# FloTHERM® PACK Generates Optimized Thermal Models of SemiConductor Packages... Fast
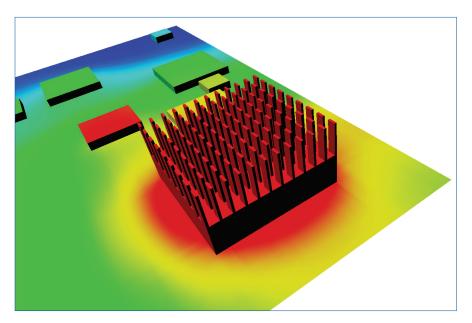
MECHANICAL ANALYSIS
Electronics Thermal
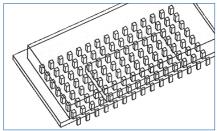
D A T A S H E E T

FloTHERM PACK (www.flothermpackcom) is a web-based software program which produces reliable, accurate thermal models of IC packages and associated parts with the minimum of effort.  Designed to fulfill the industrys need for a rapid response to innovations in packaging design, FloTHERM PACK is a web-based application that contains a parametrically-driven menu for each part type.  To take advantage of FloTHERM PACK, you use your standard web browser to enter data describing the IC package you want to use.  For example, if you want to build a model of a ball grid array (BGA) package, the typical data entry items would include: number of balls, substrate conductivity, die size, and substrate metal layer thickness and coverage.

If you don't have detailed information about the internal geometry of your part, the JEDEC Library SmartPart wizard in FloTHERM PACK lets you create "best guess" thermal models quickly and easily.  All you need to do is answer three or four questions about your component.  Utilizing built-in intelligent rules based on common industry design practices, the SmartPart wizard derives the rest of the information needed to generate the model.

FloTHERM PACK also enables you to preview models in 3-D to verify that your input parameters are correct.  After previewing, simply download the model to your local computer and drop it into your FloTHERM analysis model.

All of the capabilities in FloTHERM PACK means an enormous productivity boost for you.  Indeed you can cut your component modeling time by a factor of 20 or more! FloTHERM PACK does all the thinking required for model generation, freeing you to concentrate on optimizing your design. FloTHERM PACK supports just about all popular package styles in the industry including Ball Grid Arrays, Leaded packages, Pin Grid Arrays, Discrete Transistor Outline packages, Chip-Scale packages and Multi-Die packages.

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## Flexibility to Create Both Detailed and Compact Models

By default, FloTHERM PACK generates detailed models that include elements such as individual balls, individual thermal vias and metal layers in organic substrates. However, FloTHERM PACK also provides a variety of modeling options for each package, which allow you to simplify the detailed sub-models. For example, you may represent the effect of a ball grid array as an assembly of individual elements (more accurate but computationally expensive) or as a single block with lumped thermal properties.

Furthermore, FloTHERM PACK also allows you to generate compact models of your parts. Compact models are far more computationally efficient than detaile models, and are usually in the form of simple thermal resistance networks. FloTHERM PACK supports 2-resistor compact models as well as boundary condition independent, DELPHI-style compact models.

## A Product of 15 Years of R&D withLeading Component Makers

FloTHERM PACK is a direct outcome of Mentor Graphics, Mechanical Analysis' 15 years experience of working with the world's leading semiconductor component manufacturers. Mentor Graphics has published more than 50 papers and technical articles in the area of modeling IC packages in CFD, and teaches the industry's only comprehensive training course in this field. Moreover, Mentor Graphics, Mechanical Analysis was the coordinating partner of the EU funded projects DELPHI and SEED, which laid the foundation for many of the modeling methodologies embedded within FloTHERM PACK. No other software company can claim as much depth of experience and knowledge in this area as Mentor Graphics.
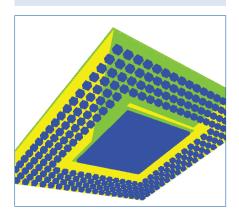
## Learn More about FloTHERM PACK

For further information, or to arrange a technical evaluation of FloTHERM PACK, please contact your nearest Mentor Graphics office. Existing Mentor Graphics, Mechanical Analysis customers can apply for a free 1 month trial by logging onto the FloTHERM PACK website, www.flothermpack.com

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