무연솔더(SnAgCu)와 유연솔더(SnPb)의 피로 수명 비교 연구
(A Comparative Study of the Fatigue Behavior of SnAgCu and SnPb Solder Joints)

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Abstract. Fatigue behaviors of 63Sn37Pb and two types of lead-free solder joints were compared using pseudo-power cycling testing method, which provides more realistic load cycling to solder joints than chamber cycling method does. Pseudo-power cycling test was performed in various temperature ranges to evaluatethe shear strain effect. A nonlinear finite element model was used to simulate the thermally induced visco-plastic deformation of solder joint in BGA packages. The results revealed that lead free solder joints have a good fatigue property in the low temperature condition, where a small strain was induced. In the high temperature condition where a large strain was induced, however, lead contained solder joints have a longer fatigue life.

Key Words: fatigue(피로), lead-free solder(무연솔더), power cycling test(파워 사이클링 테스트)