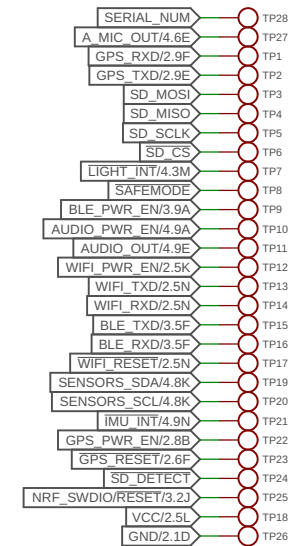
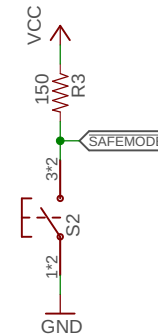
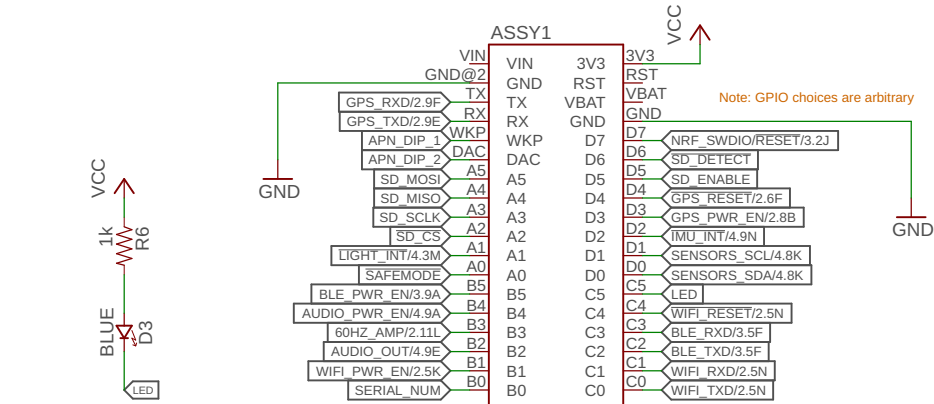
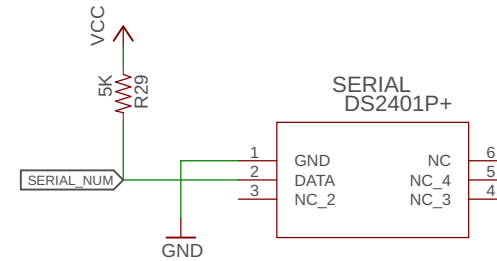
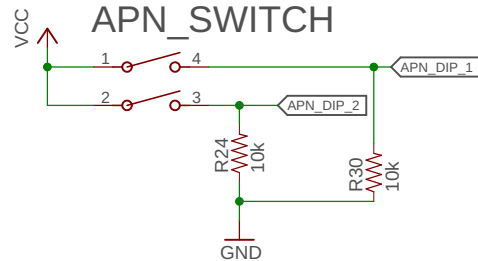


