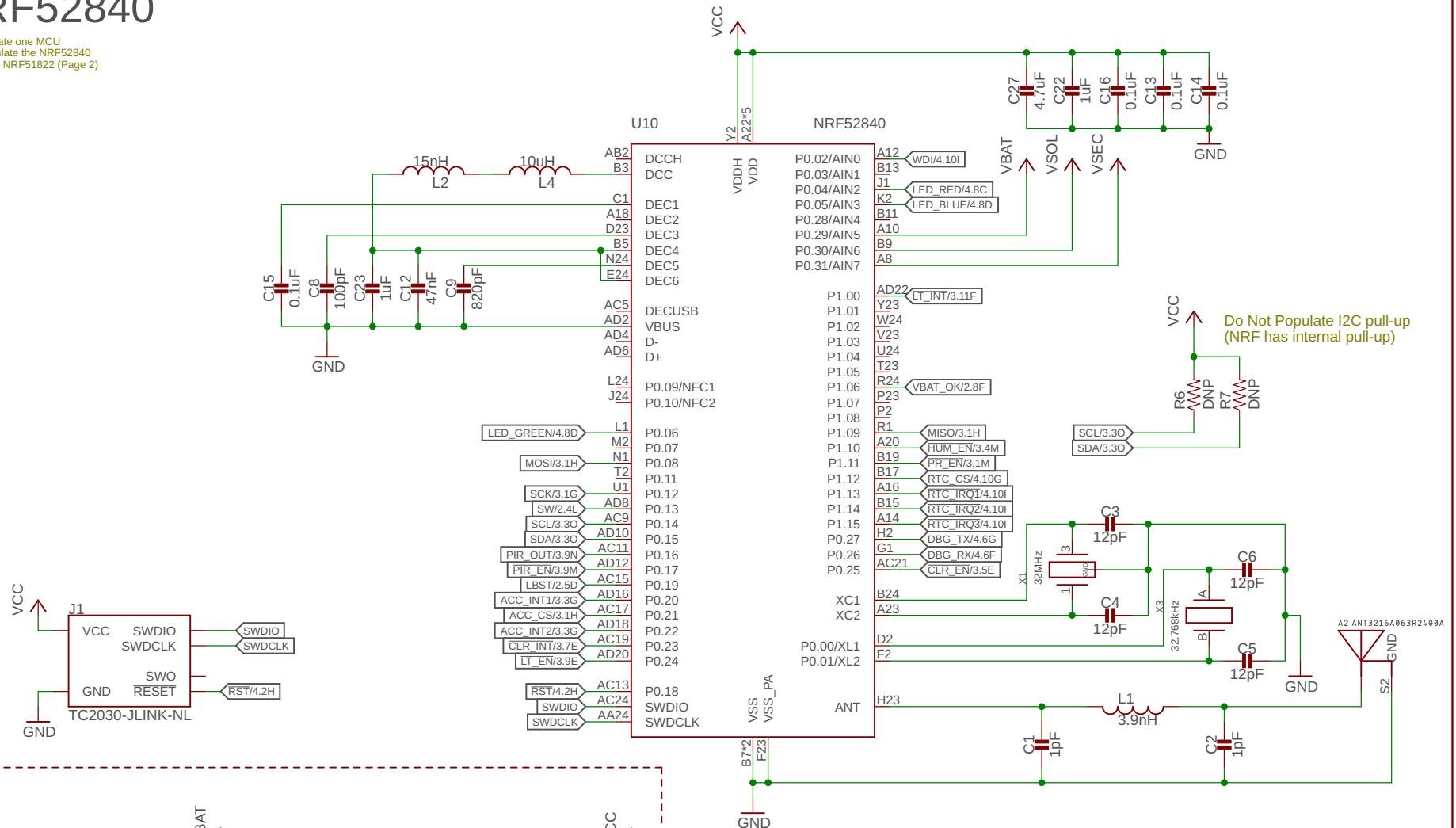
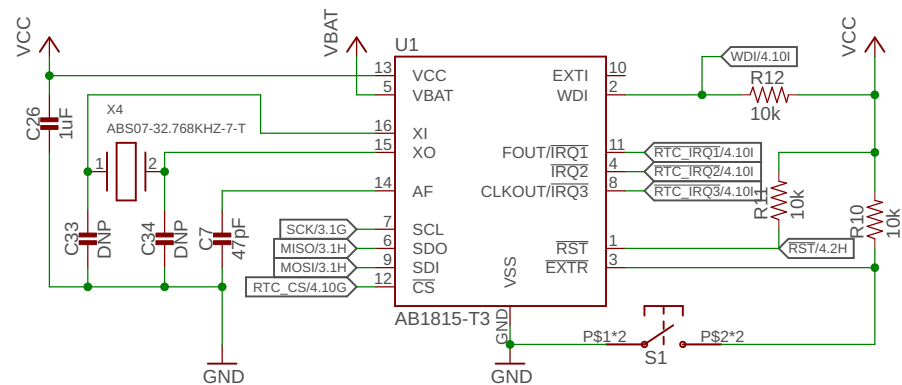


# NRF52840

Only populate one MCU  
Either populate the NRF52840  
(Page 1) or NRF51822 (Page 2)



## RTC



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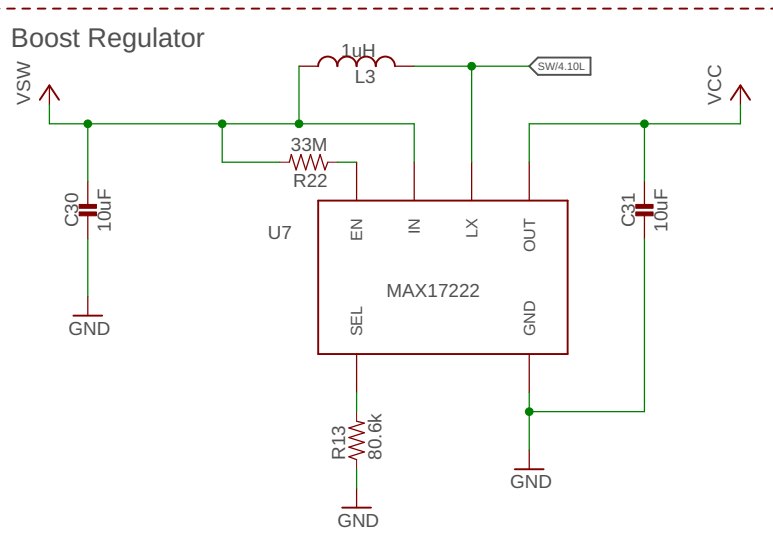
Author: NEAL JACKSON

