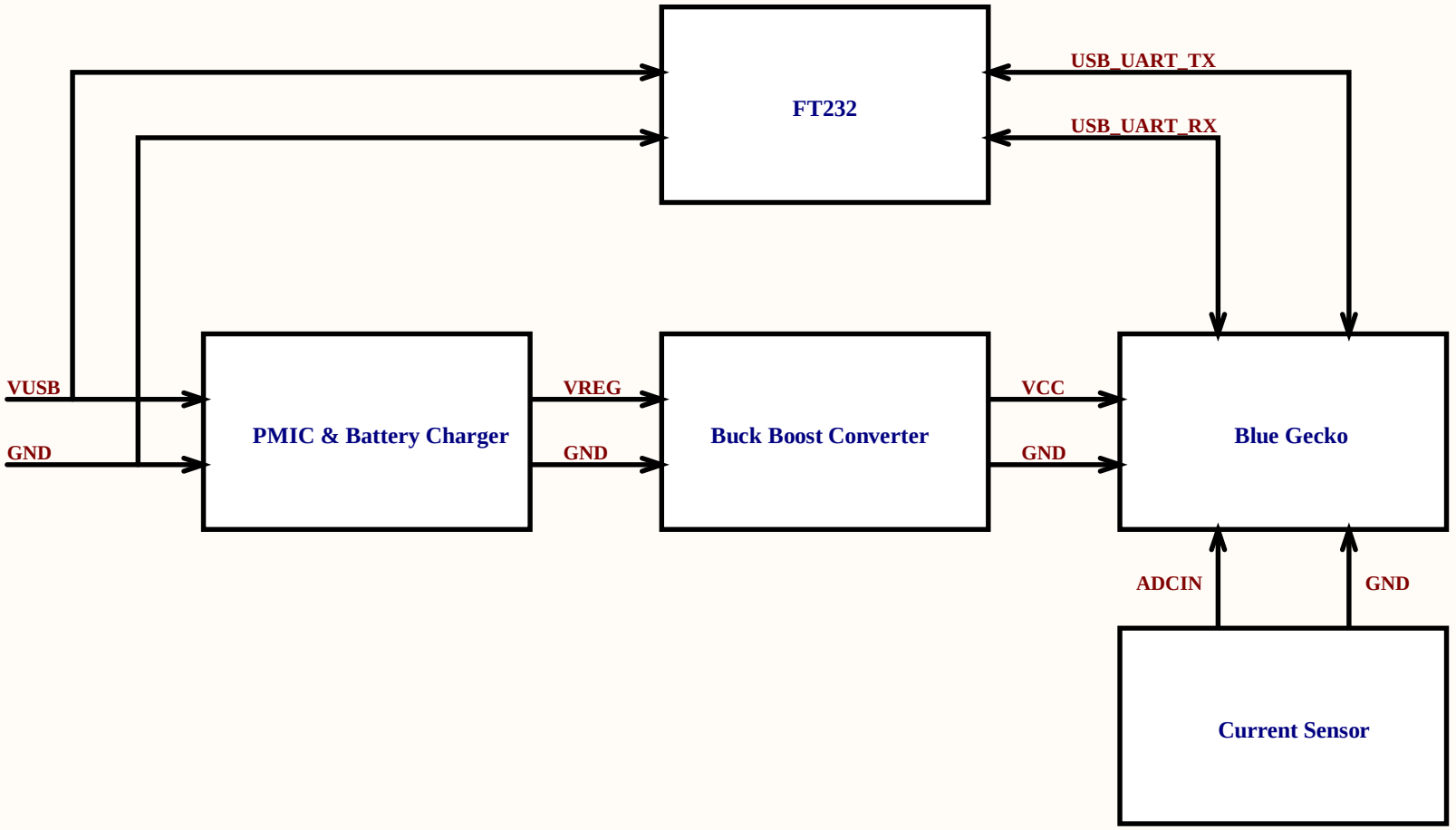
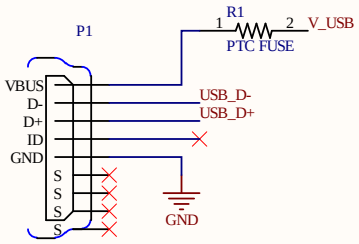
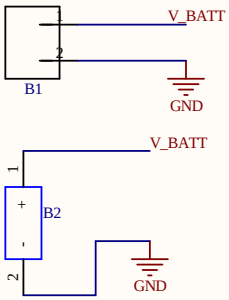


