

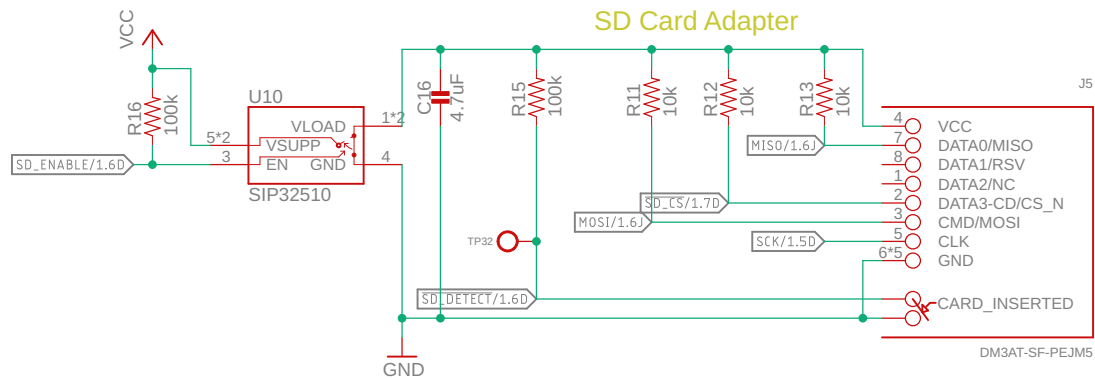
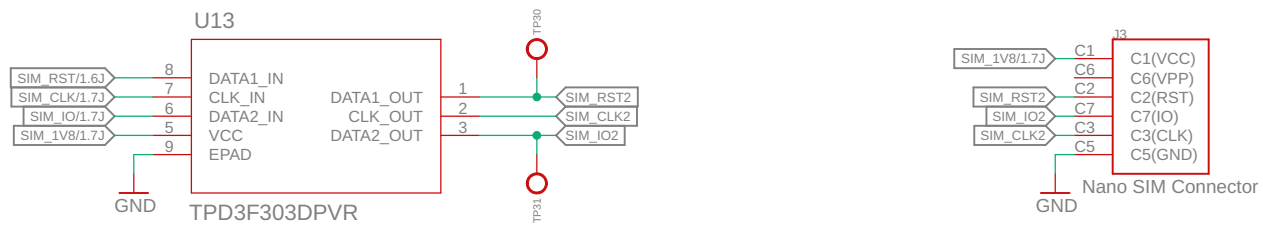
The schematic diagram illustrates the NRF9160 module and its associated components. The main module, NRF9160, is a red rectangular component with numerous pins. It is connected to a VCC supply (10k resistor R10) and a GND supply (4.7uF capacitor C13). The module is also connected to a GPS module (BGA725L6) via a GPS\_EN signal (J4) and a GPS antenna (ANT1 1462350001). The module is connected to a JTAG module (TC2030-JLINK-NL) via a JTAG signal (J1). The module is also connected to a RTC module (AB1815-T3) via a VBAT supply (10k resistor R9) and a GND supply (4.7uF capacitor C10). The module is also connected to a JTAG module (TC2030-JLINK-NL) via a JTAG signal (J1).

**RTC**

The RTC module (AB1815-T3) is a red rectangular component with 13 pins. It is connected to a VCC supply (10k resistor R9) and a GND supply (4.7uF capacitor C10). The module is also connected to a JTAG module (TC2030-JLINK-NL) via a JTAG signal (J1). The module is also connected to a JTAG module (TC2030-JLINK-NL) via a JTAG signal (J1).

**JTAG**

The JTAG module (TC2030-JLINK-NL) is a red rectangular component with 6 pins. It is connected to a VCC supply (10k resistor R9) and a GND supply (4.7uF capacitor C10). The module is also connected to a JTAG module (TC2030-JLINK-NL) via a JTAG signal (J1). The module is also connected to a JTAG module (TC2030-JLINK-NL) via a JTAG signal (J1).



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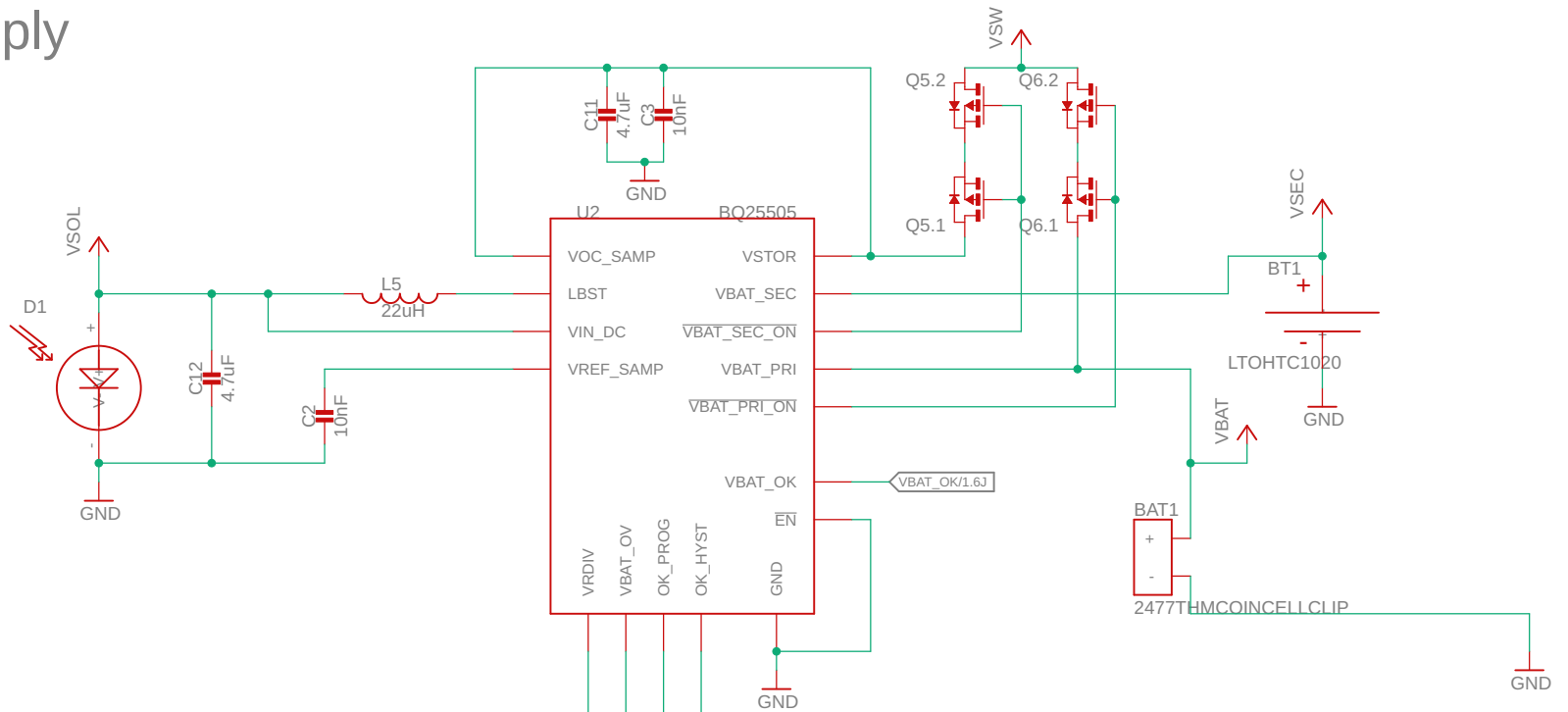
REV:  
A

