

**NRF9160**

VCC

GND

R10 10k

C13 4.7uF

C15 4.7uF

C14 4.7uF

U9

ACC\_INT1/4.3G

ACC\_CS/4.1H

ACC\_INT2/4.3G

VDD\_GPIO

IO\_SUPPLY

CLR\_EN/4.5E

RTC\_IRQ3/5.10I

RTC\_IRQ2/5.10I

RTC\_IRQ1/5.10I

RTC\_CS/5.10G

NRF9160

VBAT

VSOL

VSEC

WDI/5.10I

LED\_BLUE/5.8D

LED\_RED/5.8C

LED\_GREEN/5.8D

RST/5.10I

SWDCLK

SWDIO

VBAT\_OK/3.8F

MOSI/2.7L

MISO/2.8K

PR\_EN/4.1M

PIR\_EN/4.9M

PIR\_OUT/4.9N

SIM\_RST/2.3G

SIM\_CLK/2.3G

SIM\_IO/2.3G

SIM\_IV8/2.3H

GPS

AUX

ANT

SDATA

SCLK

VIO

MAGPIO0

MAGPIO1

MAGPIO2

GPS\_EN

U2

J3

TC2030-JLINK-NL

SWDIO

SWDCLK

SWO

RESET

RST/5.10I

U1

AB1815-T3

VCC

VBAT

EXTI

WDI

XTI

XO

FOUT/IRQ1

IRQ2

CLKOUT/IRQ3

SCL

SDO

SDI

CS

VSS

RST

EXTR

WDI/5.10I

R9 10k

R8 10k

R7 10k

C1 47pF

X1 ABS07-32.768KHZ-7-T

S1

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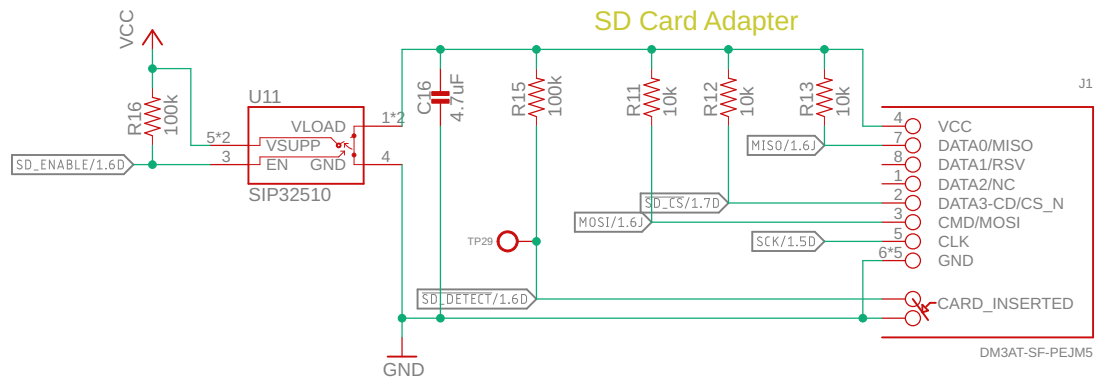
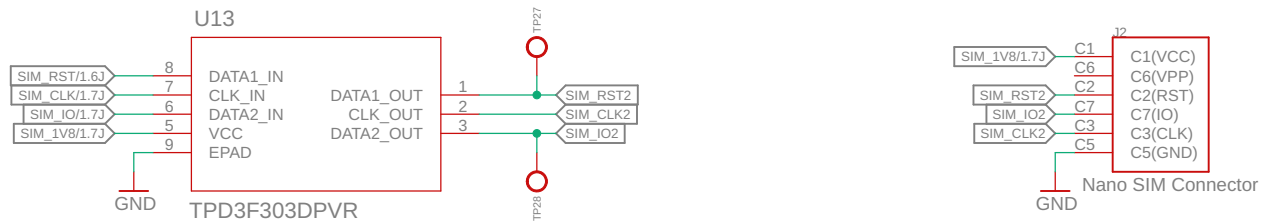
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PERMAMOTE\_LTE