Title	**Block Diagram**		*Energy Auditor Sensor Node*
Size: A4	Number: 1	Revision: 1	*University of Colorado Boulder*
Date: 10/26/2018	Time: 12:28:56 PM	Sheet 1 of 6	
File: C:\Users\Preshit\Documents\GitHub\Low-Power-Embedded-Design\BT Mesh\Block Diagram.SchDoc			

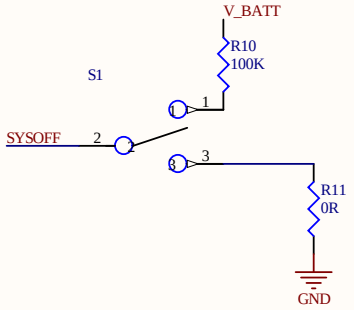
USB Supply Input



Battery Input

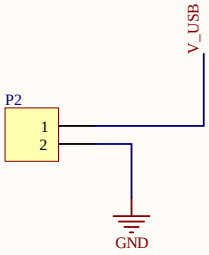


Power Switch



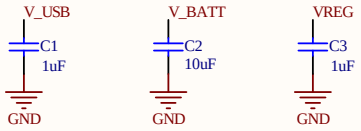
Power ON Circuit. SYSOFF low to Power ON.

Alternate Supply Input

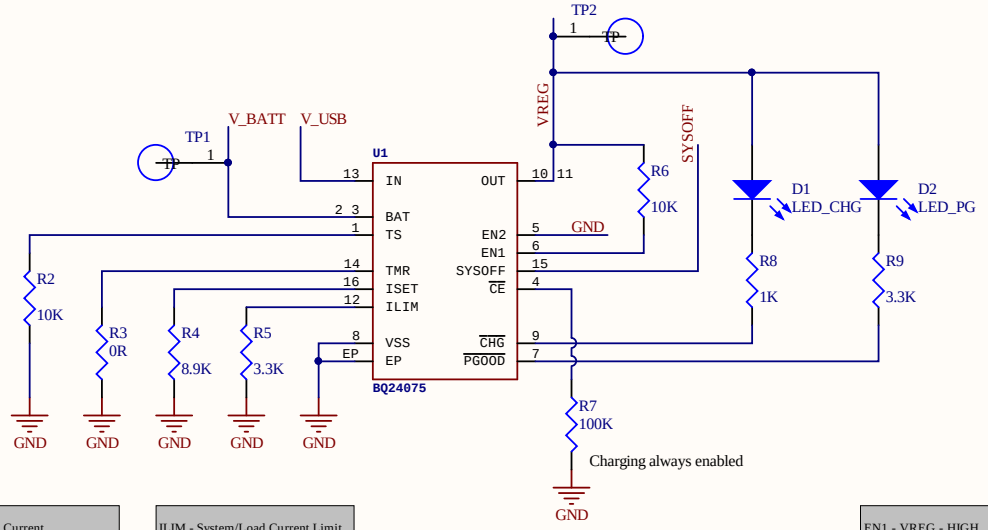


Will populate the header only for debugging

Decoupling Capacitors



PMIC



TMR - Safety Timers
Sets precharge and fast-charge safety timers.

- Connect to ground to disable

ISET - Charge Current
I_CHG of Battery is 100mA

Sets fast charge current
- R_SET range: 590-8.9k
- R_SET = 885/I_CHG
- R_SET = 885/0.1