Author: MEGHNA MANDAVA

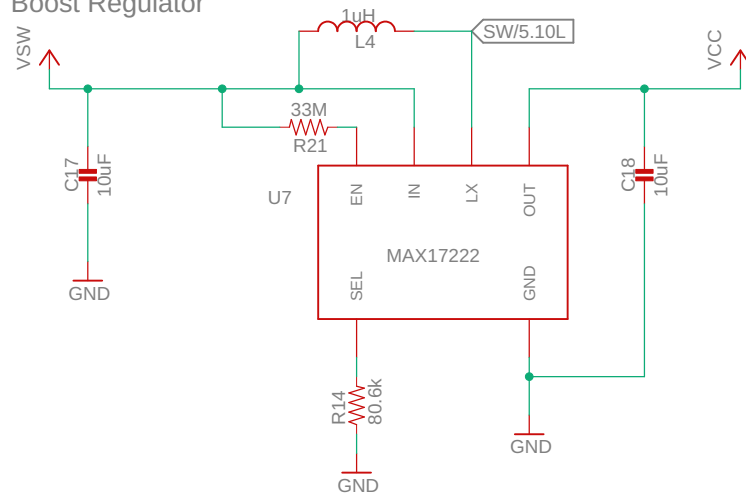
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Sheet: 2/5

# Power Supply

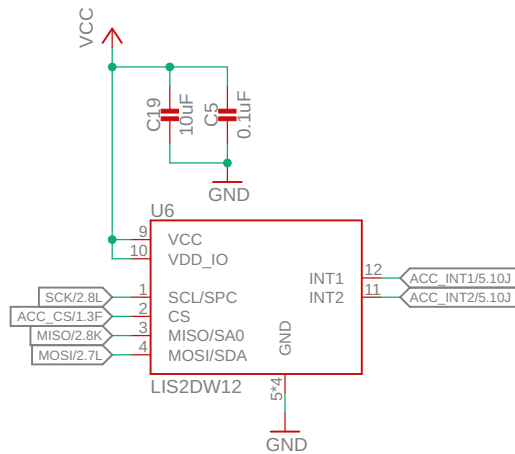


## Boost Regulator

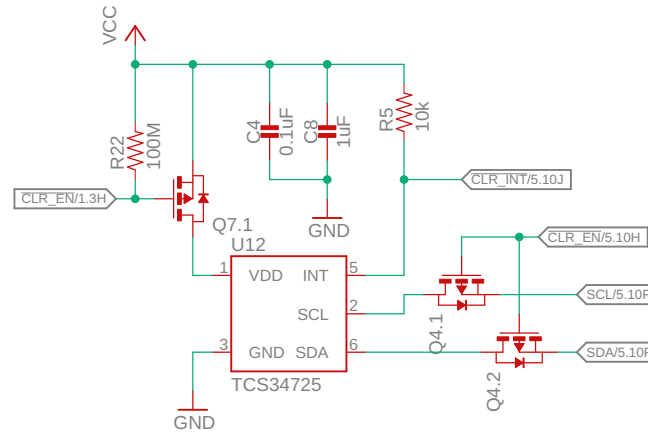


# Sensors

## Accelerometer

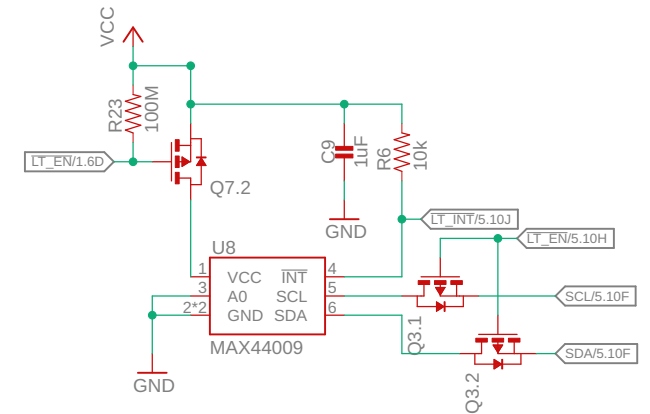


## Light Color



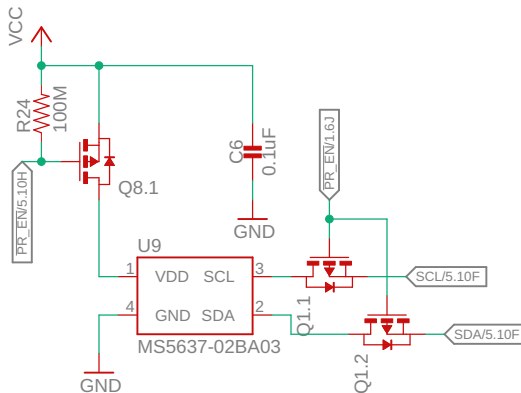
## Light

## Ambient Light

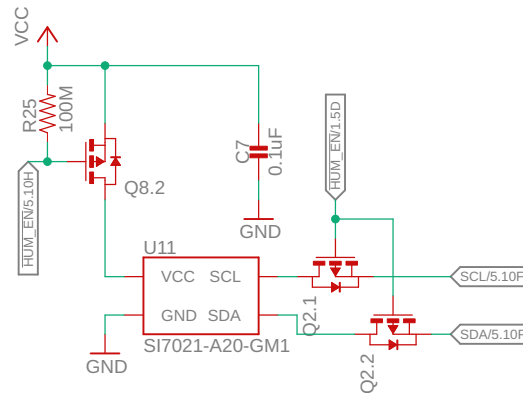


## Temperature

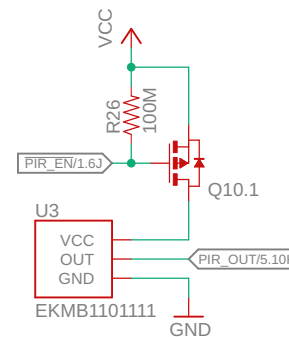
## Pressure



## Humidity



## Occupancy



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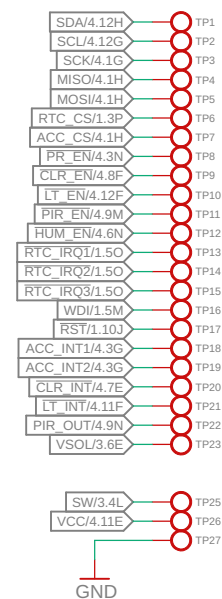
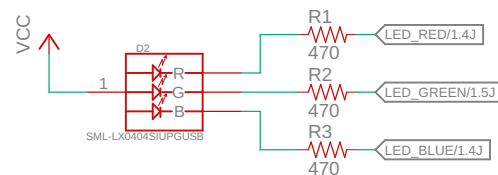
Author: MEGHNA MANDAVA

