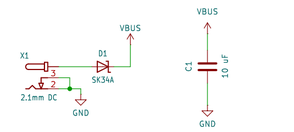
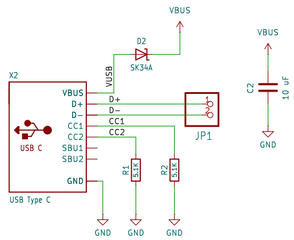
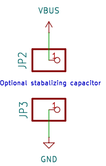
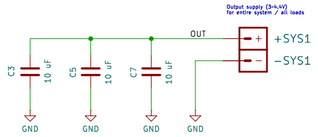
POWER DELIVERY & BATTERY CHARGING

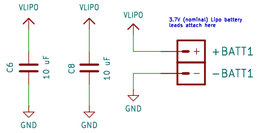
**Power IN via USB [???V],
** Solar Panel DC [???V], and/or
**3.7V battery stepped [down/up] to [???V]

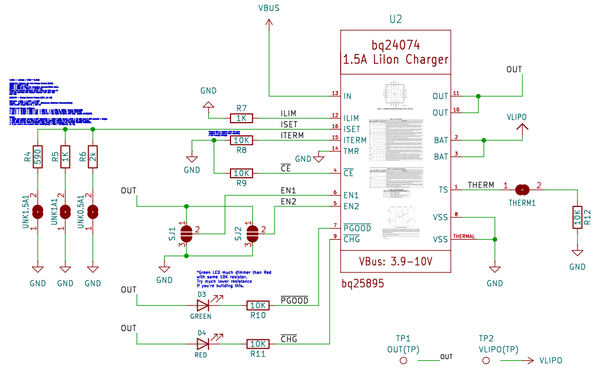




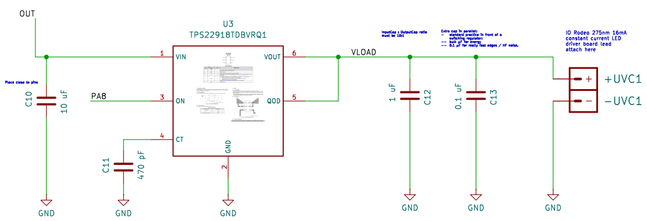




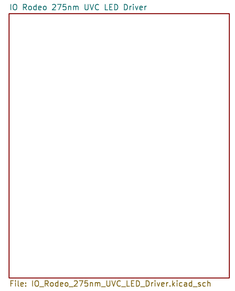




LOAD SWITCH

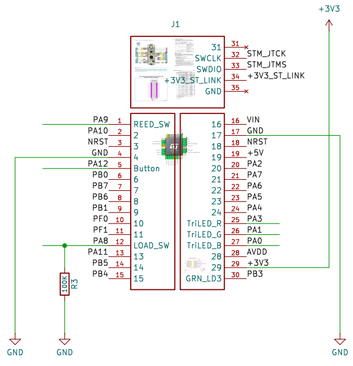


DESIGN NOTES:
- Short trace
- Good copper pour
- Ground: Tie to main ground plane
  - keep VIN, VOUT, Cin, CI loops tight



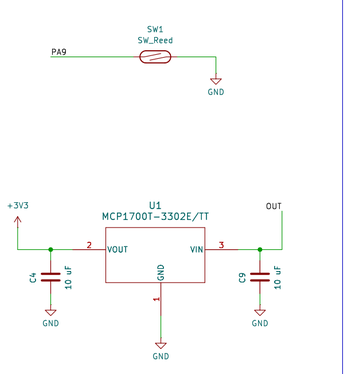
PROCESSING

NUCLEO-L031K6



* Still not sure we need
this external pull down
resistor...

Tradeoff is probably:
(a) 100k external pulldown present ==
safer for UVC OFF guarantee
(b) 100k external resistor removed (PAB not grounded) ==
save power (~30-40 µA when ON is high)

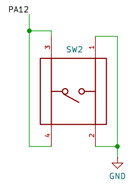


HEAT: Give this copper.

e.g., a fat pour off the GND pin and VOUT pin, short traces,
a couple of vias to a plane). Also note your real load is
likely <200 mA (Nucleo-L031K6 + a few sensors), so typical
dissipation will be lower (e.g., 100 mA → ~0.11 W → ~20-30 °C rise).

