

ABSTRACT

Market requirements on electronic products are expected to always improve the capability and efficiency of their electronic components. Specifically, this demand also applies to development process of inductor components, especially Chip Choke Coil (CCC) type. The vulnerability of electronic components during the assembly process becomes more critical in order to increase reliability of these products. One of them is the resistance of electronic components to heat treatment during reflow soldering process. Therefore, electronic component manufacturers are required to maximize the capabilities of their component products in various ways such as adjusting the component design based on the characteristics of reflow soldering profile. In order to produce minimum stress values in CCC component, especially in drum core section, optimum input parameters are needed. Taguchi method is usually used for problem optimization with single response. The design parameters of the CCC component used are inner radius of drum core, top flange thickness, and CTE adhesive value. By using 4 factors data with 5 levels in each factors, the experiment was carried out 25 times. The optimal parameters generated are 0,5 mm for inner radius of drum core; 0,3 mm for top flange thickness; and $2,8 \times 10^{-5} \text{ mm}^3 / ^\circ\text{C}$ for the CTE value of adhesive.

Keywords : chip choke coil, taguchi method, finite element modeling, ANOVA, reflow soldering.