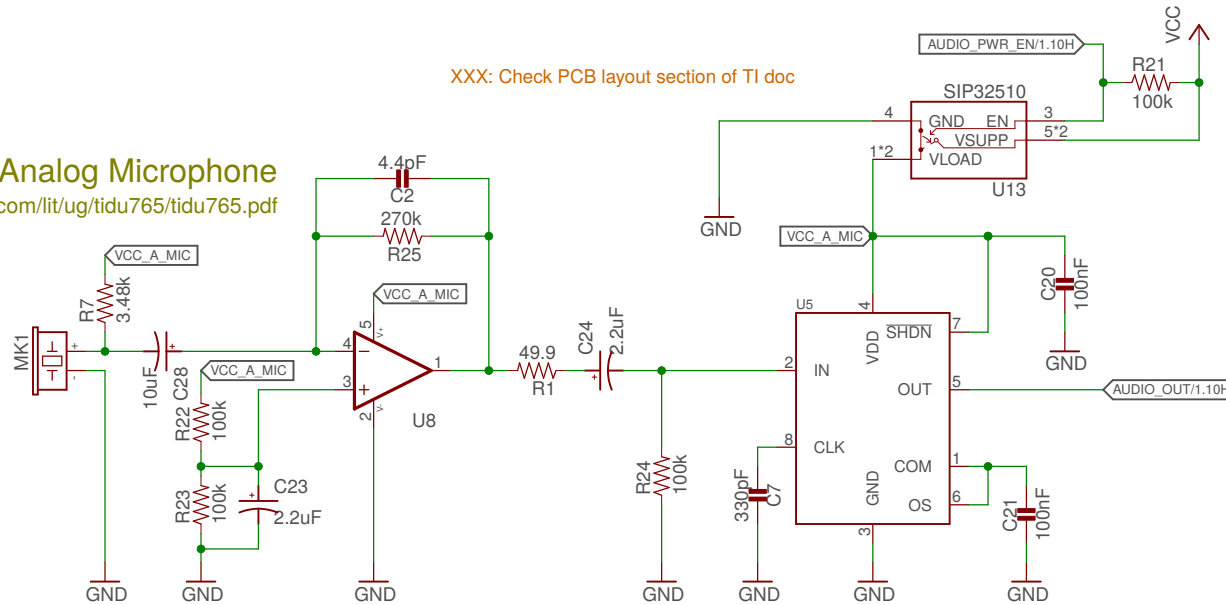


## BLE Radio

# Sensors

## Analog Microphone

<http://www.ti.com/lit/ug/tidu765/tidu765.pdf>



## Light Sensor

## Accelerometer/Magnetometer

PlugWatch

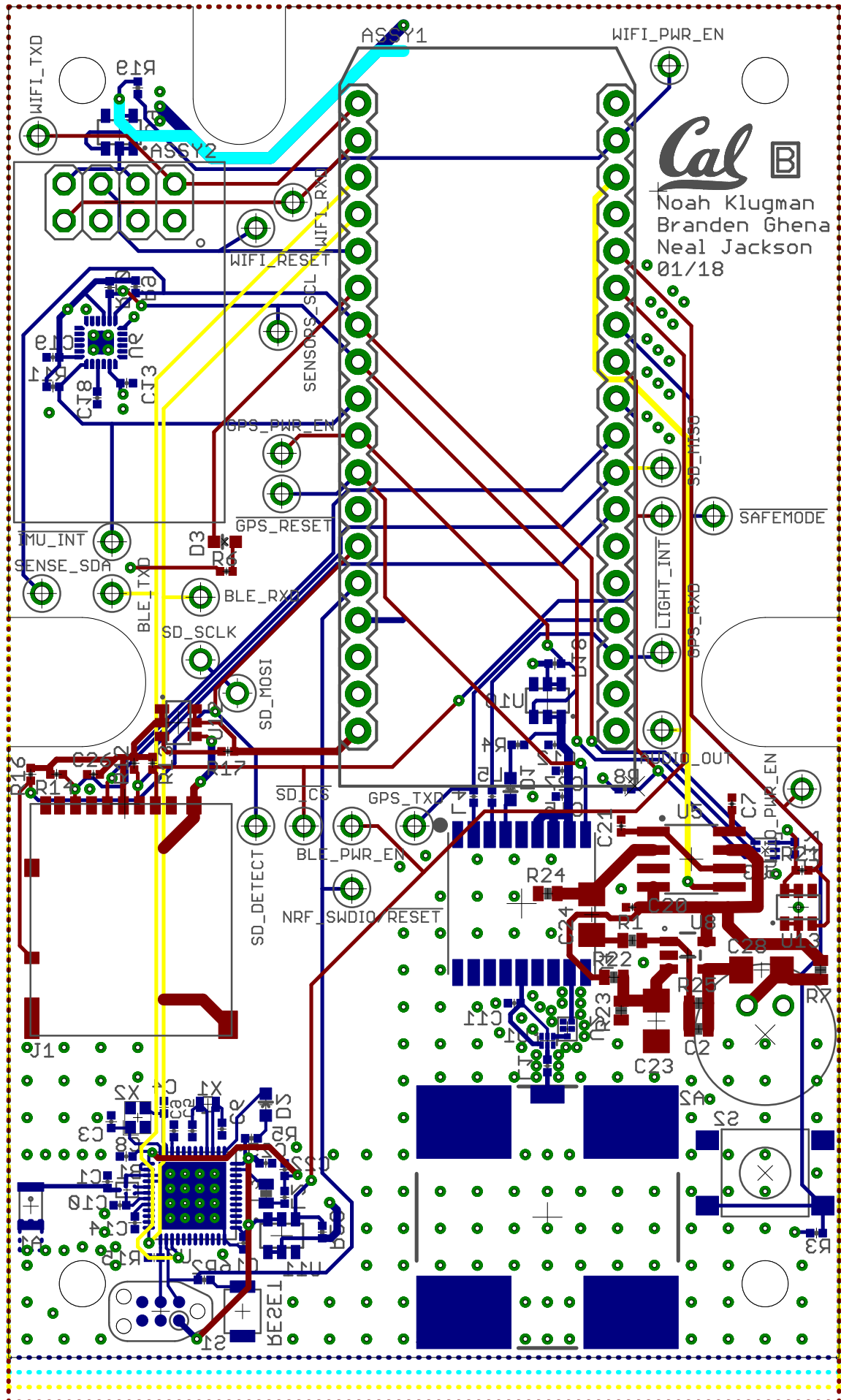
REV:  
B

Author: Noah Klugman

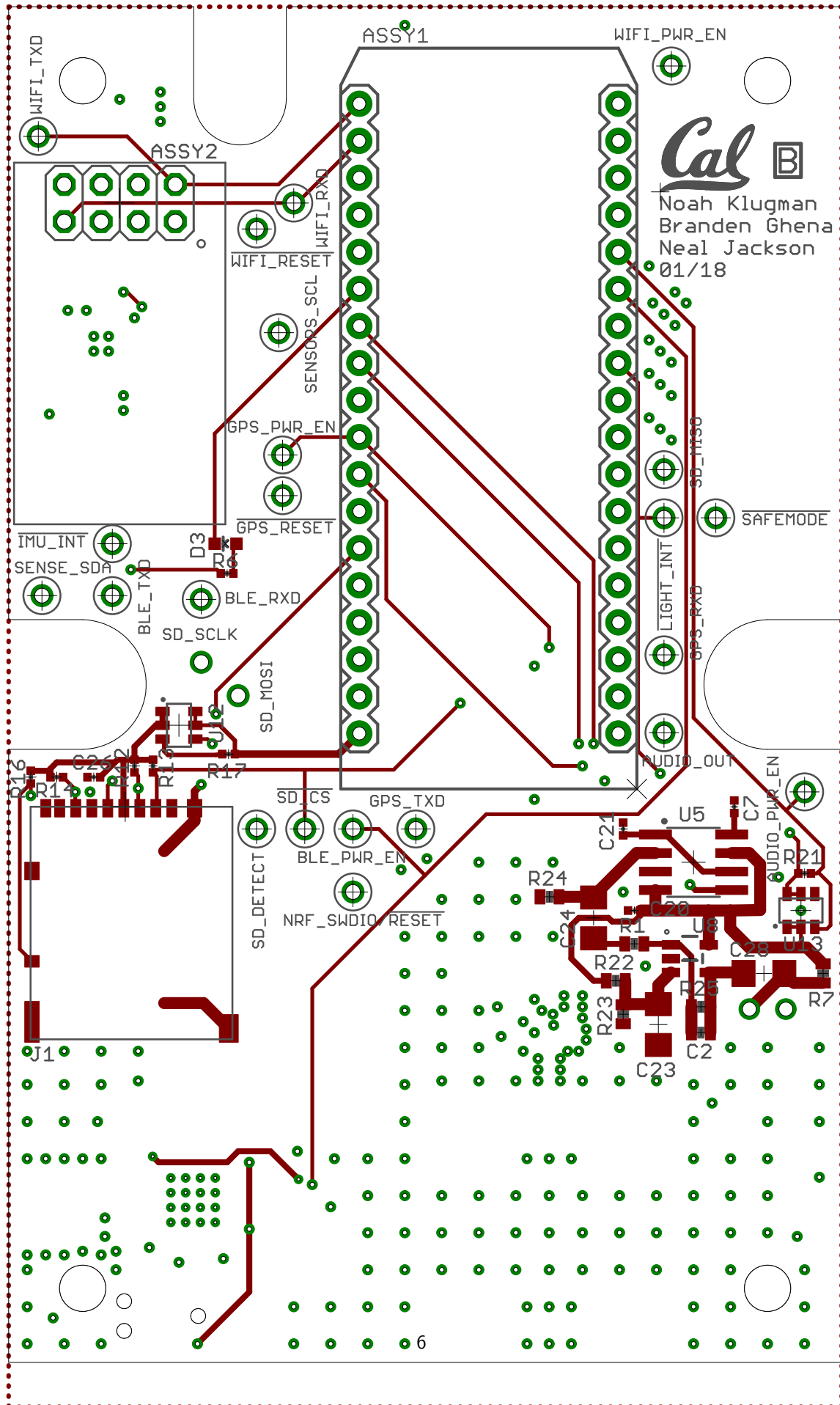
Date: 1/23/18 9:58 PM

Sheet: 4/4

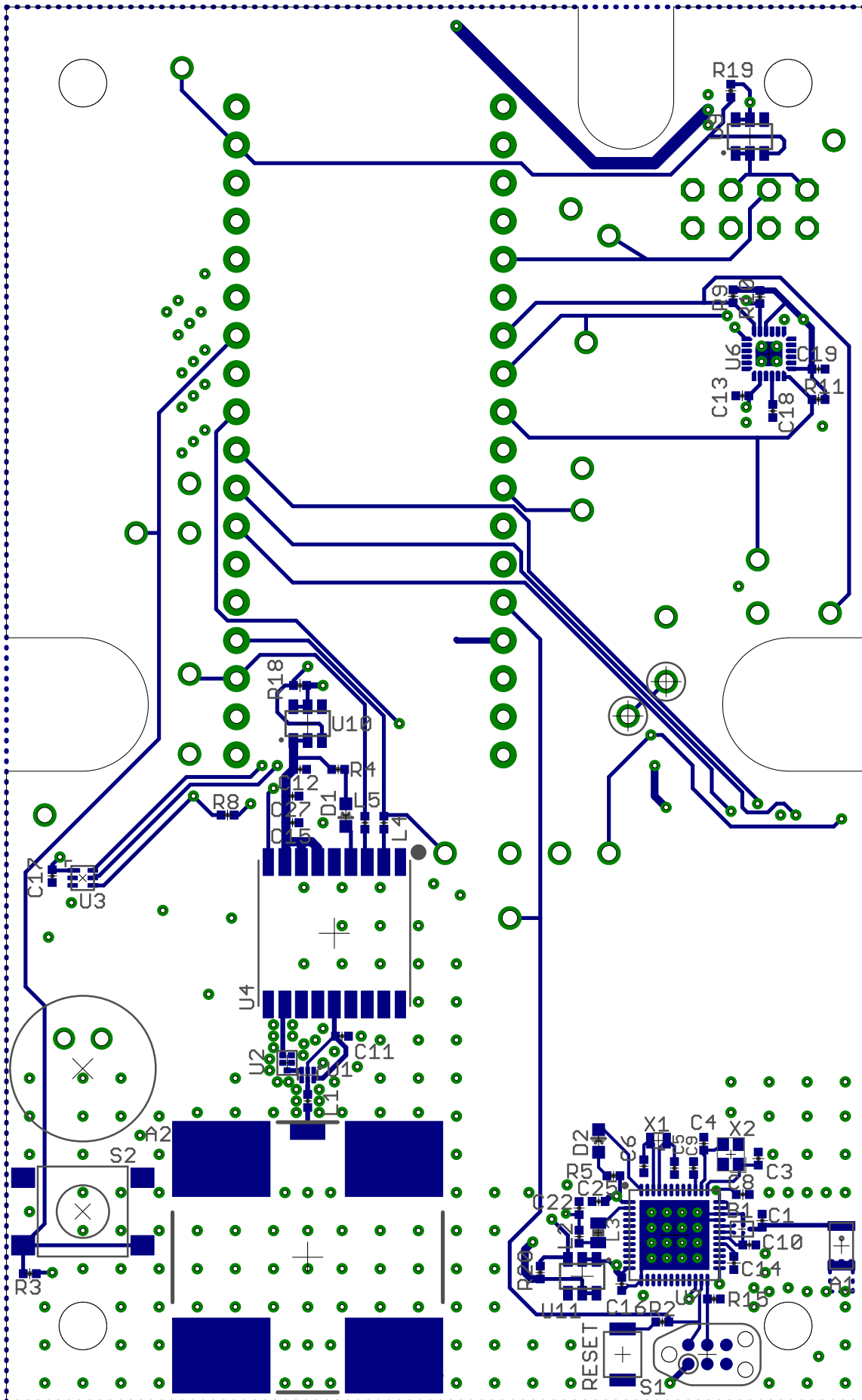
Top and Bottom Layers



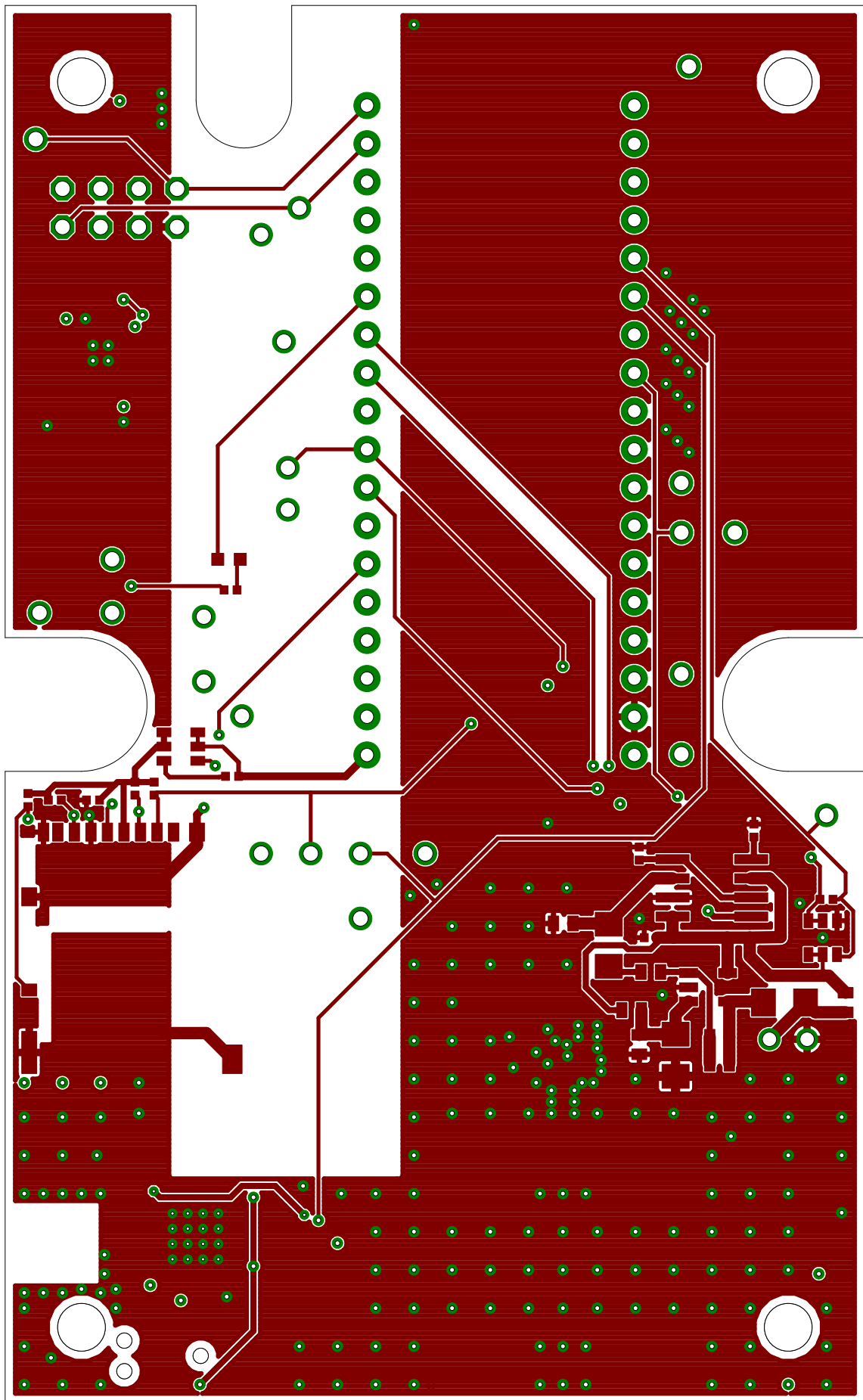
Top Layer



Bottom Layer

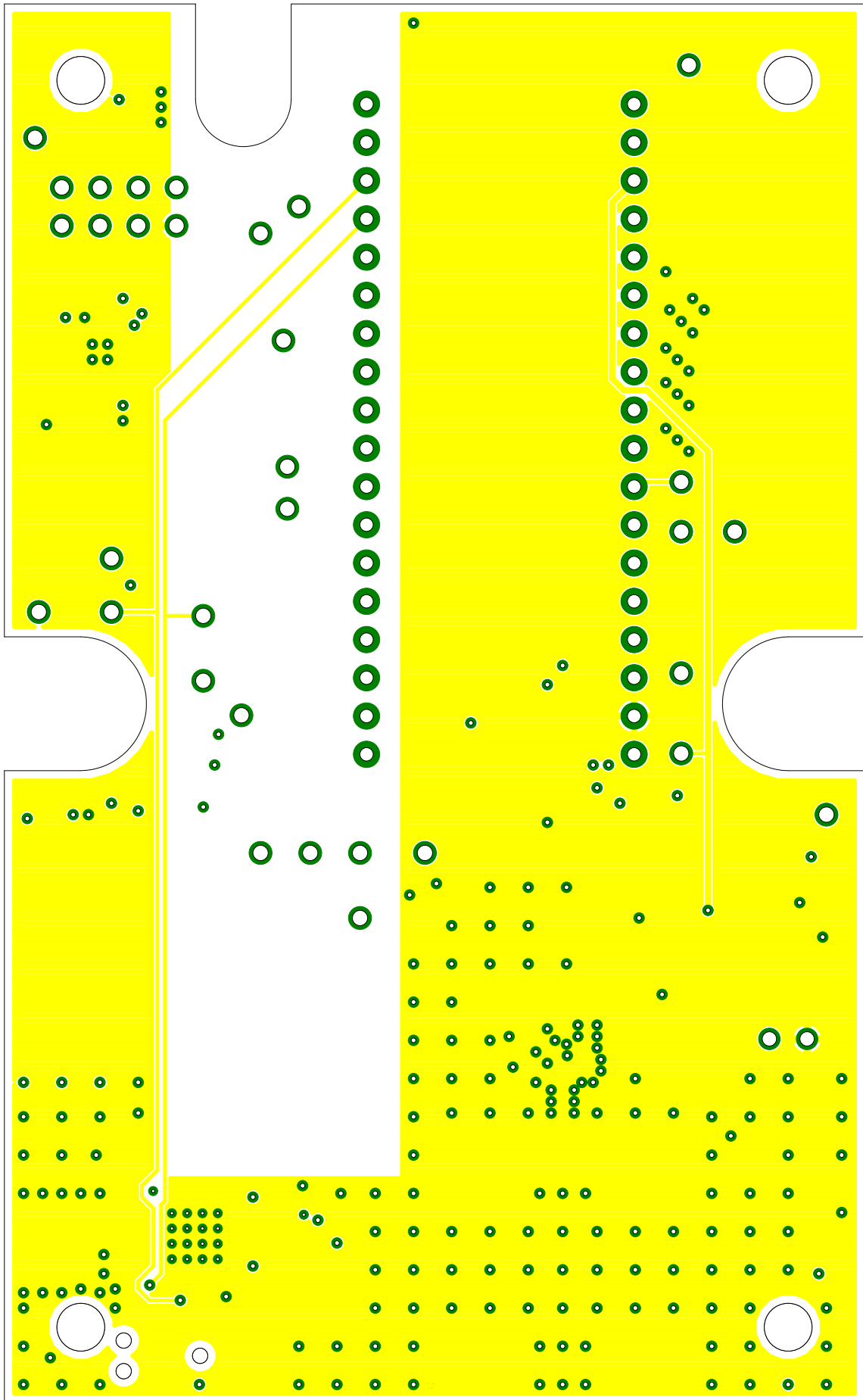


Top Copper Layer

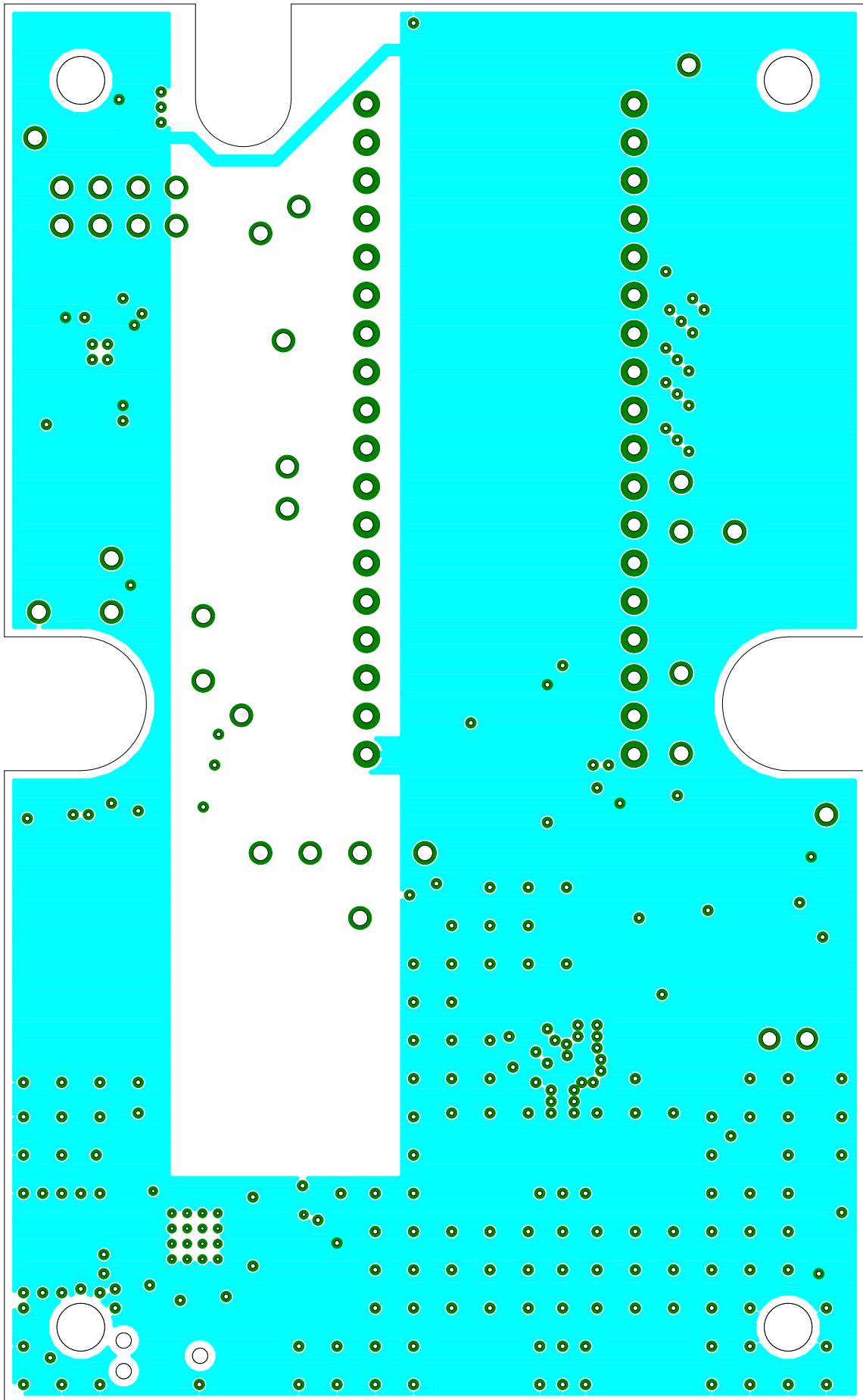




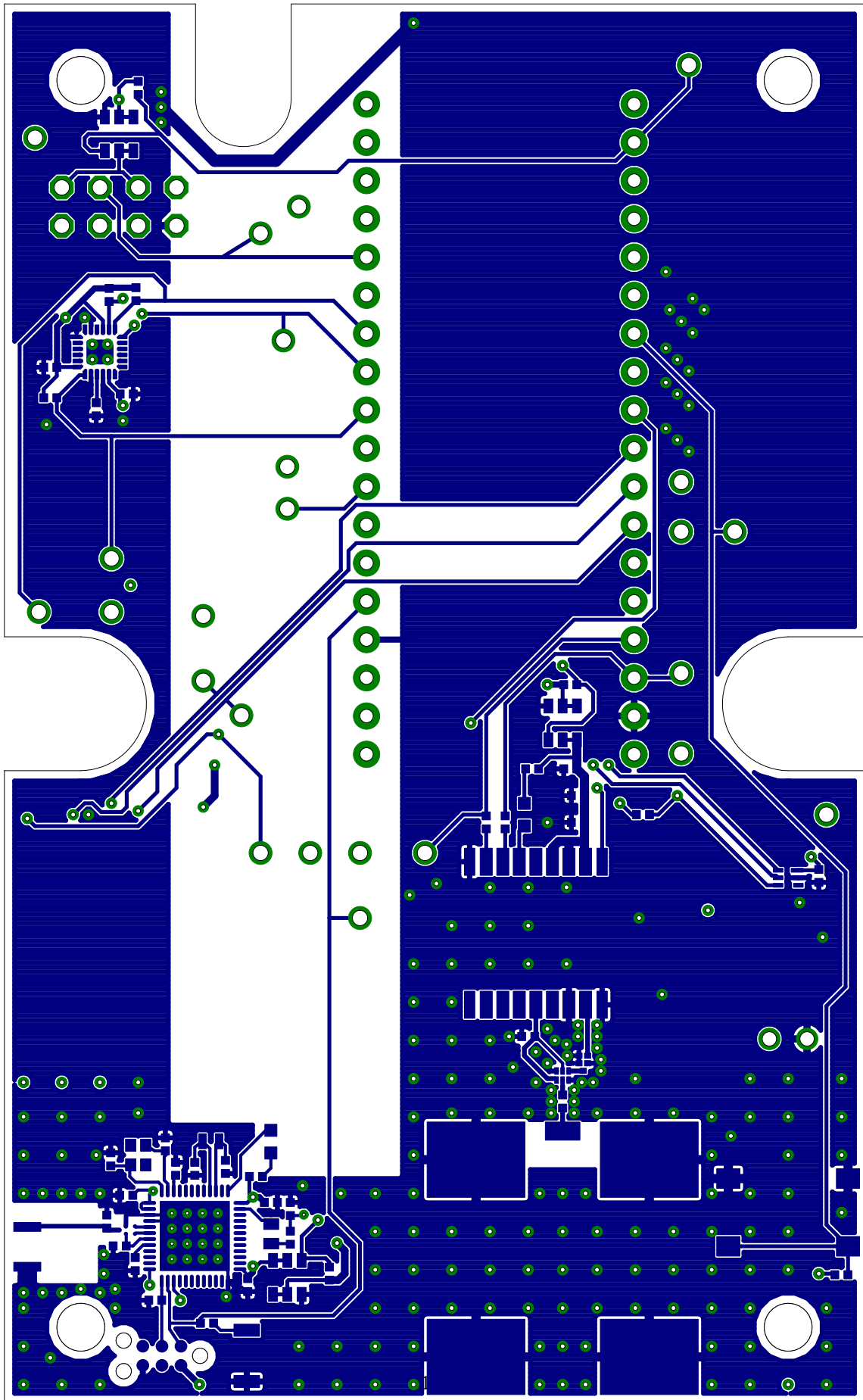
Layer 2 Copper

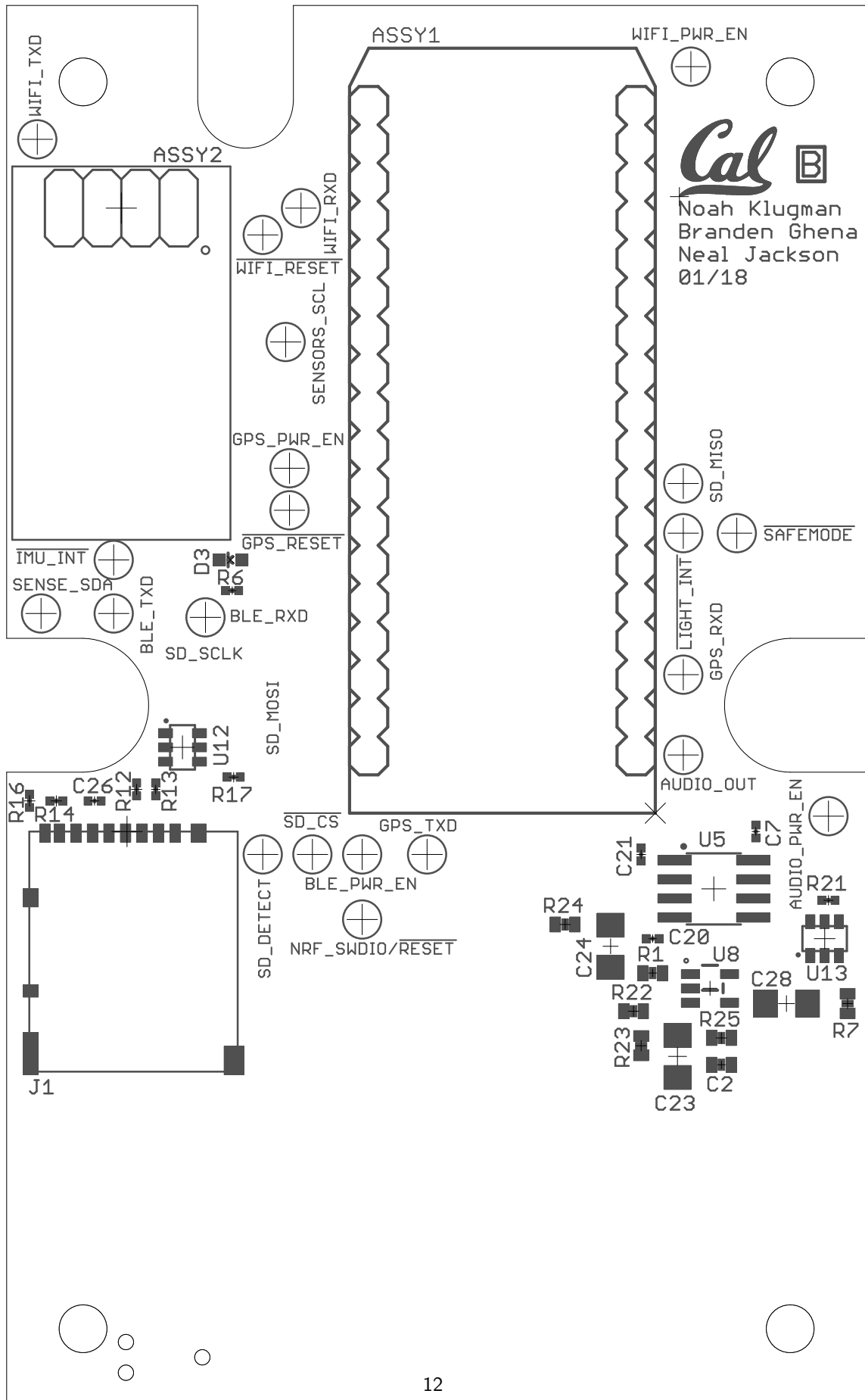