- R_SET (R2) = 8.85 kOhm

ILIM - System/Load Current Limit
Limit Current (I_INMAX) to 500mA

- R_ILIM = 1650/I_INMAX
- R_ILIM = 1650/0.5

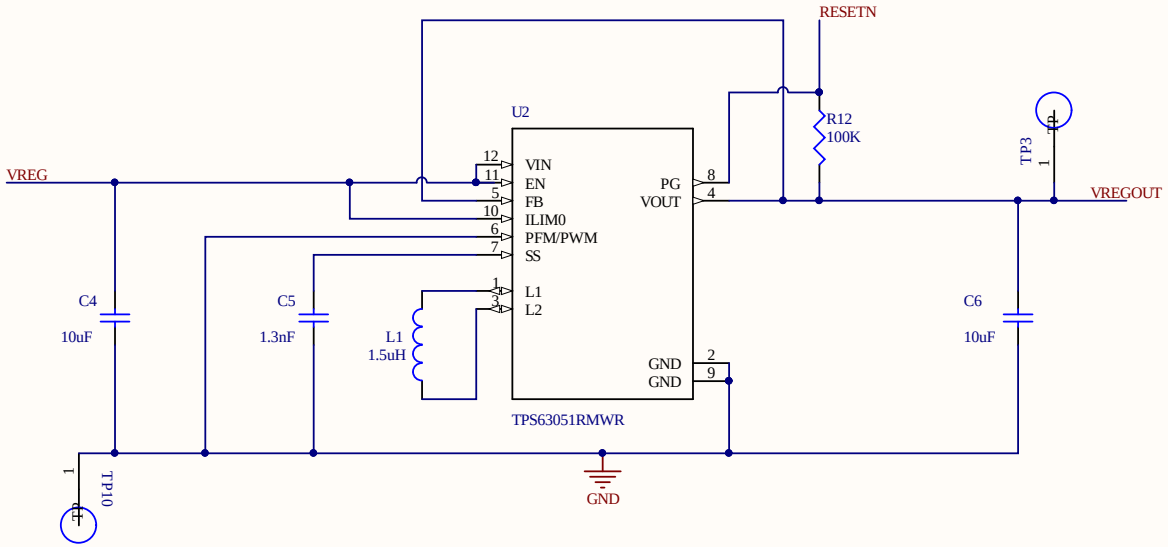
- R_ILIM (R3) = 3.3K

EN1 - VREG - HIGH
EN2 - GND - LOW

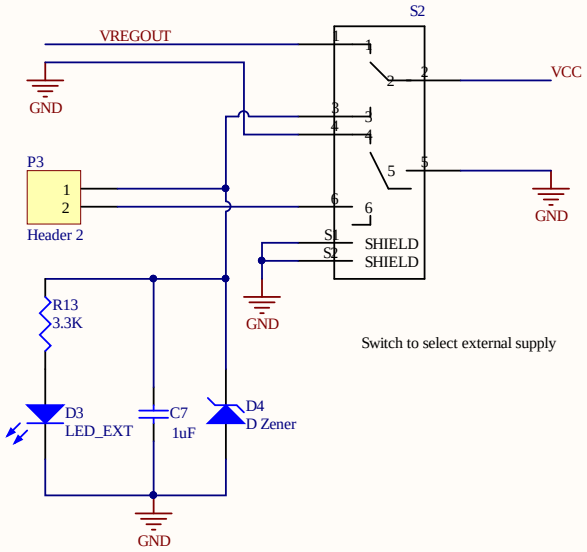
Limiting USB input current to 500 mA

Title	PMIC		Energy Auditor Sensor Node
Size: A4	Number: 2	Revision: 1	University of Colorado Boulder
Date: 10/26/2018	Time: 12:28:56 PM	Sheet 2 of 6	
File: C:\Users\Preshit\Documents\GitHub\Low-Power-Embedded-Design\BT Mesh\PMIC.SchDoc			

