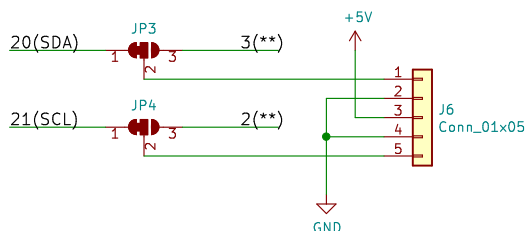
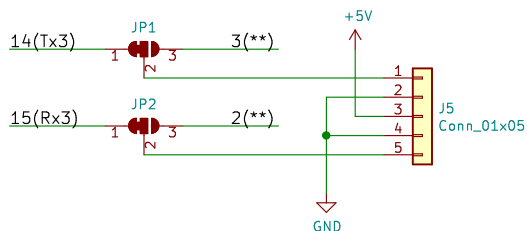
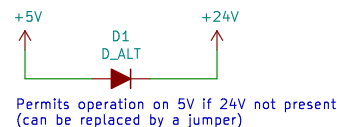
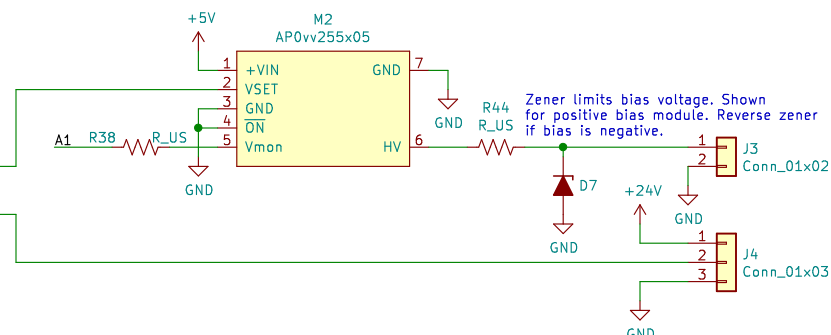
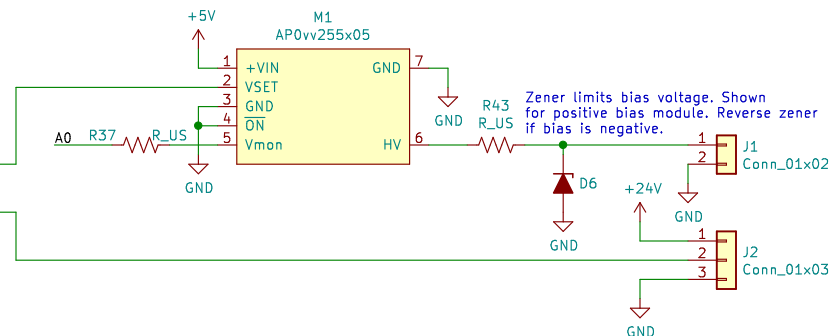
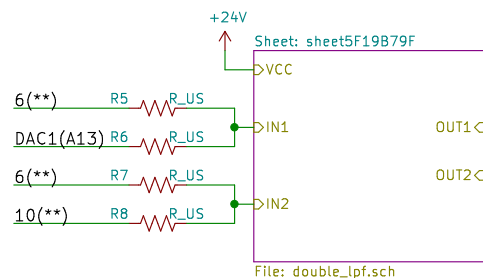
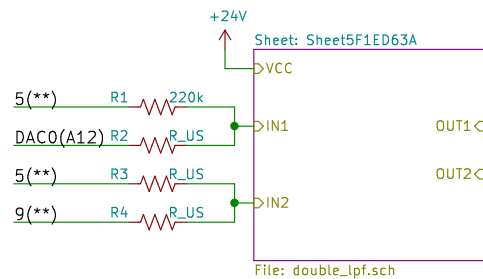
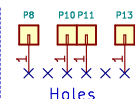
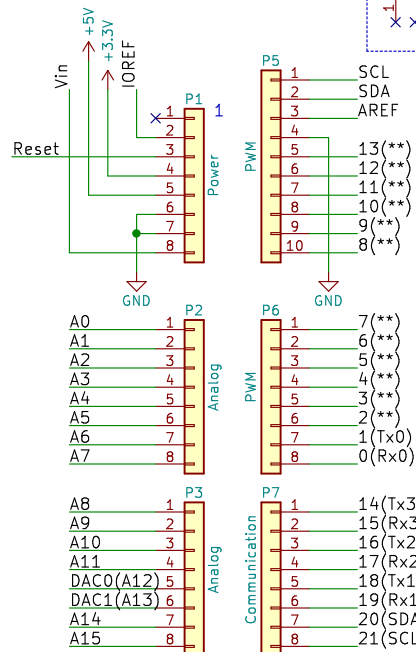