Date: 5/15/20 12:52 PM

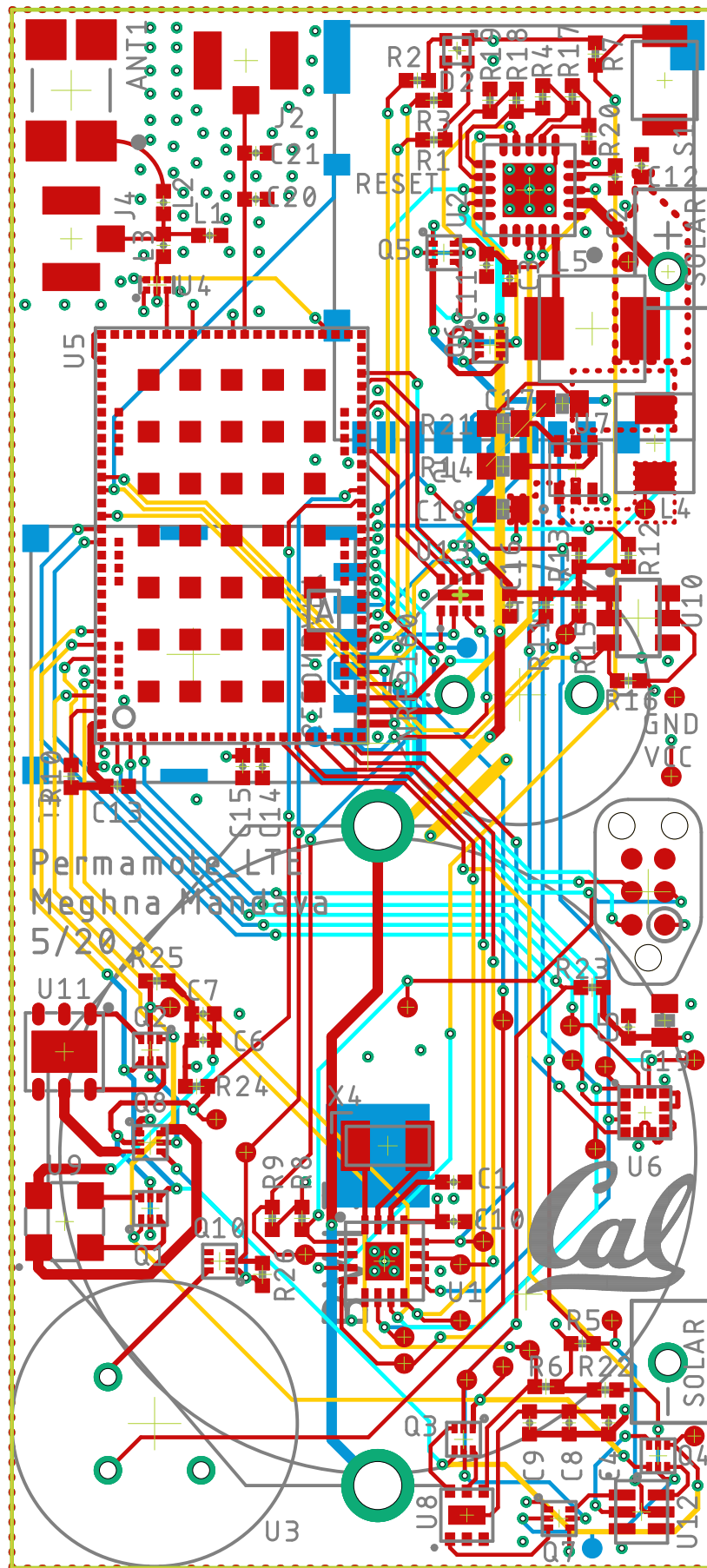
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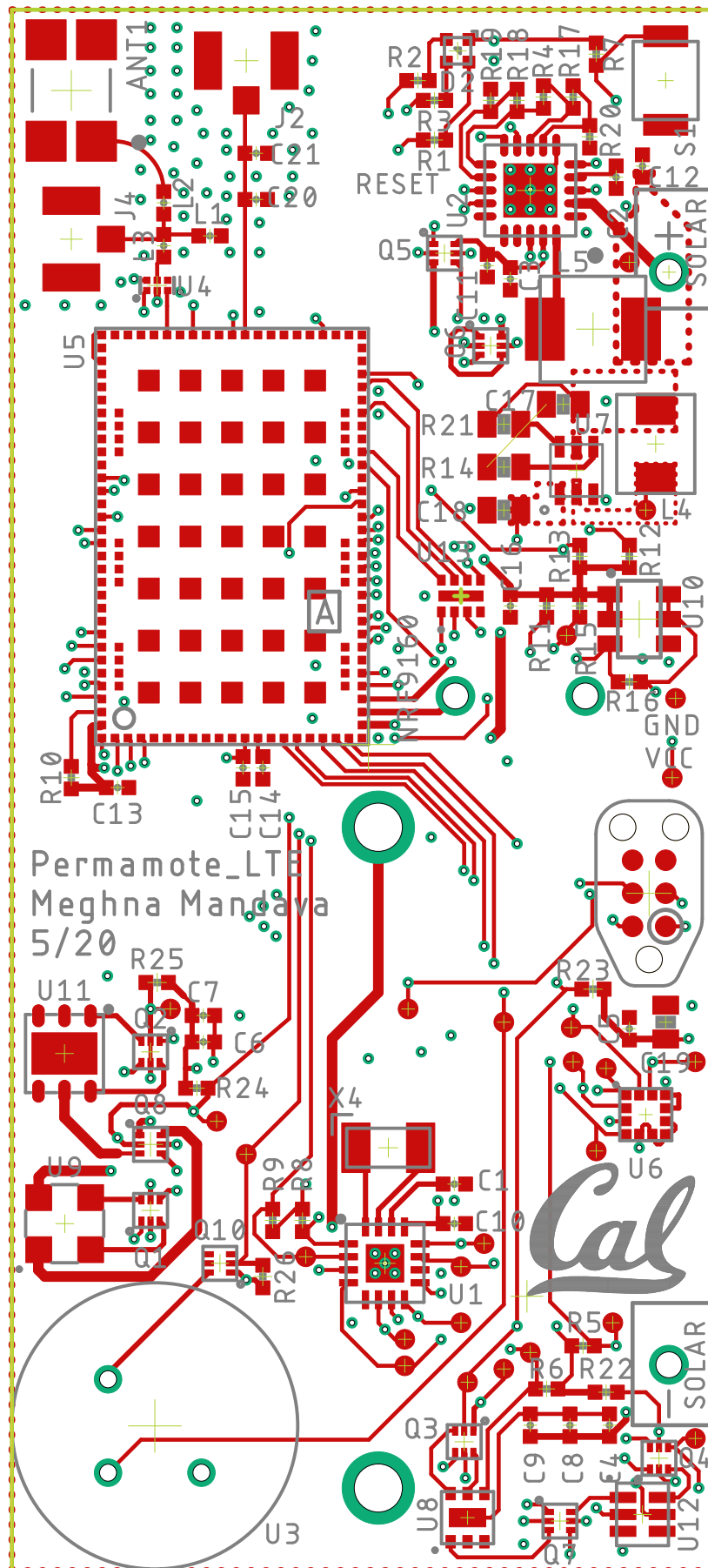
Sheet: 4/5

