


Revision Log

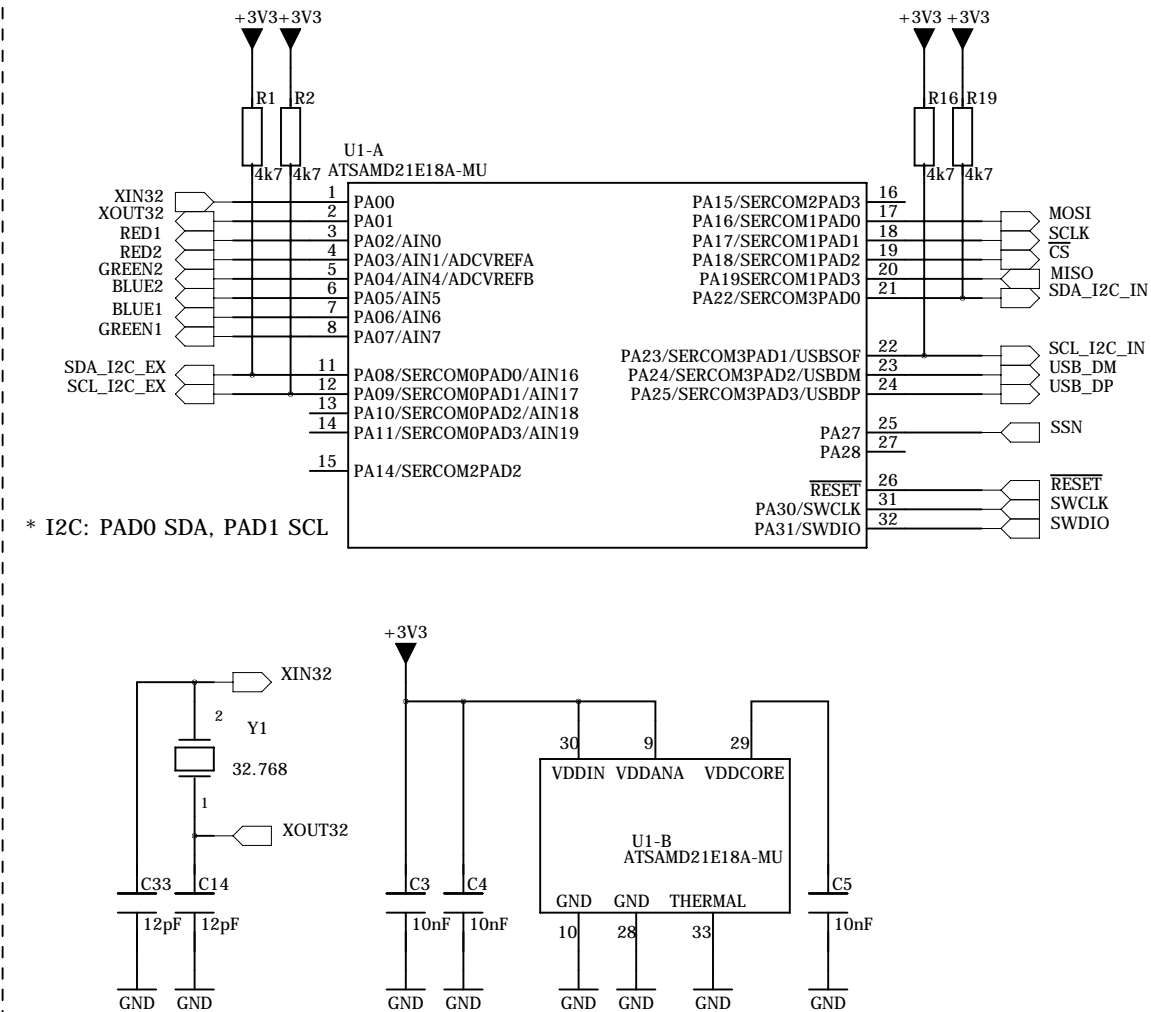
- Rev a
- Changed tolerance of R18 to 5%
 - Changed article number of U4
 - Added C39, C40, C41 and C42 (for EMI)