Layer 3 Copper

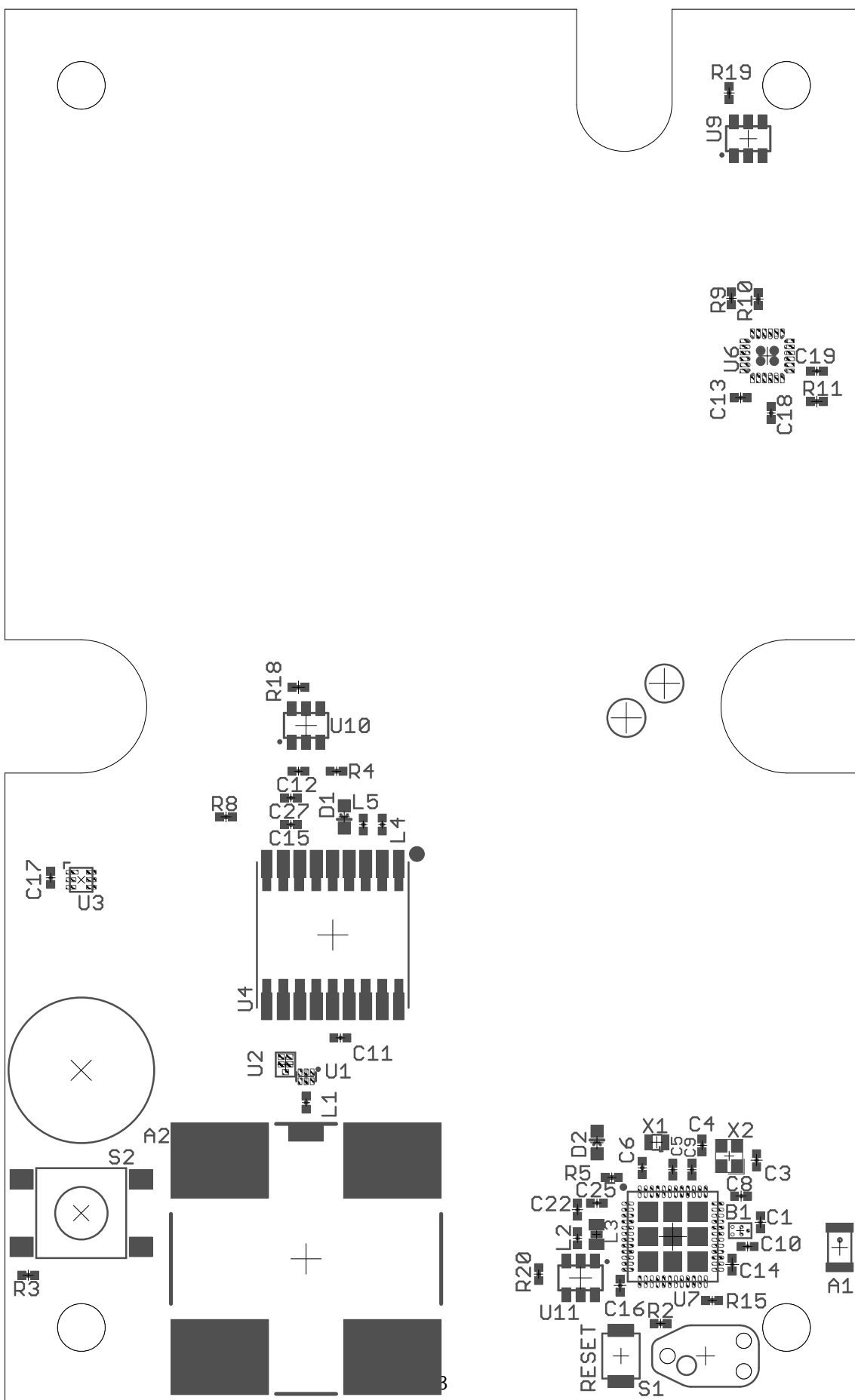


Bottom Copper Layer



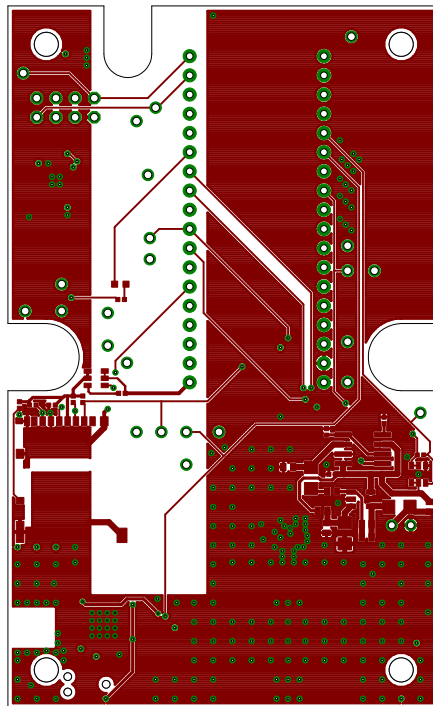


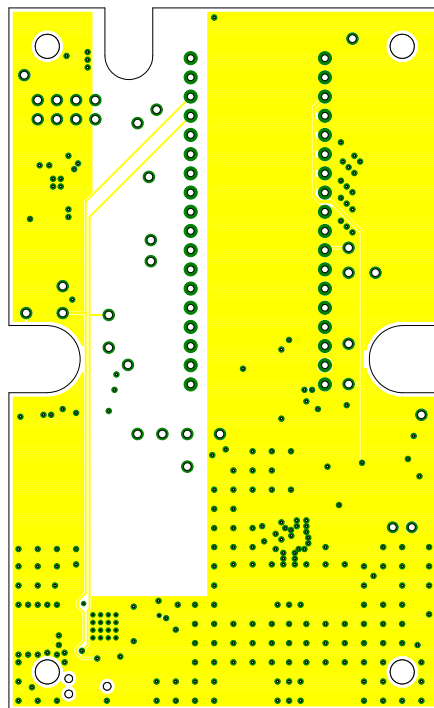
# Bottom Paste Layer with Silkscreen



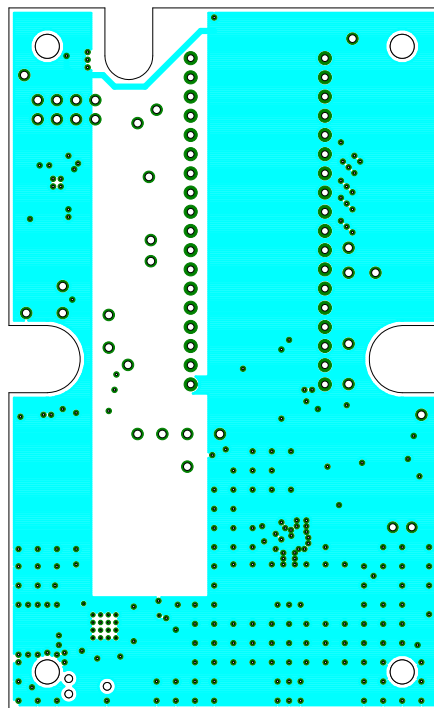


Top Layer 1:1 Scale

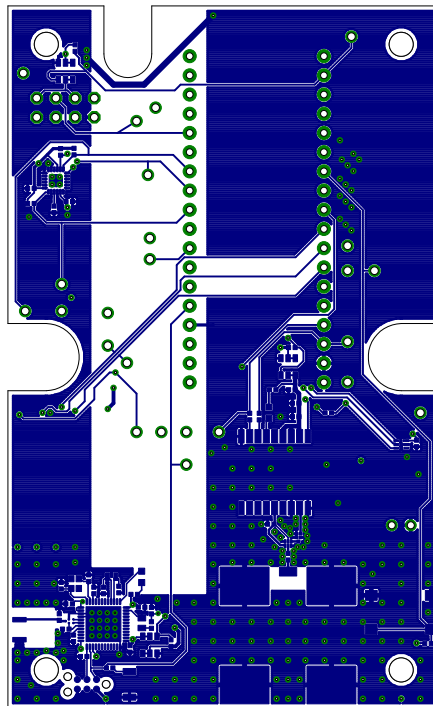








Bottom Copper Layer 1:1 Scale



plugwatch\_bom

Qty	Value	Device	Package
1	ANT3216A063R2400A	ANT3216A063R2400A	ANT3216A063R2400A
1	GPS-ANTENNA	GPS-ANTENNA	ANT1818B00BT1516S
1	ELECTRON	ELECTRON	ELECTRON_SINGLE-ROW
1	WRL-13678	WRL-13678	WRL-13678
1	BAL-NRF01D3	BAL-NRF01D3	BAL-NRF01D3
1	0.8pF	CAPACITOR0402_CAP	0402_CAP
1	4.4pF	CAPACITOR0603_CAP	0603_CAP
4	12pF	CAPACITOR0402_CAP	0402_CAP
