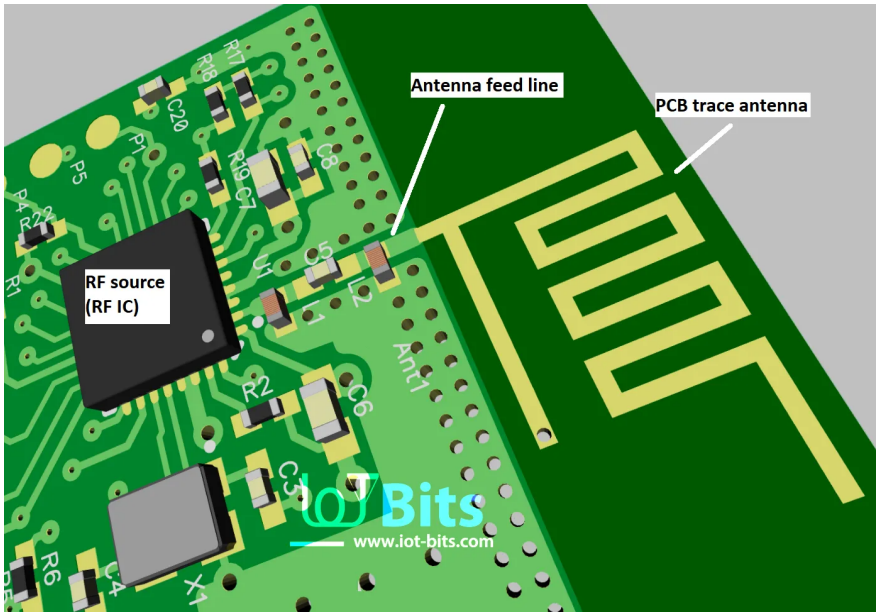
Rf Pcb Design Tutorial

Written By voice — Wednesday, December 31, 1969 — Add Comment

1 surely use a multilayer pcb. Youve done your homework and you are now prepared to layout your rf pcb design.



Part 1 Designing A Wifi Pcb Trace Antenna For Esp8266 Or Esp32

At very high frequencies every trace and pin is an rf emitter and receiver.

Rf pcb design tutorial. Making your own rf remote control using ht12e and ht12d encoder decoder chips with 43mhz transmitter and receiver. Diy making of rf remote with pcb design. Pcbs layout guidelines for rf mixed signal.

If you have never tried out rf pcb layout before and you do not have access to proper tools for simulating your design in 3d the best you can do is pick components that have a characteristic impedance of 50 ohms on rf ports. If your pcb design includes only two layer the top layer should include the power stage rf signal lines and rf components. The

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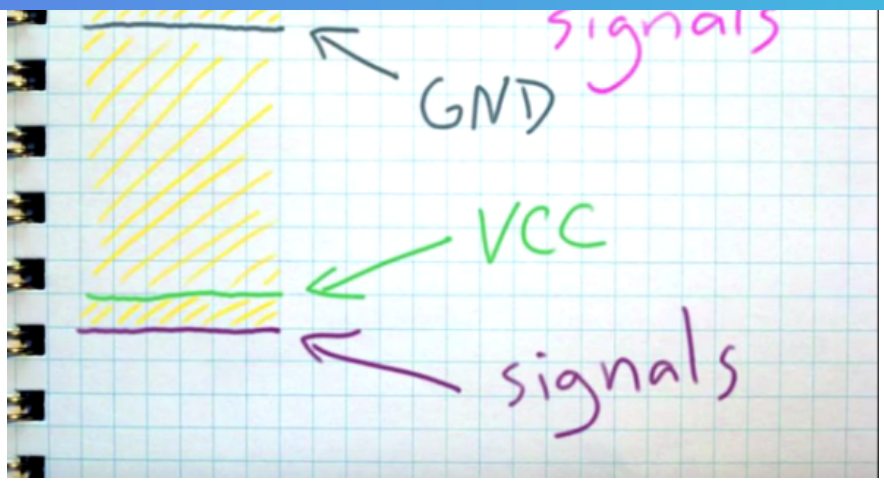


material provides best practices guidance and should be used in conjunction.

Nothing fancy in it these are quite common and you might have come across in many rf tutorials and circuits. You still need the best tools that you can get to be successful however and fortunately altium designer has everything you need for the job. Diy making of rf remote with pcb design.

2 the length of the lines that carry rfmicrowave signals is a very important issue. This application note provides guidelines and suggestions for rf printed circuit board pcb design and layout including some discussion of mixed signal applications. Tutorial 5100 general layout guidelines for rf and mixed signal pcbs by.

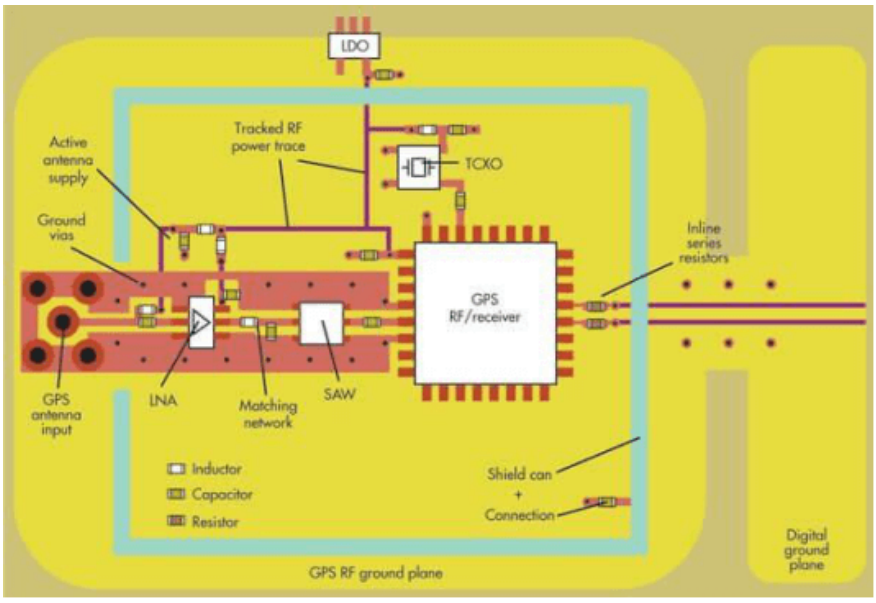
Powerful tools make for the best rf pcb design software. If careful design practices are not followed the unwanted signals can easily mask those a designer is trying to handle. The material provides best practices guidance and.

There are list of problems you. Pcb antennas little extra cost pcb size demanding at low frequencies good performance possible complicated to make good designs. Michael bailey sep 14 2011 abstract.

Then the bottom layer must be the ground plane. They should be at most 120 length of the wavelength. This application note provides guidelines and suggestions for rf

The trace impedance on your pcb that carries rf signals can also be made 50 ohms by adjusting its width appropriately. Rf basics rf for non rf engineers dag grini program manager low power wireless. 5 rf microwave design basicsrf and microwave layout encompasses the design of analog based circuits in the range of hundreds of megahertz mhz to many gigahertz ghzrf actually in the 500 mhz 2 ghz band.

Design above 100 mhz considered rf.



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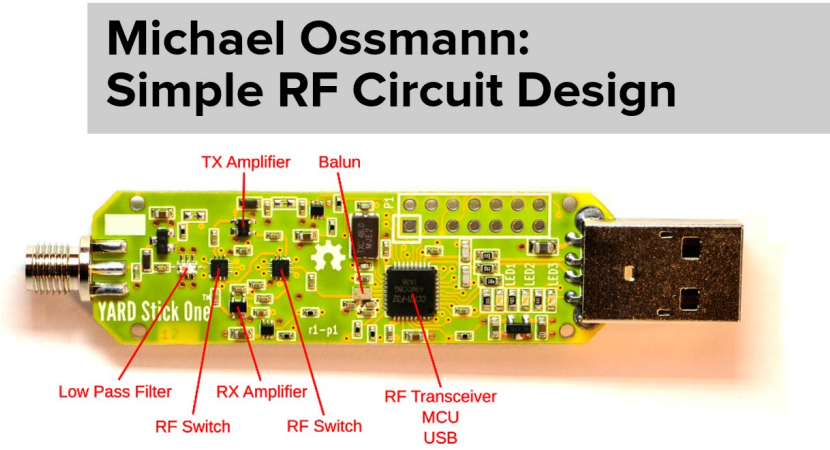

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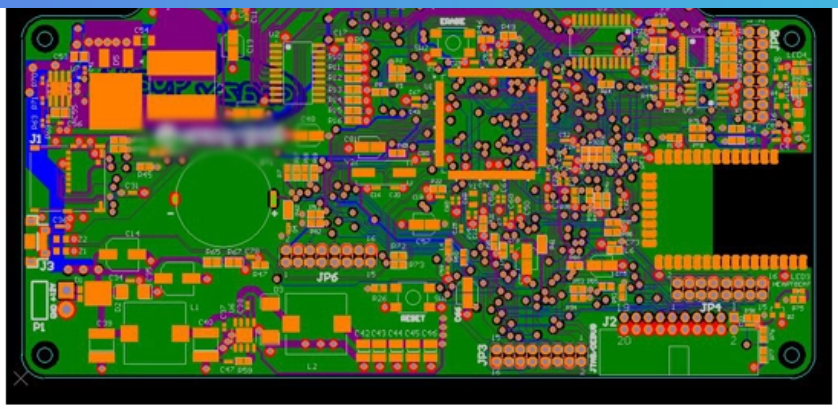

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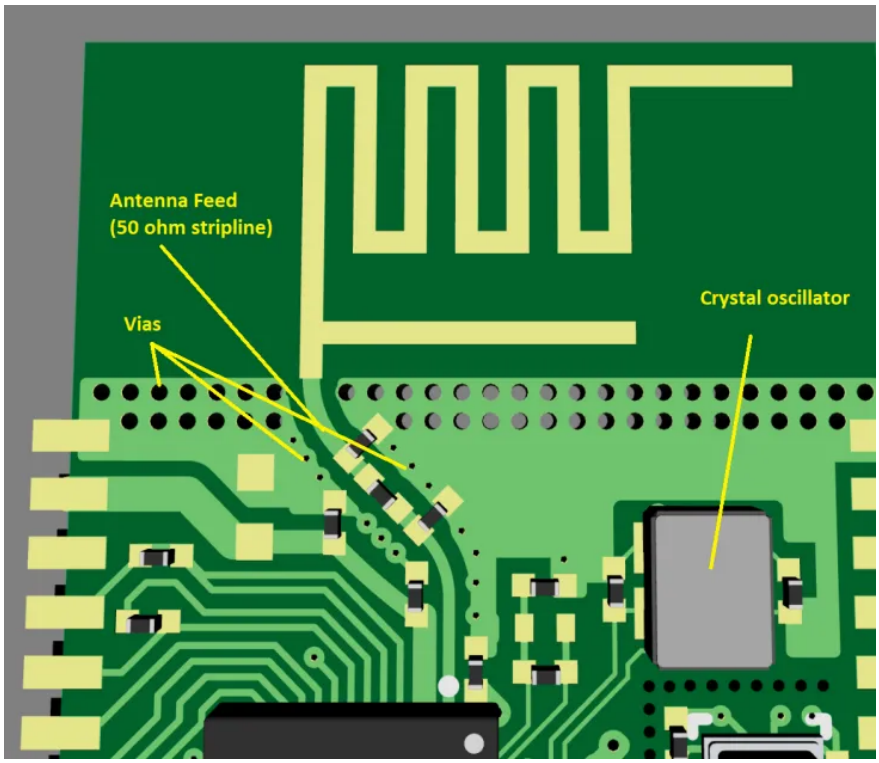

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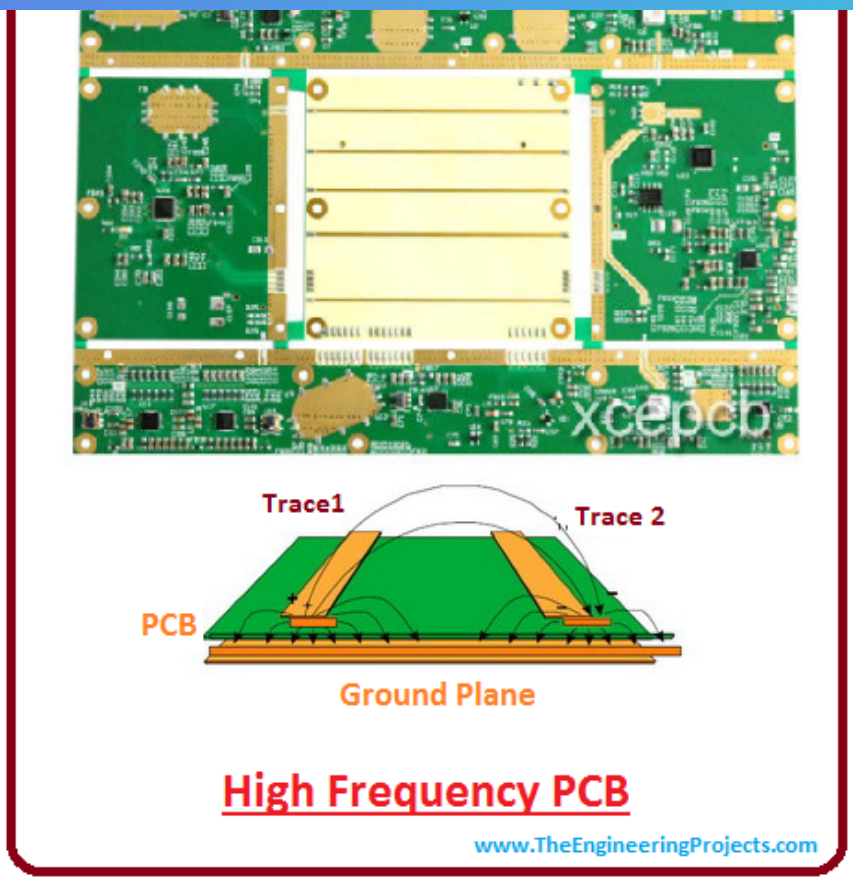

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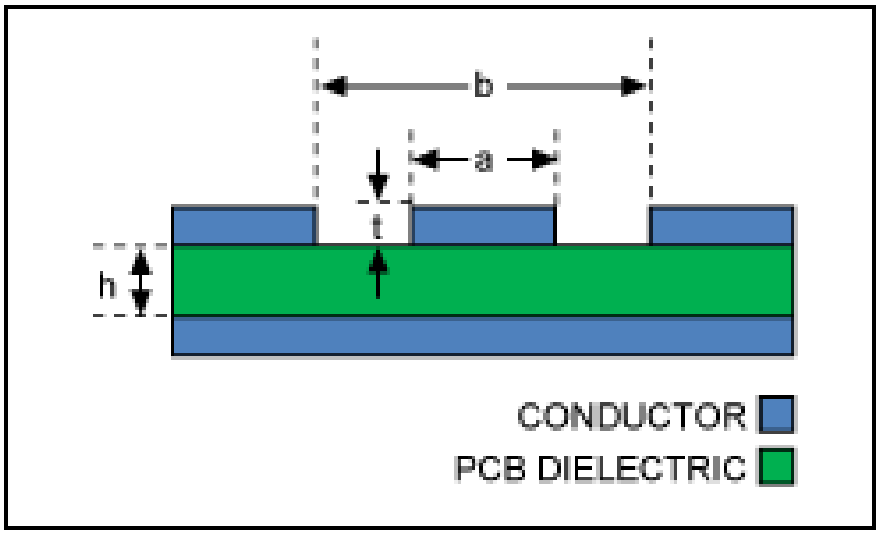