Headers

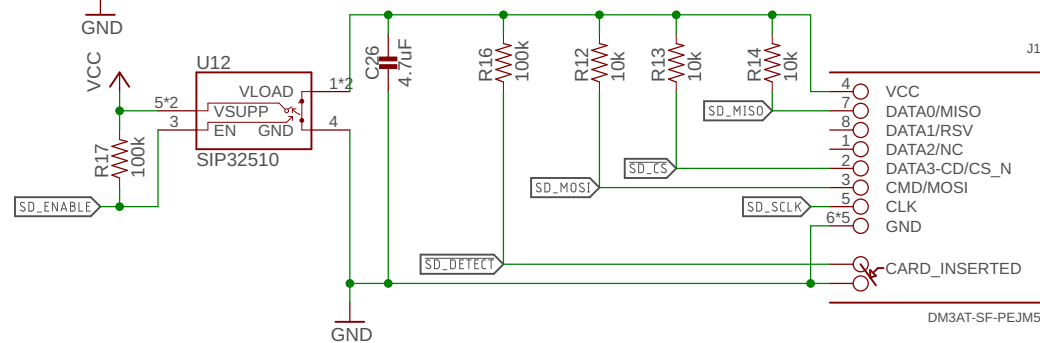
Electron headers



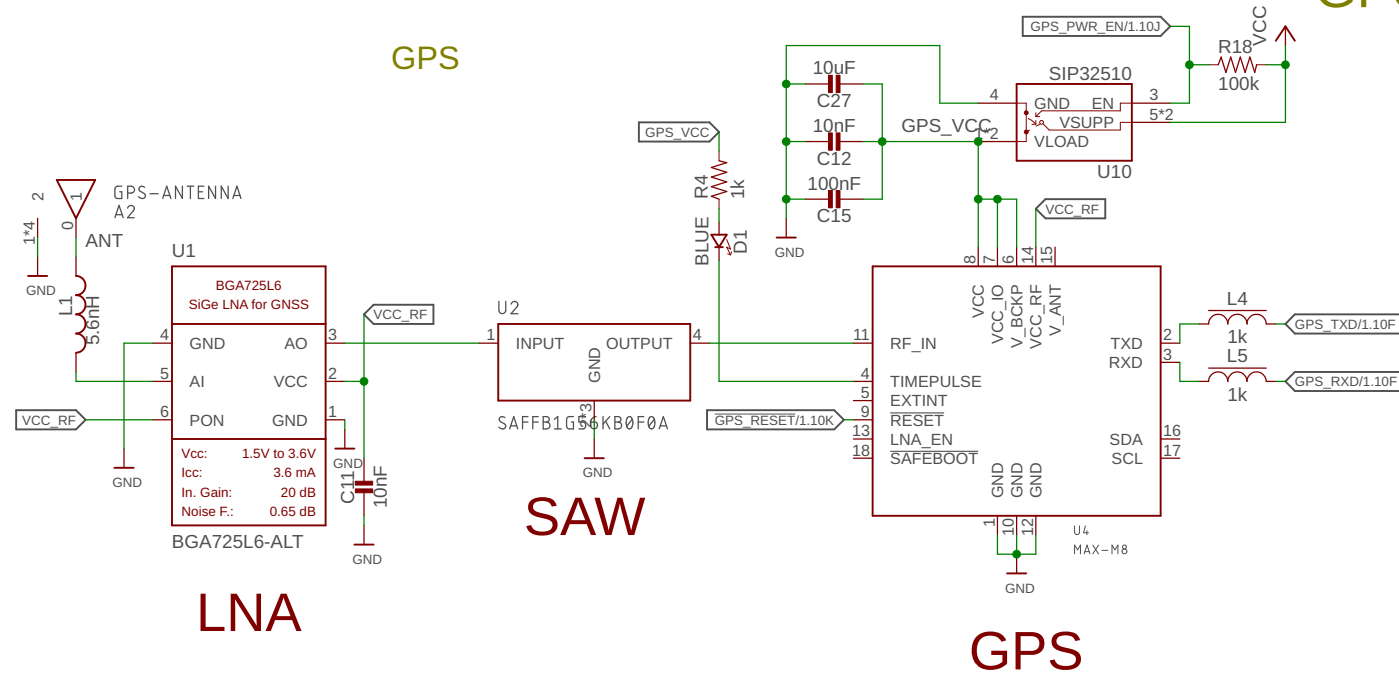
APN_SWITCH



SD Card Adapter

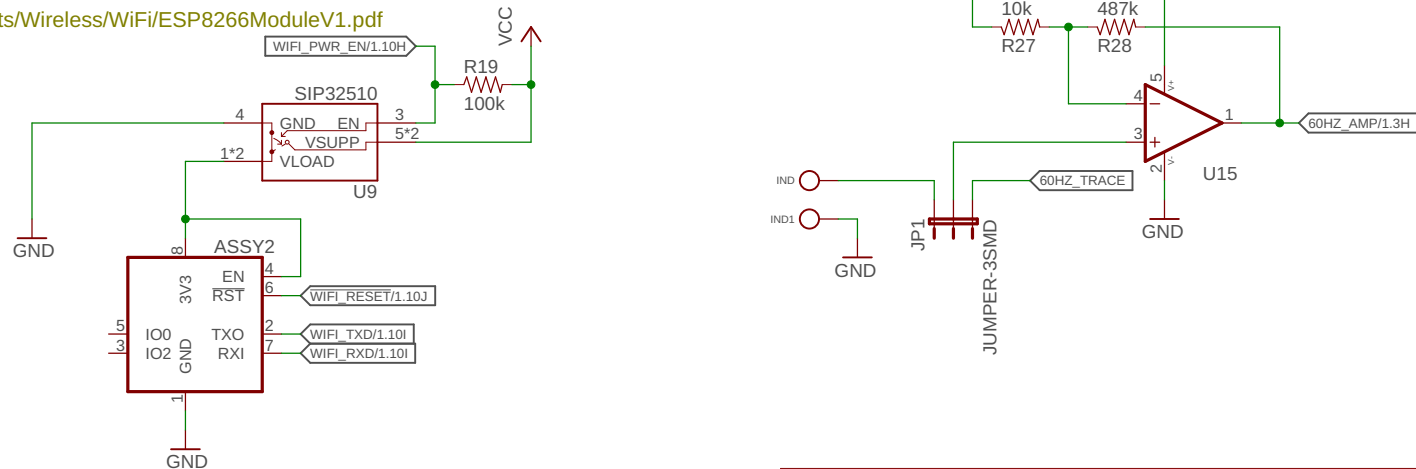


GPS and WiFi Radios



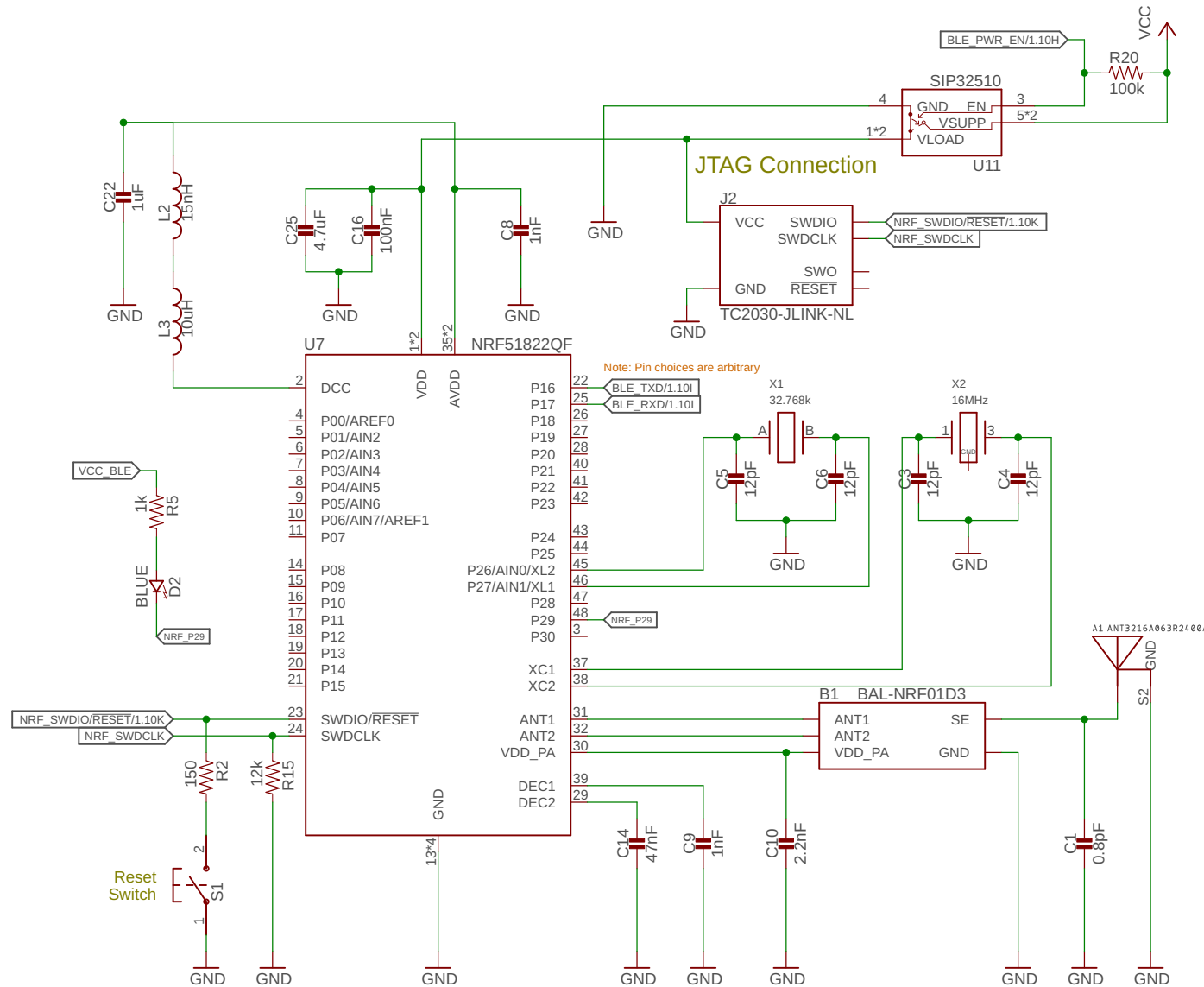
WiFi