- Rev b
- Changed part Q1-6 (drop in replacement)
 - Added U12 C48 C49, for a split in digital and analog 3V3
 - Added D3 for ESD protection
 - Added R30 R31 C43 for extra filtering
 - Added R9 and modified the shielding of the reference/signal inputs

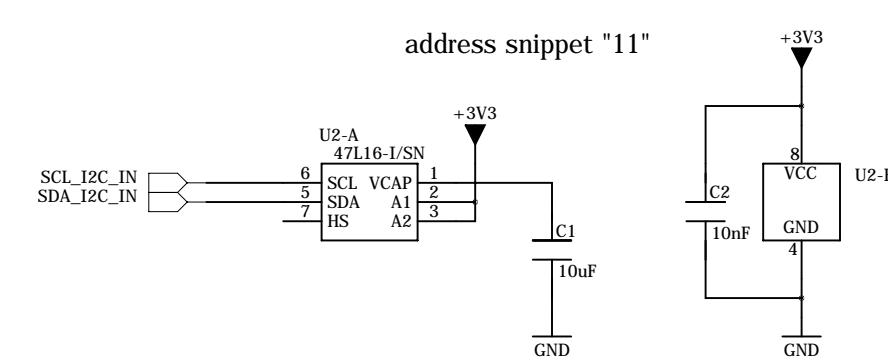
All Resistors :	N/A
All Capacitors :	N/A

rev. b	TITLE : 1098 SENSORS - SMART PH CABLE PCB				
		PART NBR.:	V1RQ010101	DRAWING NBR. E1098-1b.01.010	
		SCALE :			
		DRAWN :	28 Feb. 2020	JFo	SHEET 1 OF 6
		CHECKED :			
		APPROVED:			
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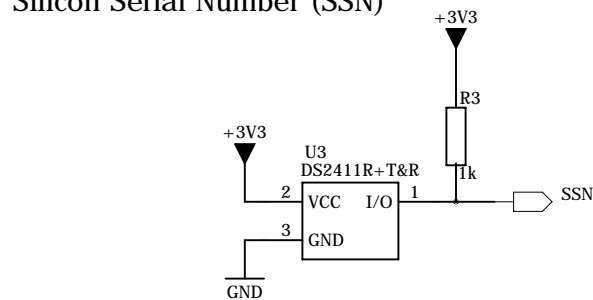
1 Mirco control unit (MCU)



