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(54) Title: USE OF DIVERSE MATERIALS IN AIR-CAVITY PACKAGING OF ELECTRONIC DEVICES

(57) Abstract: Semiconductor circuit devices (dies) are incorporated into moisture-impenetrable electronic packages by forming enclosures around the die in three separate parts--base, sidewalls, and lid. The die is first soldered or otherwise bonded to the base, followed by attachment of the sidewalls to the base, and finally the lid to the sidewalls. For procedures involving a heat-conductive base and a high soldering temperature, the die can be secured to the base at the high soldering temperature, followed by application of the sidewalls to the base at a significantly lower temperature, avoiding potential high-temperature damage to the sidewalls. Plastic sidewalls which would otherwise deteriorate or become distorted upon exposure to the high soldering temperature can thus be used. For electronic packages in general, the use of plastic sidewalls allows the use of combinations of materials for the lid and base that are otherwise incompatible, and reduces or eliminates the incidence of failure due to stress fractures that occur during the high temperatures encountered in fabrication, assembly, testing, or use of the package.