1	330pF	CAPACITOR0402_CAP	0402_CAP
2	1nF	CAPACITOR0402_CAP	0402_CAP
1	2.2nF	CAPACITOR0402_CAP	0402_CAP
3	10nF	CAPACITOR0402_CAP	0402_CAP
1	47nF	CAPACITOR0402_CAP	0402_CAP
7	100nF	CAPACITOR0402_CAP	0402_CAP
1	1uF	CAPACITOR0402_CAP	0402_CAP
2	2.2uF	CAP_POL1206	1206
2	4.7uF	CAPACITOR0402_CAP	0402_CAP
1	10uF	CAPACITOR0402_CAP	0402_CAP
1	10uF	CAP_POL1206	1206
3	LED0603	LED0603	LED-0603
1	DM3AT-SF-PEJM5	DM3AT-SF-PEJM5	DM3AT-SF-PEJM5
1	TC2030-JLINK-NL	TC2030-JLINK-NL	TC2030-IDC-NL
1	5.6nH	INDUCTOR0402	0402_CAP
1	15nH	INDUCTOR0402	0402_CAP
1	10uH	INDUCTOR0603	0603_CAP
2	1k	FERRITE_BEAD0402	0402_CAP
1	AOM-4546P-R	AOM-4546P-R	MIC_AOM-4546P-R
1		49.9 RESISTOR0603_RES	0603-RES
