

Quantifying Alternating Current

Fully describing alternating current requires the use of a number of terms.

Cycle ; A cycle is that part of a waveform that does not repeat or duplicate itself. Each cycle in Fig. is a duplicate of every other cycle in the figure.

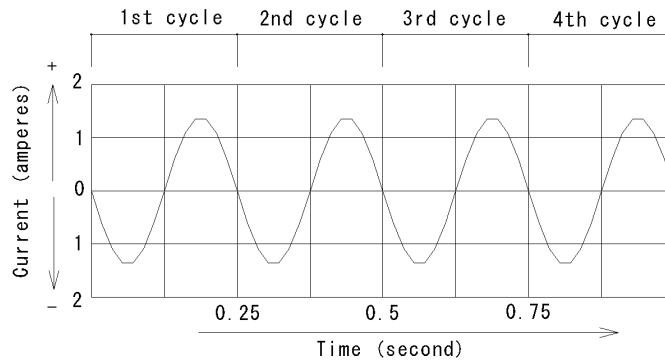


Fig.A

Period ; The time required to complete one cycle is the period (T) of a waveform. In Fig.A it takes 0.25s to complete one cycle. The period T of that waveform is 0.25s.

Frequency ; The rate at which cycles are produced is called the frequency (f) of an ac voltage. Frequency, then, refers to how rapidly the current reverses or how often the voltage changes polarity.

Unit of Frequency-The hertz ; The base unit of frequency is the hertz (Hz). One hertz is equal to one cycle per second. The sine wave in Fig.A goes through four cycles in 1s. Therefore, it has frequency f of 4 Hz.

Frequency and period are reciprocally related. That is :

$$T = \frac{1}{f} \text{ and } f = \frac{1}{T}$$

Specifying Amplitude ; The amplitude of an ac waveform can be specified in several different ways, as shown in Fig.B. These ways of specifying amplitude are appropriate for either voltage or current.

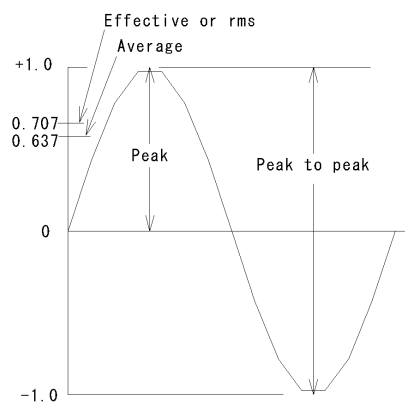


Fig.B

