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Смотреть больше

Comparison of the Active Parts of Single-Phase Transformers with Twisted and Laminated Magnetic Circuits

Sadovoy, Oleksiy[a]; Avdieieva, Elena[b]; Vakhonina, Larisa[a]; Shebanin, Vyacheslav[a]
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Краткое описание
Ключевые слова автора
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Темы SciVal
Параметры

Краткое описание

A numerical comparative analysis of indicators of the technical level of planar rod, armored and spatial armored electromagnetic systems with twisted and laminated magnetic circuits was carried out. To determine the advantages and justify the choice of the design of a single-phase transformer, a universal method of objective functions for optimizing electromagnetic systems with dimensionless indicators of the technical level and relative controlled variables was used. When determining the objective functions based on the condition of electromagnetic equivalence, the materials used, the amplitudes of the magnetic field in the rods and current density of the windings, the average values of yokes, as well as the design and cooling methods of electromagnetic static devices were taken to be the same. It was determined that twisted electromagnetic systems are the best according to the criterion of minimum mass of active materials in comparison with laminated ones. © 2021 IEEE.

Ключевые слова автора

comparative analysis; laminated; magnetic circuit; optimization; planar; single-phase transformer; spatial; twisted

Включенные в указатель ключевые слова

Engineering controlled terms
Functions; Laminating; Magnetism; Timing circuits

Engineering uncontrolled terms
Comparative analyzes; Electromagnetic systems; Laminated; Objective functions; Optimisations; Planar; Single-phase transformers; Spatial; Technical levels; Twisted

Engineering main heading
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Название темы	High Frequency Transformers; Power Inductors; Power Electronics
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