

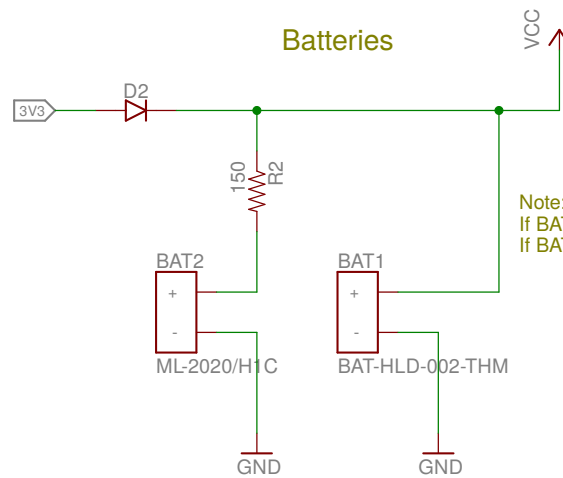
M Squall

REV:
A

Author: Brad Campbell

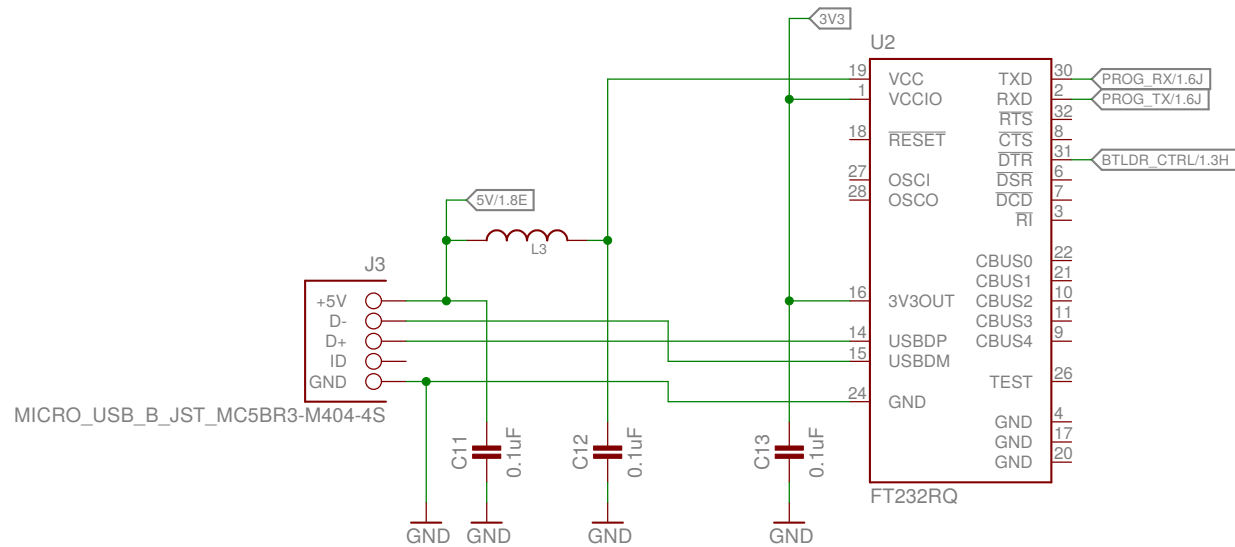
Date: 9/30/14 1:35 PM

Sheet: 1/2



Note: Only one battery can be connected at a time.
 If BAT1 is connected, do not populate D2 or R2.
 If BAT2 is connected, D2 and R2 must be populated for recharging.