# Debugging

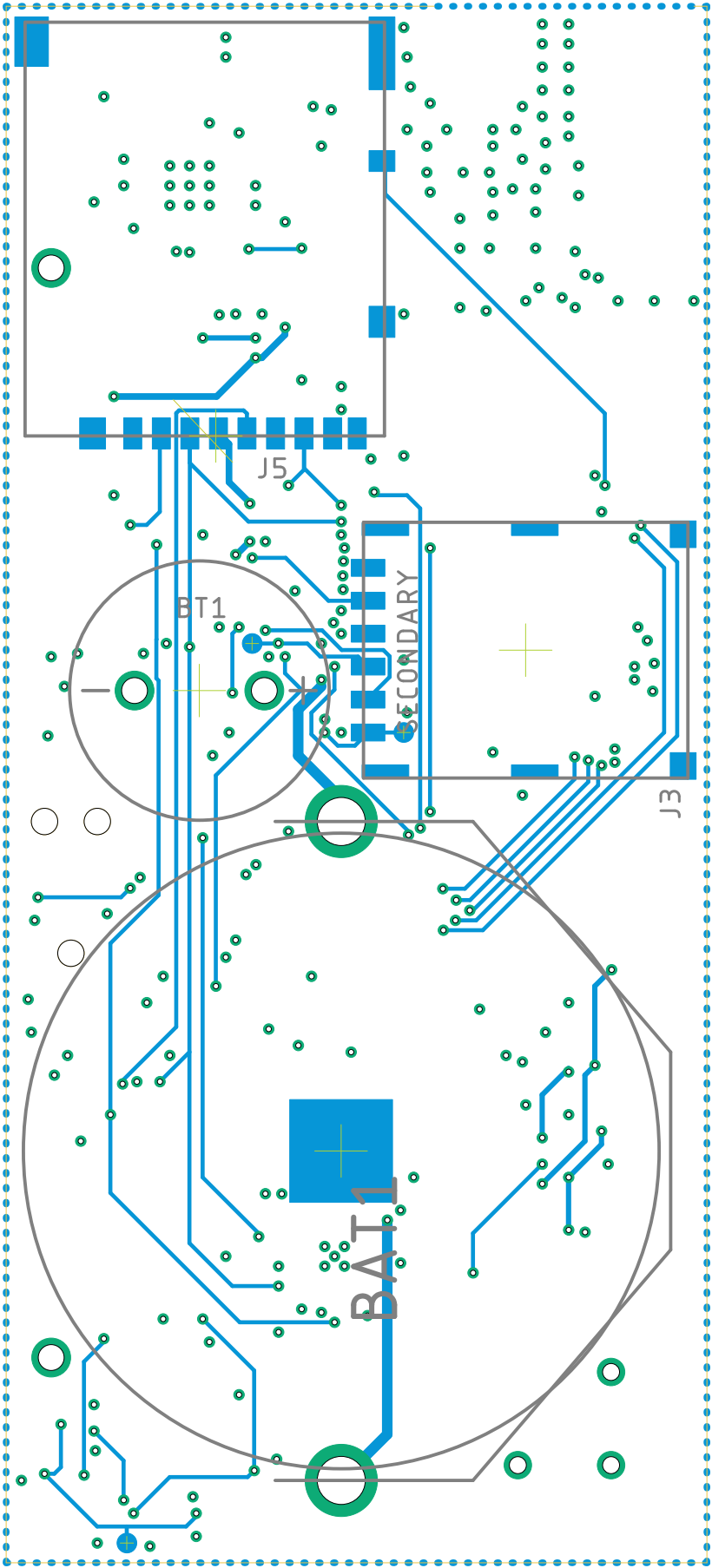


# Top and Bottom Layers



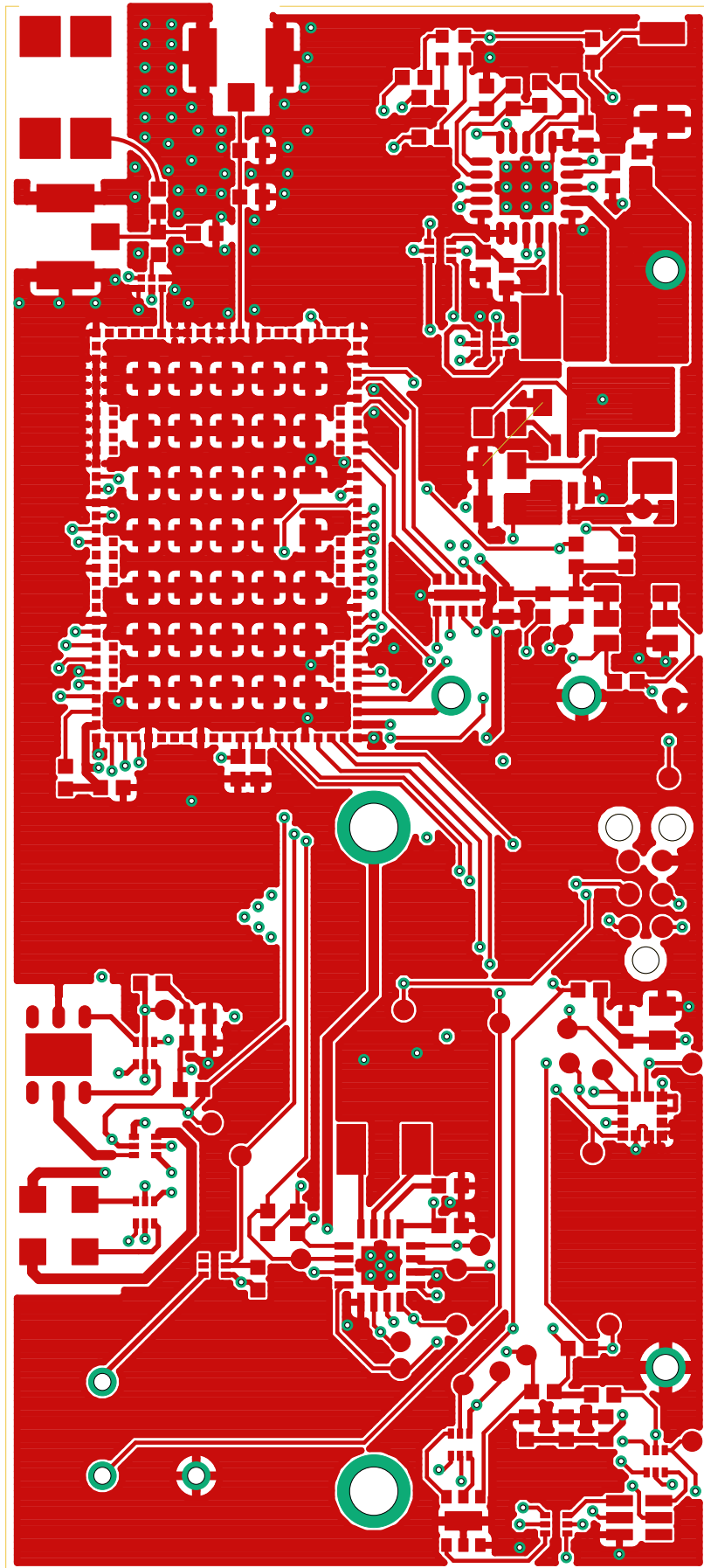


Bottom Layer

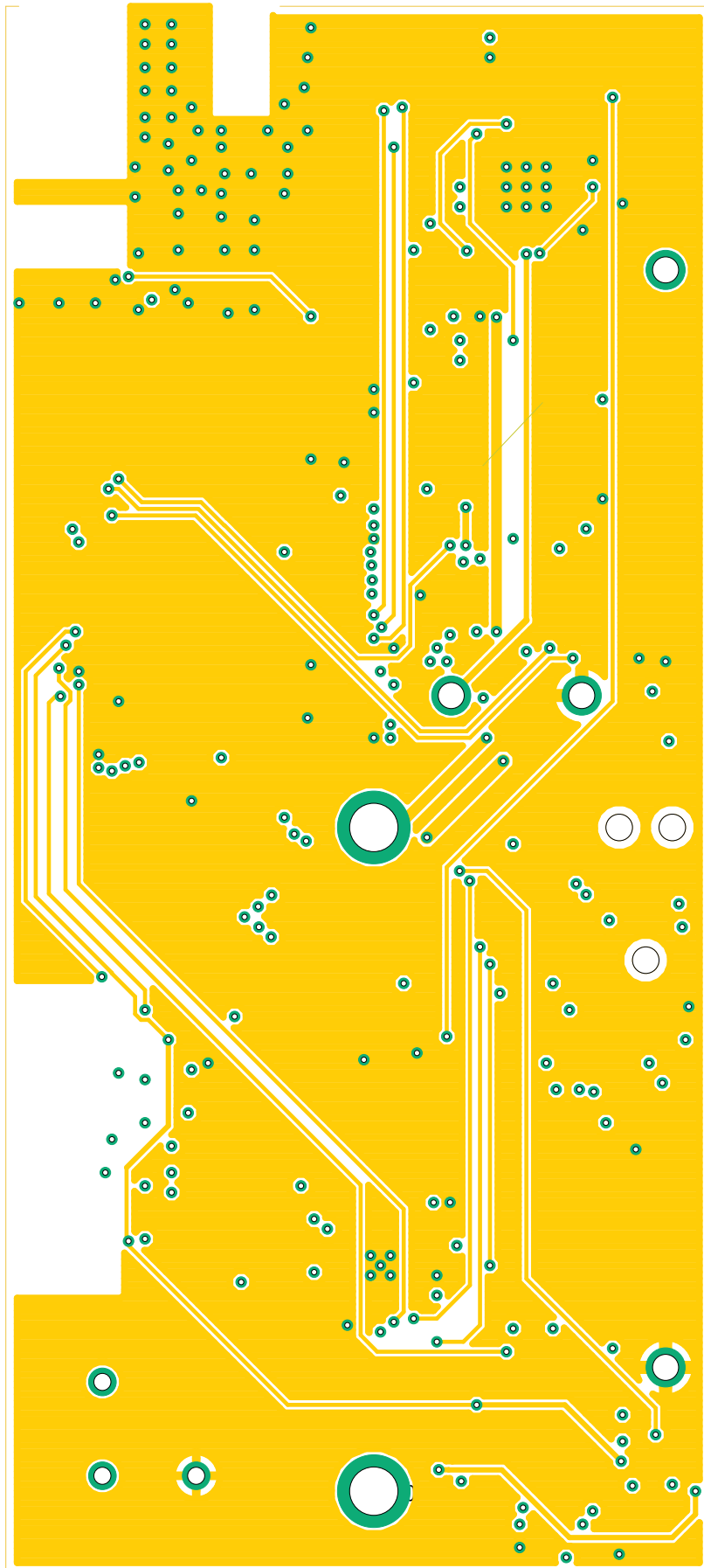




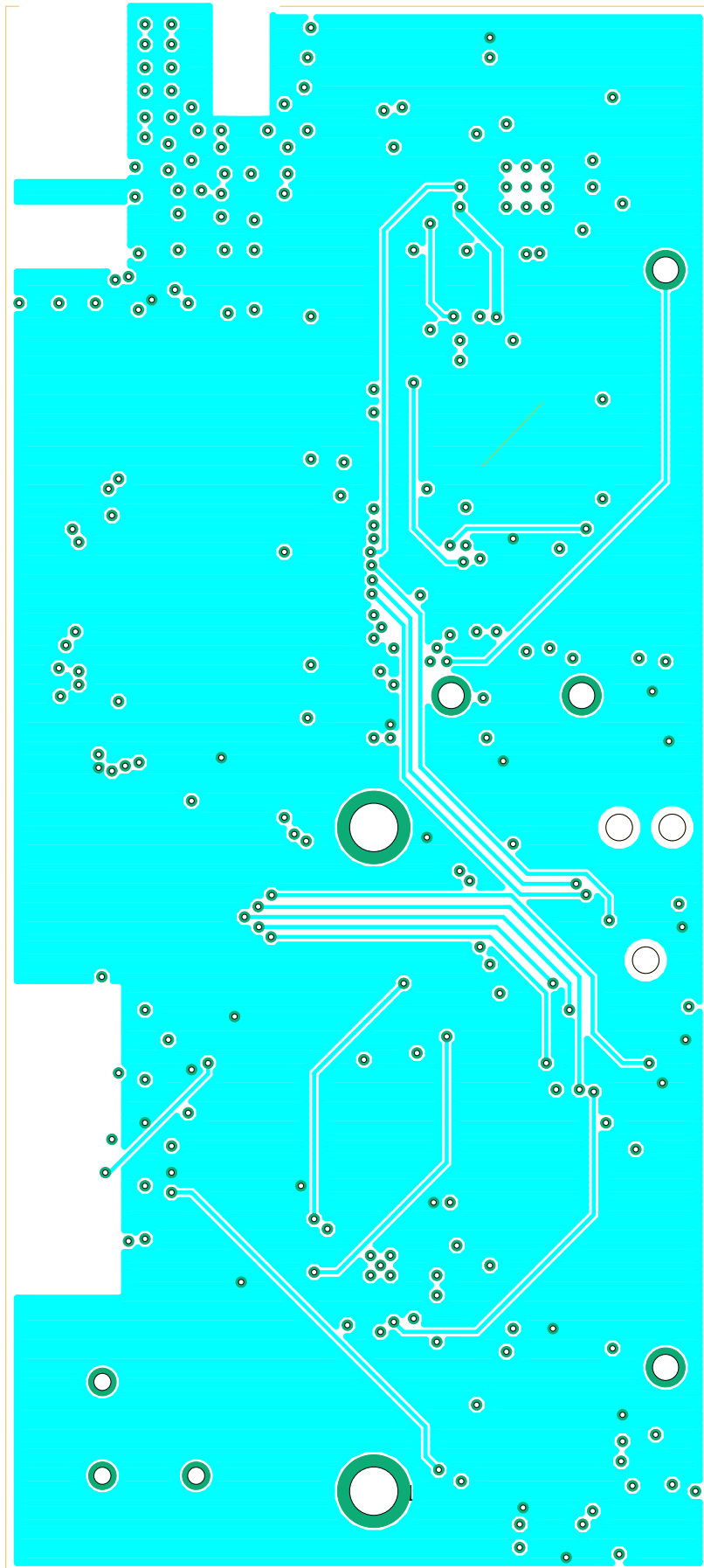
Top Copper Layer



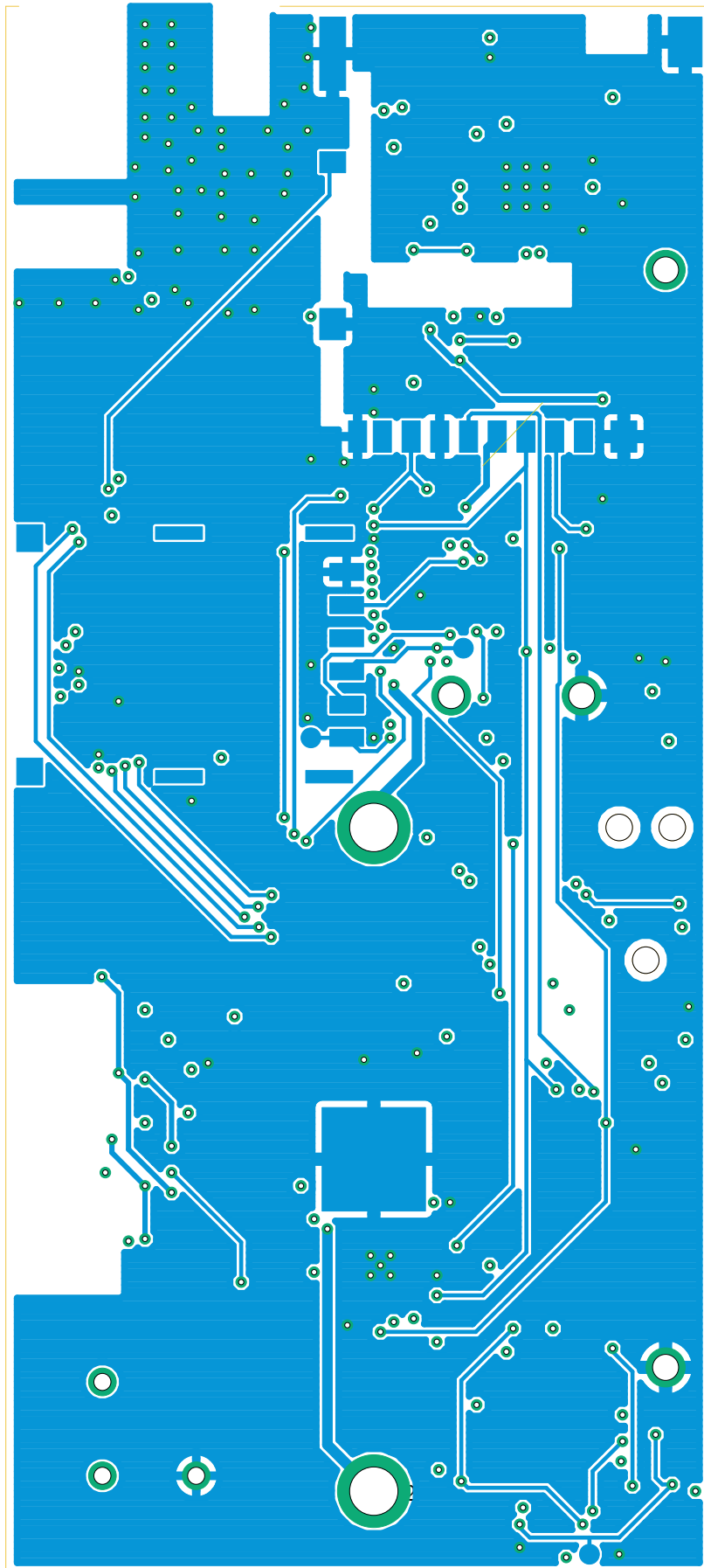
## Layer 2 Copper

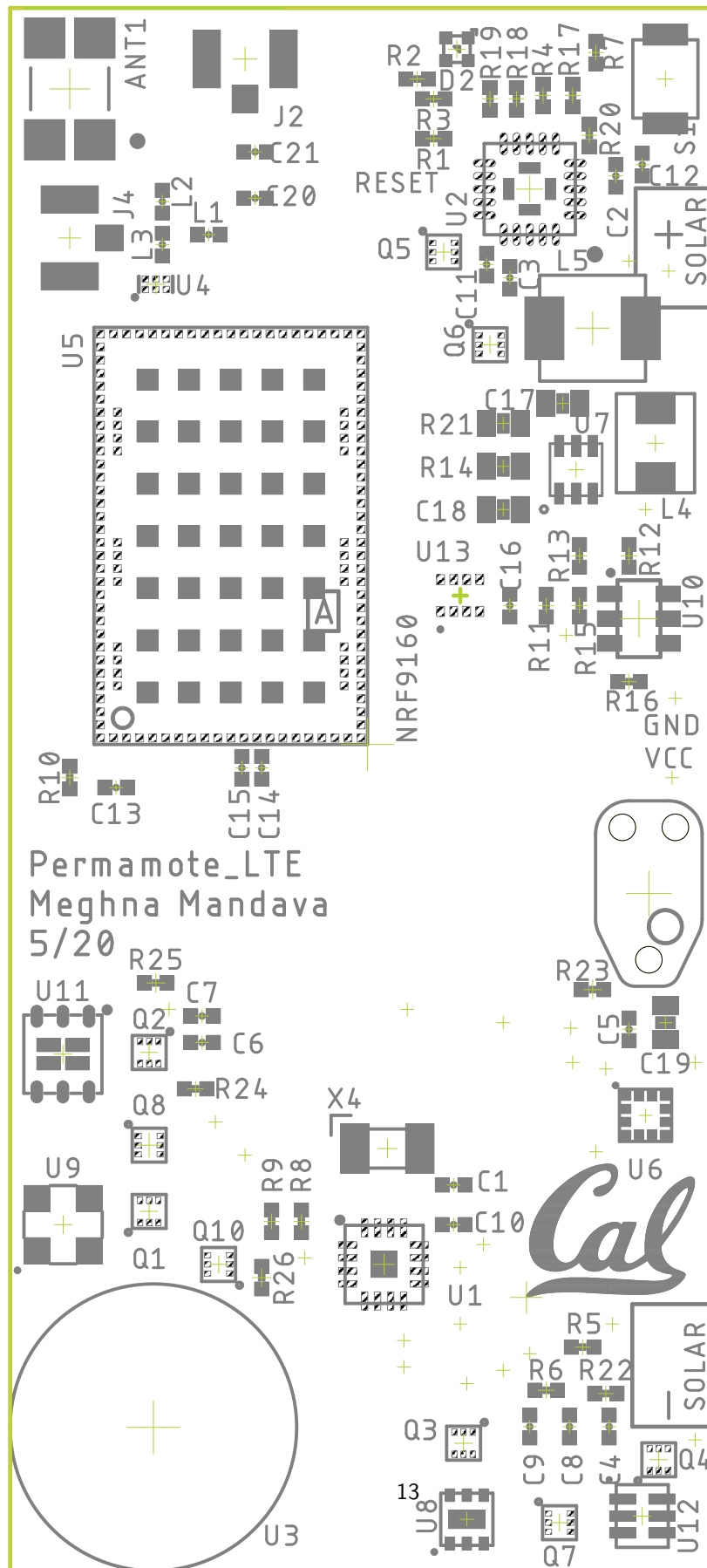


Layer 3 Copper

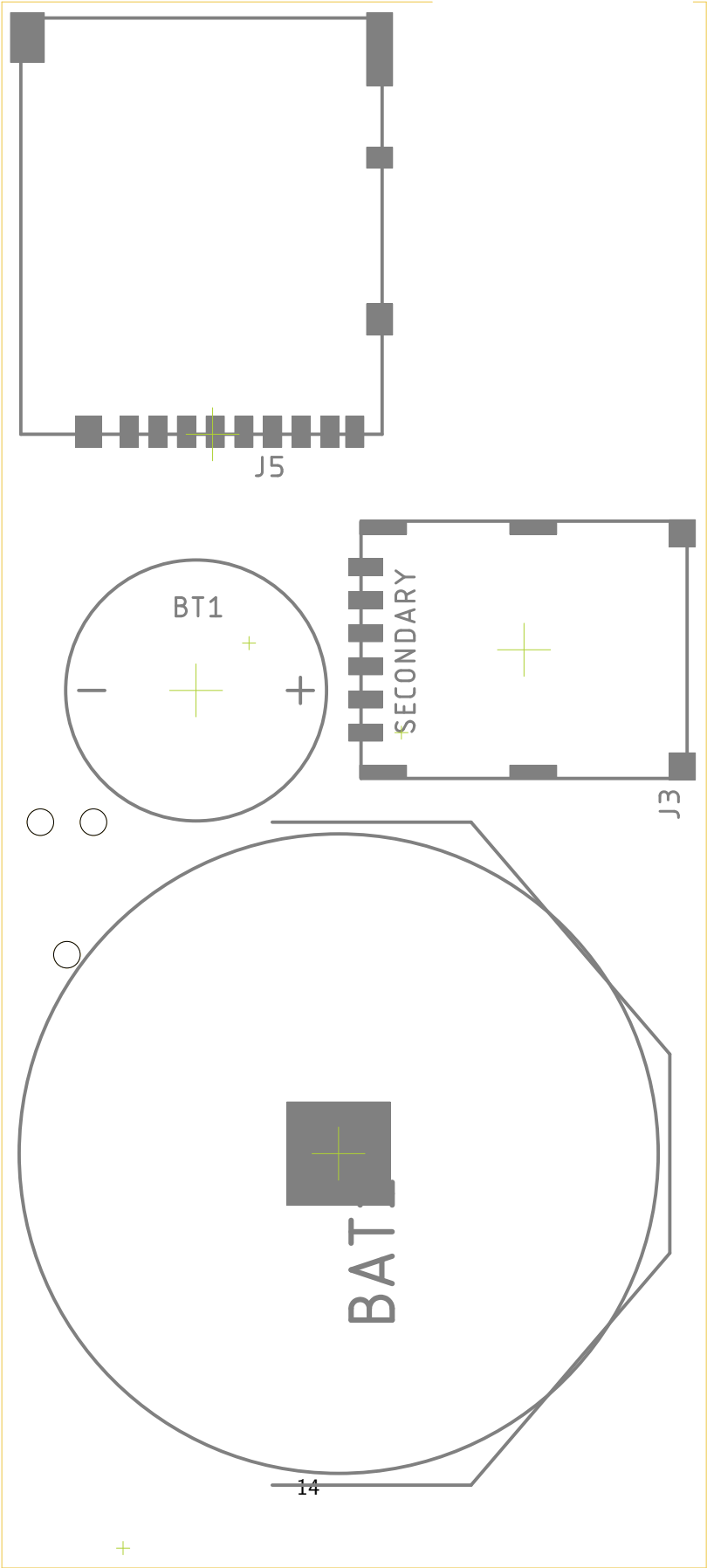


Bottom Copper Layer

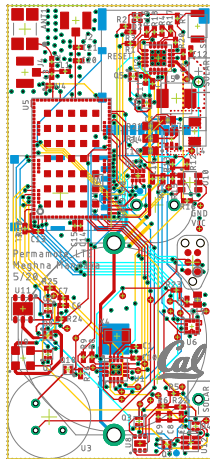


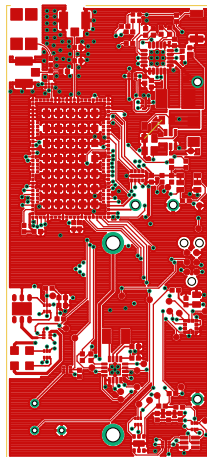


Bottom Paste Layer with Silkscreen

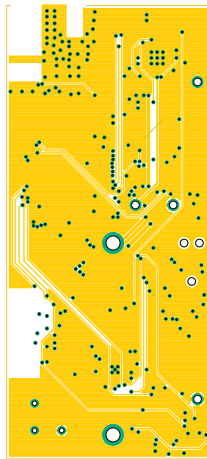


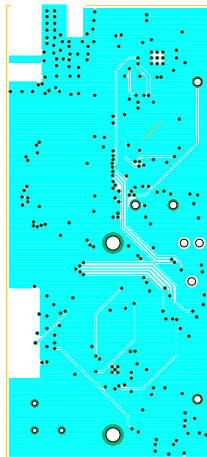
## Top and Bottom Layers 1:1 Scale



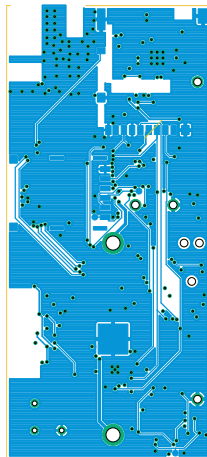








Bottom Copper Layer 1:1 Scale



Qty	Value	Device	Package	Parts	Description	DESCRIPTION
4	0.1uF	CAPACITOR0402 CAP	0402 CAP	C4, C5, C6, C7	SMD Capacitor	
