Development of a High-speed and High-density Interposer for Three Dimensional LSI System

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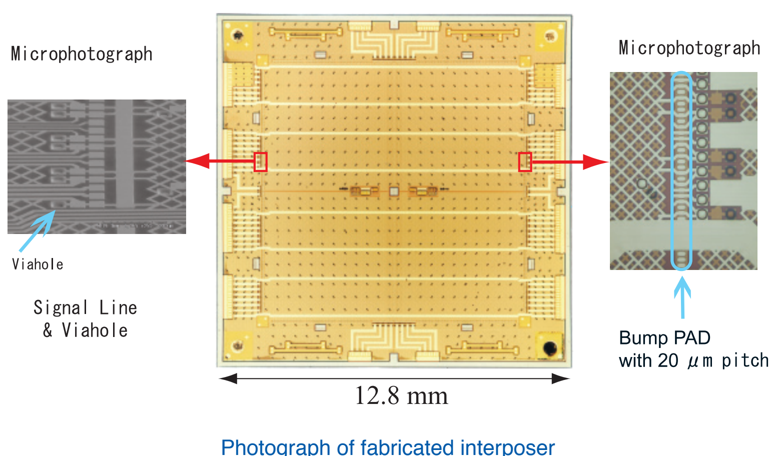
For the packaging of multi-layer three dimensional LSI systems, chip-to-chip and chip-to-board interposers are essential. We have developed a new fabrication technology of a fine wiring structure using positive photosensitive polyimide. Its features are as follows:

1. The driving power and delay at the LSI I/O terminals can be drastically reduced. The transfer clock of 10GHz has been attained.
2. Minimum line width of 7.5μm has been achieved which is about 15% of the conventional printed circuit board.
3. The lower production cost can be attained due to the lithography technology developed.
4. The pitch length between adjacent bumps can be as small as 20μm.

(URL http://unit.aist.go.jp/nano-ele/hd-interc/index.html)



Photograph of fabricated interposer

Environmental Science & Technology

Chemical Recycling of Waste from Electric-Electronic Appliances

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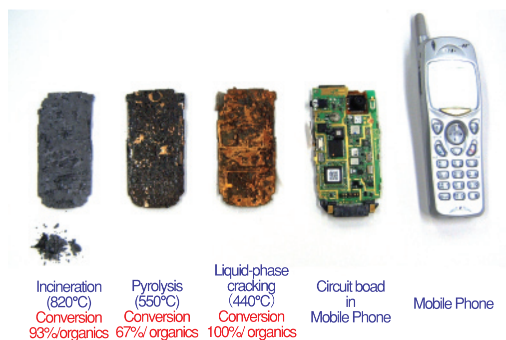
We proposed new chemical recycling with dehalogenation of plastics in electric-electronic appliances by liquid-phase cracking at 400-440 ºC using hydrogen donor solvent, such as tetralin. In our process, halogen content in the gaseous and liquid products decreased to less than 2ppm by alkali carbonate catalyst use. Bromine in the solid product was fixed as alkali salts and also can be separated from metal by conventional washing with water. This indicates resins, halogen and metal can be separated almost completely and reused for fuel, chemical and material use respectively. Pyrolysis and incineration in Fig. can not recovered plastics effectively and environmentally.



Chemical recycling of mobile phone