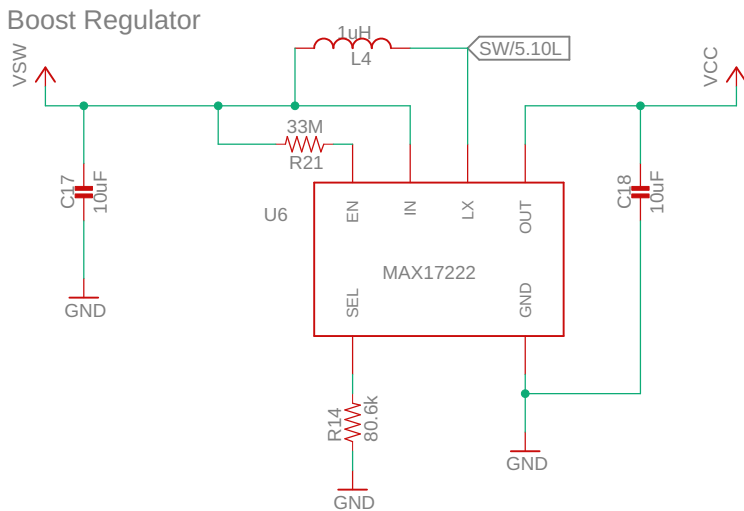
REV:  
A

Author: MEGHNA MANDAVA

Date: 5/18/20 5:28 PM

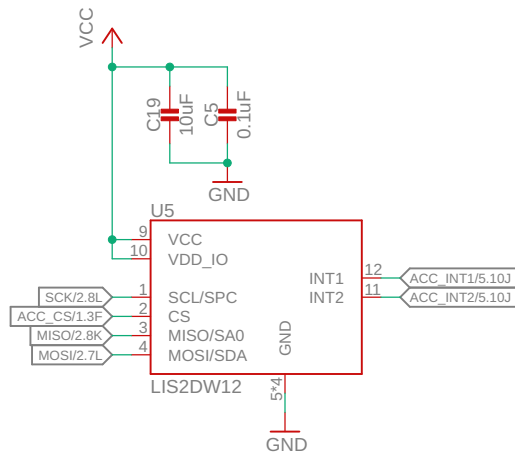
Sheet: 2/5

## Boost Regulator

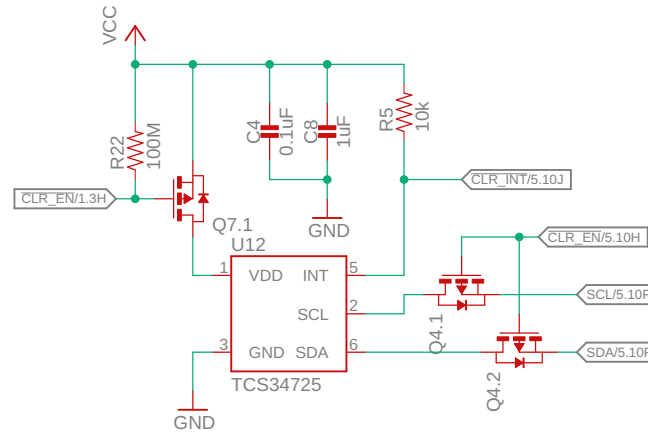


# Sensors

## Accelerometer

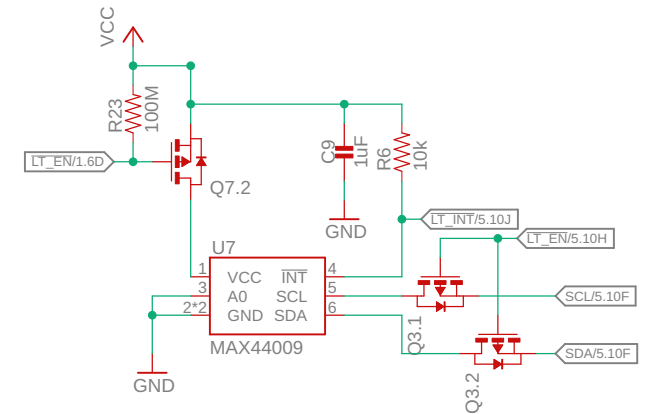


## Light Color



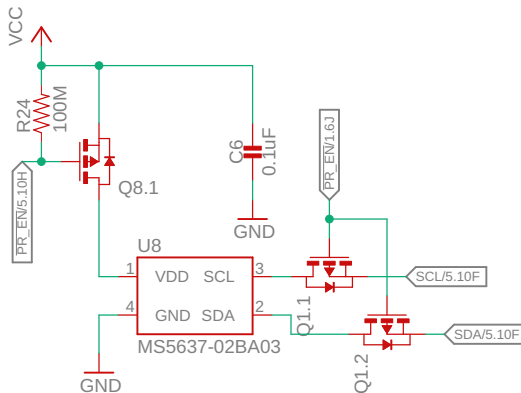
## Light

## Ambient Light

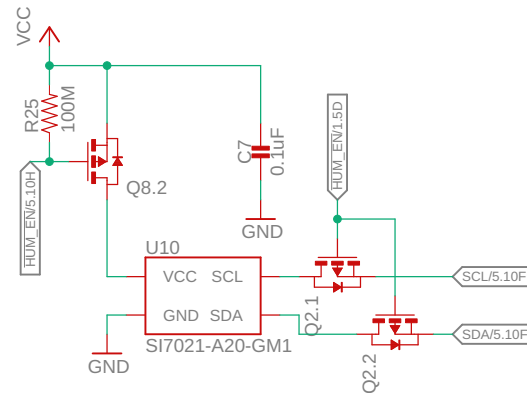


## Temperature

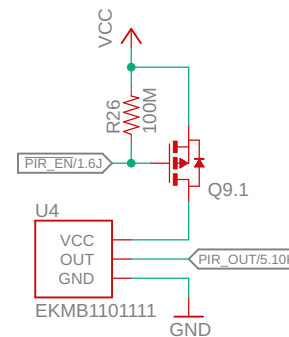
## Pressure



## Humidity



## Occupancy



PERMAMOTE\_LTE

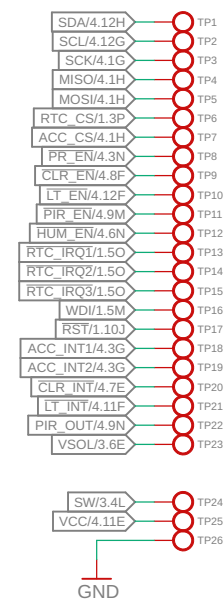
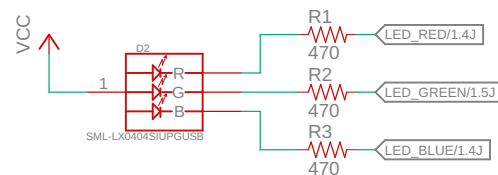
Author: MEGHNA MANDAVA

