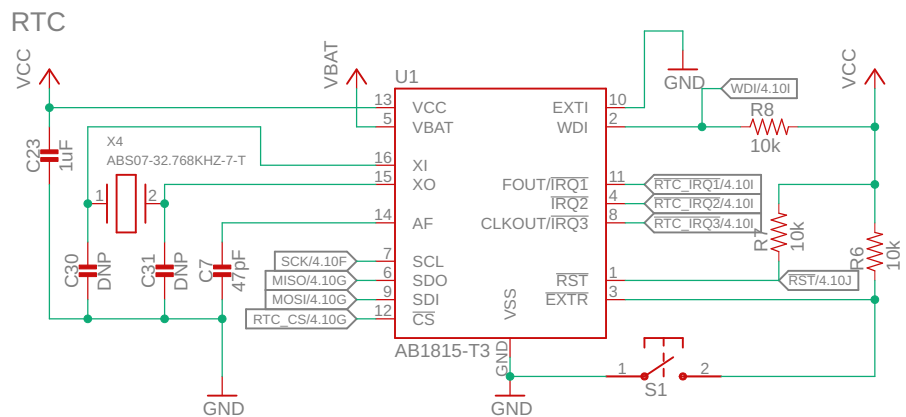
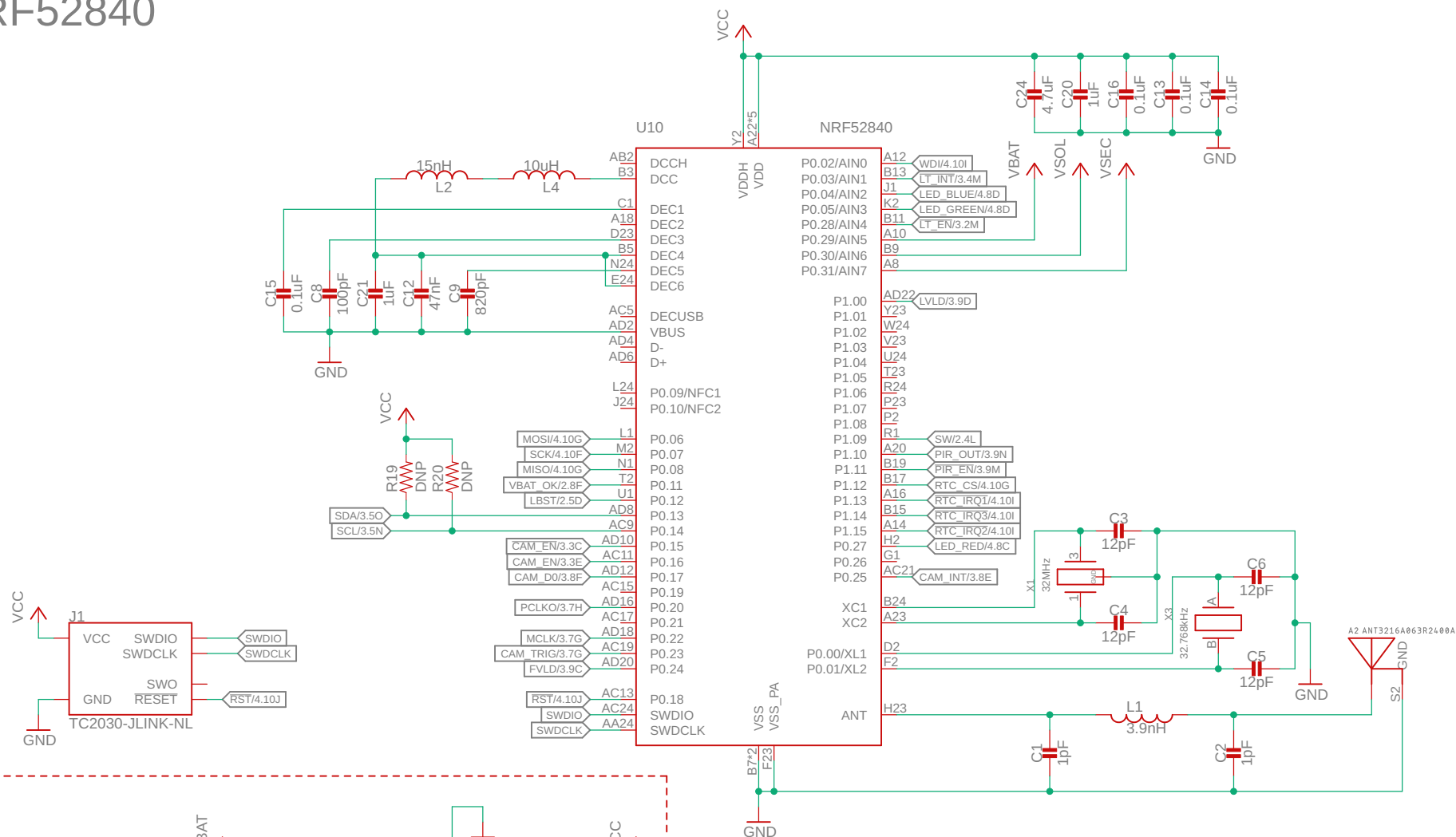
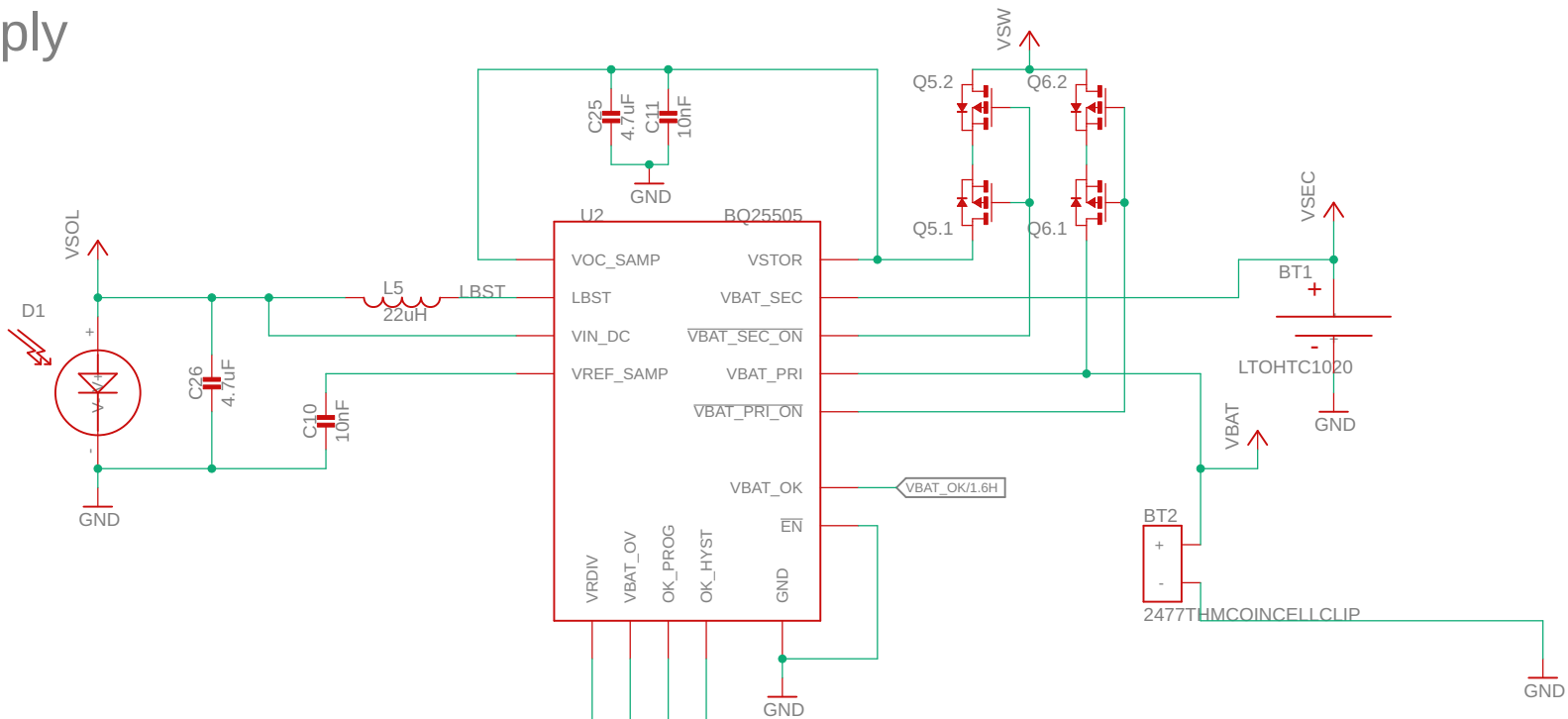


