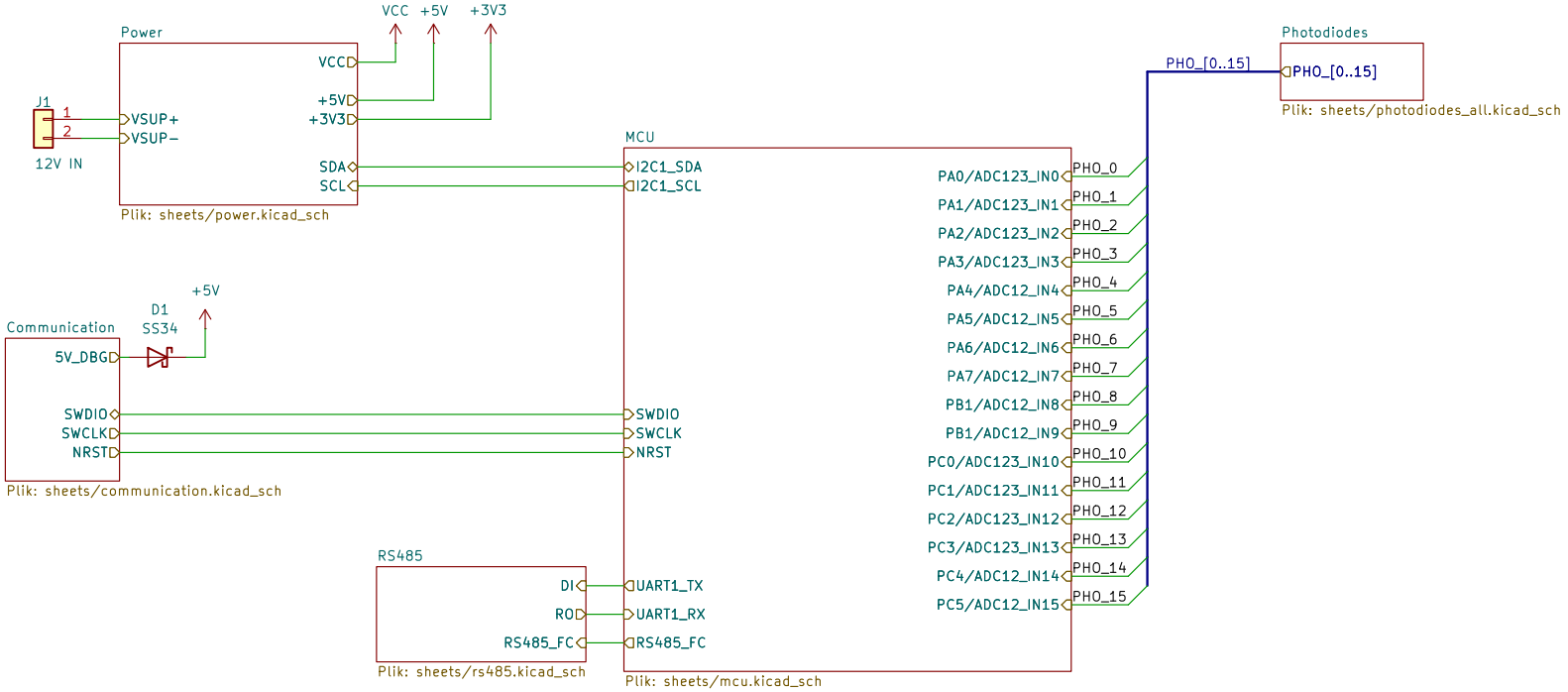
Dodać sekcję komunikacji z czujnikami IMU, MEMS, odległości (wybrać jakie)
Można dodać UART do komunikacji USB (mniej ruski debug)
Przypisać fooprinty i zrobić płytkę



