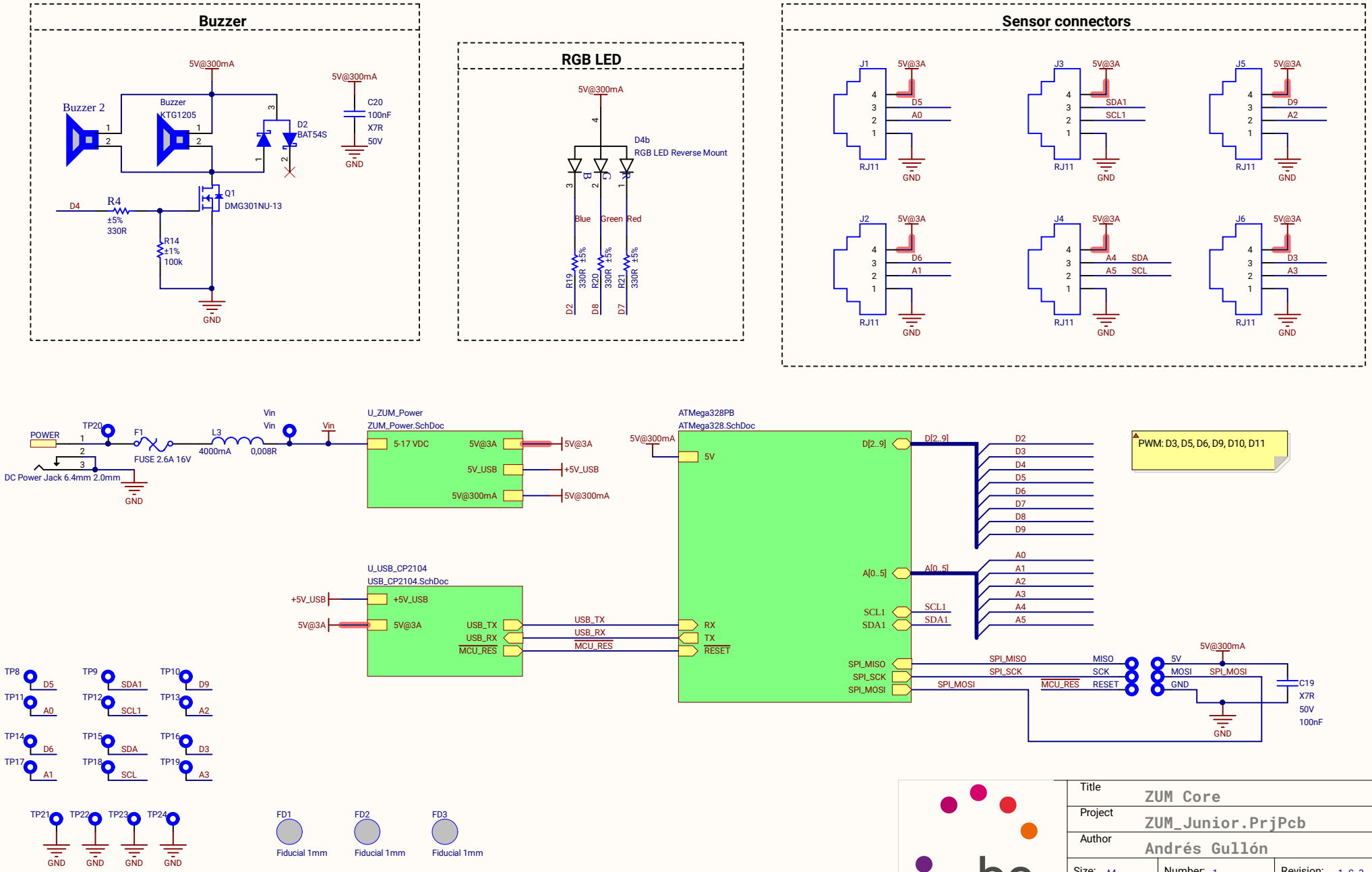
