

# Lab 3: Bridge Rectifier

## 1 Pre Lab

### 1.1 P1

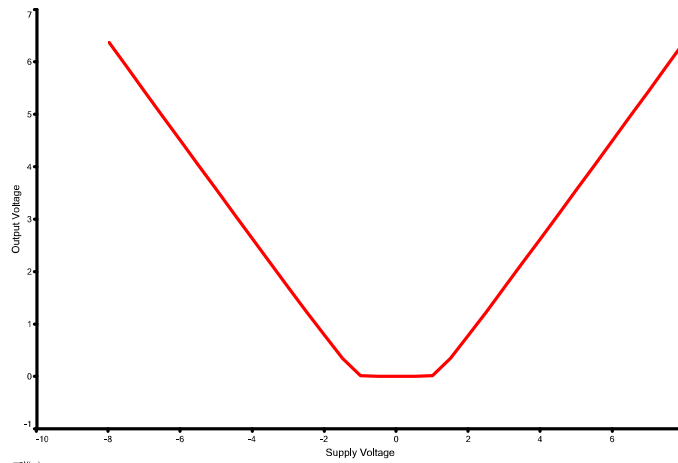


Figure 1: Graph P1. Transfer characteristic of the bridge rectifier

### 1.2 P2

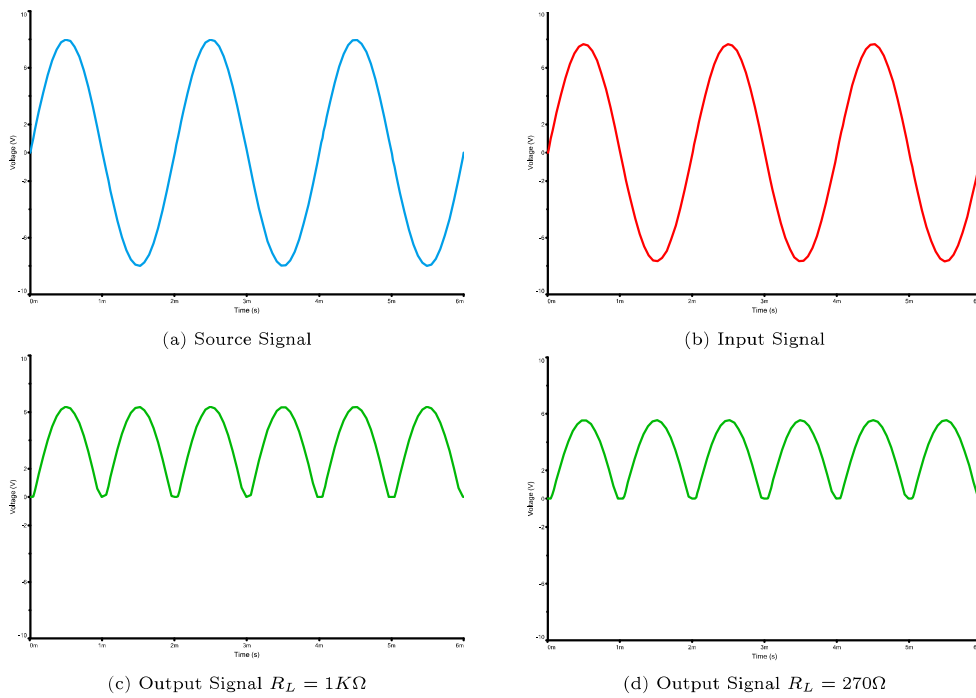
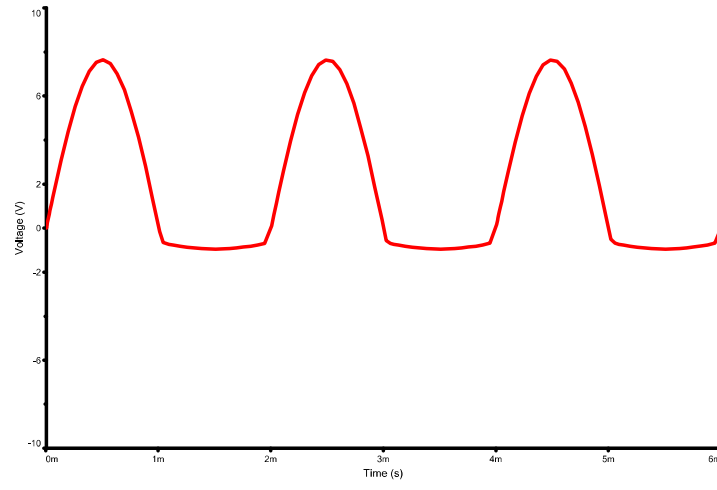
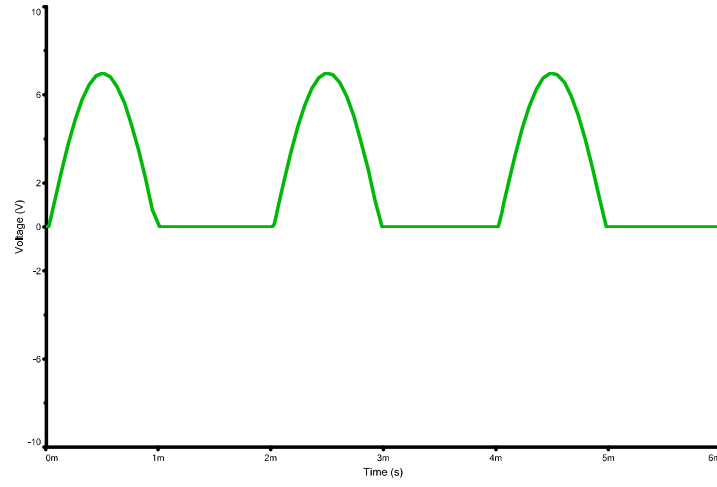