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



PlugWatch	REV: C
Author: Noah Klugman	
Date: 4/2/18 4:32 PM	Sheet: 2/4

BLE Radio



BLE Radio

PlugWatch

Author: Noah Klugman

Date: 4/2/18 4:32 PM

Sheet: 3/4

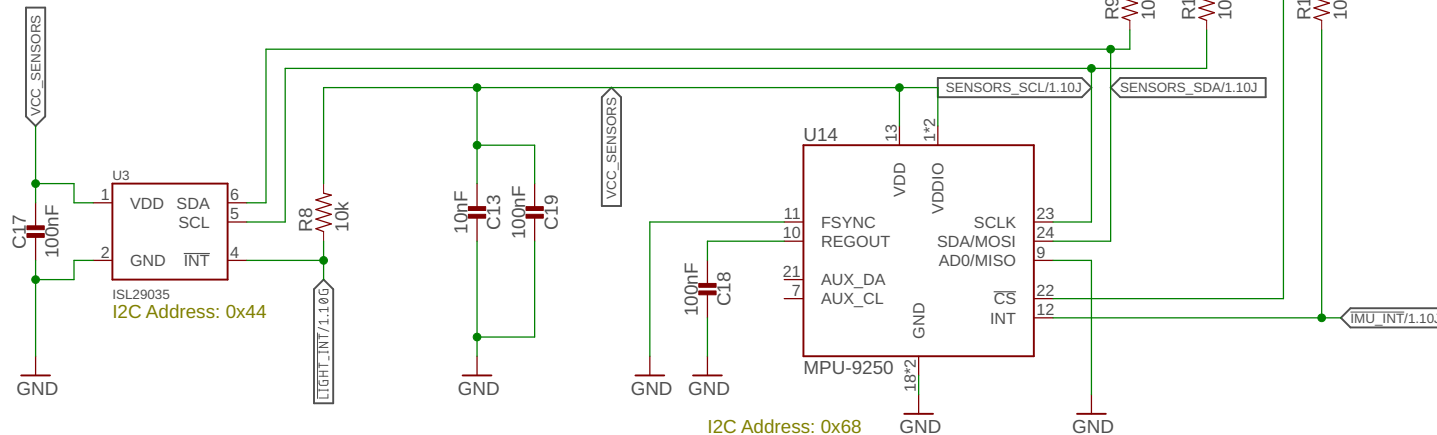
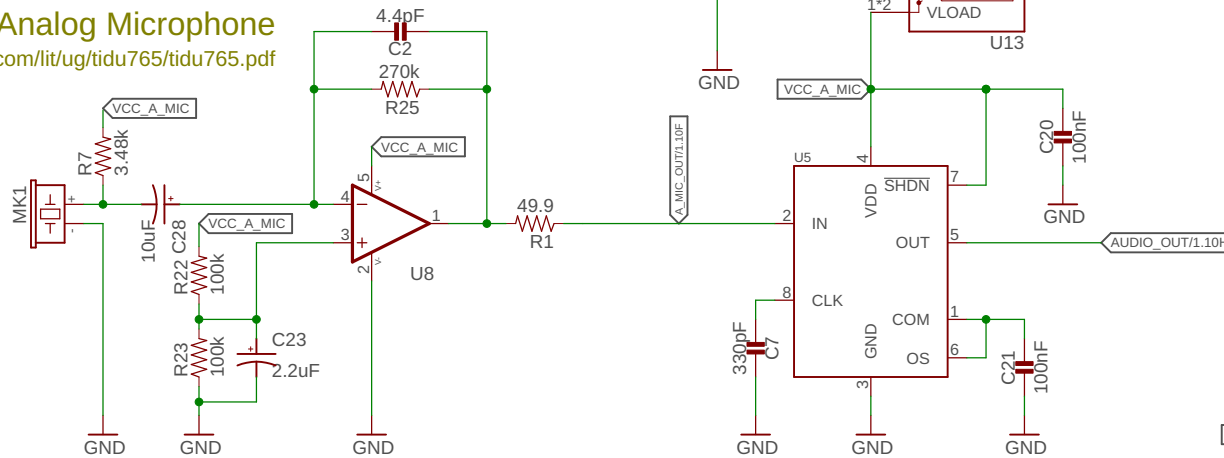
REV:
C

