

Estimated remaining capacity					
Voltage	AW 18650 2600mAh (black)	Sanyo 18650 2600mAh (Red)	Panasonic CGR18650CH 2250mAh	Panasonic NCR18650A 1100mAh	Panasonic NCR18650B 1400mAh
4.2	100%	100%	100%	100%	100%
4.1	92%	92%	94%	94%	94%
4.0	78%	79%	85%	83%	84%
3.9	61%	61%	76%	73%	74%
3.8	43%	44%	66%	60%	62%
3.7	14%	15%	54%	52%	53%
3.6	3%	5%	26%	38%	39%
3.5	1%	2%	12%	20%	22%
3.4	0%	1%	5%	11%	13%
3.3	0%	0%	2%	1%	3%
3.2	0%	0%	0%	0%	0%

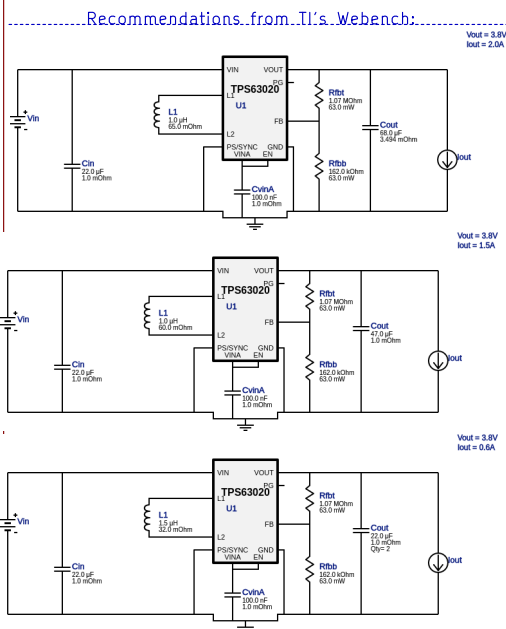
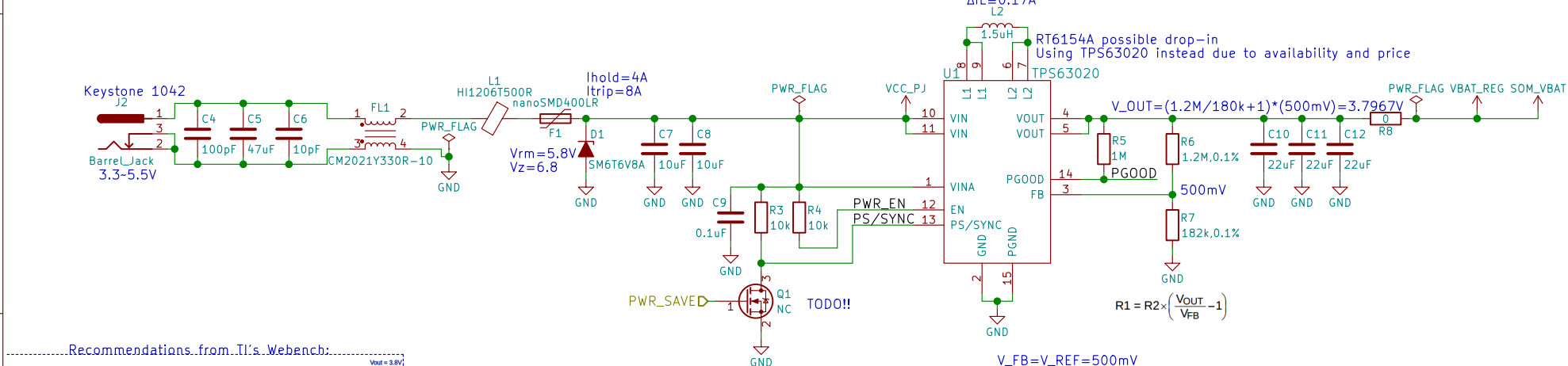
Measured 1 hour after discharge at 1A

⇒ 18650 batteries don't reach 3.3V until depleted

$$I_{PEAK} = \frac{I_{out}}{\eta \times (1 - D)} + \frac{V_{in} \times D}{2 \times f \times L}$$

$$= \frac{2A}{0.9 \times \left(1 - \frac{3.7967V - 3.0V}{3.7967V}\right)} + \frac{3.0V \times \left(\frac{3.7967V - 3.0V}{3.7967V}\right)}{2 \times 2.4MHz \times 1.5\mu H} = 2.899803756A$$

