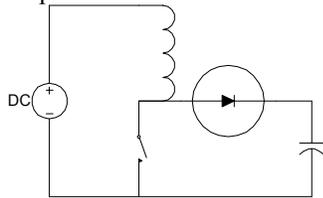


6.002 Demo# 28
Boost Converter
Lecture 24

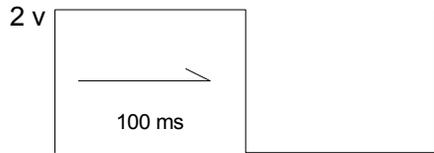
Agarwal Fall 00

Purpose:
A DC/DC converter using a Boost Topology

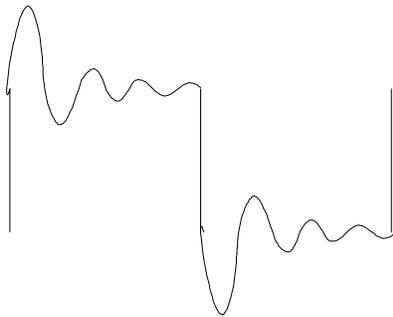
Steps:



1 – Short the diode show series LC response
Input:



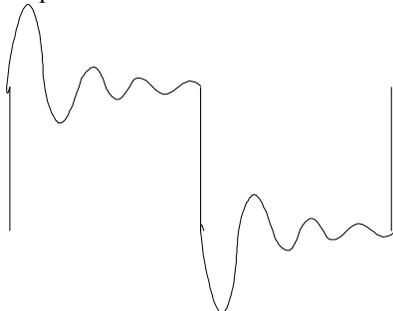
Output:



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

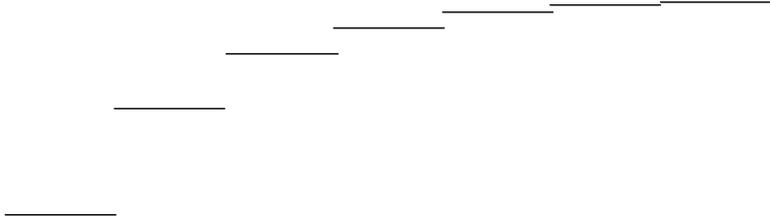


output:



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

output:

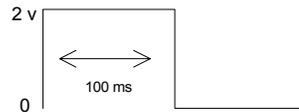


Procedure:

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)

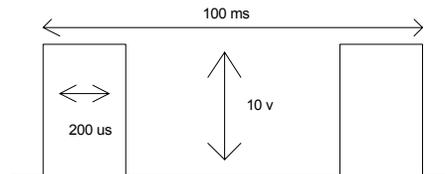
Scope settings:
Vert CH2 = 1v/Div
Vert CH4 = .1v/Div x 10 (Using scope probe)
Sweep = 2 ms/Div
Coupling = DC
Trig = EXT



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)

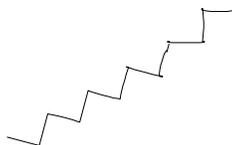
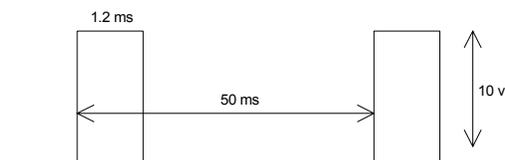
Scope settings:
Vert CH2 = 5v/Div
Vert CH4 = .5v/Div x 10 (Using scope probe)
Sweep = 10 ms/Div
Coupling = DC
Trig = EXT