Date: 5/18/20 5:28 PM

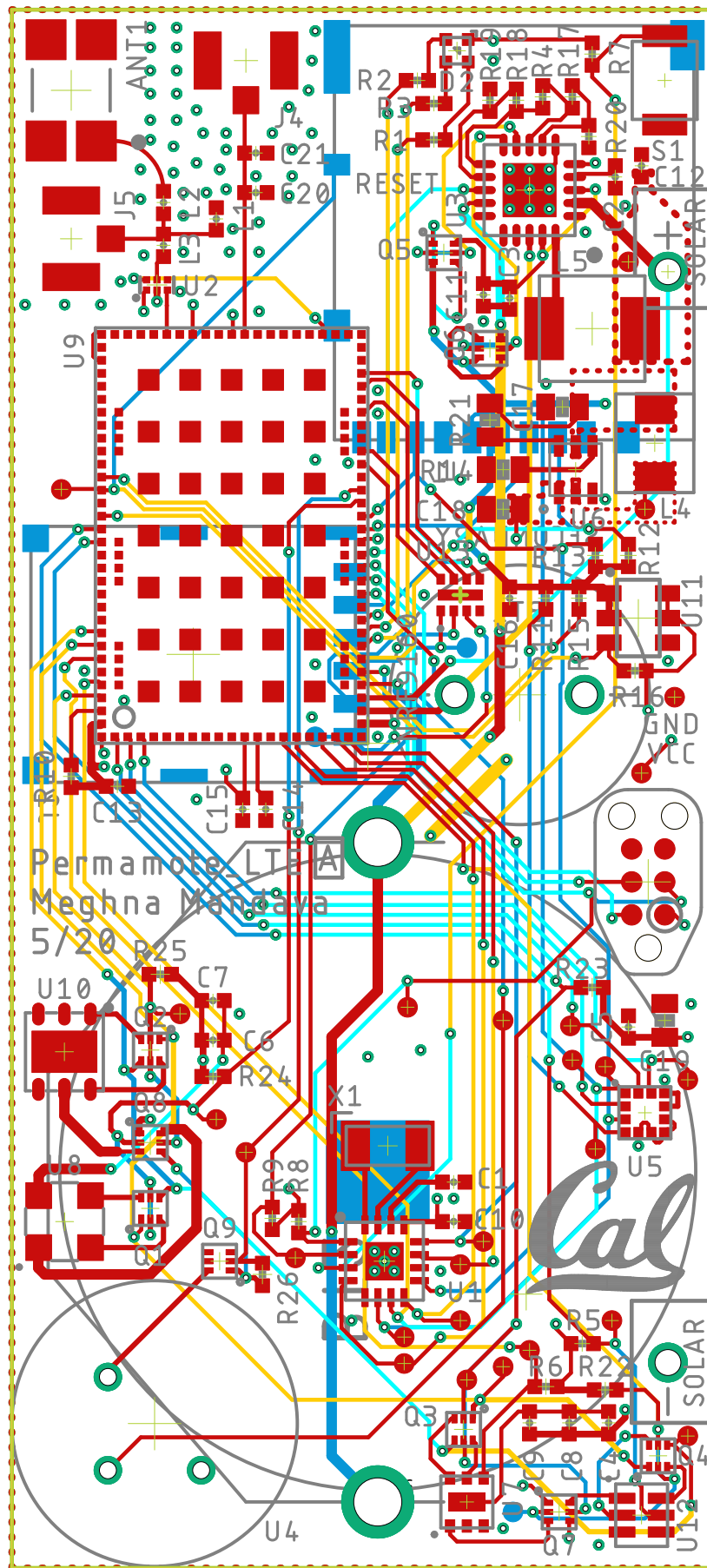
REV:  
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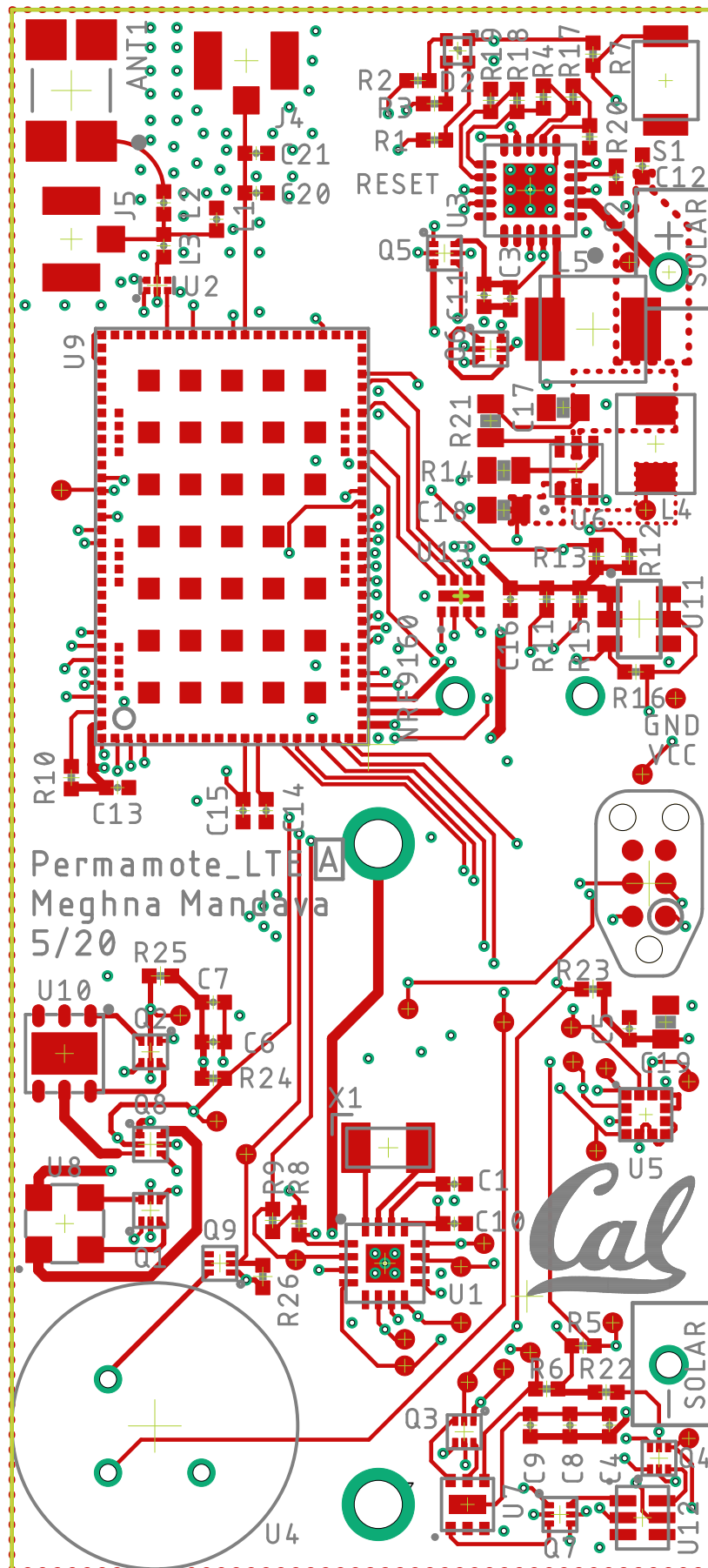
Sheet: 4/5