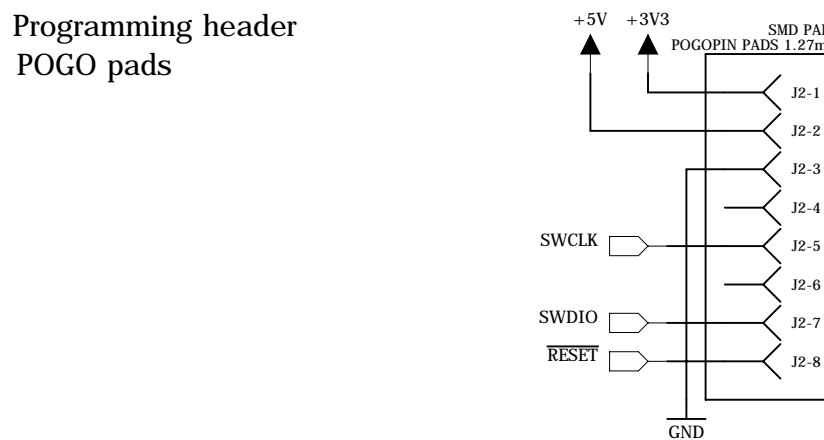
EEram chip



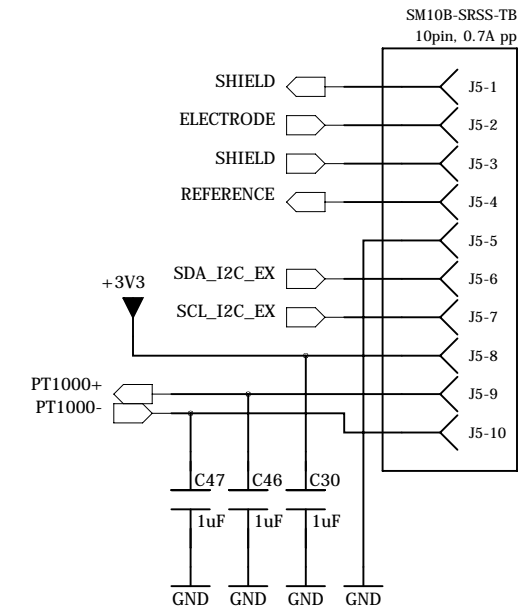
Silicon Serial Number (SSN)



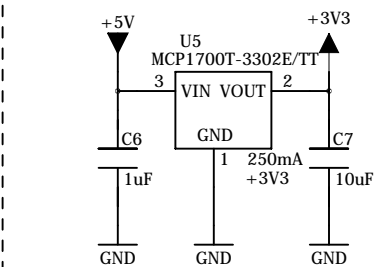
Programming header
POGO pads



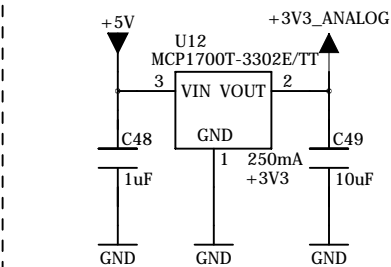
Probe side connector



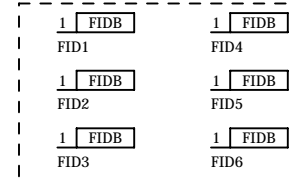
+3V3 Low Dropout Regulator (LDO)




+3V3 Low Dropout Regulator (LDO)