Demo # 3

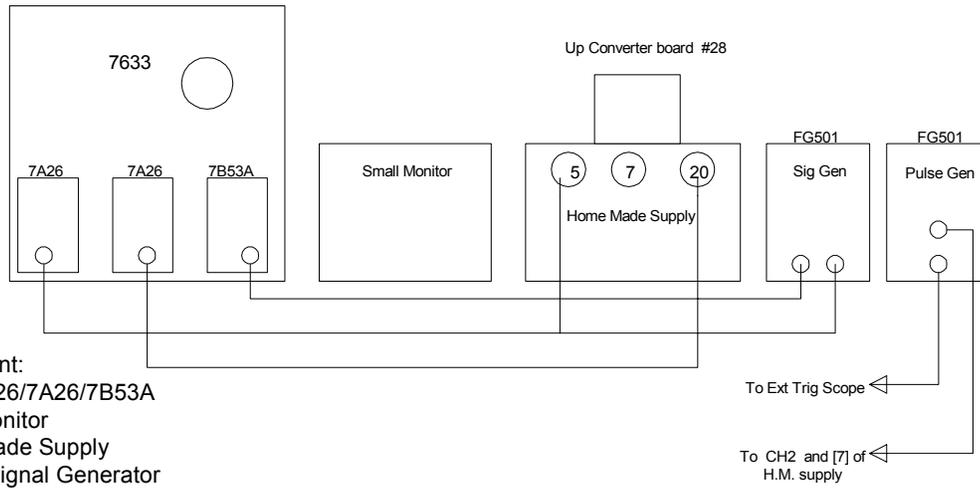
- * 5 v Supply (S1 on 5 v)
- * Pulse Gen (S2 on) [Pulse Duration = .1 ms; Variable ~ 12:00; Period = 20 ms; Variable ~ 11:00]
- * Diode D1 (Open, S4 on D open)

Scope settings:
Vert. Ch2 = 5v/Div
Vert. CH4 = 1v/Div x 10 (Using scope probe)
Single sweep = .2 ms/Div
Coupling = DC
Trig = EXT

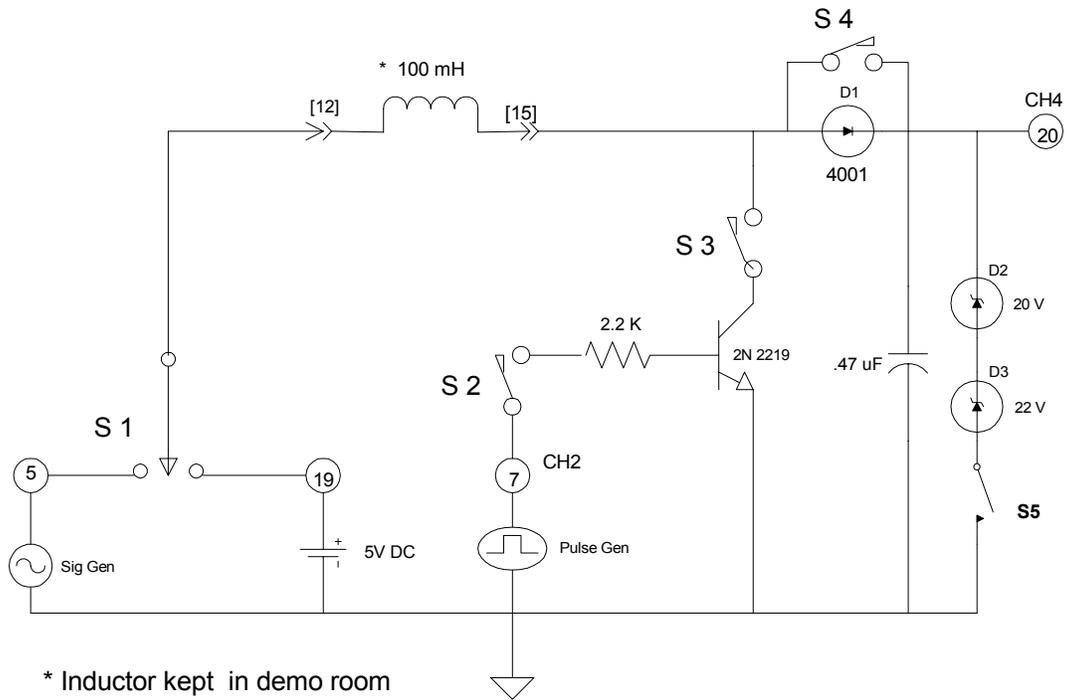


6.002 Demo #28
Up Converter

Prof. Lang



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



* Inductor kept in demo room
S5 open for Demo#1 ONLY