Date: 7/18/18 11:06 AM

REV:  
B

Sheet: 1/4

## Boost Regulator



Note: Only populate one type of battery holder

PERMAMOTE

Author: NEAL JACKSON

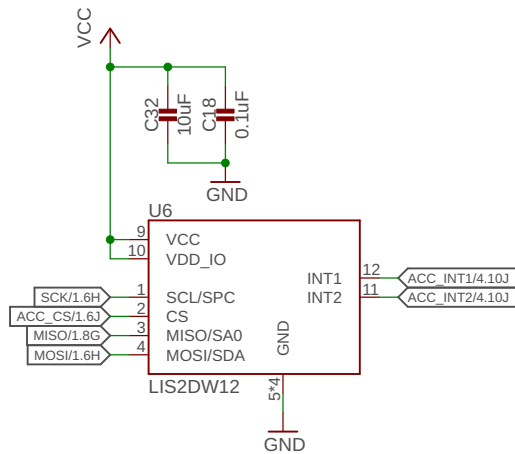
Date: 7/18/18 11:06 AM

REV:  
B

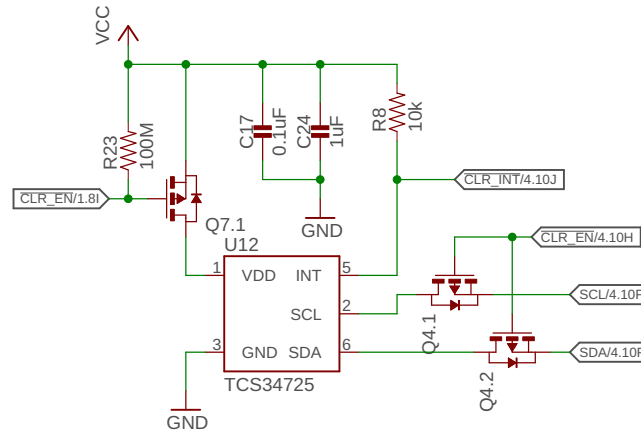
Sheet: 2/4

# Sensors

## Accelerometer

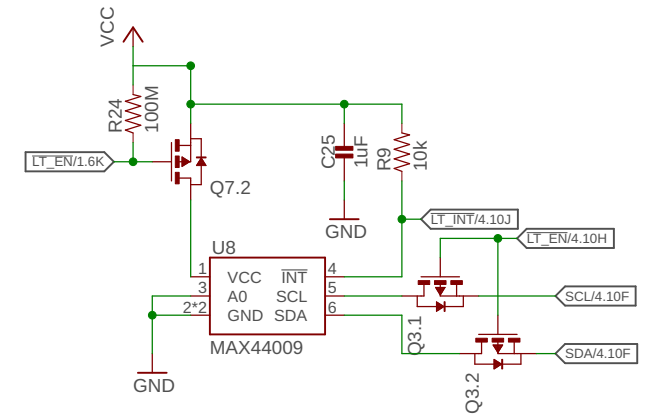


## Light Color



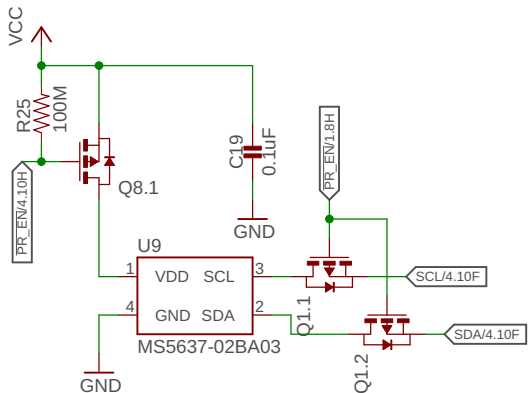
## Light

### Ambient Light

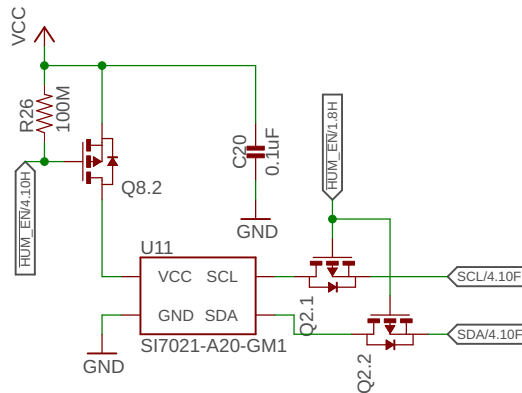


## Temperature

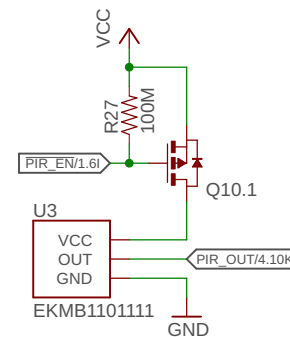
### Pressure



### Humidity



## Occupancy



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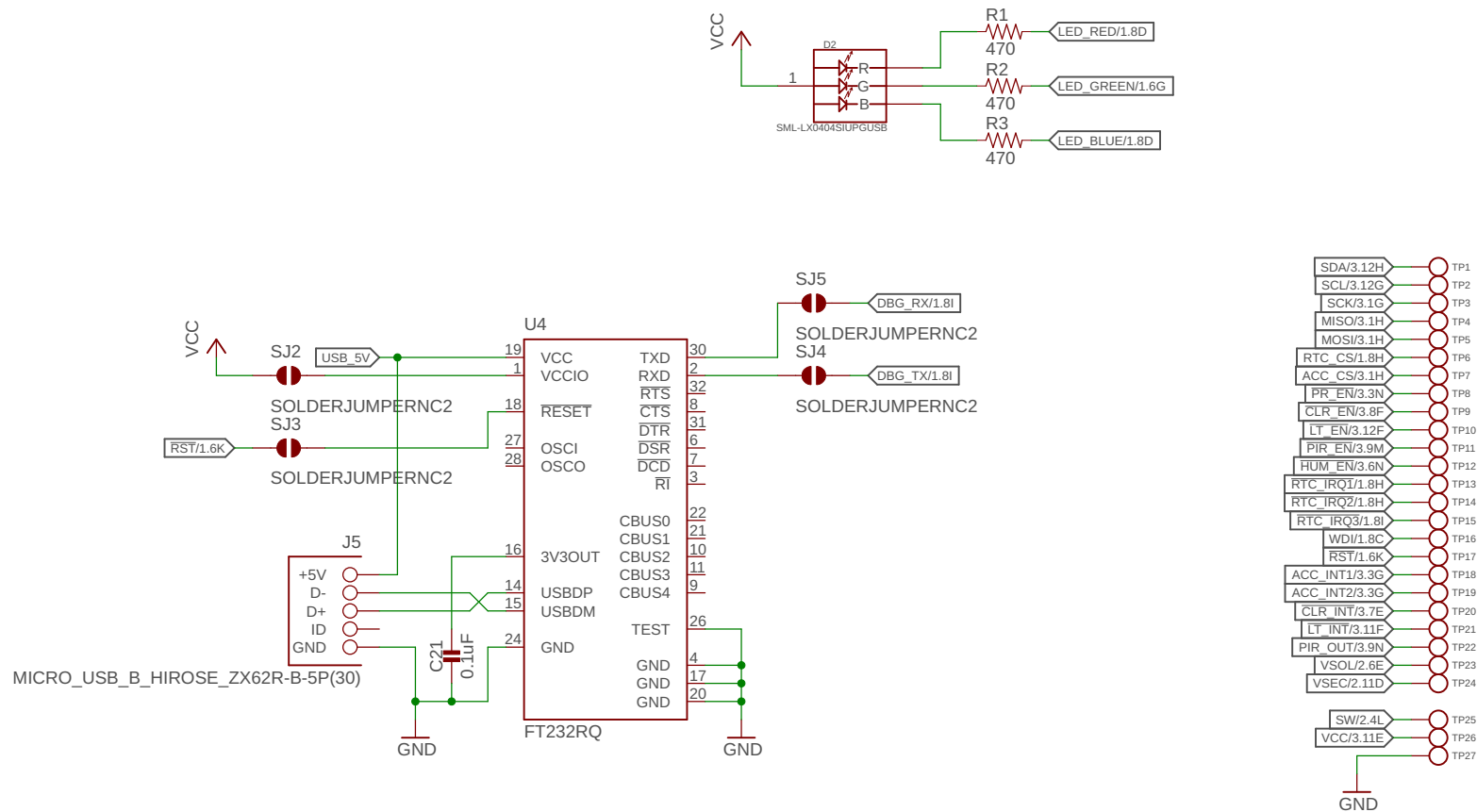
Author: NEAL JACKSON