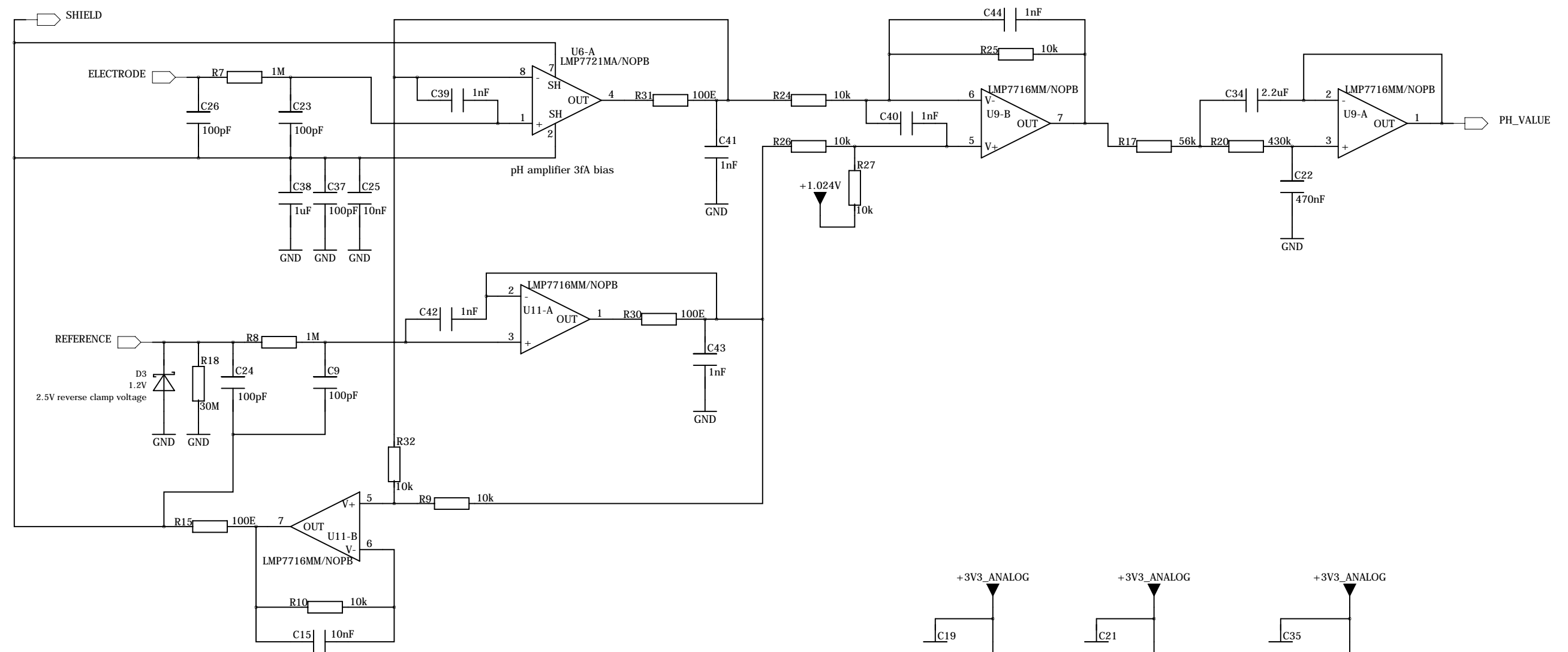


Fiducials

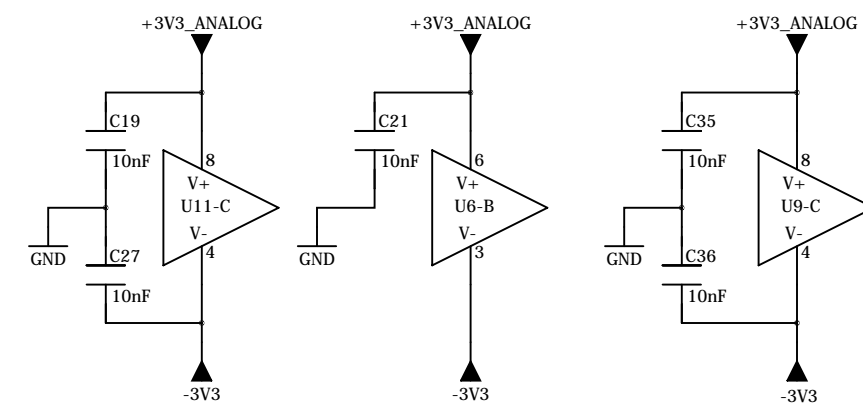



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		SCALE :					
		DRAWN :	28 Feb. 2020		JFo		SHEET 2 OF 6
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pH measurement circuit