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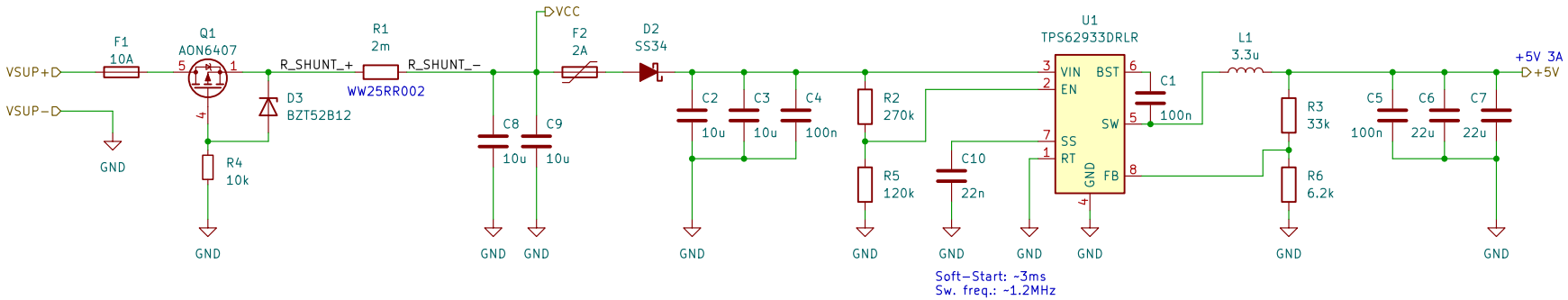
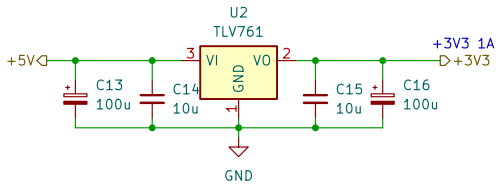
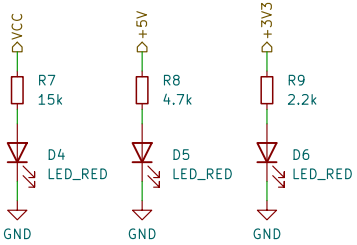
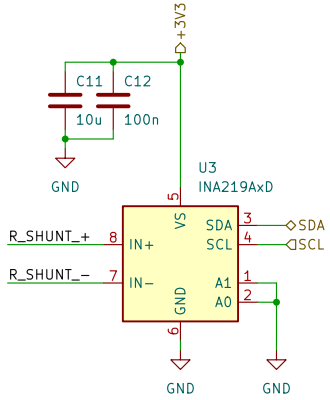
Chyba gotowe, dodać opisy schematu









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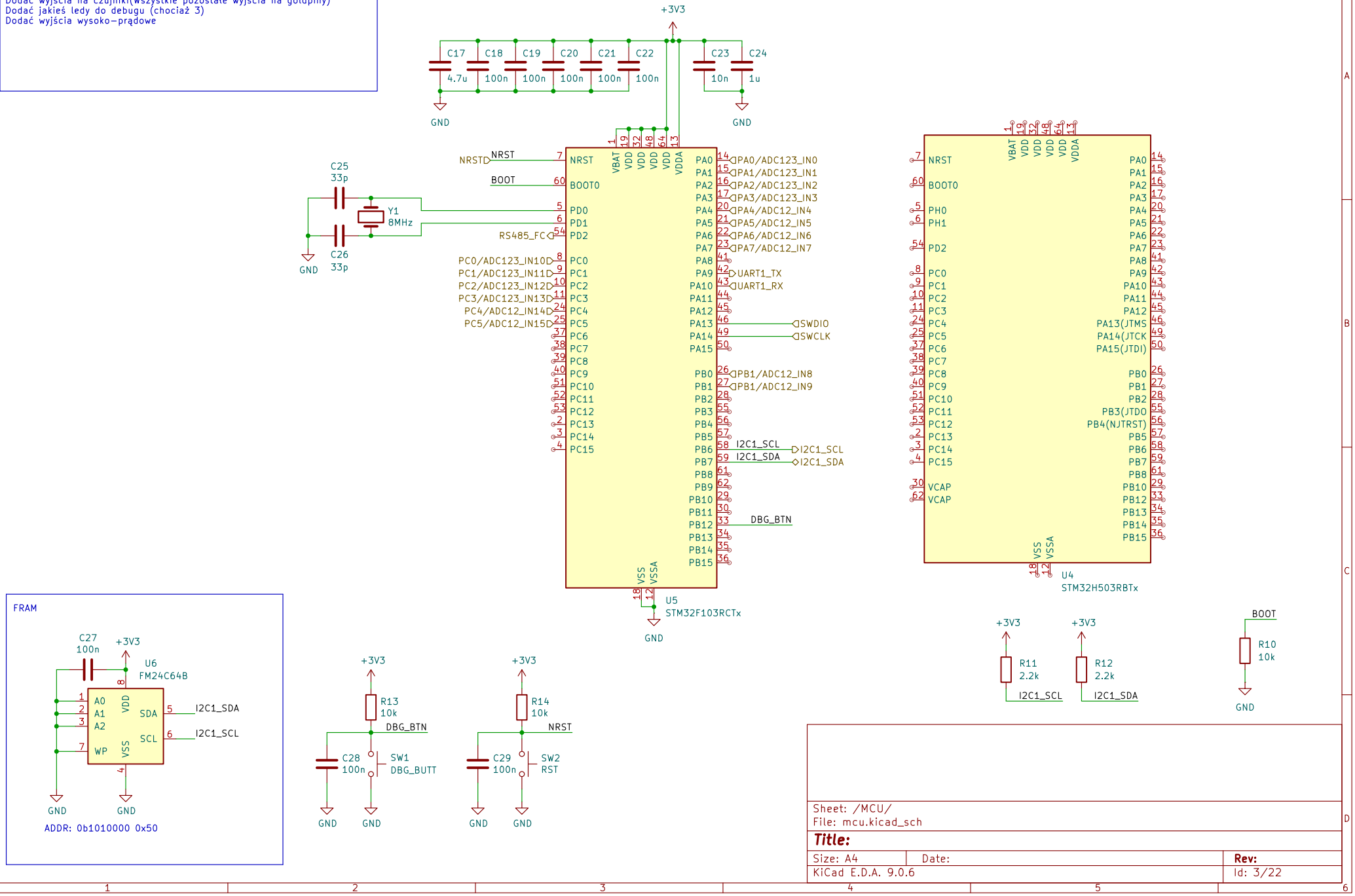
Wymienić procek na H5 bo tańszy i lepszy
Dodać jeszcze jeden UARD na LiDar(Może zadziała z ROSem)
Dodać wyjścia na czujniki(Wszystkie pozostałe wyjścia na goldpiny)
Dodać jakieś ledy do debugu (chociaż 3)
Dodać wyjścia wysoko-prądowe