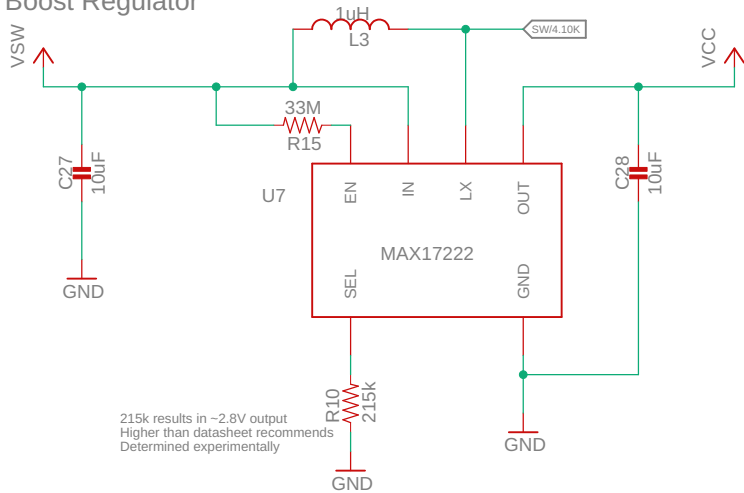
NRF52840



Power Supply



Boost Regulator



215k results in ~2.8V output
Higher than datasheet recommends
Determined experimentally

