

E1.03 – Orange Sunshine Effects Pedal

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Overview

Guitar effects pedals are used to modify the sonic output of a guitar, producing desirable tones. Our project is to take two effects pedals, a compression effect and a distortion effect, and combine them into a single pedal. Both effects can be fully bypassed, or the signal routed through just one effect or both effects in series.

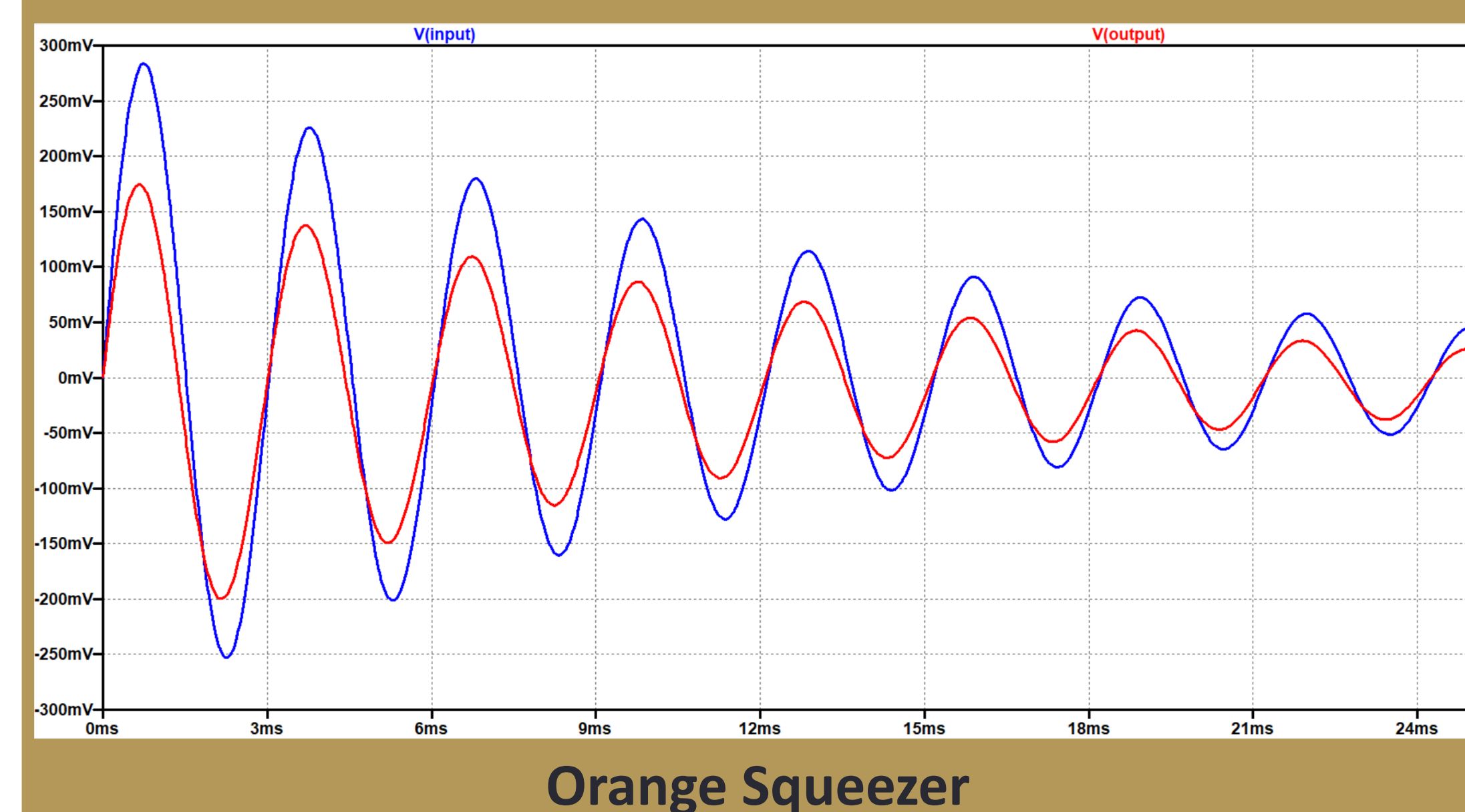
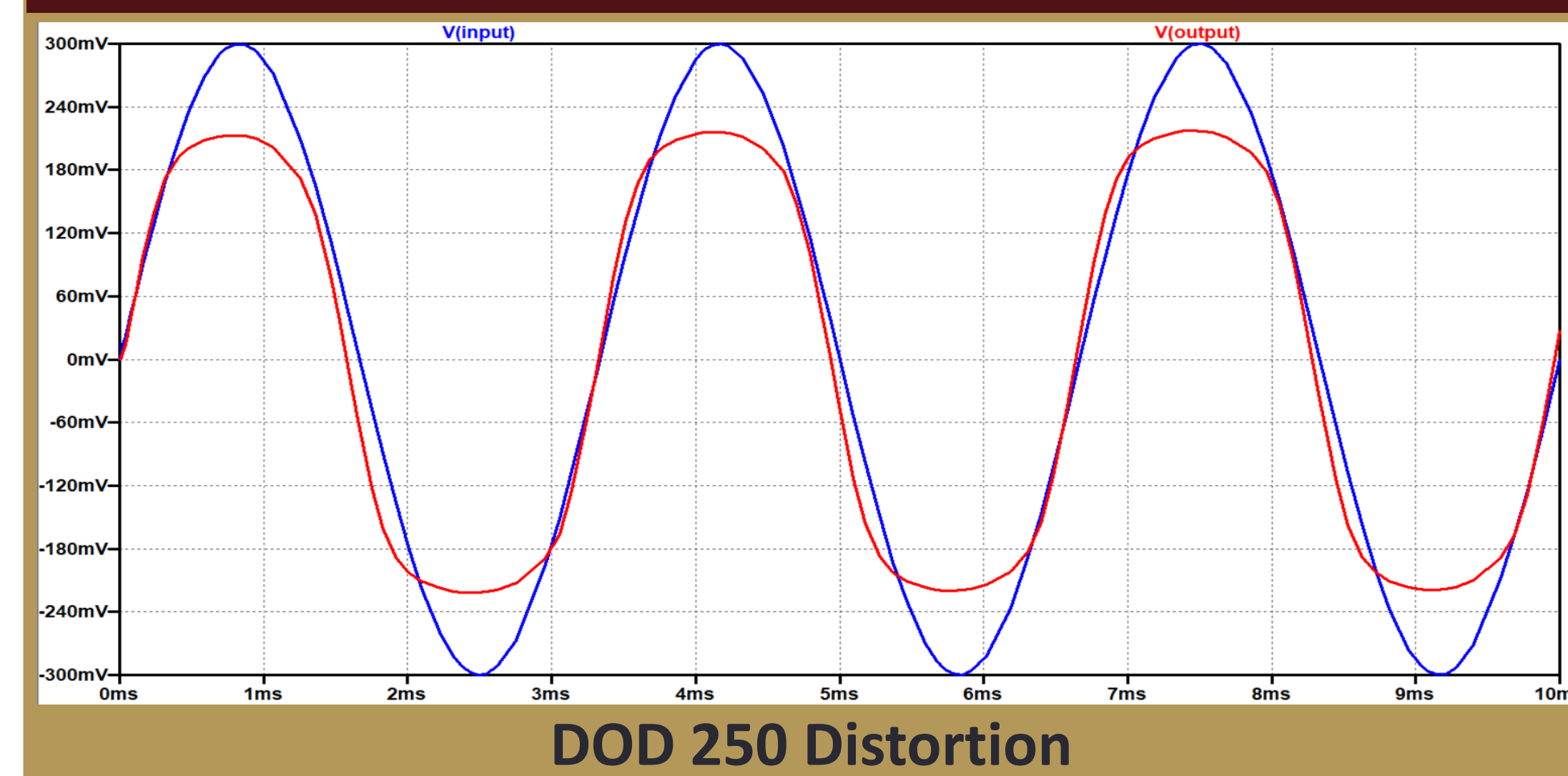
Feature Requirements