# Shield for Arduino Mega Rev 3



Eamon Egan  
Electronics Design Support Team

McGill University Physics Department

Sheet: /  
File: alpha-shield.sch

**Title: PHYS 439 Alpha Experiment Arduino Shield**

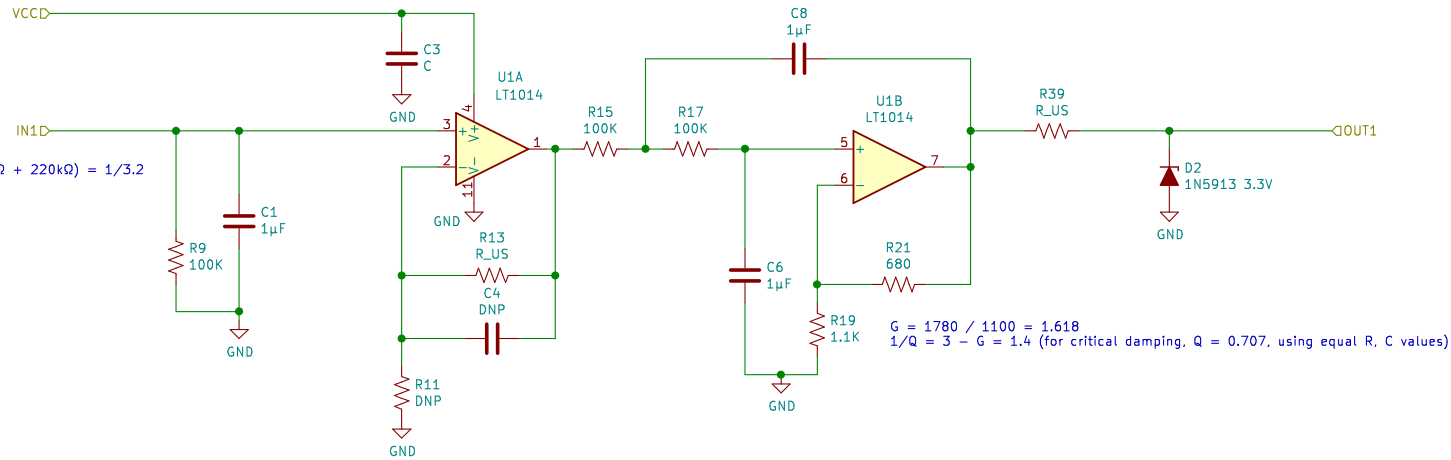
Size: A Date: 2020-07-27  
KiCad E.D.A. kicad (5.1.5)-3

Rev: 1.0  
Id: 1/3

R<sub>in</sub> = 220kΩ

Attenuation =  $100\text{k}\Omega / (100\text{k}\Omega + 220\text{k}\Omega) = 1/3.2$