Buck-Boost Converter

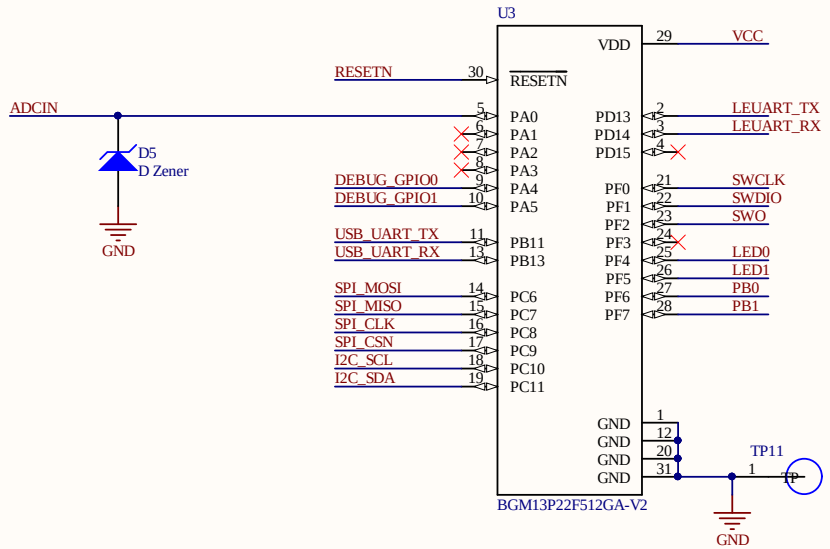


External Input

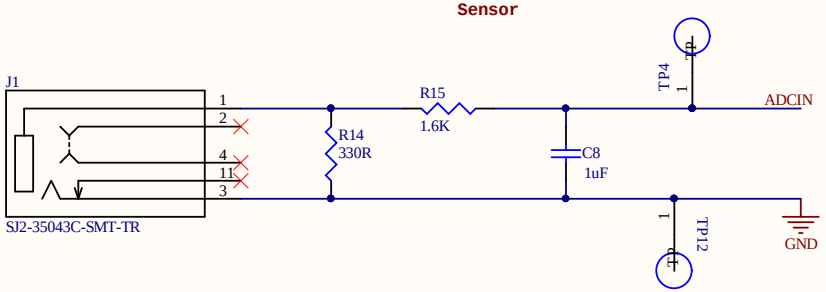


Title	**Regulator**		*Energy Auditor Sensor Node*
Size: A4	Number: 3	Revision: 1	
Date: 10/26/2018	Time: 12:28:56 PM	Sheet 3 of 6	*University of Colorado Boulder*
File: C:\Users\Preshit\Documents\GitHub\Low-Power-Embedded-Design\BT Mesh\Regulator.SchDoc			

Blue Gecko



Sensor



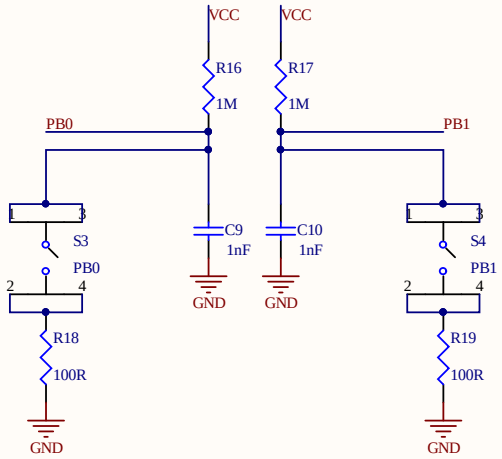
Peak Current - 20A
Sensor Turn Ratio - 1:2000
Peak CT Current - 10mA
ADC max voltage - 3.3V

R11 = ADC max voltage/Peak CT current
R11 = 3.3/0.01 = 330R

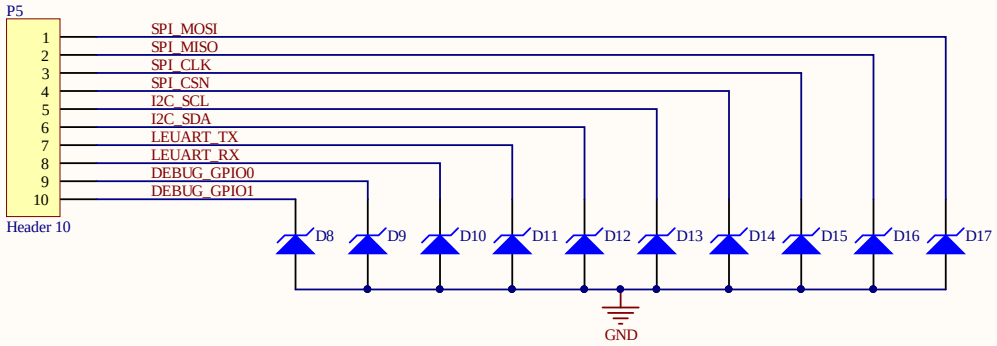
Low Pass Filter:
freq = 1/2*pi*R12*C6

Title	**Blue Gecko and Sensor**		*Energy Auditor Sensor Node*
Size: A4	Number: 4	Revision: 1	*University of Colorado Boulder*
Date: 10/26/2018	Time: 12:28:56 PM	Sheet 4 of 6	
File: C:\Users\Preshit\Documents\GitHub\Low-Power-Embedded-Design\BT Mesh\Gecko.SchDoc			