Figure 2: Graph P2 Source, input, and output voltage waveforms of the bridge rectifier

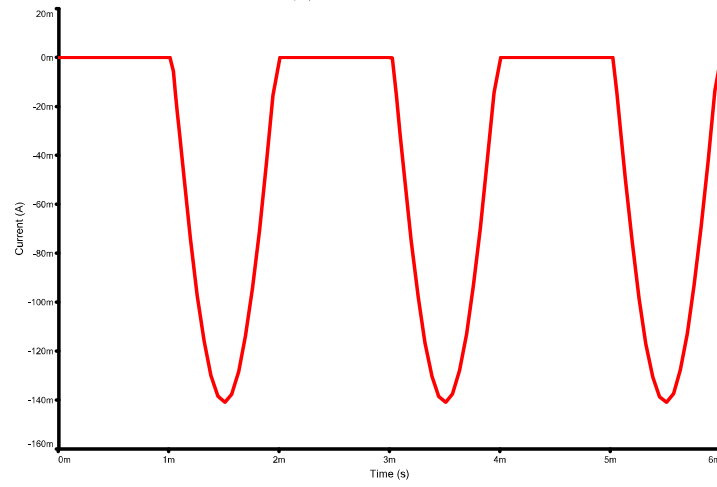
### 1.3 P3



(a) Input Signal



(b) Output Signal



(c)  $i_{D4}$

Figure 3: Graph P3

#### 1.4 P4

$$v_r = \frac{V_{p(rect)}}{fRC} = 1.17V$$

Where,

$v_r$  = Ripple Voltage

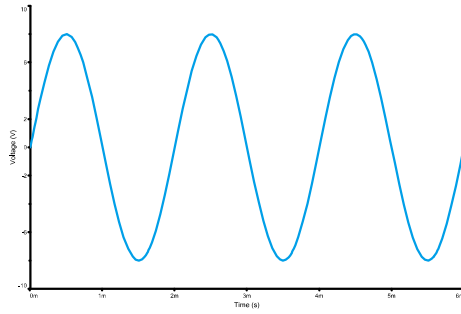
$V_{p(rect)}$  = Peak output voltage of rectifier = 6.6V

$f$  = frequency of ripple voltage = 1000 Hz

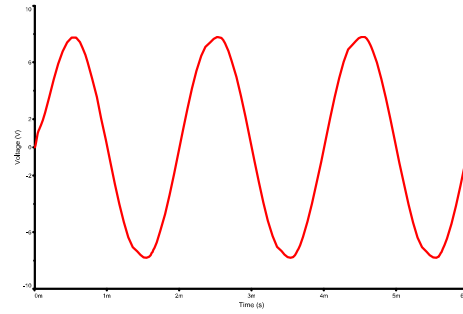
$R$  = Load Capacitance = 5.6K $\Omega$

$C$  = Filter capacitance = 1 $\mu$ F

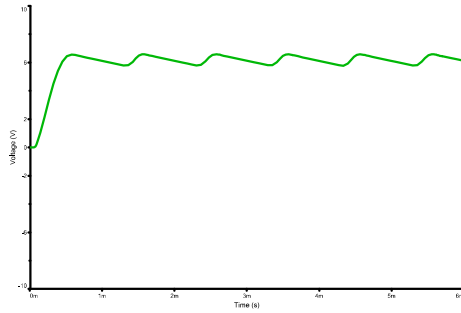
$$\bar{v}_o = V_{p(rect)} - \frac{v_r}{2} = 6.015V$$



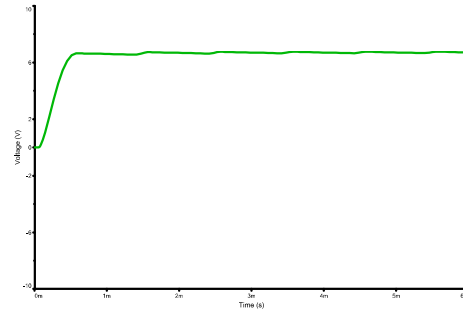
(a) Source Signal



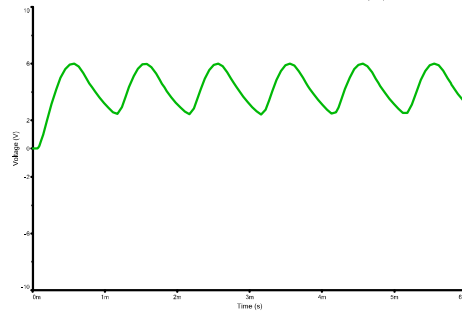
(b) Input Signal



(c) Output Signal  $R_L = 5.6K\Omega$



(d) Output Signal  $R_L = 56K\Omega$



(e) Output Signal  $R_L = 560\Omega$

Figure 4: Graph P2 Source, input, and output voltage waveforms of the bridge rectifier