Total gain IN1 to OUT1 =  $1.618 / 3.2 = 0.5057$

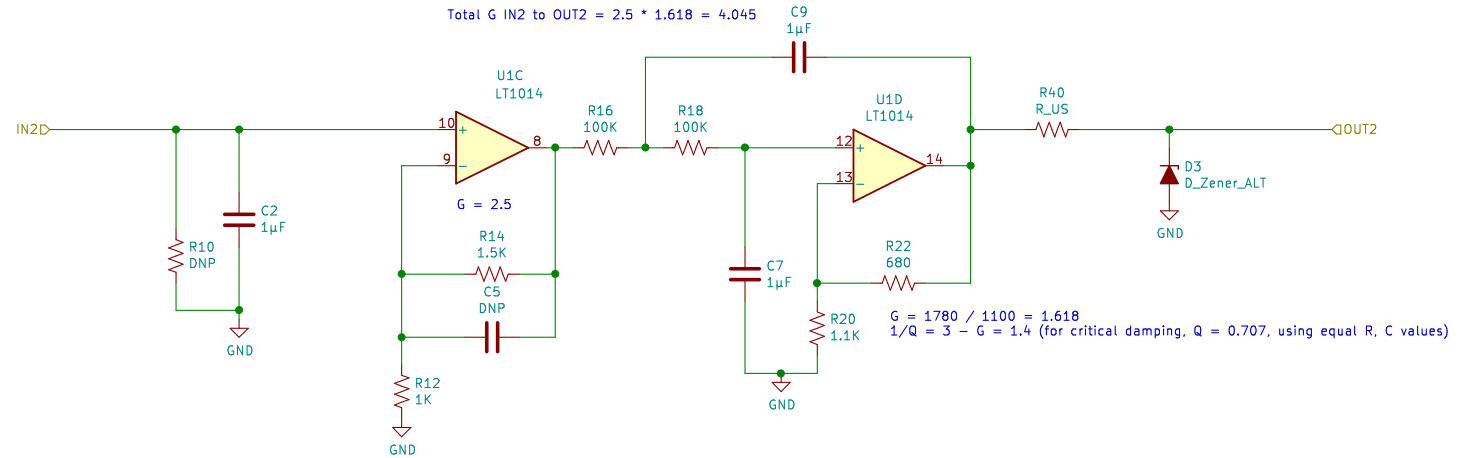


$G = 1780 / 1100 = 1.618$   
 $1/Q = 3 - G = 1.4$  (for critical damping,  $Q = 0.707$ , using equal R, C values)

R<sub>in</sub> = 100kΩ

No attenuation

Total G IN2 to OUT2 =  $2.5 * 1.618 = 4.045$



$G = 1780 / 1100 = 1.618$   
 $1/Q = 3 - G = 1.4$  (for critical damping,  $Q = 0.707$ , using equal R, C values)

