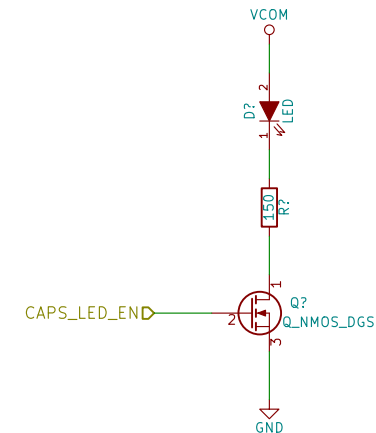


CAPS LED
Use higher unregulated voltage to ensure the LED is driven.



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.

Sheet: /Matrix/
File: matrix.sch

Title: picoPOKER Keyboard

Size: A4 Date: 2000-12-31

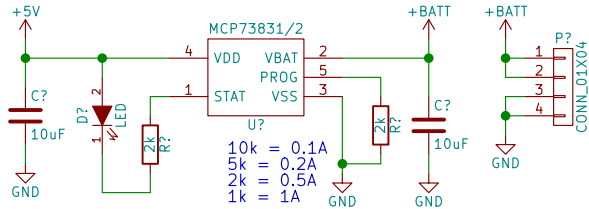
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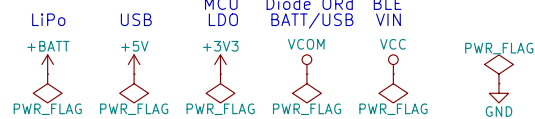
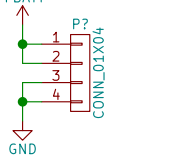
LiPo Battery Charger

MCP73831-2ACI/OT



TODO: JST LiPo Battery Connector

CONN_01X04

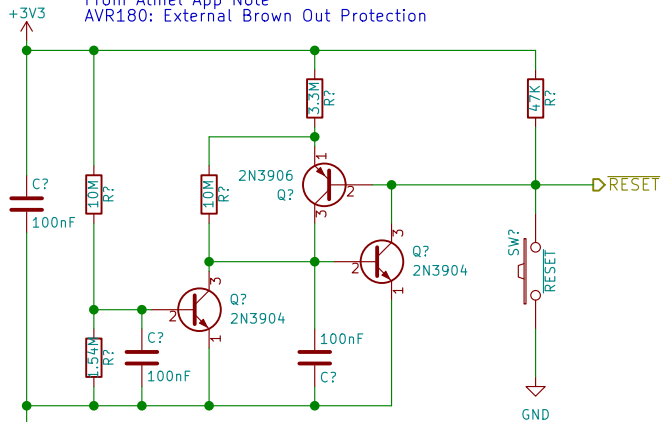


Power Rail Descriptions

Low Power BOD Circuit (0.5uA)

From Atmel App Note

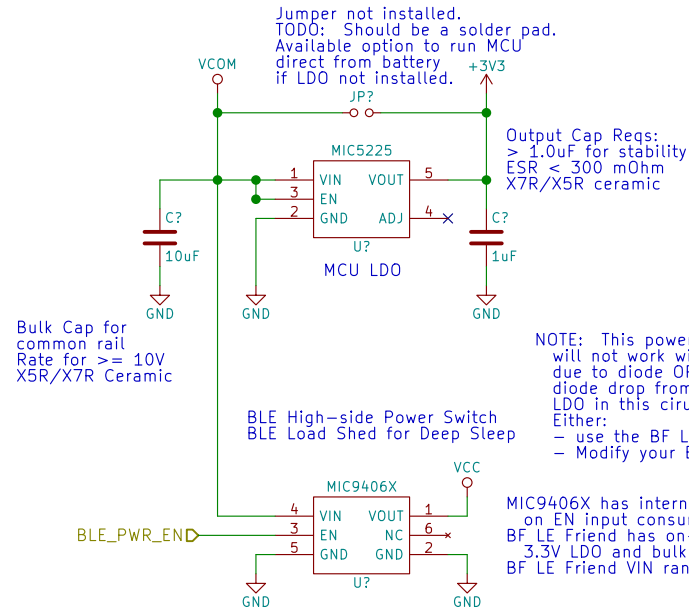
AVR180: External Brown Out Protection



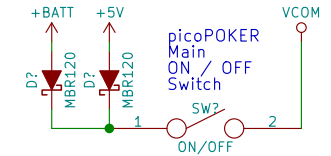
BOD = 3.0V, +/- 0.3V Hysteresis
This should turn off around 3.3V battery, which is near end of life.

Recommended Tolerances:
BJTs - $I_{ce} \geq 2.5mA$, $V_{ce} \geq 8V$, $\beta_{Hfe} \geq 100$
 $R1/R2$ divider - 1%
Other R_s , 20%
 C_s - < 20%, Z5U dielectric or better

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.



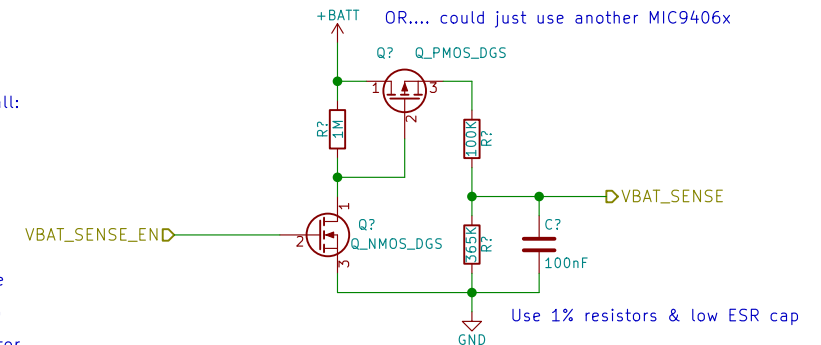
Battery Voltage Monitor (ADC input)

Battery Voltage Divider

Best for regulated 3.3V VCC reference, and best accuracy / widest range overall:
 $R1 = 100K$, $R2 = 365K$
 $V_{BAT} 4.2$ (max) --> Sense 3.3
 $V_{BAT} 3.4$ (min) --> Sense 2.69

Best for using internal 2.56V band gap reference, but will work for both:
 $R1 = 100K$, $R2 = 154K$
 $V_{BAT} 4.2$ (max) --> Sense 2.54
 $V_{BAT} 3.4$ (min) --> Sense 2.06

NOTE: due to internal band gap reference tolerance, using internal reference may introduce as much as 7% error. Due to this and the narrower sense range, VCC reference is preferred for the monitor.



Sheet: /Power/
File: power.sch

Title: picoPOKER Keyboard

Size: A4 Date: 2000-12-31

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