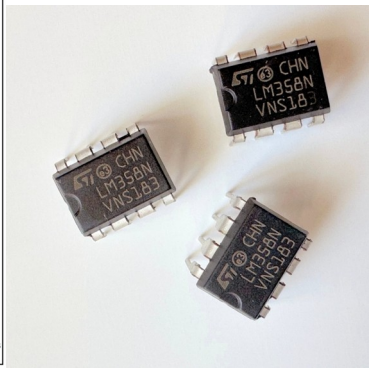
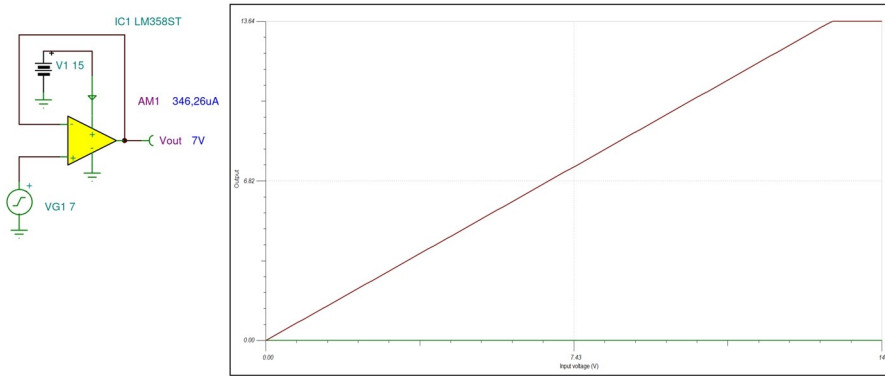
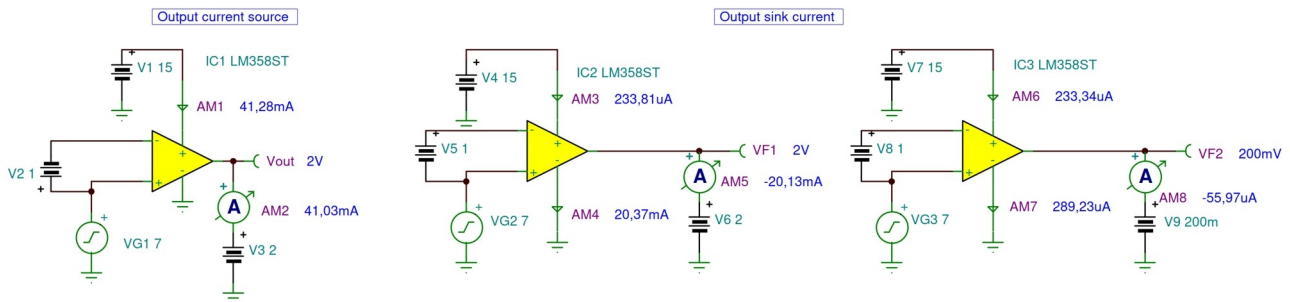


LM358 Operational Amplifiers Macro Model

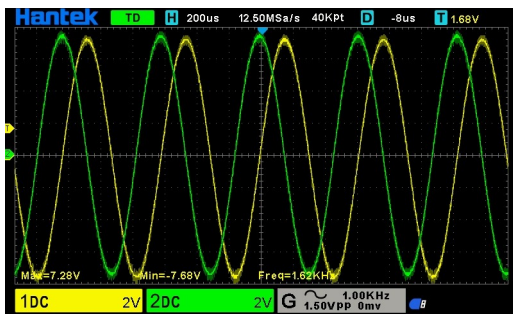
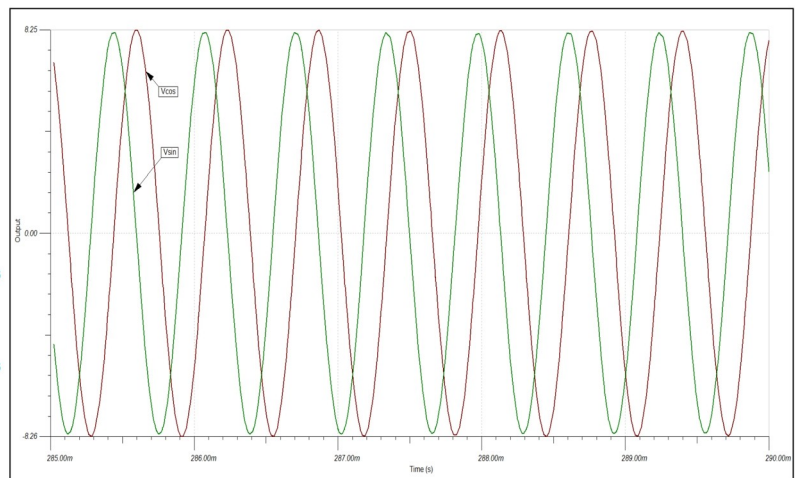
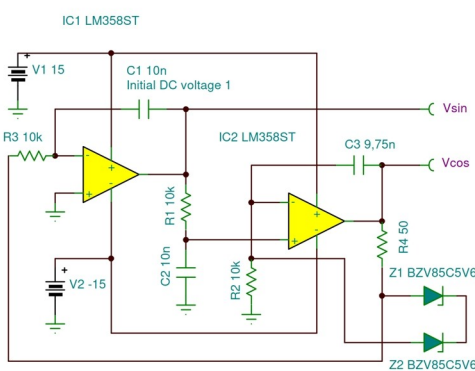
DC Characteristics:



Output Current:



Quadrature oscillator:



The quadrature oscillator is another type of phase-shift oscillator, but the three RC sections are configured so that each section contributes 90° of phase shift. The outputs are labeled sine and cosine (quadrature) because there is a 90° phase shift between op amp outputs.

Oscillation occurs at $\omega = 2\pi f = 1/RC$. The test circuit oscillated at 1.62 kHz rather than the calculated 1.59 kHz, and the discrepancy is attributed to component variations. C3 is set to 10 nF. It was only changed for stable oscillation in the simulation.

variations. C3 is set to 10 nF. It was only changed for stable oscillation in the simulation.