Calculated $I_{peak} \approx 2.9A$
 $I_L(sat) = 4.4A @ 20\% \text{ drop}$
 $\Delta I_L \approx 0.17A$



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Sheet: /Battery/

File: battery.sch

Title: Battery

Size: A4

Date: 2018-04-05

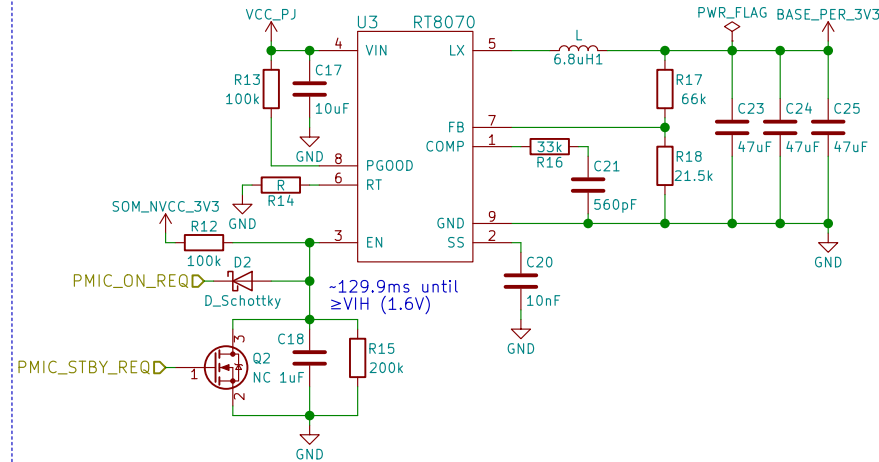
KiCad E.D.A. kicad 4.0.7

Rev: v0.1.0

Id: 2/9

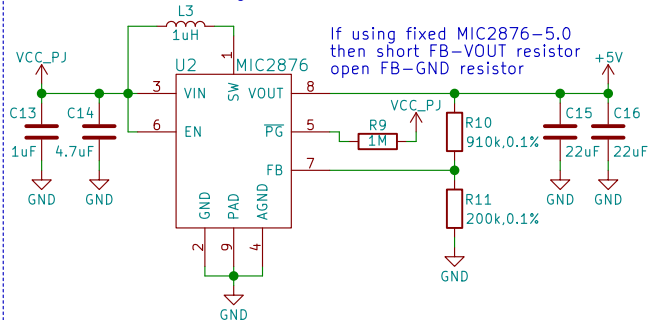
3.3V/3A

When VBAT can fall below 3.3V use TPS63020 instead!



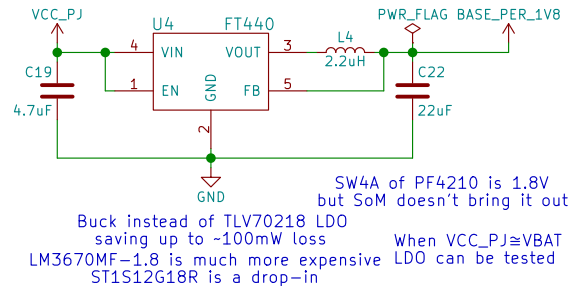
5.0V/800mA

If using fixed MIC2876-5.0 then short FB-VOUT resistor open FB-GND resistor



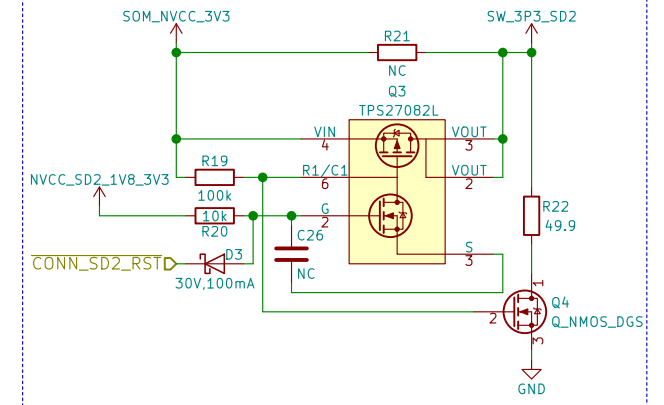
Cheaper, more efficient, smaller, and simpler than RT6150A
Explicitly mentions USB/smartphone application