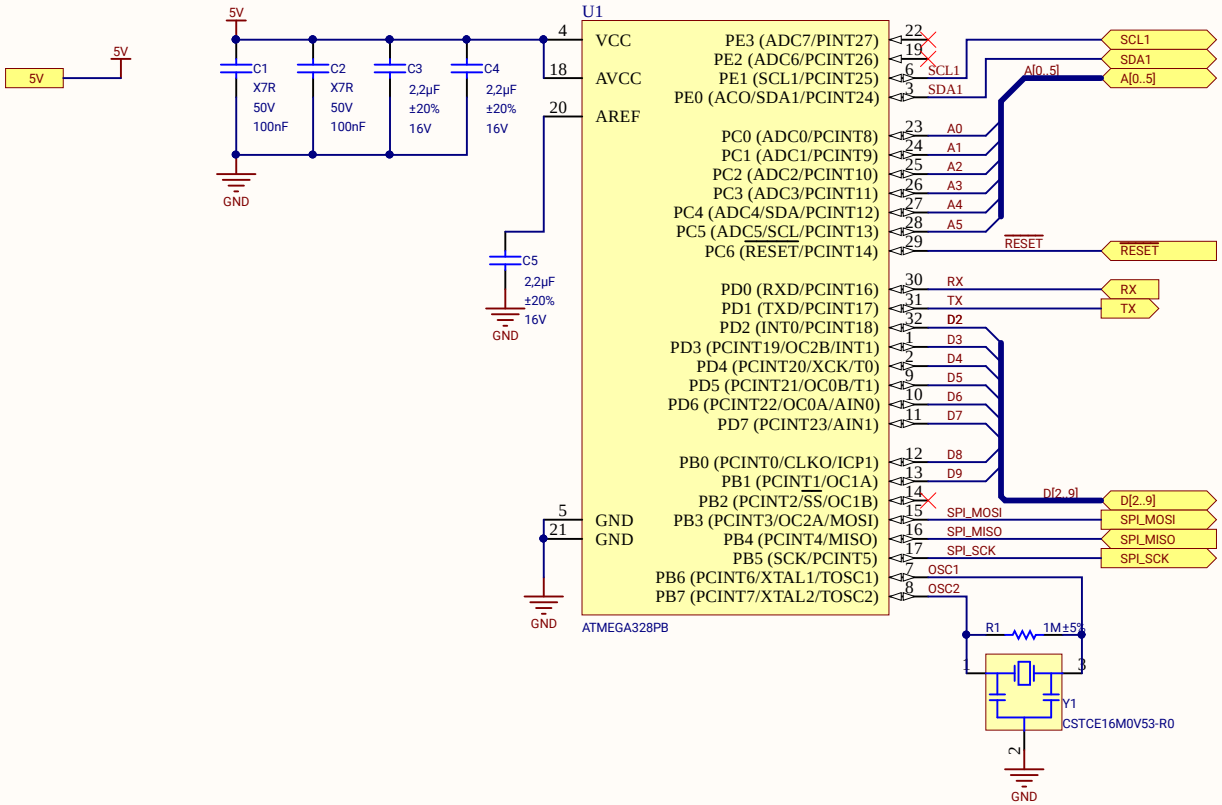
