Standex Electronics®

Thought Leadership

Planar Magnetics

PARTNER | SOLVE | DELIVER®

Ben Guggenbiller
Director of Product Management

Interview
Planar Magnetics

Opening

Tell me about Standex Electronics, the company

Standex Electronics is a division of Standex International, a $1B publicly traded company. Our engineering headquarters are based in Cincinnati, OH but we rely on several design and manufacturing locations across the globe to better serve our customers. This combination has worked well for us and allows us to have global reach in the options we can provide while retaining a local touch in how we do business.

What's your role, and impact you drive for the business?

My role as a Director of Product Management is focused on understanding our customer's needs and making sure this guides our organization's strategy and day-to-day work. It's a role that allows me to wear several different hats and allow me to help Standex grow by enabling our customers to grow.

What makes your company unique compared to competition

At Standex, our approach to design and manufacturing is different than our competitors. We seek out challenging applications and customers who are pushing the envelope. More often than not, these opportunities allow us to truly partner with the customer and help develop something remarkable to solve the issue their facing.

Additionally, the breadth and depth of our skill set is unmatched by our competitors. No other electronics manufacturer has the capability to design, validate and manufacturer sensors, transformers, inductors, relays, and switches as part of their product line. As a result, we have a diverse toolkit to select from when tackling a new challenge. Not only are we able to optimize electrical performance, but we have unique capabilities around mechanical performance, including industry leading experience with potting, packaging and thermal solutions.

What stands out about Standex to you?

Standex brings a level of creativity to their problem solving that I think is unparalleled. In my experience, most organizations are unwilling to step outside of their comfort zone very often. At Standex, we're always looking to leverage our existing skills in new ways or seeking out new opportunities to learn. The fact that innovation is fostered within Standex is important because demanding problems often require creative solutions.

What are your favorite elements of working with Standex, and the business overall?

I'm excited by the variety of applications I am exposed to within my role. The customers I have the opportunity to work alongside are designing products for aerospace, medical, electric vehicle and smart grid applications. Knowing that I'm able to help make the world around me a better place through the products we support is very fulfilling.

Planar Magnetics

Tell me about planar magnetics

Standex is one of the top manufacturers of planar transformers and inductors in the world. Most transformers and inductors traditionally are manufactured by wrapping magnet or litz wire around a core. Instead of manual windings, planar transformers utilize thin plates of copper or printed circuit boards that are embedded within the core. In addition to a smaller overall footprint, this allows for the windings to be closely stacked together which allows for a better utilization of the winding window, lower leakage inductance and more consistent magnetic parameters.

What does it do, and what are its benefits and features?

Planar transformers and inductors are used in a similar manner to conventional wire wound magnetics – they step up, step down, or rectify input voltage to a desired output voltage. The difference and benefits that planar magnetics provide stem from how they are designed and manufactured.

Since planar transformers are constructed by stacking windings together as opposed to manual windings, part to part variation is greatly reduced. This makes planar magnetics inherently more repeatable, which is ideal for applications that demand the most robust solution available.

As the winding window is used more efficiently, the footprint for a planar transformer is much smaller when compared to a traditional wire wound transformer. This makes planar magnetics a good fit for applications where size and weight are critical parameters to minimize.

Also, because the windings are better utilized, a planar transformer is typically able to achieve higher component efficiencies without extra material content typically seen in wire wound transformers. This benefit is particularly important in applications dealing with higher power ranges, as planar designs can yield over 99% efficiency without significantly increasing material costs.

As planar magnetic designs consist of tightly stacked materials, it is relatively easy to draw heat out of the part via conduction, either with a dedicated heat sink or cold plate. This allows planar designs stays cool in systems that would make alternative designs run over temperature.

Why did this product come about, and why should the market care?

Planar magnetics were originally created to help address the demands of military and aerospace applications which require high reliability while minimizing weight and component footprint. Many planar designs have been used in these demanding applications for years which has helps demonstrate that planar is a robust technology, well suited for applications that are pushing the envelope.

What did it take to create this product, such as engineering, design, tooling, testing…?

Although every planar transformer Standex manufacturers follows a similar design and manufacturing process, each design is tailored to meet the specific performance targets of our customers. This bespoke approach allows us to meet and optimize around critical requirements that our customers have had difficulty meeting with alternative designs.

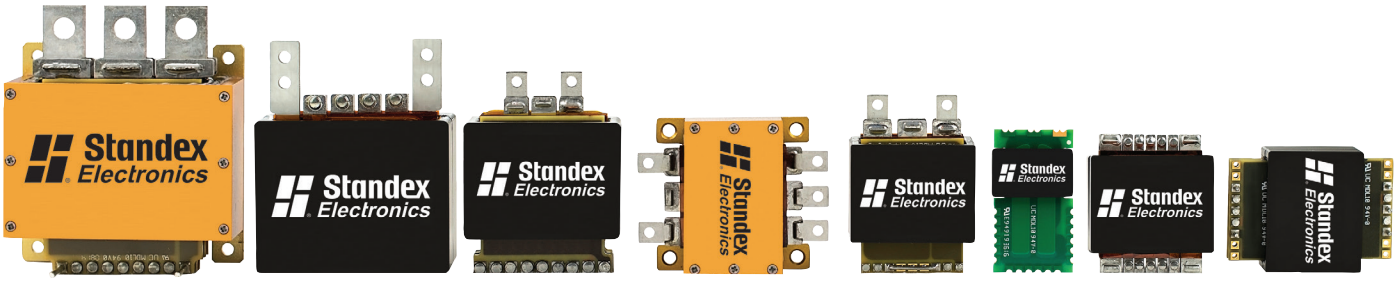
Despite planar magnetics having been around for several years, few magnetics manufacturers are capable to offer the technology. The difficulty our competitors seem to have isn't with tooling or manufacturing planar transformers, but with the underlying calculations that go into each design. Our planar designs are highly complex and few other magnetics manufacturers have the experience, tools, or sophistication to develop these types of designs.

Where do you see this technology and product going from an innovation standpoint, and in the future?

Although planar originated as an innovation optimized for aerospace, we've seen recent demand coming from applications involving high power and high efficiency. These applications include industrial equipment, electric vehicles, and energy storage equipment – applications where uptime is still a critical requirement but where efficiency and thermal solutions become much more important. My suspicion is that as these applications continue to grow in importance, our future innovations with planar technology will be focused to support their need for higher power, higher frequency, higher efficiency solutions.

How can someone get in touch with Standex and buy this product, or have a discussion of if it's a fit?

Our sales team is always ready to help answer your questions or help you solve the issues you're facing. The easiest way to reach out is to navigate to the Standex Electronics website and fill out a request form. This will help us gather the info you're looking for so we can start the conversation with you.



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