2

PERMAMOTE

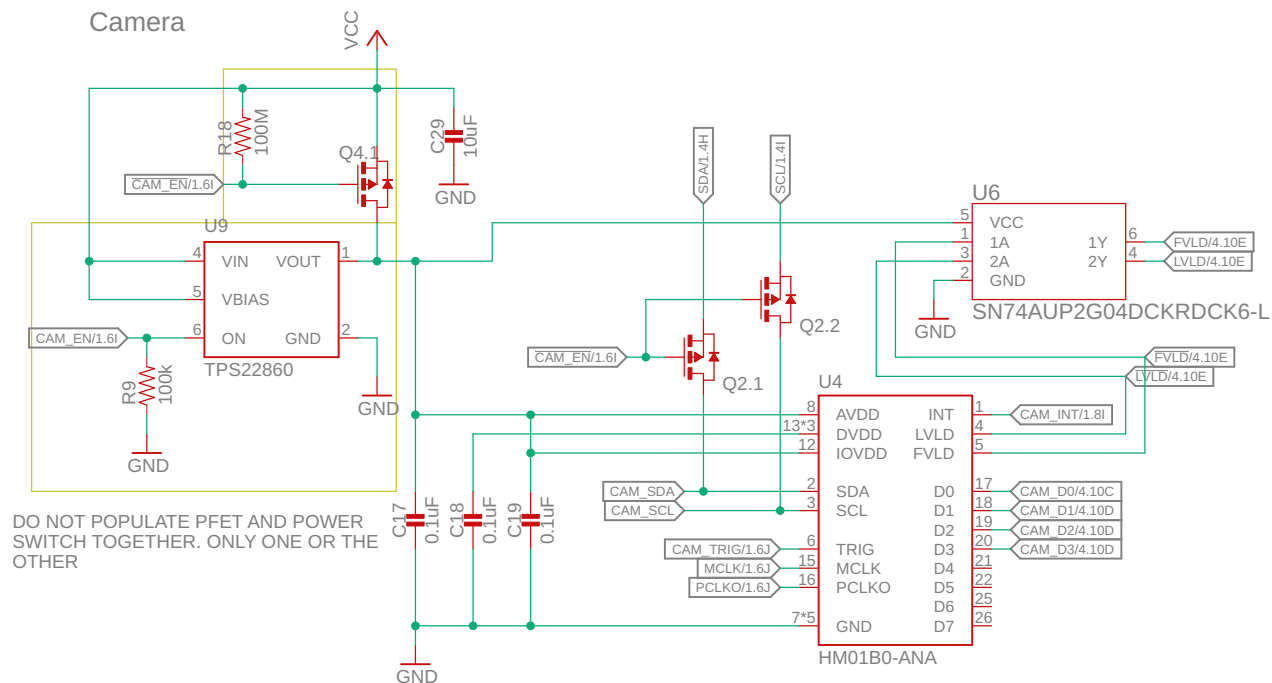
Author: NEAL JACKSON

Date: 11/2/19 11:37 AM

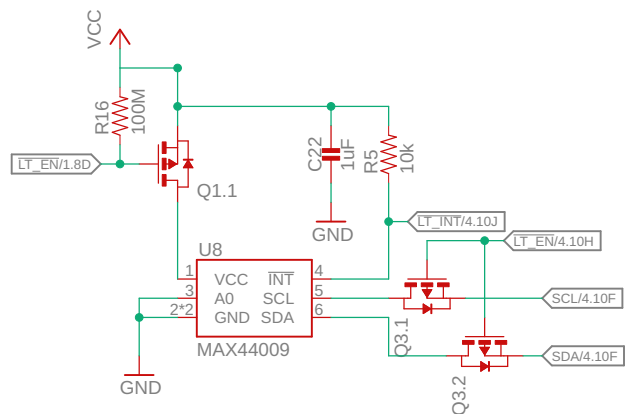
Sheet: 2/4

REV:
A

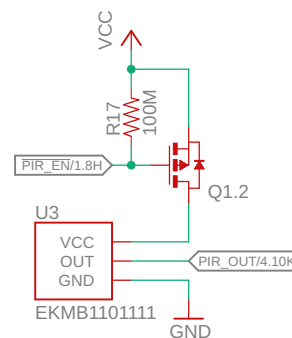
Sensors



Ambient Light



Occupancy



PERMAMOTE

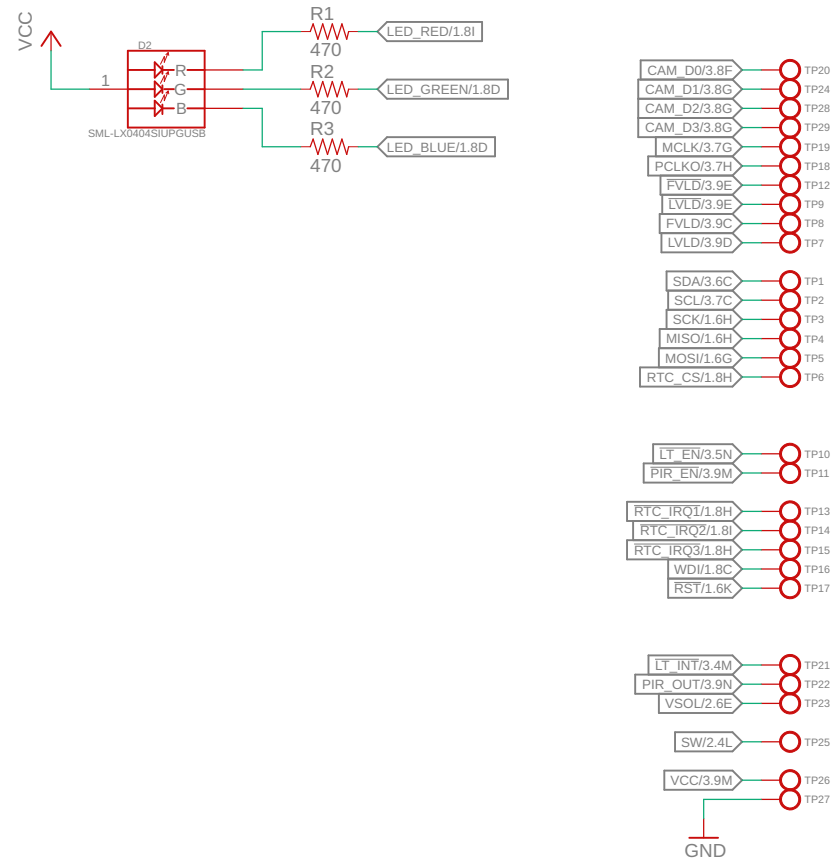