Date: 7/18/18 11:06 AM

REV:  
B

Sheet: 3/4

# Debugging



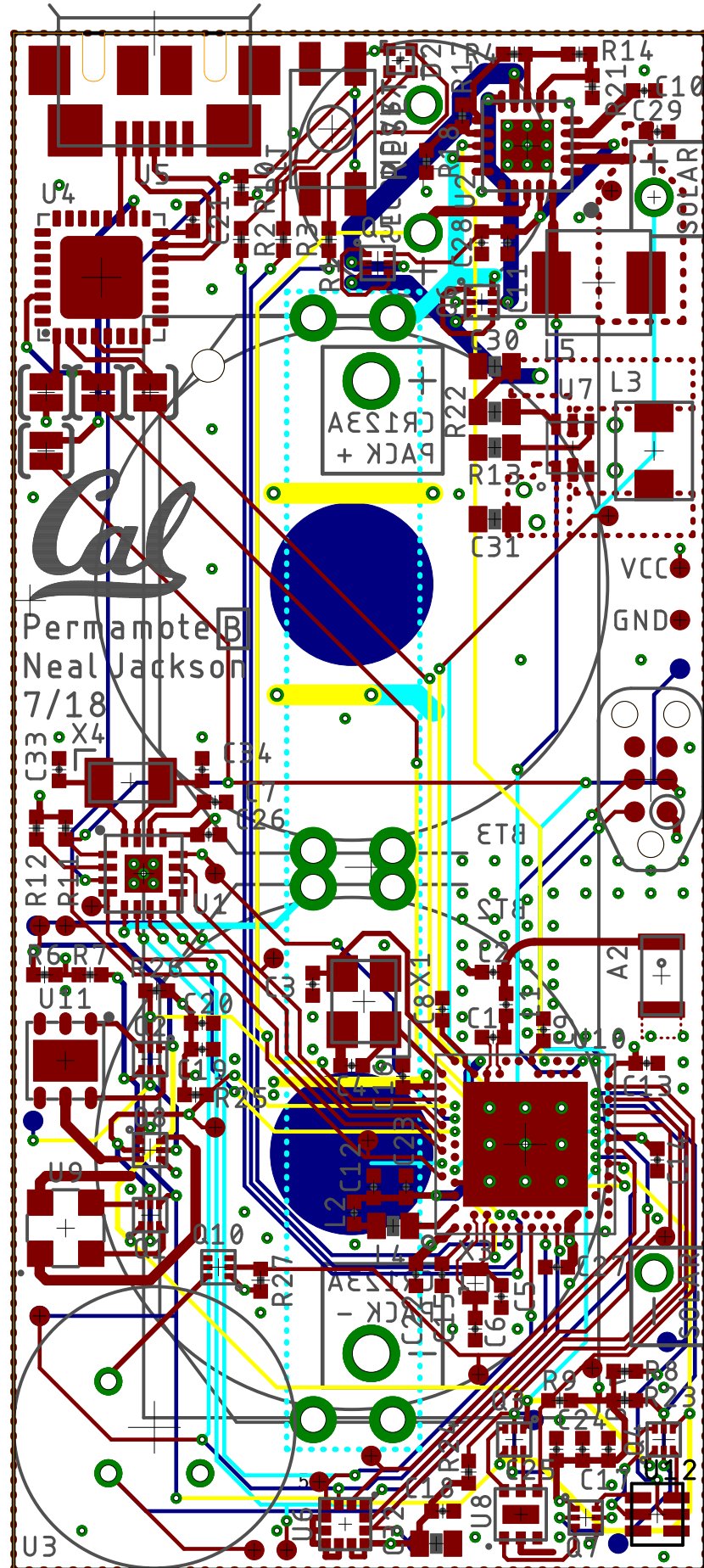
PERMAMOTE

Author: NEAL JACKSON

Date: 7/18/18 11:06 AM

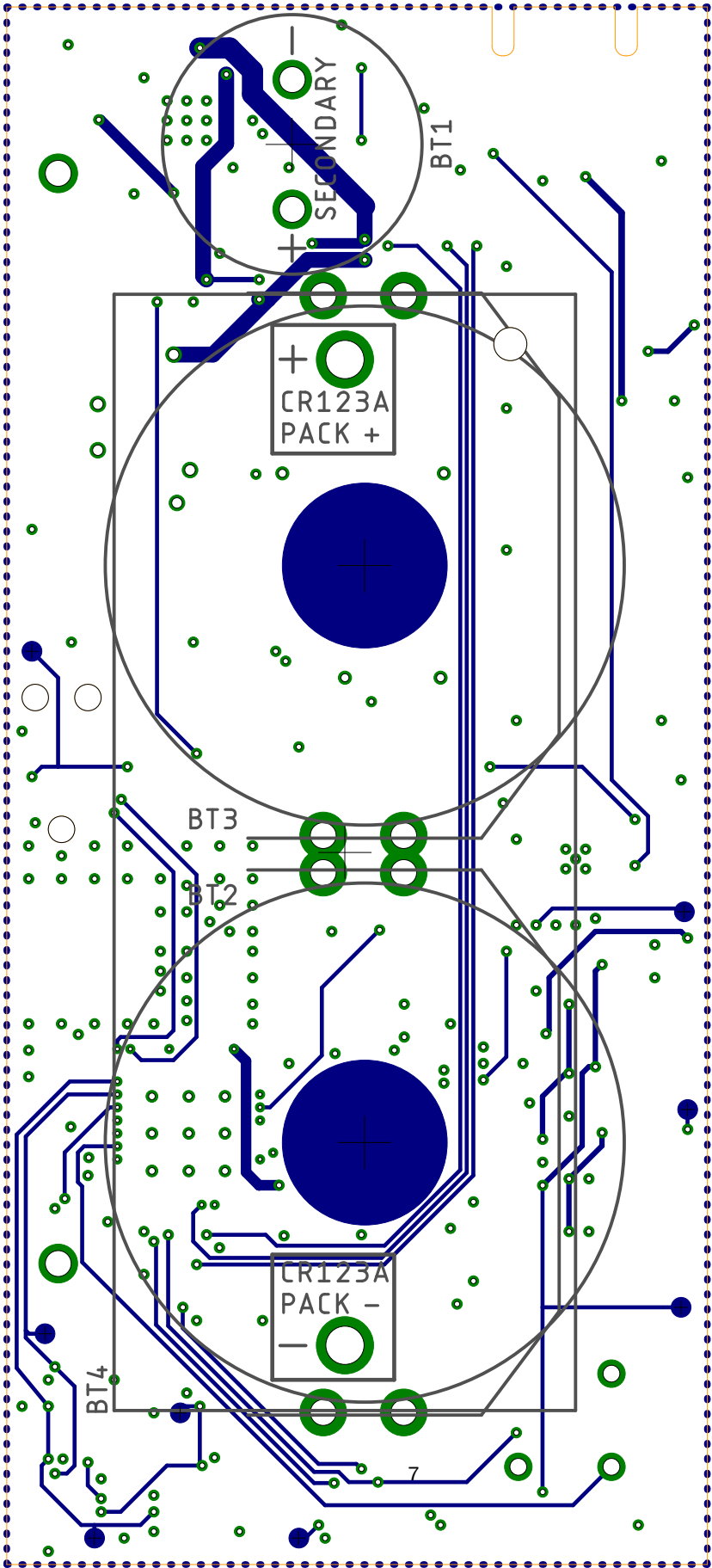
REV:  
B

Sheet: 4/4

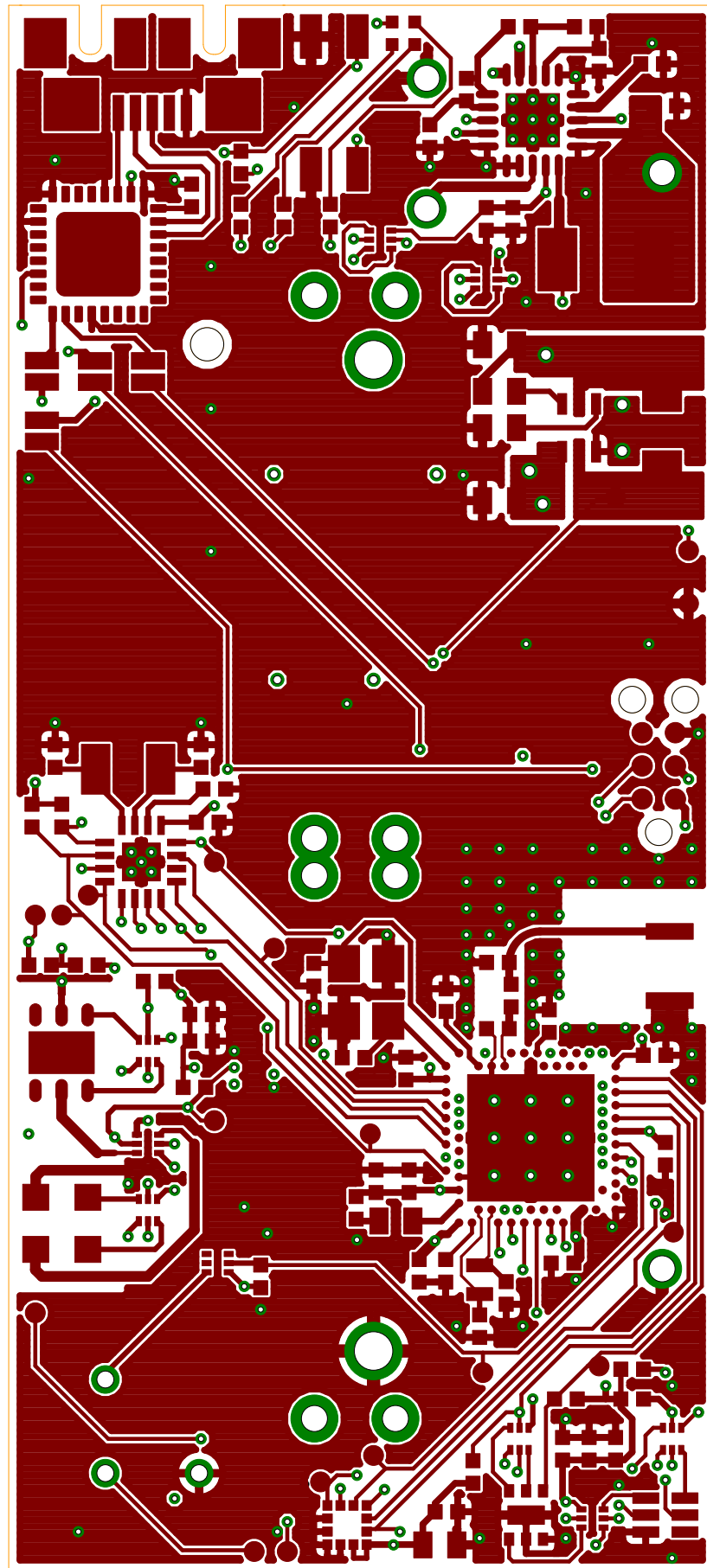




Bottom Layer

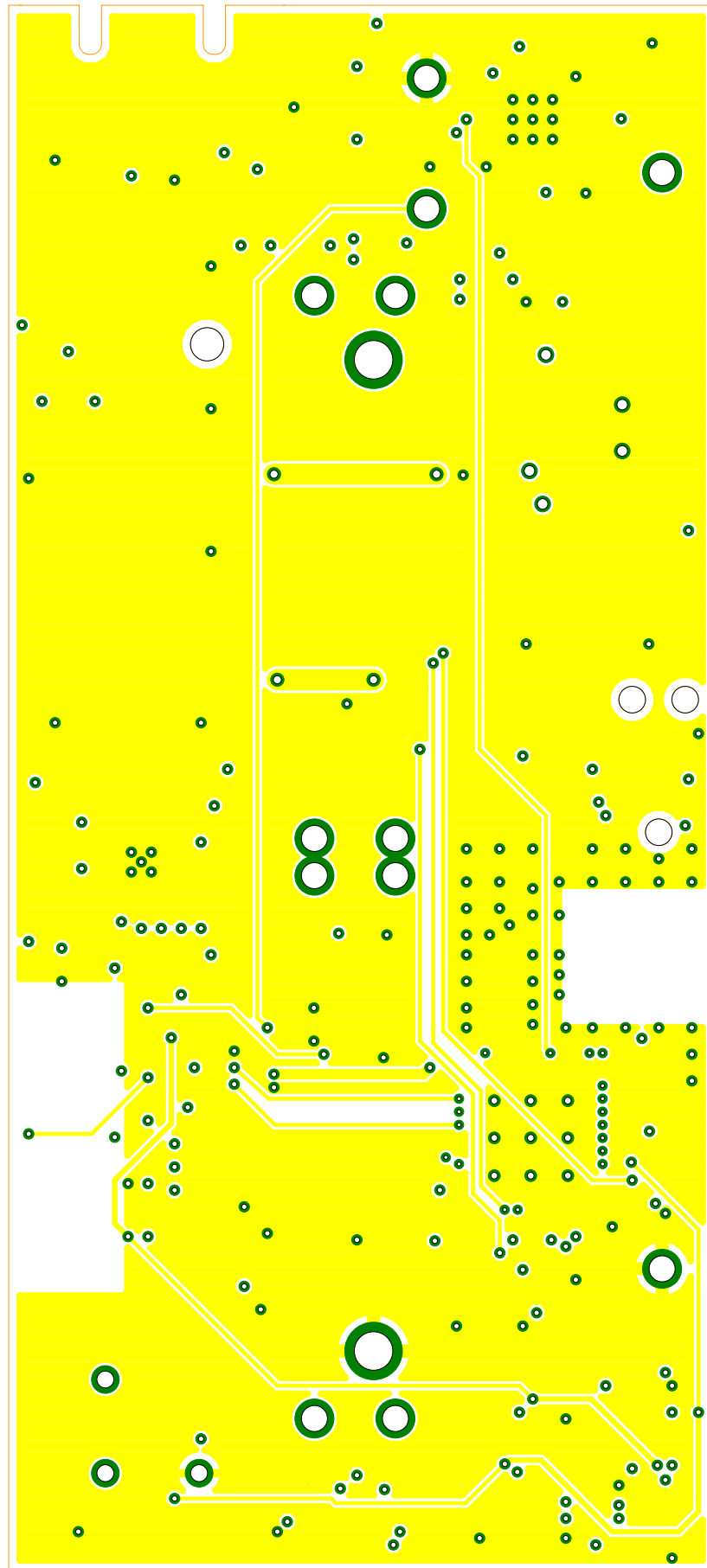


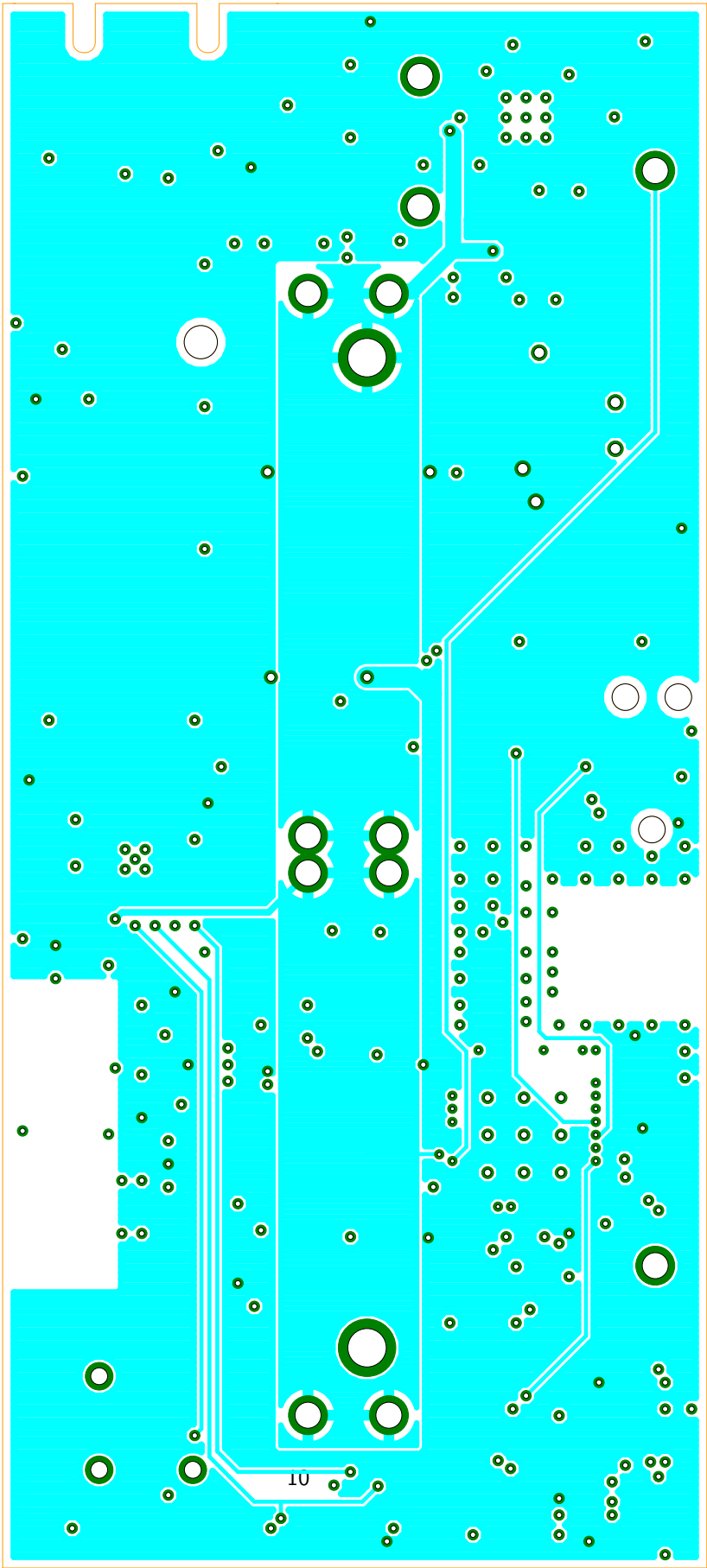
Top Copper Layer



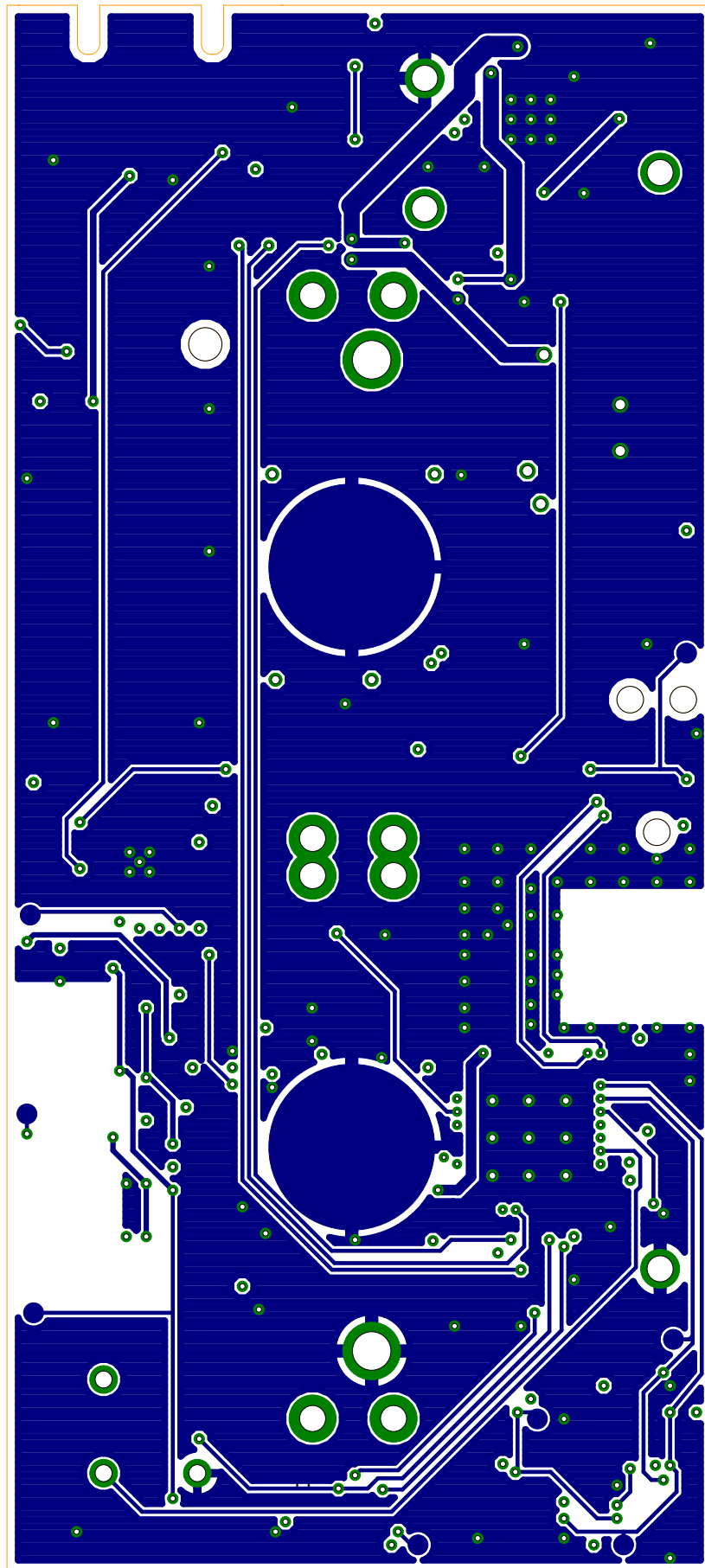


## Layer 2 Copper

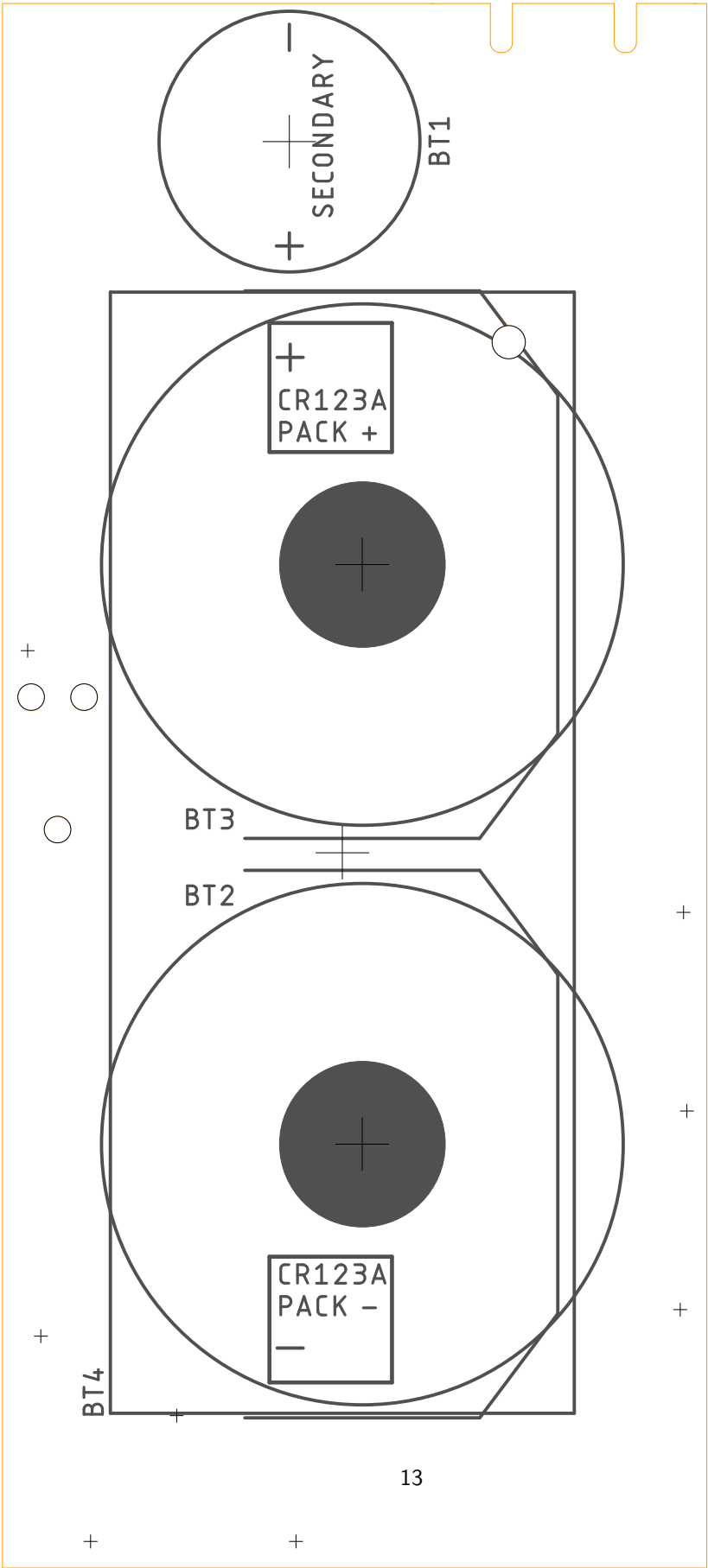




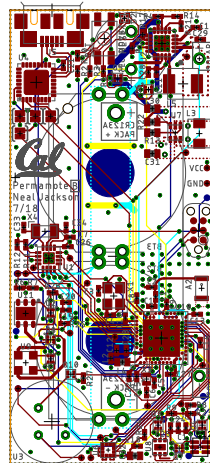
Bottom Copper Layer

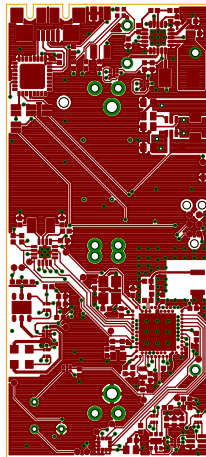


