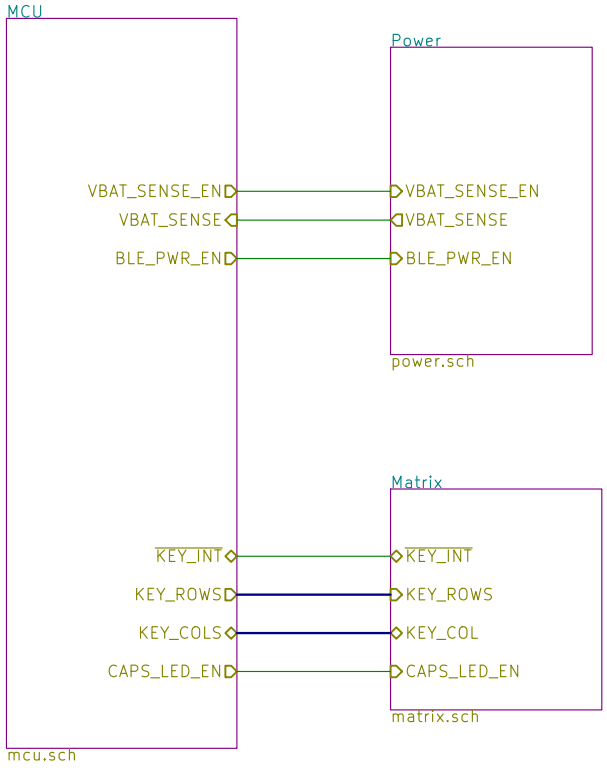
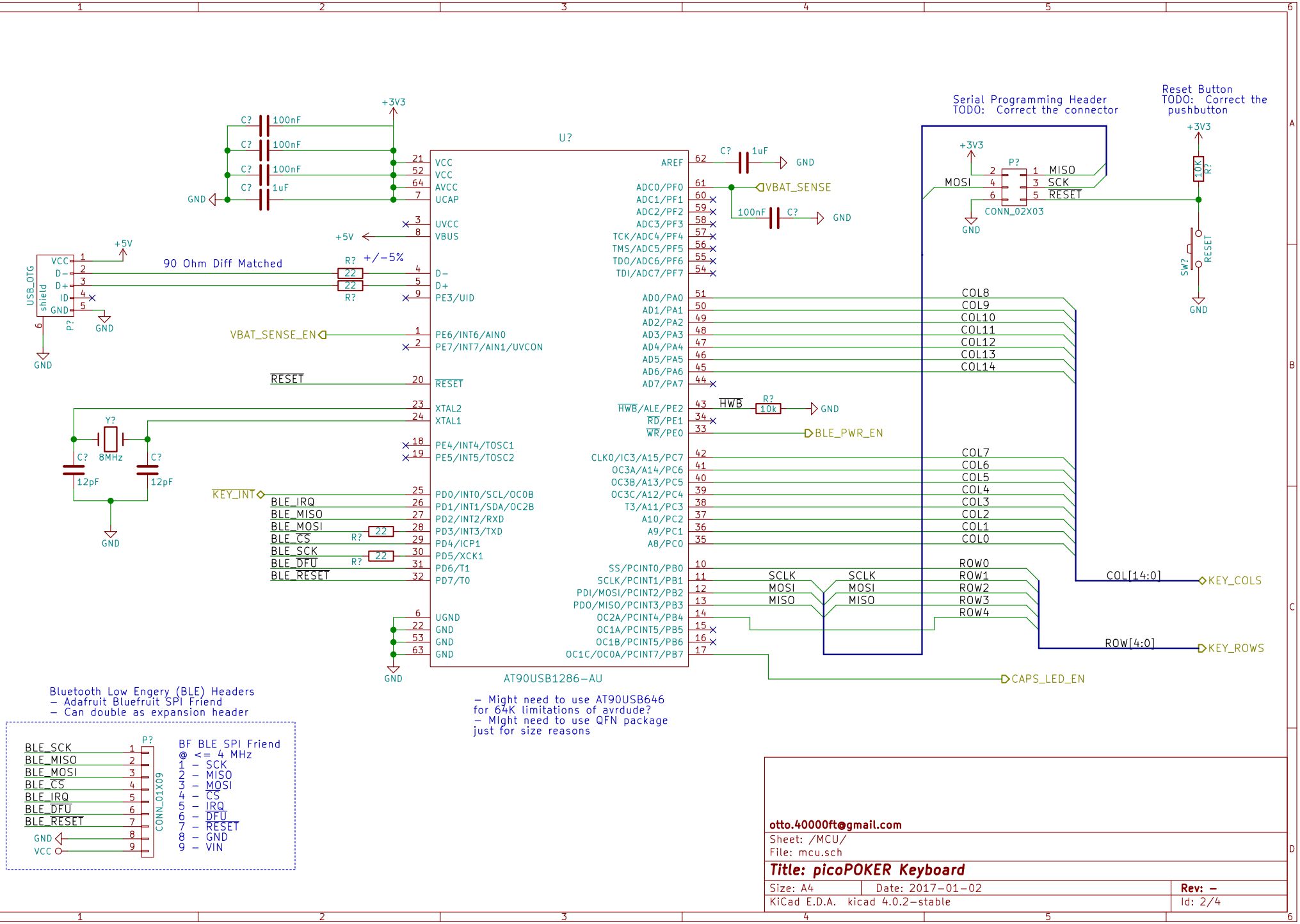