FTDI Circuit for UART Programming and Communication



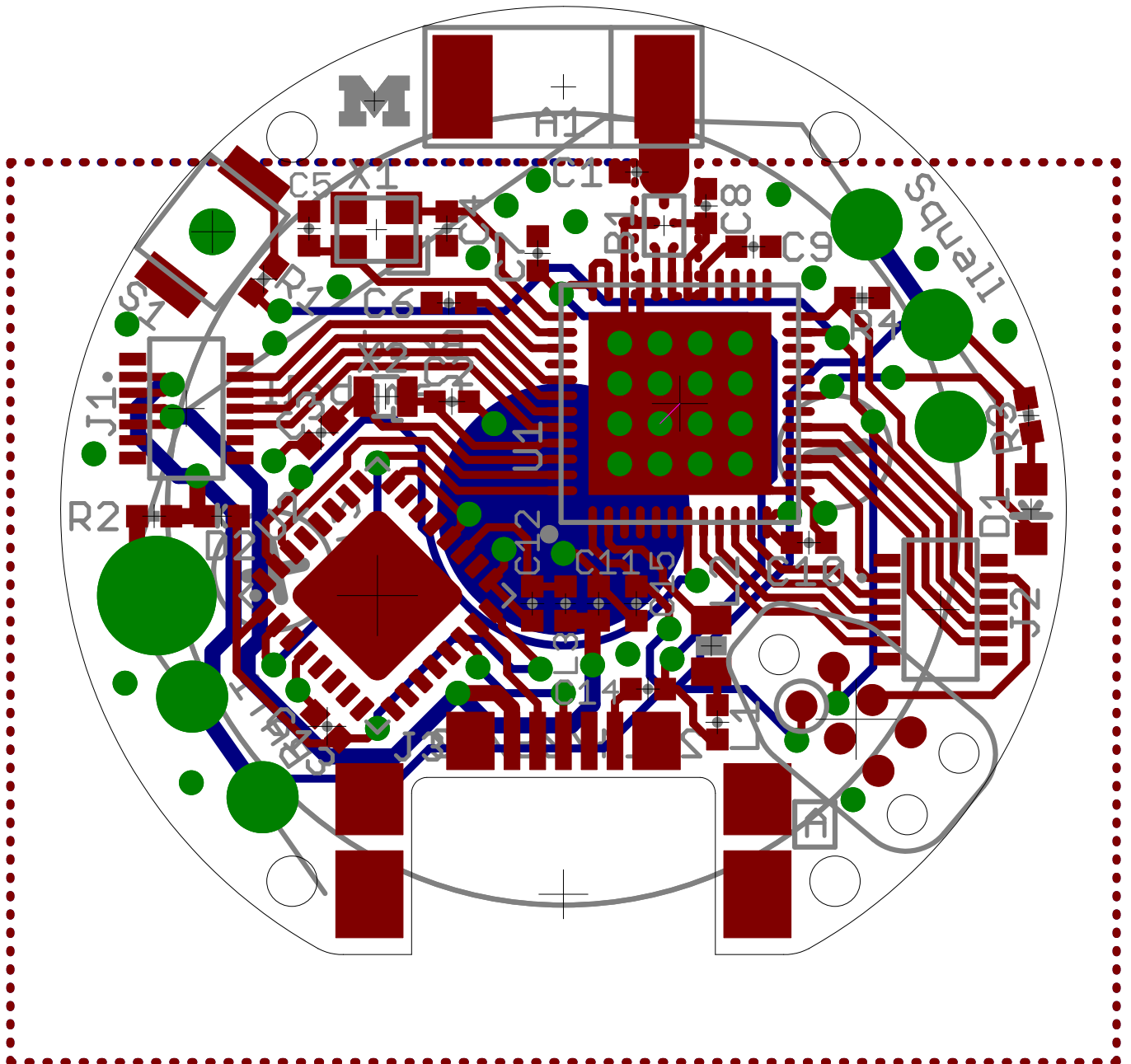
M Squall

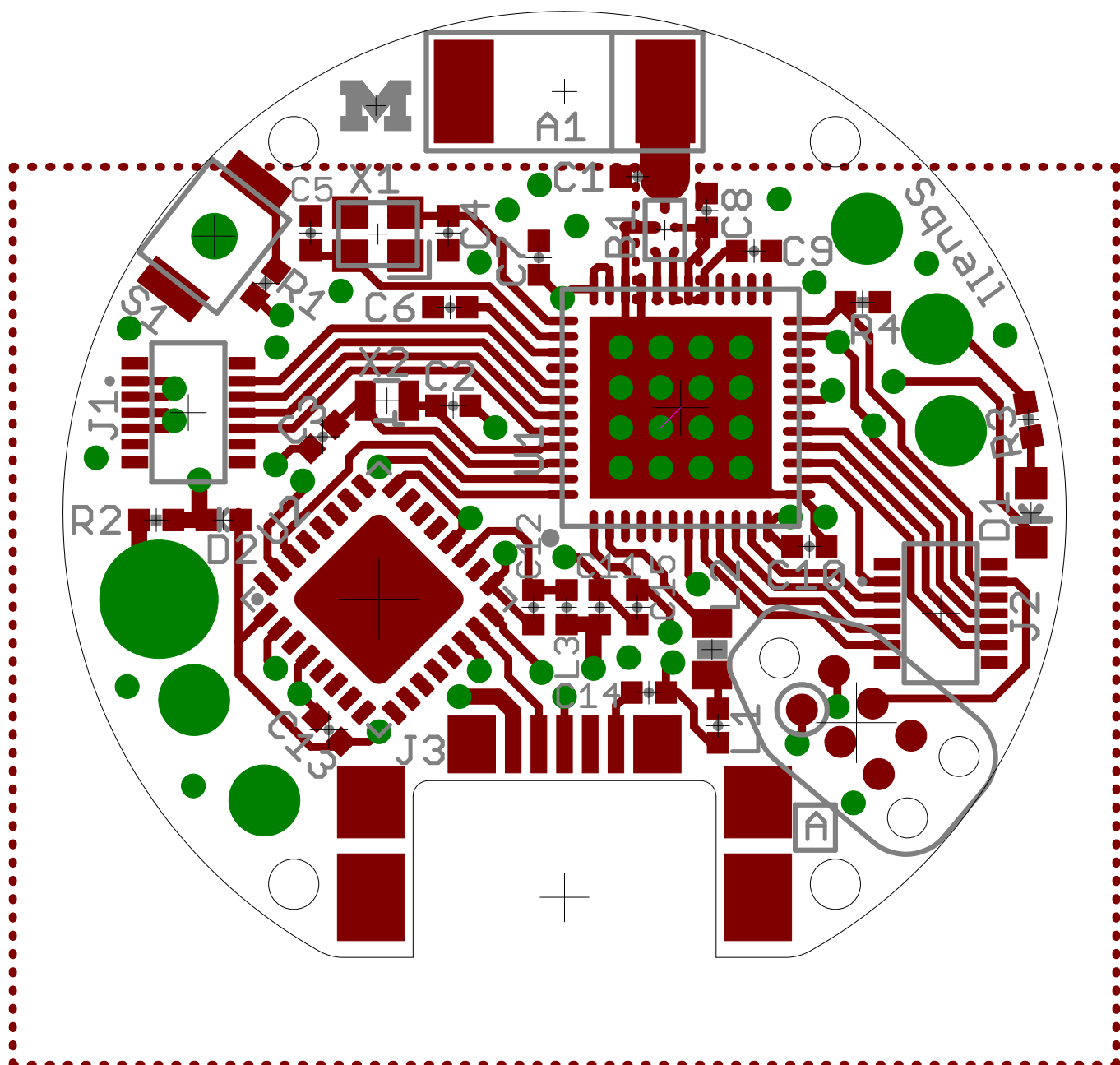
REV:
A

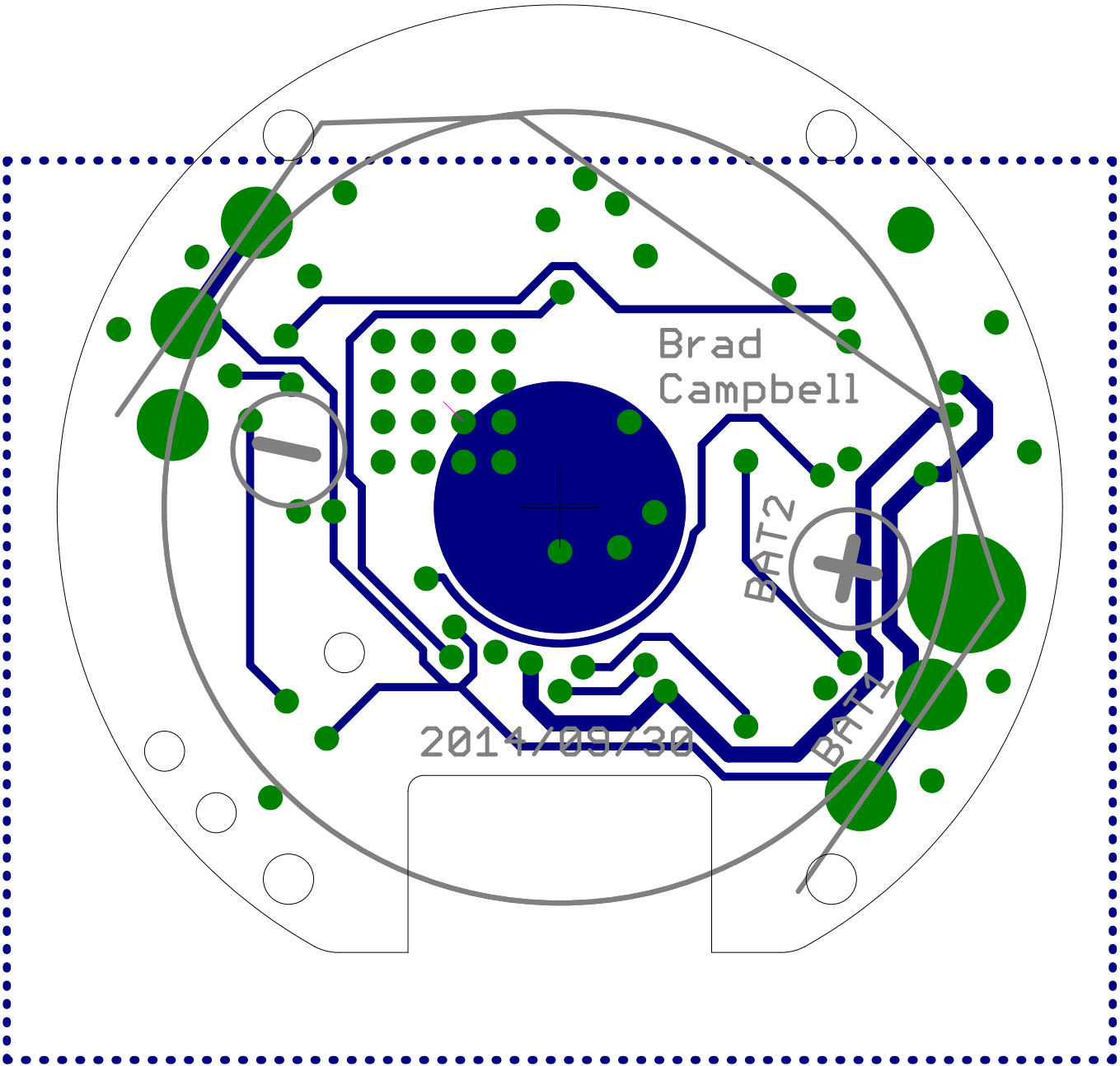
Author: Brad Campbell