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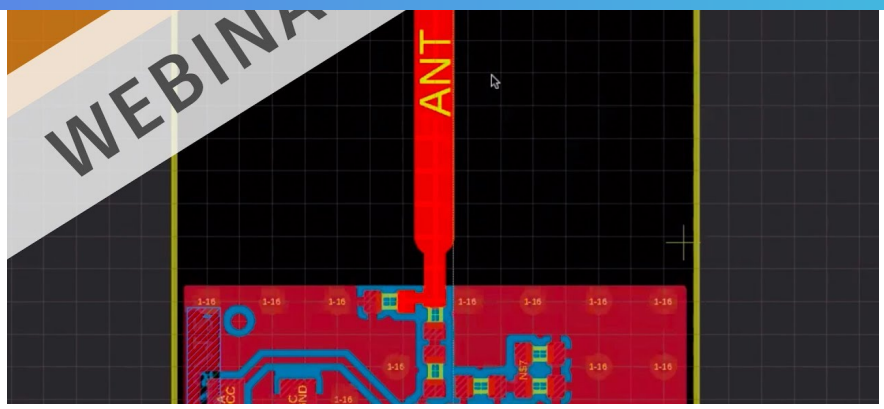

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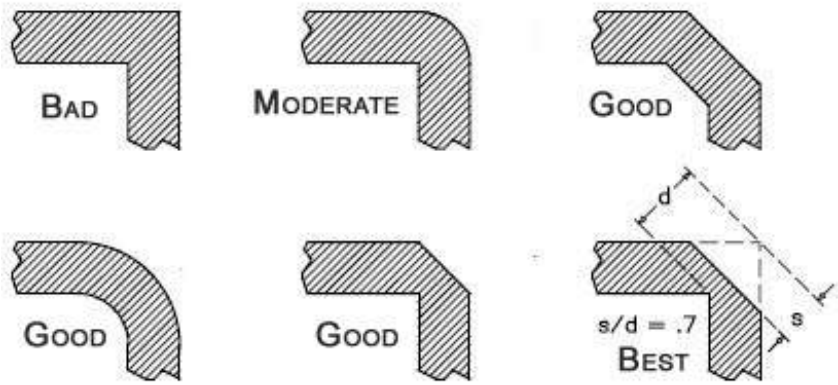

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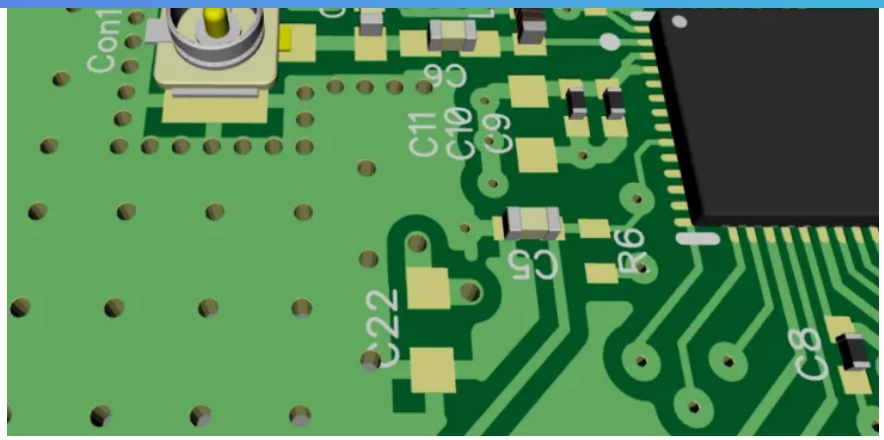

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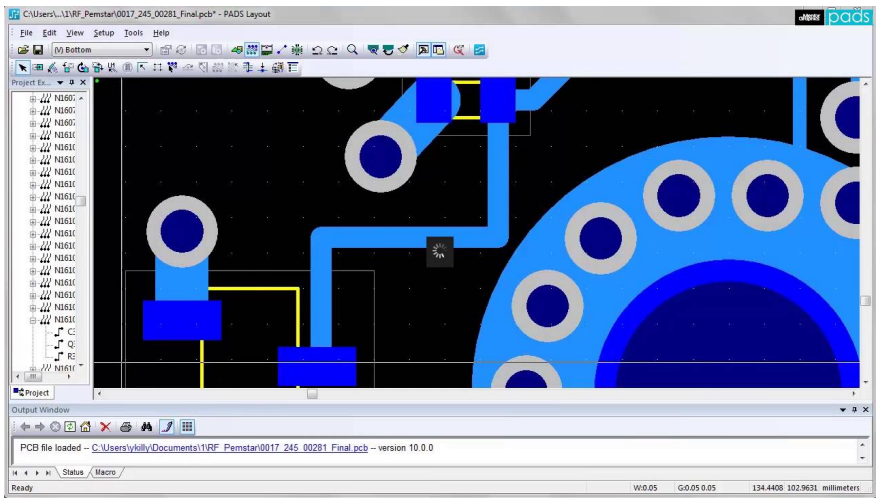

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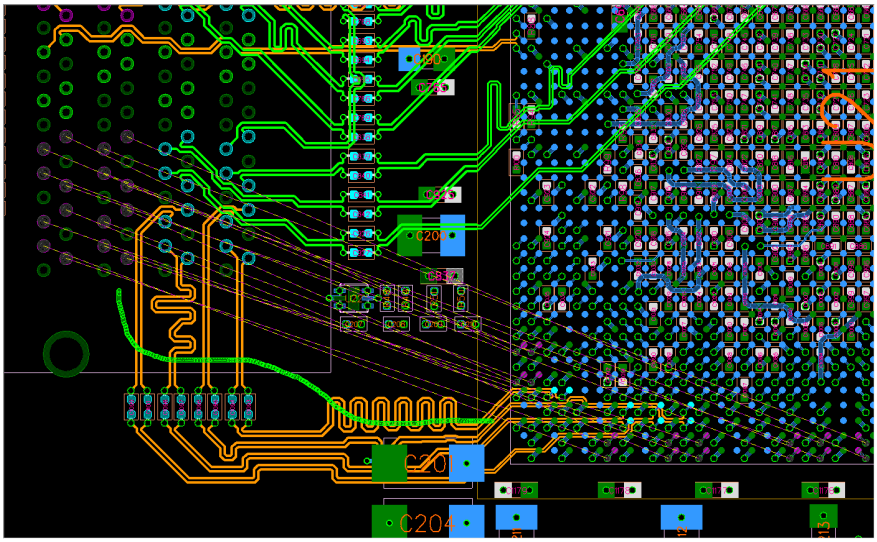

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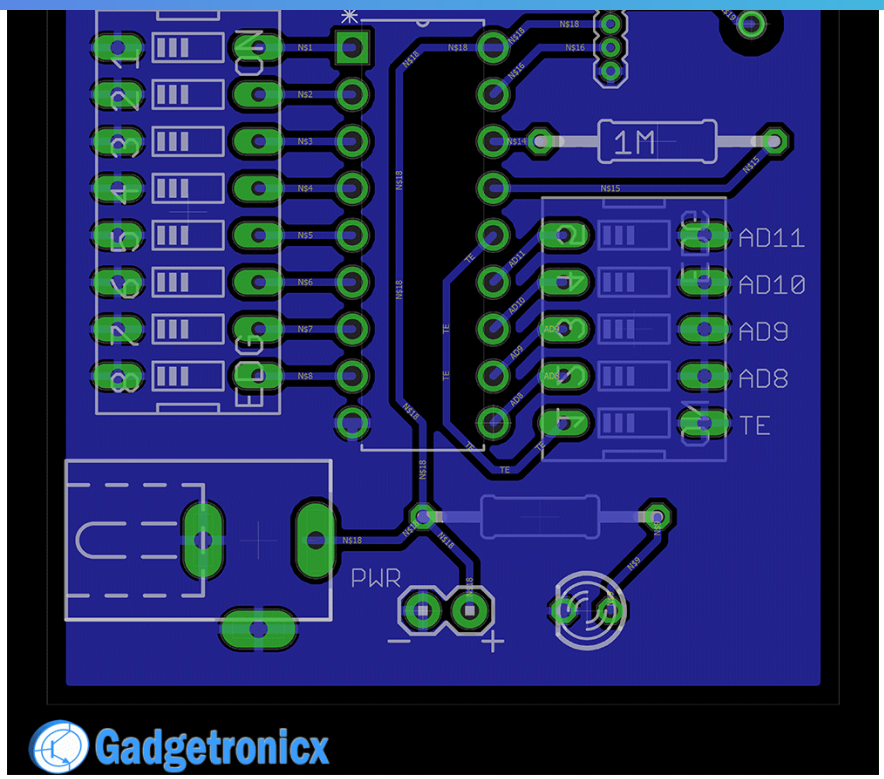

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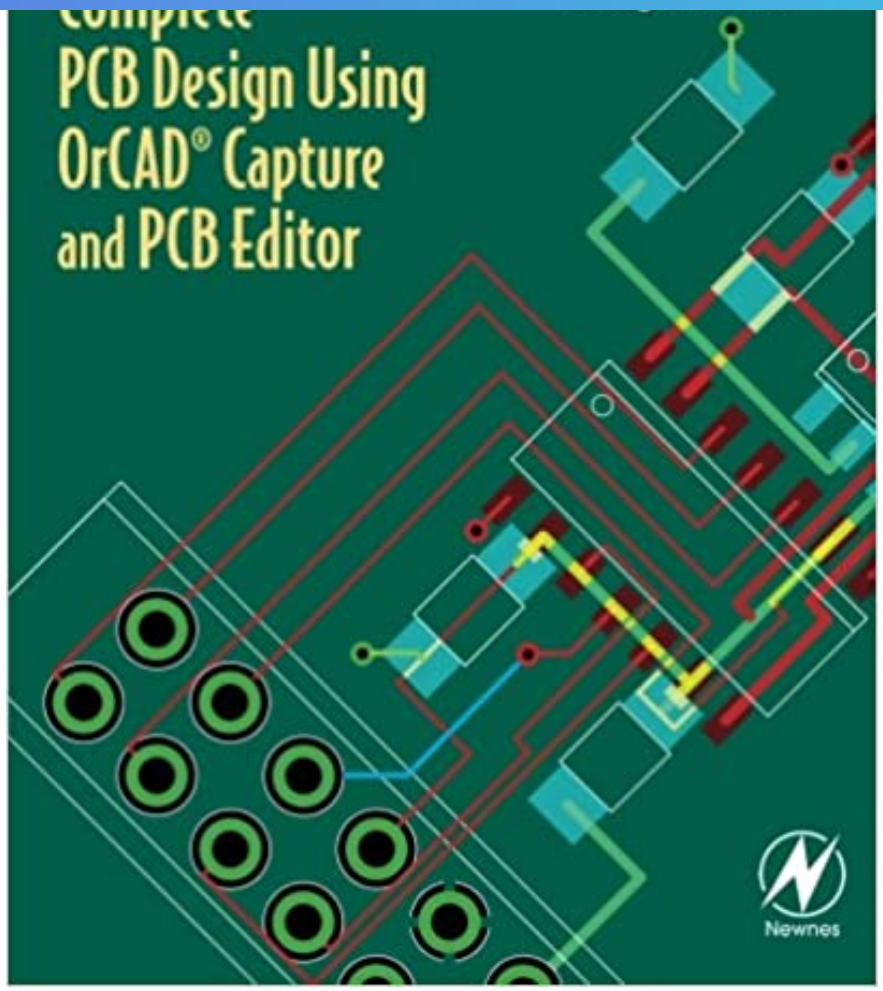

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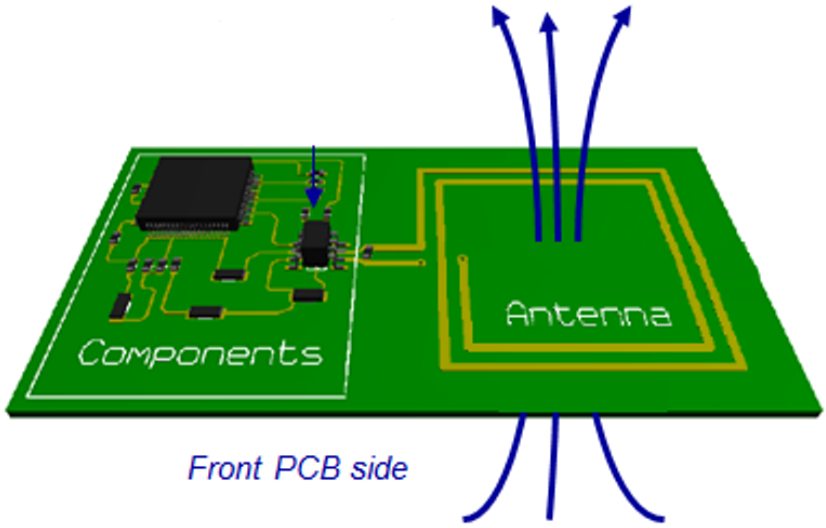

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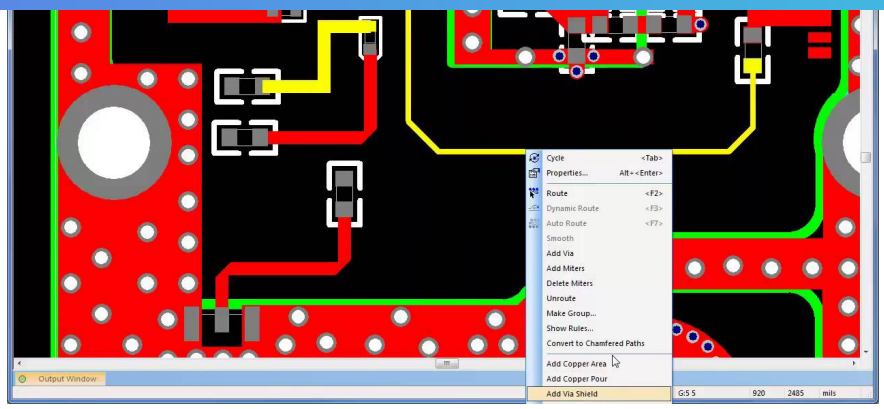

