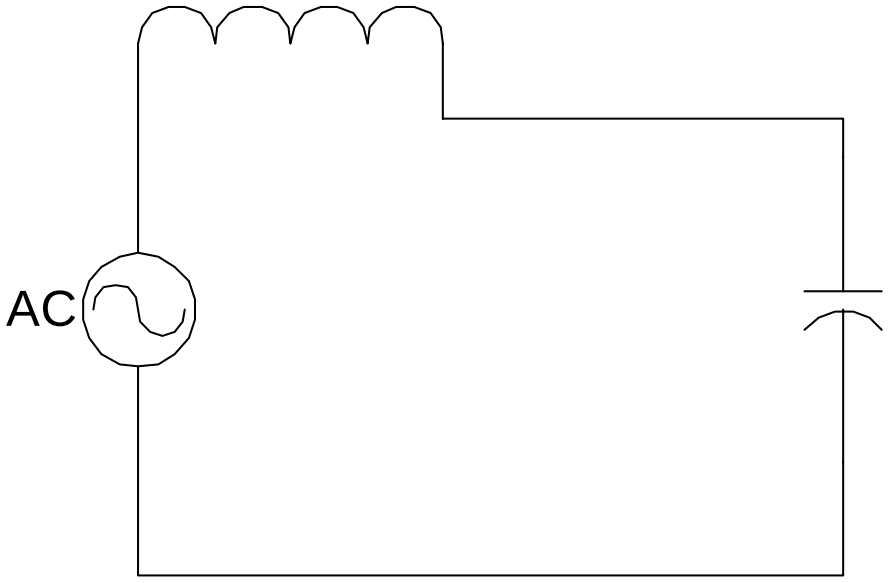
6.002 Demo# 23
Demonstrates a resonant LC circuit Agarwal Fall 00

Lecture 15

Purpose:

This demonstrates the response of an LC circuit to a step, impulse, and sinusoid.

Steps:



Part 1: Shows the response to a step.
Part 2: Shows the response to an impulse.
Part 3: Shows the response to sine wave manually swept through the resonance.

6.002 Demo #23A

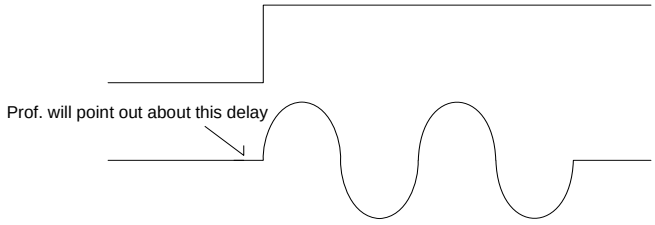
Prof. Lang
Spring 02

Series RLC

For a long pulse load set up Demo#23L.set

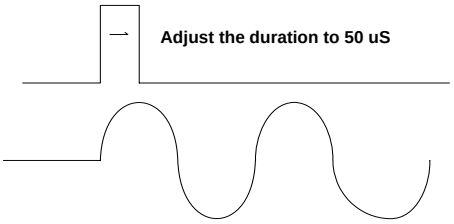
Procedure:

(1) For long pulse from IEC Gen. set the frequency at 4 HZ square wave
Scope Sweep Skirt =20 ms knob = .5 ms (Pull move to .5 ms then press it in)
Single Sweep on
Store on
Ch1 = 2v/Div
Ch2 = 2v/Div
Time delay multiply ~645
Use Diff Amp. to measure current Ch3 = 5v/Div, Ch4 = 5v/Div (current =.1v/Div)



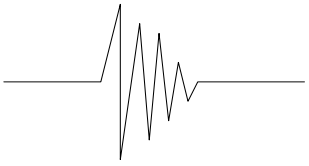
For short pulse load set up Demo#23A.set

(2) For pulse generator (PG 501 ser # B010124) settings:
Period = 20 ms, Variable ~9.30
Durantion = 10 microseconds, Variable ~ 11.30
Amplitude Max
Scope Ch2 = .5v/Div
Time delay ultiply ~ 570
Ch3 = 5v/Div, Ch4 = .5v/Div (Current = 20 mV/Div)



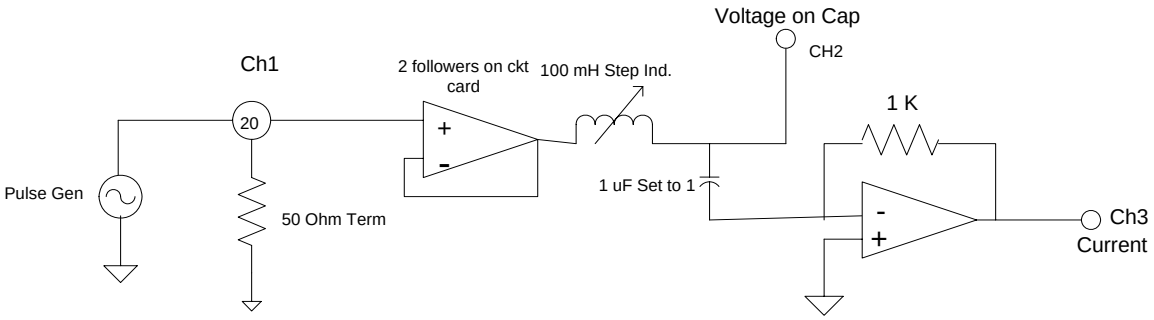
If Prof. asks you about pulse width it is 50 microsecond, amplitude is 5 volts

Then he asks you to show the decaying signal just set scope sweep = 5 ms



Continues decreasing toward the ground

(3) Hand Sweep from IEC. Start from .3x1 Kh through resonance (Continuous Sinewave)
Gen . Amplitude at 3 v P-P Cal
Scope Sweep = .5 ms (Coupled skirt & knob together)
Ch1 = 5v/Div
Ch2 = 5v/Div



Do Not use 50 Ohm termination it's built on board!

NOTE: Set +/- 25 V supply at +/- 15 V for buffer

Do Pulse first and Second Lecture the Long Pulse with ICE generator