INPUT (Tactile)

Buttons



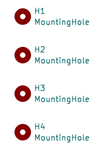
OUTPUT (Visual)

Indicator LEDs

DESIGN NOTES:
- Tricolor LED
  -- Short cycle = Yellow (R+G)
  -- Long cycle = Blue (B)

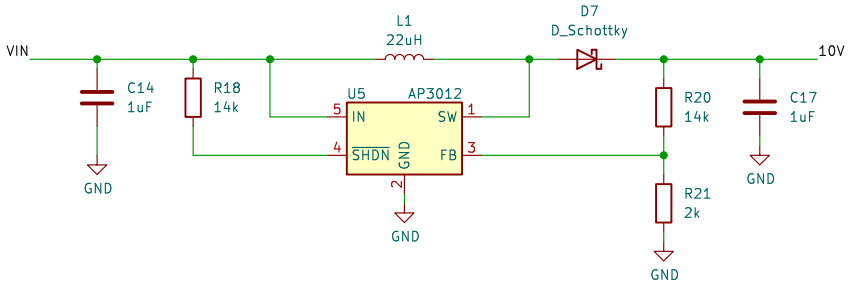
- Single LED(s)
  -- Battery Low = Red
  -- Battery Charging = Orange
  -- Battery Charged = Green

MECHANICAL REFERENCE



Sheet: /		
File: F-UVC-Solar-WB_RevA1.1_PCB.kicad_sch		
Title:		
Size: A2	Date:	**Rev:**
KiCad E.D.A. 8.0.1		Id: 1/2

10V boost converter, input range 2.6–5.0V.



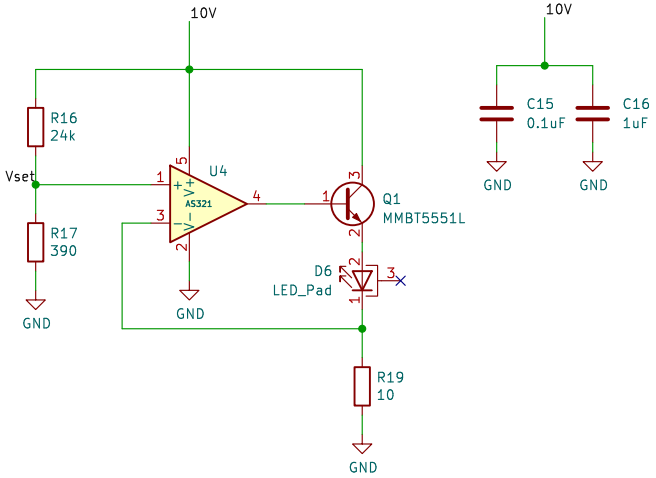
Notes: regulator resistor calculation
Vout = 1.25*(1 + R5/R6) or R5 = R6*(Vout/1.25 – 1)
Vout = 10V => (Vout/1.25 – 1) = 7
So R5 = 7*R6
R5 = 14k
R6 = 2k

Stemma QT / qwiic connectors

JST SM04B-SRSS-TB
LCSC# C160404

Old Componnent
BOOMLE
LCSC# C145956

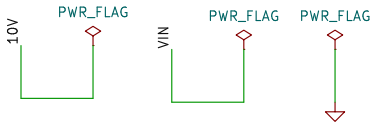
Constant current controller for LED



Notes: I(LED) current calculation
I(LED) = Vset/R1
R1=10 so I(LED) = Vset/10
R2=24k and R3=390 => Vset=0.16V
So I(LED) ~0.016A or ~16mA.

Components:

R1,	10	C854481
R2,	24k	C138026
R3,	390	C137997
R4 R5,	14k	C3015834
R6,	2k	C60488
C1, C2, C4	1uF	C29266
C4,	10uF	C315248
C3	0.1uF	C3012376
L1 (0603)	22uF	C383393
D1 275nm UV LED		Global Parts OSRAM SU CULBN2.V2
D2 Schottky diode		C2837790
U1 boost converter	C102618	
U2 AS321 op amp	C144156	



Sheet: /IO Rodeo 275nm UVC LED Driver /
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Title:

Size: A4	Date:	**Rev:**
KiCad E.D.A. 8.0.1		Id: 2/2