

## 6.002 Demo# 23

Demonstrates a resonant LC circuit

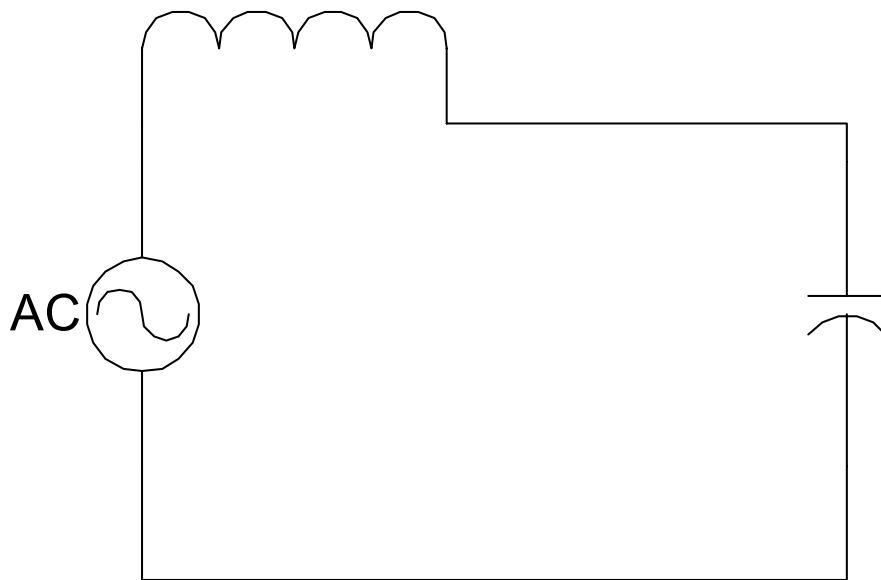
Agarwal Fall 00

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.

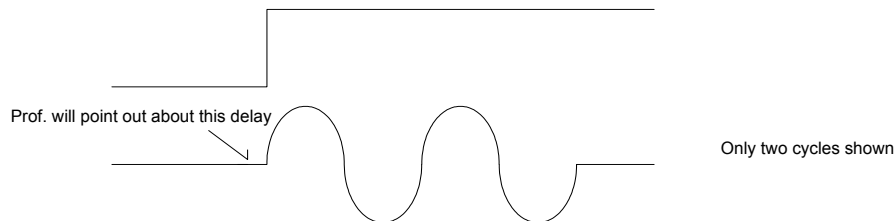
Part 3: Shows the response to sine wave manually swept through the resonance.

## Series RLC

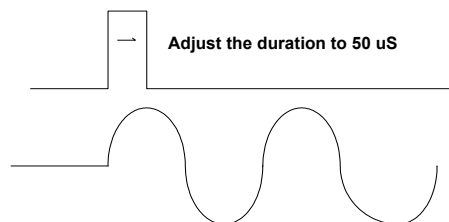
**For a long pulse load set up Demo#23L.set**

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  
 Duration = 10 microseconds, Variable ~ 11.30  
 Amplitude Max  
 Scope Ch2 = .5v/Div  
 Time delay multiply ~ 570  
 Ch3 = 5v/Div, Ch4 = .5v/Div ( Current = 20 mV/Div )

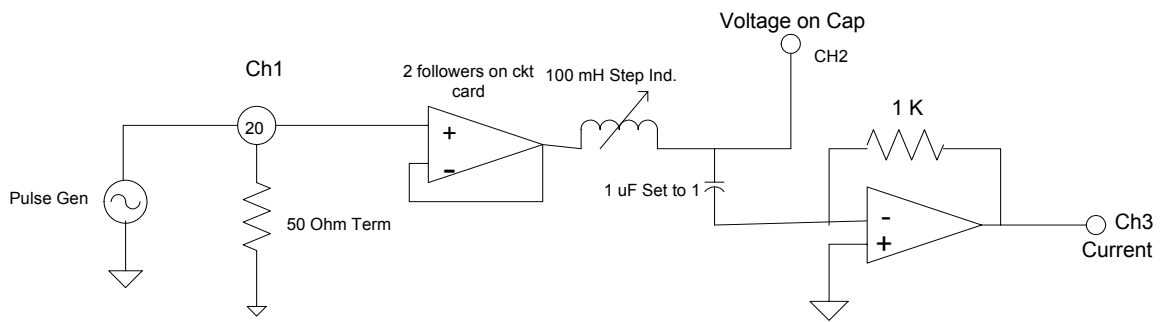


If Prof. asks you about pulse width it is 50  
microsecond, amplitude is 5 volts

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



- (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**