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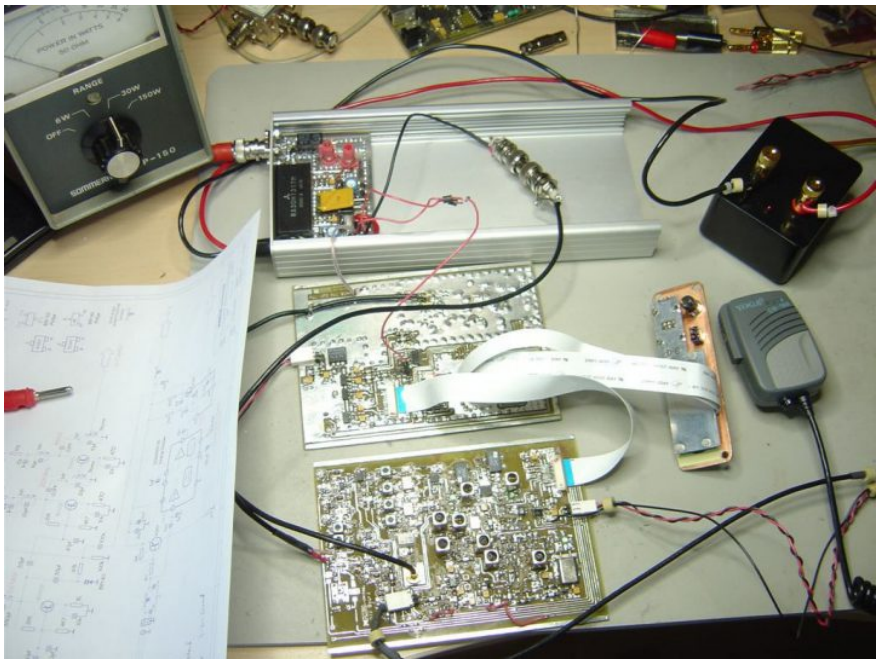

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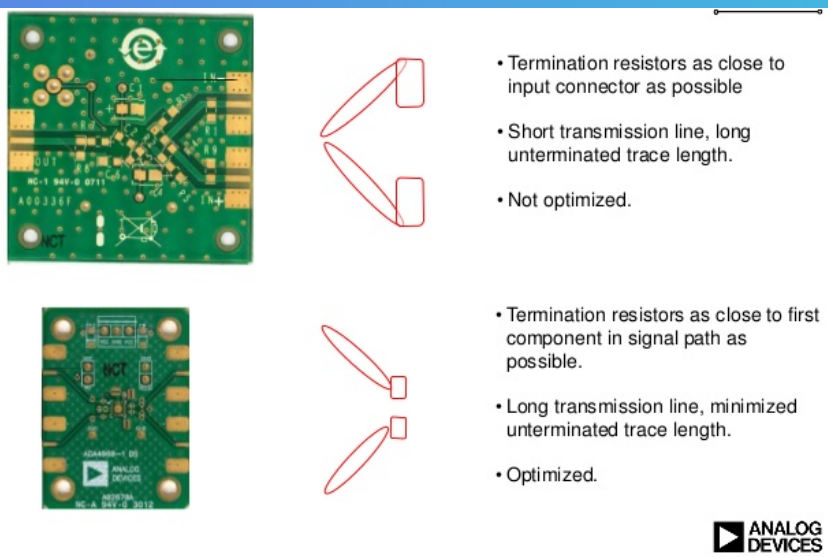

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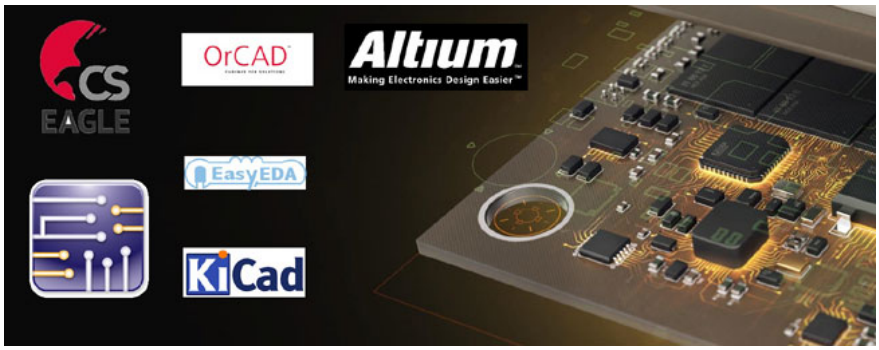

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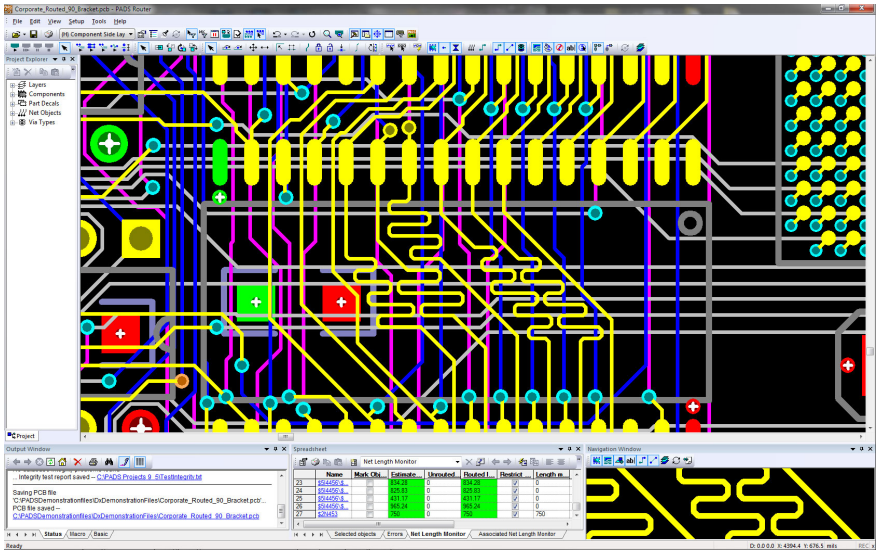

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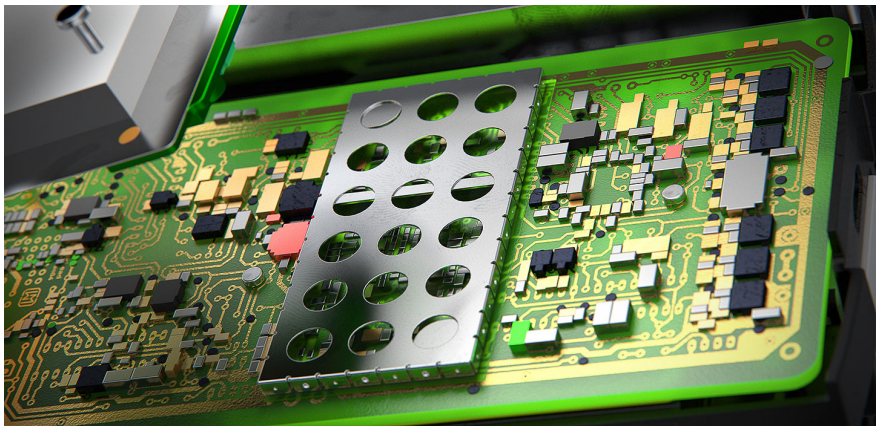

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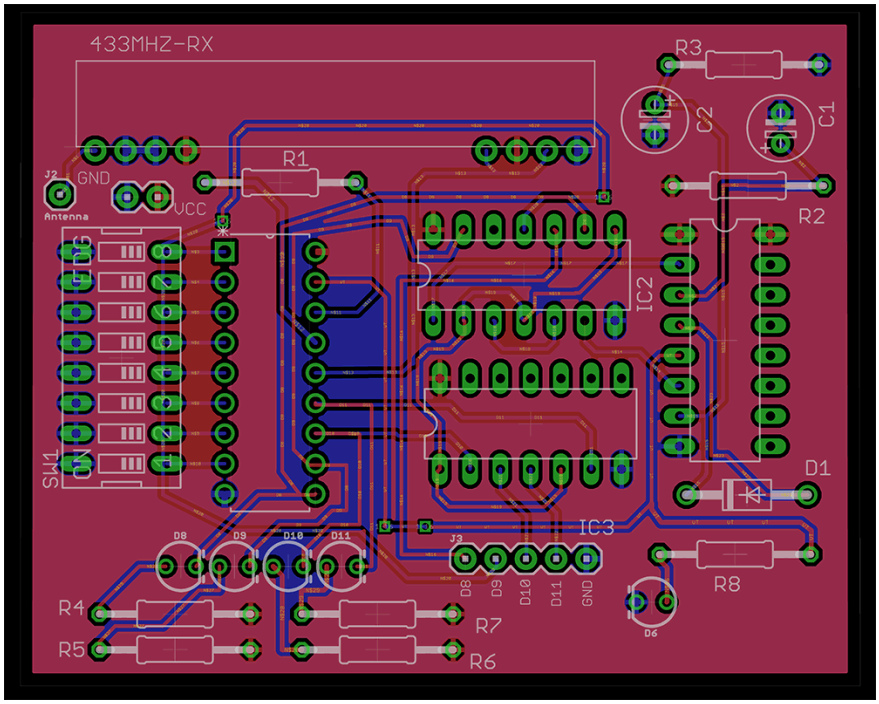

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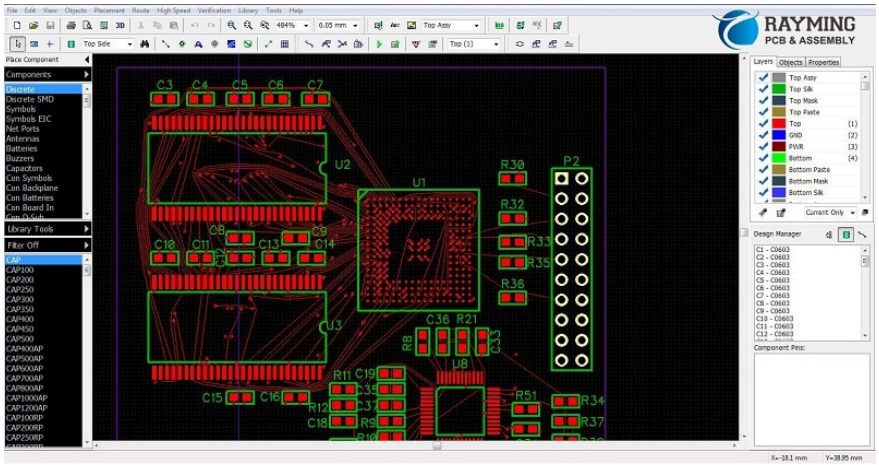

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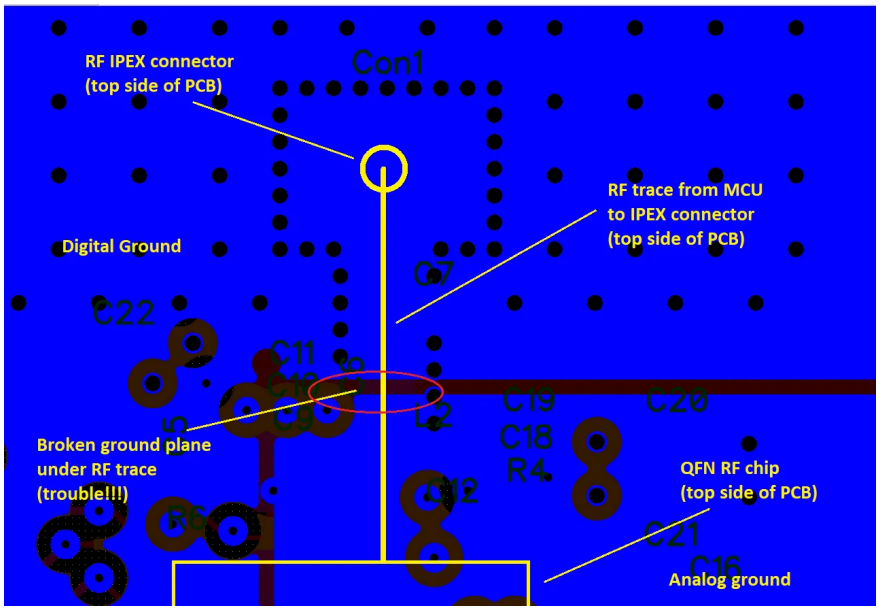

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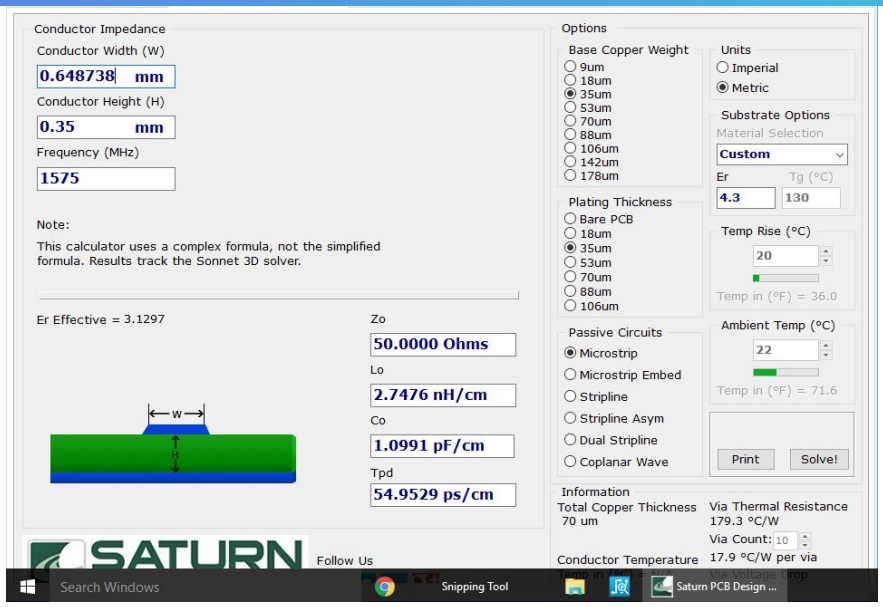

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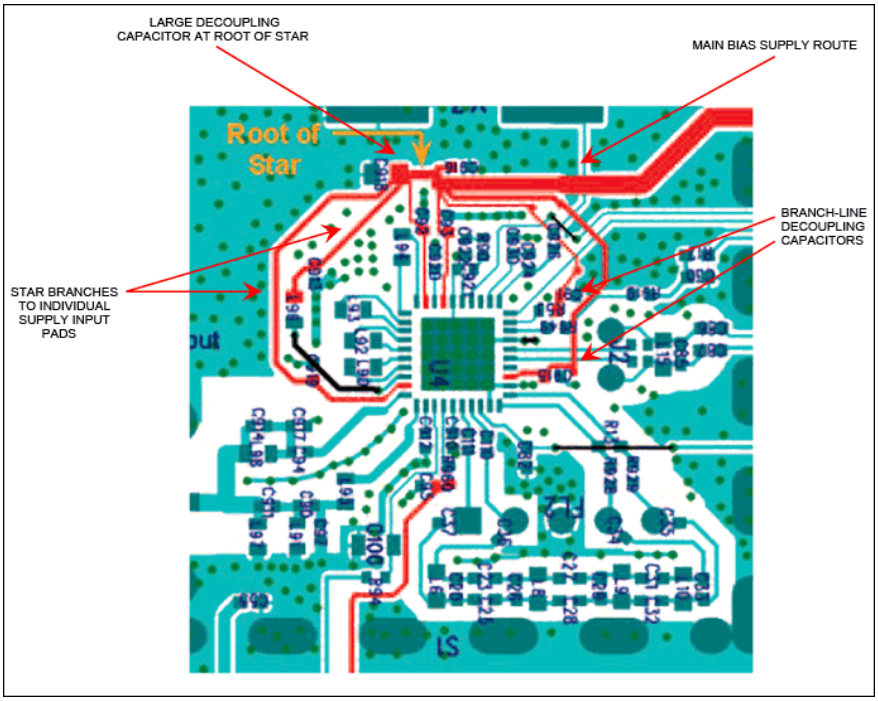