2		150 RESISTOR0402_RES	0402_RES
3	1k	RESISTOR0402_RES	0402_RES
1	3.48k	RESISTOR0603_RES	0603-RES
7	10k	RESISTOR0402_RES	0402_RES
1	12k	RESISTOR0402_RES	0402_RES
6	100k	RESISTOR0402_RES	0402_RES
3	100k	RESISTOR0603_RES	0603-RES
1	270k	RESISTOR0603_RES	0603-RES
1	B3U-1000P	B3U-1000P	B3U-1000P
1	PTS645SM43SMTR92	PTS645SM43SMTR92	PTS645
24	TEST_POINT_0.040IN	TEST_POINT_0.040IN	TESTPOINT_0.040IN
1	BGA725L6-ALT	BGA725L6-ALT	LNA-TSLP-6-2-ALT
1	SAFFB1G56KB0F0A	FILTERS	QCS5I
1	ISL29035	ISL29035	ODFN-6-1.5MMX1.6MM
1	MAX-M8	MAX-M8	MAX-M8
1	MAX740XESA	MAX740XESA	SOIC-8
1	MPU-9250	MPU-9250	QFN24_PAD
1	NRF51822QF	NRF51822QF	QFN-48-6MM
1	OPA322AIDBVT	OPA322AIDBVT	SOT23-5
5	SIP32510	SIP32510	TSOT23-6