1	1.8nH	INDUCTOR0402	0402 CAP	L1	A very specific inductor	
5	100M	RESISTOR0402 RES	0402 RES	R22, R23, R24, R25, R26	Resistor	
2	100k	RESISTOR0402 RES	0402 RES	R15, R16	Resistor	RES SMD 100K OHM 1% 1/5W
6	10k	RESISTOR0402 RES	0402 RES	R5, R6, R7, R8, R9, R10	Resistor	
3	10k	RESISTOR0402 RES	0402 RES	R11, R12, R13	Resistor	RES SMD 10K OHM 1% 1/16W
2	10nF	CAPACITOR0402 CAP	0402 CAP	C2, C3	SMD Capacitor	
3	10uF	CAPACITOR0603 CAP	0603 CAP	C17, C18, C19	SMD Capacitor	
1		1462350001	1462350001 ANT	1462350001	Antenna GPS 1.4dBi Gain 1578MHz SMD T/R	Antenna GPS 1.4dBi Gain 1578
3	1uF	CAPACITOR0402 CAP	0402 CAP	C8, C9, C10	SMD Capacitor	
1	1uH	INDUCTOR1H1L	1H1L-1212BZ-11	L4	A very specific inductor	
1	22uH	INDUCTOR74437324220	74437324220	L5	A very specific inductor	
1	24777THMCOINCELL	24777THMCOINCELL	24777THMCOINCLIP	BAT1	Battery clip for 2477 Coin Cell	
1	3.9M	RESISTOR0402 RES	0402 RES	R17	Resistor	
