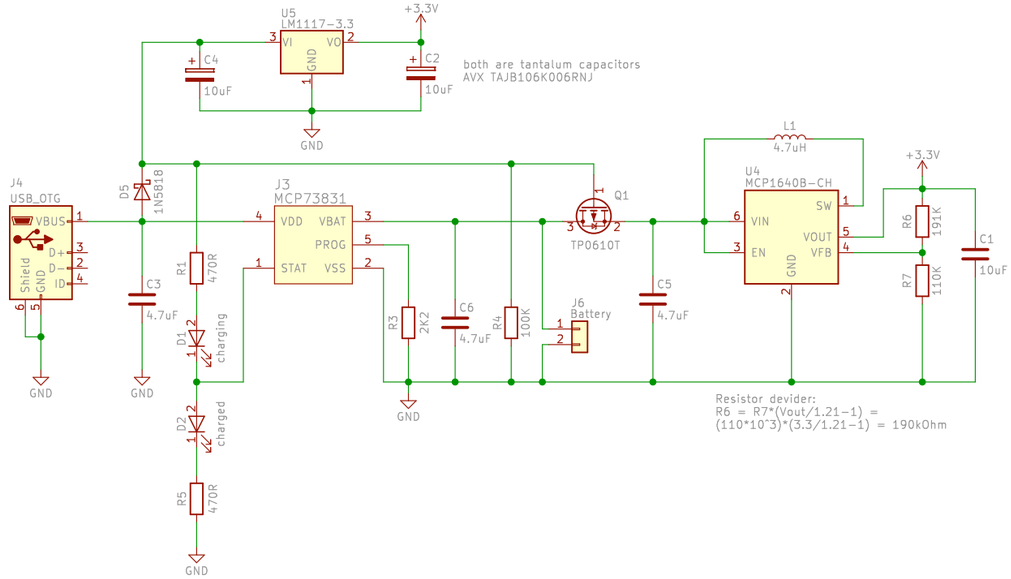
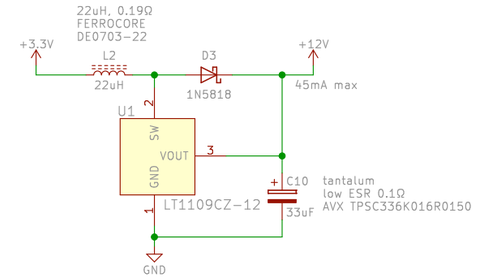
3.7V Li-Ion, Li-Polymer Battery Charger Curcuit with Load Sharing



3.3V to 12V, 45mA DC-DC for OLED panel

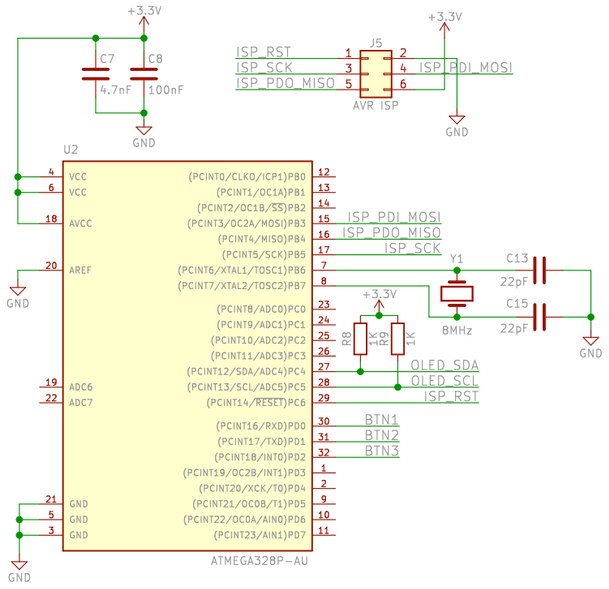


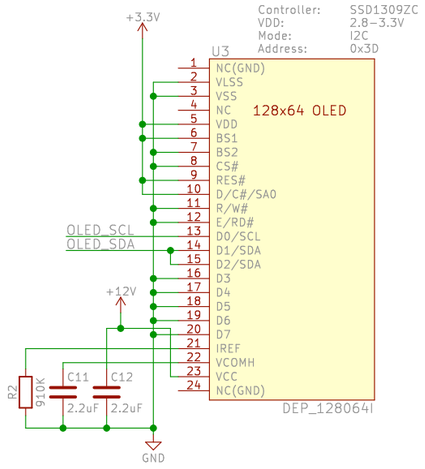
Power required from the inductor:
Pl = (Vout+Vd-Vin)*Iout = (12V+0.5V-3.3V)(45mA) = 414mW

Energy required by the inductor per cycle must be >=:
Pl/Fosc = 414mW/120kHz = 3.45 uJ

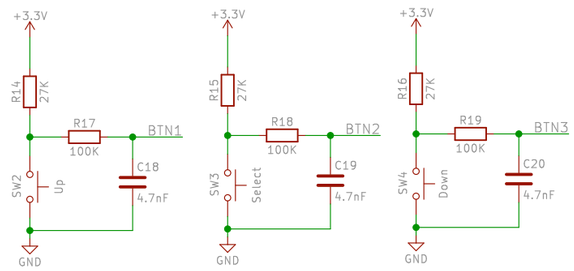
Picking an inductor value of 22µH with 0.19R DCR
results in a peak switch current of:
Ipeak = (3.3V/(0.8R+0.19R))*(1-e^((-1.0*4.2us)/(22uH))) = 579mA

Once Ipeak is known, energy in the inductor at the end
of the switch-ON time can be calculated as:
El = 0.5*(L*Ipeak^2) = 0.5*(22uH)*(0.579)^2 = 3.69uJ > 3.45uJ





It is recommended to set Iref to 10±2uA:
R = (Vcc-3)/Iref = (12V-3V)/10uA = 900kΩ



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Title: Xling (Virtual Monster) Schematic

Size: A3	Date:	Rev: 0.1.17
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