Feng Chia University

Electrical Engineering Fundamentals I Lab

Laboratory 1

Resistance, Voltage, and Current Measurements, Ohm's Law

Instructor: Prof. Shyan-Lung Lin

Student Name: 周嘉禾

Student ID: D1166506

Experiment Date:21/09/2023

1. Introduction
2. Materials
   1. Waveform Generator
   2. Oscilloscope
3. Circuit diagram

一張含有 文字, 圖表, 行, 字型 的圖片

自動產生的描述

▲ Figure 1. Circuit of Experiment 1.a Series Circuit

1. Methods
2. Experiments data
   1. Experiment 10.a Measurement of Diode Switching Speed
      1. Effects of conduction current ID(ON)
         1. +2 V → 0 V

Scale: 200 μs/Div

500 mV/Div

tOFF: 16.9 μs

tS: 10.4 μs

tT: 6.5 μs

* + - 1. +4 V → 0 V

Scale: 200 μs/Div

1 V/Div

tOFF: 24.7 μs

tS: 16.8 μs

tT: 7.9 μs

* + - 1. +10 V → 0 V

Scale: 200 μs/Div

2 V/Div

tOFF: 33.4 μs

tS: 24.8 μs

tT: 8.6 μs

* + 1. Effect of Switch-OFF Voltage VR
       1. +4 V → 0 V

Scale: 200 μs/Div

1 V/Div

tOFF: 24.7 μs

tS: 16.8 μs

tT: 7.9 μs

* + - 1. +4 V → -2 V

Scale: 200 μs/Div

1 V/Div

tOFF: 14 μs

tS: 7.3 μs

tT: 6.7 μsΩΩ

* + - 1. +4 V → -6 V

Scale: 200 μs/Div

2 V/Div

tOFF: 8.7 μs

tS: 6 μs

tT: 2.7 μs

* 1. Experiment 10.b LED Measurements and Driving Circuit
     1. LED Measurements
        1. Forward Bias

100 Ω Light

1 kΩ Light

10 kΩ Dark

100 kΩ Dark

* + - 1. Reverse Bias

100 Ω Dark

1 kΩ Dark

10 kΩ Dark

100 kΩ Dark

* + 1. LED Driving Circuit

300 Ω Light

1 kΩ Light

N/A Ω Dark

1. Results
2. Discussion
3. Conclusion