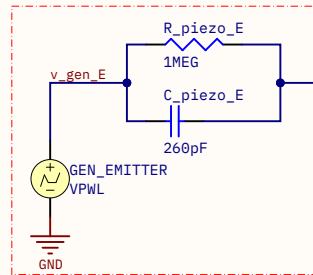
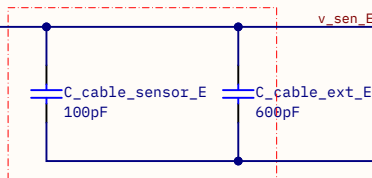


Emitter circuit

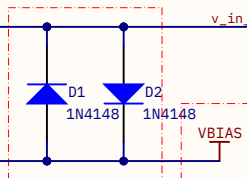
Piezo sensor probe circuit model
Voltage model



Cables capacitance

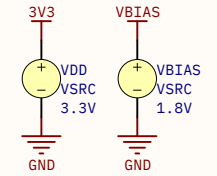
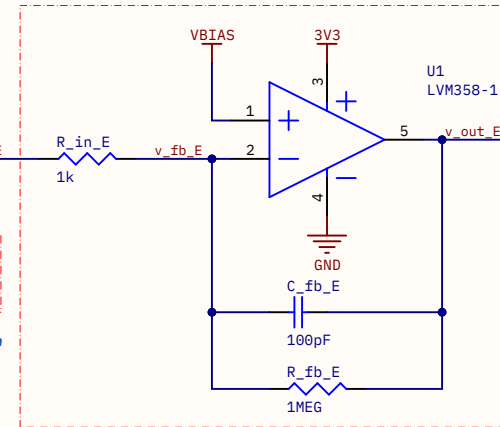


Voltage clipper



Polarization

Amplifier
Charge mode amplifier

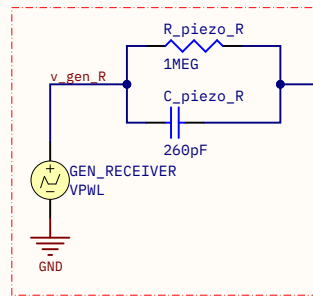


This capacitor may seem like it makes no sense, but in reality is modeling the DC characteristic of the piezoelectric sensor; which behaves like an open circuit. The sensor completely ignores the DC bias applied and instead generates a wave centered on 0V. That's why it's a GND on the generator negative and also why it's needed a coupling capacitor C_in.

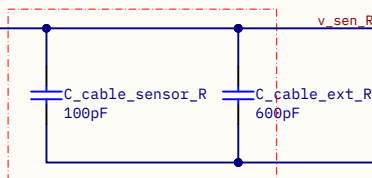
OUTSIDE TIK ← → INSIDE TIK

Receiver circuit

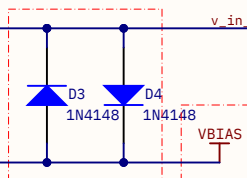
Piezo sensor probe circuit model
Voltage model



Cables capacitance

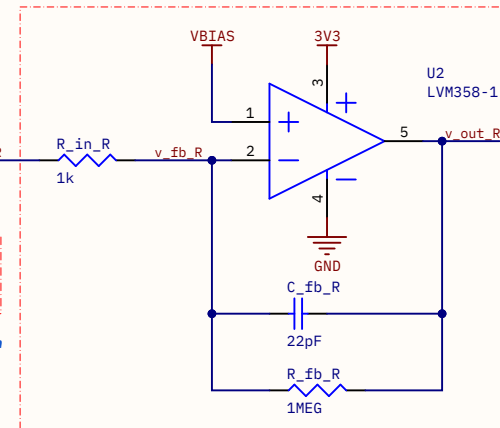


Voltage clipper



Polarization

Amplifier
Charge mode amplifier



Piezo adequation circuit analog simulations

Piezo adequation circuit topology and value testing.
Simulation model only. Not for PCB.

Designer's signature

Supervisor's signature

Sheet title: *

Project title: TIK_SIMULATIONS.PrjPcb

Designer: Juan Del Pino Mena

Date: 2022-05-12

Revision: 0.4

Sheet 1 of 1

Supervisor:

Sr. Andrés Roldán Aranda
Dpto. Electrónica y Tecnología
de Computadores
University of Granada
C/ Fuente Nueva, s/n, 18001
Granada, Granada, Spain