Eamon Egan

McGill University Physics Department

Sheet: /Sheet5F1ED63A/

File: double\_lpf.sch

**Title: PHYS 439 Alpha Experiment Arduino Shield**

Size: A4 Date: 2020-07-27

KiCad E.D.A. kicad (5.1.5)-3

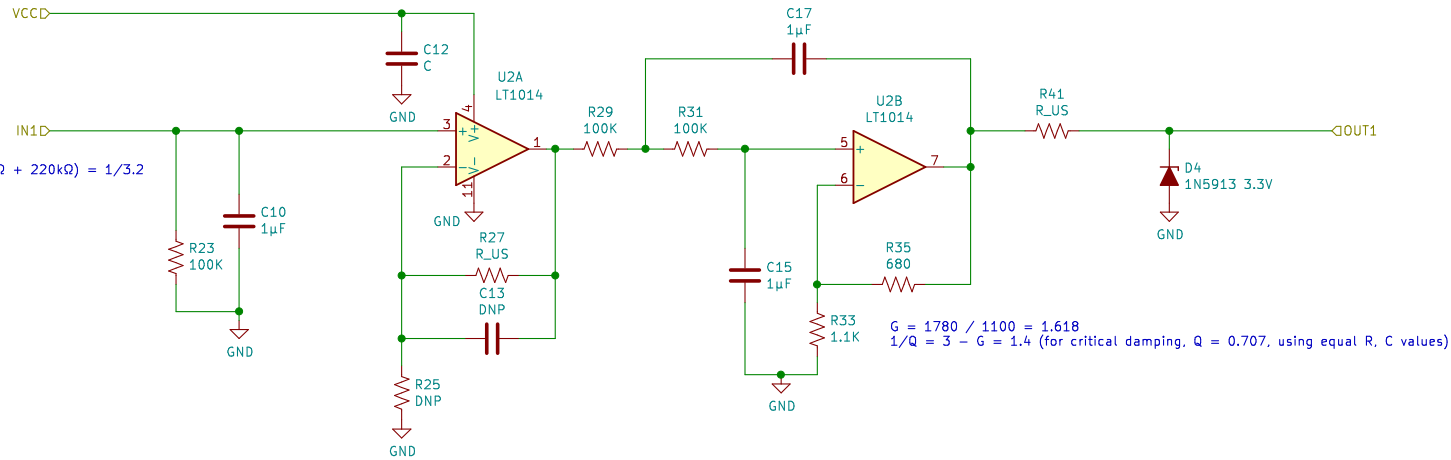
Rev: 1.0

Id: 2/3

R<sub>in</sub> = 220kΩ

Attenuation =  $100\text{k}\Omega / (100\text{k}\Omega + 220\text{k}\Omega) = 1/3.2$

Total gain IN1 to OUT1 =  $1.618 / 3.2 = 0.5057$

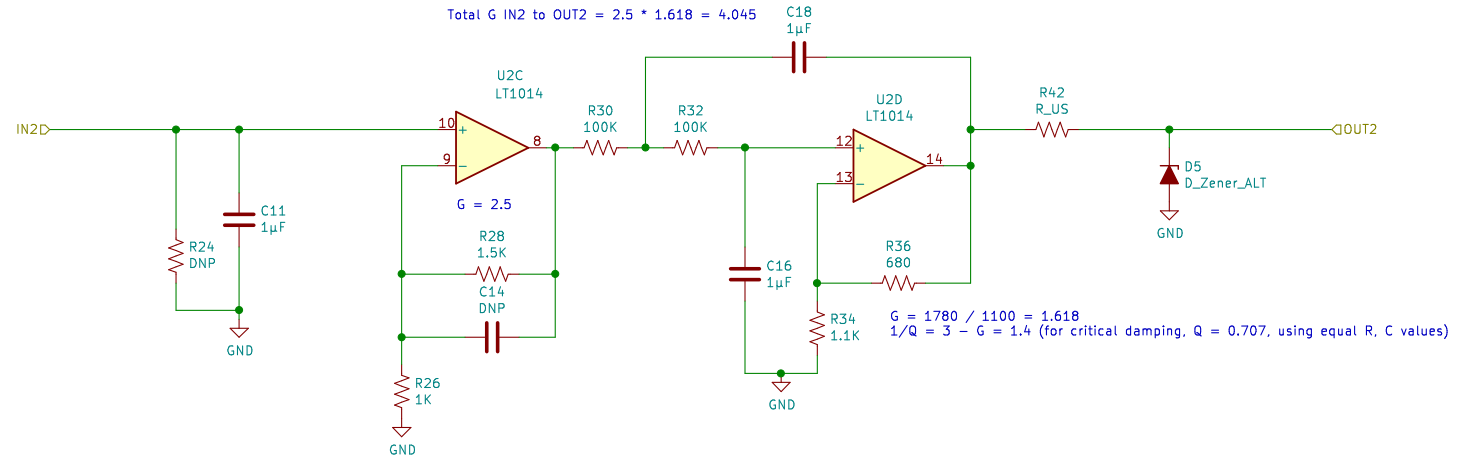


$G = 1780 / 1100 = 1.618$   
 $1/Q = 3 - G = 1.4$  (for critical damping,  $Q = 0.707$ , using equal R, C values)

R<sub>in</sub> = 100kΩ

No attenuation

Total G IN2 to OUT2 =  $2.5 * 1.618 = 4.045$



$G = 1780 / 1100 = 1.618$   
 $1/Q = 3 - G = 1.4$  (for critical damping,  $Q = 0.707$ , using equal R, C values)

Eamon Egan

McGill University Physics Department

Sheet: /sheet5F19B79F/

File: double\_lpf.sch

**Title: PHYS 439 Alpha Experiment Arduino Shield**

Size: A4 Date: 2020-07-27

KiCad E.D.A. kicad (5.1.5)-3

Rev: 1.0

Id: 3/3