

Abstract of the Disclosure

Laminar Stackable Circuit Board Structure
and Manufacture

5 Method and apparatus for fabricating fine pitch
pattern multilayer printed circuit boards involving
laminar stackable board layers providing power
distribution, signal distribution and capacitive
decoupling. In one respect, the invention relates to the
10 fabrication of board layers by beginning with a metallic
core, patterning the core, selectively enclosing the core
in a dielectric, selectively depositing metal to form
vias, plugs and signal lines, and forming dendrites with
joining metallurgy on the vias and plugs to provide
15 stackable connection from above or below the plane of the
board layer. In another aspect, the invention is
directed to the use of a sol-gel process to form a thin
high dielectric constant crystalline film onto a metallic
sheet followed with a deposition of a metallic layer onto
20 the high dielectric constant film. The film serves as
the dielectric of a capacitor layer which is thereafter
in succession patterned, covered by a dielectric, and has
selectively deposited a metallic layer for
interconnecting the capacitor and forming vias. The ends
25 of the vias are thereafter subject to dendritic growth
and joining metallurgy to provide stackable
interconnection capability. A multilayer composite
laminar stackable circuit board structure is created
using, as appropriate, layers having metallic cores and
30 layers having capacitively configured cores. The
multilayer laminar stackable circuit board provides
direct vertical connection between surface mounted
electronic components and the power, signal and



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capacitive decoupling layers of the composite board through the dendrites and joining metallurgy of the via and plug formations.

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