## plugwatch\_bom

1 ABS05-32.768KHZ-9-T	ABS05-32.768KHZ-9-T	ABS05
1 16MHz	TXC-8Y	TXC-8Y

## plugwatch\_bom

### Parts

A1

A2

ASSY1

ASSY2

B1

C1

C2

C3, C4, C5, C6

C7

C8, C9

C10

C11, C12, C13

C14

C15, C16, C17, C18, C19, C20, C21

C22

C23, C24

C25, C26

C27

C28

D1, D2, D3

J1

J2

L1

L2

L3

L4, L5

MK1

R1

R2, R3

R4, R5, R6

R7

R8, R9, R10, R11, R12, R13, R14

R15

R16, R17, R18, R19, R20, R21

R22, R23, R24

R25

S1

S2

TP1, TP2, TP3, TP4, TP5, TP6, TP7, TP8, TP9, TP10, TP11, TP12, TP13, TP14, TP15, TP16, TP17, TP19, TP20, TP21, TP2

U1

U2

U3

U4

U5

U6

U7

U8

U9, U10, U11, U12, U13

plugwatch\_bom

X1  
X2

## plugwatch\_bom

Description

Yageo 2.4GHz

ESP8266 WiFi Module

50 ohm nominal input / conjugate match balun to nRF51422-QFAA,

0402 Capacitor

0402 Capacitor

0402 Capacitor

0402 Capacitor

0402 Capacitor

0402 Capacitor

0402 Capacitor

0402 Capacitor

0402 Capacitor

0402 Capacitor

0402 Capacitor

0402 Capacitor

LED

CONN MICRO SD R/A PUSH-PUSH SMD

A very specific inductor

A very specific inductor

A very specific inductor

Electret microphone

Resistor

Resistor

Resistor

Resistor

Resistor

Resistor

Resistor

Resistor

Resistor

Switch

Tactile Switch SPST-NO Top Actuated Surface Mount

0.040in Test Point

Optical Sensor Ambient 550nm I2C

NC pin 19. 2-6 & 14-17 not internally connected. May be used for PCB trace routing.