Sensors

XXX: Check PCB layout section of TI doc

Analog Microphone

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



Light Sensor

Accelerometer/Magnetometer

PlugWatch

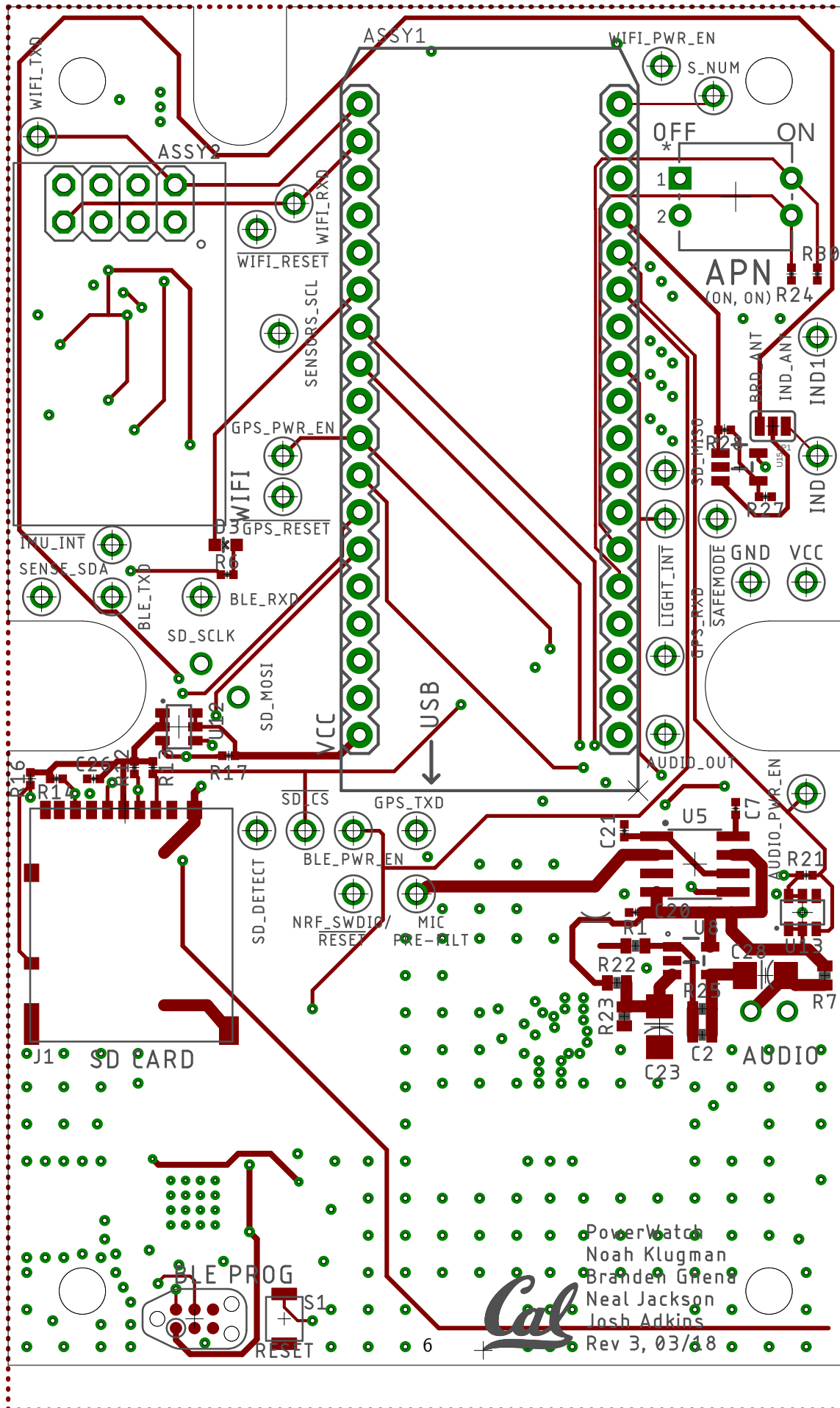
Author: Noah Klugman

Date: 4/2/18 4:32 PM

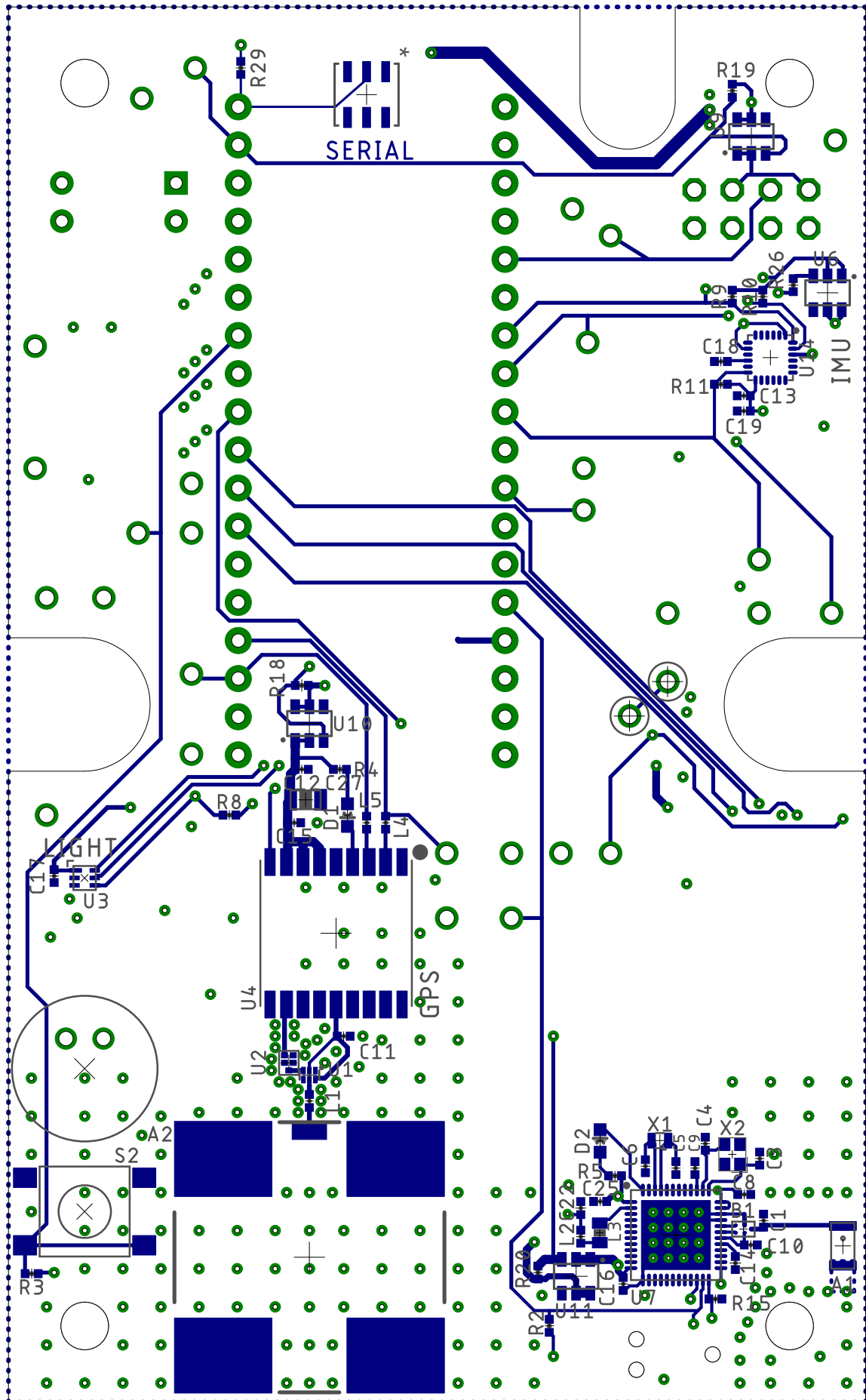
Sheet: 4/4

REV:
C

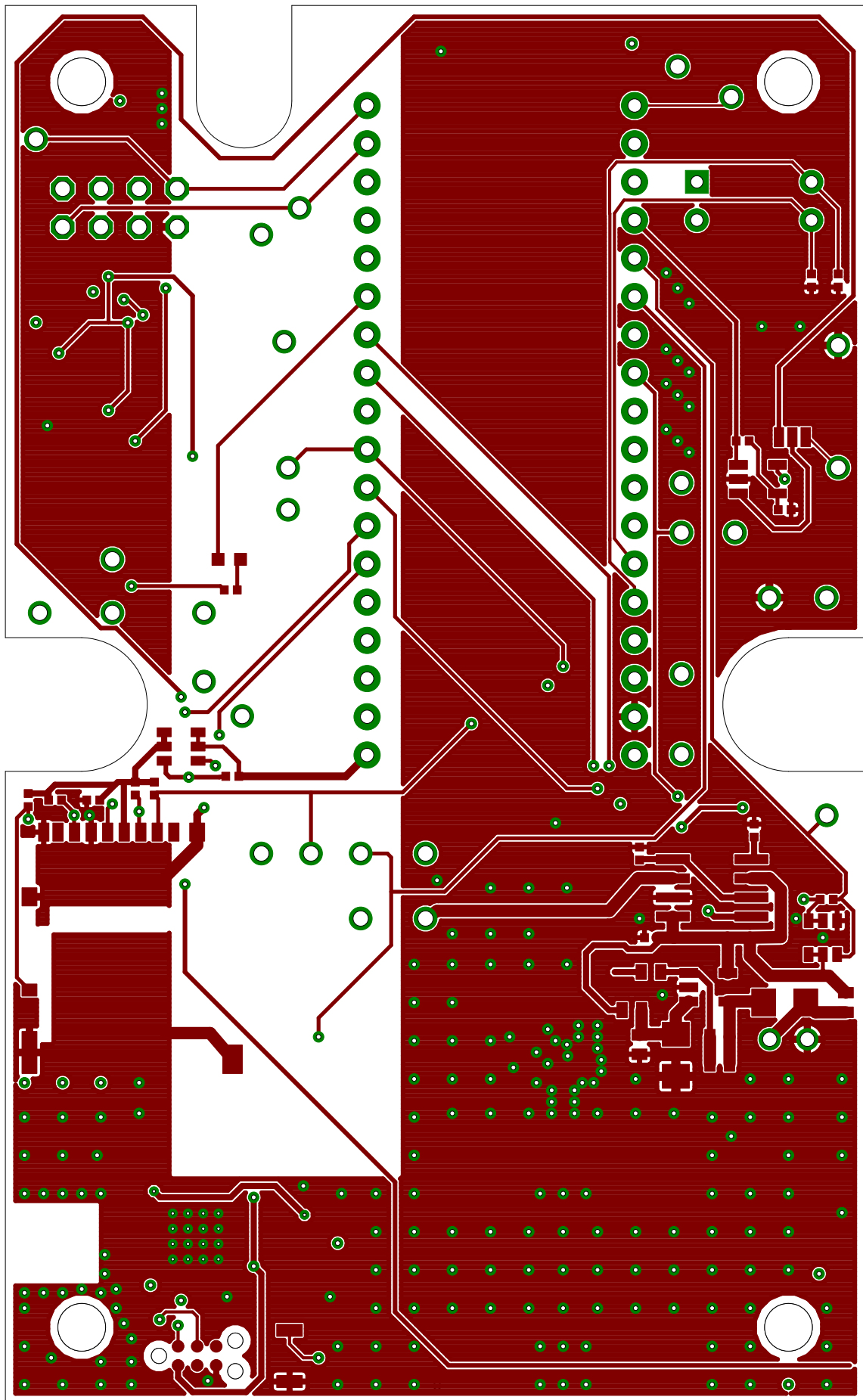
PowerWatch
Noah Klugman
Branden Ghend
Neal Jackson
Josh Adkins
Rev 3, 03/18



