J2
BAT

PGND

I_L is dominated by load current;
ripple current is small (<150mA)

U1 TP4056

J1
USB-MICROB

VBUS
D-
D+
ID
SHIELD
GND

VUSB

C1 10u
PGND

D2 STDBY
D1 CHRG

R2 1k
R_CHRG 1k

POWER_FLAG
PGND

VCC
CE
CHRG
STDBY
BAT
TEMP
PROG
GND
PAD

PGND

BAT

C2 10u
PGND

RP1 20k 25%

R3 1k 1%
PGND

Ibat = 1V/Rprog * 1200

With 20k/1k:
57mA <= Ibat <= 1.2A (typ)
76mA <= Ibat <= 778mA (worst)

U2 NCP1529

VIN
EN
GND
SW
FB

PGND

L1 2.2u

SENSE
J3

C3 10u
PGND

18p C4

RP2 2M 10%
R5 1.15M 1%

Stuff either RP2 or R5

R4 255k 1%
PGND

VREG

J4
VREG

PGND

Vout = 0.6V * (1 + R1/R2)

Requirement:
- 100k <= R2 <= 600k
- 1.8V <= Vout <= 3.6V

-> 2*R2 <= R1 <= 5*R2

With 2M/255k:
0.6V <= VREG <= VBAT (typ, worst)

With 1.15M/255k:
VREG = 3.306V (typ, 3.24V - 3.37V worst)

(c) sternlabs, 2015

Sheet: /
File: lipo-charger-power.sch

Title: USB LiPo charger power supply

Size: User | Date: | Rev: 0
KiCad E.D.A. kicad (after 2015-jan-16 BZR unknown)-product | Id: 1/1