Multiprotocol Bluetooth® 4.0 low energy/2.4 GHz RF SoC

Load switch, slew rate controlled. By Vishay

## plugwatch\_bom

32.768kHz Crystal  
2mmx1.6mm SMD Crystal



# plugwatch\_bom

ABACUS_TECHNOLOGIES	DIGIKEY	MANUFACTURER	MOUSER
	311-1542-1-ND	YAGEO	
	311-1531-ND		
	S7051-ND,S7051-ND		
	1568-1235-ND		
	497-13637-1-ND	STMicroelectronics	511-BAL-NRF01D3
	490-6269-1-ND		
	399-16187-1-ND		
	490-6197-1-ND		
	490-6233-1-ND		
	490-6366-1-ND		
	490-5419-1-ND		
	490-7763-1-ND		
	490-11420-1-ND		
	490-10777-1-ND		
	490-14457-1-ND		
	718-1131-1-ND		
	445-5947-1-ND		
	490-8316-1-ND		
	478-8481-1-ND		
	160-1837-6-ND		
	HR1964CT-ND		
	490-11766-1-ND		
	587-1521-1-ND		
	490-4025-1-ND		
	490-4003-1-ND		
	668-1224-ND		
	541-3003-1-ND		
	RMCF0402FT150RCT-ND		
	RMCF0402FT1K00CT-ND		
	541-3.48KHCT-ND		
	RMCF0402FT10K0CT-ND		
	RMCF0402FT12K0CT-ND		
	1276-3432-1-ND		
	541-2972-1-ND		
	541-270KHCT-ND		
	SW1020CT-ND	Omron	
	CKN9112CT-ND		
	5001K-ND		
	BGA725L6E6327FTSA1CT-ND		
SAFFB1G56KB0F0A	ISL29035IROZ-T7CT-ND		
	672-1003-1-ND		
	1428-1019-1-ND		
	1490-1049-1-ND	Nordic Semi	949-NRF51822-QFAC-R7
	296-29511-1-ND		
	SIP32510DT-T1-GE3CT-ND	Vishay	

plugwatch\_bom

535-11897-1-ND

887-2003-1-ND

plugwatch\_bom

MPN                      PROD\_ID ROCHESTER\_ELECTRONICS  
ANT3216A063R2400A

BAL-NRF01D3

B3U-1000P

ISL29035IROZ-T7

MAX7405ESA

IC-13192

NRF51822-QFAC-R7

SIP32510DT-T1-GE3