

A COMSOL Multiphysics® App for the Thermal Analysis of Electronic Devices

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Abstract

Among the new features introduced by the latest versions of COMSOL Multiphysics® software, the opportunity of building up customized model interfaces by exploiting the Application Builder is for sure one of the most promising. Arising from this concept, the Certified Consultant BE CAE & Test presents a COMSOL app to analyze the thermal behavior of an electronic Surface-Mount Device (SMD). The proposed tool exploits several functionalities of the Application Builder, such as action Buttons, Input Fields, Combo Boxes, Graphics and Data Display. Some features were implemented concerning global/local links for material definition, declaration, initial value and method for manage strings in combo box application and global variable values assumed by specific probes. The app allows to compute thermal distribution of a SMD device for several geometrical and functional configurations. Users can set solder layer thickness, materials properties and dissipated thermal power. As result, junction temperature and junction-case thermal resistance are available.

Figures used in the abstract

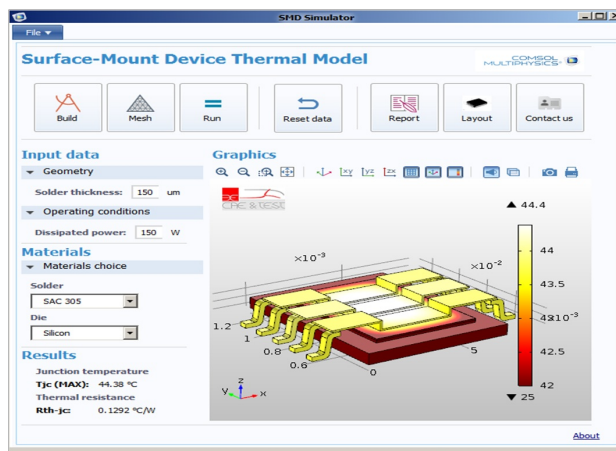


Figure 1: GUI snapshot of the app.