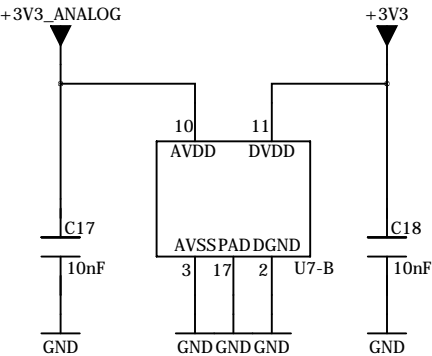
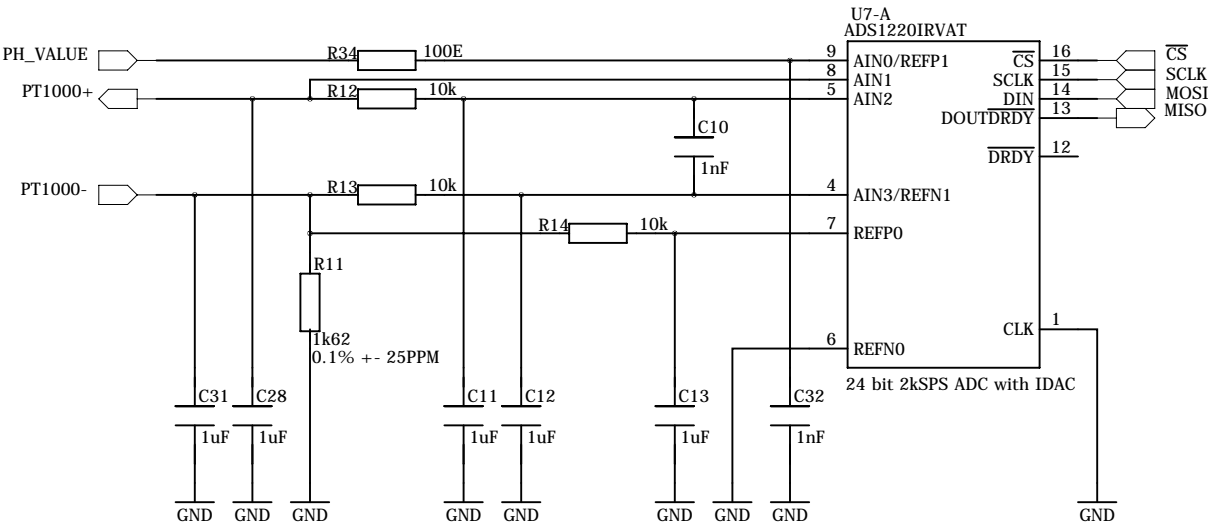
pH probe output = 54.2 mV/pH @0 degrees C, and 74.04mV/pH @ 100 degrees C
Maximum voltage swing (+-7pH) = +- 518.3mV
0.01 pH allowed error, results in a maximum allowed error of 542uV



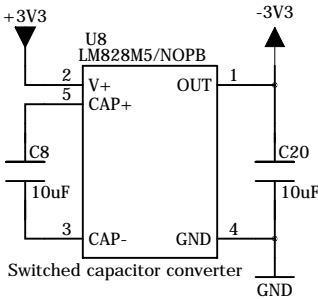
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Analog to Digital Converter (ADC) + temperature measurement

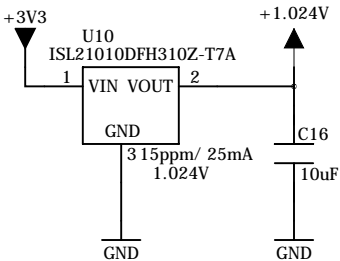
temp range = 0-150C -> 1000-1573.25Ohm
IDAC -> 1mA, Vref 1.62V
Internal 2.048V reference for pH value readout
Temp creates its own "ratio metric" reference voltage by routing the excitation current through R11



