

A Review on Design Parameters and Testing of Transformer

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Abstract: Transformers are used to change AC voltage levels as well as to provide galvanic isolation between circuits. Single-phase and three-phase transformers are extensively employed in the world's power distribution system. This paper considers the design of single-phase power transformers. It reviews the classic transformer T-equivalent circuit and considers its use in steady-state phasor analysis. The chapter focuses on single-phase transformers. Single-phase transformers are often classified as being either core-type or shell-type. The chapter discusses transformer performance considerations such as the calculation of transformer parameters, regulation, magnetizing current, operating point analysis, and inrush current, all in general terms. It also focuses on one specific class of transformer, develops a magnetic equivalent circuit, and ultimately develops a design approach. Core loss is a significant contributor to overall transformer loss and dominates no-load losses.

Keywords: power transformers, transformer cores.

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