

What is the design structure of a planar inductor?

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What are planar spiral inductors?

Planar spiral inductors are extensively used in the design of various compact devices. Figure 2. Constructed planar spiral inductors with the four conventional shapes: (a) square; (b) hexagonal; (c) octagonal; and (d) circular shapes. Table 2.

What is a geometric shape of a planar spiral inductor?

In this article, a new geometric shape is designed by combining the square and the circle to create an oval shape of a planar spiral inductor. Inductors with this new shape are designed, numerically modelled, and practically constructed for experimental testing.

What is the design structure of a planar inductor?

Design structure of the planar inductor. The planar inductor consists of a multi-turn planar copper spiral on a CCL substrate with the via-filled and the top and bottom screen-printed iron-based alloy-epoxy resin pastes. To achieve miniaturization, CCL substrates were used as the substrates.

What is a passive spiral inductor?

The passive spiral inductor can be realized in different structure like square, circular, hexagonal, and octagonal with multiturns. The multi-turn inductors are used for higher inductance value design. The spiral inductor is a two port multiturn planar inductor with multiple dielectric layers.

What are the different types of spiral inductors?

Until a few years ago, the most used shapes for planar spiral inductors were square, hexagonal, octagonal, and circular. Formulas for extracting spiral inductor parameters and software programs were developed by the authors in [22,23], but only for these four conventional shapes shown in Figure 1. Figure 1.

What is oval spiral inductor?

The new oval spiral inductor design will be very useful for constructing wireless power transfer systems for pacemakers, smartphones, smartwatches, and/or any other type of smart device. 1. Introduction

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Graphene has attracted extensive interest in the fields of electronics, sensors, composite materials and biological applications due to its excellent properties. In this paper, we ...

Spiral planar solar container inductor

While precious studies on substrate coupling focused mostly on noise induced through drain-bulk capacitance, substrate coupling from planar spiral inductors at radiofrequency (RF) via the oxide ...

Fig. 15 shows a cross section of the integrated planar spiral inductor showing heat flow from a heat source. The temperature difference between inside and outside is composed of heat conduction and ...

This study investigates through simulations whether planar air-core inductors can yield the required properties to support sub-module power conversion. The simulated inductors have an ...

This paper presents a comparative study between different planar inductors that is suitable for power converter applications. Basically there are four types of planar inductors such as ...

This chapter provides a comprehensive review of the existing information|knowledge of planar spiral inductors, embedded planar transformers, and planar (patch) antennas. The review ...

Sample Project - Silicon Spiral Inductor Sample Project - Silicon Spiral Inductor In this project, we will use HFSS to create, simulate, and analyze a 2.5 turn spiral inductor. Figure 1. Spiral Inductor This ...

This thesis aims to investigate the feasibility of implementing planar inductors into c-Si solar cells using the numerical simulation software COMSOL Multiphysics®;. Through simulations, the inductance and ...

Abstract In this paper, a simplified method for the calculation of a mutual inductance of the planar spiral coil, motivated from the Archimedean spiral, is presented. This method is derived by solving ...

Planar spiral coils are used as inductors in radio frequency (RF) microelectronic integrated circuits (IC's) and as antennas in both 13.56 MHz radio frequency identification (RFID) and telemetry systems. ...

Planar spiral inductors have become essential elements of communication circuit Much research has focused on the design, modeling, and optimization of spiral inductors on silicon substrate[2 8] .

Use the spiralInductor object to create a spiral inductor in one of four different shapes: square, circle, hexagon, or octagon. The spiral inductor is a two-port ...

Abstract-The finite difference method in the time domain (FDTD) is applied to simulate a planar spiral inductor. A full wave analysis explains the current-crowding effect along with the multi-turn trace, ...

We present several new simple and accurate expressions for the DC inductance of square, hexagonal, octagonal, and circular spiral inductors. We evaluate the accuracy of our expressions, as well as ...

In this work consider RT/Duriod substrate material and planar microstrip line to design square spiral inductor. In this paper we propose design of square spiral inductor using simple ...

The key information gleaned from planar spiral inductor analysis is applied to examine coplanar or vertically stacked planar spiral inductors that form an on-chip embedded planar spiral inductor ...

Abstract: - Planar inductors made on a printed circuit boards are rather commonly employed today and there are various software applications to help the designer with their proposal. In this paper we ...

The hexagonal planar spiral inductor on a lossy substrate, based on the Mohan Wheeler scheme, has very similar performance characteristics as that of the square|rectangular ...

This example shows you how to design, visualize, and analyze different types of spiral inductors. The modern wireless communication system requires low cost, ...

This article presents a planar circular spiral inductor introducing an optimum compensatory ground capacitance to improve its quality factor and self-resonance

We present several new simple and accurate expressions for the DC inductance of square, hexagonal, octagonal, and circular spiral inductors. We evaluate the ...

This article presents a planar circular spiral inductor introducing an optimum compensatory ground capacitance to improve its quality factor and self-resonance frequency (SRF). ...

The planar inductor consists of a multi-turn planar copper spiral on a CCL substrate with the via-filled and the top and bottom screen-printed iron-based alloy-epoxy resin pastes.

Initially we choose the geometry of the planar spiral inductor which gives the highest inductance value; and by using the software FEMLAB3.1 we also simulate the electromagnetic effects ...

Summary of Single layer Planar spiral coil inductor calculator The article discusses three accurate and simple approximations for calculating the ...

The performance of CMOS RFICs such as voltage controlled oscillators (VCOs), low noise amplifiers (LNAs), passive element filters, etc., are well determined by the quality of inductors. For example, the ...

SPIRAL INDUCTORS VS. WOUND INDUCTORS Spiral inductors generally have somewhat lower Q and SRF compared to wound inductors, but are manufactured with processes which makes them ...

This paper is a synthesis of work encompassing simulation and experimental results aimed at designing, manufacturing and characterizing various fixed and variable width circular and ...

More about flat spiral air core inductors A flat spiral coil is a type of an air core inductor usually incorporated

in the primary of a tesla generator, RFID tag, and ...

In article [9], we designed and constructed a wireless power supply system for small devices, such as pacemakers, using planar spiral ...

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