Lab 6 : ***Part b : Digital to Analog Conversion***

Objectives

- To become familiar with digital to analog conversion

Apparatus

DAC0808,
Resistors 4.7 Kohm X 3,
Capacitors 100 nf,
Connection wires or Jumper wires,
Wire Stripper / Cutter,

Background:

A digital to analog converter (DAC) is a device that outputs a voltage proportional to an input binary number. Such a device is frequently required in applications where a digital computer must generate a signal that has an influence on the 'real' world. Real world signals are continuously variable i.e. analogue signals whereas signals within a computer have a finite number of values i.e. discrete signals. A DAC is used to perform the necessary conversion.

Procedure:

1- Connect the circuit given in Figure 1. Select R14=R15=RL=4.7 Kohm, C=100 nF. Also connect digital inputs to the switches on the training set.

2- Set VEE= -15V

3- Set Vref=5 V.

4- By using your OSCILLOSCOPE, measure the corresponding output voltages for the digital input values given in table 1.

5- Set Vref=10 V and repeat Step 4.

Table 1.

DIGITAL INPUT	ANALOG OUTPUT	
BINARY	VREF=10V	VREF=5V
0 0 0 0 0 0 0 0		
1 1 1 1 1 1 1 1		
1 0 0 0 0 0 0 0		
0 1 0 0 0 0 0 0		
0 0 1 0 0 0 0 0		
0 0 0 0 0 0 0 1		
0 0 1 1 0 0 1 1		
0 1 0 1 0 0 0 1		
1 0 0 0 0 0 0 1		
0 0 0 1 0 0 0 0		

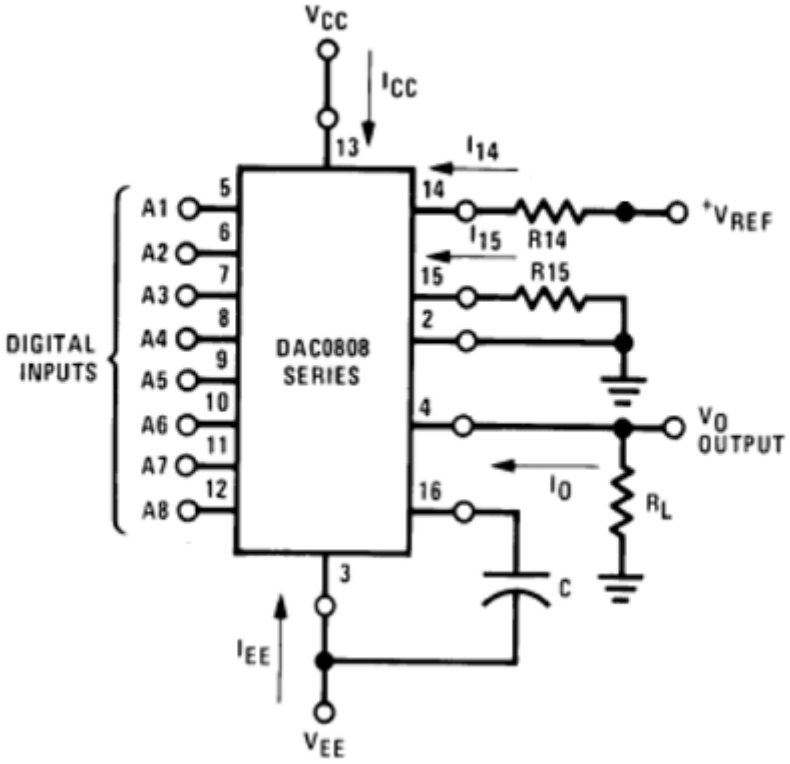
VCC
ICC
13
I14
14
+VREF
I15
R14
15
R15
2
DIGITAL INPUTS
A1
A2
A3
A4
A5
A6
A7
A8
5
6
7
8
9
10
11
12
DAC0808 SERIES
4
VO OUTPUT
IO
16
RL
C
3
IEE
VEE

Figure 1