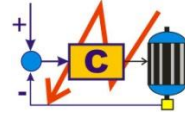




KARADENİZ TECHNICAL UNIVERSITY
Faculty of Engineering

**Department of Electrical and Electronics
Engineering**

Power Electronics Applications



1. INTRODUCTION

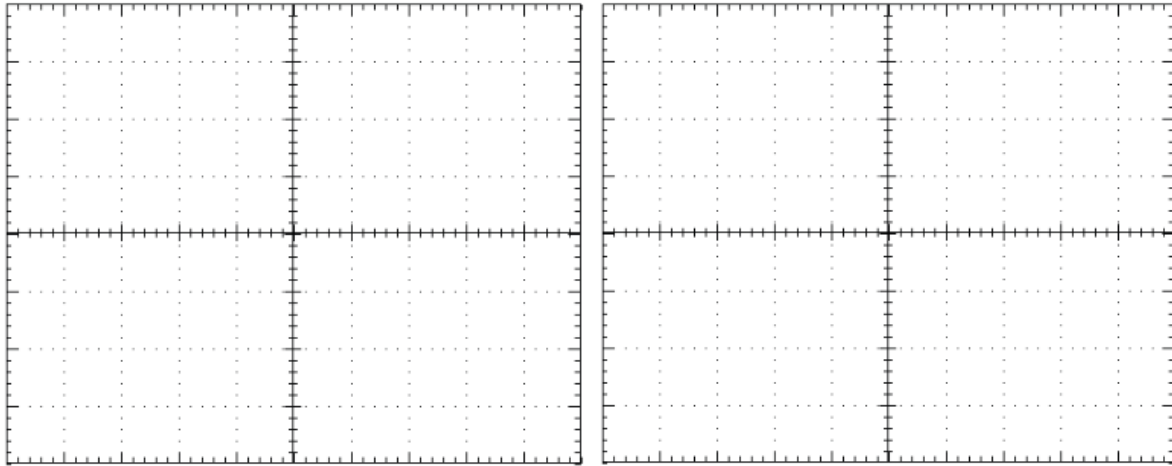
2. THEORY

3. EXPERIMENTAL METHOD

4. EXPERIMENT RESULTS

4.1 Dimmer Circuit Application

- 1- Connect the oscilloscope as shown in the diagram and supply power. ($R=100\Omega$)
- 2- Oscilloscope positions: Probe= measurement unit $\times 0,1$ Volt/Div=5V, Time/Div=5mS
- 3- When the S switches are in the $= \uparrow$ position, the circuit components operate normally. When moved to the down position, a short circuit occurs and no control is performed.
- 4- Explain the image on the oscilloscope screen when all switches are in the down position.

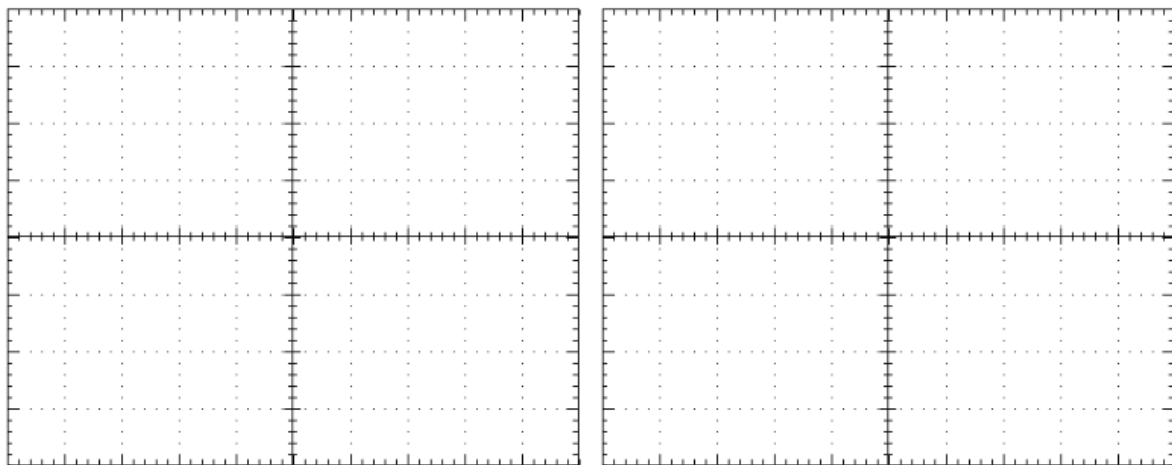


(a) When the potentiometer is in the maximum position

(b) When the potentiometer is in the minimum position

Figure 1. Waveforms according to the potentiometer's position

- 5- Explain the image on the oscilloscope screen only when the S5 switch is in the up position.



