6.002 Demo# 28
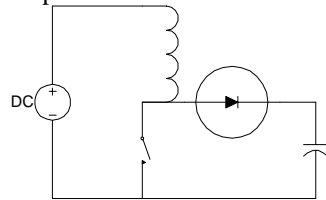**Boost Converter**   **Agarwal Fall 00**
Lecture 24
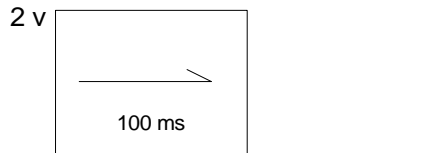
Purpose:
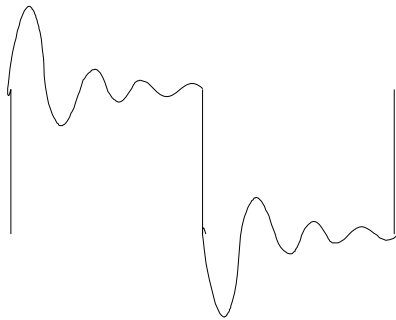A DC/DC converter using a Boost Topology

Steps:

1 – Short the diode show series LC response
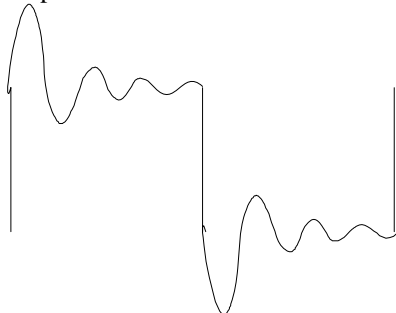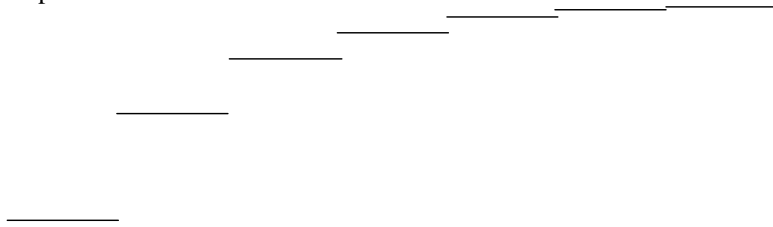Input:

2 v

100 ms

Output:

2 – 5V Supply at input, pulse the switch (diode still shorted)
input:

output:

3 – 5V Supply at input, pulse the swith (diode now in circuit)
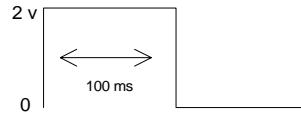output: 　　　　　　　　　　　　　　　　　　_____

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Procedure:
Demo #1

* Signal Generator (S1 on gen) [Square wave 2v peak from gnd, and 16 ms width]
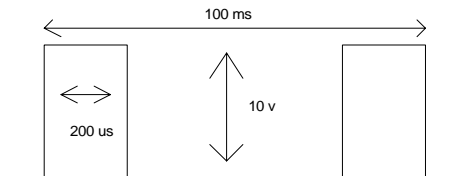* Pulse Generator (off)
* Diode D1 (Shorted, S4 on D shorted)

Scope settings:
Vert CH2 = 1v/Div
Vert CH4 = .1v/Div x 10 (Using scope probe)
Sweep = 2 ms/Div
Coupling = DC
Trig = EXT

Demo # 2

* 5 v Supply (S1 on 5v)
* Pulse Gen (S2 on) [Pulse Duration = .1 ms; Variable ~ 10:00 ; Period = 20 ms, Variable ~ 1:00]
* Diode D1 (Shorted, S4 on D shorted)

Scope settings:
Vert CH2 = 5v/Div
Vert CH4 = .5v/Div x 10 (Using scope probe)
Sweep = 10 ms/Div
Coulping = DC
Trig = EXT