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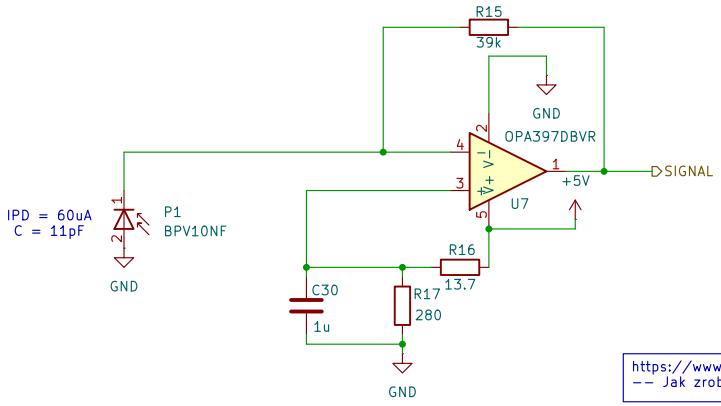
Można zastanowić się nad zmianą wartości rezystora R1, ale to po zmianie procka i sprawdzeniu czy będzie działać. Obecnie jest zakres 0.1V–2.4V (chyba)

$$\frac{V_{OUT(MAX)} - V_{OUT(MIN)}}{I_{IN(MAX)}} = R_1 \rightarrow \frac{4.9V - .1V}{90\mu A} = 53333.3\Omega \rightarrow 53.6k\Omega$$



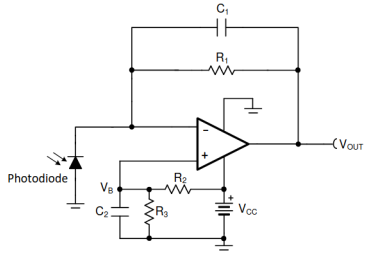


Figure 4: A bias voltage is applied to the op amp's non-inverting input to prevent saturation at the negative power supply

The output transfer function including the bias voltage is:

$$V_{OUT} = i_{PD}R_1 + V_B = i_{PD}R_1 + V_{CC}\frac{R_3}{R_3 + R_2} \quad (2)$$

KEY OPA128 SPECIFICATIONS

Bias current ..... 75fA max
Offset voltage ..... 500µV max
Drift ..... 5µV/°C max
Noise ..... 15nV/√Hz at 10kHz

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Można zastanowić się nad zmianą wartości rezystora R1, ale to po zmianie procka i sprawdzeniu czy będzie działać. Obecnie jest zakres 0.1V–2.4V (chyba)

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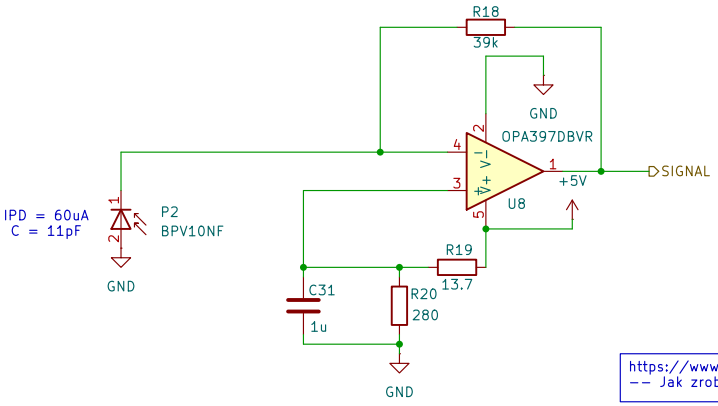

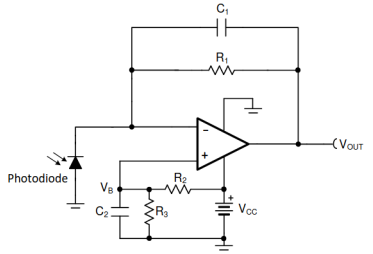

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Można zastanowić się nad zmianą wartości rezystora R1, ale to po zmianie procka i sprawdzeniu czy będzie działać. Obecnie jest zakres 0.1V–2.4V (chyba)