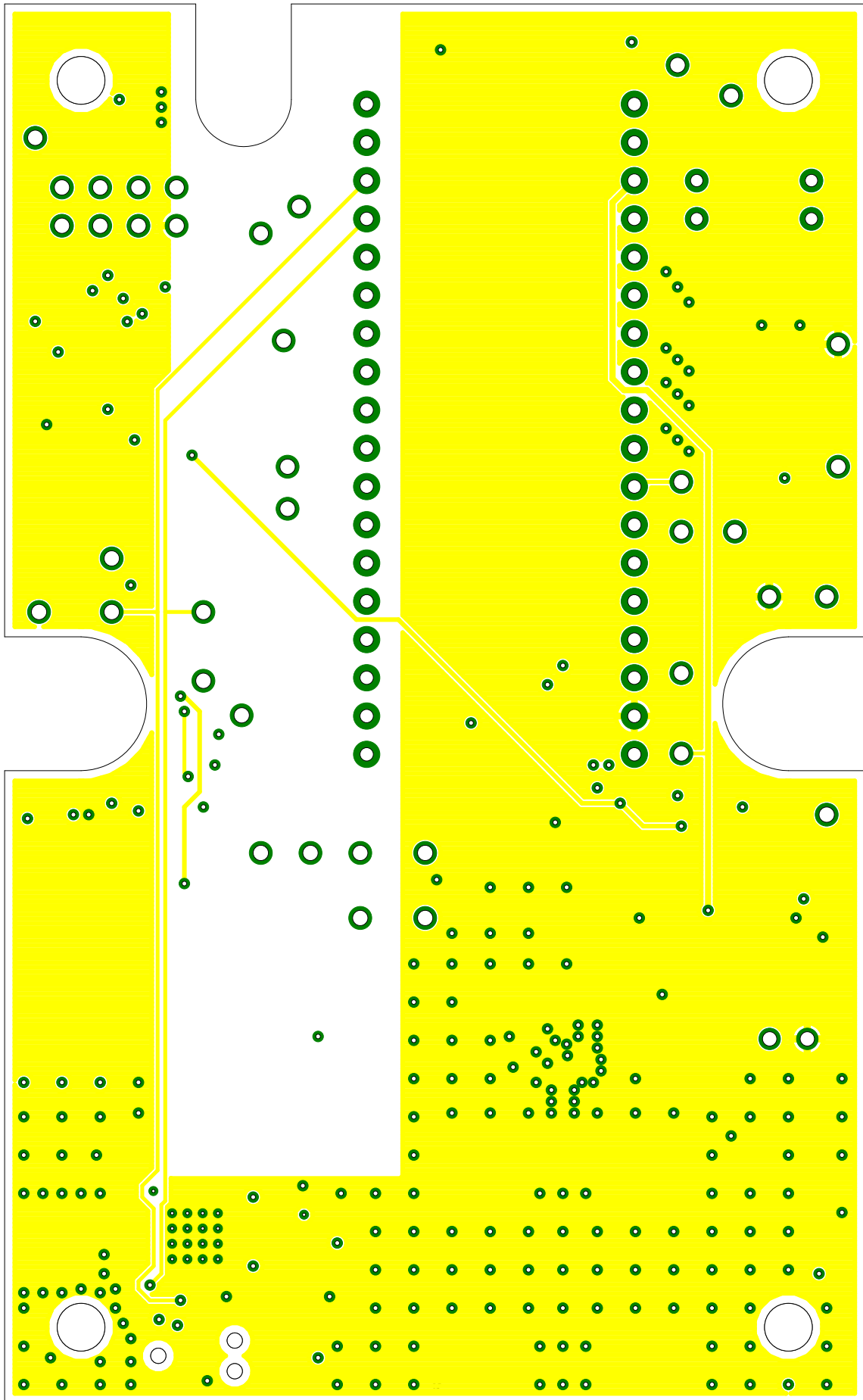
Bottom Layer



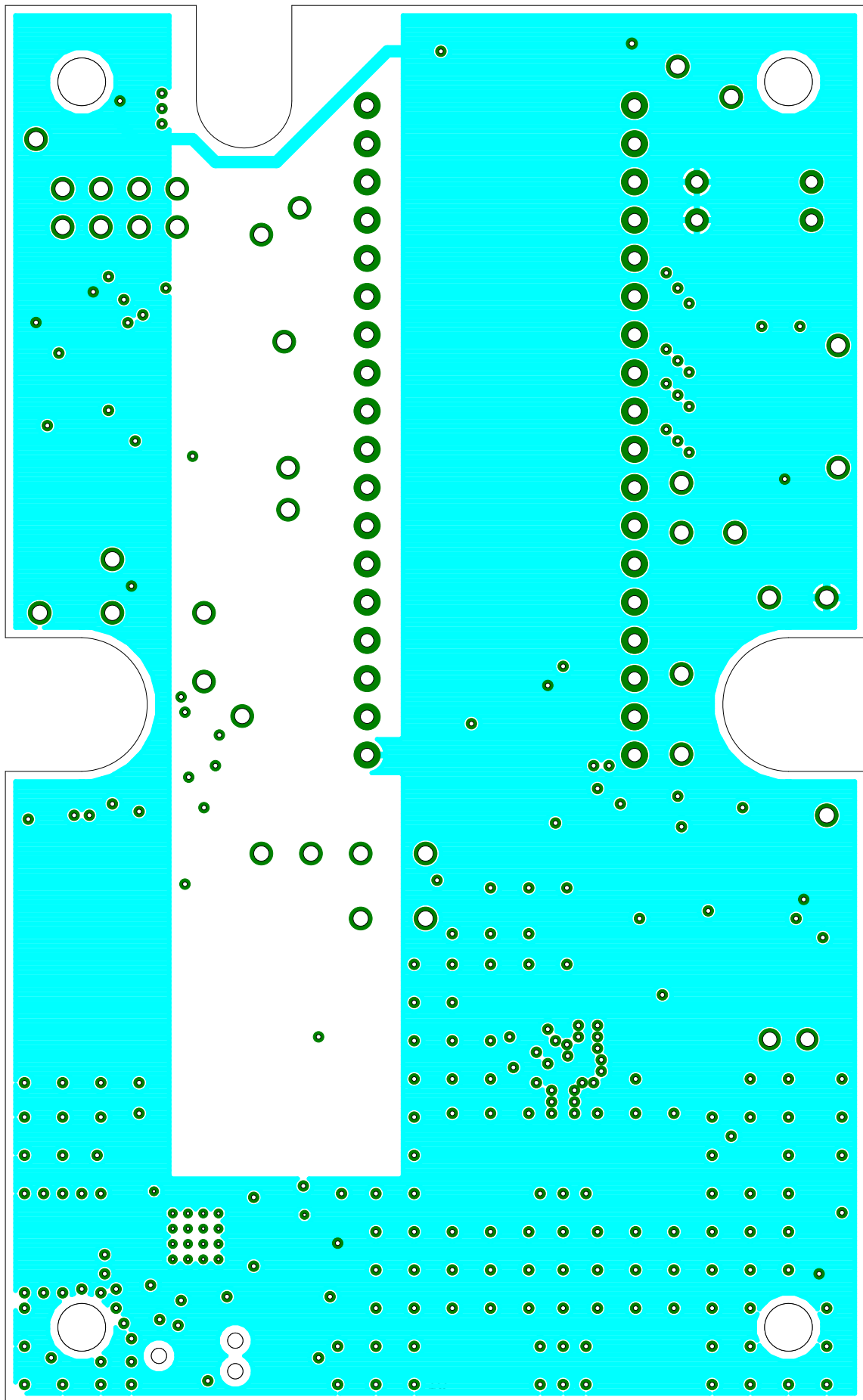
Top Copper Layer



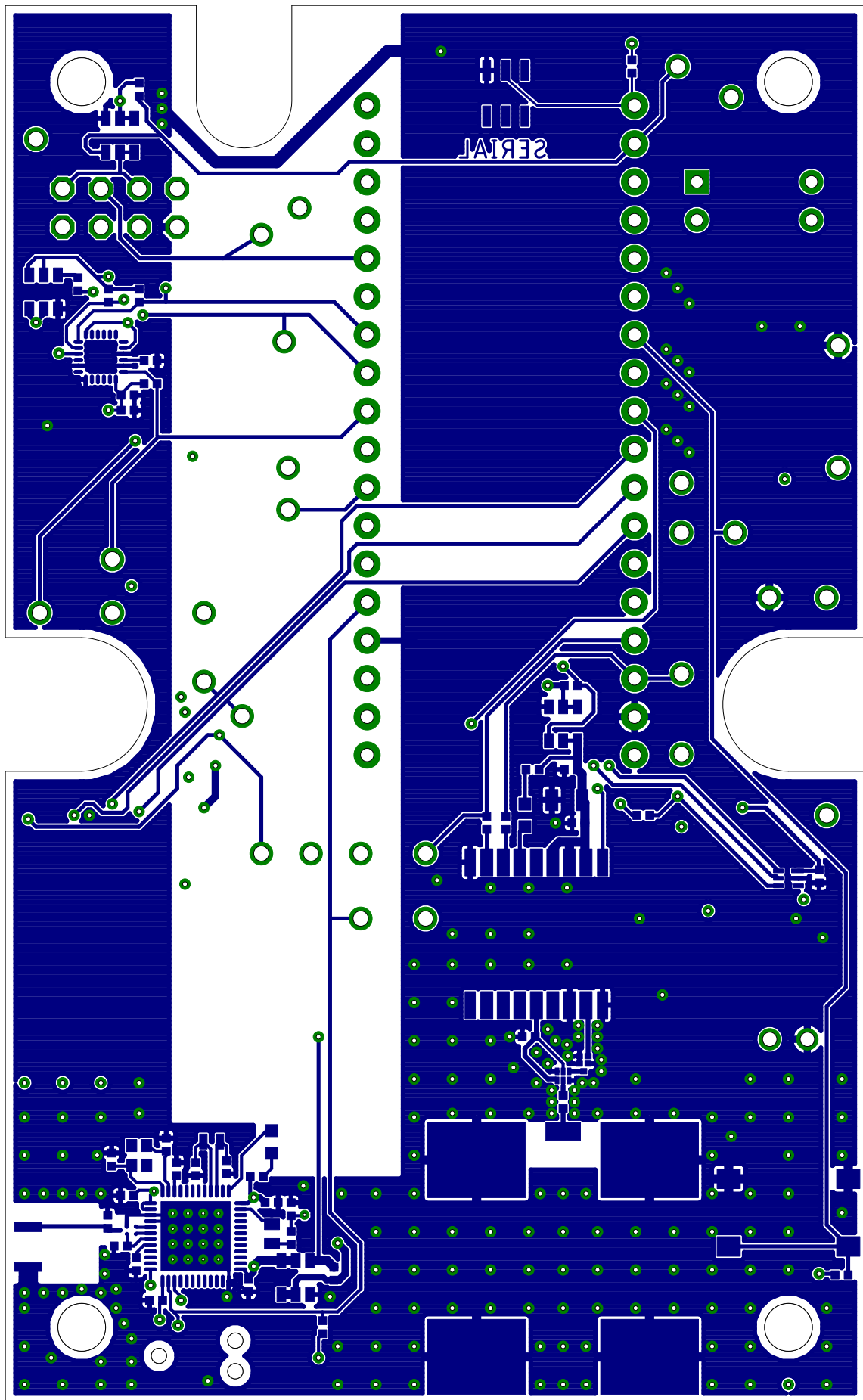
Layer 2 Copper

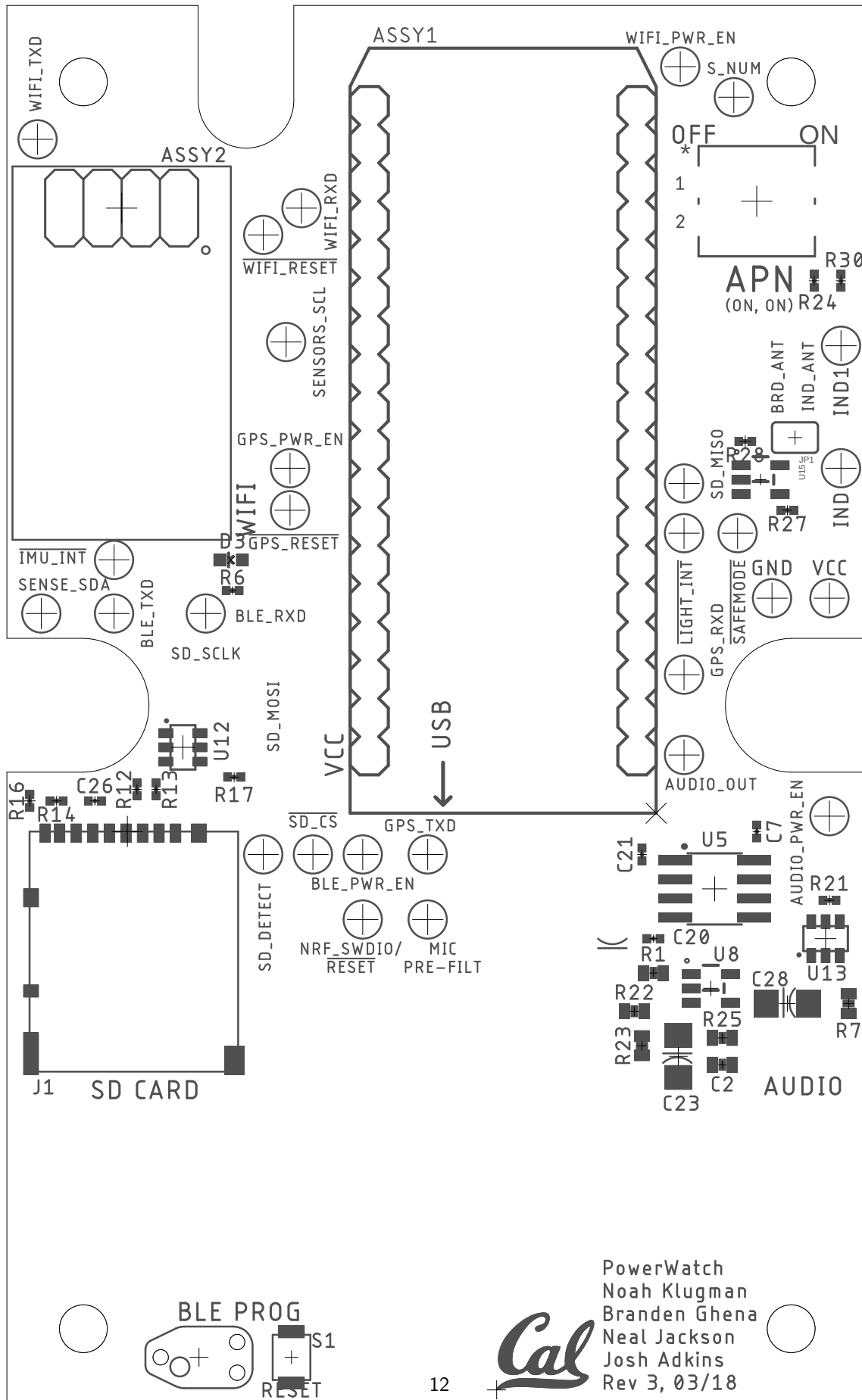


Layer 3 Copper

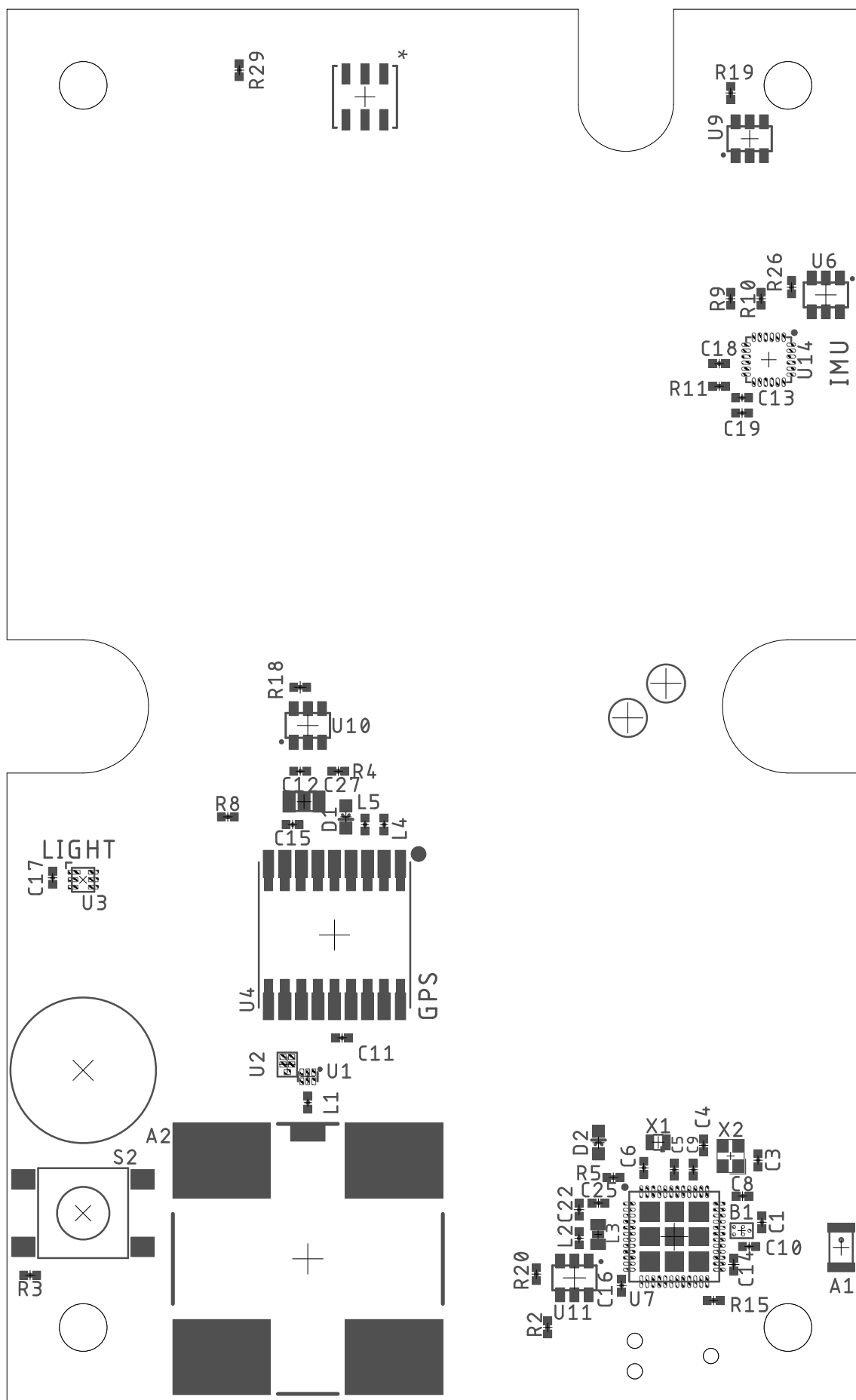


Bottom Copper Layer

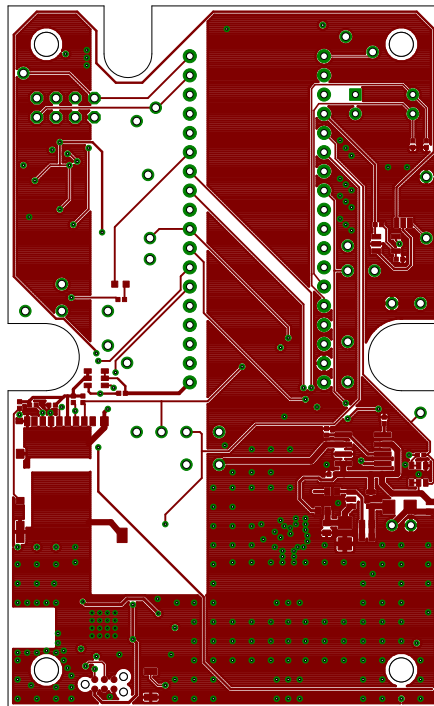


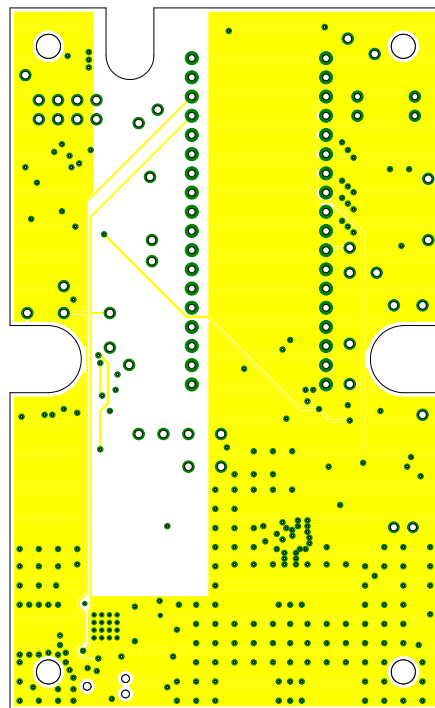


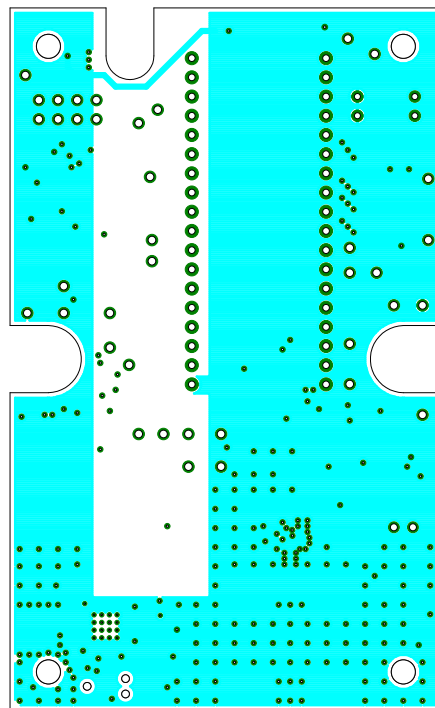
Bottom Paste Layer with Silkscreen



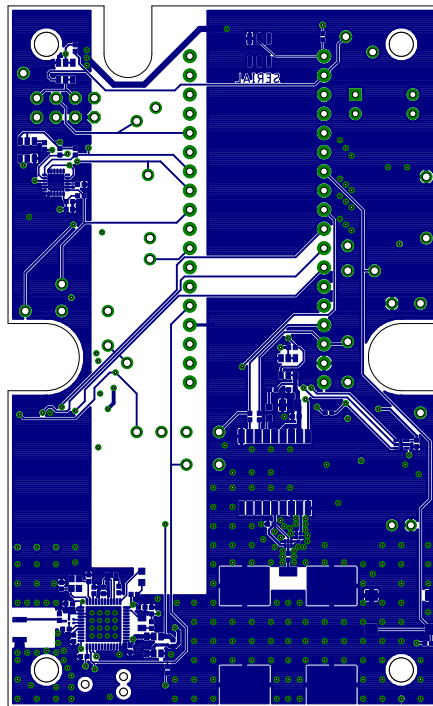
[illegible]







Bottom Copper Layer 1:1 Scale



plugwatch_bom

Qty	Value	Device	Package	
1	0.8pF	CAPACITOR0402_CAP	0402_CAP	
7	100k	RESISTOR0402_RES	0402_RES	
2	100k	RESISTOR0603_RES	0603-RES	
7	100nF	CAPACITOR0402_CAP	0402_CAP	
10	10k	RESISTOR0402_RES	0402_RES	
3	10nF	CAPACITOR0402_CAP	0402_CAP	
