Bonding properties of electronic components with ultrasonic bonding system

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The latest electronic components that are composed of super slim and low-priced substrate should be bonded at a low process temperature since they can be exposed to thermal damage in the bonding process whose temperature is relatively high. Especially, the components embedded with fine pitch of 40㎛ and below should be bonded at a low temperature process that does not exceed 200℃. The materials such as NCP, ACP, ACF are applied to bond the components to the PCB at low temperature. When applying flip chip bonding to the flexible film, the process temperature should be maintained at less than 130℃ so ultrasonic thermo-compression bonding is currently under development. In this study, ultrasonic bonding system that is available at a low temperature has been developed to investigate bonding property between semiconductor chip and PCB. The FPCB and PCBs that are 0.3mm, 0.4mm, 1.6mm in thickness were used for the test respectively. It is proved that the thinner PCB has the higher bonding yield. The bond yield of the 0.4mm PCB was 60% and 100% for FPCB.