

Inductance of Perfectly Conducting Foils Including Spiral Inductors

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A numerical method for calculating the lumped inductance parameters of perfectly conducting foils (i.e., current sheets) is presented. A quasi-static analysis is described for computing the inductance for foils arbitrarily shaped in three dimensions. The vector current distribution on the structure is solved for in terms of a scalar current potential function. The method of moments is utilized to solve the integral equation. Numerical results are also presented. The strength of this technique is that a bound on the numerical accuracy can be provided. The relative error not only provides a self-consistency check but also provides the accuracy with which the numerical values have been computed.

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