

Design Rules by Area • Via Design • Lead-free Issues

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A CLOSER LOOK AT EMBEDDED PASSIVES

AVAILABLE DESIGN GUIDES
MATERIALS TO CHOOSE
WHY TO USE THEM

*Laser-trimmed embedded
resistor board for a camera*

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features

8 COVER STORY EMBEDDING RESISTORS AND CAPACITORS

In a typical assembly, components that cost less than 3% of the total price can take up 40% of the real estate. Putting passives in the board saves surface area, shrinks the board and cuts weight and thickness. A primer to available materials and methods.

BY ROLF FUNER

12 LIMITING CONSTRAINTS DESIGN RULES BY AREA

Design rules guide correct design, but also constrain the work – and slow the process. One solution: Applying different rules for different regions of a design.

BY PER VIKLUND

16 DFM PROBLEM-FREE VIA DESIGN

Remember when an 0.018" via was leading edge? Laser drills have changed that for good. To ensure manufacturability, know the fabricator's limits and take advantage of design standards and CAM software with strong DFF routines.

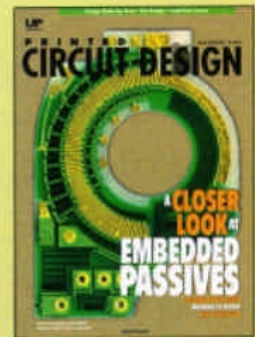
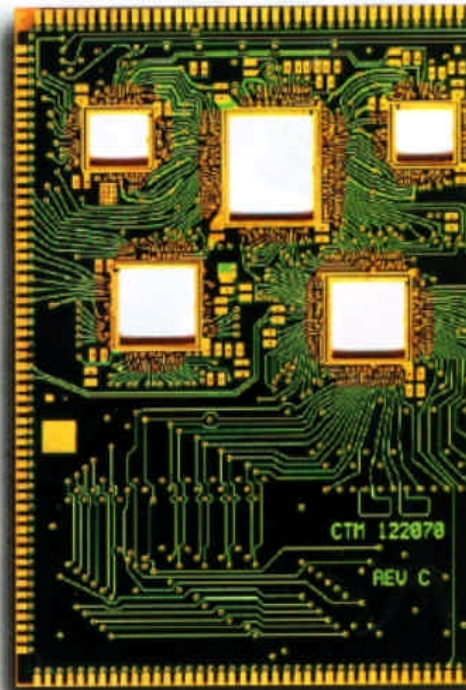
BY RAY FUGITT

20 'GREEN' DESIGNS THE MOVE TO LEAD-FREE MANUFACTURING

Electronics manufacturing is slowly switching to lead-free alloys, with Europe and Japan leading the way. For designers, this means knowing material characteristics of each component, and the reliability implications of mixing lead-free and lead-containing components.

A look at the issues surrounding the change.

BY LEO M. HIGGINS III, PH.D.



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