Author: NEAL JACKSON

Date: 11/2/19 11:37 AM

Sheet: 3/4

REV:
A

Debugging



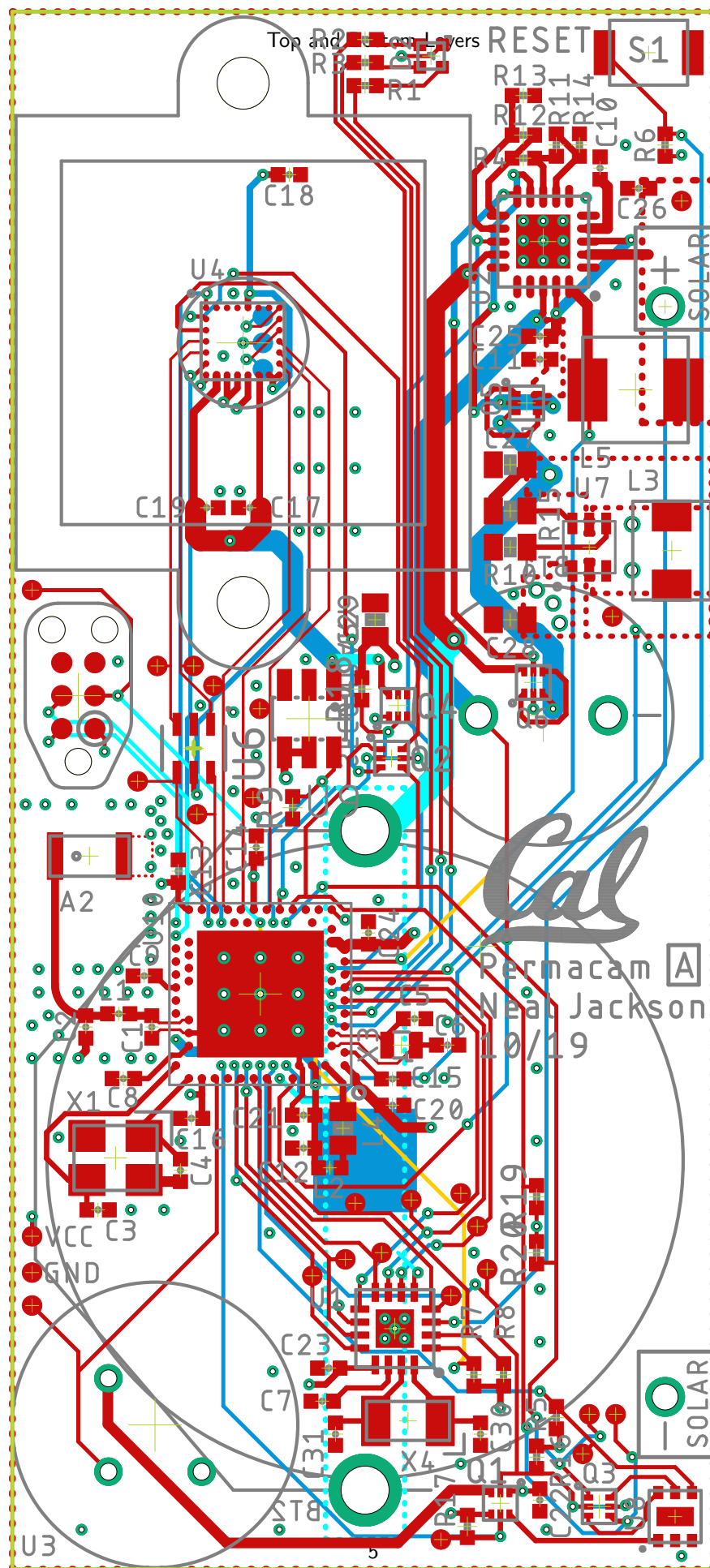
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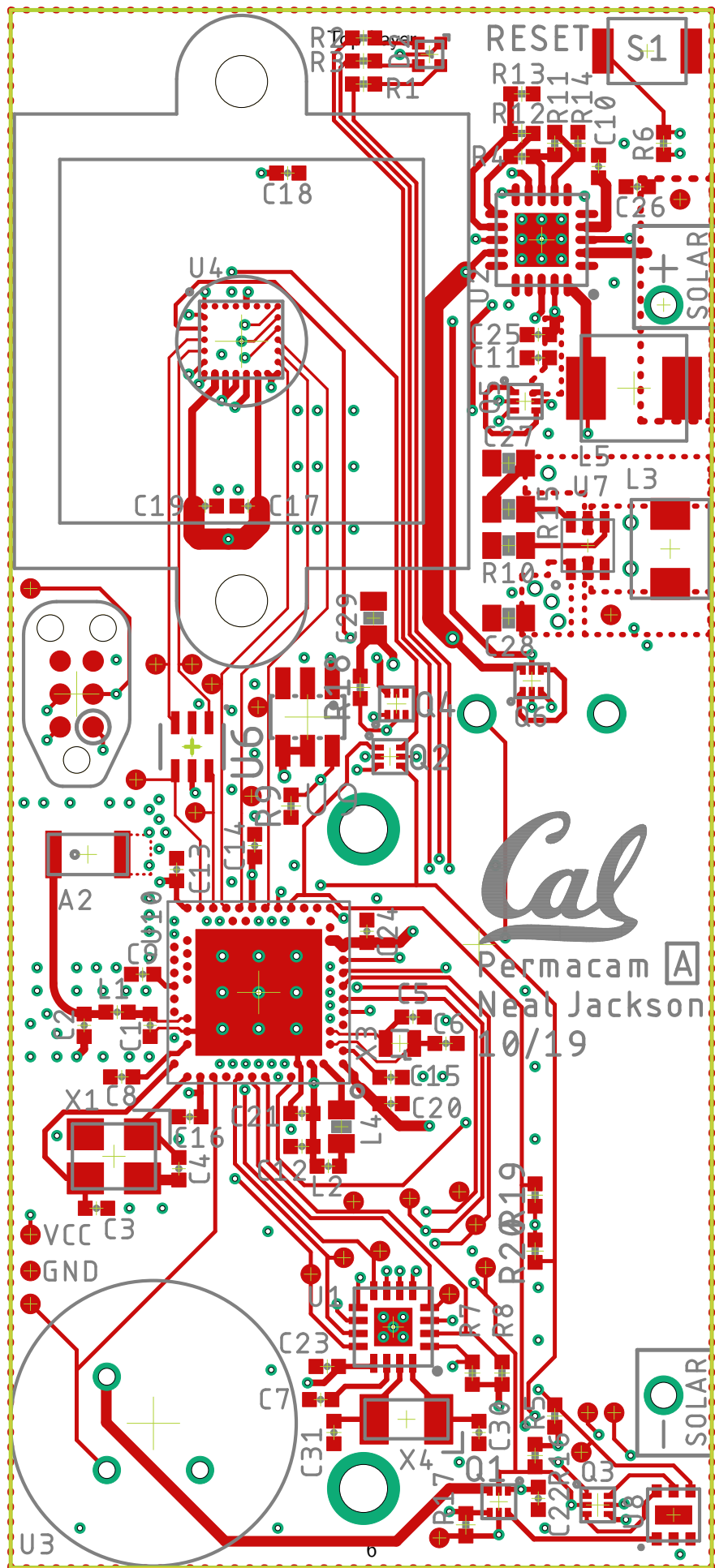
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Author: NEAL JACKSON