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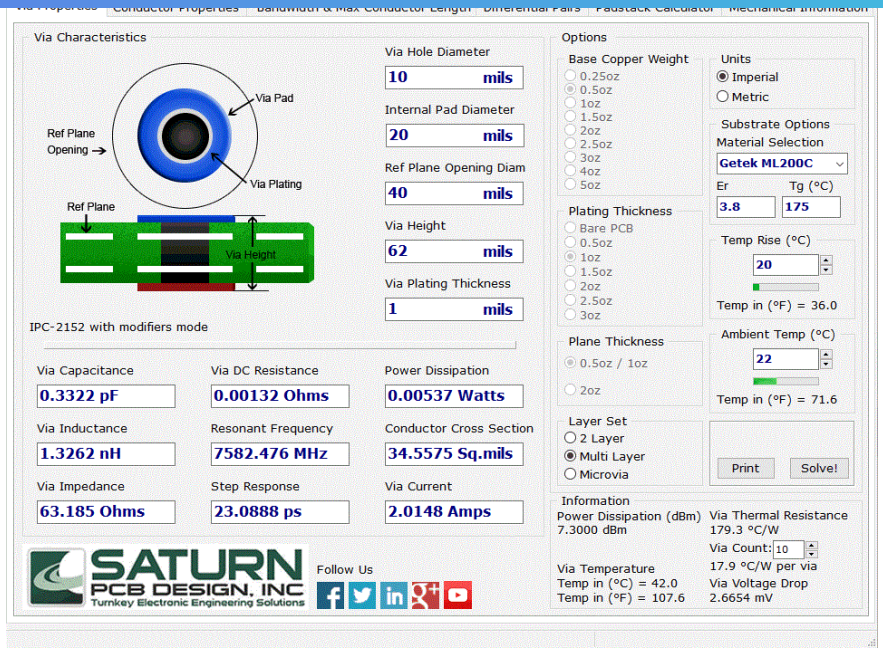

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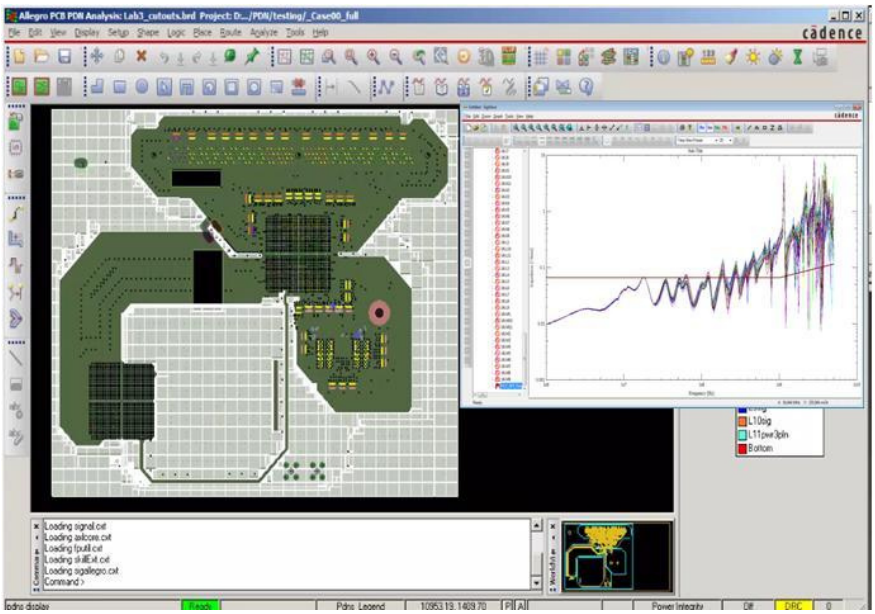

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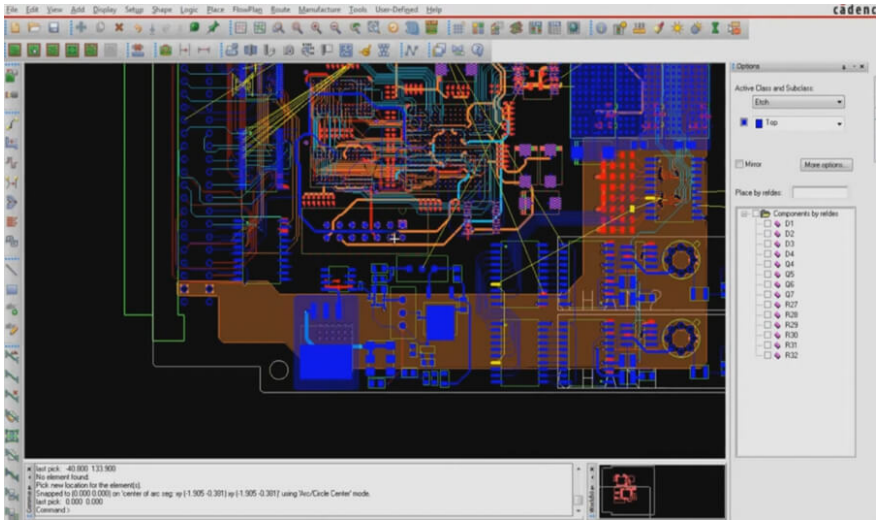

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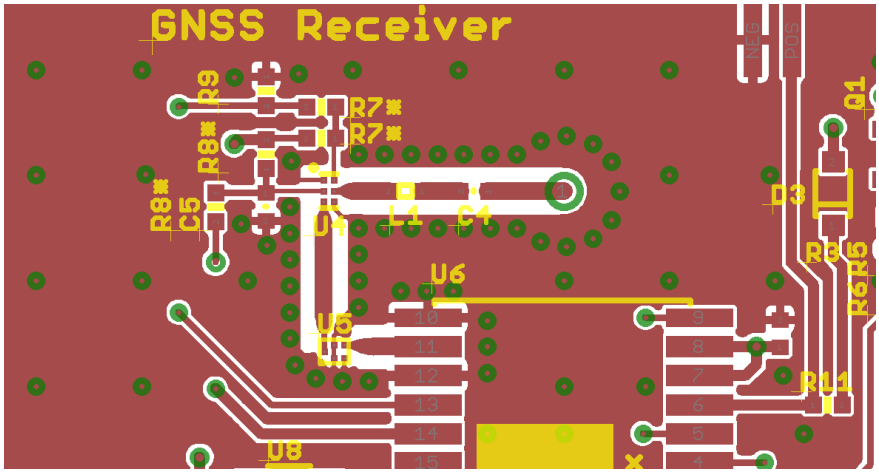

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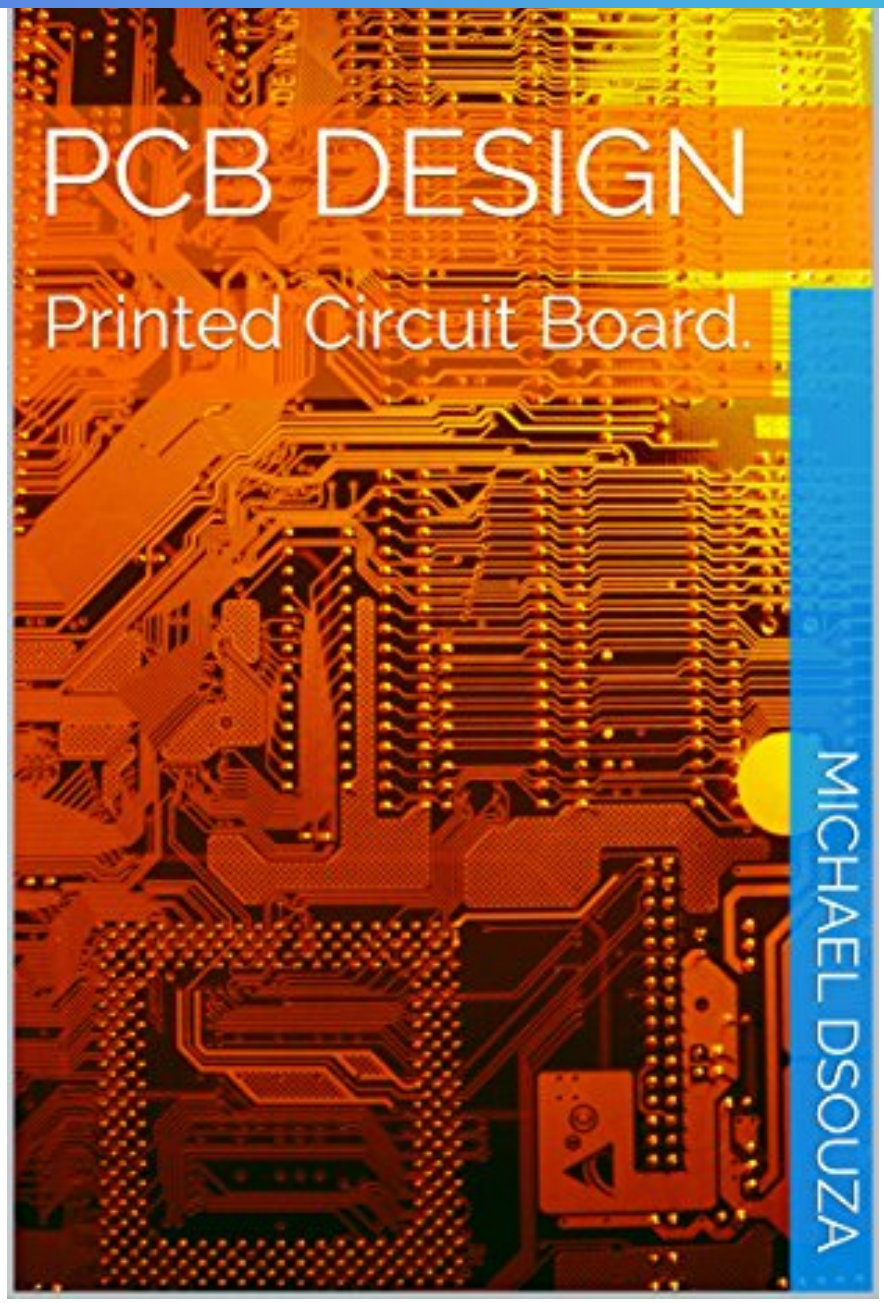

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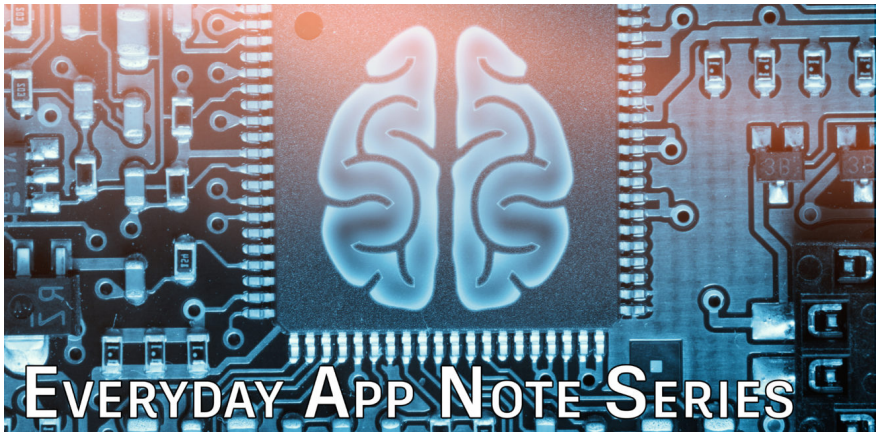

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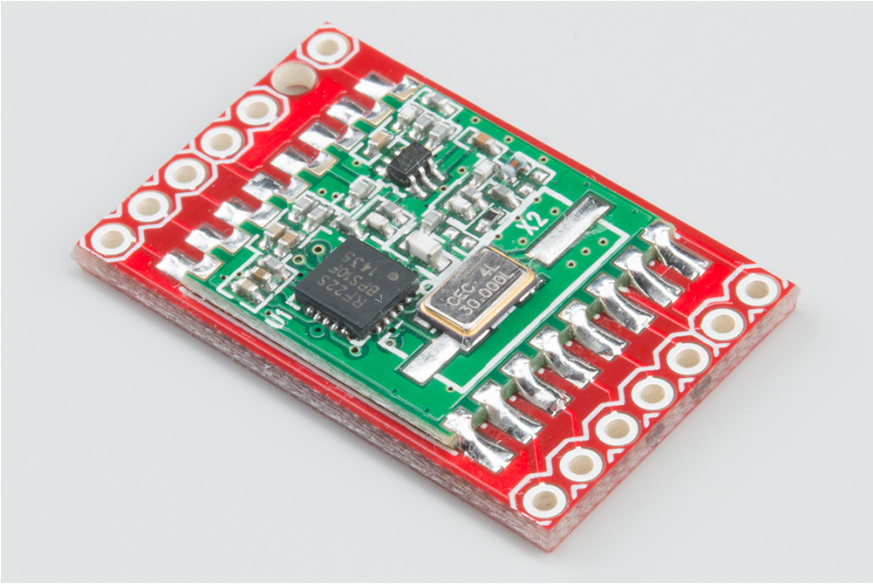

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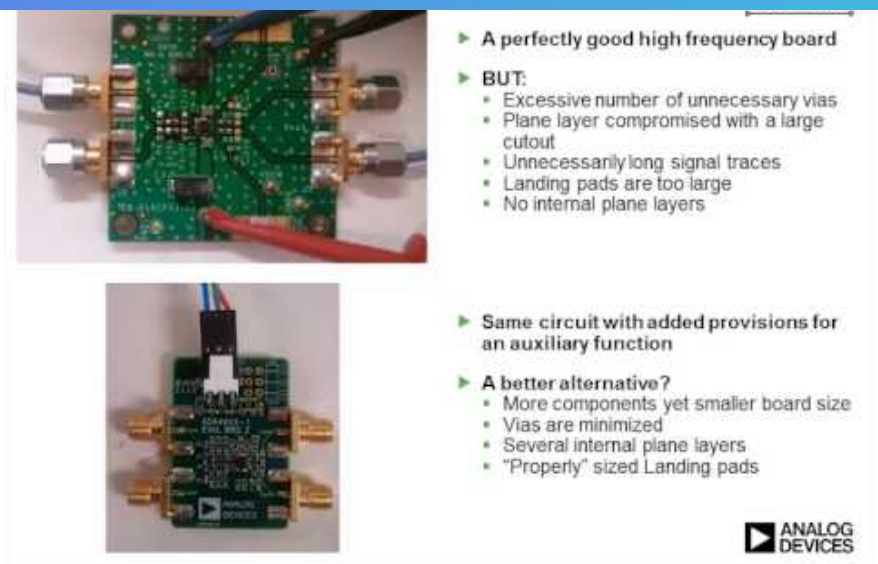