1	10uF	CAPACITOR0805_CAP	0805_CAP	
1	10uF	CAP_POL1206		1206
1	10uH	INDUCTOR0603	0603_CAP	
1	12k	RESISTOR0402_RES	0402_RES	
4	12pF	CAPACITOR0402_CAP	0402_CAP	
2		150 RESISTOR0402_RES	0402_RES	
1	15nH	INDUCTOR0402	0402_CAP	
1	16MHz	TXC-8Y	TXC-8Y	
1	1825057-1	1825057-1	SWDIP4_300X138P100	
2	1k	FERRITE_BEAD0402	0402_CAP	
3	1k	RESISTOR0402_RES	0402_RES	
2	1nF	CAPACITOR0402_CAP	0402_CAP	
1	1uF	CAPACITOR0402_CAP	0402_CAP	
1	2.2nF	CAPACITOR0402_CAP	0402_CAP	
1	2.2uF	CAP_POL1206		1206
1	270k	RESISTOR0603_RES	0603-RES	
1	3.48k	RESISTOR0603_RES	0603-RES	
1	32.768k	ABS05-32.768KHZ-9-T	ABS05	
1	330pF	CAPACITOR0402_CAP	0402_CAP	
1	4.4pF	CAPACITOR0603_CAP	0603_CAP	
2	4.7uF	CAPACITOR0402_CAP	0402_CAP	
1	47nF	CAPACITOR0402_CAP	0402_CAP	
1	487k	RESISTOR0402_RES	0402_RES	
1		49.9 RESISTOR0603_RES	0603-RES	
1	5.6nH	INDUCTOR0402	0402_CAP	
