



EE 254

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11/19/13

Project 3 Schmitt Trigger Design

The
to -10V. T
figure - 3.
Amp and t
terminal of
potentiome
calculation
chosen val
using the re
and tested c



ual to +10V, and V_{EE} equal
d by creating the circuit in
ive terminal of the Op-
supply. The inverting
found by varying the
tered into equation found in
teria $V_{TH} - V_{TL} = 4V$. The
culated in calculation - 2,
When the circuit was built
was corrected by

decreasing the reference voltage to negative 1V. The corrected hysteresis loop is recorded in figure 2 and figure 3.

The
simulated V_{TH}
 V_{TL} is 3.29
 $V_H = 7.875$
expected. T
Amp used i
completely
was varied,



hen plotted in Matlab. The
between the simulated V_{TH} and
ctual saturation voltages were
rimental hysteresis loop was
mp, but this was not the Op-
g the LM741 Op-Amp, it gave
ly when the reference voltage
04 Op-Amp.

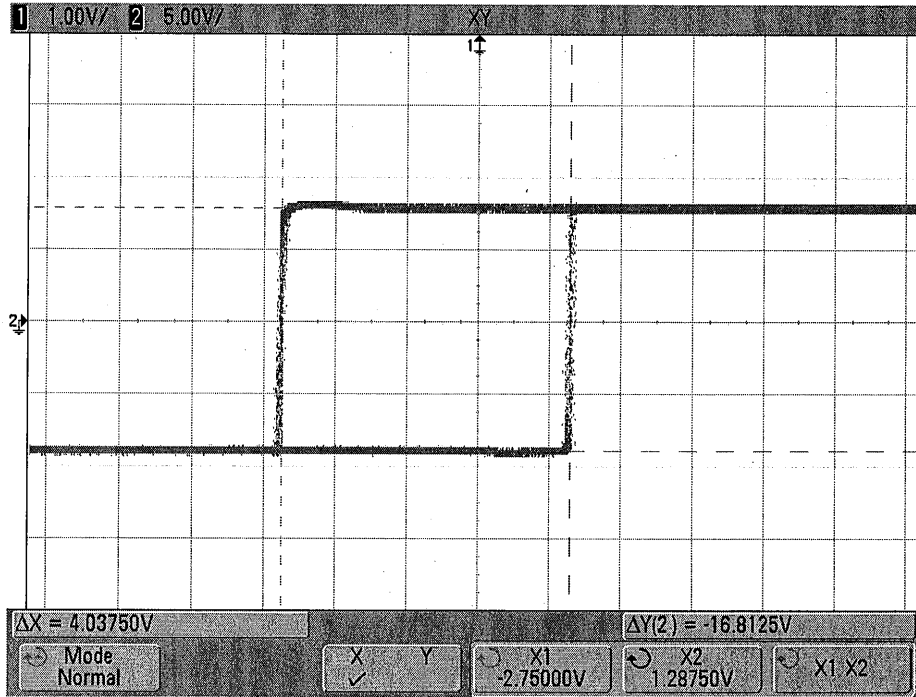
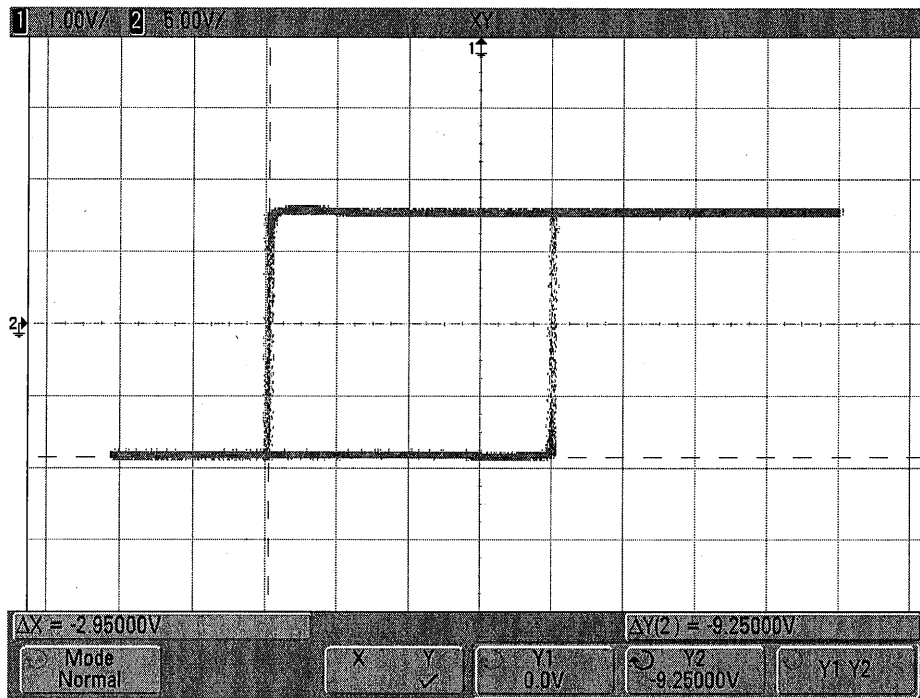
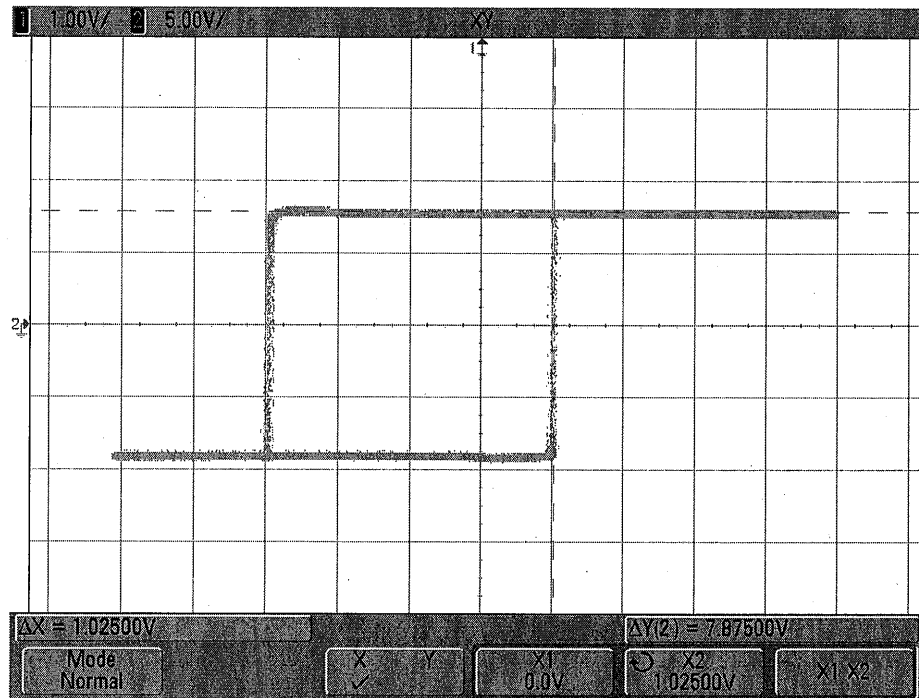