1	33M	RESISTOR0603 RES	0603-RES	R21	Resistor	
5	4.7uF	CAPACITOR0402 CAP	0402 CAP	C11, C12, C13, C14, C15	SMD Capacitor	
1	4.7uF	CAPACITOR0402 CAP	0402 CAP	C16	SMD Capacitor	CAP CER 4.7UF 10V X5R 0402
3		470	RESISTOR0402 RES	0402 RES	Resistor	
1	47pF	CAPACITOR0402 CAP	0402 CAP	C1	SMD Capacitor	
1	5.1nH	INDUCTOR0402	0402 CAP	L2	A very specific inductor	
1	6.04k	RESISTOR0402 RES	0402 RES	R4	Resistor	
1	6.2M	RESISTOR0402 RES	0402 RES	R18	Resistor	
1	6.8M	RESISTOR0402 RES	0402 RES	R19	Resistor	
1	7.5nH	INDUCTOR0402	0402 CAP	L3	A very specific inductor	
1	80.6k	RESISTOR0603 RES	0603-RES	R14	Resistor	
1	9.1M	RESISTOR0402 RES	0402 RES	R20	Resistor	
1	AB1815-T3	AB1815-T3	QFN-16-3MM	U1	Ultra-low current RTC. 55nA quiescent @ 3V. 1.5-3.6V input.	
1	ABS07-32.768KHZ-7-T	ABS07-32.768KHZ-7-T	2-SMD	X4	32.768kHz Crystal	
1	B3U-1000P	B3U-1000P	B3U-1000P	S1	Switch	