1	5K	RESISTOR0402_RES	0402_RES	
1	ANT3216A063R2400A	ANT3216A063R2400A	ANT3216A063R2400A	
1	AOM-4546P-R	AOM-4546P-R	MIC_AOM-4546P-R	
1	B3U-1000P	B3U-1000P	B3U-1000P	
1	BAL-NRF01D3	BAL-NRF01D3	BAL-NRF01D3	
1	BGA725L6-ALT	BGA725L6-ALT	LNA-TSLP-6-2-ALT	
3	BLUE	LED0603	LED-0603	
1	DM3AT-SF-PEJM5	DM3AT-SF-PEJM5	DM3AT-SF-PEJM5	
1	DS2401P+	DS2401P+	21-0382	
1	ELECTRON	ELECTRON	ELECTRON_SINGLE-ROW	
1	GPS-ANTENNA	GPS-ANTENNA	ANT1818B00BT1516S	
1	ISL29035	ISL29035	ODFN-6-1.5MMX1.6MM	
1	JUMPER-3SMD	JUMPER-3SMD	SJ_3	
1	MAX-M8	MAX-M8	MAX-M8	
1	MAX740XESA	MAX740XESA	SOIC-8	
1	MPU-9250	MPU-9250	QFN-24/3MM	
1	NRF51822QF	NRF51822QF	QFN-48-6MM	

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2 OPA322AIDBVT	OPA322AIDBVT	SOT23-5
1 PTS645SM43SMTR92	PTS645SM43SMTR92	PTS645
1 SAFFB1G56KB0F0A	FILTERS	QCS5I
6 SIP32510	SIP32510	TSOT23-6