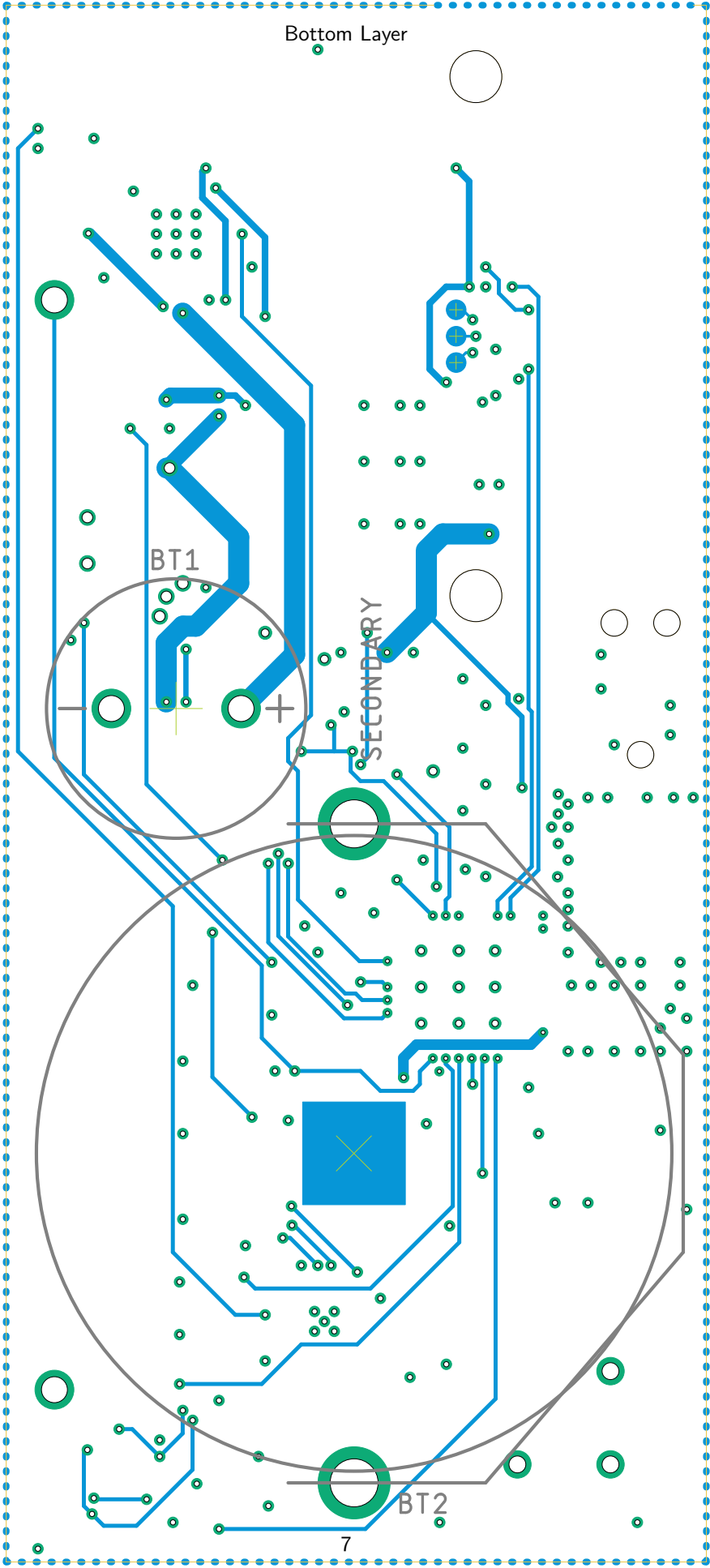
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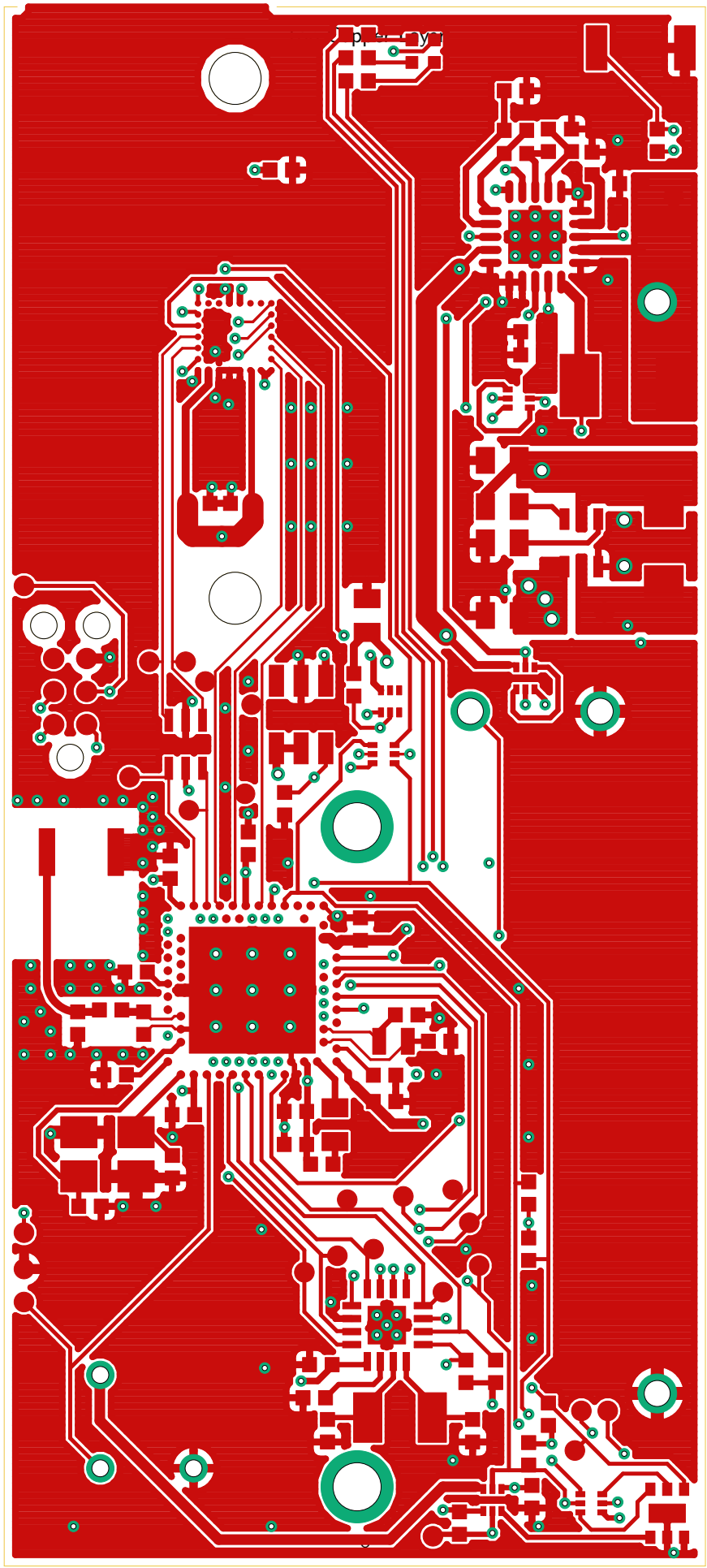
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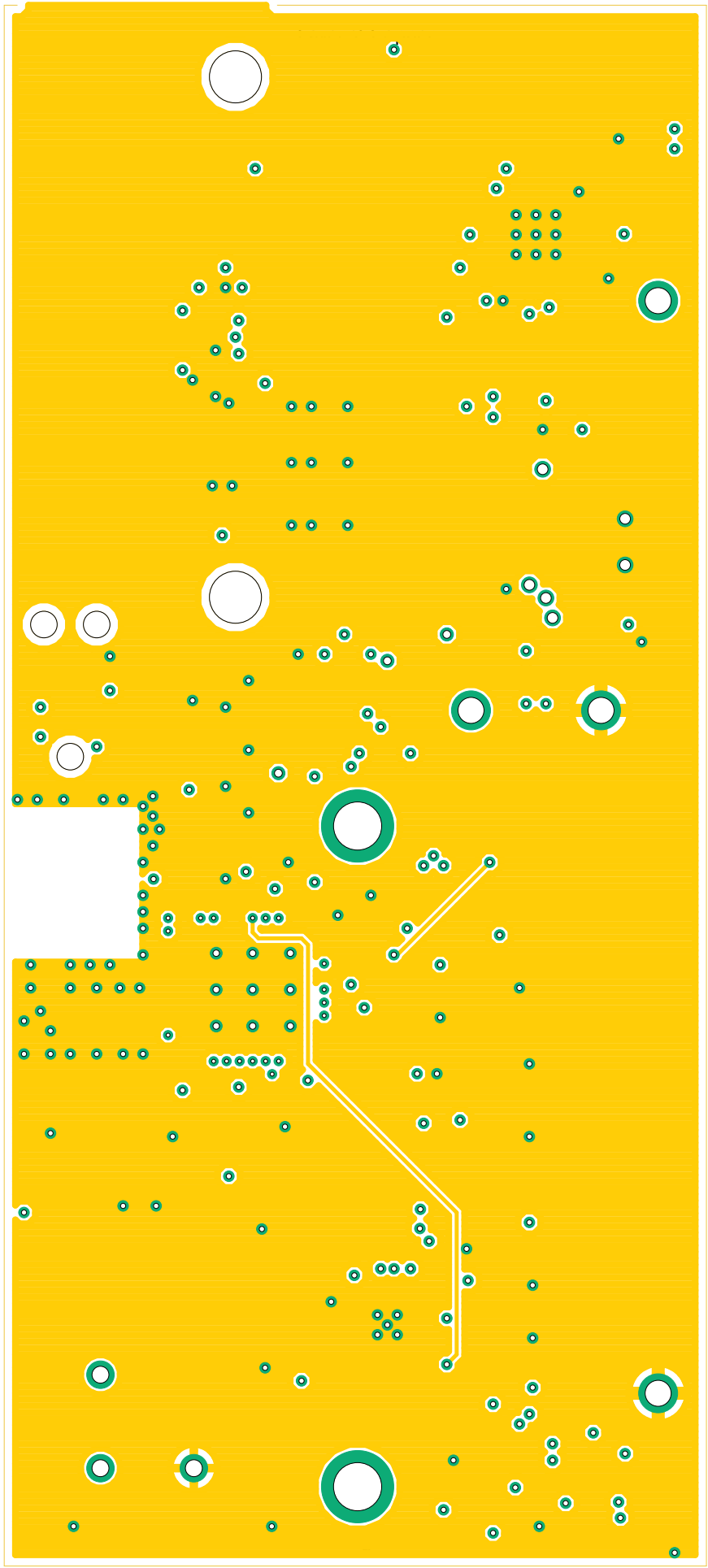