1	BGA725L6	BGA725L6	LNA-TSLP-6-2-ORIGU4		EH front end for switching between primary and secondary cells	
1	BQ25505	BQ25505	S-PVQFN-N20-RGR	U2	IC AMP GPS 1.55-1.615GHZ TSLP6-2	
1	DM3AT-SF-PEJM5	DM3AT-SF-PEJM5	DM3AT-SF-PEJM5	J5	CONN MICRO SD R/A PUSH-PUSH SMD	CONN MICRO SD CARD PUS
2	DNP	CAPACITOR0402 CAP	0402 CAP	C20, C21	SMD Capacitor	
1	EKMB1101111	EKMB1101111	AMN2	U3	Passive infrared human detection sensor with built-in amp.	
1	LIS2DW12	LIS2DW12	LGA-12	U6	ultra low power 3 axis accelerometer	
1	LTOHTC1020	LTOHTC1020	1020	BT1		
1	MAX17222	MAX17222	UDFN-6-MAXIM	U7	Very high efficiency, very low power boost converter suitable for EH applications	
1	MAX44009	MAX44009	UDFN-6-EXPOSED	U8	low power ambient light sensor	
1	MS5637-02BA03	MS5637-02BA03	4-SMD	U9	low power pressure sensor	
1	NANO SIM	NANO SIM	WURTH NANO SIM3		WURTH Nano SIM Connector	
1	NRF9160	NRF9160	NRF9160	U5	IC RF TXRX+MCU CELL LTE-M/NB-IOT	
