

EE 463 Term Project 1

Fall 2018

Hakkı GÜLCÜ

Tel: +90 534 397 29 66

mail: [hakkigulcu35@gmail.com](mailto:hakkigulcu35@gmail.com)

İven GÜZEL

Tel: +90 507 168 26 81

mail: [ivenguzel@gmail.com](mailto:ivenguzel@gmail.com)

**Supervisor:** Ozan KEYSAN

Date of Submission: 24.11.2017

# Contents

1. **Introduction**..............................................................................................................1

**2) Q1 Solution**.............................................................................................................2

1. **Q2 Solution**......................................................................................................3

**4) Q3 Solution**......................................................................................................3

1. **Conclusion**.............................................................................................................2

**6) Reference**.............................................................................................................2

# Introduction

Today, computers, televisions and mobile phones have become indispensable in our lives. We can't think of a life without them. So how do we get the energies of these devices?

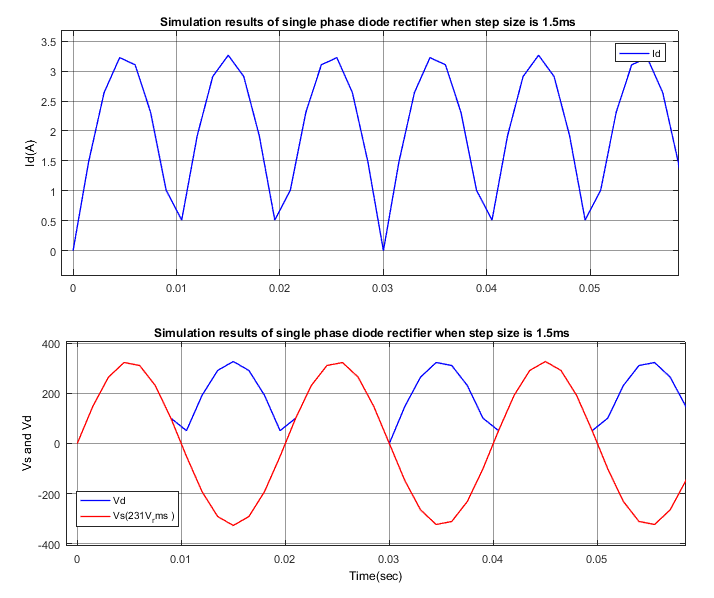
In many power electronics applications, the input power is 50 - 60 AC power from the mains and is converted to DC in the application. Diode rectifiers can be used in industry where there is no control voltage required or in applications where power transmission is not required. In diode rectifiers, the power flow is only one way from mains to load. Diode rectifiers are preferred in DC power supply, AC motor drives and many other areas.

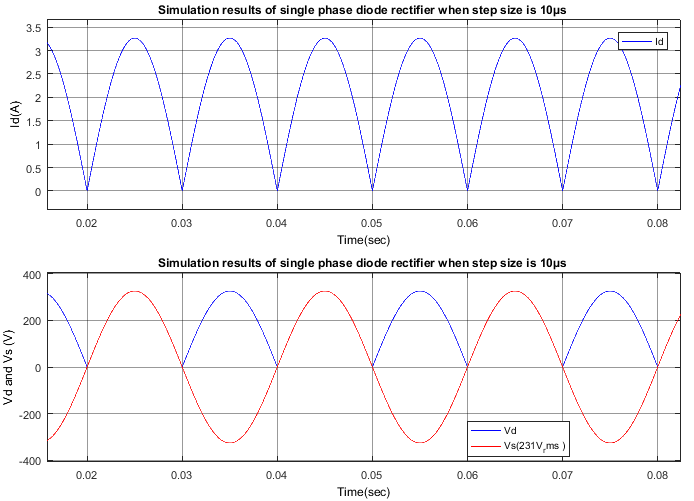
In this Project covers that single phase rectifier under different type loads

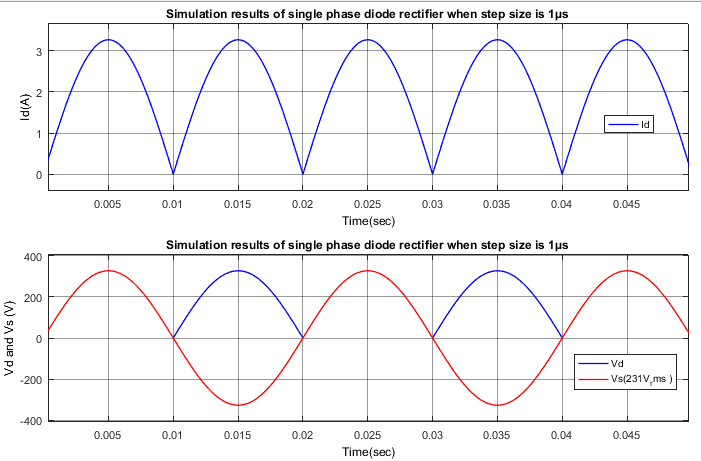
…….. to be continued.

Q1)

In this question discrete time step calculations in the simulation of a single-phase uncontrolled rectifier that is feeding a resistive load (R=100Ω) is performed. Simulation results with step size 1.5 msec, 10 µsec and 1 µsec can be observed in Figure 1, 2, and 3, respectively.

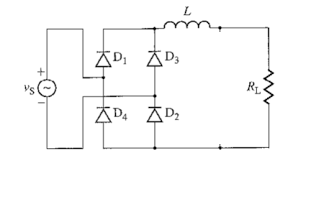






Q2.2)

**Q2.2)**



In the figure when Vs in its positive cycle D1 and D2 is on so the current passing them is equal to Id and voltage drop of them is equal to Von; whereas the voltage drop on D3 and D4 is equal to Vs.

Therefore; for IF(av)

# Q3)