1 TC2030-JLINK-NL	TC2030-JLINK-NL	TC2030-IDC-NL	DNP
30 TEST_POINT_0.040IN	TEST_POINT_0.040IN	TESTPOINT_0.040IN	DNP

1 27uH	Through hole inductor	Through Hole Inductor
1 WRL-13678	WRL-13678	WRL-13678

plugwatch_bom

Parts

C1
R16, R17, R18, R19, R20, R21, R26
R22, R23
C15, C16, C17, C18, C19, C20, C21
R8, R9, R10, R11, R12, R13, R14, R24, R27, R30
C11, C12, C13
C27
C28
L3
R15
C3, C4, C5, C6
R2, R3
L2
X2
APN_SWITCH
L4, L5
R4, R5, R6
C8, C9
C22
C10
C23
R25
R7
X1
C7
C2
C25, C26
C14
R28
R1
L1
R29
A1
MK1
S1
B1
U1
D1, D2, D3
J1
SERIAL
ASSY1
A2
U3
JP1
U4
U5
U14
U7

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U8, U15

S2

U2

U6, U9, U10, U11, U12, U13

J2

TP1, TP2, TP3, TP4, TP5, TP6, TP7, TP8, TP9, TP10, TP11, TP12, TP13, TP14, TP15, TP16, TP17, TP18, TP19, TP20, TP21

L6

ASSY2

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Description	DESCRIPTION
SMD Capacitor	CAP CER 0.8PF 50V C0G/NP0 0402
Resistor	RES SMD 100K OHM 1% 1/16W 0402
Resistor	RES SMD 100K OHM 1% 1/10W 0603
SMD Capacitor	CAP CER 0.1UF 10V X7R 0402
Resistor	RES SMD 10K OHM 1% 1/16W 0402
SMD Capacitor	CAP CER 10000PF 50V X7R 0402
SMD Capacitor	CAP CER 10UF 10V X7R 0805
	CAP TANT 10UF 20V 10% 1206
A very specific inductor	FIXED IND 10UH 50MA 900 MOHM SMD
Resistor	RES SMD 12K OHM 1% 1/16W 0402
SMD Capacitor	CAP CER 12PF 50V C0G/NP0 0402
Resistor	RES SMD 150 OHM 1% 1/16W 0402
A very specific inductor	FIXED IND 15NH 320MA 460 MOHM
2mmx1.6mm SMD Crystal	CRYSTAL 16.0000MHZ 8PF SMD
A through hole two position dip switch	
	FERRITE BEAD 1 KOHM 0402 1LN
Resistor	RES SMD 1K OHM 1% 1/16W 0402
SMD Capacitor	CAP CER 1000PF 100V 10% X7R 0402
SMD Capacitor	CAP CER 1UF 10V X7S 0402
SMD Capacitor	CAP CER 2200PF 25V 10% X7R 0402
	CAP TANT 2.2UF 16V 10% 1206
Resistor	RES SMD 270K OHM 1% 1/10W 0603
Resistor	RES SMD 3.48K OHM 1% 1/10W 0603
32.768kHz Crystal	
SMD Capacitor	CAP CER 330PF 50V C0G/NP0 0402
SMD Capacitor	CAP CER RF 4.4PF 50V +/-0.1 PF C
SMD Capacitor	CAP CER 4.7UF 6.3V X5R 0402
SMD Capacitor	CAP CER 0.047UF 16V X7R 0402
Resistor	RES 487K OHM 1/16W 1% 0402 SMD
Resistor	RES SMD 49.9 OHM 1% 1/10W 0603
A very specific inductor	FIXED IND 5.6NH 1.77A 40 MOHM
Resistor	RES SMD 150 OHM 1% 1/16W 0402
Yageo 2.4GHz	
Electret microphone	
Switch	
50 ohm nominal input / conjugate match balun to nRF51422-QFAA,	IC AMP MMIC RF LNA 20DB TSLP-6
LED	
CONN MICRO SD R/A PUSH-PUSH SMD	
A one wire serial number chip.	
Two 18 position headers!	18 Position header
	PATCH ANT GPS/GLO CP SMD
Optical Sensor Ambient 550nm I2C	
Soldered to "IND_ANT" by default	
	IC RECEIVER GPS/GNSS 18LCC
GYRO/ACCEL/COMPASS/9-AXIS	
Multiprotocol Bluetooth® 4.0 low energy/2.4 GHz RF SoC	

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Tactile Switch SPST-NO Top Actuated Surface Mount

Load switch, slew rate controlled. By Vishay

0.040in Test Point

A large through hole inductor for an antenna

ESP8266 WiFi Module

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DIGIKEY	MANUFACTURER	MOUSER	MPN
490-6269-1-ND	Murata		GRM1555C1HR80BA01
1276-3432-1-ND	Samsung		RC1005F104CS
541-2972-1-ND	Vishay		CRCW0603100KFKEB
490-10777-1-ND	Murata		GRM155R71A104JA01I
RMCF0402FT10K0CT-ND	Stackpole Electronics		RMCF0402FT10K0
490-7763-1-ND	Murata		GRM155R71H103JA88I
490-8316-1-ND	Murata		GRM21BR71A106ME51
478-8481-1-ND	AVX		F951D106KSAAQ2
490-4025-1-ND	Murata		LQM18FN100M00D
RMCF0402FT12K0CT-ND	Stackpole Electronics		RMCF0402FT12K0
490-6197-1-ND	Murata		GRM1555C1H120GA01
RMCF0402FT150RCT-ND	Stackpole Electronics		RMCF0402FT150R
587-1521-1-ND	Taiyo Yuden		HK100515NJ-T
887-2003-1-ND	TXC		8Y-16.000MAAV-T
450-1363-ND	TE Connectivity		18250571
490-4003-1-ND	Murata		BLM15HD102SN1D
RMCF0402FT1K00CT-ND	Stackpole Electronics		RMCF0402FT1K00
490-6366-1-ND	Murata		GRM155R72A102KA01I
490-14457-1-ND	Murata		GRM155C71A105KE11I
490-5419-1-ND	Murata		GRM155R71E222KA01I
718-1131-1-ND	Vishay		293D225X9016A2TE3
541-270KHCT-ND	Vishay		CRCW0603270KFKEA
541-3.48KHCT-ND	Vishay		CRCW06033K48FKEA
535-11897-1-ND	Abracon		ABS05-32.768KHZ-9-T
490-6233-1-ND	Murata		GRM1555C1H331FA01I
399-16187-1-ND	KEMET		CBR06C449B5GAC
445-5947-1-ND	TDK		C1005X5R0J475K050B
490-11420-1-ND	Murata		GRM155R71C473KA01I
YAG2372CT-ND	Yageo		RC0402FR-07487KL
541-3003-1-ND	Vishay		CRCW060349R9FKTA
490-11766-1-ND	Murata		LQW15AN5N6B80D
RMCF0402FT150RCT-ND	Stackpole Electronics		RMCF0402FT150R
311-1542-1-ND	YAGEO		ANT3216A063R2400A
668-1224-ND			
SW1020CT-ND	Omron		B3U-1000P
497-13637-1-ND	STMicroelectronics	511-BAL-NRF01D3	BAL-NRF01D3
BGA725L6E6327FTSA1CT-ND	Infineon		BGA725L6E6327FTSA1
160-1837-6-ND			
HR1964CT-ND			
DS2401P+-ND	Maxim Integrated		DS2401P+
S7051-ND,S7051-ND	Sullins		PPPC181LFBN-RC
311-1531-ND	Yageo		ANT1818B00BT1516S
ISL29035IROZ-T7CT-ND			ISL29035IROZ-T7
672-1003-1-ND	u-blox		MAX-M8Q-0
MAX7405ESA+-ND	MAX7405ESA+-ND		MAX7405ESA+
1428-1019-1-ND			
1490-1049-1-ND	Nordic Semi	949-NRF51822-QFAC-R7	NRF51822-QFAC-R7

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296-29511-1-ND

CKN9112CT-ND

587-3990-1-ND

SIP32510DT-T1-GE3CT-ND

Taiyo Yuden

Vishay

F6QA1G582H2JM-J

SIP32510DT-T1-GE3

445-173093-ND

1568-1235-ND

TDK

WR222230-26M8-G

ROCHESTER_ELECTRONICS

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MAX7405ESA