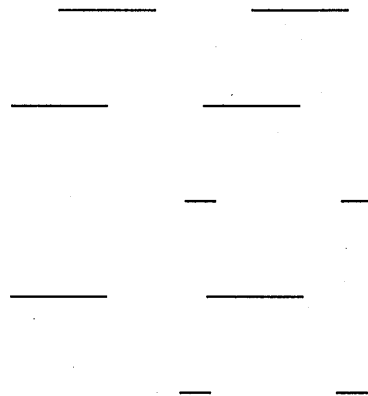
Figure – 1



9.25000V)



= $\Delta Y = 7.87500V$)



Calculations – 2 (F

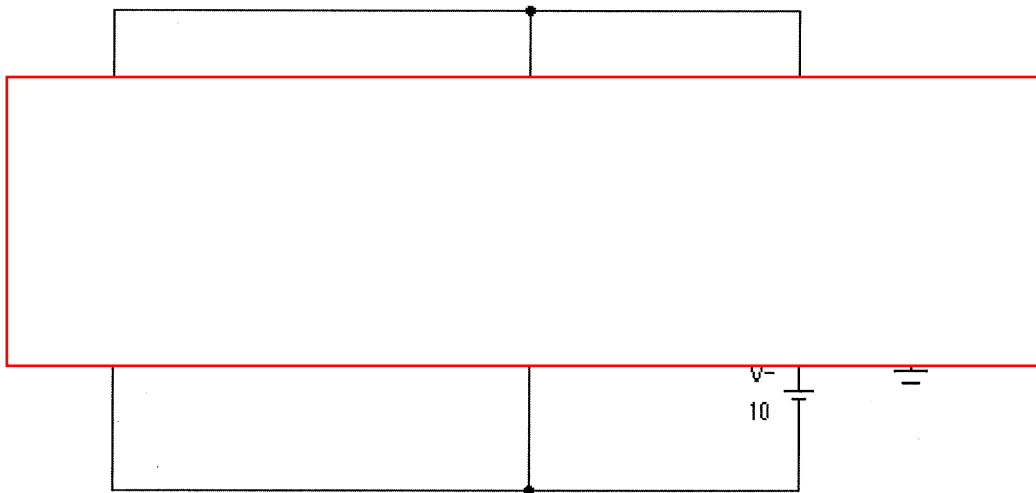


Figure – 3(open loop configuration for obtaining V_H and V_L)

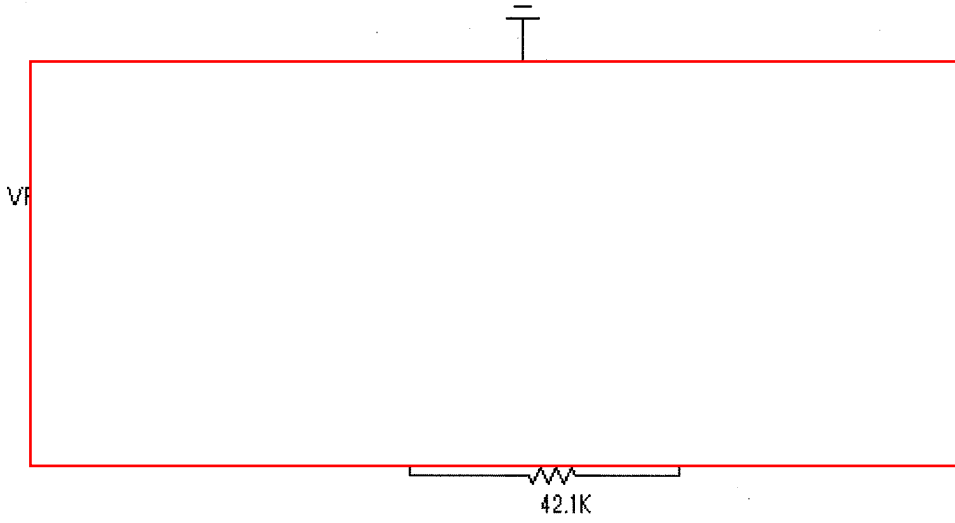
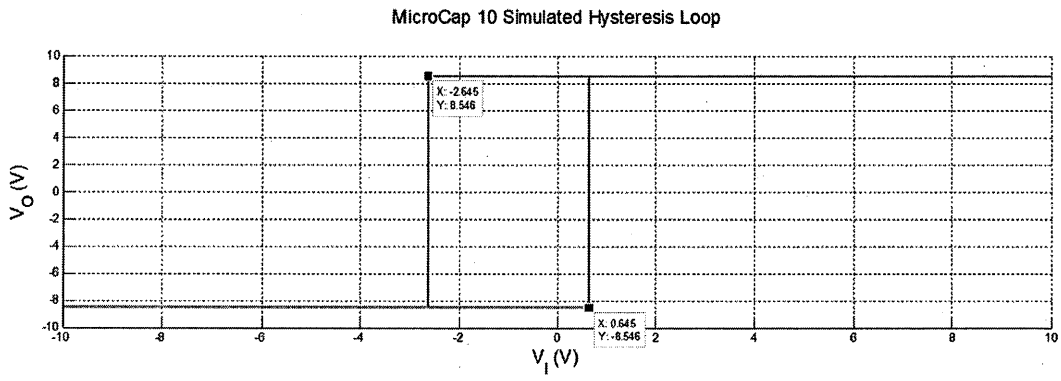


Figure – 4 (Schmitt Trigger)



Matlab code

```
a=xlsread('Op_Amp_p_n_1.xls');
b=xlsread('Op_Amp_n_p_1.xls');

t=a(:,1);
x=a(:,2);
t2=b(:,1);
y=b(:,2);

figure
hold on
grid on
plot(t,x,'r','linewidth',2)
plot(t2,y,'b','linewidth',2)
title('Hysteresis Loop','fontsize',15)
xlabel('V_I','fontsize',15)
ylabel('V_O','fontsize',15)
```