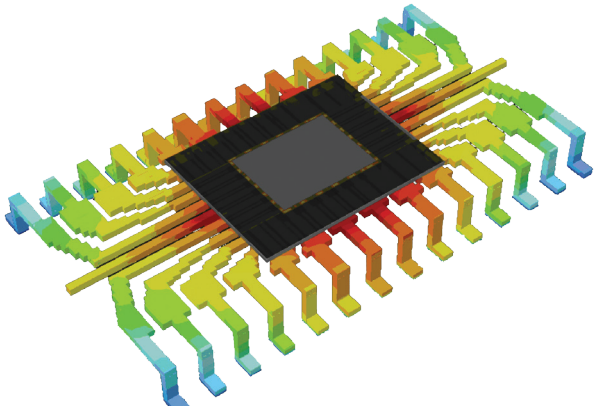
FloTHERM® IC



What is FloTHERM IC?

FloTHERM IC is a new software product from Mentor Graphics that incorporates a high level of automation for key tasks related to Semiconductor thermal characterization and design. An intuitive wizard-driven user interface, interoperability with package-level EDA tools, and enterprise-level data scalability and portability are the other key features of FloTHERM IC.

Built around FloTHERM® PACK, the well-established package smartpart technology, and the industry leader FloTHERM's CFD solver technology, FloTHERM IC greatly boosts productivity of thermal analysis in the Semiconductor industry.

FloTHERM IC vs. FloTHERM PACK

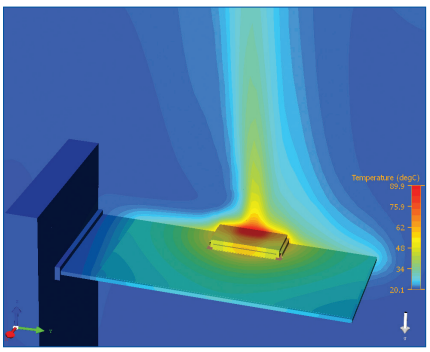
FloTHERM IC builds upon the proven FloTHERM PACK technology of SmartParts but extends it much further. Here is a comparison of FloTHERM PACK and FloTHERM IC features:

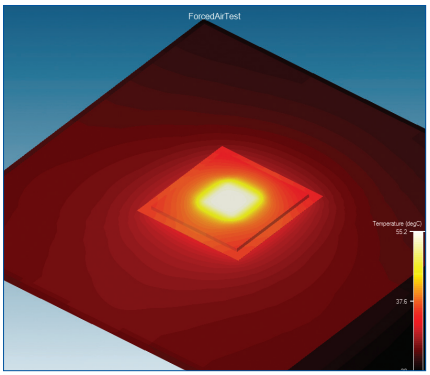
Features	FloTHERM IC	FloTHERM PACK
Wizard-driven Interface	Y	Y
Model Preview	Y	Y
Detailed Models	Y	Y
Compact Models	Y	Y
JEDEC θ_{JX}/Ψ_{JX} Metrics	Y	-
CFD Solver	Y	-
Batch Characterization	Y	-
In-Built Design Parametrics	Y	-
Interface with Cadence APD	Y	-
Searchable Results Database	Y	-
Libraries for Package Elements	Y	-

Comparing FloTHERM IC with FloTHERM PACK

FEATURES AND BENEFITS:

- Extensive Package Catalogue
- Part Definition Imported from Package-Level EDA Software
- Part Definition Driven by SmartPart Wizard
- Automated Generation of JEDEC Thermal Metrics
- Automated Compact Thermal Model Creation
- Sensitivity Analysis Capability
- Searchable Results Database
- Libraries
- Continuous Update of Package Models





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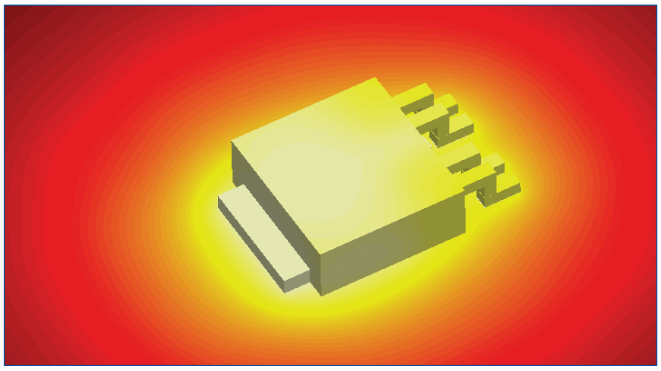

Who Can Use FloTHERM IC?

FloTHERM IC is designed to be used by all those involved in the thermal design and characterization of Semiconductor packages.

How Does FloTHERM IC Save My Company Money?

Mentor Graphics' research reveals that a typical Semiconductor thermal group spends approximately 60% of its time on standard package thermal characterization and design and the rest on customer specific simulations. FloTHERM IC drastically reduces the time spent on standard package thermal characterization and design, and saves around 25% of the time spent on customer-specific work. To see the savings for your group use the Return-on-Investment calculator below.

Beyond the financial benefits, FloTHERM IC also enhances the quality, reliability and availability of package thermal models by providing a fast, simple, proven, automated process, reducing the risk of modeling errors.