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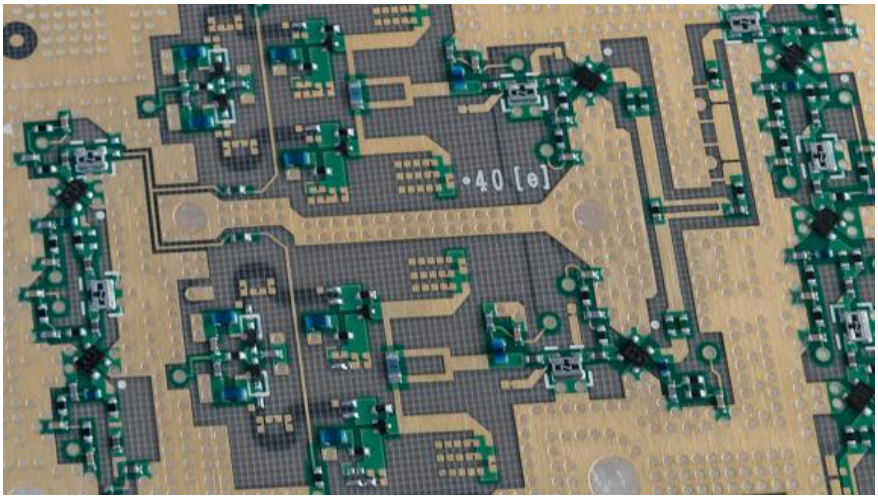

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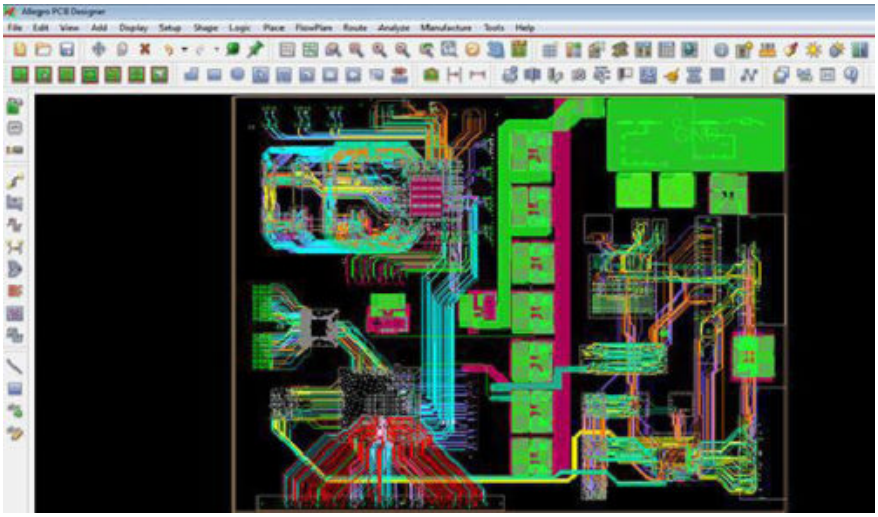

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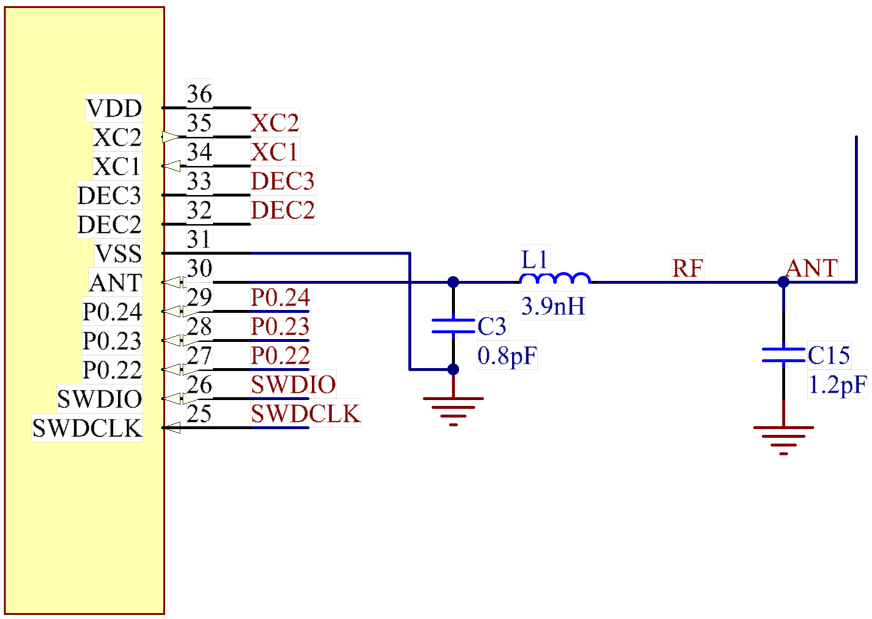

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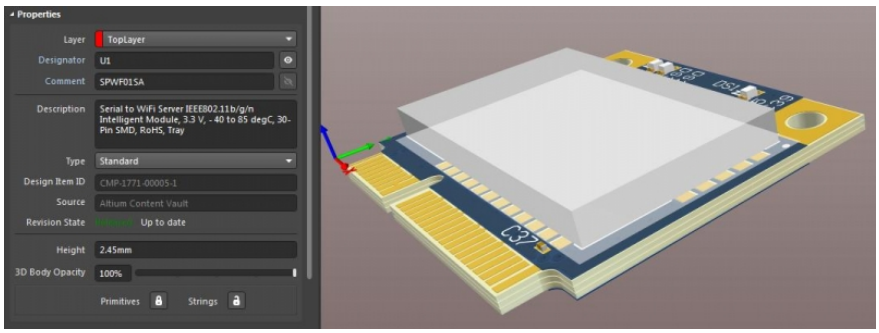

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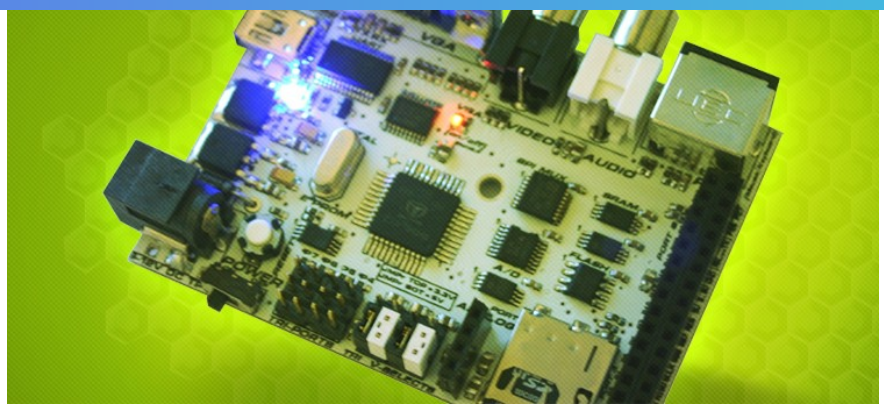

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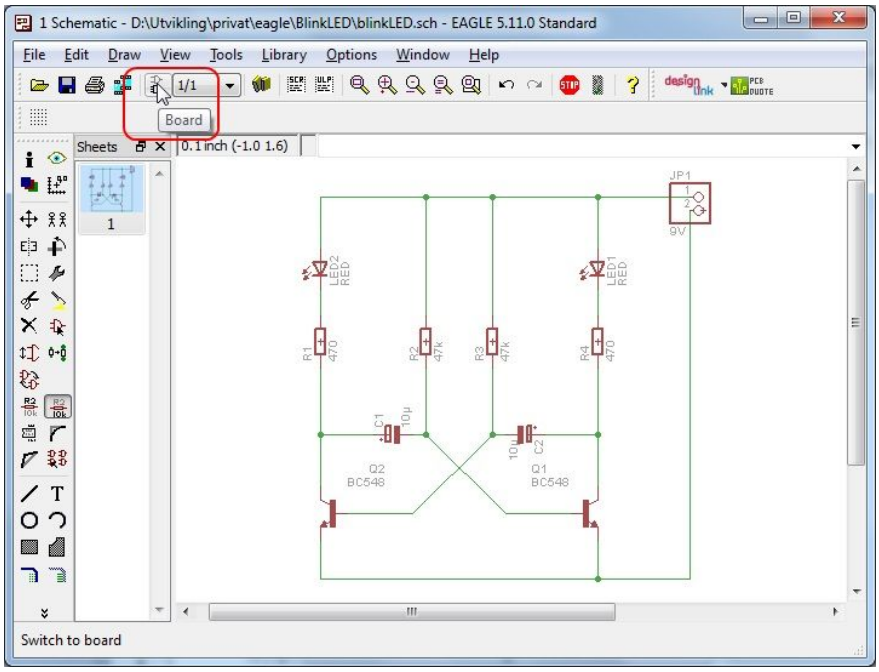

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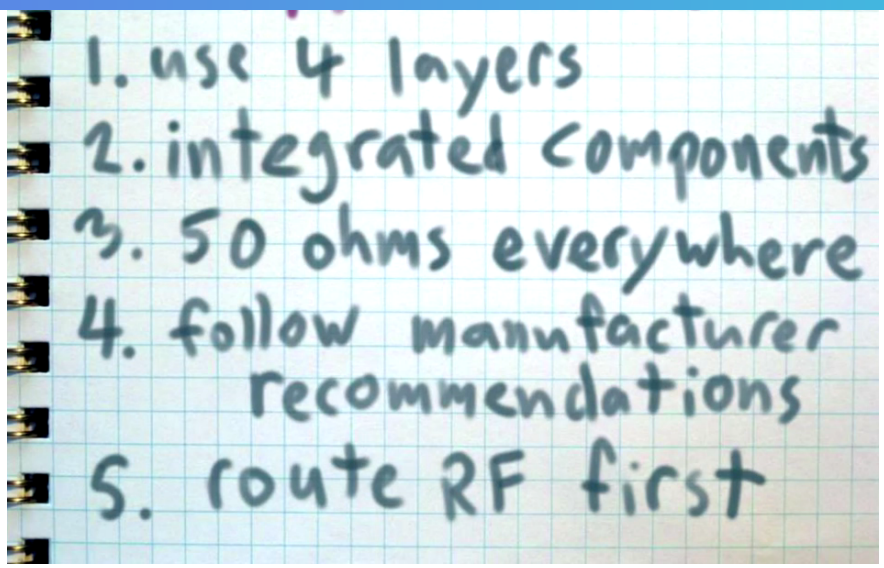

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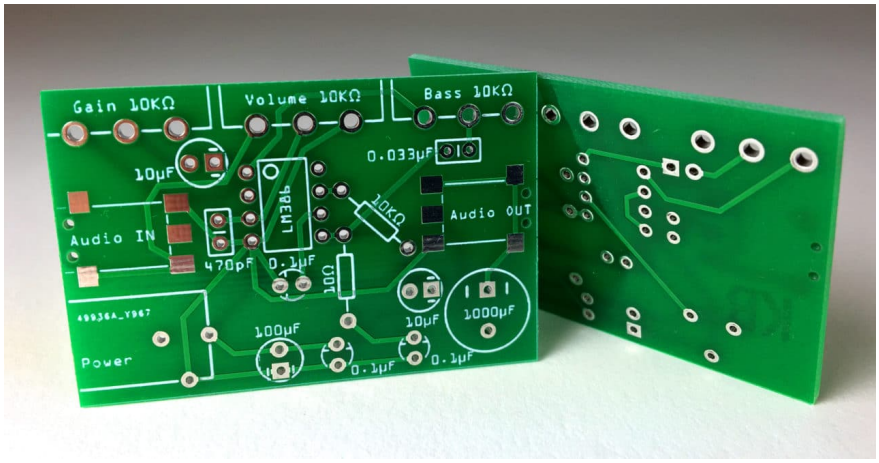

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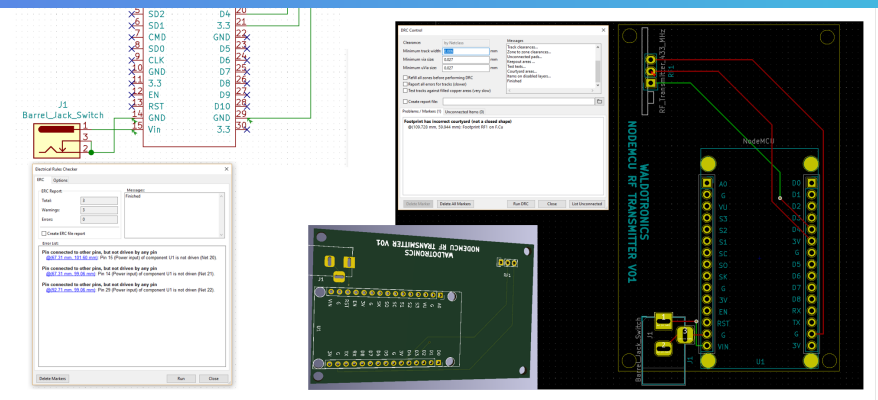

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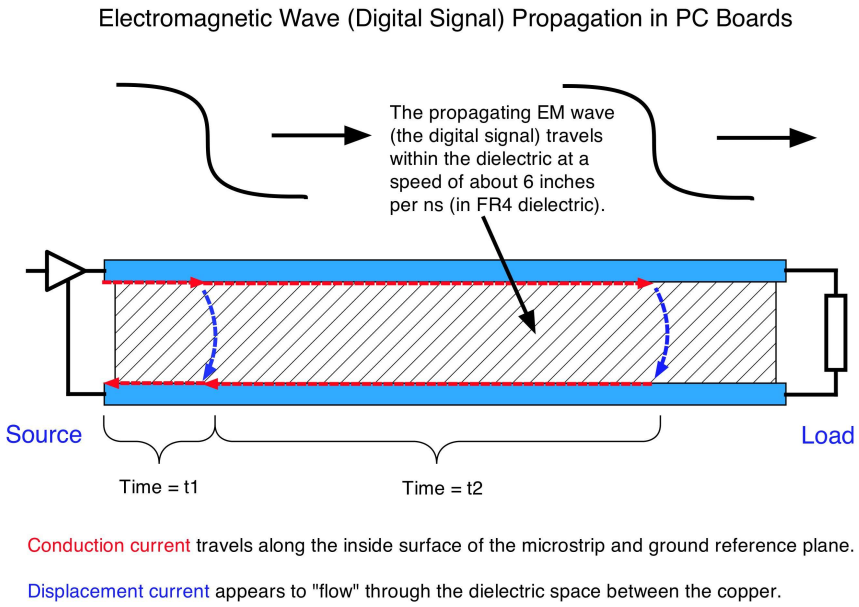

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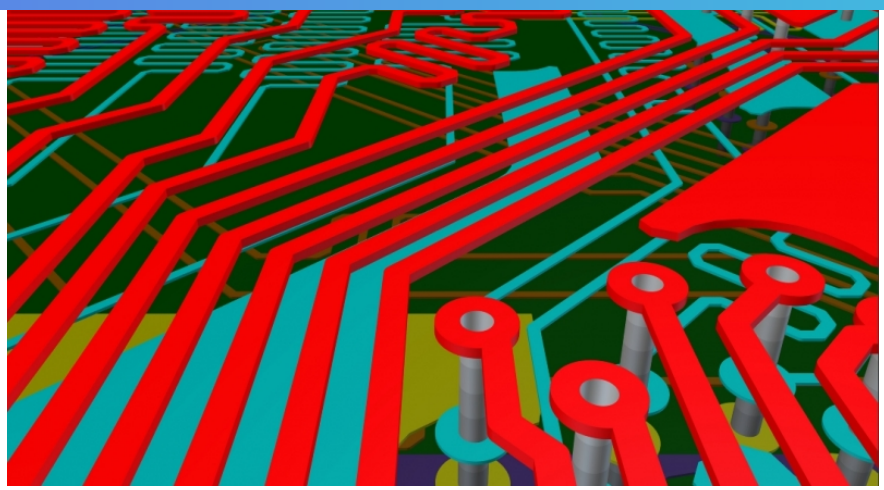

