

Electro-Thermal Analysis of Contact Resistance

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Abstract

Mechanical variations on the surfaces of copper samples are performed to analyse the effect of electrical & thermal CC on temperature. The contact conductance (CC) model is a collaboration of electrical, thermal and deformation model and hence, three physics namely, SM, EC and HT, are coupled together, with appropriate boundary conditions, using COMSOL Multiphysics®. The temperature values are obtained using Mikic Elastic correlation and are compared with experimental results. Real contact pressure are obtained for various combination of roughness and load values to study the temperature variation under different loading conditions.