- 9VDC from Battery or Power Supply
- 1/4" Mono Input/Output Jacks
- True Bypass Footswitch
- Customized PCB Initial Design
- Stretch Goal: Toggle switch to change cascade order

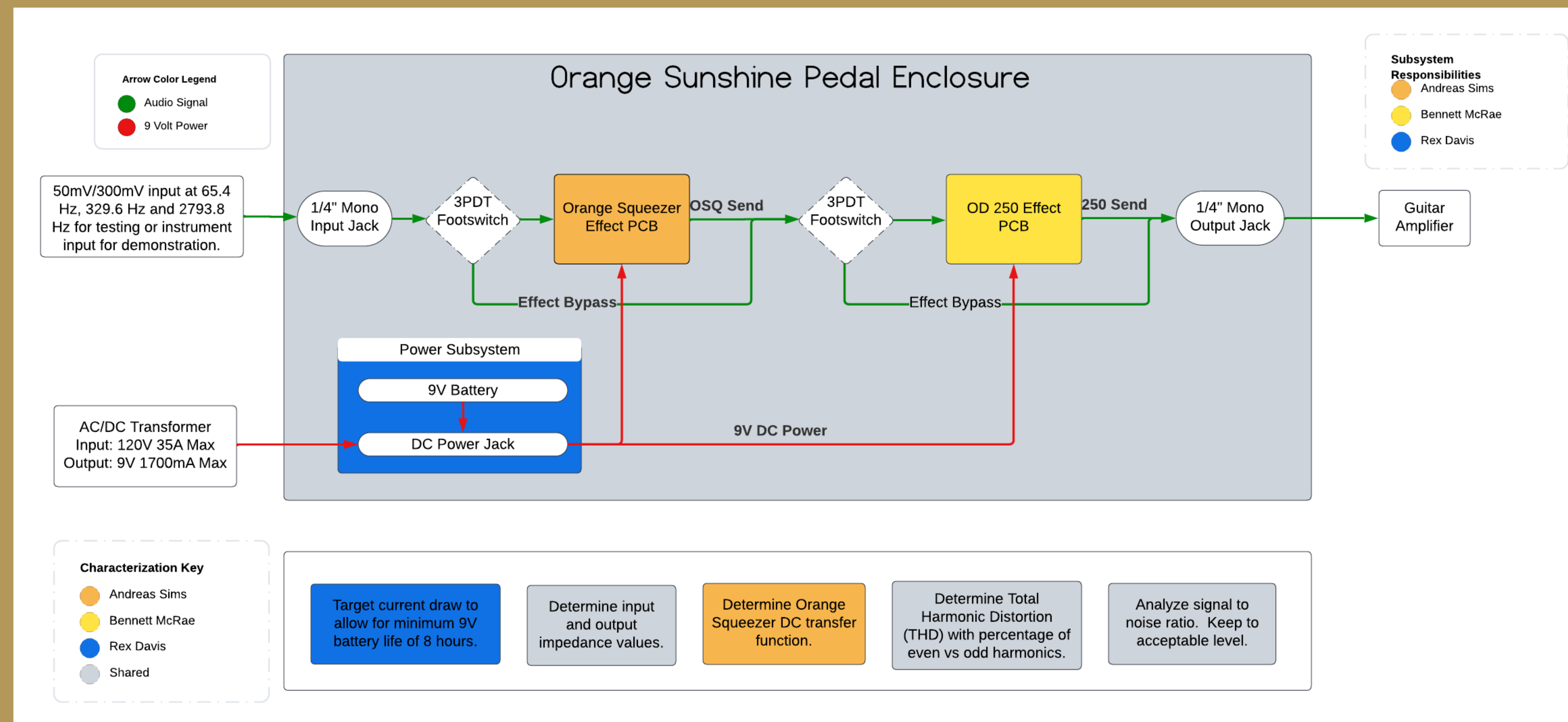
Characterization Plan

- Input & Output Impedance
- Frequency Response
- Orange Squeezer DC Transfer function
- Total Harmonic Distortion with percentage of even vs odd Harmonics
- Current Draw to target minimum 9V Battery life
- Signal to Noise Ratio