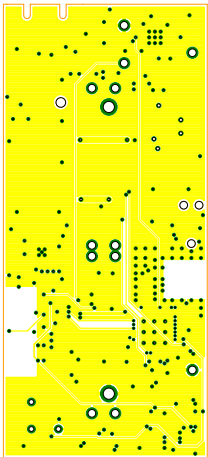




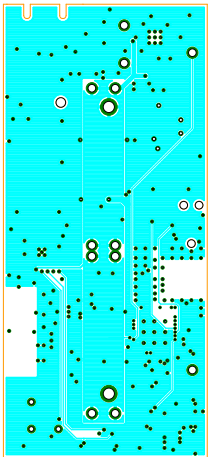
## Top and Bottom Layers 1:1 Scale



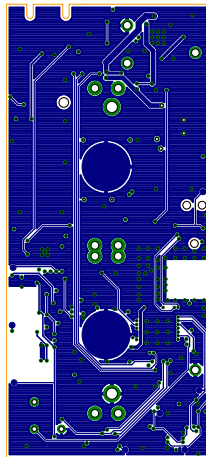








Bottom Copper Layer 1:1 Scale



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Qty	Value	Device
	9 0.1uF	CAPACITOR0402_CAP
	5 100M	RESISTOR0402_RES
	1 100pF	CAPACITOR0402_CAP
	5 10k	RESISTOR0402_RES
	2 10nF	CAPACITOR0402_CAP
	3 10uF	CAPACITOR0603_CAP
	1 10uH	INDUCTOR0603
	4 12pF	CAPACITOR0402_CAP
	1 15nH	INDUCTOR0402
	2 1pF	CAPACITOR0402_CAP
	5 1uF	CAPACITOR0402_CAP