# Debugging

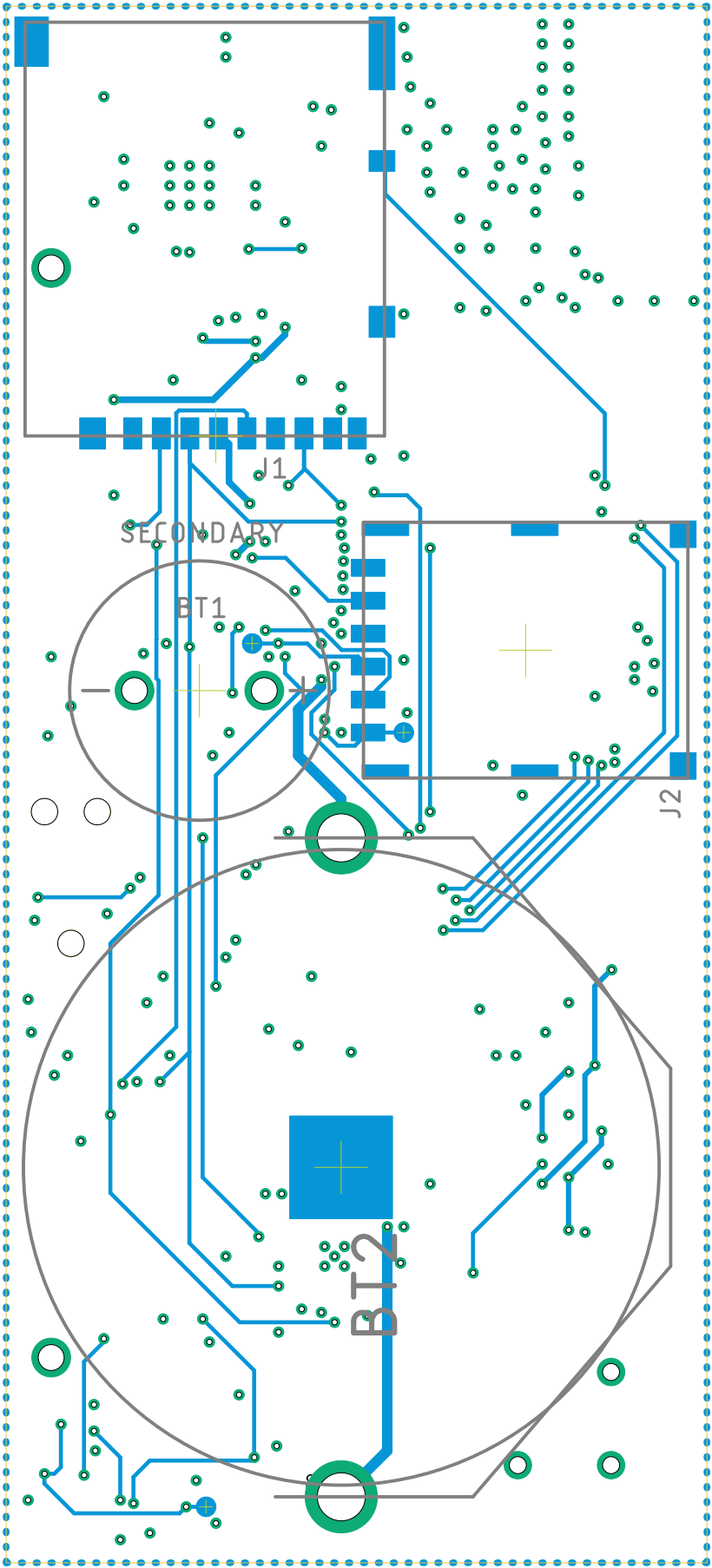


# Top and Bottom Layers



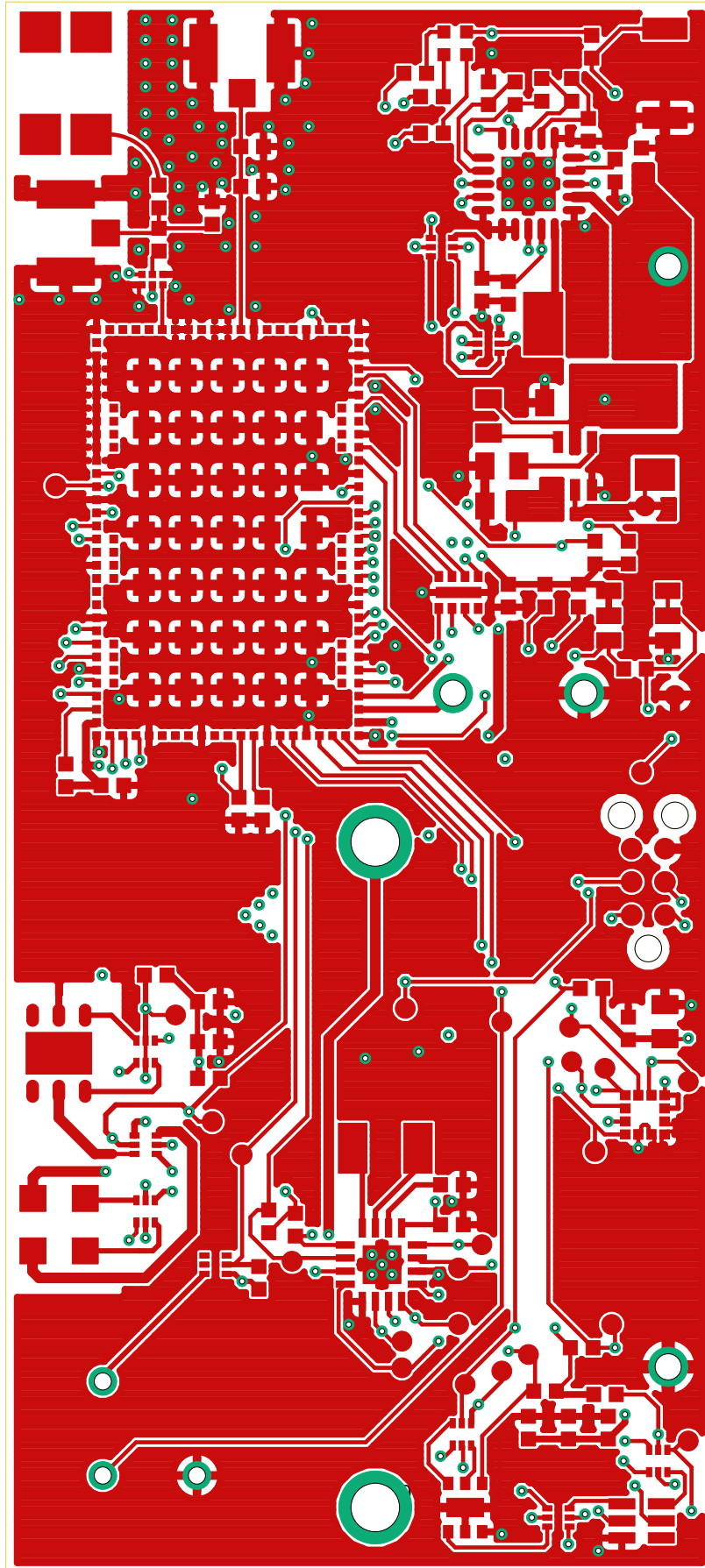


Bottom Layer

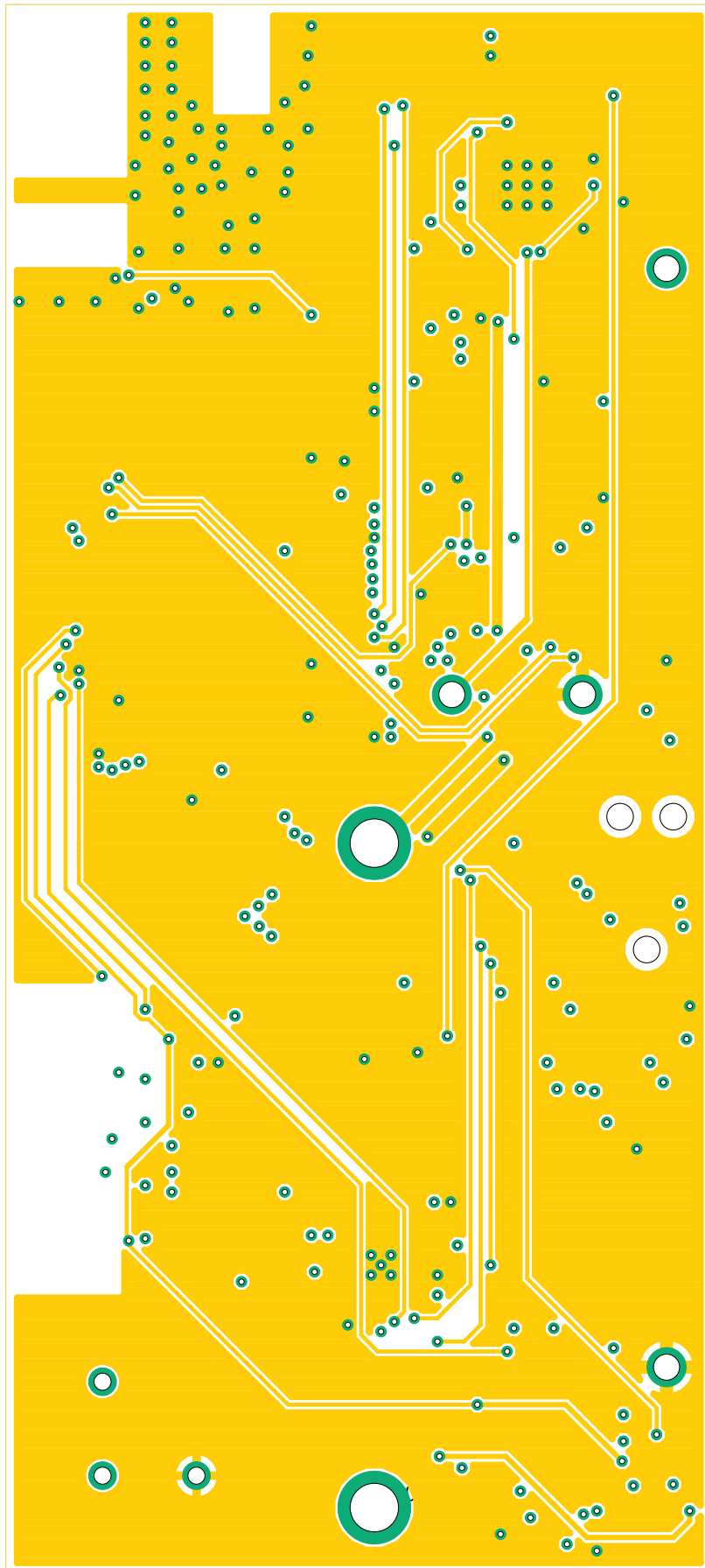




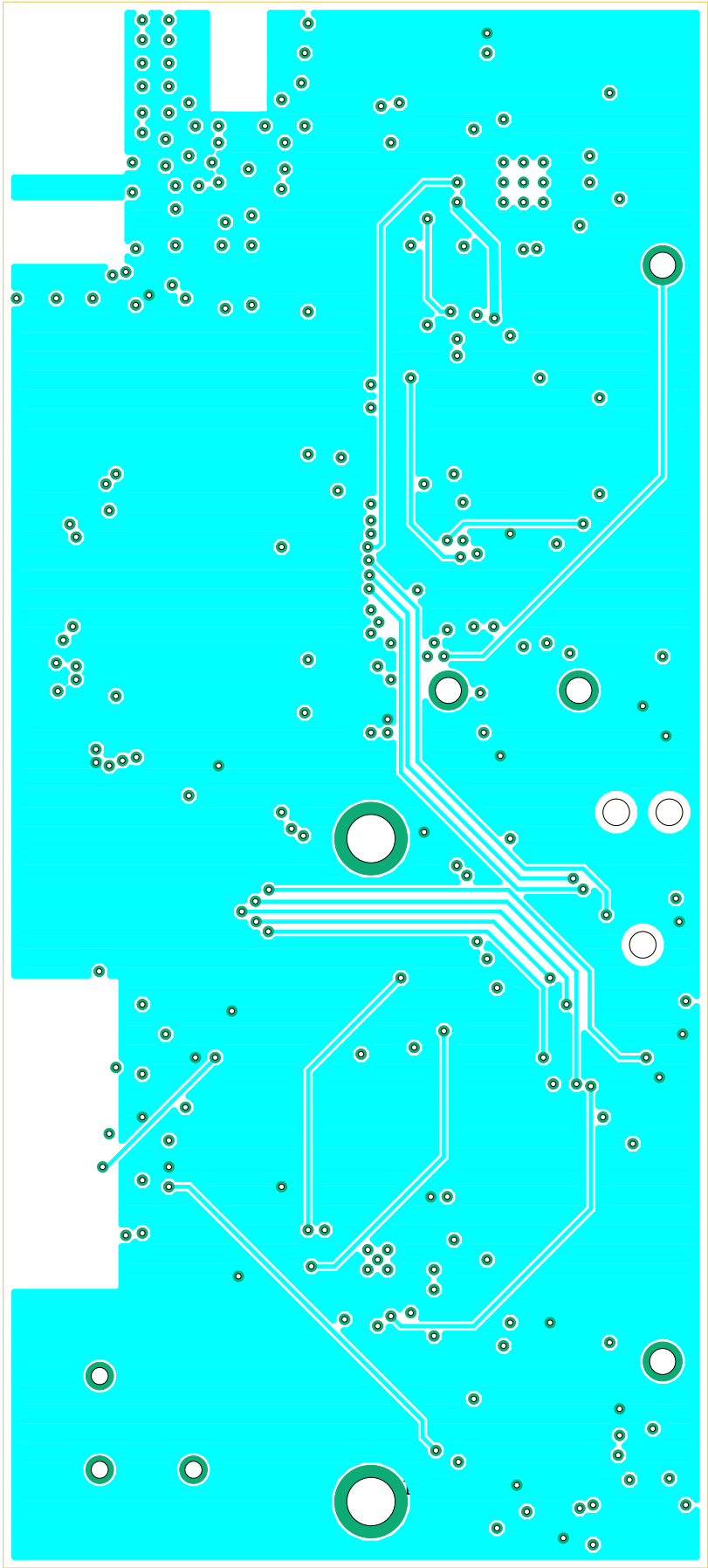
Top Copper Layer



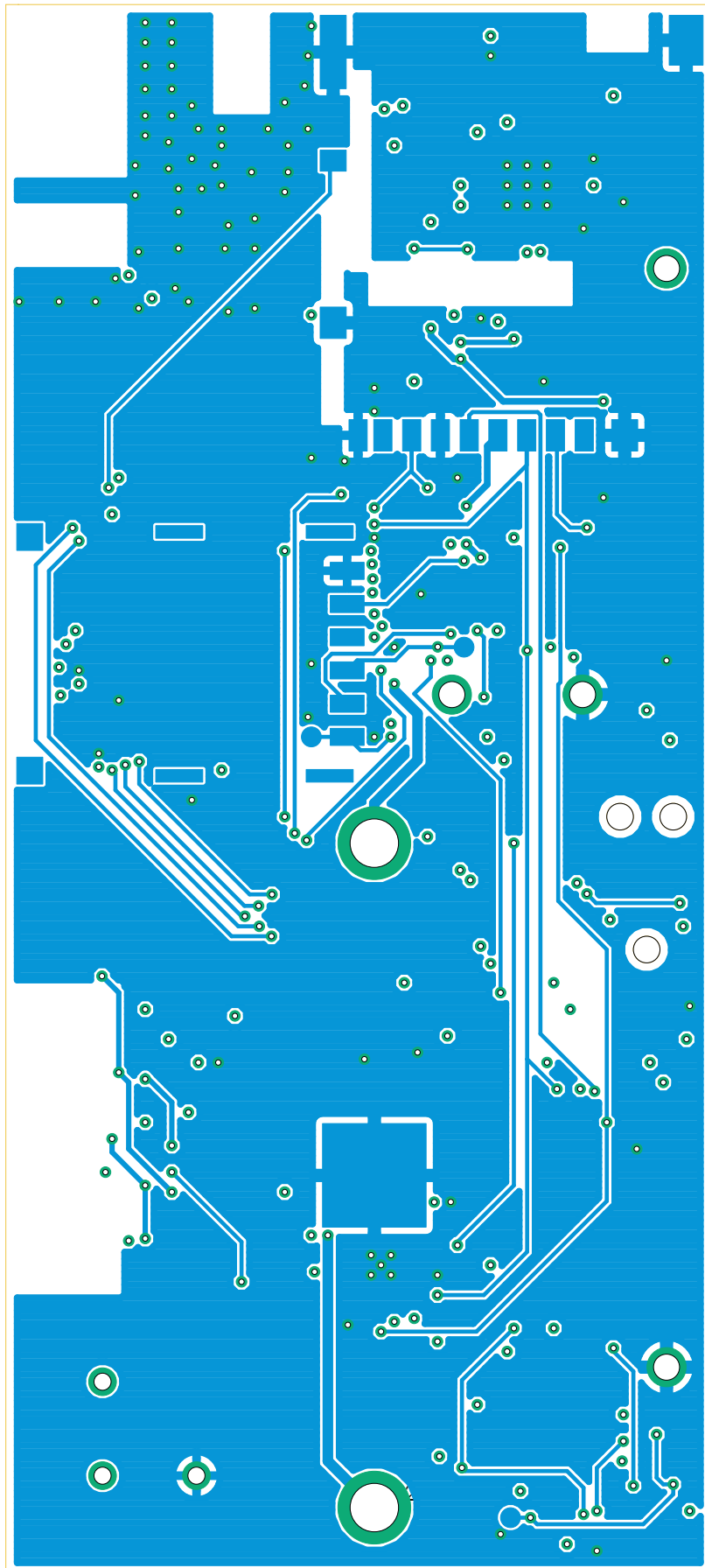
## Layer 2 Copper

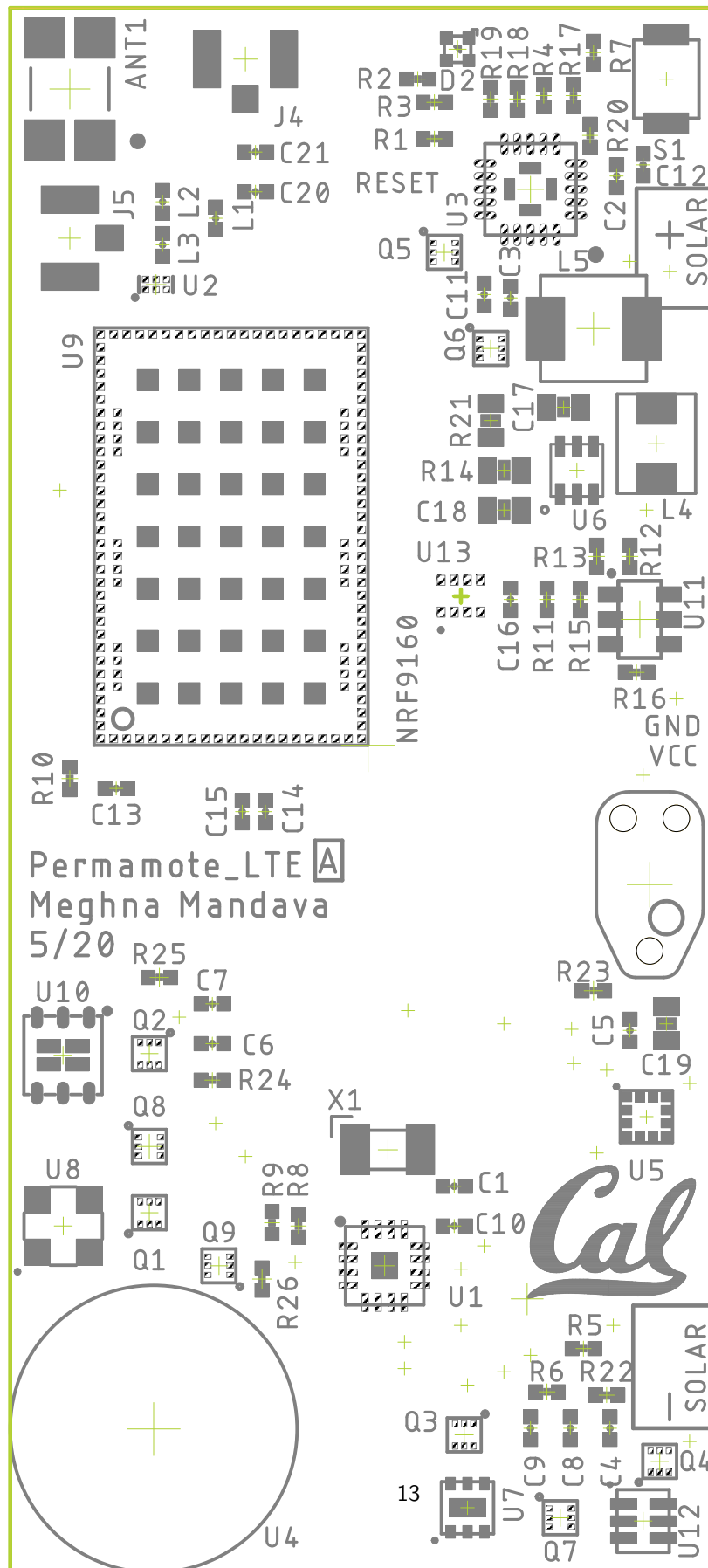


Layer 3 Copper

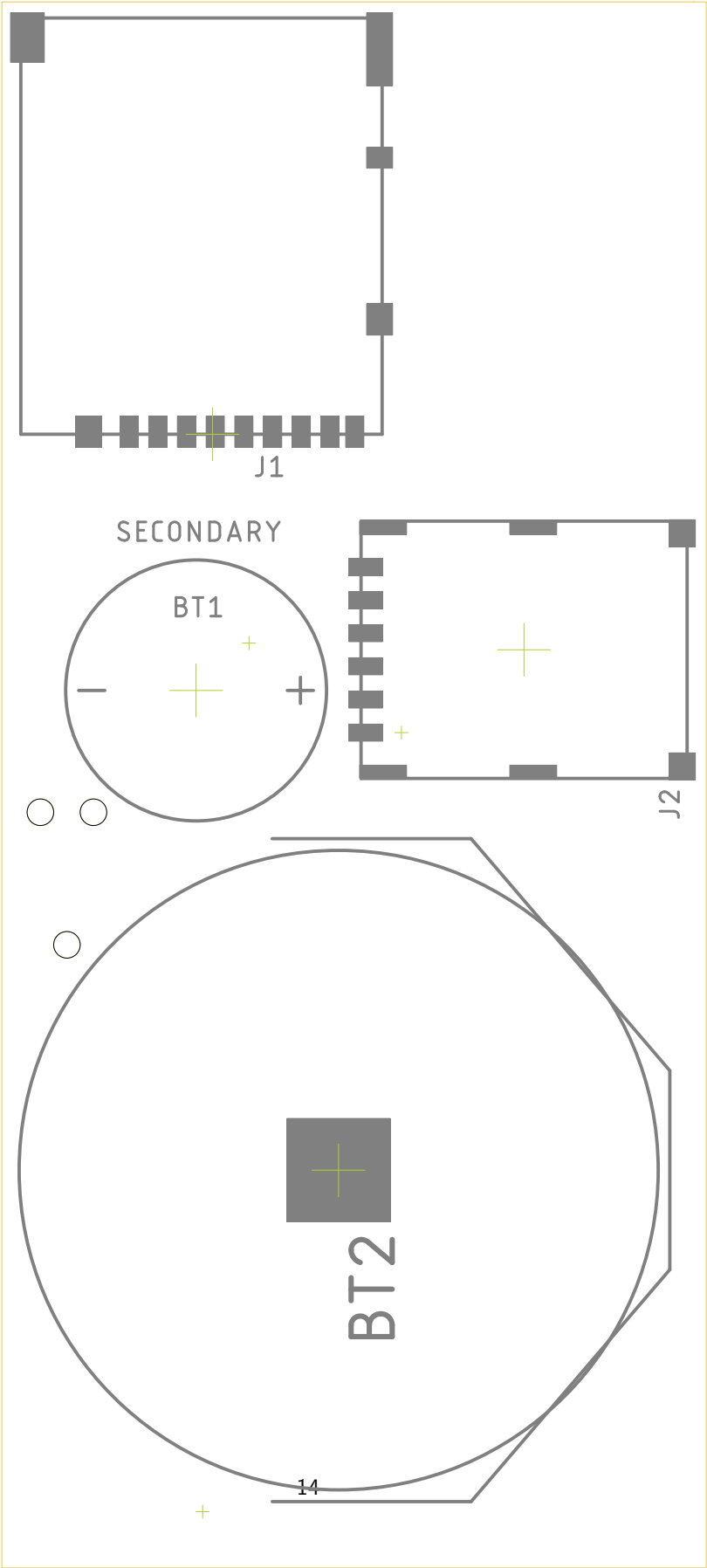


Bottom Copper Layer

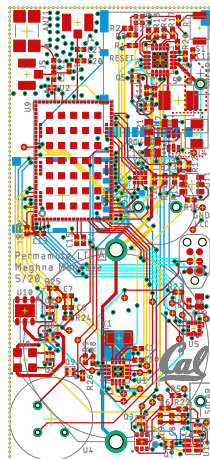


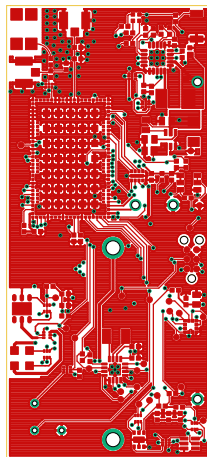


Bottom Paste Layer with Silkscreen

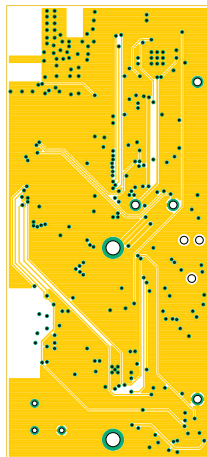


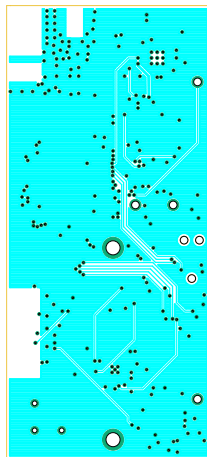