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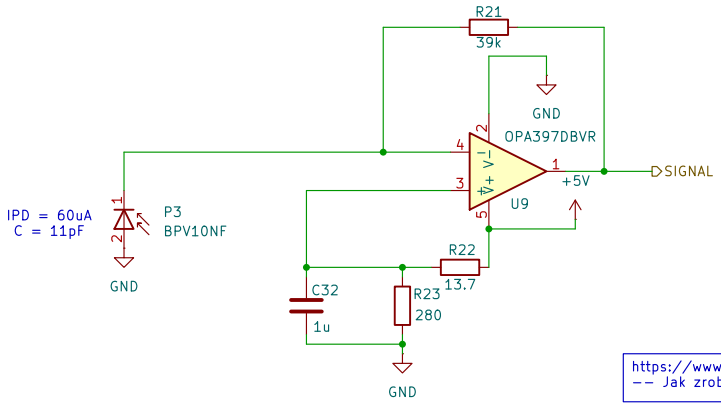

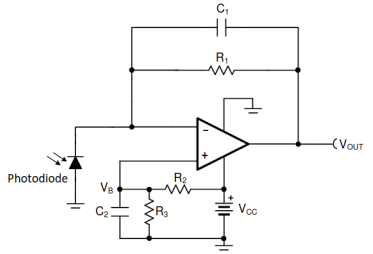

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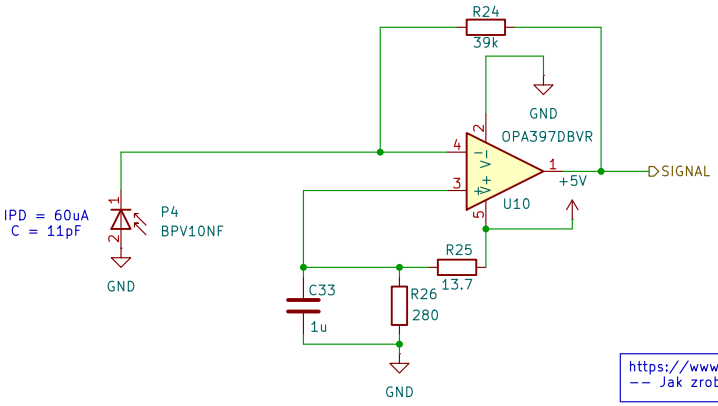

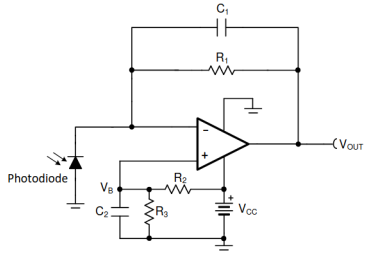

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Można zastanowić się nad zmianą wartości rezystora R1, ale to po zmianie procka i sprawdzeniu czy będzie działać. Obecnie jest zakres 0.1V–2.4V (chyba)

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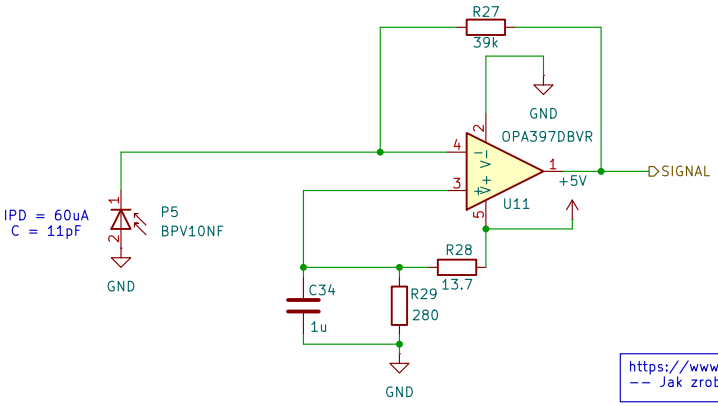

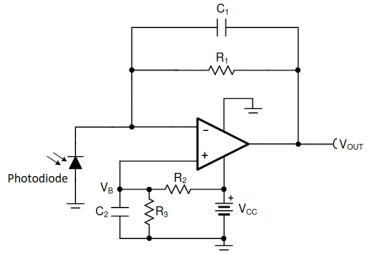

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Można zastanowić się nad zmianą wartości rezystora R1, ale to po zmianie procka i sprawdzeniu czy będzie działać. Obecnie jest zakres 0.1V–2.4V (chyba)

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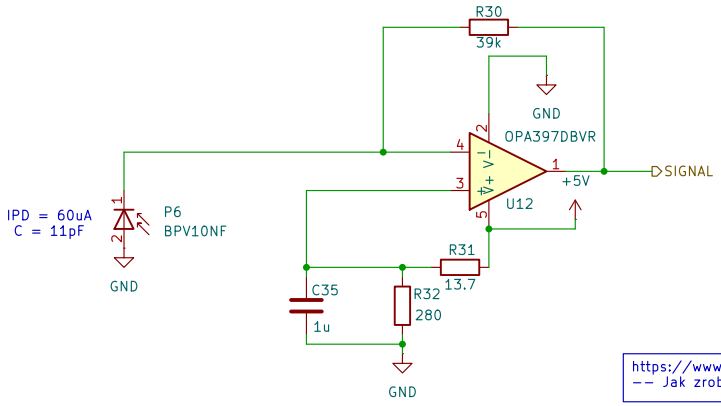