-3V3 generator



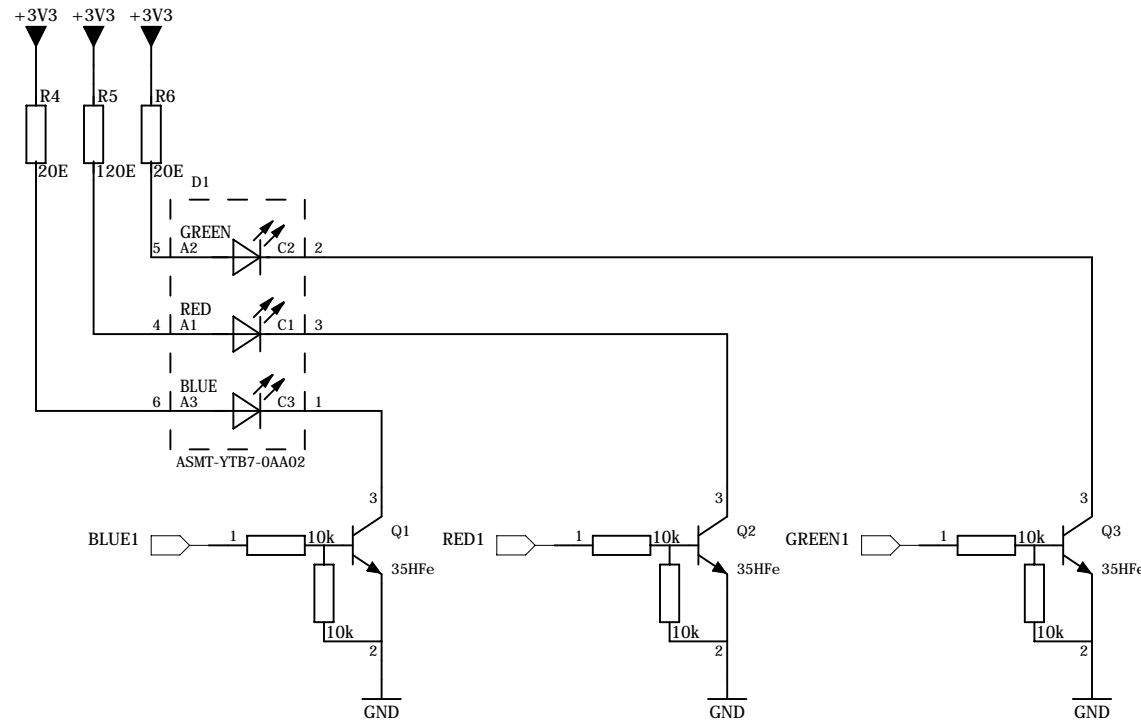
+1.024V reference



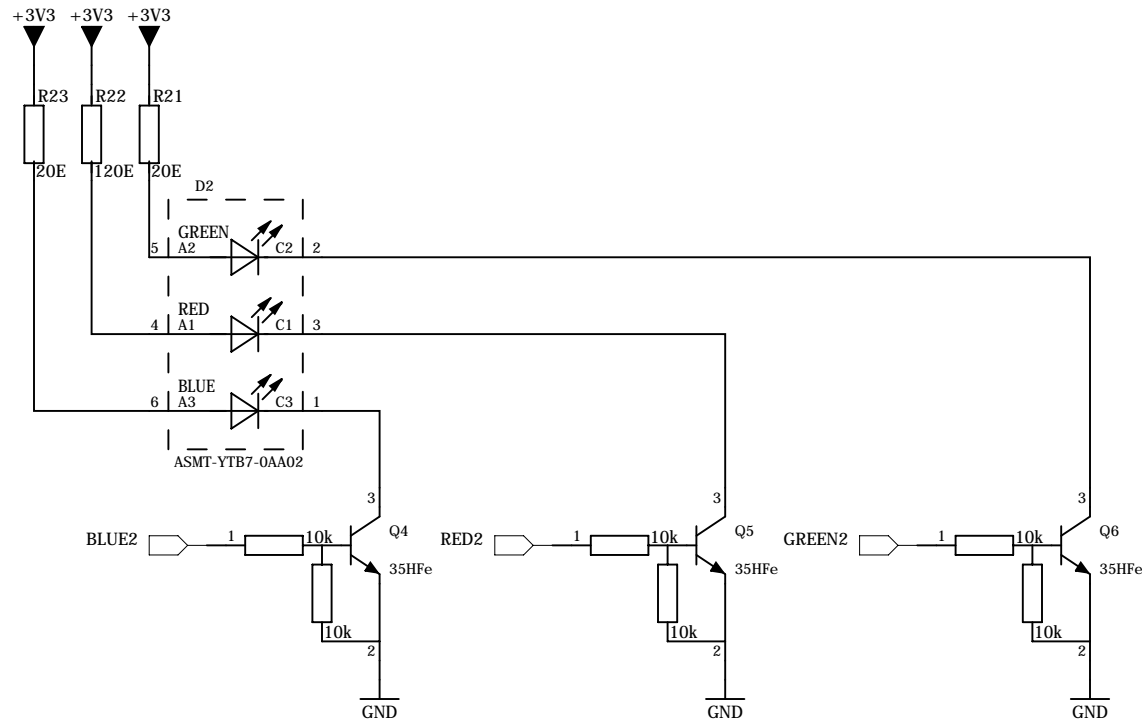
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All Resistors : N/A
All Capacitors : N/A


RGB LED (10mA each)