	1 1uH	INDUCTOR0402
	1 22uH	INDUCTOR74437324220
	1 3.9M	RESISTOR0402_RES
	1 3.9nH	INDUCTOR0402
	1 32.768kHz	ABS05-32.768KHZ-9-T
	1 32MHz	7V-32.000MAHV-T
	1 33M	RESISTOR0603_RES
	3 4.7uF	CAPACITOR0402_CAP
	3	470 RESISTOR0402_RES
	1 47nF	CAPACITOR0402_CAP
	1 47pF	CAPACITOR0402_CAP
	1 6.04k	RESISTOR0402_RES
	1 6.2M	RESISTOR0402_RES
	1 6.8M	RESISTOR0402_RES
	1 80.6k	RESISTOR0603_RES
	1 820pF	CAPACITOR0402_CAP
	1 9.1M	RESISTOR0402_RES
	1 AB1815-T3	AB1815-T3
	1 ABS07-32.768KHZ-7-T	ABS07-32.768KHZ-7-T
	1 ANT3216A063R2400A	ANT3216A063R2400A
	2 BAT-HLD-002-THM	BAT-HLD-002-THM
	1 BAT_PACKCR123A	BAT_PACKCR123A
	1 BQ25505	BQ25505
	2 DNP	CAPACITOR0402_CAP
	2 DNP	RESISTOR0402_RES
	1 EKMB1101111	EKMB1101111
	1 EVQP2	EVQP2
	1 FT232RQ	FT232RQ
	1 LIS2DW12	LIS2DW12
	1 LTOHTC1020	LTOHTC1020
	1 MAX17222	MAX17222
	1 MAX44009	MAX44009
	1 MICRO_USB_B_HIROSE_ZX62R-B-5P(30)	MICRO_USB_B_HIROSE_ZX62R-B-5P(30)
	1 MS5637-02BA03	MS5637-02BA03
	1 NRF52840	NRF52840
	9 PMDXB950UPEL	PMDXB950UPEL
	1 SI7021-A20-GM1	SI7021-A20-GM1
	1 SML-LX0404SIUPGUSB	SML-LX0404SIUPGUSB

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1 SOLARCELLHOLES  
1 TCS34725

SOLARCELLHOLES  
TCS34725

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Package

0402\_CAP

0402\_RES

0402\_CAP

0402\_RES

0402\_CAP

0603\_CAP

0603\_CAP

0402\_CAP

0402\_CAP

0402\_CAP

0402\_CAP

IHL-1212BZ-11

74437324220

0402\_RES

0402\_CAP

ABS05

TXC-7V

0603-RES

0402\_CAP

0402\_RES

0402\_CAP

0402\_CAP

0402\_RES

0402\_RES

0402\_RES

0603-RES

0402\_CAP

0402\_RES

QFN-16-3MM

2-SMD

ANT3216A063R2400A

BAT-HLD-002-THM

BH123A

S-PVQFN-N20-RGR

0402\_CAP

0402\_RES

AMN2

EVQP2

QFN32

LGA-12

1020

UDFN-6-MAXIM

UDFN-6-EXPOSED

MICRO\_USB\_B\_HIROSE\_ZX62R-B-5P(30)