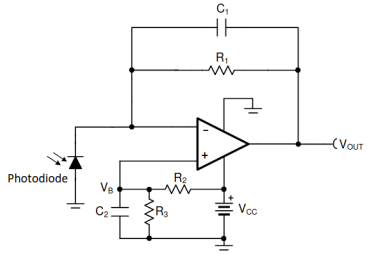

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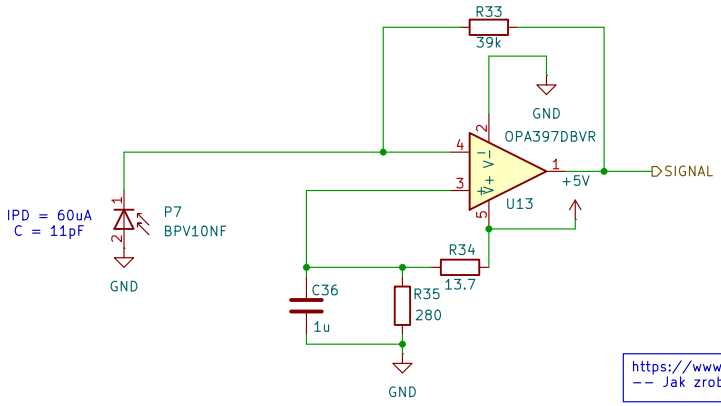
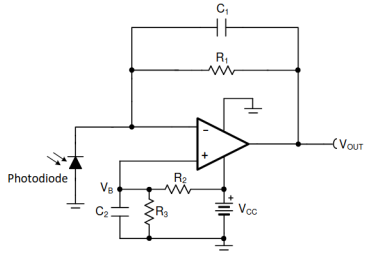
$$\frac{V_{OUT(MAX)} - V_{OUT(MIN)}}{I_{IN(MAX)}} = R_1 \rightarrow \frac{4.9V - .1V}{90\mu A} = 53333.3\Omega \rightarrow 53.6k\Omega$$





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Offset voltage ..... 500µV max
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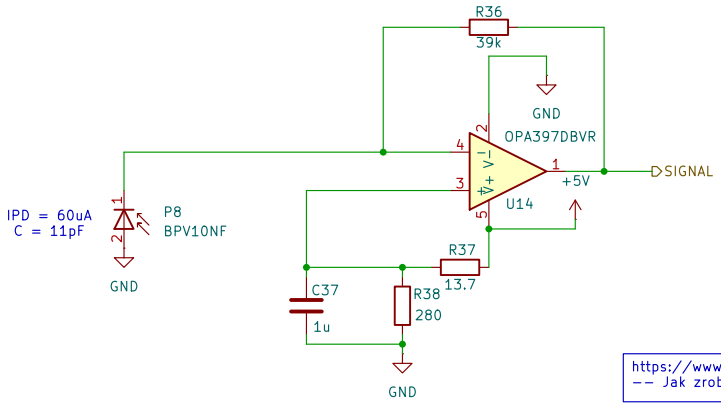
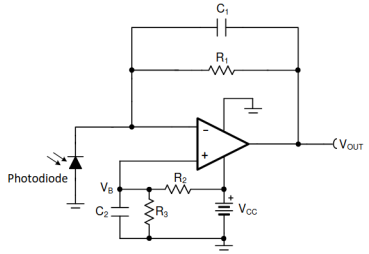
Można zastanowić się nad zmianą wartości rezystora R1, ale to po zmianie procka i sprawdzeniu czy będzie działać. Obecnie jest zakres 0.1V–2.4V (chyba)

$$\frac{V_{OUT(MAX)} - V_{OUT(MIN)}}{I_{IN(MAX)}} = R_1 \rightarrow \frac{4.9V - .1V}{90\mu A} = 53333.3\Omega \rightarrow 53.6k\Omega$$





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Można zastanowić się nad zmianą wartości rezystora R1, ale to po zmianie procka i sprawdzeniu czy będzie działać. Obecnie jest zakres 0.1V–2.4V (chyba)

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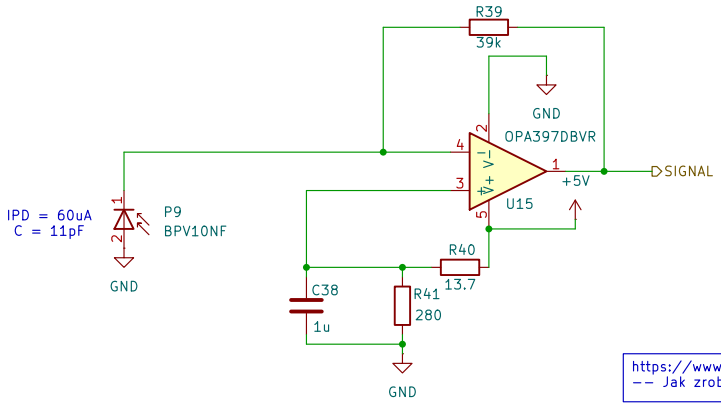