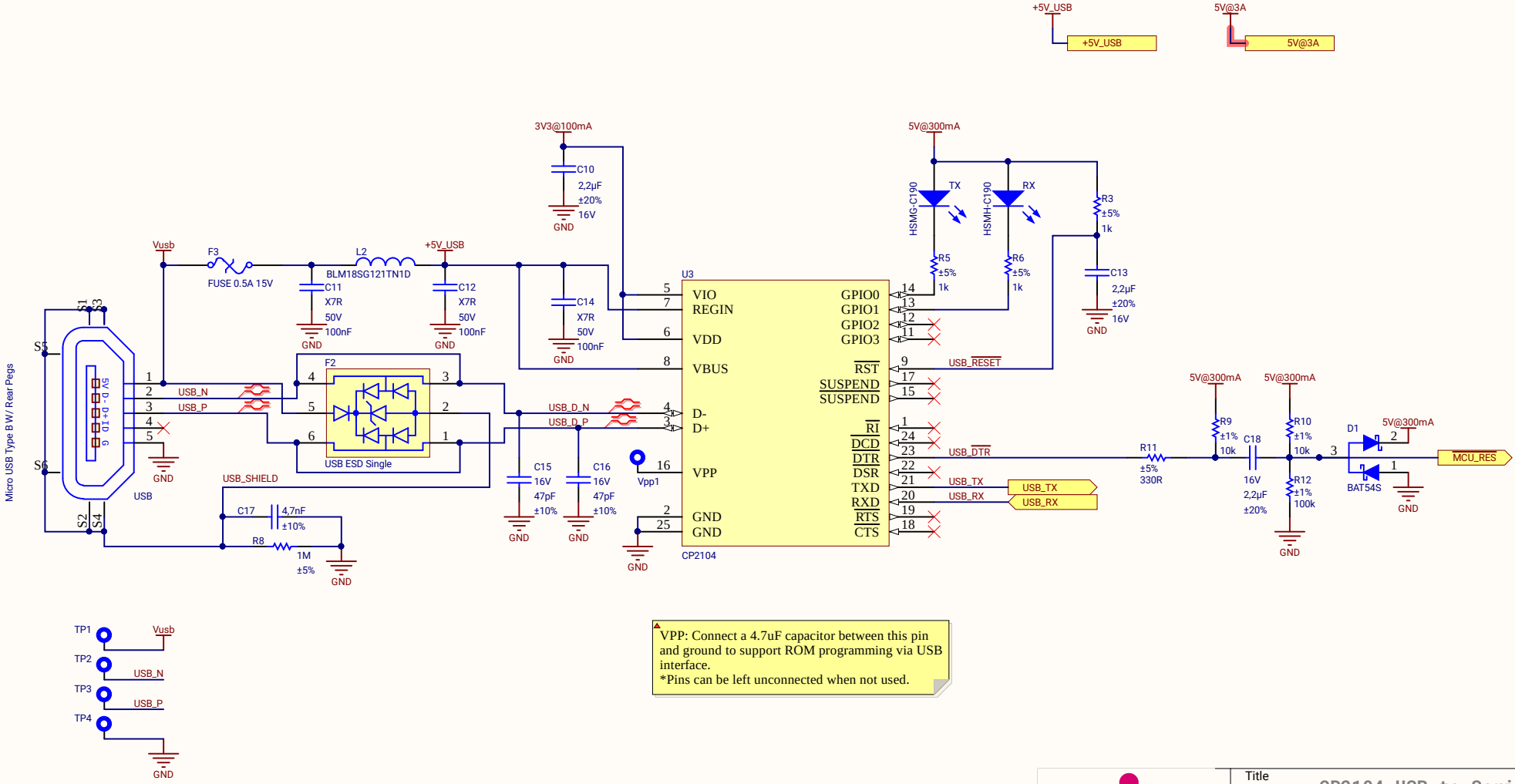