1.8V/600mA



Buck instead of TLV70218 LDO saving up to ~100mW loss
LM3670MF-1.8 is much more expensive LDO can be tested
ST1S12G18R is a drop-in

SD POWER



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Sheet: /Power/
File: power.sch

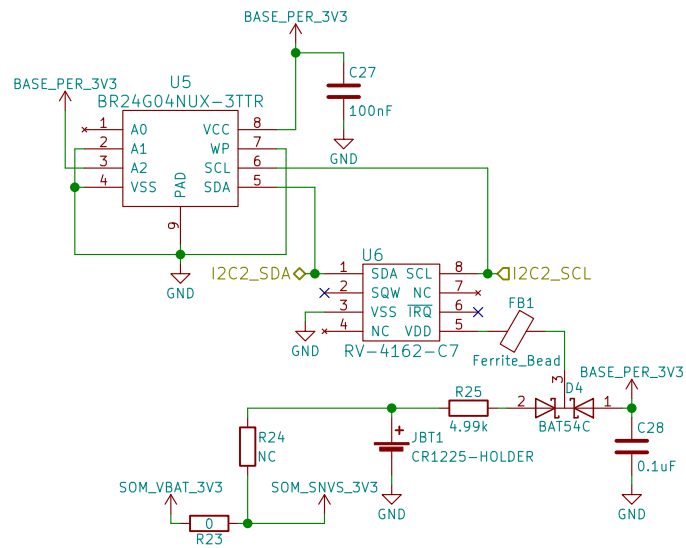
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Size: A4
KiCad E.D.A. kicad 4.0.7

Date: 2018-04-05

Rev: v0.1.0

Id: 3/9



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Sheet: /RTC Battery/
File: rtc.sch

