

otto.40000ft@gmail.com

Sheet: /
File: picoPOKER.sch

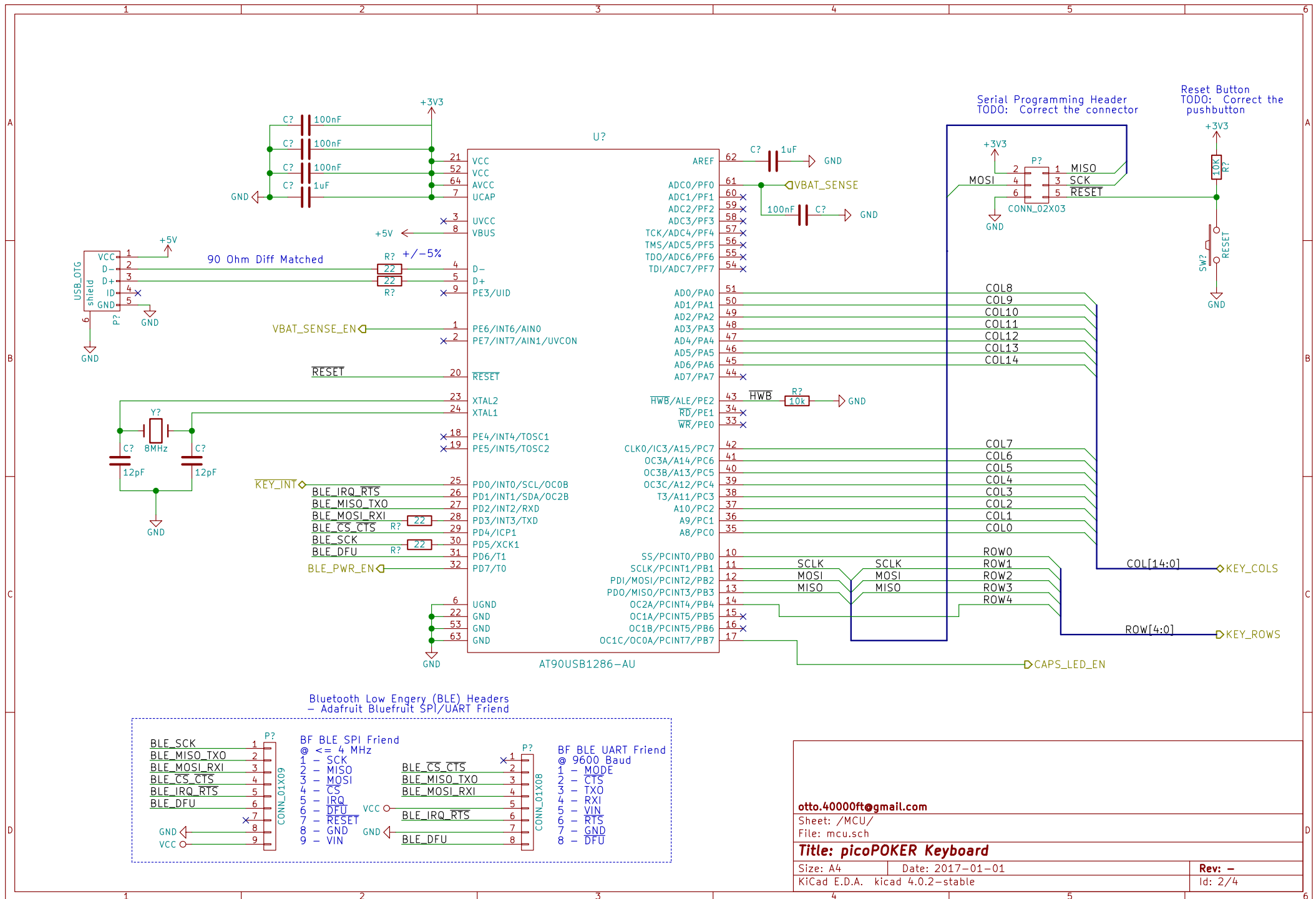
Title: picoPOKER Keyboard

Size: A4 Date: 2017-01-01

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Sheet: /MCU/

File: mcu.sch

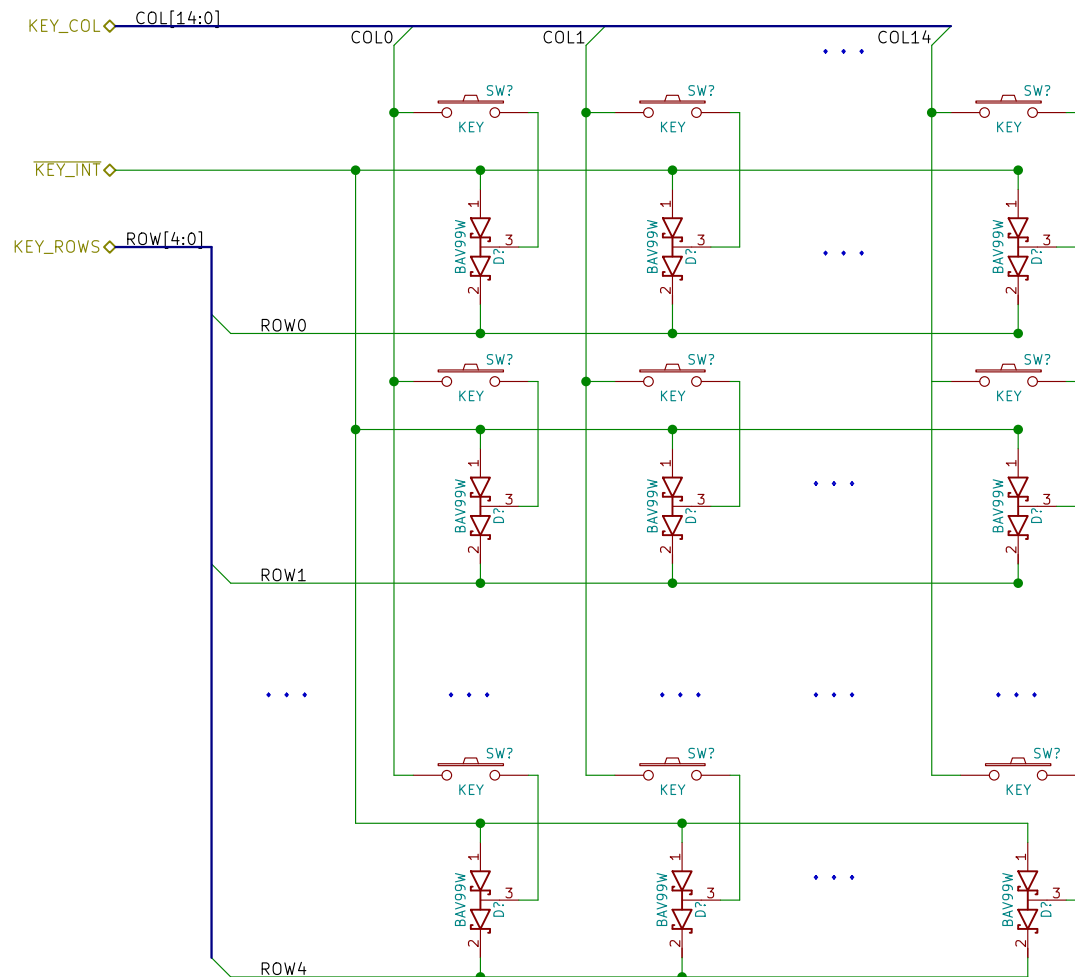
Title: picoPOKER Keyboard

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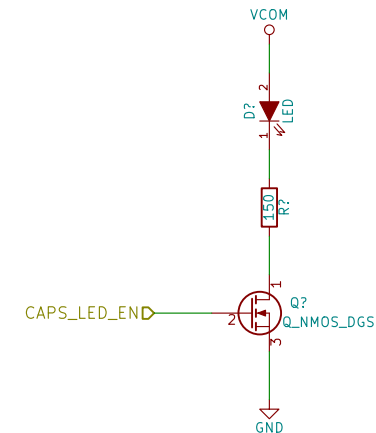
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CAPS LED
Use higher unregulated voltage to ensure the LED is driven.