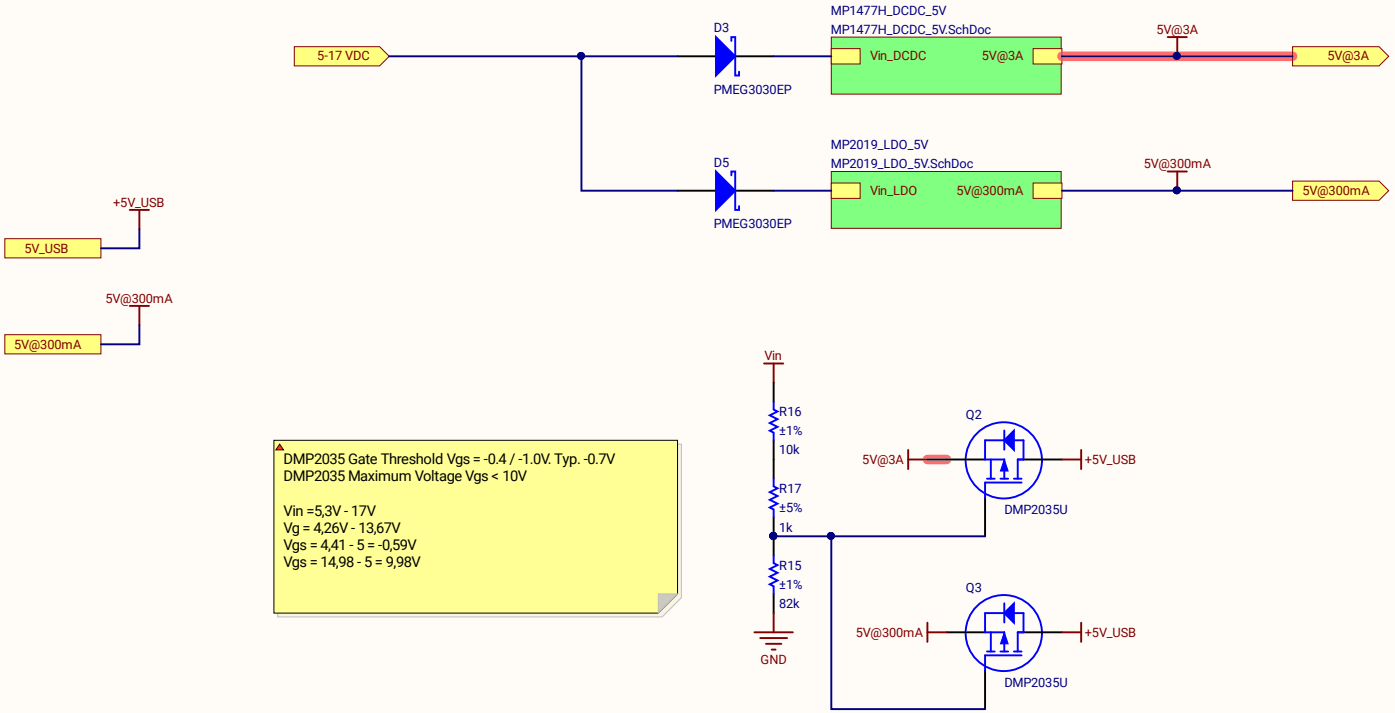
Title	ZUM Core	
Project	ZUM_Junior.PrjPcb	
Author	Andrés Gullón	
Size: A4	Number: 1	Revision: 1.G.3
Date: 01/06/2018	Time: 9:55:59	Sheet 1 of 6



