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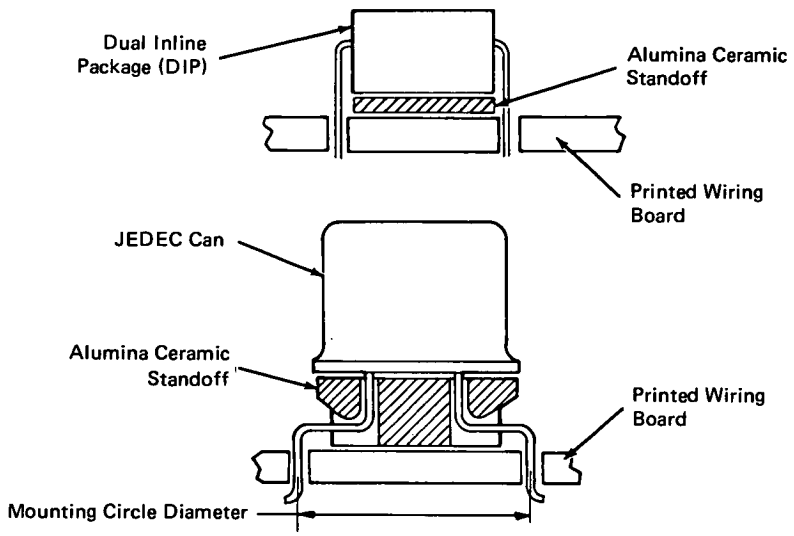
NASA TECH BRIEF

Langley Research Center

New Standoffs Provide High-Reliability Component Mounting for Printed Wiring Boards



New Standoff Designs for Printed Wiring Board Mountings

A series of alumina ceramic standoffs (see illustration) have been developed which handle a large group of printed wiring board, electronic component mounting situations. The designs provide such advantages as: (a) inspectable solder joints from both sides of boards, (b) stress relief in lead wires, (c) low-impedance thermal paths, (d) matched coefficients of lead wire thermal expansion, (e) minimum webbing of conformal coatings to lead wires, (f) positive mounting of part bodies to boards, and (g) conductive mass for transient heat sink requirements.

One group of standoffs is designed for the Joint Electron Devices Engineering Council (JEDEC) can-type configuration. The JEDEC can is placed on the standoff with its wires inserted through the holes provided in the standoff. The configuration of the standoff provides tooling for the first lead wire bend, and auxiliary tooling is used to make the second bend. Slots in the sides of the standoff are tapered to minimize webbing of the conformal coating between the wires and the standoff. These standoffs provide maximum conductive and contact areas between parts and printed wiring boards, consistent with other constraints.

The other group of standoffs is for 14 lead, dual inline packages (DIP's). The standoffs in this group all have the same outline and are bonded onto the DIP electronic parts with approved bonding materials. The only difference between the standoffs in this group is in thickness, which must be selected at the time of assembly to minimize height and weight. These standoffs, mounted under the DIP bodies, provide positive mounting to printed wiring boards.

These standoffs were designed for the long life and temperature cycling conditions of a Mars landing spacecraft. They could be used also to meet printed wiring board, component mounting requirements for other high-reliability programs.

(continued overleaf)

Note:

Requests for further information may be directed to:

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Patent status:

Inquiries concerning rights for the commercial use of this invention should be addressed to:

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