
UTM
UNIVERSITI TEKNOLOGI MALAYSIA

Sekolah Pendidikan
Profesional dan
Pendidikan Berterusan
(SPACE)

# JABATAN KEJURUTERAAN ELEKTRIK
# PUSAT PENGAJIAN DIPLOMA (PPD), SPACE
# UNIVERSITI TEKNOLOGI MALAYSIA
# KUALA LUMPUR

## ELECTRICAL ENGINEERING LABORATORY 2

## (DDWE 2701)

## ELECTRONICS 1

## EXPERIMENT 2

## ZENER REGULATOR

**EXPERIMENT 2 : ZENER REGULATOR**

**OBJECTIVES**

At the end of this experiment, student should be able to understand the concept of regulation and can explain the operation of zener regulator.

**EQUIPMENTS**

1. DC power Supply
2. Multimeter
3. Transfomer
4. Oscilloscope

**COMPONENTS**

1. Zener diode: 8 V, 1 W (2 units)
2. Resistor: 1 kΩ (1 unit), 2 kΩ (1 unit), 500 Ω (1 unit), 4 kΩ (1 unit) and Decade Resistor

**Part A: Fix Power Supply ($V_S$) and Varies Load Resistances ($R_L$)**

Procedure:

1. Make a connection as shown in Figure 1.
2. Set power supply to 15 V and varies load resistor ($R_L$) from 500 Ω, 1 kΩ, 3 kΩ, 6 kΩ, 8 kΩ and 10 kΩ.
3. Measure $V_R$, $V_Z$, $V_L$, $I_S$, $I_L$, $I_Z$ for every changes of $R_L$ and write the answer in Table A.
4. From Table A, plot load voltage ($V_L$) versus resistance ($R_L$) on the graph in Figure A.

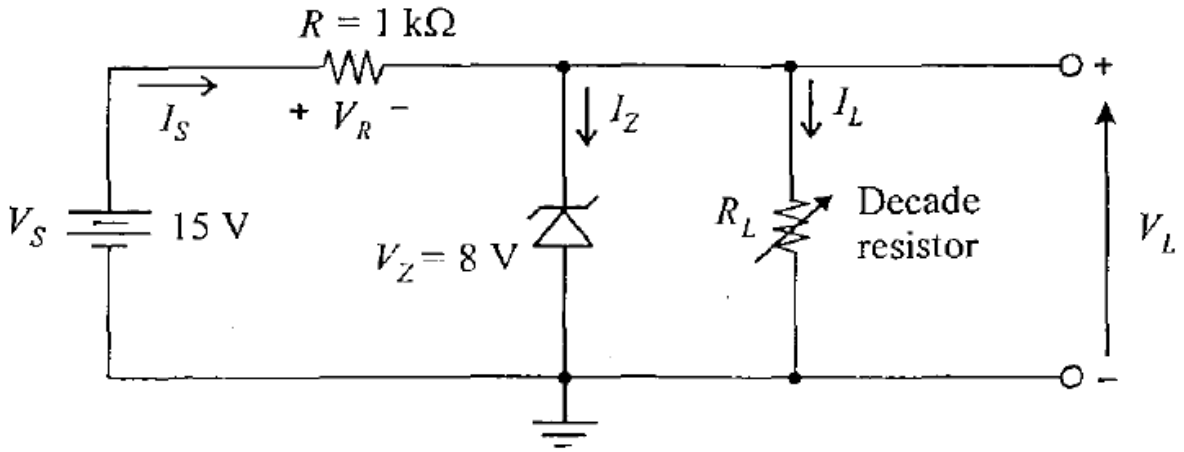


**Figure 1**

**Part B: Fix Load Resistance ($R_L$) and Varies Power Supply ($V_S$).**

Procedure:

1. Make a connection as shown in Figure 2.
2. Varies power supply from 4 V, 8 V, 15 V, 20 V, 22 V and 25 V. Load resistance ($R_L$) is fix to 2 kΩ.
3. Measure $V_R$, $V_Z$, $V_L$, $I_S$, $I_L$, $I_Z$ for every changes of $V_S$ and write the answer in Table B.
4. From Table B, plot load voltage ($V_L$) versus power supply ($V_S$) on the graph in Figure B.

