

# Power Integrity can cause EMI Challenges

## A simple view about how PDN design affects EMI in electronic products

Prof. Arturo Mediano

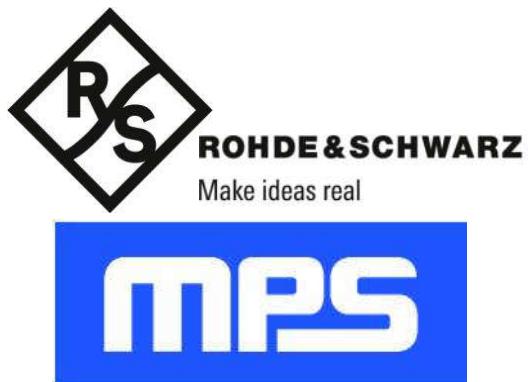
University of Zaragoza (SPAIN)

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Nov 2021

Organized by:



EMI/EMC/SI Design and Troubleshooting

## Two exciting days: ... for EMI/EMC!

DAY 1: 9th November

9:30 to 12:00 (CET) – Roots of EMI (Part 1)

- > Challenges and Early Review of Your Design! (Presented by Arturo Mediano, University of Zaragoza - 45min)
- > EMC Testing from First-Level Debugging to the Compliance Stage (Presented by Christian Reimer, R&S - 45min)
- > Practical and Early Testing Showcases (Presented by Jan Spindler, MPS - 45min)

[Register Now](#)

13:00 to 16:30 (CET) – Roots of EMI (Part 2)

- > EMI Troubleshooting and Debugging (Presented by Arturo Mediano, University of Zaragoza - 1h)
- > DC/DC Conversion Workshop – DUT Troubleshooting (Presented by Jens Hedrich, MPS - 1h )
- > Pre-Compliance Set-Up (Presented by Alexander Küllmer, R&S - 1h)

[Register Now](#)

DAY 2: 10th November

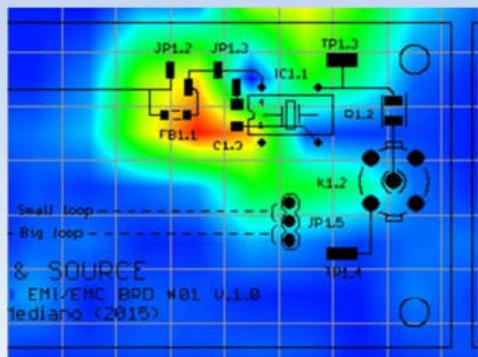
8:30 to 12:00 (CET) – Power Applications

- > Filter Design Hints and Tricks (Presented by Arturo Mediano, University of Zaragoza - 45min)
- > Stability in Converters: Control Loop & Load Step Design (Presented by Christian Kueck, MPS - 45min)
- > Power Integrity Can Cause EMI Challenges (Presented by Arturo Mediano, University of Zaragoza - 45min)
- > Mythbusting EMC Techniques in Power Converter Design (Presented by Francesc Estraguer, MPS - 45min)





# A High Frequency Lab for design, diagnostic, troubleshooting and training



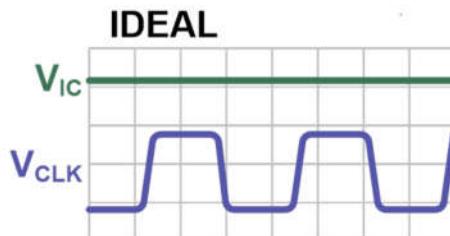
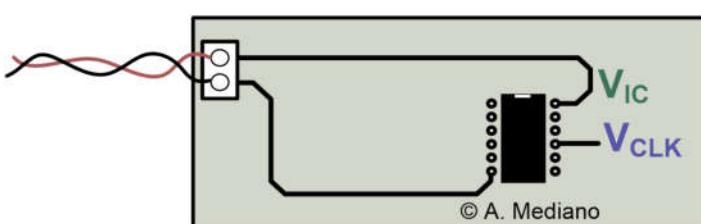
Interferences (EMI)  
Electromagnetic Compatibility (EMC)  
Signal Integrity (SI)  
Radiofrequency( RF)