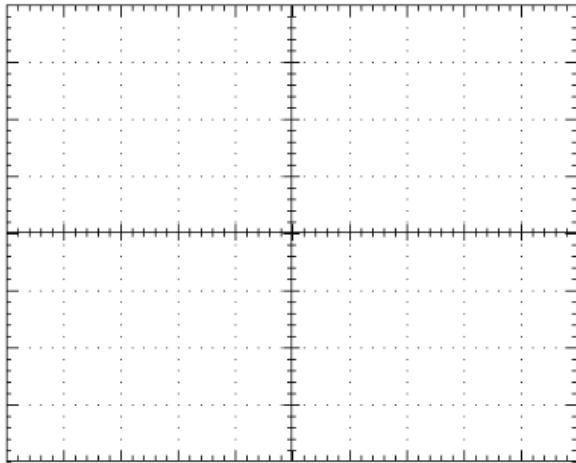
(a) When the potentiometer is in the maximum position

(b) When the potentiometer is in the minimum position

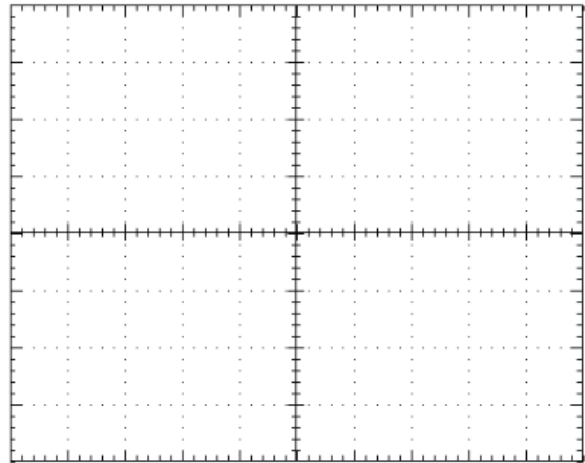
Figure 2. Waveforms according to the potentiometer's position

6- Explain the situation that occurs only when the S2 and S3 switches are in the up position.

7- Explain the image on the oscilloscope screen when all switches are in the up position.



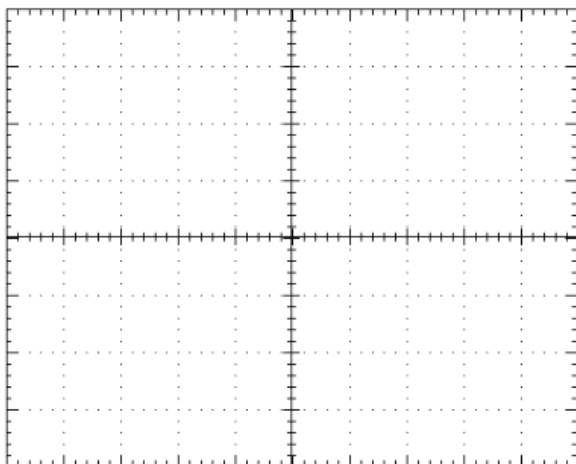
(a) When the potentiometer is in the maximum position



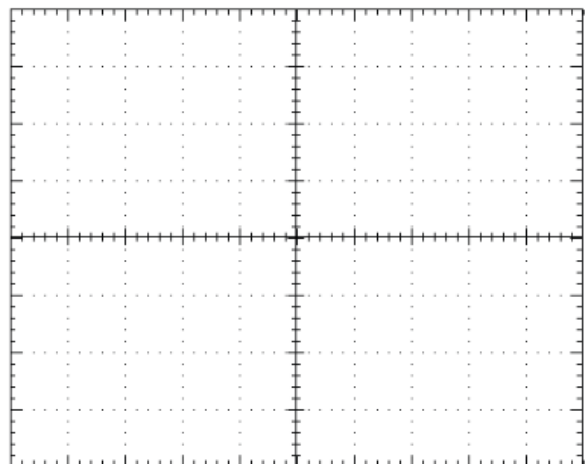
(b) When the potentiometer is in the minimum position

Figure 3. Waveforms according to the potentiometer's position

8- After the previous operation, explain the image on the oscilloscope screen only when the S2 switch is in the down position.



(a) When the potentiometer is in the maximum position



(b) When the potentiometer is in the minimum position

Figure 4. Waveforms according to the potentiometer's position