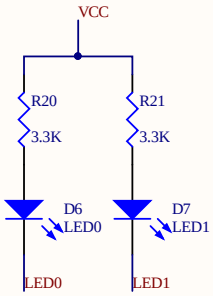
Push Buttons



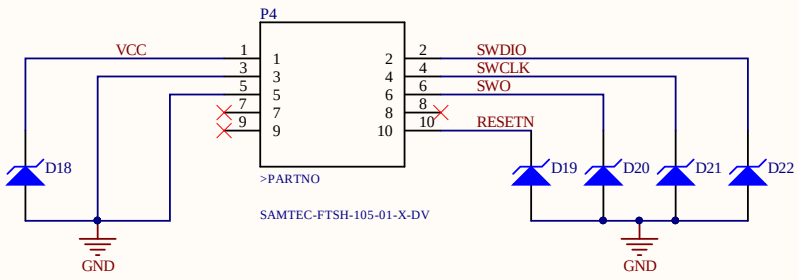
GPIO



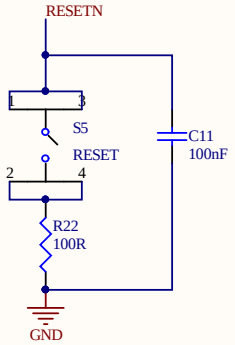
Debug LEDs



Debug Interface



Reset Circuit



RESETN- Active LOW

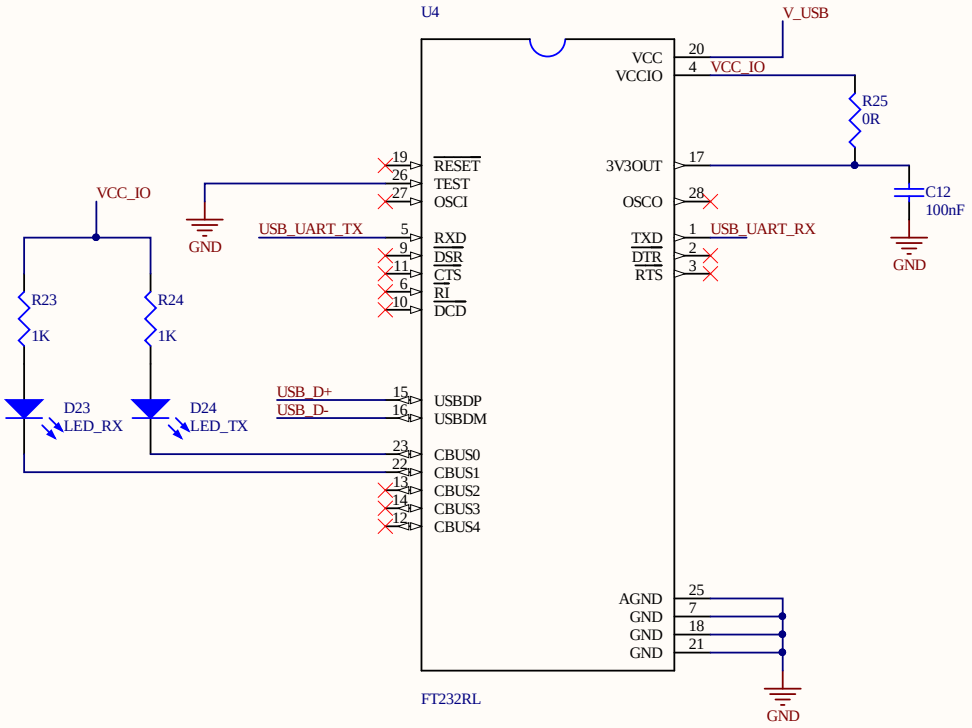
PGOOD HIGH - S4 OPEN - RESETN HIGH - MCU ON

PGOOD LOW - S4 OPEN - RESETN LOW - MCU RESET

PGOOD HIGH when regulator Vout greater 95% nominal output voltage i.e. 95% of 3.3V

S4 CLOSED - PGOOD don't care - RESETN LOW - MCU RESET

Title	Gecko IO		Energy Auditor Sensor Node
Size: A4	Number: 5	Revision: 1	University of Colorado Boulder
Date: 10/26/2018	Time: 12:28:56 PM	Sheet 5 of 6	
File:	C:\Users\Preshit\Documents\GitHub\Low-Power-Embedded-Design\BT Mesh\Gecko IO.SchDoc		



Title	**USB UART**		*Energy Auditor Sensor Node*
Size: A4	Number: 6	Revision: 1	*University of Colorado Boulder*
Date: 10/26/2018	Time: 12:28:56 PM	Sheet 6 of 6	
File: C:\Users\Preshit\Documents\GitHub\Low-Power-Embedded-Design\BT Mesh\USB.SchDoc			