otto.40000ft@gmail.com

Sheet: /
File: picoPOKER.sch

Title: picoPOKER Keyboard

Size: A4	Date: 2017-01-02	**Rev: -**
KiCad E.D.A. kicad 4.0.2-stable		Id: 1/4

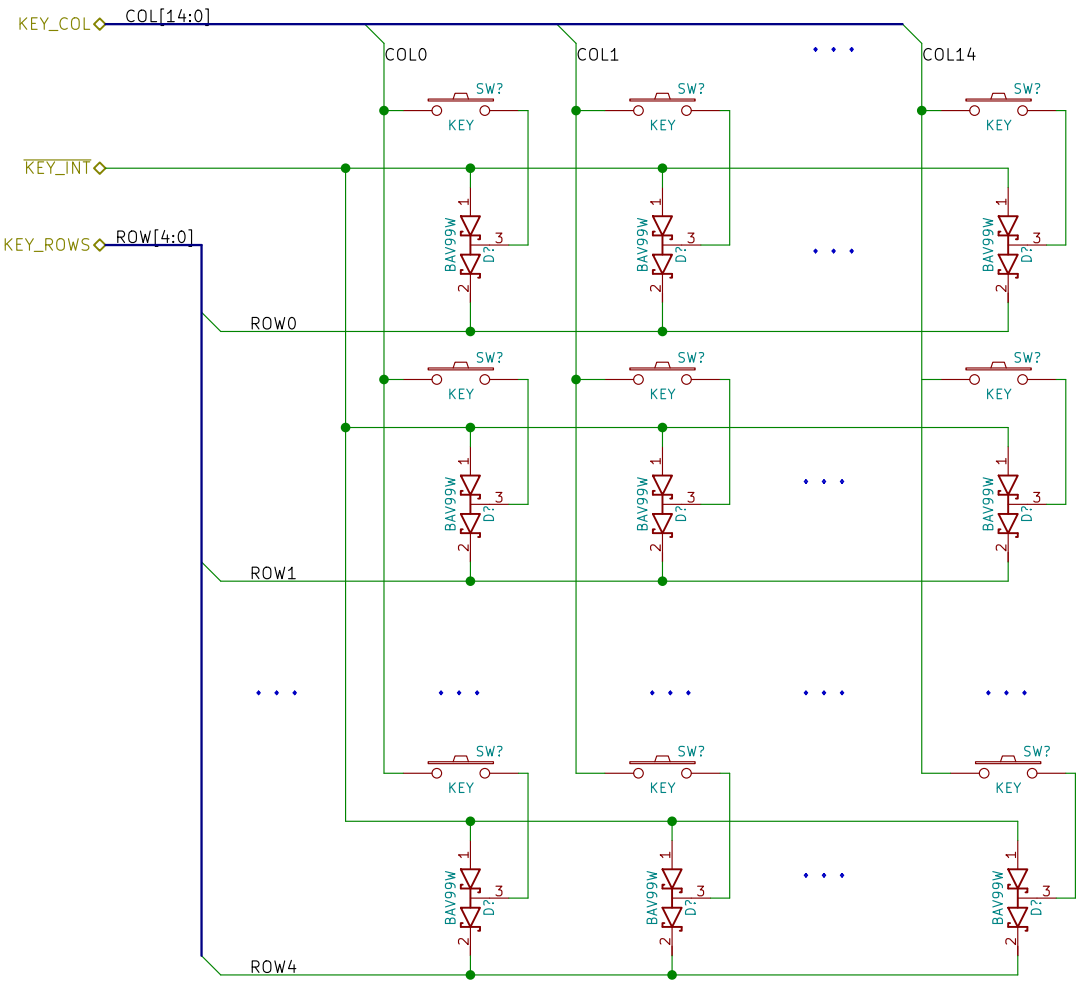


otto.40000ft@gmail.com

Sheet: /MCU/
File: mcu.sch

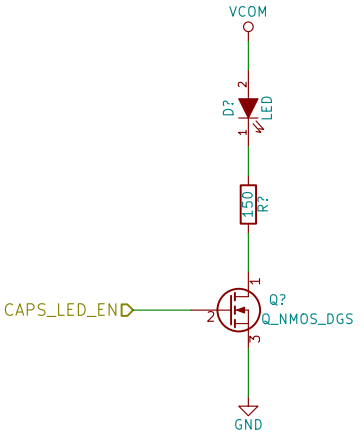
Title: picoPOKER Keyboard

Size: A4	Date: 2017-01-02	Rev: –
KiCad E.D.A. kicad 4.0.2-stable		Id: 2/4



CAPS LED

Use higher unregulated voltage to ensure the LED is driven.