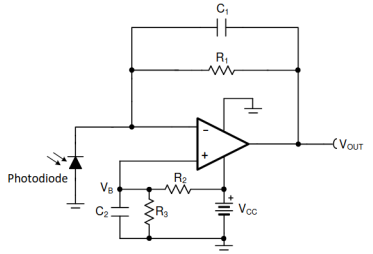

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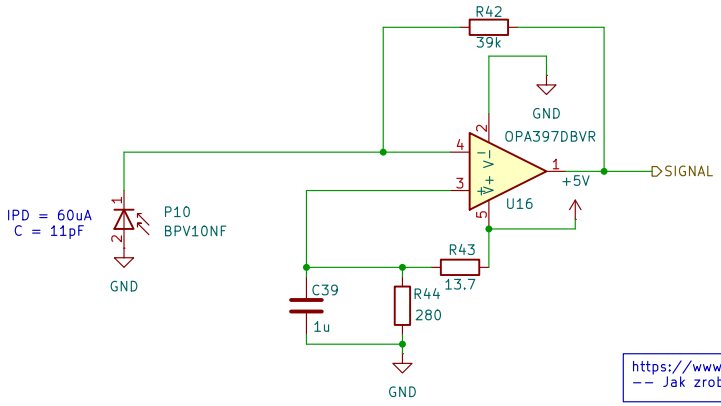
Można zastanowić się nad zmianą wartości rezystora R1, ale to po zmianie procka i sprawdzeniu czy będzie działać. Obecnie jest zakres 0.1V–2.4V (chyba)

$$\frac{V_{OUT(MAX)} - V_{OUT(MIN)}}{I_{IN(MAX)}} = R_1 \rightarrow \frac{4.9V - .1V}{90\mu A} = 53333.3\Omega \rightarrow 53.6k\Omega$$



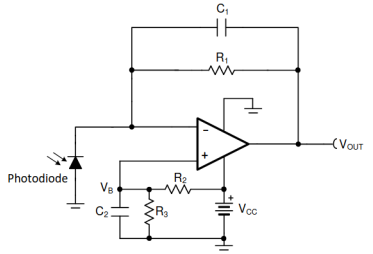


Figure 4: A bias voltage is applied to the op amp's non-inverting input to prevent saturation at the negative power supply

The output transfer function including the bias voltage is:

$$V_{OUT} = i_{PD}R_1 + V_B = i_{PD}R_1 + V_{CC}\frac{R_3}{R_3 + R_2} \quad (2)$$

KEY OPA128 SPECIFICATIONS

Bias current ..... 75fA max
Offset voltage ..... 500µV max
Drift ..... 5µV/°C max
Noise ..... 15nV/√Hz at 10kHz

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Można zastanowić się nad zmianą wartości rezystora R1, ale to po zmianie procka i sprawdzeniu czy będzie działać. Obecnie jest zakres 0.1V–2.4V (chyba)

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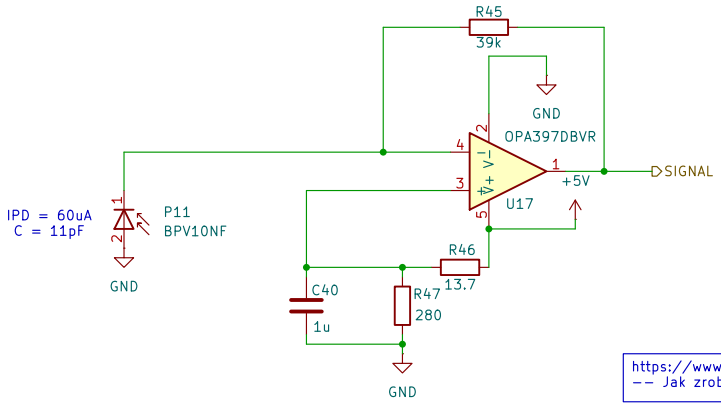

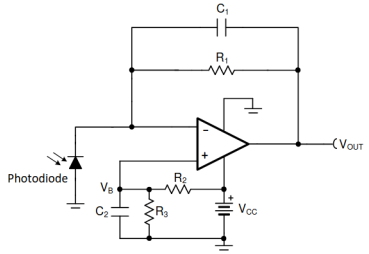

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Offset voltage ..... 500µV max
Drift ..... 5µV/°C max
Noise ..... 15nV/√Hz at 10kHz

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Można zastanowić się nad zmianą wartości rezystora R1, ale to po zmianie procka i sprawdzeniu czy będzie działać. Obecnie jest zakres 0.1V–2.4V (chyba)

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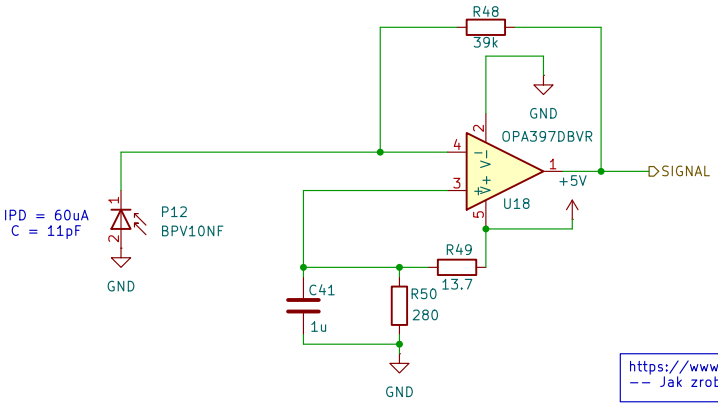