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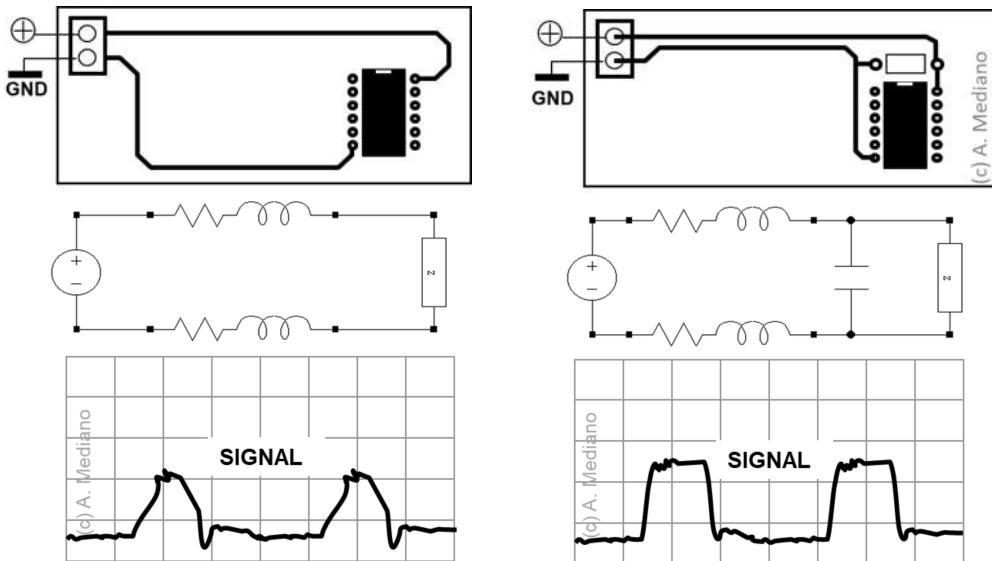
ASK FOR YOUR FREE CATALOG!

EMI/EMC/SI Design and Troubleshooting

## PCBs: PDN basic idea



# PCBs: decoupling (basic & limited idea)



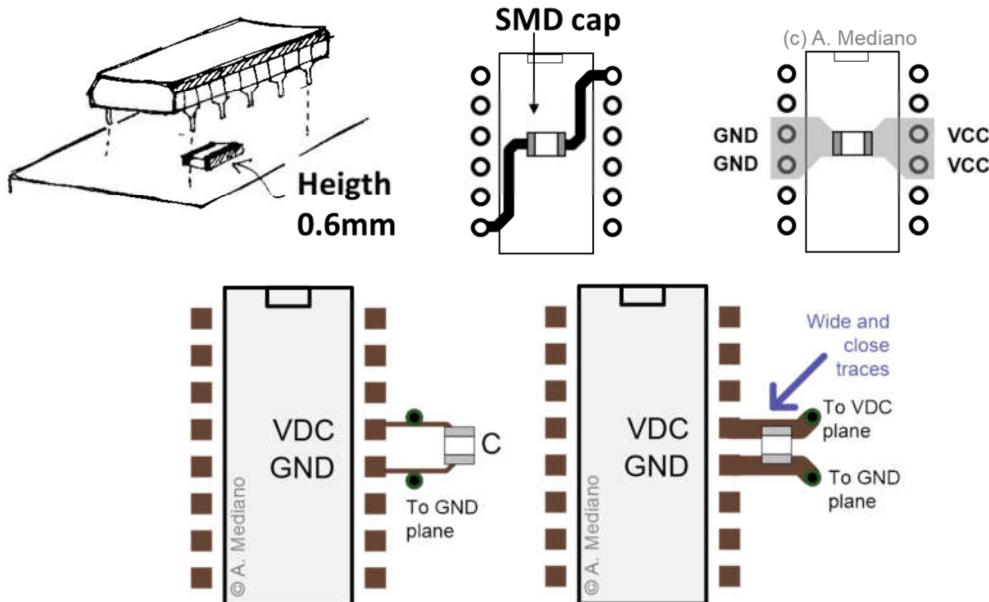
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# PCBs: capacitor(s) location

