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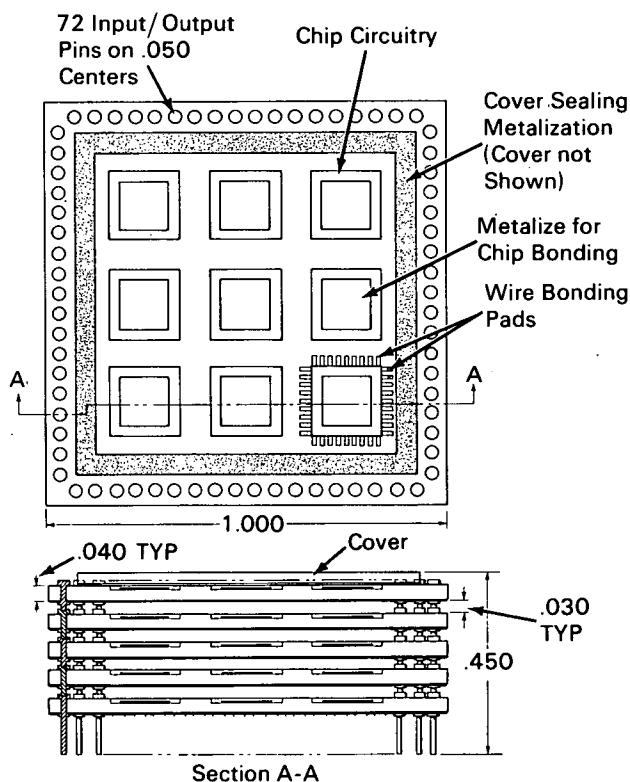
Manned Spacecraft Center



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Ceramic Wiring Board Increases Packaging Density of Electronic Modules

A new ceramic multilayer wiring board can be used to interconnect large-scale integration (LSI) modules which dissipate nearly 2 W/cc. The board



can accommodate 9 LSI flatpacks, with 36 lead pads each; and ten layers can be cascaded, with 72 input/output pins per layer. The extremely high packaging density has been made possible, in part,

by the application of an alumina cover hermetically sealed to the ceramic wiring board.

Other advantages of the board, in addition to the improved thermal dissipation, are: several layers can be stacked and interconnected without intermediate wiring; line delays and capacitances are reduced, with a commensurate reduction in equipment power consumption; reliability is improved as a result of the minimal number of connections; the system is compatible with hybrid circuits.

The method of interconnecting and packaging LSI circuits permits an order of magnitude reduction in equipment weight and volume over that of individually packaged units. The complete dependence of the signal interconnections on the transfer heat between layers is believed to be a significant improvement in module packaging methods.

Note:

Requests for further information may be directed to:

Technology Utilization Officer
Manned Spacecraft Center, Code JM7
Houston, Texas 77058
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Patent status:

No patent action is contemplated by NASA.

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Category 01