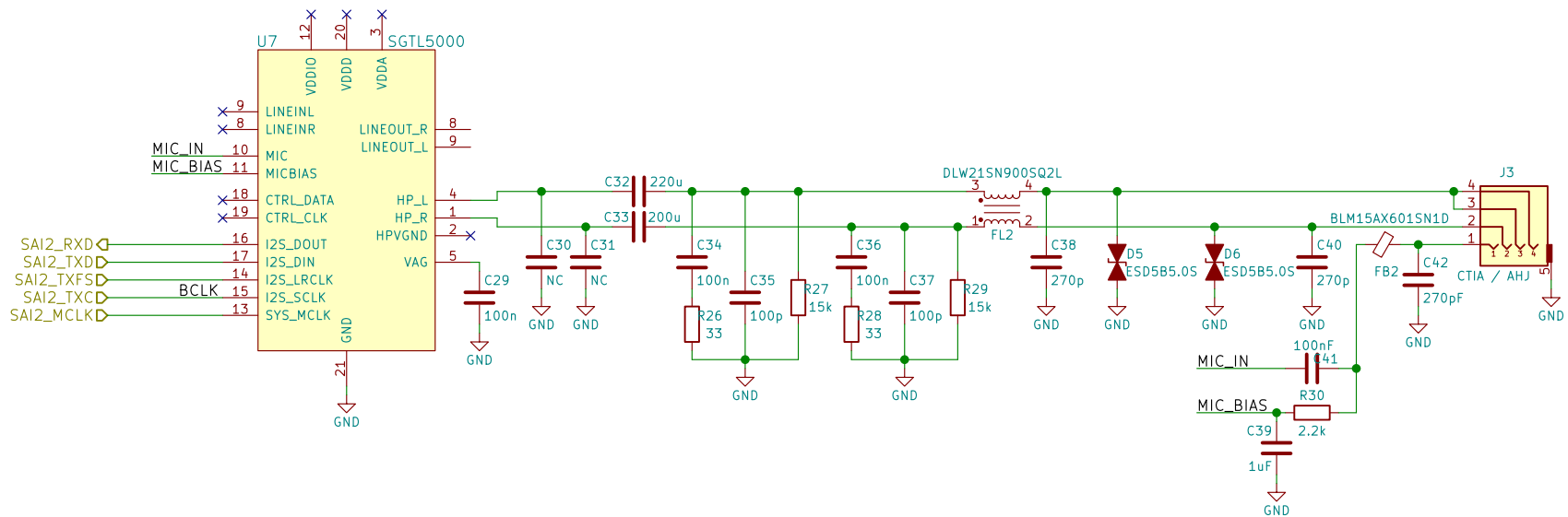
Title: RTC Battery

Size: A4 Date: 2018-04-05

KiCad E.D.A. kicad 4.0.7

Rev: v0.1.0

Id: 4/9



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Purism SPC

Sheet: /Audio/
File: audio.sch

Title: Audio

Size: A4 Date: 2018-04-05

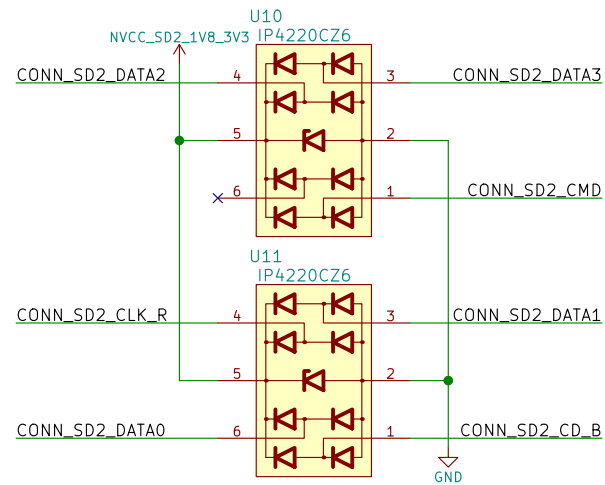
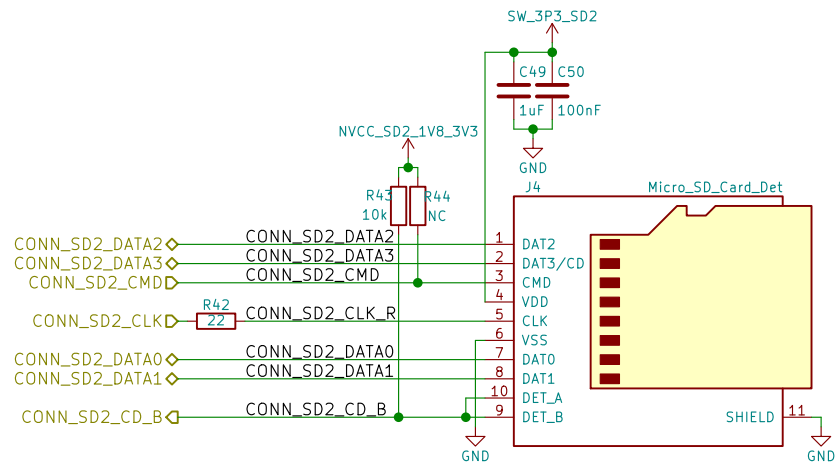
KiCad E.D.A. kicad 4.0.7

Rev: v0.1.0

Id: 5/9

Id: 6/9





Sheet: /uSD Card/
File: sd.sch

Title:

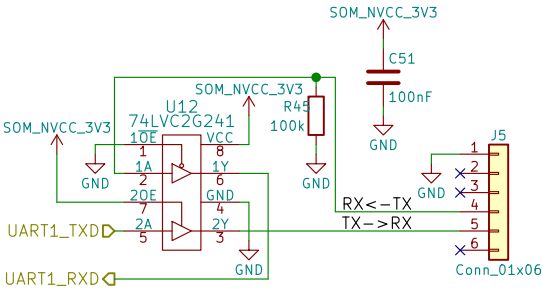
Size: A4

Date:

KiCad E.D.A. kicad 4.0.7

Rev:

Id: 8/9



Sheet: /UART Debug/
File: uart.sch

Title:

Size: A4
KiCad E.D.A. kicad 4.0.7

Date:

Rev:
Id: 9/9