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
Power Down	COLn	In / P.U.	Read the column ports to discover key states for the selected row. '0'=Key Pressed.
	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 columns.

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Sheet: /Matrix/

File: matrix.sch

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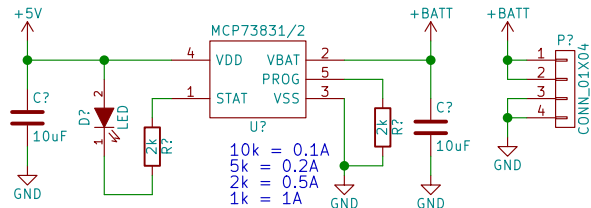
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LiPo Battery Charger

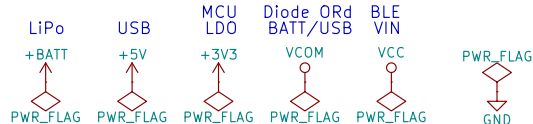
MCP73831-2ACI/OT



TODO: JST LiPo Battery Connector

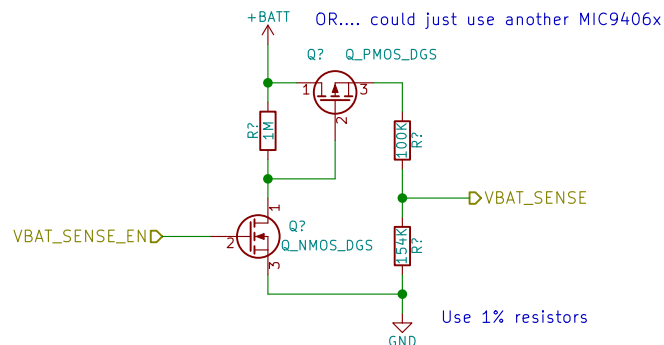
CONNL01X04

10k = 0.1A
5k = 0.2A
2k = 0.5A
1k = 1A



Power Rail Descriptions

Battery Voltage Monitor (ADC input)



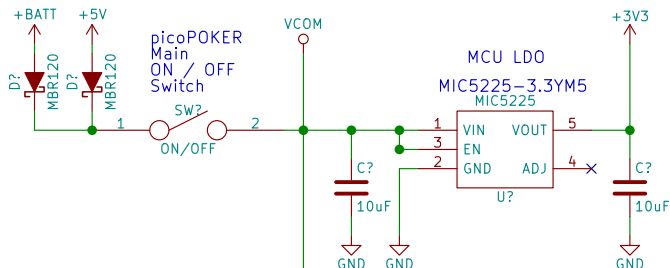
Battery Voltage Divider

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

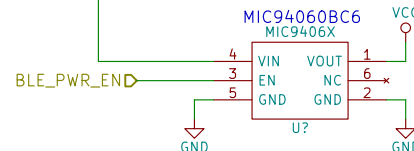
NOTE: using internal reference may introduce as much as 7.8% error. Due to this and the narrower sense range, AVCC reference would normally be preferred for the monitor. However, due to the crude nature of the monitor to start with, and the complexity of monitoring a voltage not derived from VCC/AVCC, 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.
Prevent battery voltage from passing to ext. 5V pin or to the charger input.



BLE High-side Power Switch BLE Load Shed for Deep Sleep



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

NOTE: This power topology may not work with BF LE UART Friend due to diode ORing on VIN. The double diode drop from the battery to the BF UART Friend's LDO in this circuit may be too low as the battery drains. Either:
- use the BF LE SPI Friend, which doesn't have the VIN diode
- Modify your BF LE UART Friend to remove and jumper the VIN diode

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Sheet: /Power/

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