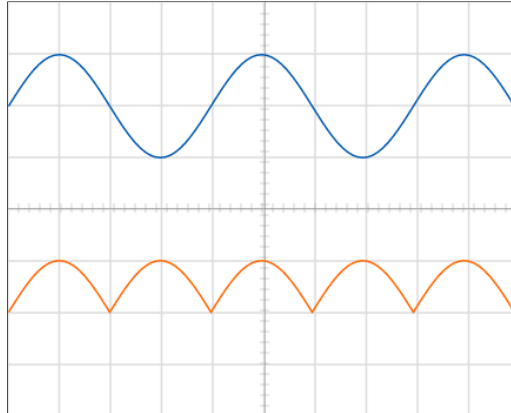# Full Wave Rectifier

INSTRUCTION

OSCILLOSCOPE

| Channel 1 | Channel 2 | Ground | Dual |

2500 Frequency(Hz) **1** Amplitude(Volt) Off

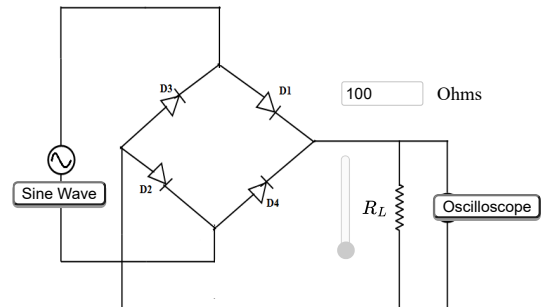## CIRCUIT

D3   D1   100   Ohms
Sine Wave   D2   D4 R_L Oscilloscope

CONTROLS

1 Volt(V)/div   **1** Volt(V)/div

Position-Y   Channel 1   Position-Y   Channel 2

Position-X   **0.1** Time(ms)/div

CALCULATION

$V_{rms} = \frac{V_m}{\sqrt{2}}$, V_m is the peak voltage

$V_{dc} = \frac{2 \times V_m}{\pi}$
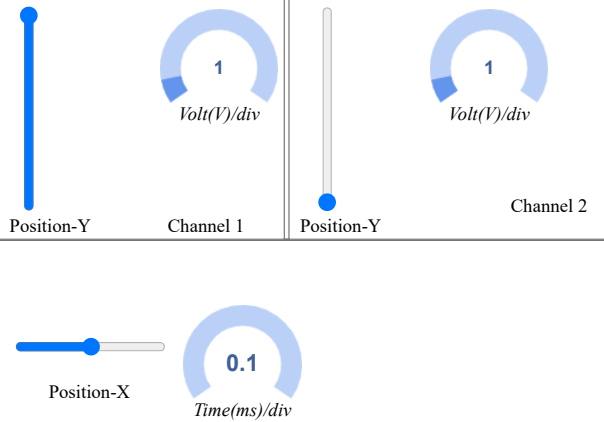
Ripple Factor=$\frac{V_{ac}}{V_{dc}}$ Since, $V_{ac} = \sqrt{(V_{rms}^2 - V_{dc}^2)}$

Peak Current: 2.9999999892691407 mA

Full Wave Rectifier
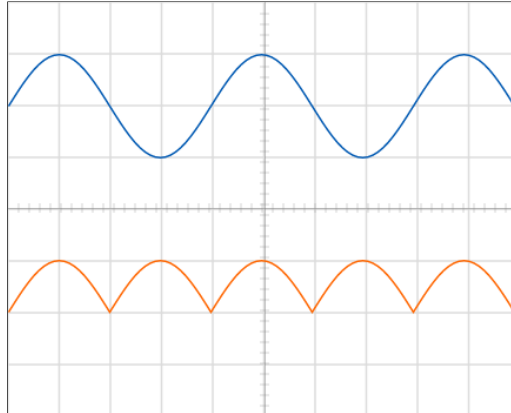
INSTRUCTION

OSCILLOSCOPE

| Channel 1 | Channel 2 | Ground | Dual |

2500
Frequency(Hz)

1
Amplitude(Volt)

CIRCUIT

Sine Wave

D1

100   Ohms

ch1

D3

ch2

1

9

3

gnd

12

6

10

D4 R_L

Oscilloscope

Off

Check connection

Delete all connection

5

11

CONTROLS

1
Volt(V)/div

1
Volt(V)/div

Position-Y   Channel 1

Position-Y   Channel 2

0.1
Time(ms)/div

Position-X

CALCULATION
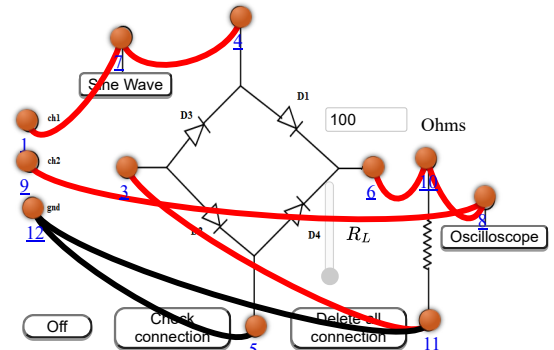
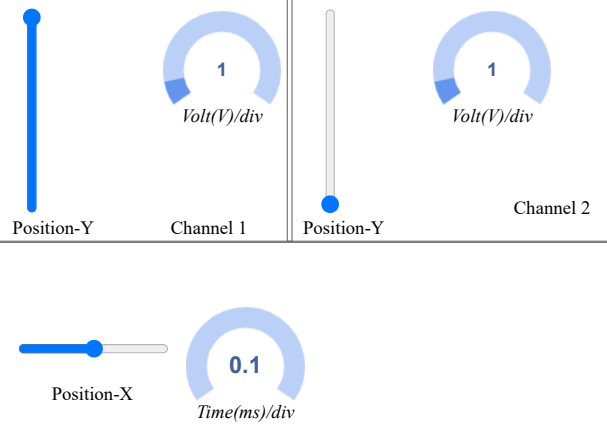$V_{rms} = \frac{V_m}{\sqrt{2}}$, V_m is the peak voltage

