36－14 Application of 35μm Pitch Wire Bonding Technology to High Density Package

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Improvement of wire bonding technology for fine-pitch, high-density package has been demanded strongly because IC device assembled in personal computer, cell phone and so on has been smaller, thinner and move integrated. In this study, applying 35μm pitch wire bonding technology was designed for high-density package. For realizing this technique, wire sweep by resin molding and bonding reliability should be solved. High Young's modulus gold wire with 15μm in diameter, mew molding wesin with different filler size distributions and some kinds of wire disposition were effective to prevent wire sweep. Interface reaction between gold wire and aluminum electrode pad has been important element. Because bonded area is pretty small (about one fourth of commercial bonding) in this high-density bonding and the reaction layer consisted of brittle Au-Al holding time (0～1000h) exposed to 473K was measured. In case of as bonded without resin molding, the shear strength was almost the same even in long annealing period. However, in case of bonding encapsulated resin, the shear strength was drastically degraded by Br corrosion of Au-Al IMC. The same phenomena have been observing in the commercial packages. From these results, development of 35μm pitch wire bonding padkage succeeded.

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