# Top and Bottom Layers 1:1 Scale



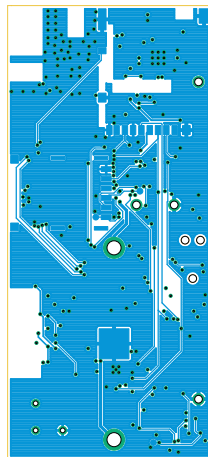








Bottom Copper Layer 1:1 Scale



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	100k	RESISTOR0402_RES	0402_RES	R22, R23, R24, R25, R26	Resistor	
2	100k	RESISTOR0402_RES	0402_RES	R15, R16	Resistor	RES SMD 100K OHM 1%
6	10k	RESISTOR0402_RES	0402_RES	R5, R6, R7, R8, R9, R10	Resistor	
3	10k	RESISTOR0402_RES	0402_RES	R11, R12, R13	Resistor	
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	ANT1	Antenna GPS 1.4dBi Gain 1578MHz SMD T/R	Antenna GPS 1.4dBi Gain
3	1uF	CAPACITOR0402_CAP	0402_CAP	C8, C9, C10	SMD Capacitor	
1	1uH	INDUCTOR0402	IHL-1212BZ-11	L4	A very specific inductor	
1	22uH	INDUCTOR74437324220	74437324220	L5	A very specific inductor	
1	2477THMCOINCELLCLIP	2477THMCOINCELLCLIP	2477THMCOINCLIP	B72	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	
3		RESISTOR0402_RES	0402_RES	R1, R2, R3	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	X1	32.768kHz Crystal	
1	B3U-1000P	B3U-1000P	B3U-1000P	S1	Switch	
1	BGA725L6	BGA725L6	LNA-TSLP-6-2-ORIG	U2		
1	BQ25505	BQ25505	S-PVQFN-N20-RGR	U3	EH front end for switching between primary and secondary cells	
1	DM3AT-SF-PEJM5	DM3AT-SF-PEJM5	DM3AT-SF-PEJM5	J1	CONN MICRO SD R/A PUSH-PUSH SMD	CONN MICRO SD CARD