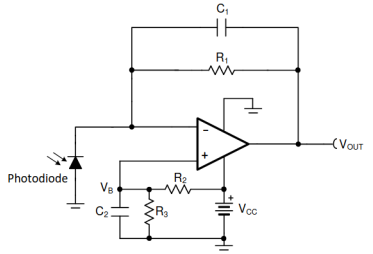

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Drift ..... 5µV/°C max
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Można zastanowić się nad zmianą wartości rezystora R1, ale to po zmianie procka i sprawdzeniu czy będzie działać. Obecnie jest zakres 0.1V–2.4V (chyba)

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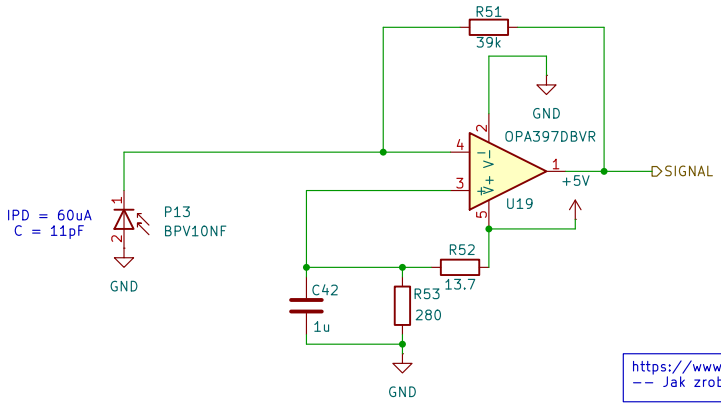

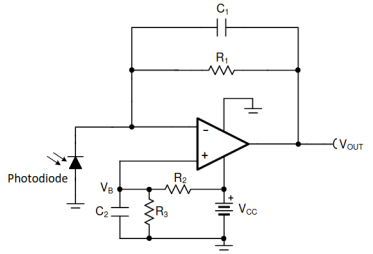

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Można zastanowić się nad zmianą wartości rezystora R1, ale to po zmianie procka i sprawdzeniu czy będzie działać. Obecnie jest zakres 0.1V–2.4V (chyba)

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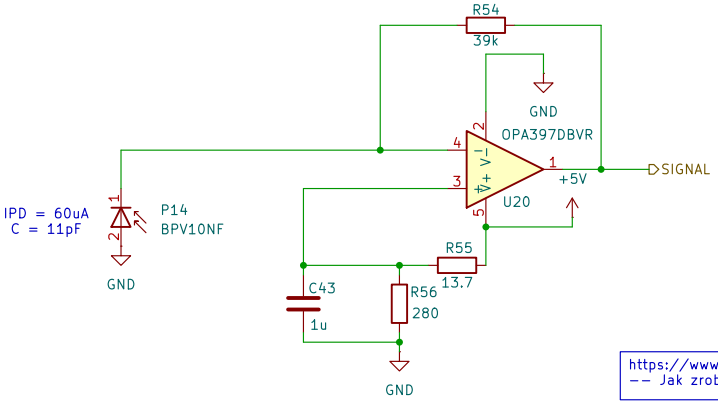

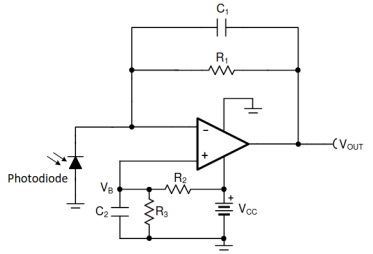

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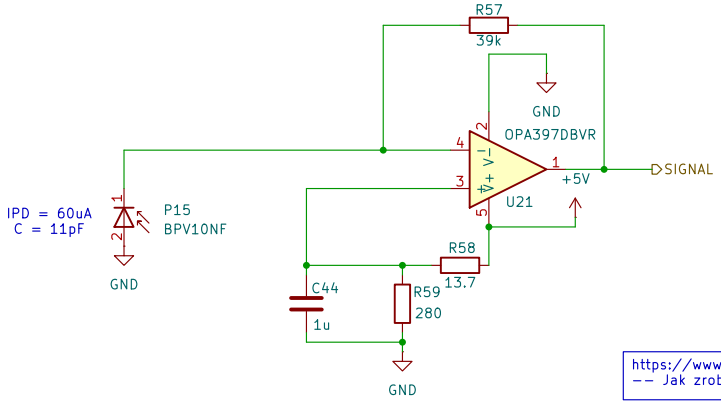