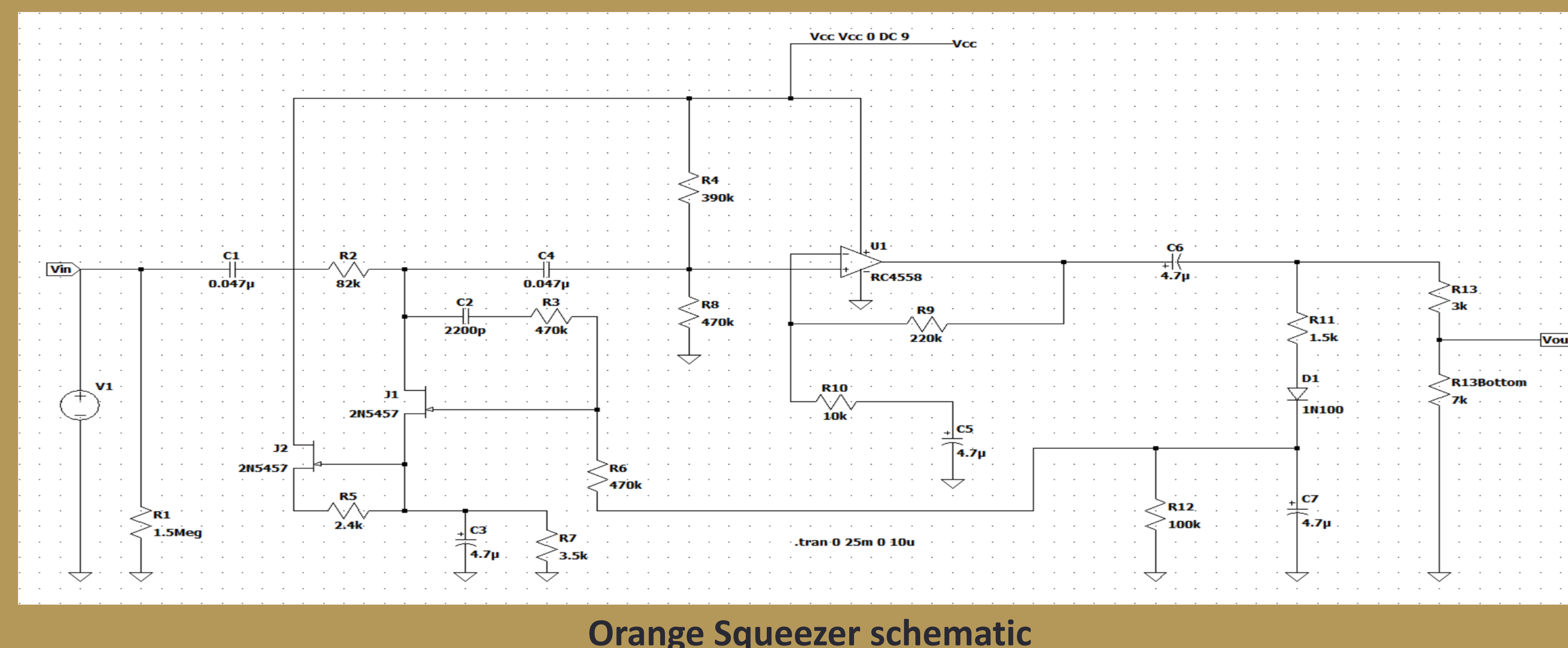
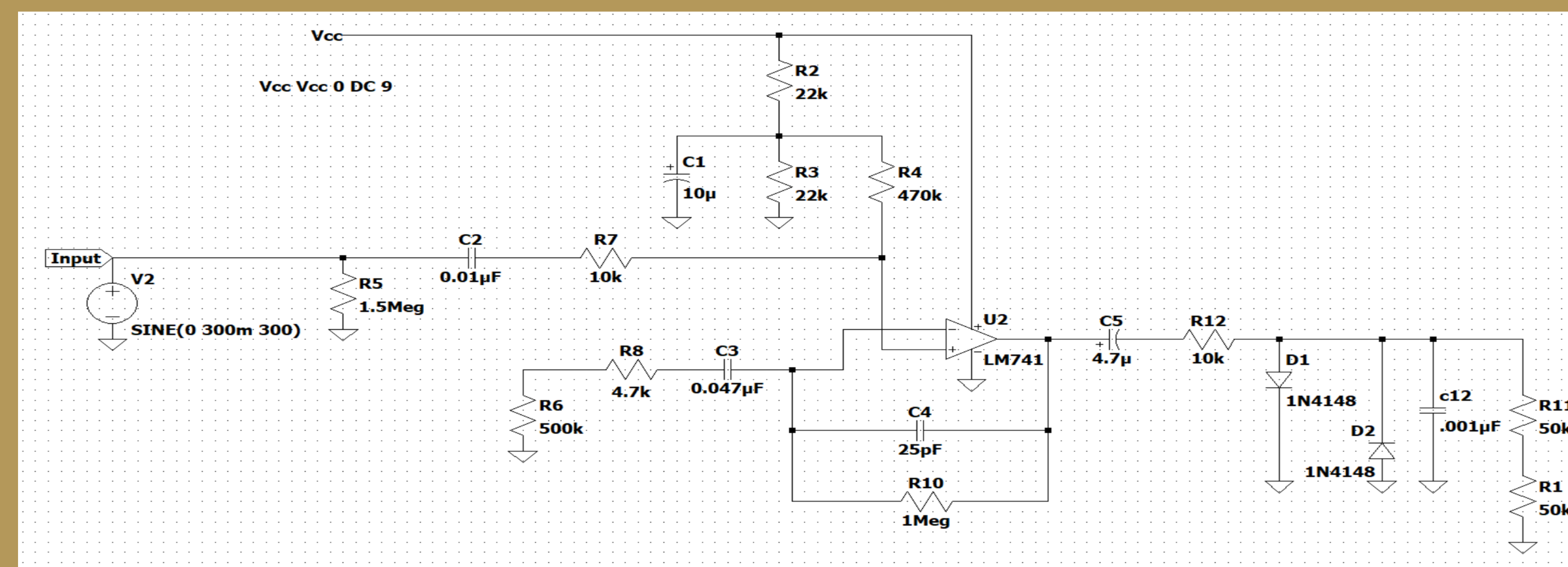
Simulation Plots