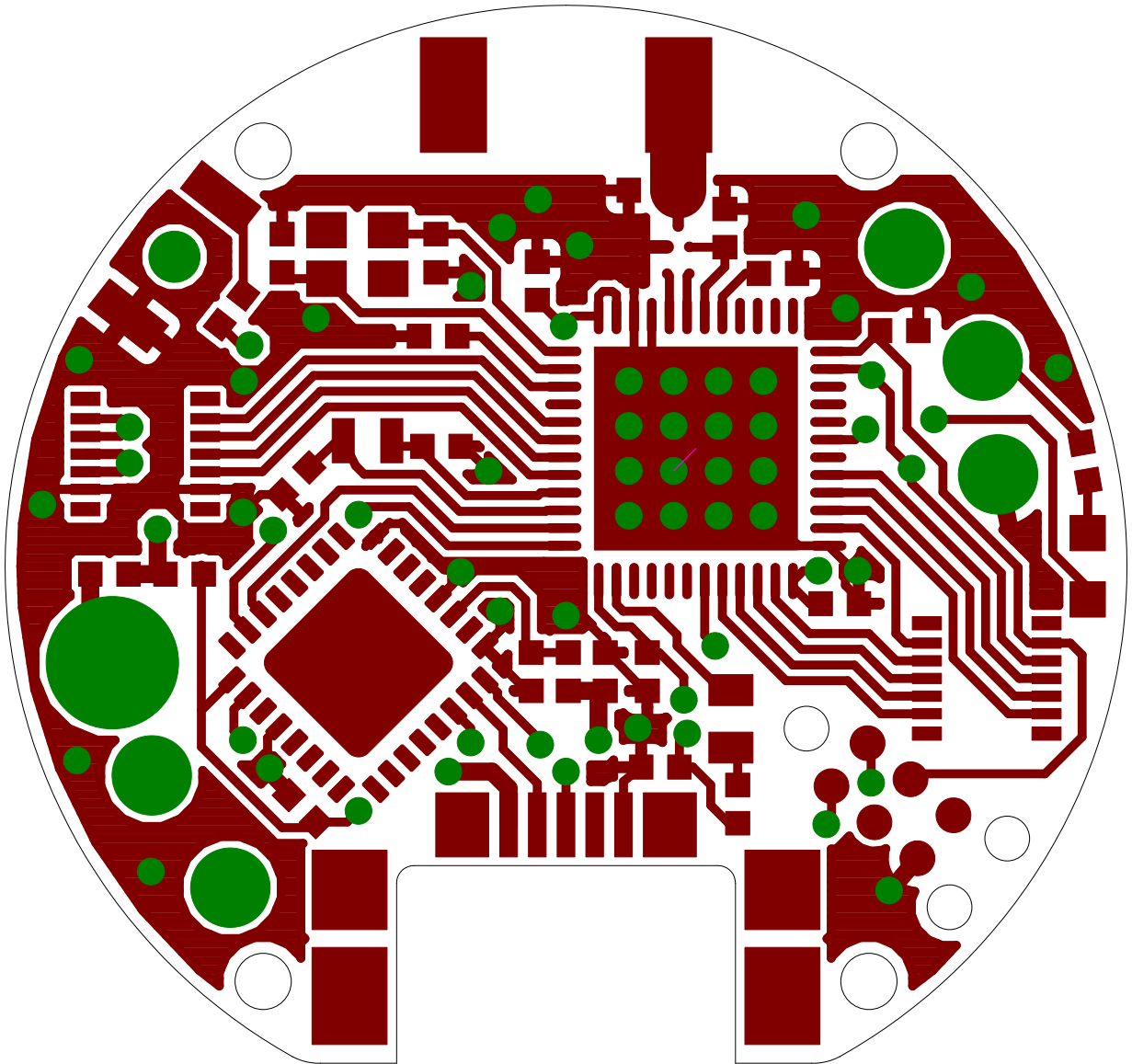
Date: 9/30/14 1:35 PM

Sheet: 2/2

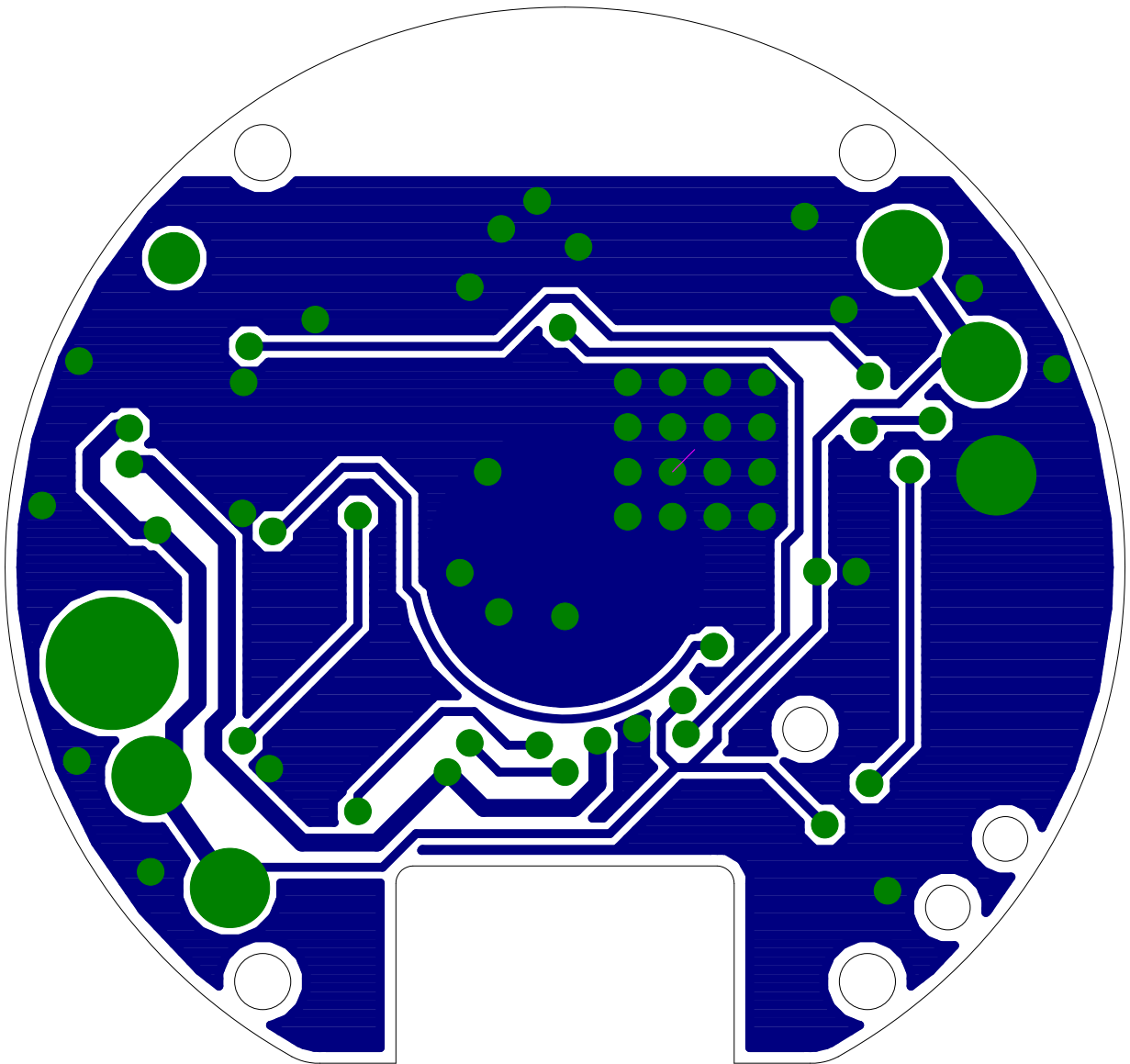




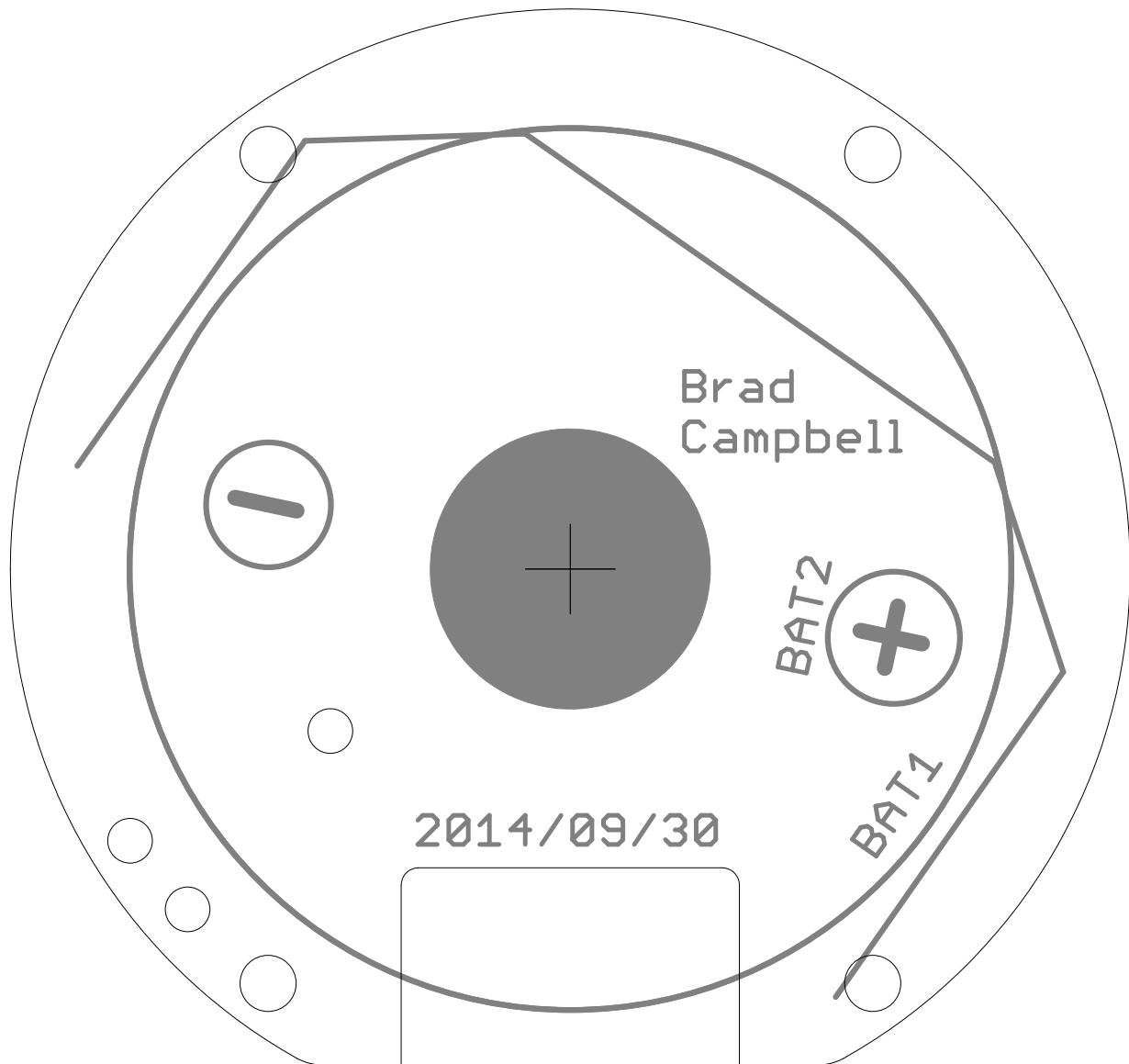




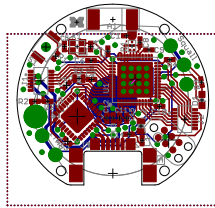
Bottom Copper Layer



