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Shell-Activated Sintering of Core-Shell Particles

A new low-temperature sintering interconnect technology replaces traditional solders to improve semiconductor die-to-substrate attachment characteristics and minimize the risk of tin whisker short circuits.

Although consumer electronics have transitioned almost entirely to lead (Pb)-free solder interconnects, the new Pb-free interconnects have lower performance characteristics and require higher processing temperatures compared to their Pb-containing predecessor. These new interconnects also have the propensity to form tin "whiskers" that increase the risk of short circuits.

Purdue University researchers have developed a new interconnect technology based on low temperature sintering, replacing traditional solder joints, as well as high Pb and silver solder alloys, used for high temperature attach of semiconductor die to substrate. This technology lowers the processing temperature, improves interconnect characteristics, and minimizes the tin "whiskers."

Advantages:

-Improved interconnect characteristics

-Minimizes tin "whiskers"

Potential Applications:

-Materials

-Manufacturing

TRL: 2

Intellectual Property:

Technology ID
65400

Category
Semiconductors/Packaging & Integration
Materials Science & Nanotechnology/Advanced Functional Materials

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