

ISSUE: [July 2026](#)

Magnetics Design Platform Supports Planar Transformers And Thermal Modeling

[Frenetic Electronics](#)' Frenetic Planar is a planar magnetics design and simulation tool that is said to combine the speed of analytical models with the accuracy of finite element tools. This planar tool is a new feature of the company's web-based custom magnetics design platform, Frenetic Simulator (see the figure).

The company has also added thermal modeling features to address challenges in the automotive sector where thermal constraints and power density are becoming increasingly demanding. The new capabilities are potting simulation and liquid-cooling-plate modeling.

As power electronics systems move toward higher switching frequencies and more compact, integrated designs, planar magnetics are becoming increasingly common, yet also significantly more complex to design due to parasitics, thermal constraints, and integration requirements.

Chema Molina, founder and CEO of Frenetic explains, "The challenge was not only to enable planar magnetics design and simulation, but to do so while maintaining the level of accuracy engineers expect. Frenetic Planar—our design and simulation tool—addresses this by combining the accuracy typically associated with finite element method (FEM) approaches with the speed of its proprietary analytical models. This allows engineers to quickly explore and validate designs with an average of ~94% accuracy in just a few minutes, enabling significantly faster iterations compared to traditional workflows. We introduced this function to our customers at the end of last year and already around 80% are using it."

According to the company, Frenetic Simulator is used across multiple industries, including automotive, aerospace and data centers, each with very different constraints. Rather than building generic features, Frenetic is evolving its platform by working closely with these industries and understanding how magnetic design challenges differ across applications.

The potting simulation capability allows automotive engineers to account for the thermal and electromagnetic impact of resin materials surrounding the transformer, which can significantly affect component behaviour. And cooling plate/liquid cooling support enables the modeling of metallic cooling structures integrated into the transformer and connected to liquid cooling systems, a growing requirement in high-power automotive applications.

Molina continues, "These developments respond to real challenges faced by engineers designing high-performance magnetic components for next-generation power electronics systems. But our evolving capabilities are not developed in isolation, they originate from a growing demand among Frenetic's customers. Looking ahead, Frenetic will continue to evolve its platform around the foundations already described: closer collaboration with industry, faster and more accurate design capabilities, and the integration of AI to support early-stage engineering decisions."

For more information see the [Frenetic Planar](#) and [Frenetic Simulator](#) pages.

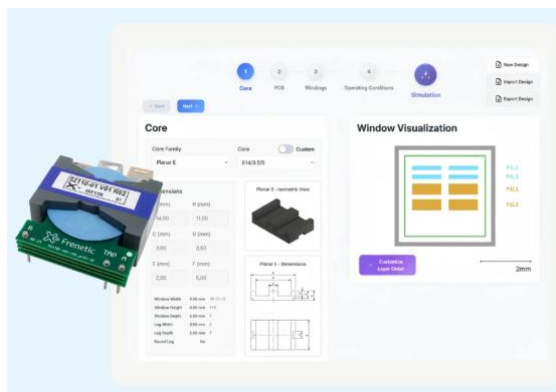


Figure. Frenetic Planar enables users to design, specify, and simulate custom planar transformers with automated FEM-based validation in minutes, not hours. According to the company designers can quickly explore and validate designs with an average of ~94% accuracy.