2	DNP	CAPACITOR0402_CAP	0402_CAP	C20, C21	SMD Capacitor	
1	EKMB1101111	EKMB1101111	AMN2	U4	Passive infrared human detection sensor with built-in amp.	
1	LIS2DW12	LIS2DW12	LGA-12	U5	ultra low power 3 axis accelerometer	
1	LTOHTC1020	LTOHTC1020		1020 BT1		
1	MAX17222	MAX17222	UDFN-6-MAXIM	U6	Very high efficiency, very low power boost converter suitable for EH applications	
1	MAX44009	MAX44009	UDFN-6-EXPOSED	U7	low power ambient light sensor	
1	MS5637-02BA03	MS5637-02BA03	4-SMD	U8	low power pressure sensor	
1	NANO SIM	NANO SIM	WURTH NANO_SIM	M2	WURTH Nano SIM Connector	
1	NRF9160	NRF9160	NRF9160	U9		
9	PMDXB950UPEL	PMDXB950UPEL	XDFN-6	Q1, Q2, Q3, Q4, Q5, Q6, Q7, Q8, Q9	20 V 500mA, dual P-channel Trench MOSFET	
1	SI7021-A20-GM1	SI7021-A20-GM1	DFN-6/3MM	U10	IC TEMP SENSOR RH 2% DFN	
1	SIP32510	SIP32510	TSOT23-6	U11	Load switch, slew rate controlled. By Vishay	IC LOAD SWITCH SOT23
1	SML-LX0404SIUPGUSB	SML-LX0404SIUPGUSB	IMM_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	J3		
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, TP24, TP25, TP26, TP27, TP28, TP29	
1	TPD3F303DPVR	TPD3F303DPVR	DPV8_1P7X0P4	U13		
2	U.FL-R-SMT	U.FL-R-SMT	U.FL_SMT	J4, J5	U.FL-R-SMT Antenna Connector	