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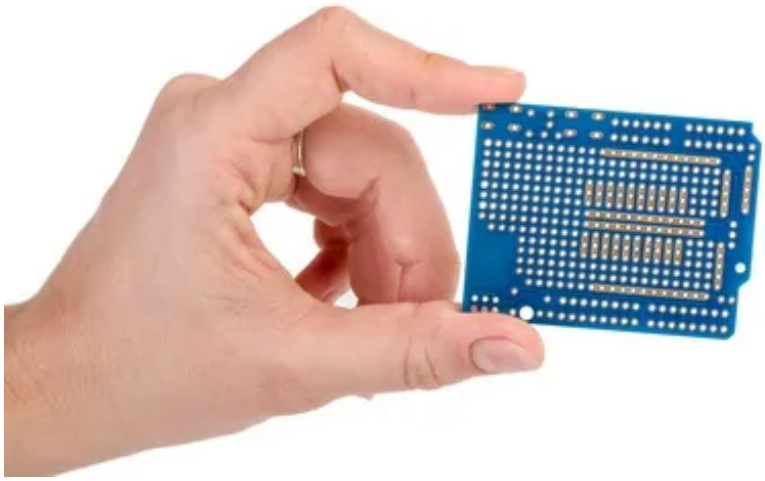

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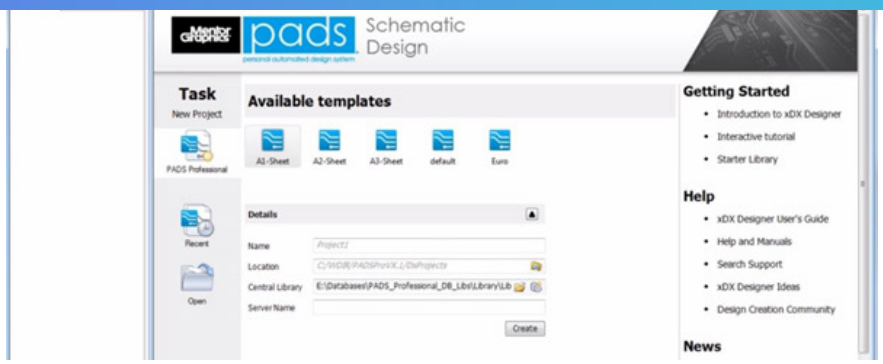

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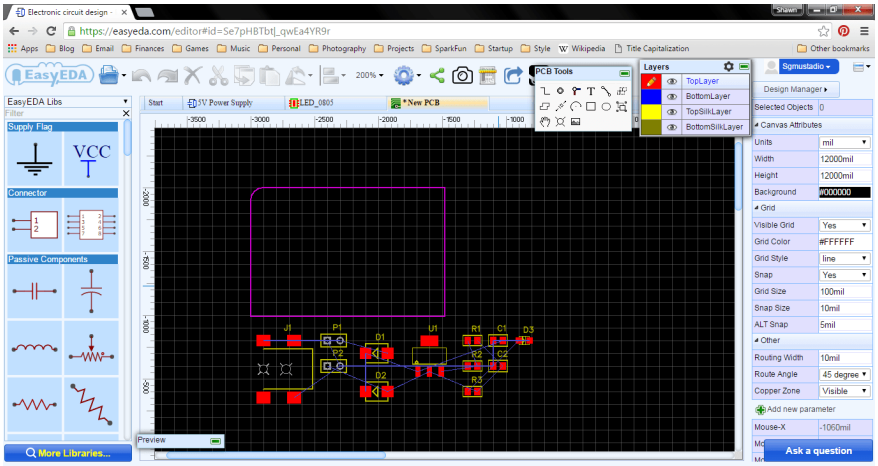

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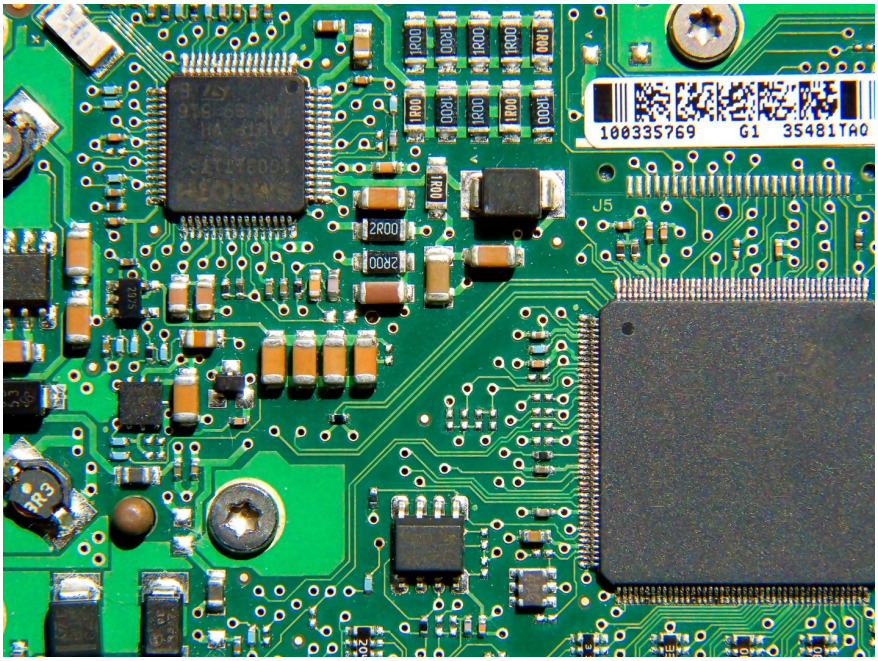

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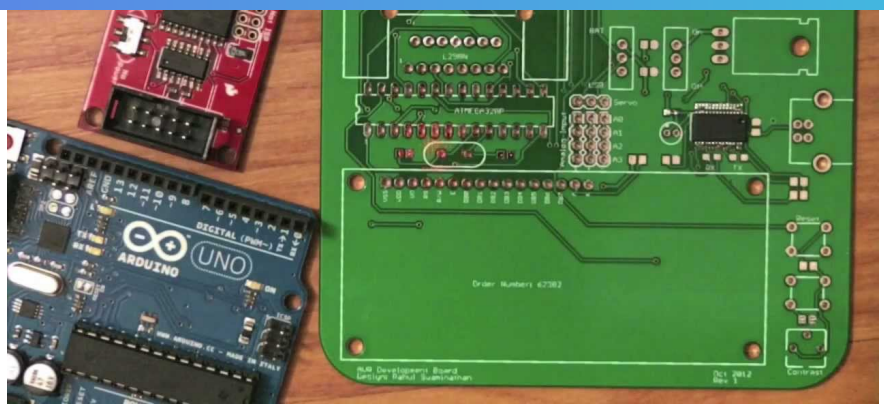

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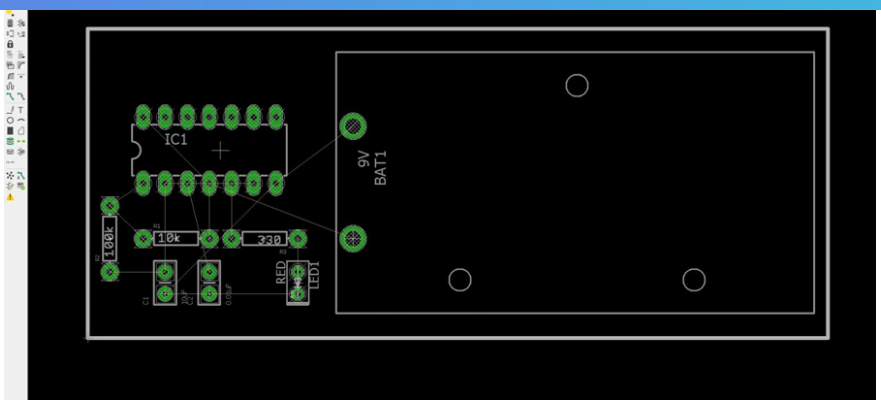

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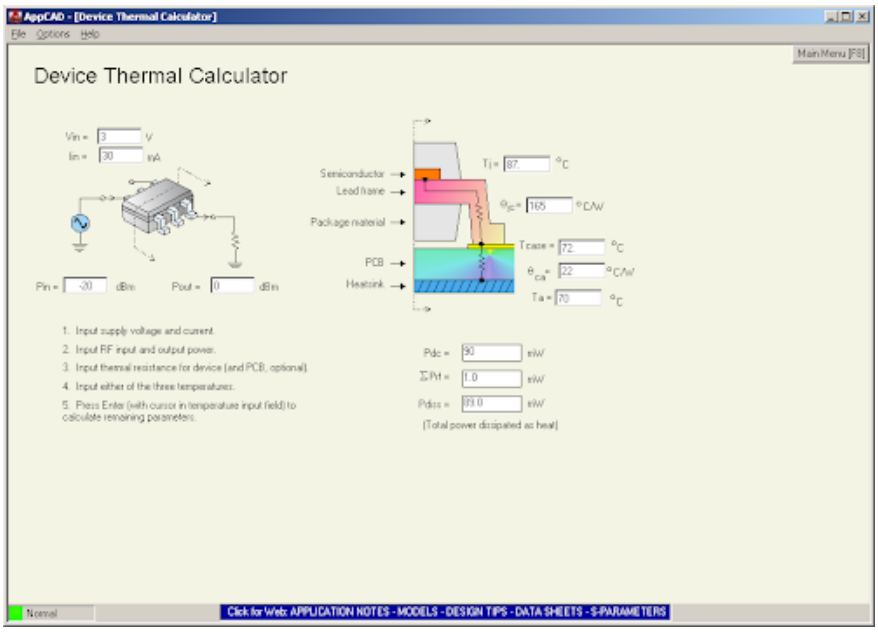

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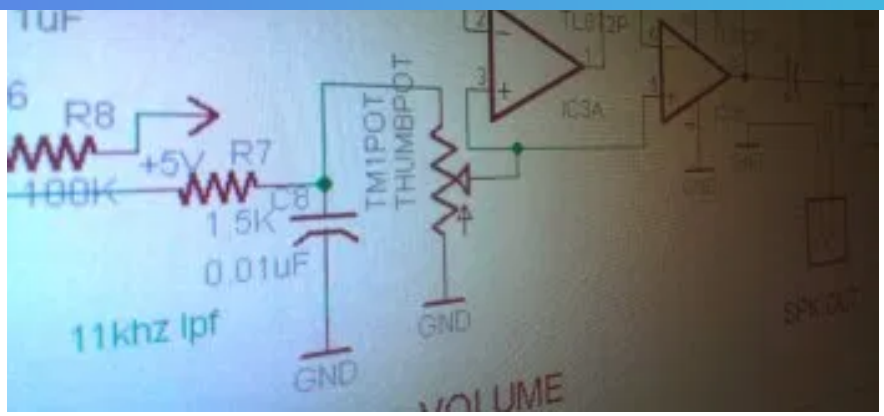

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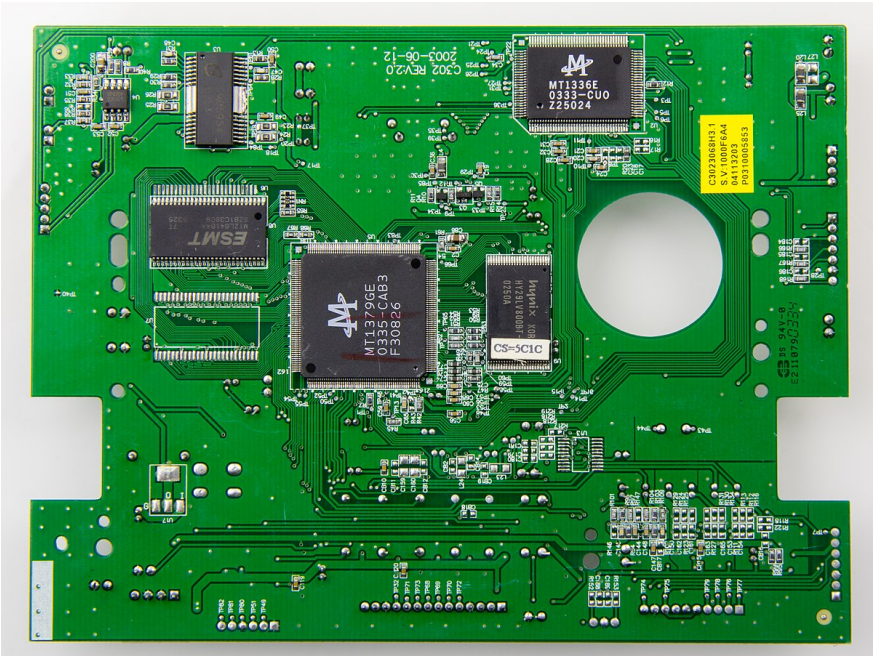

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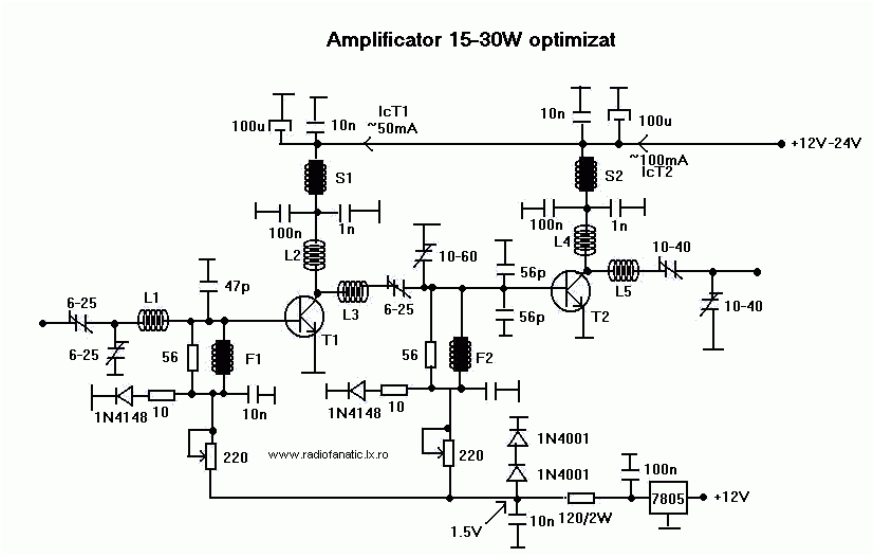