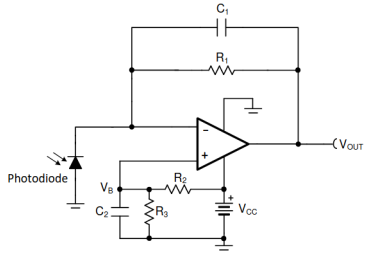

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Można zastanowić się nad zmianą wartości rezystora R1, ale to po zmianie procka i sprawdzeniu czy będzie działać. Obecnie jest zakres 0.1V–2.4V (chyba)

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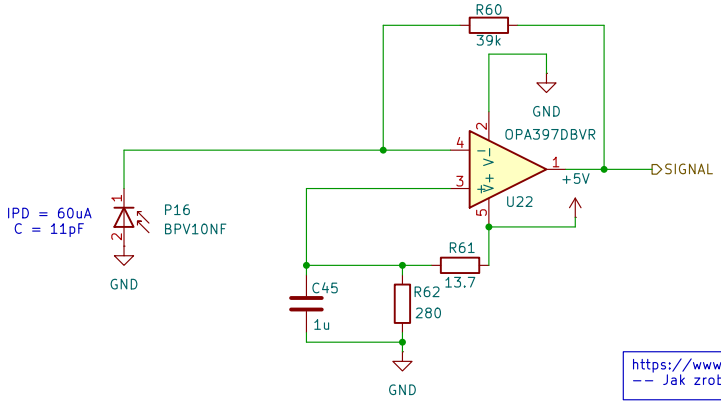

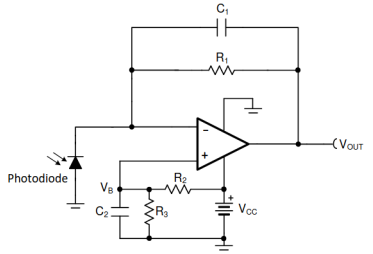

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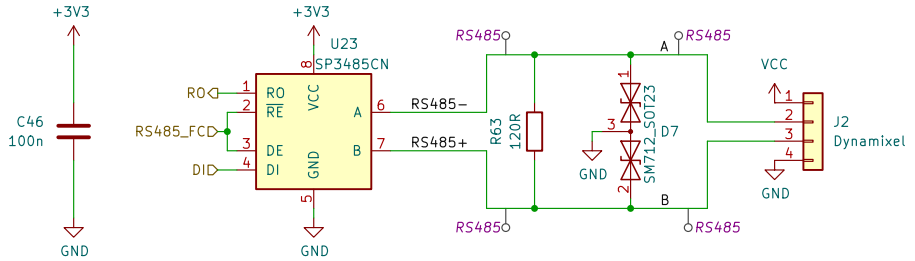

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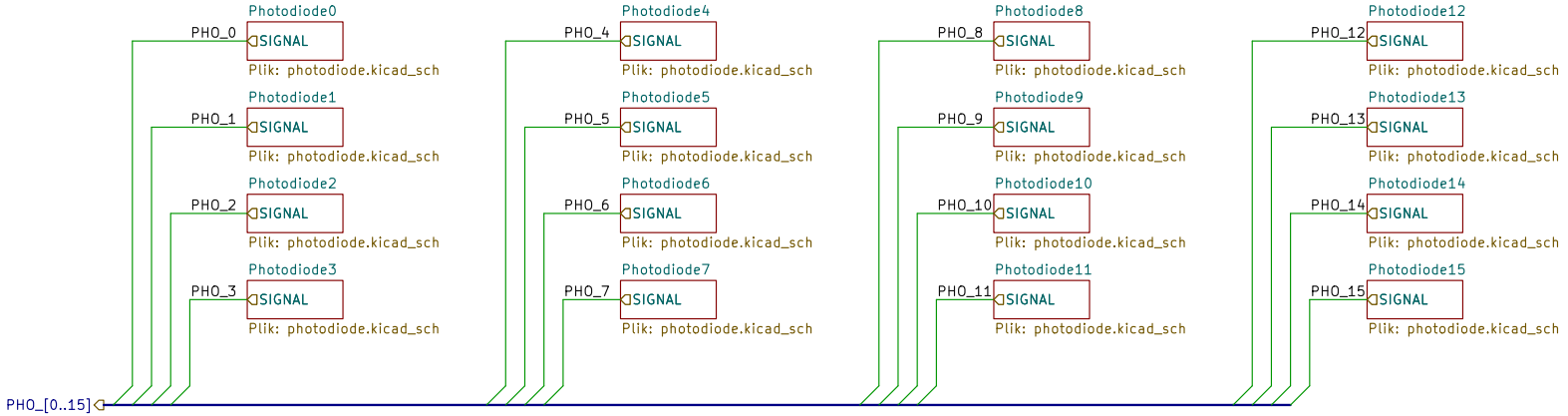

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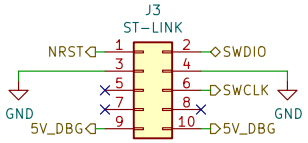
Tutaj można przenieść RS485
Dodać UART do komunikacji z LiDarem
Może wyprowadzenie do ESP32 w formie komunikacji bezprzewodowej?



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