Top-Level Block Diagram



Effect Schematics



Meet the Team



Andreas Sims Bennett McRae Rex Davis

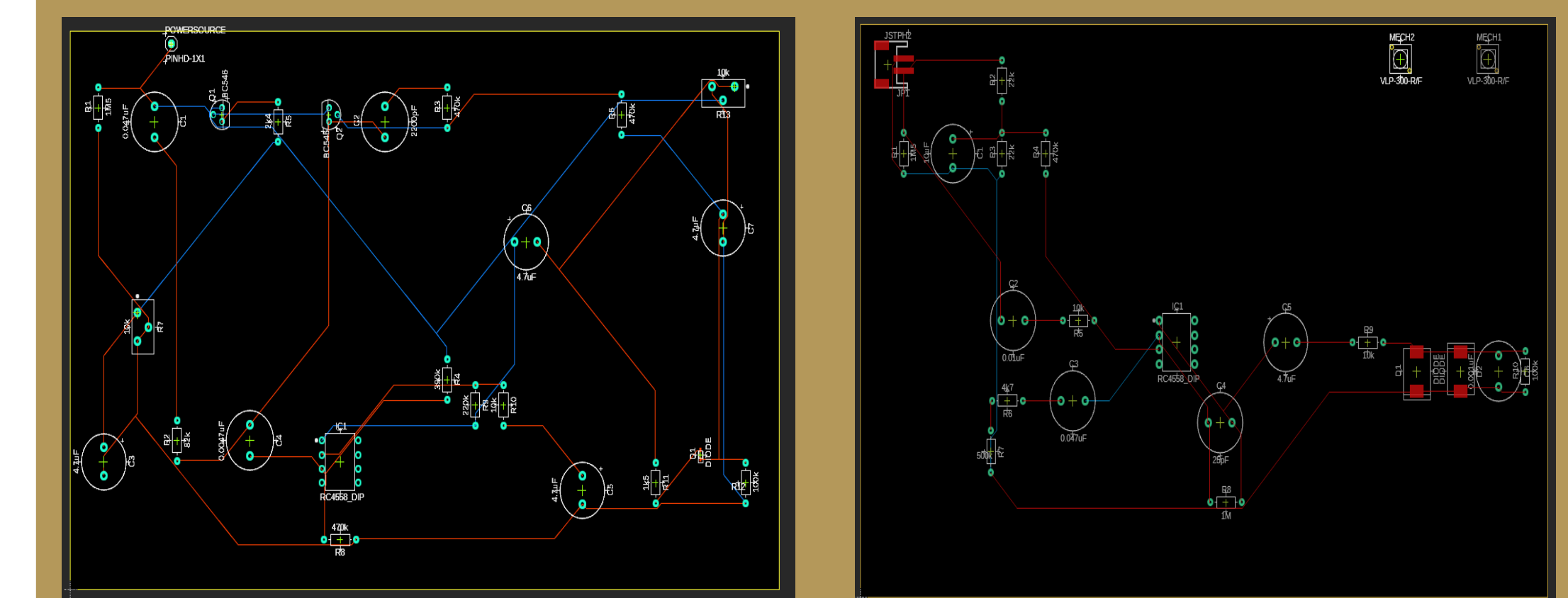
First Semester Achievements

- Assembled/Tested the OSQ/DOD Kits
- Developed characterization plan
- Completed OSQ/DOD simulations
- Completed initial custom PCB design
- Demonstrated individual effects using kits

Second Semester Goals

- Complete PCBs
- Design and fabricate enclosure
- Complete characterization in accordance with plan
- Demonstrate completed pedal through guitar amp
- Implement stretch goal of adding toggle switch to change effect cascade order.

PCB Design



Orange Squeezer PCB DOD 250 Overdrive PCB

Acknowledgements

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