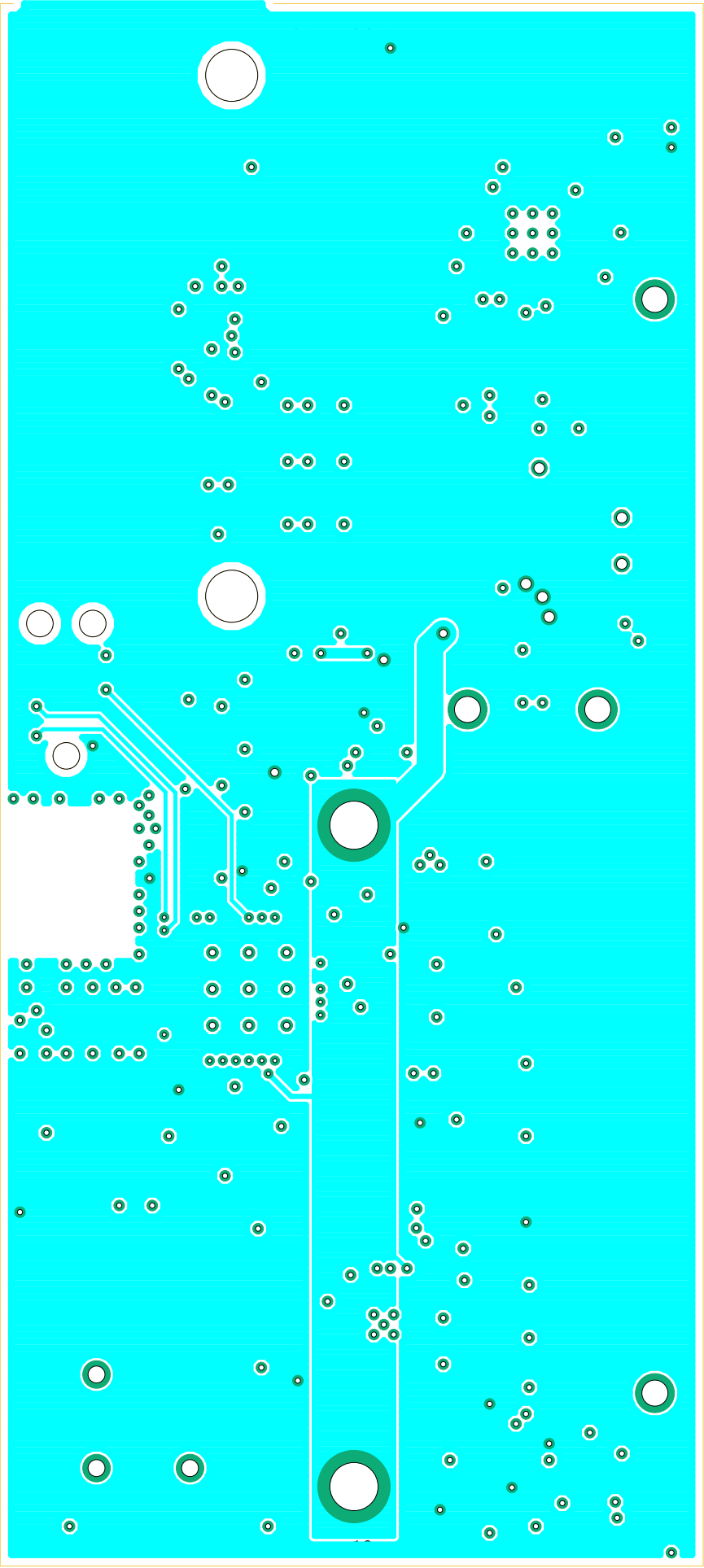


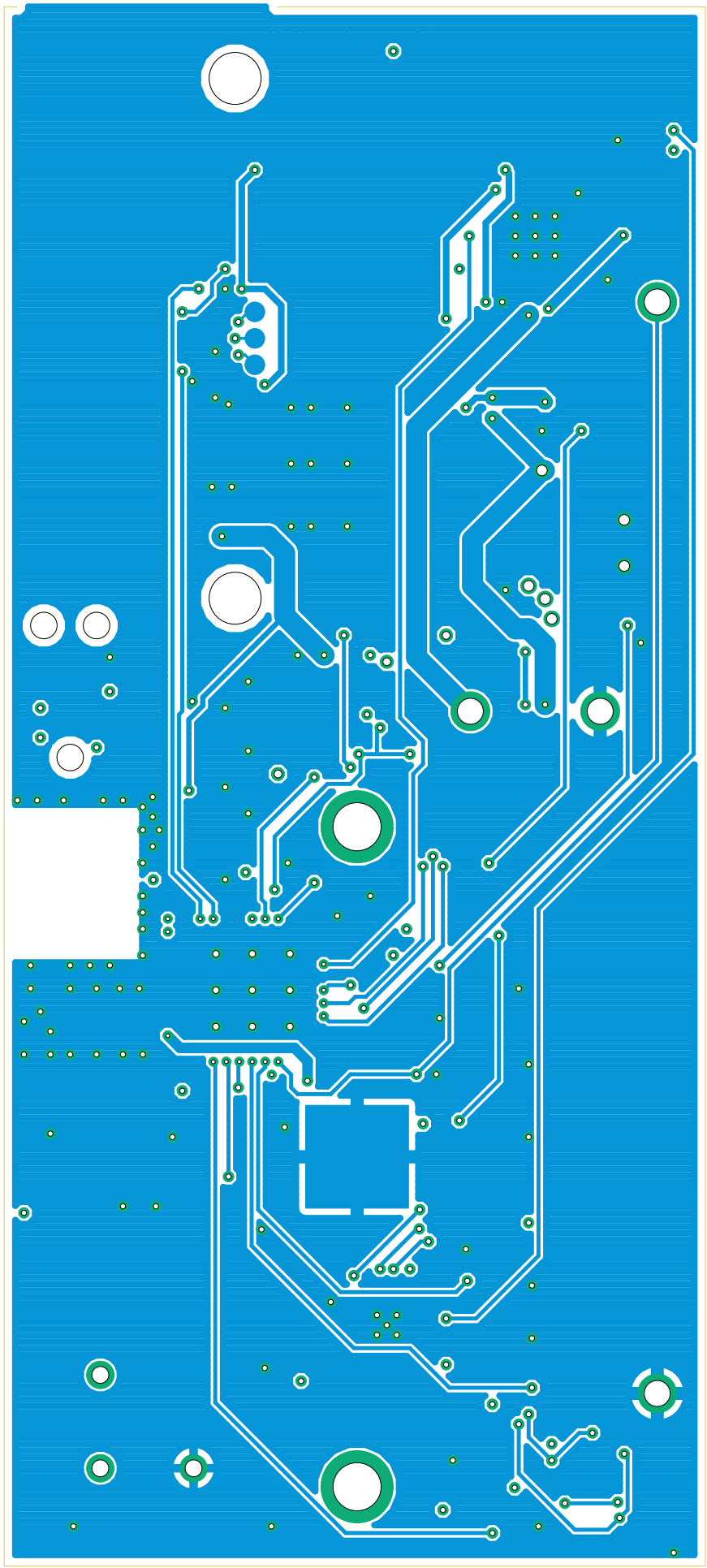
Bottom Layer

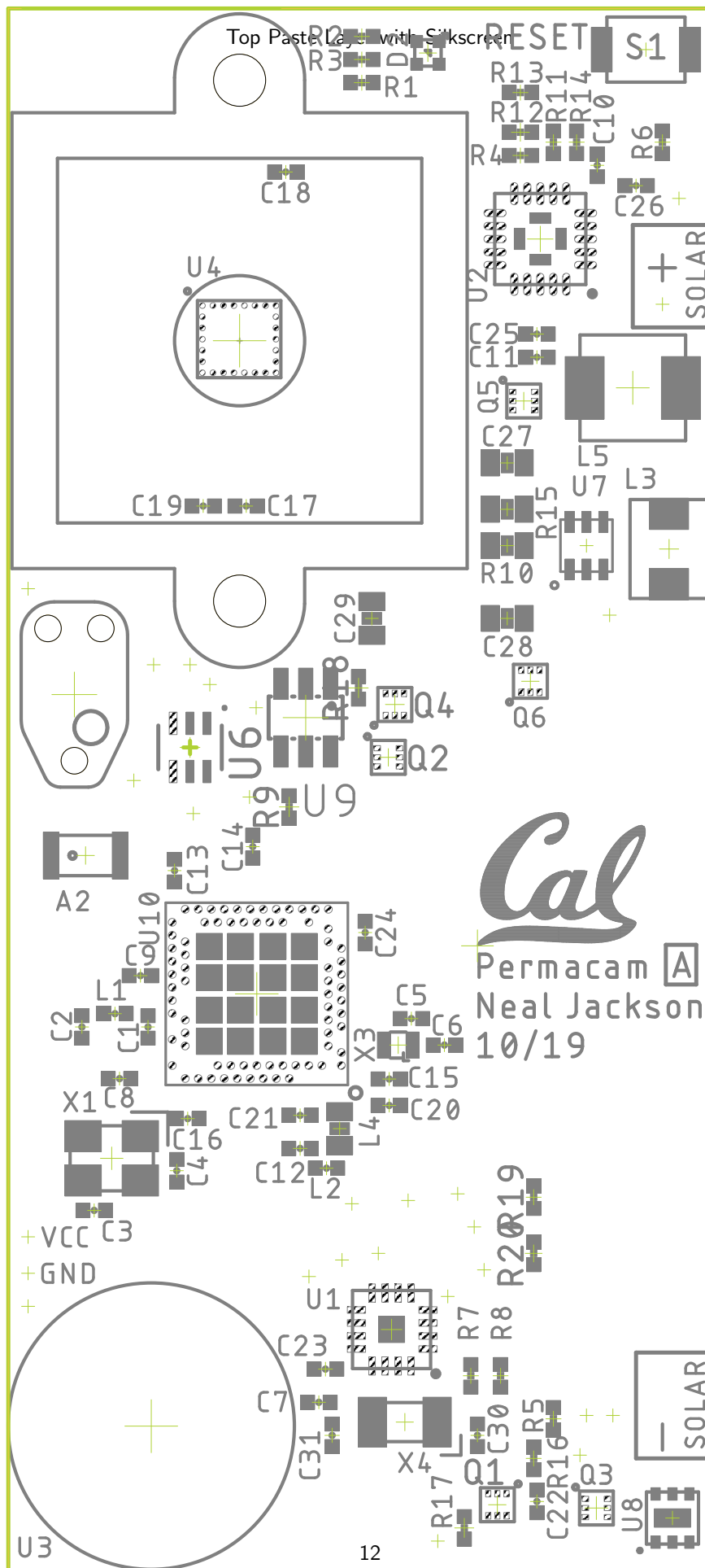




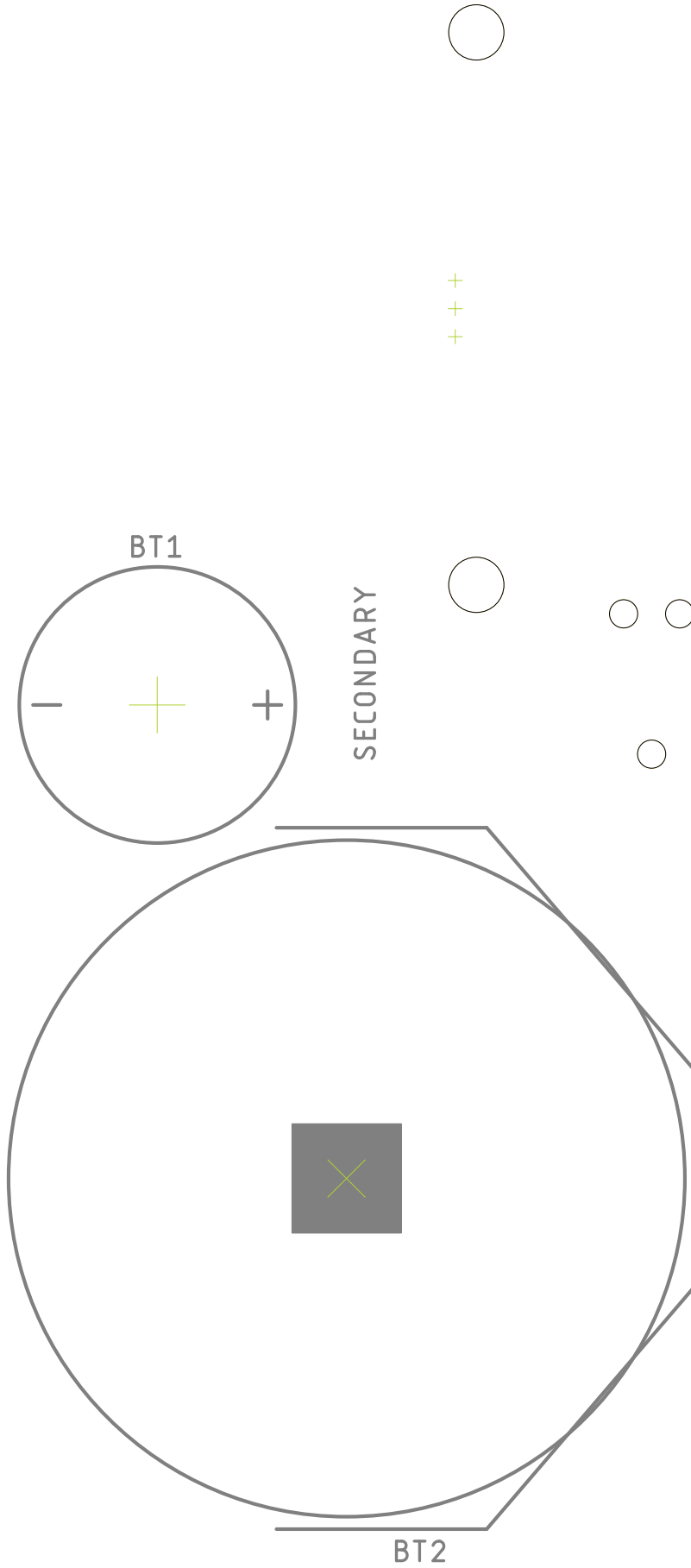




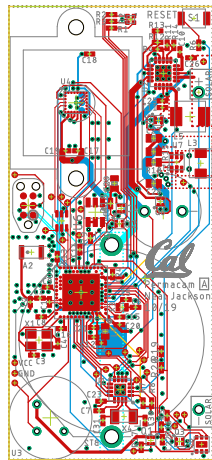


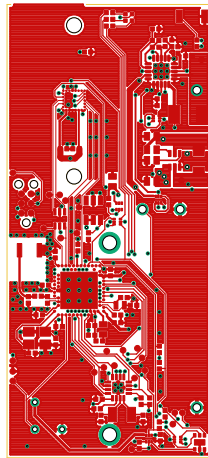


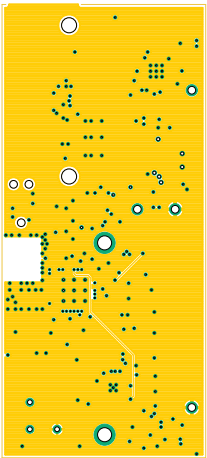
Bottom Paste Layer with Silkscreen

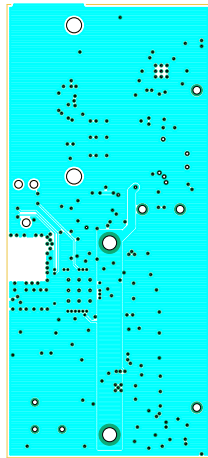


Top and Bottom Layers 1:1 Scale

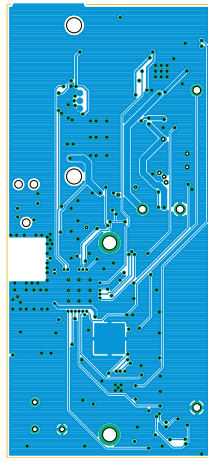








Bottom Copper Layer 1:1 Scale



Qty	Value	Device	Package	Parts	Description	DIGIKEY	MPN	Notes
7	0.1uF	CAPACITOR0402_CAP	0402_CAP	C13, C14, C15	SMD Capacitor	490-6328-1-N	GRM155R71C104KA88J	
3	100M	RESISTOR0402_RES	0402_RES	R16, R17, R18	Resistor	541-100MA	HMC0402JT100M	
1	100k	RESISTOR0402_RES	0402_RES	R9	Resistor	311-100KJR	RC0402JR-07100KL	
1	100pF	CAPACITOR0402_CAP	0402_CAP	C8	SMD Capacitor	490-5922-1-N	GRM1555C1H101JA01D	
4	10k	RESISTOR0402_RES	0402_RES	R5, R6, R7, R8	Resistor	311-10KJRC	RC0402JR-0710KL	
2	10nF	CAPACITOR0402_CAP	0402_CAP	C10, C11	SMD Capacitor	490-4516-1-N	GRM155R71H103KA88D	
3	10uF	CAPACITOR0603_CAP	0603_CAP	C27, C28, C29	SMD Capacitor	490-3896-1-N	GRM188R60J106ME47D	
1	10uH	INDUCTOR0603_CAP	0603_CAP	L4	A very specific	490-4025-1-N	LQM18FN100M00D	
4	12pF	CAPACITOR0402_CAP	0402_CAP	C3, C4, C5, C6	SMD Capacitor	490-6197-1-N	GRM1555C1H120GA01D	
1	15nH	INDUCTOR0402_CAP	0402_CAP	L2	A very specific	587-1521-1-N	NHK100515NJ-T	
