



Basics:

$$v = V_m \sin{\omega t}$$

$$i = I_m \sin{\omega t}$$

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

$$\omega = 2\pi f$$

$$I_{av} = \frac{2 I_m}{\pi} = 0.637 I_m$$

$$V_{av} = \frac{2 V_m}{\pi} = 0.637 V_m$$

$$I_{rms} = \frac{I_m}{\sqrt{2}} = 0.707 I_m$$

$$V_{rms} = \frac{V_m}{\sqrt{2}} = 0.707 V_m$$

$$\text{Form factor} = \frac{\text{rms value}}{\text{average value}}$$

$$\text{Peak factor or Crest Factor} = \frac{\text{maximum value}}{\text{rms value}}$$

$$X_L = 2\pi f L = \omega L$$

$$X_C = \frac{1}{2\pi f C} = \frac{1}{\omega C}$$

v = value of alternating voltage at time t (called instantaneous value)

V_m = maximum value of alternating voltage

ω = Angular velocity of the coil

i = value of alternating current at time t (called instantaneous value)

I_m = maximum value of alternating current

ω = Angular velocity of the coil

T = Time period in second

f = frequency in Hz

ω = Angular frequency

f = frequency

I_{av} = Average value of Current

I_m = Maximum value of Current

I_{rms} = RMS value of Current

I_m = Maximum value of Current

For an alternating voltage or current varying sinusoidally, its value is 1.11

For an alternating voltage or current varying sinusoidally, its value is 1.414

X_L = Inductive Reactance

f = frequency

L = Inductance

X_C = Capacitive Reactance

f = frequency

C = Capacitance