Title	ATMega328-PB	
Project	ZUM_Junior.PrjPcb	
Author	Andrés Gullón	
Size: A4	Number: 2	Revision: 1.G.3
Date: 01/06/2018	Time: 9:56:00	Sheet 2 of 6



Title	CP2104 USB to Serial	
Project	ZUM_Junior.PrjPcb	
Author	Andrés Gullón	
Size: A4	Number: 3	Revision: 1.G.3
Date: 01/06/2018	Time: 9:56:00	Sheet 3 of 6



Title	ZUM_Junior_Power		
Project	ZUM_Junior.PrjPcb		
Author	Andrés Gullón		
Size: A4	Number: 4	Revision: 1.G.3	
Date: 01/06/2018	Time: 9:56:00	Sheet 4 of 6	

Thermal Note with batteries:
12V - 5V = 7V * 0.3A = 2.1W

θJA: 50ºC/W
Tamb = 25ºC
Max Junction Temperature = 150ºC with Shutdown Function at that value.
Tª = 50 * 2.1 + 25 = 130ºC

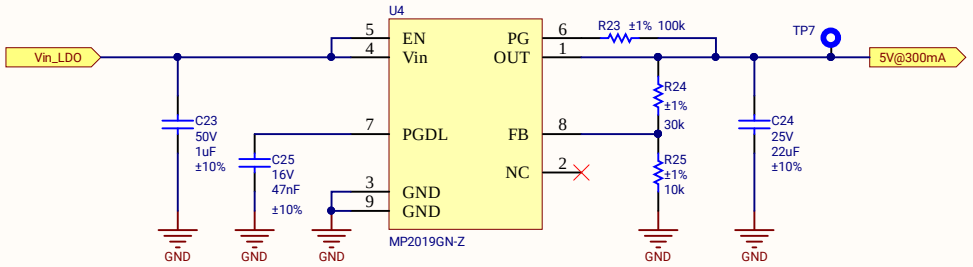
Absolute Maximum Ratings:
- ATMega328PB:
  · DC Current VCC: 100mA
  · DC Current per I/O pin: 40mA
- Buzzer -> Max current: 40mA (I/O pin)
- RGB Led -> Max current: 16mA * 3 = 48mA

- RGB+Buzzer+ATMega328PB = 48mA + ATMega328P VCC = 188mA

Vfb (Feedback Reference Voltage):

R1 = R2*((Vout/Vfb)-1)

Min: 1.225V ---> 4.9V
Typ: 1.25V ---> 5.0V
Max: 1.275V ---> 5.1V



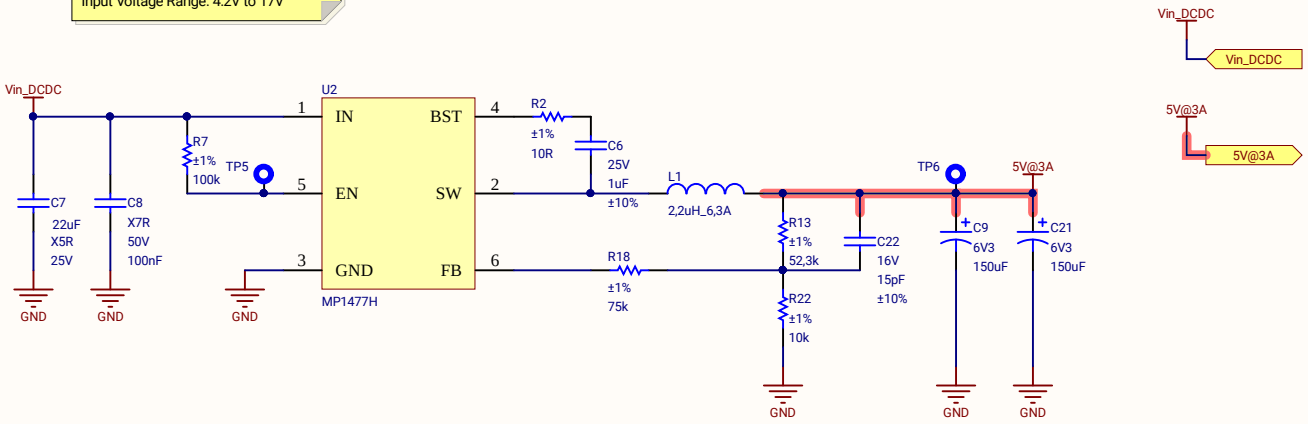
Title	MP2019_LDO_5V@300mA	
Project	ZUM_Junior.PrjPcb	
Author	Andrés Gullón	
Size: A4	Number: 5	Revision: 1.G.3
Date: 01/06/2018	Time: 9:56:00	Sheet 5 of 6