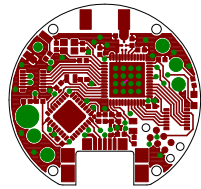
Bottom Paste Layer with Silkscreen



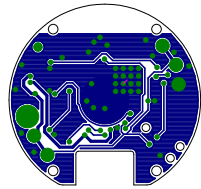
Top and Bottom Layers 1:1 Scale



Top Layer 1:1 Scale



Bottom Copper Layer 1:1 Scale



Sheet1

Qty	Value	Device
1	FRACTUS-2.4GHZ-FR05-S1-N-0-102	FRACTUS-2.4GHZ-FR05-S1-N-0-102
1	BAL-NRF01D3	BAL-NRF01D3
1	BAT-HLD-002-THM	BAT-HLD-002-THM
1	ML-2020/H1C	ML-2020/H1C
1	0.8pF	CAPACITOR
4	12pF	CAPACITOR
2	1nF	CAPACITOR
1	2.2nF	CAPACITOR
1	47nF	CAPACITOR
1	0.1uF	CAPACITOR
3	0.1uF	CAPACITOR
1	1uF	CAPACITOR
1	4.7uF	CAPACITOR
1	BLUE	LED0603
1	DIODE	DIODE
2	HIROSE-DF40C-10DP-0.4V	HIROSE-DF40C-10DP-0.4V
1	MICRO_USB_B_JST_MC5BR3-M404-4S	MICRO_USB_B_JST_MC5BR3-M404-4S
1	15nH	INDUCTOR0402
1	10uH	INDUCTOR0603
1		INDUCTOR0402
2	150	RESISTOR
1	1k	RESISTOR
1	12k	RESISTOR
1	B3U-3000P-B	B3U-3000P-B
1	NRF51822QF	NRF51822QF
1	FT232RQ	FT232RQ
1	16MHz	TXC-8Y
1	ABS05-32.768KHZ-9-T	ABS05-32.768KHZ-9-T