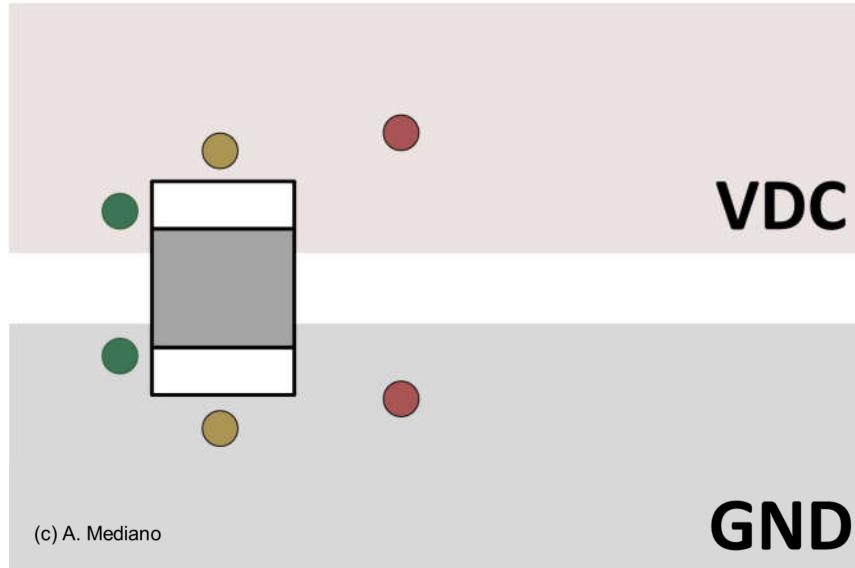


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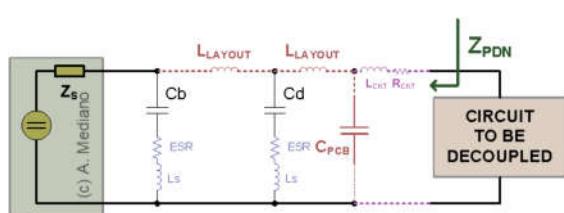




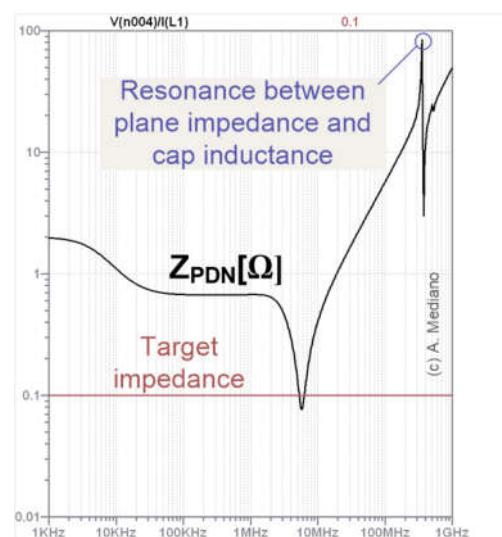
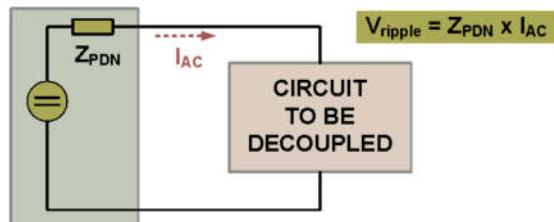
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## PCBs: target impedance vs PDN impedance



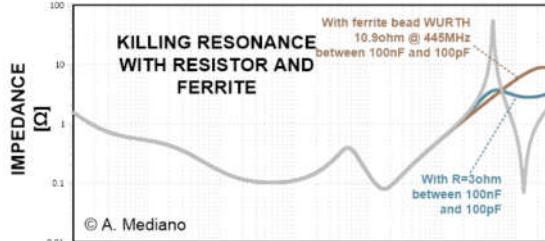
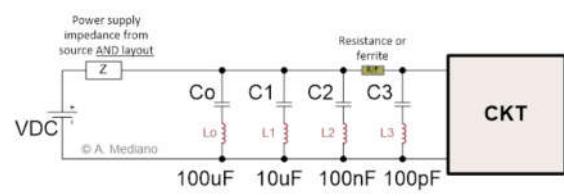
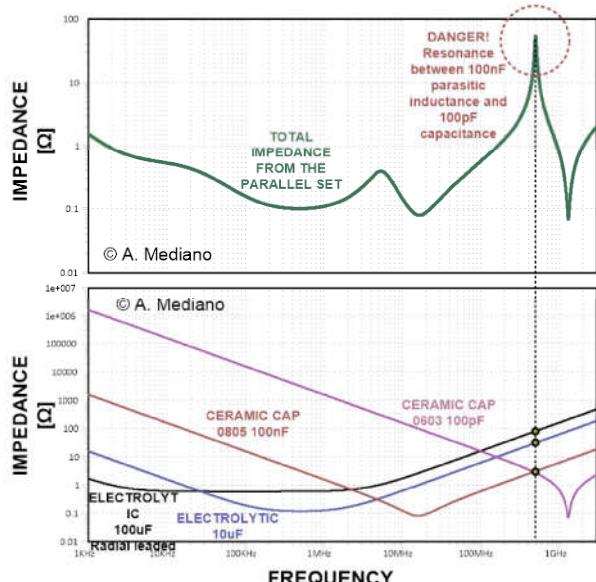
EQUIVALENT CIRCUIT



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# PCBs: target impedance vs PDN impedance



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# THANK YOU!



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# **DEMO**