FloTHERM IC ROI Calculator	Typical Group	Your Group
Number of engineers in group (a)	3	
Personnel cost per engineer, excluding overheads (b)	$125,000	
% time on std. characterization/design (c)	60	
% time on customer-specific work [100-c] (d)	40	
Saving on std. characterization/design [80%*a*b*c]	$180,000	
Saving on customer-specific work [25%*a*b*d]	$37,500	
Total Savings per year from FloTHERM IC	$217,500	

FLOTHERM IC – KEY FEATURES

Extensive Package Catalogue

- More than 40 package families supported: BGAs (wire-bonded and flip-chip), CSPs, QFN, MicroBGATM, MicroStar BGATM, QFPs, PLCCs, TSOPs, etc., TOs, DPAKs, D2PAKs, SOTs, etc. plus stacked-die.

Part Definition Imported from Package-Level EDA Software

- Import entire substrate designs from Cadence APD. An intelligent wizard helps select the appropriate package family and populate the relevant data sheet, automating model creation.

Part Definition Driven by SmartPart Wizard

- Used in the initial, conceptual stages of the design when physical layout data may not be available, generating a representative model from high-level inputs such as the JEDEC outline, pincount, and power.

Automated generation of JEDEC Thermal Metrics

- FloTHERM IC allows a wizard-driven automatic generation of the complete set of JEDEC thermal data metrics for a single package or multiple packages in batch on standard and user-defined test PCBs with FloTHERM IC's powerful CFD solver technology. Metrics supported include θ_{JA}, θ_{JMA} (at various flow rates), Ψ_{JT}, Ψ_{JB}, Ψ_{JP}, θ_{JB}, θ_{JC}.

Automated Compact Thermal Model Creation

- Two-resistor (2-R) and DELPHI compact thermal models for single or multiple packages.

Sensitivity Analysis Capability

- Investigate the influence of key package parameters such as die size, power, die attach conductivity, lead pitch etc. on any JEDEC metric or compact model in just a few mouse clicks.

Searchable Results Database

- Use the advanced Results Database to select the optimal starting point for a new package design from your previous solutions.

Libraries

- Package constituents such as die, die attach, die attach pad, substrate, leadframe, lid etc. can be stored as separate library items, greatly speeding new package creation.

Continuous Update of Package Models

- The range of supported packages is continuously updated to capture rapid advances in packaging technology, e.g. System-in-Package (SiP) and stacked-die.

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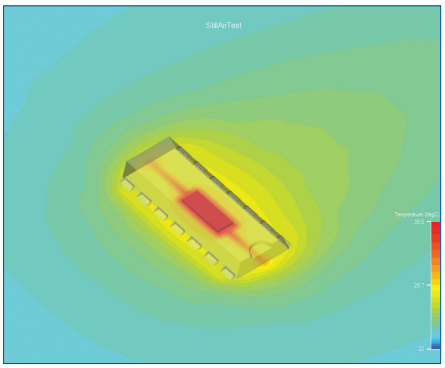
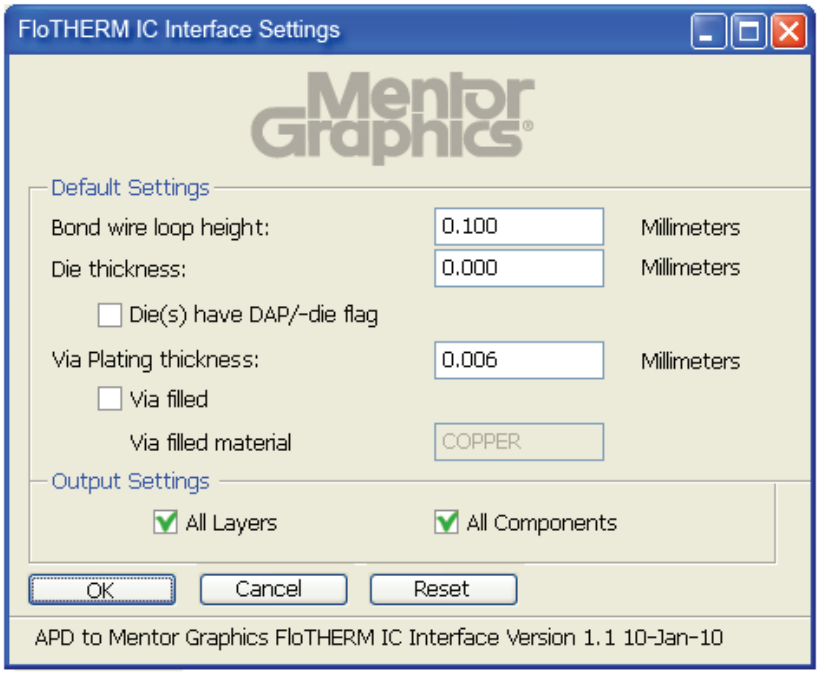
Results Visualization

FloTHERM IC allows the export of all metrics data as Excel-compatible CSV files. Detailed and Compact models can be exported into FloTHERM or FloTHERM® PCB. Vector plots, fill plots and animations of results can be generated using the Stand-Alone Visual Editor module included with a FloTHERM IC License.



Product Configuration

FloTHERM IC is currently available as a web-based product at www.flotherm-ic.com



For the latest product information, call us or visit: www.mentor.com/mechanical

Corporate Headquarters
Mentor Graphics Corporation
8005 SW Boeckman Road
Wilsonville, OR 97070-7777
Phone: 503.685.7000
Fax: 503.685.1204

Sales and Product Information
Phone: 800.547.3000
sales_info@mentor.com

Visit www.mentor.com/company/office_locations/ for the list of Mechanical Analysis Division Offices

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