$V_{dc} = \frac{2 \times V_m}{\pi}$

Ripple Factor=$\frac{V_{ac}}{V_{dc}}$ Since, $V_{ac} = \sqrt{(V_{rms}^2 - V_{dc}^2)}$
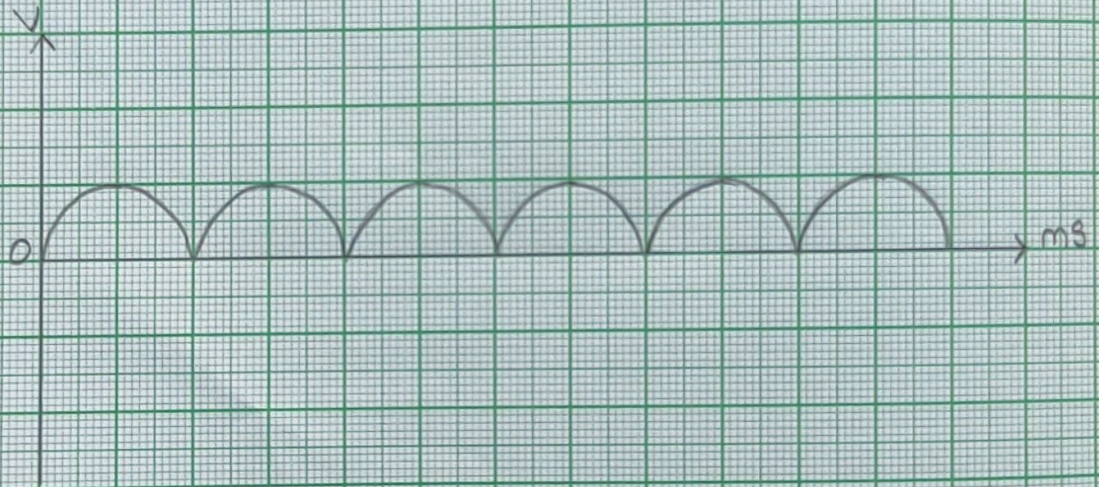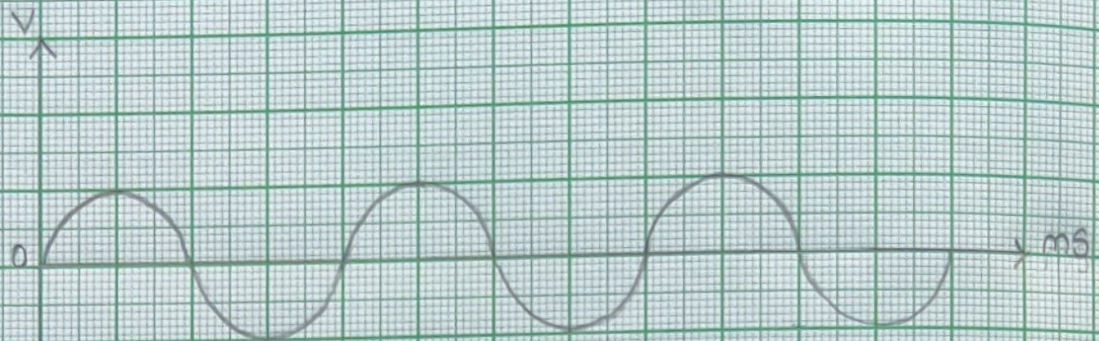
Peak Current: 2.9999999892691407   mA

Full wave Rectifier

Scale:-

X-axis:- 1 unit = 0.1 ms/div

Y-axis:- 1 unit = 1 volt/div

Full wave Rectifier

Calculation

peak voltage $(V_m) = 1V$

$$V_{rms} = \frac{V_m}{\sqrt{2}}$$

$$= \frac{1}{\sqrt{2}}$$

$$= 0.707 \text{ V}$$

$$V_{dc} = \frac{2 \times V_m}{\pi}$$

$$= \frac{2 \times 1}{\pi}$$

$$= 0.6366 \text{ V}$$

$$V_{ac} = \sqrt{(V_{rms})^2 - (V_{dc})^2}$$

$$= \sqrt{(0.707)^2 - (0.6366)^2}$$

$$= 0.3075 \text{ V}$$

$$\text{Ripple factor} = \frac{V_{ac}}{V_{dc}}$$

$$= \frac{0.3075}{0.6366}$$

$$= 0.48303.$$

Therefore, Ripple factor $= 0.4833$