2	1pF	CAPACITOR0402_CAP	0402_CAP	C1, C2	SMD Capacitor	1276-1595-1-CL	05C010CB5NNNC	
4	1uF	CAPACITOR0402_CAP	0402_CAP	C20, C21, C22	SMD Capacitor	490-7195-1-N	GRM155R70G105KA12D	
1	1uH	INDUCTOR1HHL-1212BZ	L3	L3	A very specific	541-1319-1-N	HLP1212BZER1R0M11	
1	215k	RESISTOR0603-RES	0603-RES	R10	Resistor	YAG3055CTRC	0402FR-07215KL	
1	22uH	INDUCTOR740000040200	L5	L5	A very specific	732-3340-1-ND	74437324220	
1	2477THMCC2477THMCC2477THMCCBT2				Battery clip	BAT-HLD-00	BAT-HLD-001-THM	
1	3.9M	RESISTOR0402_RES	0402_RES	R11	Resistor	YAG3301CTRC	0402JR-073M9L	
1	3.9nH	INDUCTOR0402_CAP	0402_CAP	L1	A very specific	490-1131-1-N	LQP15MN3N9B02D	
1	32.768kHz	ABS05-32.76	ABS05	X3	32.768kHz C	535-11897-1-ABS	05-32.768KHZ-9-T	
1	32MHz	7V-32.000M/TXC-7V		X1	TXC CRYST	887-2568-1-N	7M-32.000MAHV-T	
1	33M	RESISTOR0603-RES	0603-RES	R15	Resistor	HMC0603JT	HMC0603JT33M0	
3	4.7uF	CAPACITOR0402_CAP	0402_CAP	C24, C25, C26	SMD Capacitor	445-5947-1-NC	1005X5R0J475K050BC	
3	470	RESISTOR0402_RES	0402_RES	R1, R2, R3	Resistor	311-470JRC	IRC0402JR-07470RL	
1	47nF	CAPACITOR0402_CAP	0402_CAP	C12	SMD Capacitor	445-1264-1-NC	1005X7R1C473K050BC	
1	47pF	CAPACITOR0402_CAP	0402_CAP	C7	SMD Capacitor	490-5942-1-N	GRM1555C1H470JA01D	
1	6.04k	RESISTOR0402_RES	0402_RES	R4	Resistor	YAG2293CTRC	0402FR-076K04L	
1	6.2M	RESISTOR0402_RES	0402_RES	R12	Resistor	YAG3309CTRC	0402JR-076M2L	
1	6.8M	RESISTOR0402_RES	0402_RES	R13	Resistor	YAG3310CTRC	0402JR-076M8L	
