

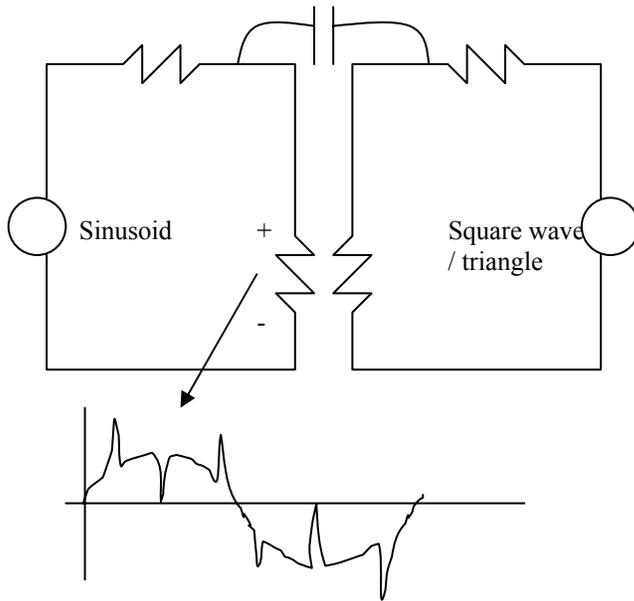
6.002 Demo# 19
Crosstalk
Lectures 13 and 25

Agarwal Fall 00

Purpose: This demo shows the capacitive coupling between signals on two separate wires in proximity. It is used as a case where 6.002 abstractions are violated. The coupling can be modeled as a capacitor, but the effect is due to physical implementation, not the design.

Steps:

1. With a sine wave applied to one circuit, and a square wave to the other, note on the scope the “spikes” riding on the sine wave circuit output, corresponding to the transitions in the square wave.
2. Remove the spikes from the sine wave output by switching the square wave to a triangle wave.



Description: Crosstalk demonstration

See schematic diagram next page for more detail

Oscilloscope Setup

CH	V/DIV	OFFSET	MODE	FUNC	MATH	VERTICAL	HORIZONTAL
1 on	5	-13.31	DC	off			
2 on	2	-80 mV	DC	off			
3 off	0		DC	off			
4 on	1	2.3	DC	off			
Horizontal: 200 us		Acquisition:		AUTO	AUTO	4	Trigger: CH2

Waveform Generator Setup

Power Supply Setup

UNIT	WAVE	AMP	OFFSET	FREQ	+6	+25	-25	OUTPUT
FG1	Sq	5	0	10 KHz	off	off	off	
FG2	Sine	1	0	2.5 KHz				Trigger: INT

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Crosstalk**

Prof. Agarwal Spring 99