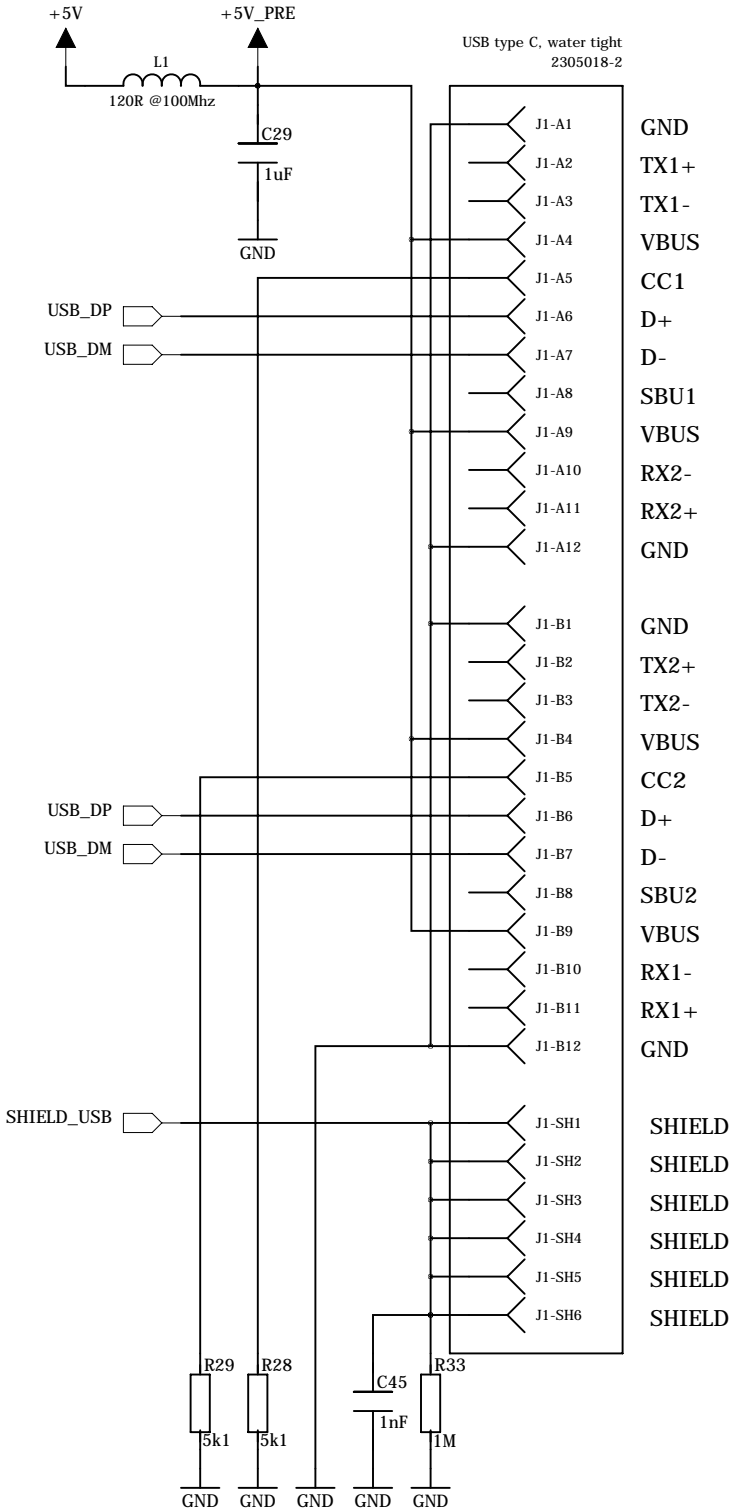
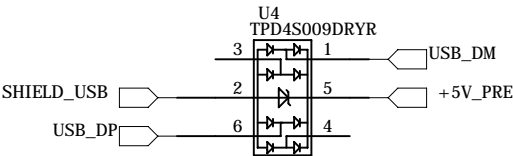
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USB Electro-Static Discharge (ESD) protection



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