1	820pF	CAPACITOR0402_CAP	0402_CAP	C9	SMD Capacitor	1276-6535-1-CL	05B821K05NNNC	
1	9.1M	RESISTOR0402_RES	0402_RES	R14	Resistor	YAG3322CTRC	0402JR-079M1L	
1	AB1815-T3	AB1815-T3	QFN-16-3MM	U1	Ultra-low cur	535-11936-1-AB	1815-T3	
1	ABS07-32.76	ABS07-32.762-SMD		X4	32.768kHz C	535-9543-1-ABS	07-32.768KHZ-7-T	
1	ANT3216A0	ANT3216A0	ANT3216A0	A2	Yageo 2.4GH	311-1542-1-ANT	3216A063R2400A	
1	B3U-1000P	B3U-1000P	B3U-1000P	S1	Switch	SW1020CT-N	B3U-1000P	
1	BQ25505	BQ25505	S-PVQFN-N	U2	EH front end	296-37078-1-BQ	25505RGRR	
2	DNP	CAPACITOR0402_CAP	0402_CAP	C30, C31	SMD Capacitor			Do not populate
2	DNP	RESISTOR0402_RES	0402_RES	R19, R20	Resistor			Do not populate
1	EKMB11011	EKMB11011	MMN2	U3	Passive infrar	255-3065-NDE	KMB1101111	
1	HM01B0-AN	HM01B0-AN	NEOPAC-26	U4	ultra low power CMOS Image Sensor	320 x 320		Consigned part
1	LTOHTC1020	LTOHTC1020	1020 BT1					Do not populate
1	MAX17222	MAX17222	UDFN-6-MAU	U7	Very high eff	MAX17222E	MAX17222ELT+T	
1	MAX44009	MAX44009	UDFN-6-EXIU	U8	low power an	MAX44009E	MAX44009EDT+T	
1	NRF52840	NRF52840	AQFN73	U10	ultra-low pow	1490-1071-1-NRF	52840	
6	PMDXB950	PMDXB950	UDFN-6	Q1, Q2, Q3, Q4	(20 V 500mA, 1727-2601-1-PMDXB950UPELZ			
1	SML-LX040	SML-LX040	1MM SQ 4PIN	U9	1mm^2 RGB	67-2125-1-NIS	SML-LX0404SIUPGUSB	
1	SN74AUP2GSN74AUP2GDCK6-L			U6			SN74AUP2G04DCKR	
1	SOLARCELISOLARCELISOLAR HOLES				Generic solar	869-1001-ND	AM-1454CA	
1	TPS22860	TPS22860	SOT-23-6	U9	Ultra-Low Le	296-43982-1-TPS	22860DBVR	Do not populate