4-SMD

AQFN73

XDFN-6

DFN-6/3MM

1MM\_SQ\_4PAD

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SOLAR\_HOLES  
FN-6

Parts

C13, C14, C15, C16, C17, C18, C19, C20, C21

R23, R24, R25, R26, R27

C8

R8, R9, R10, R11, R12

C10, C11

C30, C31, C32

L4

C3, C4, C5, C6

L2

C1, C2

C22, C23, C24, C25, C26

L3

L5

R14

L1

X3

X1

R22

C27, C28, C29

R1, R2, R3

C12

C7

R4

R17

R18

R13

C9

R21

U1

X4

A2

BT2, BT3

BT4

U2

C33, C34

R6, R7

U3

S1

U4

U6

BT1

U7

U8

J5

U9

U10

Q1, Q2, Q3, Q4, Q5, Q6, Q7, Q8, Q10

U11

D2

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D1  
U12



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Description

SMD Capacitor

Resistor

SMD Capacitor

Resistor

SMD Capacitor

SMD Capacitor

A very specific inductor

SMD Capacitor

A very specific inductor

SMD Capacitor

SMD Capacitor

A very specific inductor

A very specific inductor

Resistor

A very specific inductor

32.768kHz Crystal

TXC CRYSTAL SMD

Resistor

SMD Capacitor

Resistor

SMD Capacitor

SMD Capacitor

Resistor

Resistor

Resistor

Resistor

SMD Capacitor

Resistor

Ultra-low current RTC. 55nA quiescent @ 3V. 1.5-3.6V input.

32.768kHz Crystal

Yageo 2.4GHz

RETAINER BATT CR2016 PC PINS

collection of battery footprints

EH front end for switching between primary and secondary cells

SMD Capacitor

Resistor

Passive infrared human detection sensor with built-in amp.

SWITCH TACTILE SPST-NO 0.02A 15V

Source: [http://www.ftdichip.com/Documents/DataSheets/DS\\_FT232R\\_v104.pdf](http://www.ftdichip.com/Documents/DataSheets/DS_FT232R_v104.pdf)

ultra low power 3 axis accelerometer

Very high efficiency, very low power boost converter suitable for EH applications

low power ambient light sensor

USB Micro B Connector

low power pressure sensor

ultra-low power 2.4 GHz wireless system on chip (SoC) integrating a multiprotocol 2.4 GHz transceiver, an ARM® Cortex®-M

20 V 500mA, dual P-channel Trench MOSFET

IC TEMP SENSOR RH 2% DFN

1mm^2 RGB LED

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Generic solar cell

Color Light-to-Digital Converter with IR Filter

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DIGIKEY	MANUFACTURER	MF MOUSER
490-6328-1-ND		
541-100MAHCT-ND		
490-5922-1-ND		
311-10KJRCT-ND		
490-4516-1-ND		
490-3896-1-ND		
490-4025-1-ND		
490-6197-1-ND		
587-1521-1-ND		
1276-1595-1-ND		
490-7195-1-ND		
541-1319-1-ND	Vishay Dale	
732-3340-1-ND		
YAG3301CT-ND		
490-1131-1-ND		
535-11897-1-ND	Abracon	
887-2568-1-ND	TXC CORPORATION	
HMC0603JT33M0CT-ND		
445-5947-1-ND		
311-470JRCT-ND		
445-1264-1-ND		
490-5942-1-ND		
YAG2293CT-ND		
YAG3309CT-ND		
YAG3310CT-ND		
311-80.6KHRCT-ND		
1276-6535-1-ND		
YAG3322CT-ND		
535-11936-1-ND	Abracon	
535-9543-1-ND	ABRACON	
311-1542-1-ND	YAGEO	
BAT-HLD-001-THM-ND		712-BAT-HLD-001-THM
BH123A-ND	MPD	
296-37078-1-ND	TI	
311-10KJRCT-ND		
255-3065-ND	PANASONIC	
P11084SCT-ND		
	STMicroelectronics	511-LIS2DW12TR
MAX17222ELT+TCT-ND	MAXIM INTEGRATED	
MAX44009EDT+TCT-ND	MAXIM	
H125274CT-ND		798-ZX62R-B-5P30
223-1199-1-ND	TE CONNECTIVITY	
1490-1071-1-ND	NORIDIC SEMICONDUCTOR	
1727-2601-1-ND	NEXPERIA	
336-3141-ND		634-SI7021-A20-GM1
67-2125-1-ND	Lumex Opto	

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869-1001-ND  
TCS34725FNCT-ND

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MPN	NEWARK	OC_FARNELL	OC_NEWARK
GRM155R71C104KA88J			
HMC0402JT100M			
GRM1555C1H101JA01D			
RC0402JR-0710KL			
GRM155R71H103KA88D			
GRM188R60J106ME47D			
LQM18FN100M00D			
GRM1555C1H120GA01D			
HK100515NJ-T			
CL05C010CB5NNNC			
GRM155R70G105KA12D			
IHLP1212BZER1R0M11			
74437324220			
RC0402JR-073M9L			
LQP15MN3N9B02D			
ABS05-32.768KHZ-9-T			
7M-32.000MAHV-T			
HMC0603JT33M0			
C1005X5R0J475K050BC			
RC0402JR-07470RL			
C1005X7R1C473K050BC			
GRM1555C1H470JA01D			
RC0402FR-076K04L			
RC0402JR-076M2L			
RC0402JR-076M8L			
RC0603FR-0780K6L			
CL05B821KO5NNNC			
RC0402JR-079M1L			
AB1815-T3			
ABS07-32.768KHZ-7-T			
ANT3216A063R2400A			
BAT-HLD-001-THM			
BH123A			
BQ25505RGRR			
RC0402JR-0710KL			
EKMB1101111			
EVQ-P2K02Q			
FT232RQ			1146033 91K9919
LIS2DW12TR			
MAX17222ELT+T			
MAX44009EDT+T			
ZX62R-B-5P(30)	84Y6712		
MS563702BA03-50			
NRF52840			
PMDXB950UPELZ			
SI7021-A20-GM1			
SML-LX0404SIUPGUSB			

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AM-1454CA  
TCS34725FN

Notes

DNP  
DNP

DNP  
DNP

DNP

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DNP