Demo # 3

* 5 v Supply (S1 on 5 v)
* Pulse Gen (S2 on) [Pulse Duration = .1 ms; Variable ~ 12:00; Period = 20 ms; Variable ~ 11:00]
* Diode D1 (Open, S4 on D open)
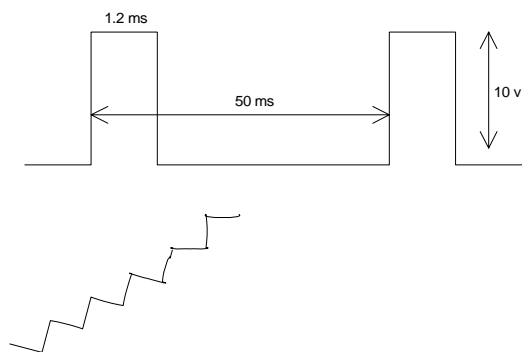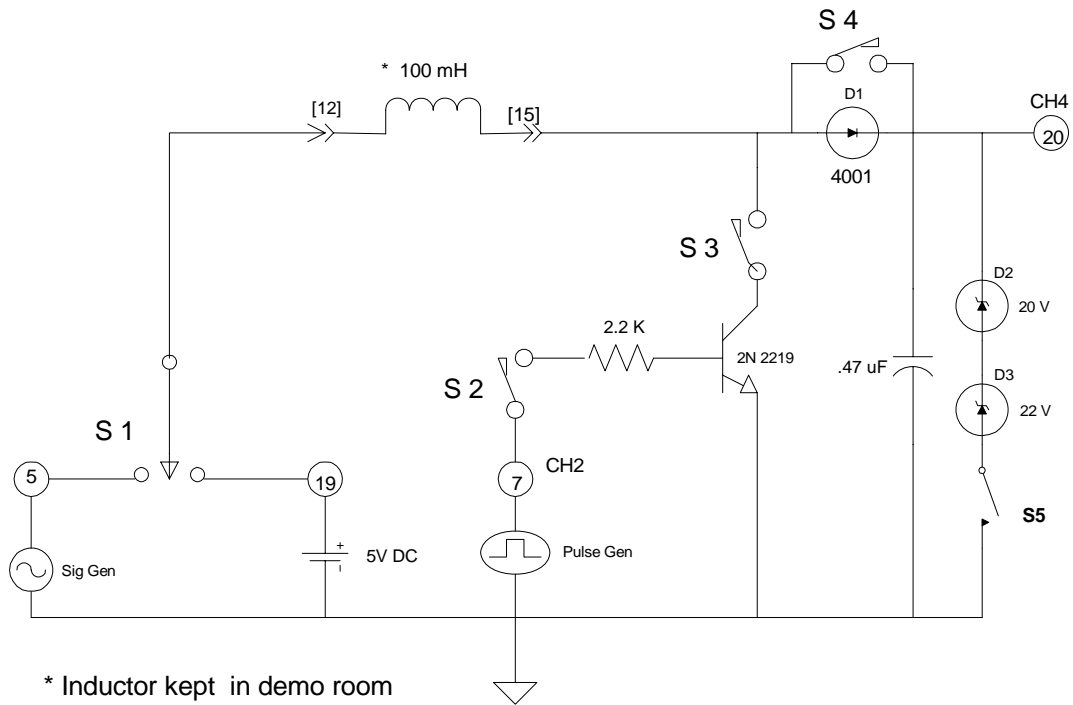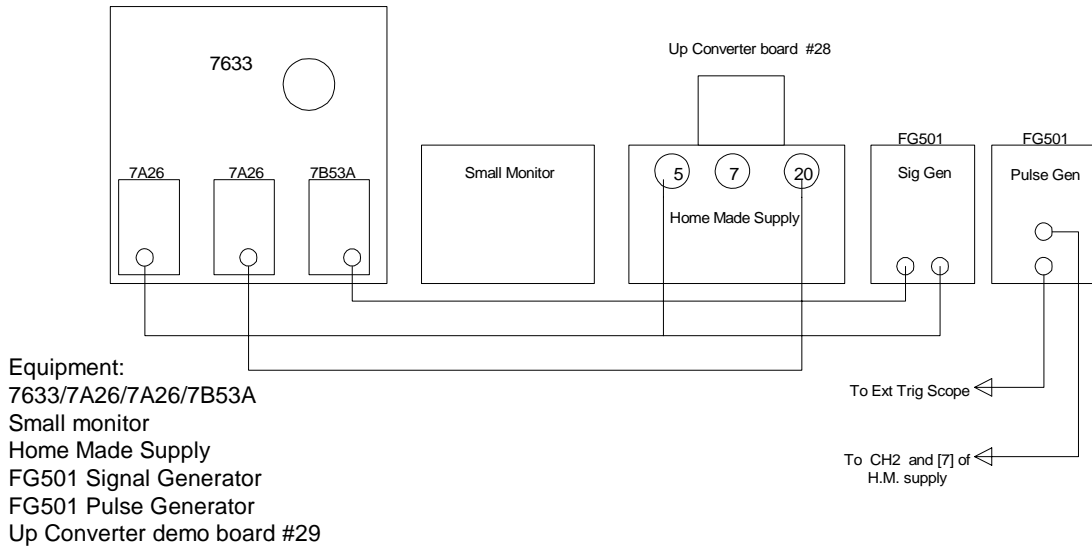Scope settings:
Vert. Ch2 = 5v/Div
Vert. CH4 = 1v/Div x 10 (Using scope probe)
Single sweep = .2 ms/Div
Coupling = DC
Trig = EXT

6.002 Demo #28   Prof. Lang
Up Converter

7633

Up Converter board #28

7A26   7A26   7B53A   Small Monitor   5   7   20   FG501   FG501

Home Made Supply   Sig Gen   Pulse Gen

Equipment:
7633/7A26/7A26/7B53A
Small monitor
Home Made Supply
FG501 Signal Generator
FG501 Pulse Generator
Up Converter demo board #29

To Ext Trig Scope

To CH2 and [7] of
H.M. supply

S 4

* 100 mH

[12]   [15]   D1   CH4
                        20
                 4001

S 3

                        D2
                        20 V
        2.2 K
               2N 2219
S 2   .47 uF   D3
                                   22 V
S 1
5   19   7 CH2   S5

Sig Gen   5V DC   Pulse Gen

* Inductor kept in demo room

S5 open for Demo#1 ONLY