

Inrush Current in Power Transformer

Consider a single phase 230/115V transformer as shown in Fig.1. The high voltage side of the transformer is connected to a 230V, 50Hz single phase supply through switch, S and is open circuited at the low voltage side.

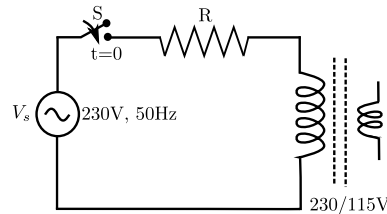


Figure 1: Single phase transformer

Close the switch S at time, $t=0$

- Capture the current magnitude versus time using a storage oscilloscope. How does the current transient differ for different instants of switching?
- Is the current of the form $i = Ae^{-\frac{t}{\tau}} + B \sin(\omega t - \theta - \phi)$? Or do you note any harmonics in the alternating component of the current? If yes, why is it so?