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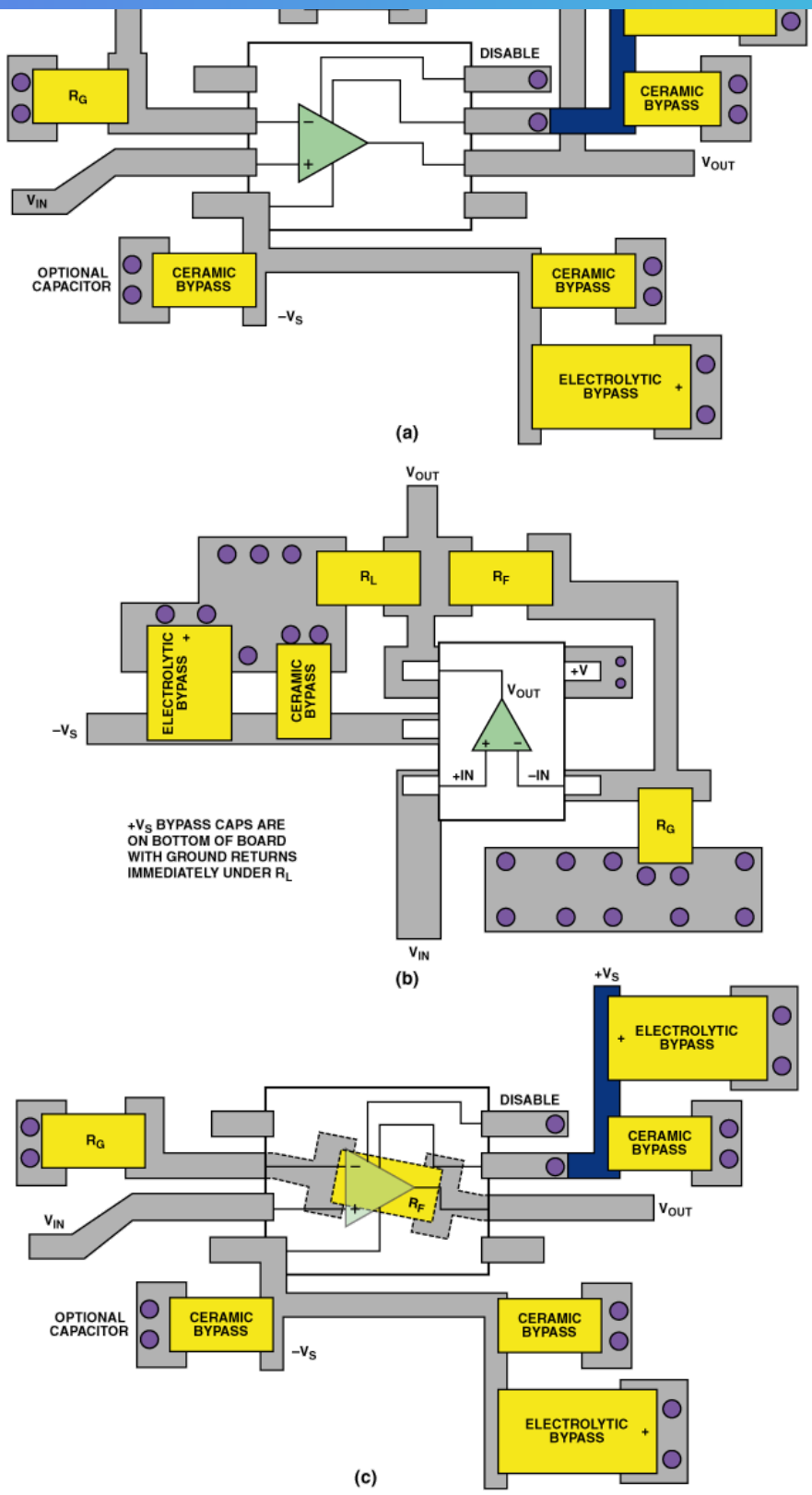

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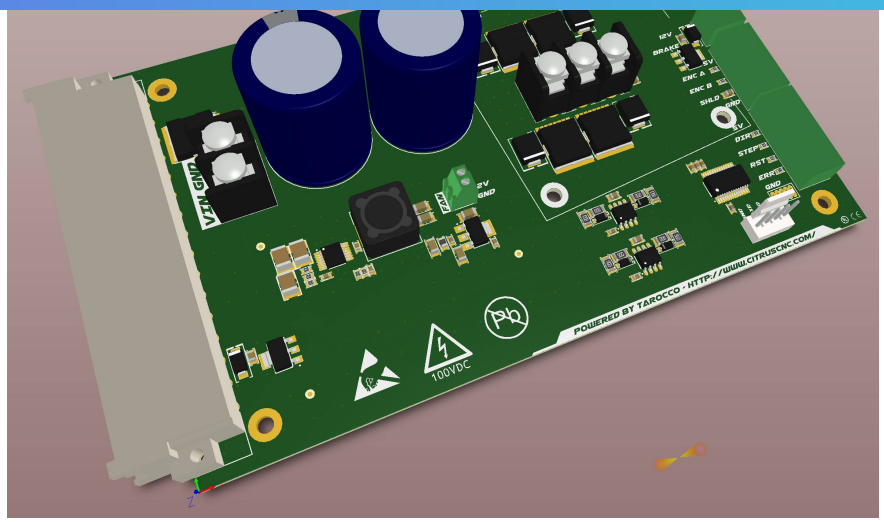

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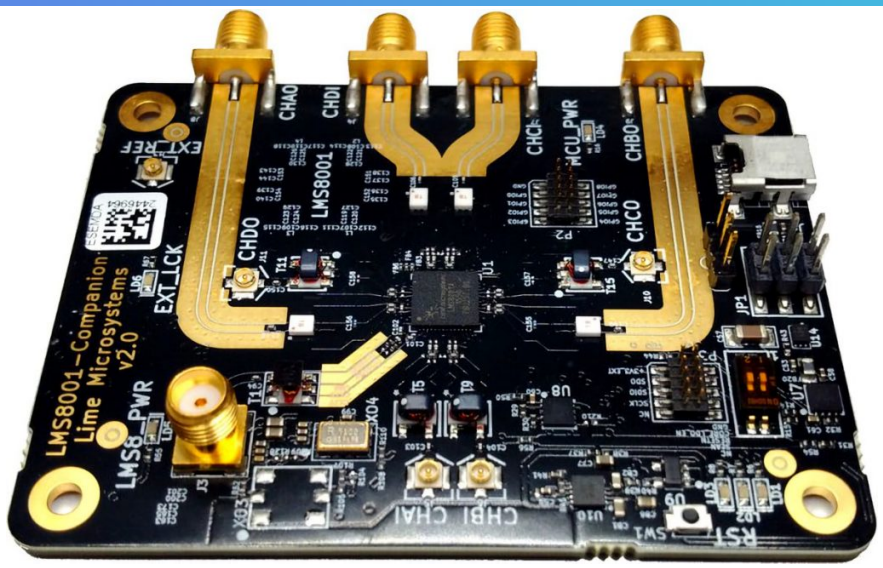

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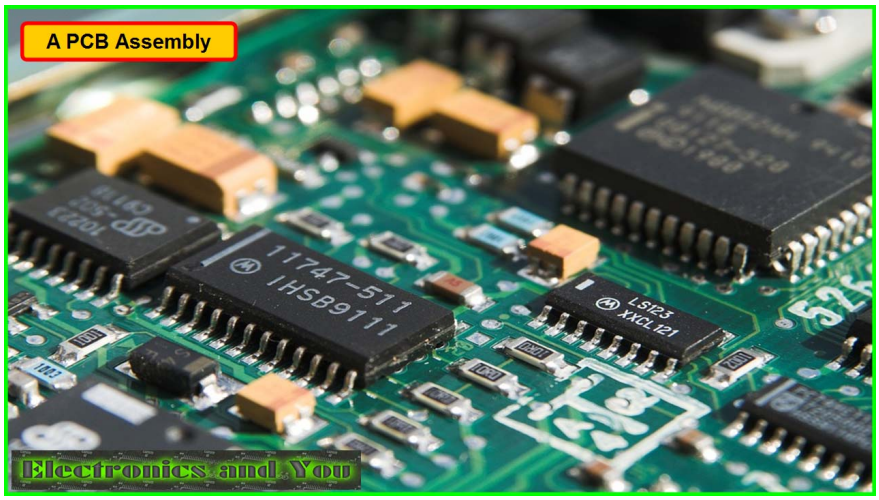

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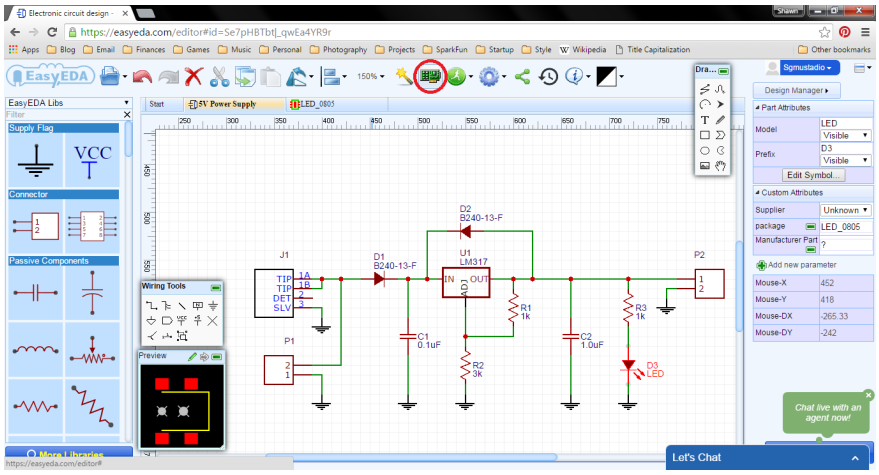

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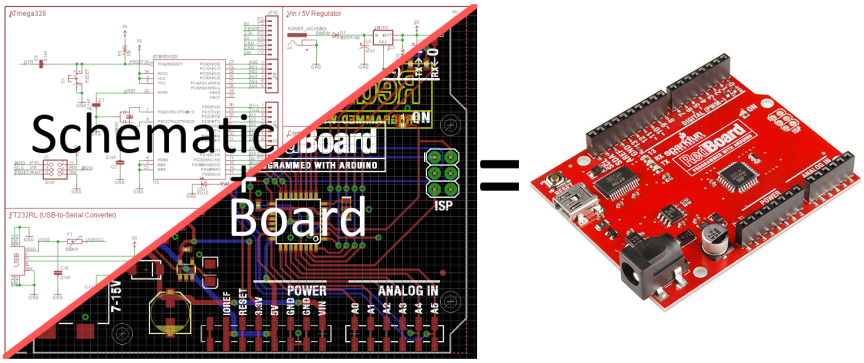

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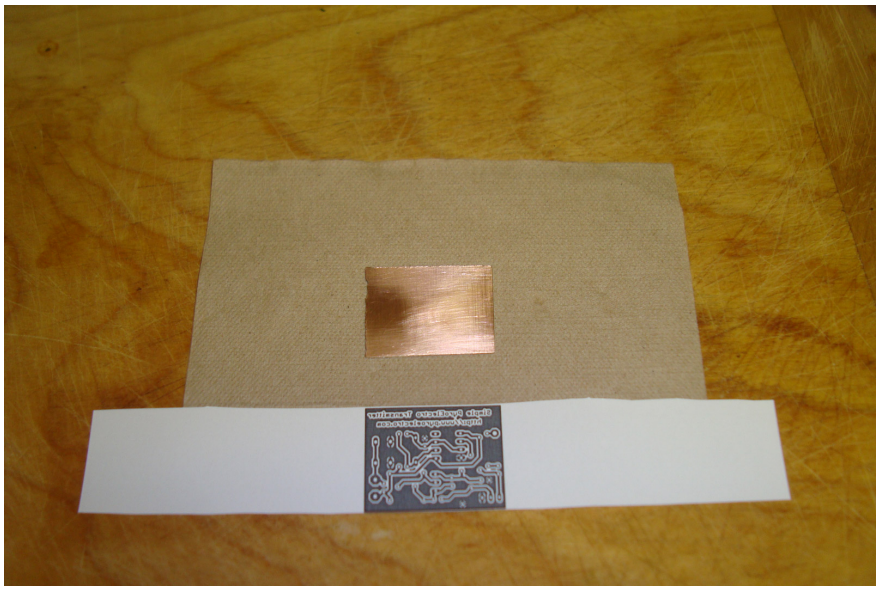

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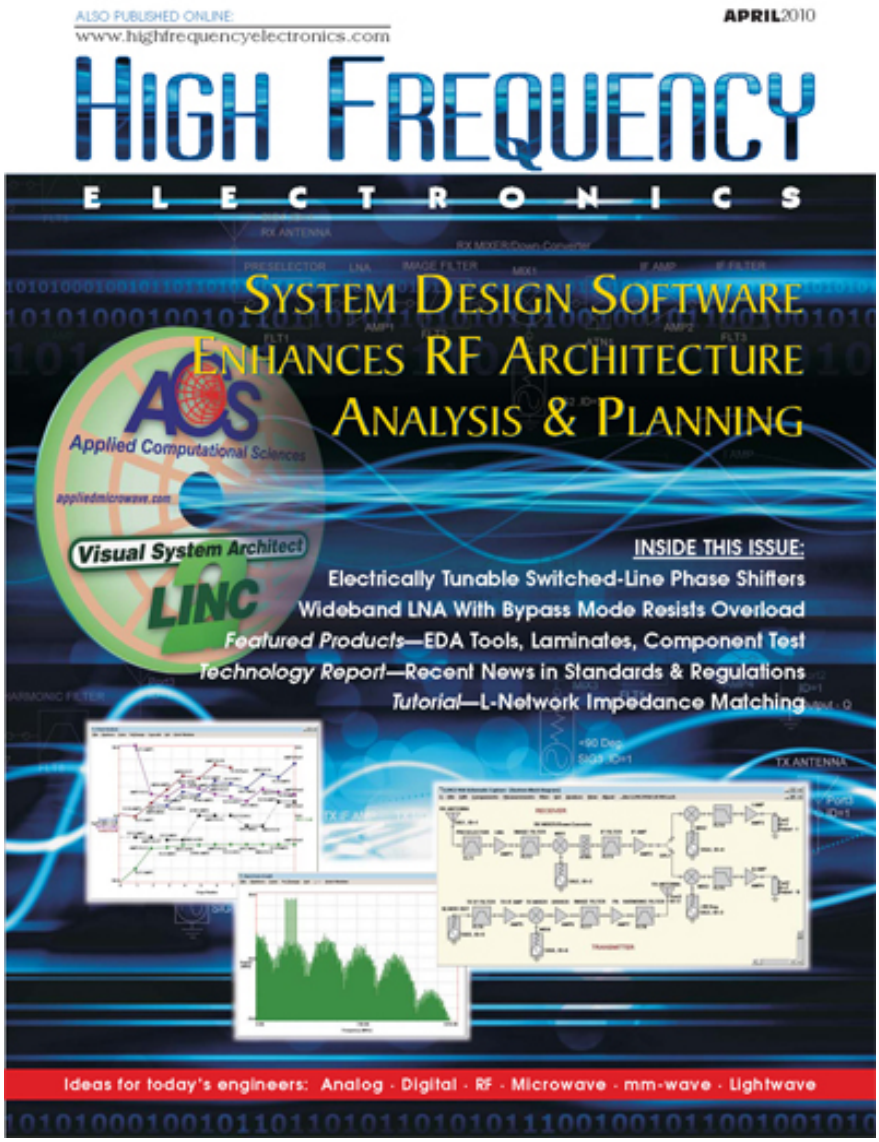