Sheet1

Package	Parts
FRACTUS-ANTENNA-FR05-S1-N-0-102	A1
BAL-NRF01D3	B1
BAT-HLD-002-THM	BAT1
ML-2020/H1C	BAT2
0402_CAP	C1
0402_CAP	C2, C3, C4, C5
0402_CAP	C6, C7
0402_CAP	C8
0402_CAP	C9
0402_CAP	C10
0402_CAP	C11, C12, C13
0402_CAP	C14
0402_CAP	C15
LED-0603	D1
0402_DIODE	D2
2X5/SMD/0.4MM	J1, J2
USB_MICRO_B-JST-MC5BR3-M404-4S-TB	J3
0402_CAP	L1
0603_CAP	L2
0402_CAP	L3
0402_RES	R1, R2
0402_RES	R3
0402_RES	R4
B3U-3000P-B	S1
QFN-48-6MM	U1
QFN32	U2
TXC-8Y	X1
ABS05	X2

Sheet1

Description

Fractus Compact Reach Xtend™ chip antenna is engineered specifically for Bluetooth,
50 ohm nominal input / conjugate match balun to nRF51422-QFAA,

RETAINER BATT CR2025/2032 PC PIN

BATT LITH COIN 3V RECHARGE PINS 45mAh

0402 Capacitor

0402 Capacitor

0402 Capacitor

0402 Capacitor

0402 Capacitor

0402 Capacitor

0402 Capacitor

0402 Capacitor

0402 Capacitor

LED 468NM BLUE CLEAR 0603 SMD

DIODE SCHOTTKY 30V 0.1A 0402

DF40 Series Header - 0.4MM Pitch

Micro USB B mid mount

INDUCTOR HI FREQ 15NH 5% 0402

INDUCTOR 10UH 50MA 0603

FERRITE CHIP 30 OHM 1.7A 0402

Resistor

Resistor

Resistor

SWITCH TACTILE SPST-NO 0.05A 12V

Multiprotocol Bluetooth® 4.0 low energy/2.4 GHz RF SoC 256K

IC USB FS SERIAL UART 32-QFN

CRYSTAL 16MHZ 8PF SMD

32.768kHz Crystal

BATTERY LITHIUM COIN 3V 20MM CR2032

Sheet1

DIGIKEY	MOUSER	NEWARK RICHARDSON_RFPD	Price Each (1000)
		FR05-S1-N-0102B	0.74
497-13637-1-ND	511-BAL-NRF01D3		0.337
BAT-HLD-001-THM-ND			0.20125
P047-ND	658-ML-2020/H1CN		1.4025
490-5419-1-ND			0.0127
490-6197-1-ND			0.0178
490-1303-1-ND			0.01009
490-5419-1-ND			0.0127
445-1264-1-ND			0.0151
445-4952-1-ND			0.0136
490-1318-6-ND			0.01
1276-1513-1-ND			0.058
445-5947-1-ND			0.122
160-1647-1-ND			0.0925
641-1271-1-ND	750-CDBQR0130L		0.11
H11616CT-ND	798-DF40C10DP0.4V51	68X2585	0.38815
455-2567-2-ND	53X3655		0.60558
587-1521-1-ND			0.034
490-4025-1-ND			0.07434
445-2979-1-ND			0.0334
RHM150CDCT-ND			0.00933
RHM1.0KCECT-ND			0.00933
RHM12.0KCDCT-ND			0.00933
SW1256CT-ND			0.66414
1490-1031-1-ND			2.31
768-1008-1-ND		91K9919	3.301
887-2003-1-ND			0.782
535-11897-1-ND			1.061
P189-ND			0.15579

Quantity (A)	Unit Cost (A)	Quantity (B)	Cost (B)
1	0.74	1	0.74
1	0.337	1	0.337
1	0.20125		0
	0	1	1.4025
1	0.0127	1	0.0127
2	0.0356	4	0.0712
2	0.02018	2	0.02018
1	0.0127	1	0.0127
1	0.0151	1	0.0151
1	0.0136	1	0.0136
	0	3	0.03
	0	1	0.058
	0	1	0.122
1	0.0925	1	0.0925
	0	1	0.11
2	0.7763	2	0.7763
	0	1	0.60558
1	0.034	1	0.034
1	0.07434	1	0.07434
	0	1	0.0334
	0	2	0.01866
1	0.00933	1	0.00933
1	0.00933	1	0.00933
	0	1	0.66414
1	2.31	1	2.31
	0	1	3.301
1	0.782	1	0.782
	0	1	1.061
1	0.15579		
	5.63172		12.71656