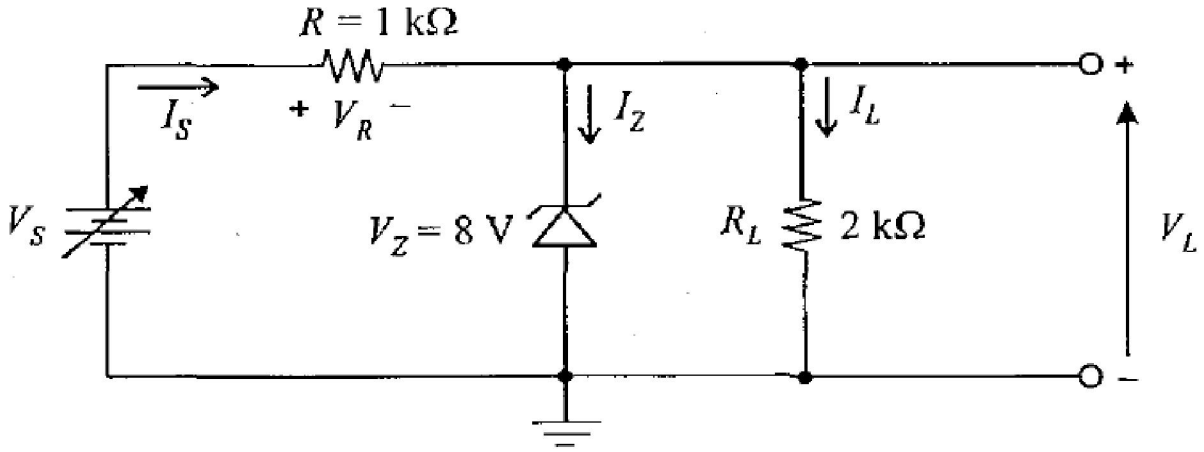


**Figure 2**

**Part C**

1. Make a connection as shown in Figure 3.
2. Connect Channel 1 Oscilloscope to $V_{Secondary}$ and Channel 2 to $V_L$. Plot $V_{Secondary}$ and $V_L$ in Figure C in result sheet.

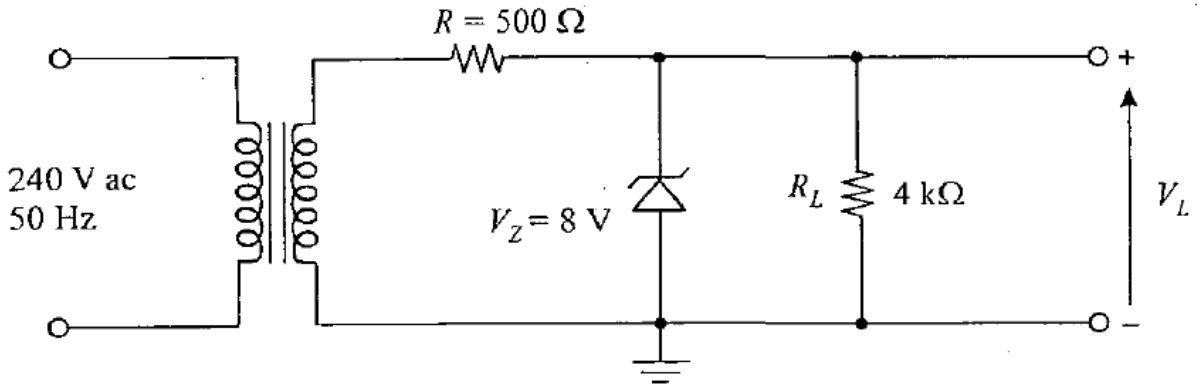


**Figure 3**

**Part D**

1. Make a connection as shown in Figure 4.
2. Connect Channel1 Oscilloscope to $V_{Secondary}$ and Channel 2 to $V_L$. Plot $V_{Secondary}$ and $V_L$ in Figure D in result sheet.

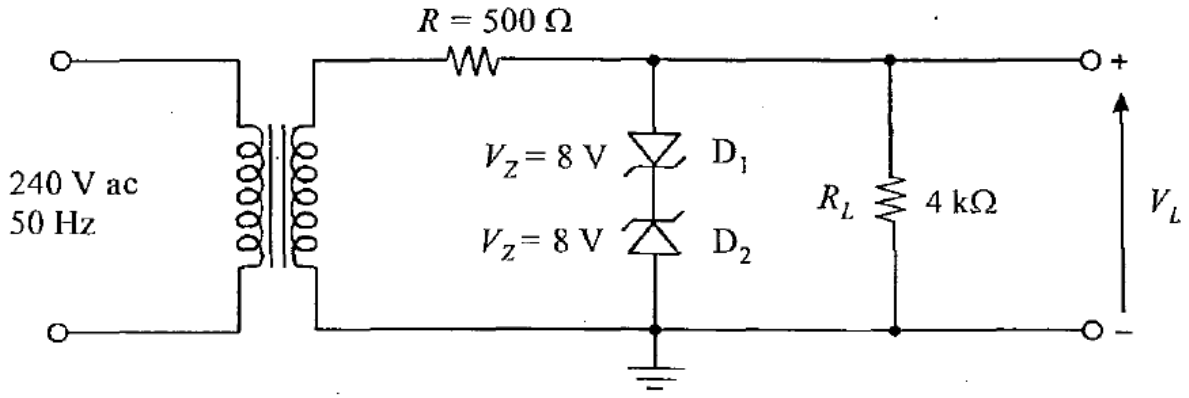


**Figure 4**