9	PMDXB950UPEL	PMDXB950UPEL	XDFN-6	Q1, Q2, Q3, Q4, Q5, Q6, Q7, Q8, Q10	20 V 500mA, dual P-channel Trench MOSFET	
1	SI7021-A20-GM1	SI7021-A20-GM1	DFN-6/3MM	U11	IC TEMP SENSOR RH 2% DFN	
1	SIP32510	SIP32510	TSOT23-6	U10	Load switch, slew rate controlled. By Vishay	IC LOAD SWITCH SOT23-6
1	SML-LX0404SIUPGUSB	SML-LX0404SIUPGUSB	1MM_SQ_4PAD	D2	1mm*2 RGB LED	
1	SOLARCELLHOLES	SOLARCELLHOLES	SOLAR_HOLES	D1	Generic solar cell	
1	TC2030-JLINK-NL	TC2030-JLINK-NL	TC2030-IDC-NL	J1		
1	TCS34725	TCS34725	FN-6	U12	Color Light-to-Digital Converter with IR Filter	
29	TEST-POINT	TEST-POINT	PAD.03X.03	TP1, TP2, TP3, TP4, TP5, TP6, TP7, TP8, TP9, TP10, TP11, TP12, TP13, TP14, TP15, TP16, TP17	TP18, TP19, TP20, TP21, TP22, TP23, TP25, TP26, TP27, TP30, TP31, TP32	
1	TPD3F303DPVR	TPD3F303DPVR	DPV8_1P7X0P4	U13	FILTER RC(P) ESD SMD	
2	U.FL-R-SMT	U.FL-R-SMT	U.FL_SMT	J2, J4	U.FL-R-SMT Antenna Connector	