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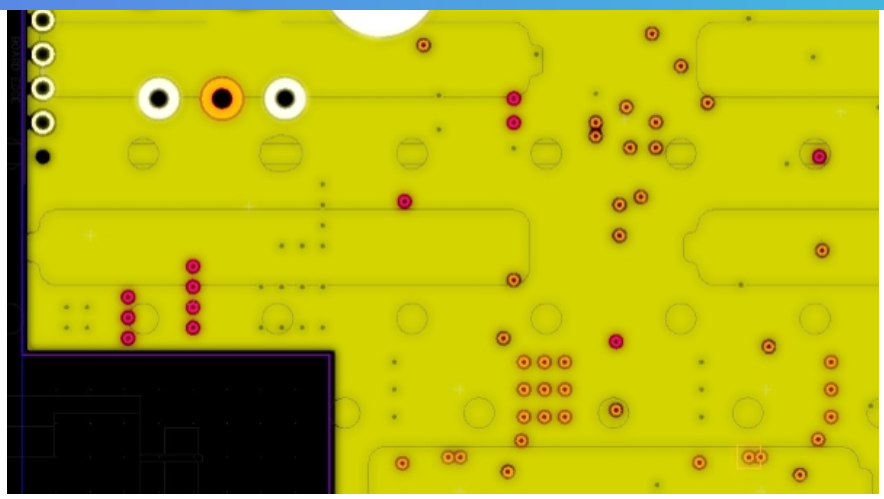

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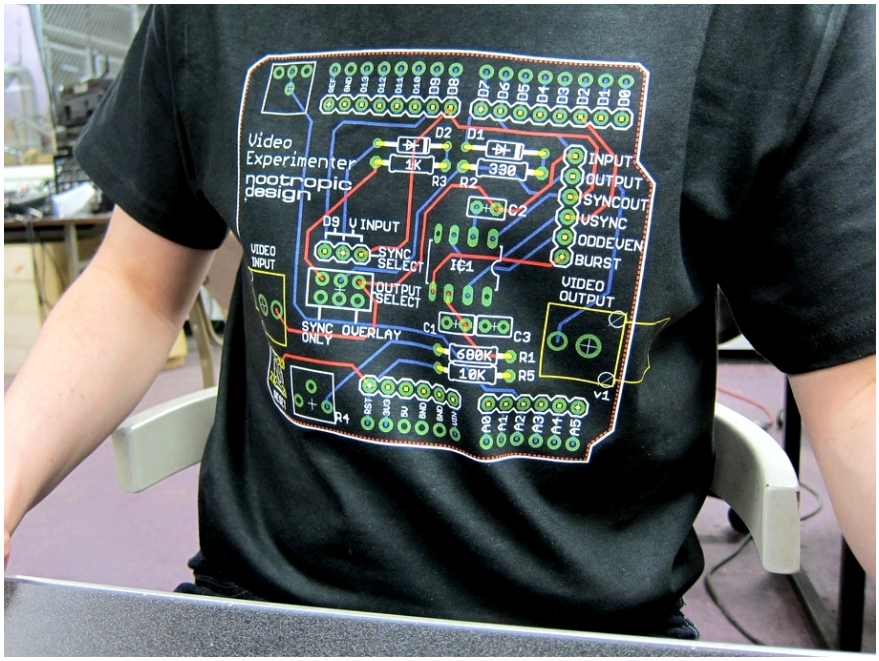

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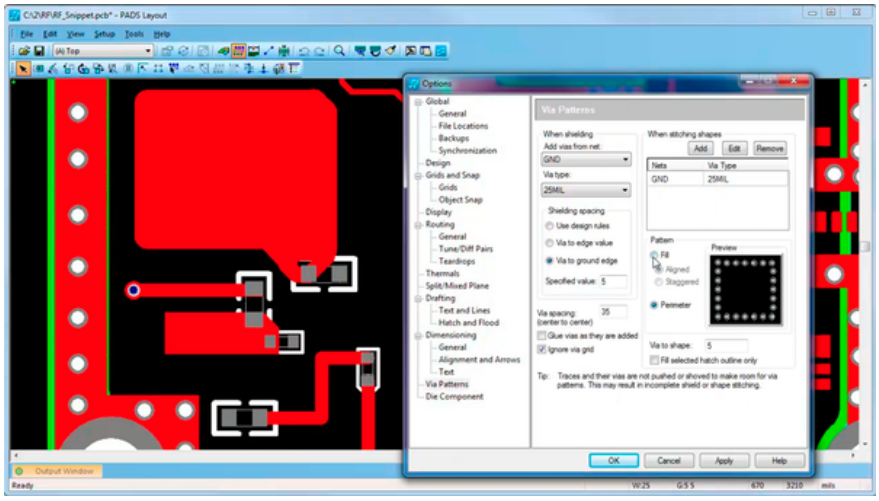

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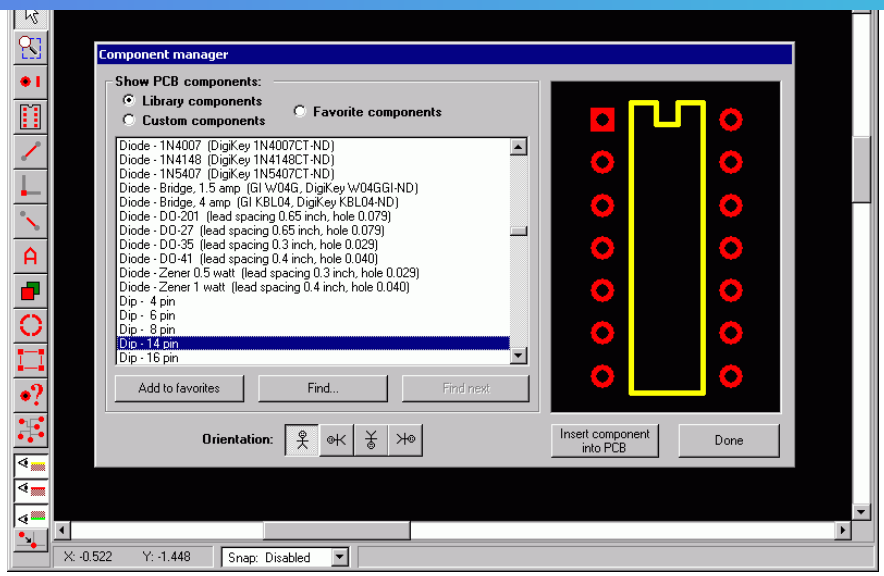

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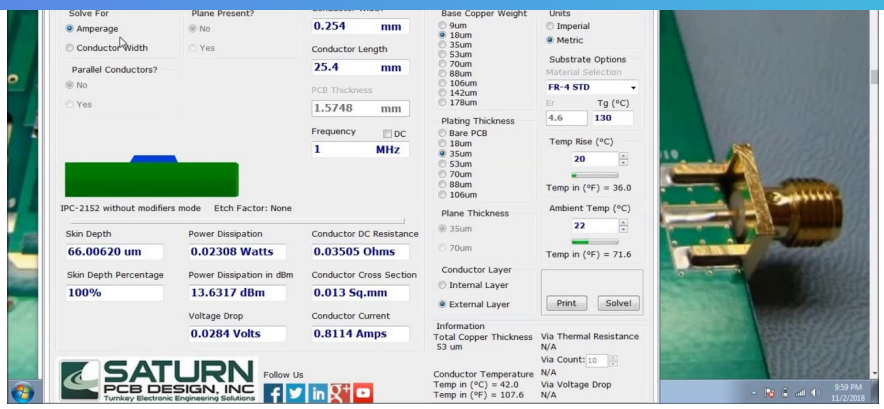

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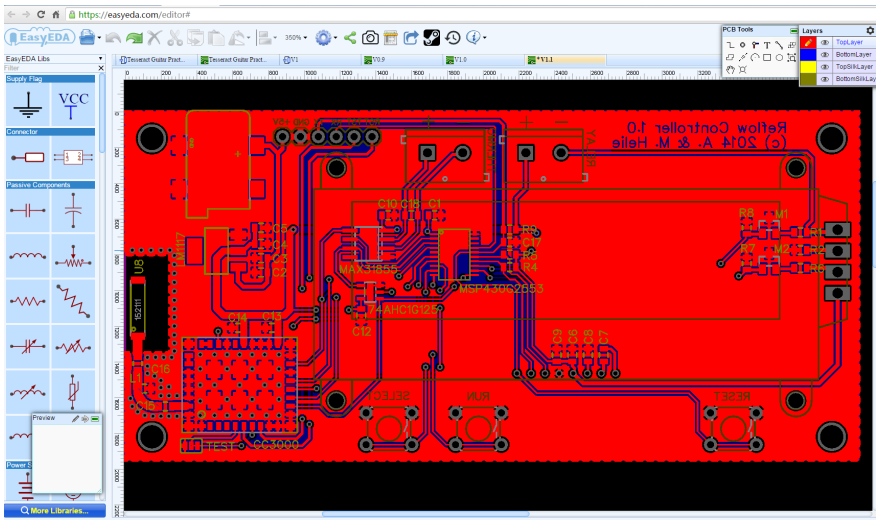

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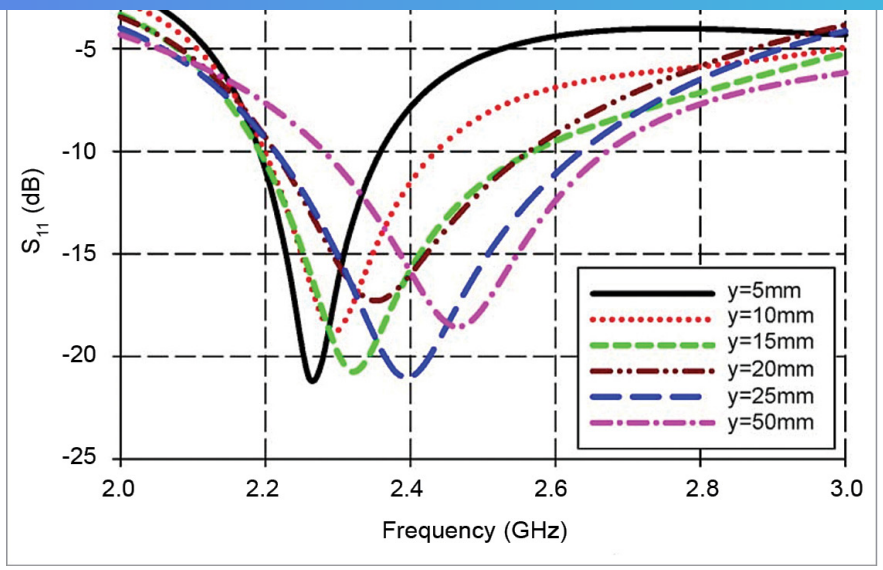

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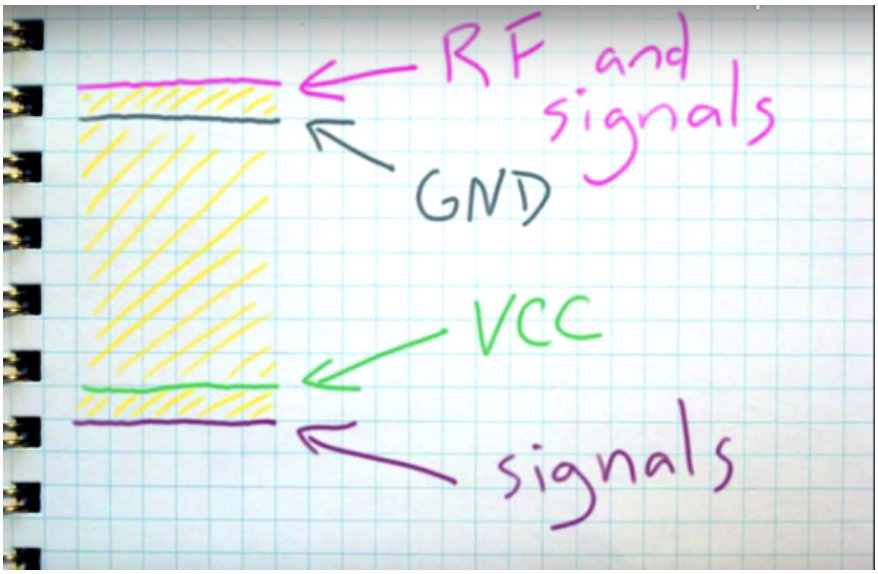

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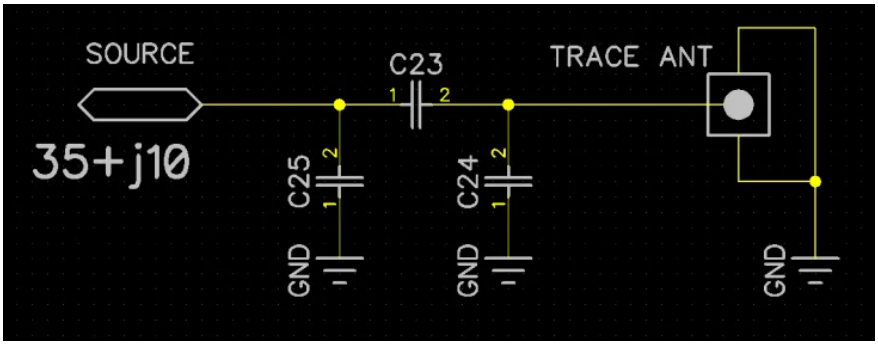

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Keywords: layout, receiver, transmitter, transceiver, ISM, RF, radio, PCB, inductor orientation, trace coupling, ground vias, trace length, ground plane, crosstalk, parasitic

TUTORIAL 4636

Avoid PC-Layout "Gotchas" in ISM-RF Products

By: Martin Stoehr, Principal Member of the Technical Staff, Applications
Apr 12, 2011

Abstract: RF products for industrial, scientific, and medical systems (ISM-RF) often feature very compact circuitry. To avoid common design pitfalls and "traps," the PC-board (PCB) layouts for these applications warrant careful attention. Operating in the various ISM frequency bands between 300MHz and 915MHz, these products include receivers and transmitters whose RF power levels range from -120dBm to +13dBm. Topics in the following discussion include inductor orientation, trace coupling, ground via problems, trace length issues, ground plane usage, crystal capacitance, and trace inductors.

A similar article was published in the February 2011 issues of *Microwaves and RF Magazine*.

Click here for an overview of the wireless components used in a typical radio transceiver.

Introduction

Extensive experience with industrial, scientific, and medical radio-frequency (ISM-RF) products has revealed the various pitfalls common to the layout of printed circuit boards (PCBs) for the products. It is not unusual to find significant variations in performance when the same IC is placed on two different circuit boards. Variations in the operating range, harmonic emissions, interference susceptibility, and startup time illustrate the role that layout can play in a successful design.

This article addresses various design oversights, explains why each error causes problems, and recommends how to avoid these traps. It assumes a two-layer PCB with FR-4 dielectric of 0.0625in thickness, and a ground plane on the bottom side of the board. Operating frequencies fall into various bands between 315MHz and 915MHz, with Tx and Rx power levels in the range -120dBm to +13dBm. **Table 1** lists some possible PCB layout problems, their causes, and their effects.

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