Vref: R1= ((Vout - Vref)/Vref)*R2

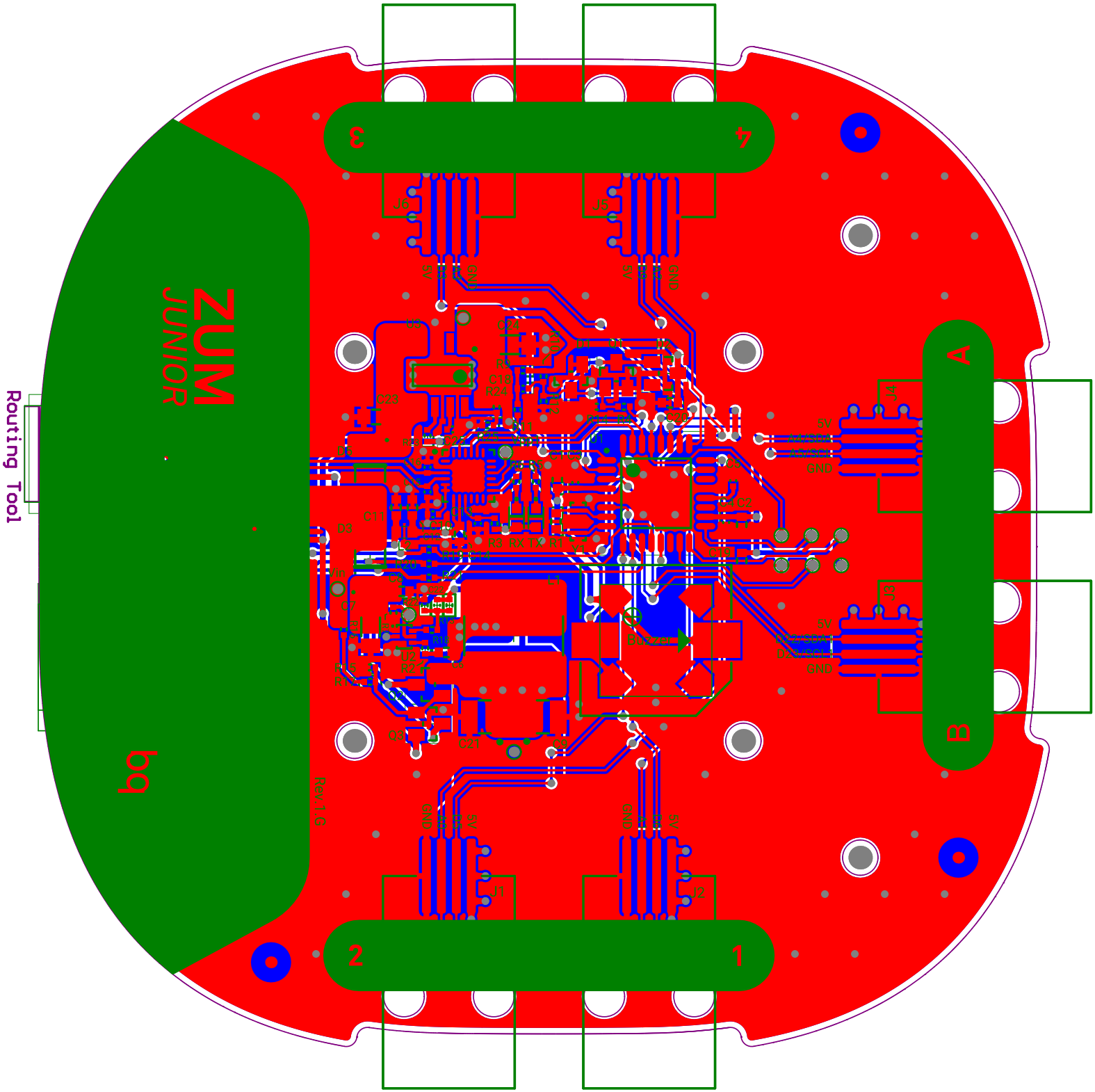
R1 = 52,3K 1%
R2 = 10K 1%

Vref:
Min = 789mV ---> Vout = 4.92V
Typ = 805mv ---> Vout = 5.02V
Max = 821mV ---> Vout = 5.11V

Input Voltage Range: 4.2V to 17V



Title	TPS62133 DCDC 5V@3A	
Project	ZUM_Junior.PrjPcb	
Author	Andrés Gullón	
Size: A4	Number: 6	Revision: 1.G.3
Date: 01/06/2018	Time: 9:56:00	Sheet 6 of 6


ZUM
JUNIOR
Routing Tool
bq
Rev 1.G
A
B
3
4
2
1
J1
J2
J3
J4
J5
J6
Buzzer
5V
GND