TODO: Wire up a proper matrix

Matrix Mode	Pin	Pin Mode / Direction	Comment
Scanning	KEY_INT	Out	Drive '0' to not interfere with scan.
	ROWn	Out	Drive '0' to select a row to read, drive '1' to others
	COLn	In / P.U.	Read the column ports to discover key states for the selected row. '0'=Key Pressed.
Power Down	KEY_INT	In / P.U.	Used as interrupt to wake MCU in this mode. Enable P.U. on pin. '0'=Key Pressed.
	ROWn	Out	Drive '1' to deselect all rows.
	COLn	Out	Drive '0' to select all collumns.

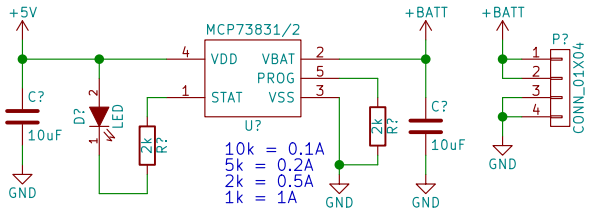
otto.40000ft@gmail.com

Sheet: /Matrix/
File: matrix.sch

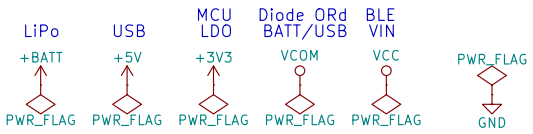
Title: picoPOKER Keyboard

Size: A4	Date: 2017-01-02	Rev: -
KiCad E.D.A. kicad 4.0.2-stable		Id: 3/4

LiPo Battery Charger
MCP73831-2ACI/OT

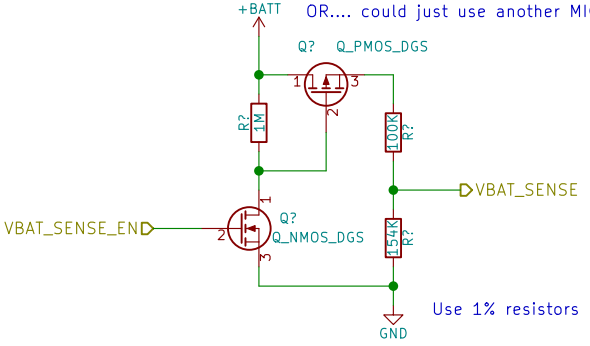


TODO: JST LiPo
Battery Connector



Power Rail Descriptions

Battery Voltage Monitor (ADC input)

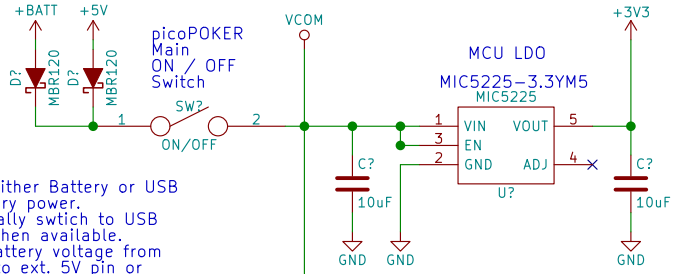


Battery Voltage Divider

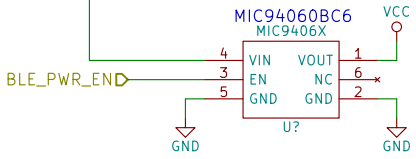
Using 2.56V internal band gap reference:
R1 = 100K, R2 = 154K
VBAT 4.2 (max) --> Sense 2.54
VBAT 3.0 (min) --> Sense 1.82

NOTE: using internal reference may introduce as much as 7.8% error. Due to this, the additional power draw of the internal ref and the narrower sense range, AVCC reference would normally be preferred for the monitor. However, due to the crude nature of the monitor to start with, and the complexity of monitoring a voltage not derived from VCC/AVCC, the internal band gap reference is selected. If necessary to improve measurements, calibration offsets can be calculated and stored.

MCU and BLE Power Generation & Control



Can use either Battery or USB for primary power.
Automatically swtich to USB Power when available.
Prevent battery voltage from passing to ext. 5V pin or to the charger input.



MIC9406X has internal pull-down on EN input consuming 2-4uA.
BF LE Friend has on-board MIC5225 3.3V LDO and bulk 10uF input cap.
BF LE Friend VIN range: 16-3.3V

otto.40000ft@gmail.com

Sheet: /Power/		
File: power.sch		
Title: picoPOKER Keyboard		
Size: A4	Date: 2017-01-02	**Rev: -**
KiCad E.D.A. kicad 4.0.2-stable		Id: 4/4